



# Series SY3000/5000/7000/9000 Body Ported Valve Single Unit

## How to Order

**SY 5 1 20** — **5 L** — **01**

**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |
| 9 | SY9000 |

**Type of actuation**

|   |   |
|---|---|
| 1 | 2 position single<br>(A)(B)<br>(EA)(P)(EB)          |
| 2 | 2 position double<br>(A)(B)<br>(EA)(P)(EB)          |
| 3 | 3 position closed center<br>(A)(B)<br>(EA)(P)(EB)   |
| 4 | 3 position exhaust center<br>(A)(B)<br>(EA)(P)(EB)  |
| 5 | 3 position pressure center<br>(A)(B)<br>(EA)(P)(EB) |

**Coil specifications**

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

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

**Rated voltage**

**DC**

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

**AC (50/60Hz)**

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

\* DC specifications of type "D" and "DO" is only available with 12 and 24 VDC.  
\* For type "W□", DC voltage is only available.

**Electrical entry**

| 24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC |                                   |                                   |                       | 24, 12 VDC/<br>100, 110, 200, 220 VAC |
|--|-----------------------------------|-----------------------------------|-----------------------|---------------------------------------|
| Grommet                                    | L plug connector                  | M plug connector                  | MN: Without lead wire | DIN terminal                          |
| G: Lead wire length 300 mm                 | L: With lead wire (Length 300 mm) | M: With lead wire (Length 300 mm) | MN: Without lead wire |                                       |
| H: Lead wire length 600 mm                 | LN: Without lead wire             | LO: Without connector             | MO: Without connector | DO: Without connector                 |

**24, 12, 6, 5, 3 VDC**

**M8 connector**

WO: Without connector cable

\* "LN", "MN" type: with 2 sockets.  
\* For DIN terminal of SY3000 series, refer to page 1-4-207.  
\* DIN terminal type "Y" conforming to DIN 43650C is available, too. For details, refer to page 1-4-201.  
\* For connector cable of M8 connector, refer to page 1-4-209.

**A, B port size Thread piping**

| Symbol | Port size | Applicable series |
|--------|-----------|-------------------|
| M5     | M5 x 0.8  | SY3000            |
| O1     | 1/8       | SY5000            |
| O2     | 1/4       | SY7000            |
| O2     | 1/4       | SY9000            |
| O3     | 3/8       |                   |

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

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

**One-touch fitting (Inch size)**

| Symbol | Port size                     | Applicable series |
|--------|-------------------------------|-------------------|
| N3     | One-touch fitting for ø 5/32" | SY3000            |
| N7     | One-touch fitting for ø 1/4"  |                   |
| N3     | One-touch fitting for ø 5/32" | SY5000            |
| N7     | One-touch fitting for ø 1/4"  |                   |
| N9     | One-touch fitting for ø 5/16" | SY7000            |
| N9     | One-touch fitting for ø 5/16" |                   |
| N11    | One-touch fitting for ø 3/8"  | SY9000            |
| N9     | One-touch fitting for ø 5/16" |                   |
| N11    | One-touch fitting for ø 3/8"  |                   |

**Bracket**

Nil: Without bracket  
F1: With foot bracket (2 position single only)  
F2: With side bracket

\* SY9000 has no bracket.

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**Manual override**

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

**Light/Surge voltage suppressor**

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

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

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

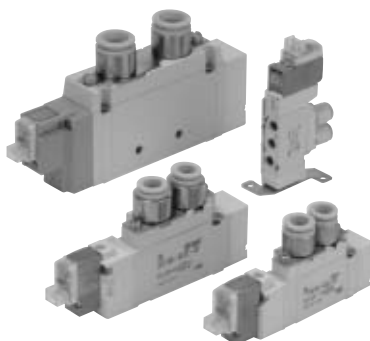
**Electrical entry for D**

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

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

Note) When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to catalog on page 1-4-61.)

### Specifications



| Series  |                           | SY3000  | SY5000 | SY7000 | SY9000 |
|---|---------------------------|---|--------|--------|--------|
| Fluid   |                           | Air   |        |        |        |
| Internal pilot  | 2 position single         | 0.15 to 0.7   |        |        |        |
| Operating pressure range (MPa)                                      | 2 position double         | 0.1 to 0.7  |        |        |        |
|   | 3 position                | 0.2 to 0.7  |        |        |        |
| Ambient and fluid temperature (°C)                                  |                           | -10 to 50 (No freezing. Refer to page 1-7-5.)                                       |        |        |        |
| Max. operating frequency (Hz)                                       | 2 position single, double | 10  | 5      | 5      | 5      |
|   | 3 position                | 3   | 3      | 3      | 3      |
| Manual override (Manual operation)                                  |                           | Non-locking push type, Push-turn locking slotted type, Push-turn locking lever type |        |        |        |
| Pilot exhaust method  |                           | Common exhaust type for main and pilot valve  |        |        |        |
| Lubrication   |                           | Not required  |        |        |        |
| Mounting orientation  |                           | Unrestricted  |        |        |        |
| Impact/Vibration resistance (m/s <sup>2</sup> ) <small>Note</small> |                           | 150/30  |        |        |        |
| Enclosure   |                           | Dustproof (* DIN terminal, M8 connector conforms to IP65)                           |        |        |        |

\* Based on IEC529)  
 Note) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)  
 Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

SV  
 SZ  
 SY  
 SYJ  
 SX

**Made to Order** Made to Order Specifications  
 (For details, refer to pages 1-4-188 to 202.)

### Solenoid Specifications

|                                   |             |  |  |
|-----------------------------------|-------------|--|--|
| Electrical entry                  |             | Grommet (G), (H)<br>L plug connector (L)<br>M plug connector (M)   | DIN terminal (D)<br>M8 connector (W)                                     |
| Coil rated voltage (V)            | DC          | 24, 12, 6, 5, 3  |  |
|                                   | AC 50/60 Hz | 100, 110, 200, 220*  |  |
| Allowable voltage fluctuation (%) |             | ±10% of rated voltage  |  |
| Power consumption (W)             | DC          | Standard   | 0.35 (With indicator light: 0.4 DIN terminal with indicator light: 0.45) |
|                                   |             | With power saving circuit  | 0.1 (With indicator light only)  |
| Apparent power (VA)               | AC          | 100 V  | 1.4 (With indicator light: 1.5)  |
|                                   |             | 110 V  | 1.6 (With indicator light: 1.7)  |
|                                   |             | [115 V]  | [1.7 (With indicator light: 1.8)]  |
|                                   |             | 200 V  | 2.3 (With indicator light: 2.4)  |
|                                   |             | 220 V<br>[230 V]   | 2.5 (With indicator light: 2.6)<br>[2.7 (With indicator light: 2.8)]     |
| Surge voltage suppressor          |             | Diode (DIN terminal is ZNR. G, L or M (Non-polar) is zener diode.) |  |
| Indicator light                   |             | LED  |  |

\* In common between 110 VAC and 115 VAC, and between 220 VAC and 230 VAC.  
 \* For 115 VAC and 230 VAC, the allowable voltage is -15% to +5% of rated voltage.

### Response Time

Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage, without surge suppressor)

#### SY3000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|---|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |   | Type S, Z                           | Type R, U  |
| 2 position single | 12 or less                                      | 15 or less                          | 12 or less |
| 2 position double | 10 or less                                      | 13 or less                          | 10 or less |
| 3 position        | 15 or less                                      | 20 or less                          | 16 or less |

#### SY5000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|---|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |   | Type S, Z                           | Type R, U  |
| 2 position single | 19 or less                                      | 26 or less                          | 19 or less |
| 2 position double | 18 or less                                      | 22 or less                          | 18 or less |
| 3 position        | 32 or less                                      | 38 or less                          | 32 or less |

#### SY7000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|---|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |   | Type S, Z                           | Type R, U  |
| 2 position single | 31 or less                                      | 38 or less                          | 33 or less |
| 2 position double | 27 or less                                      | 30 or less                          | 28 or less |
| 3 position        | 50 or less                                      | 56 or less                          | 50 or less |

#### SY9000

| Type of actuation | Response time (ms) (at the pressure of 0.5 MPa) |                                     |            |
|-------------------|---|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor          | With light/surge voltage suppressor |            |
|                   |   | Type S, Z                           | Type R, U  |
| 2 position single | 35 or less                                      | 41 or less                          | 35 or less |
| 2 position double | 35 or less                                      | 41 or less                          | 35 or less |
| 3 position        | 62 or less                                      | 64 or less                          | 62 or less |

Series SY3000/5000/7000/9000

Flow Characteristics/Weight

Series SY3000

| Valve model     | Type of actuation |                | Port size                  |                                  | Flow characteristics |                            |   |                     |  |  | Weight (g) |                           |                      |
|-----------------|-------------------|----------------|----------------------------|----------------------------------|----------------------|----------------------------|---|---------------------|--|--|------------|---------------------------|----------------------|
|                 |                   |                | 1, 5, 3<br>(P, EA, EB)     | 4, 2<br>(A, B)                   | 1→4/2 (P→A/B)        |                            |   | 4/2→5/3 (A/B→EA/EB) |  |  | Grommet    | L, M<br>plug<br>connector | W<br>M8<br>connector |
|                 |                   |                | C (dm <sup>3</sup> /s-bar) | b                                | Cv                   | C (dm <sup>3</sup> /s-bar) | b | Cv                  |  |  |            |                           |                      |
| SY3□20<br>-□-M5 | 2 position        | Single         | M5 x 0.8                   |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
| SY3□20<br>-□-C4 | 2 position        | Single         | M5 x 0.8                   | C4<br>(One-touch fitting for ø4) |                      |                            |   |                     |  |  |            |                           |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
| SY3□20<br>-□-C6 | 2 position        | Single         | M5 x 0.8                   | C6<br>(One-touch fitting for ø6) |                      |                            |   |                     |  |  |            |                           |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                      |

Note [ ] : Denotes normal position.

Series SY7000

| Valve model      | Type of actuation |                | Port size                  |                                    | Flow characteristics |                            |   |                     |  |  | Weight (g) |                           |                 |                      |
|------------------|-------------------|----------------|----------------------------|------------------------------------|----------------------|----------------------------|---|---------------------|--|--|------------|---------------------------|-----------------|----------------------|
|                  |                   |                | 1, 5, 3<br>(P, EA, EB)     | 4, 2<br>(A, B)                     | 1→4/2 (P→A/B)        |                            |   | 4/2→5/3 (A/B→EA/EB) |  |  | Grommet    | L, M<br>plug<br>connector | DIN<br>terminal | W<br>M8<br>connector |
|                  |                   |                | C (dm <sup>3</sup> /s-bar) | b                                  | Cv                   | C (dm <sup>3</sup> /s-bar) | b | Cv                  |  |  |            |                           |                 |                      |
| SY7□20<br>-□-02  | 2 position        | Single         | 1/4                        |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY7□20<br>-□-C8  | 2 position        | Single         | 1/4                        | C8<br>(One-touch fitting for ø8)   |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY7□20<br>-□-C10 | 2 position        | Single         | 1/4                        | C10<br>(One-touch fitting for ø10) |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |

Note [ ] : Denotes normal position.

Series SY5000

| Valve model     | Type of actuation |                | Port size                  |                                  | Flow characteristics |                            |   |                     |  |  | Weight (g) |                           |                 |                      |
|-----------------|-------------------|----------------|----------------------------|----------------------------------|----------------------|----------------------------|---|---------------------|--|--|------------|---------------------------|-----------------|----------------------|
|                 |                   |                | 1, 5, 3<br>(P, EA, EB)     | 4, 2<br>(A, B)                   | 1→4/2 (P→A/B)        |                            |   | 4/2→5/3 (A/B→EA/EB) |  |  | Grommet    | L, M<br>plug<br>connector | DIN<br>terminal | W<br>M8<br>connector |
|                 |                   |                | C (dm <sup>3</sup> /s-bar) | b                                | Cv                   | C (dm <sup>3</sup> /s-bar) | b | Cv                  |  |  |            |                           |                 |                      |
| SY5□20<br>-□-01 | 2 position        | Single         | 1/8                        |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY5□20<br>-□-C4 | 2 position        | Single         | 1/8                        | C4<br>(One-touch fitting for ø4) |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY5□20<br>-□-C6 | 2 position        | Single         | 1/8                        | C6<br>(One-touch fitting for ø6) |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY5□20<br>-□-C8 | 2 position        | Single         | 1/8                        | C8<br>(One-touch fitting for ø8) |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Double         |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 | 3 position        | Closed center  |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                 |                   | Exhaust center |                            |                                  |                      |                            |   |                     |  |  |            |                           |                 |                      |

Note [ ] : Denotes normal position.

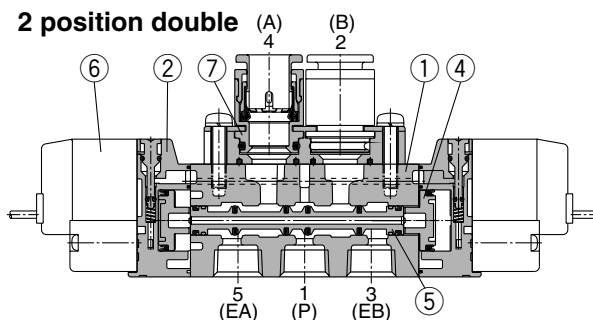
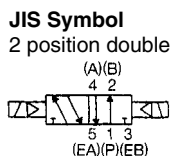
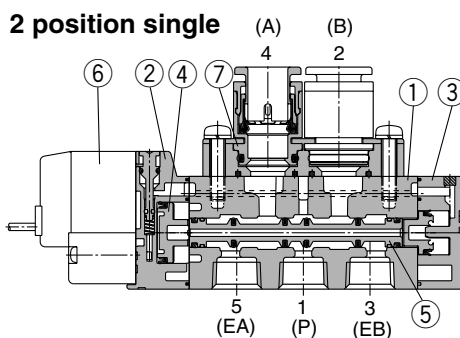
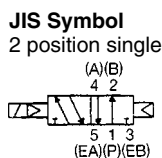
Series SY9000

| Valve model      | Type of actuation |                | Port size                  |                                    | Flow characteristics |                            |   |                     |  |  | Weight (g) |                           |                 |                      |
|------------------|-------------------|----------------|----------------------------|------------------------------------|----------------------|----------------------------|---|---------------------|--|--|------------|---------------------------|-----------------|----------------------|
|                  |                   |                | 1, 5, 3<br>(P, EA, EB)     | 4, 2<br>(A, B)                     | 1→4/2 (P→A/B)        |                            |   | 4/2→5/3 (A/B→EA/EB) |  |  | Grommet    | L, M<br>plug<br>connector | DIN<br>terminal | W<br>M8<br>connector |
|                  |                   |                | C (dm <sup>3</sup> /s-bar) | b                                  | Cv                   | C (dm <sup>3</sup> /s-bar) | b | Cv                  |  |  |            |                           |                 |                      |
| SY9□20<br>-□-02  | 2 position        | Single         | 1/4                        |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY9□20<br>-□-03  | 2 position        | Single         | 3/8                        |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY9□20<br>-□-C8  | 2 position        | Single         | 1/4                        | C8<br>(One-touch fitting for ø8)   |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY9□20<br>-□-C10 | 2 position        | Single         | 1/4                        | C10<br>(One-touch fitting for ø10) |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
| SY9□20<br>-□-C12 | 2 position        | Single         | 1/2                        | C12<br>(One-touch fitting for ø12) |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Double         |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  | 3 position        | Closed center  |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |
|                  |                   | Exhaust center |                            |                                    |                      |                            |   |                     |  |  |            |                           |                 |                      |

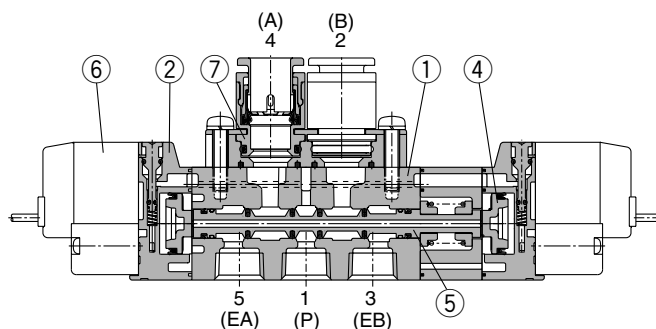
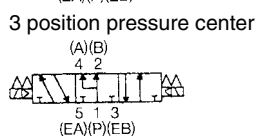
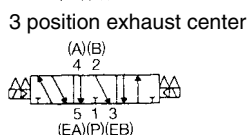
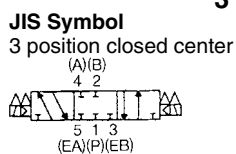
Note [ ] : Denotes normal position.

## Construction

### Series SY



### 3 position closed center/exhaust center/pressure center



(This figure shows a closed center type.)

### Component Parts

| No. | Description          | Material   | Note                    |
|-----|----------------------|--|-------------------------|
| ①   | Body                 | Aluminum die-casted<br>(SY3000: Zinc die-casted) | White                   |
| ②   | Adapter plate        | Resin  | White<br>(SY9000: Gray) |
| ③   | End plate            | Resin  | White                   |
| ④   | Piston               | Resin  | —                       |
| ⑤   | Spool valve assembly | Aluminum, HNBR                                   | —                       |

### Replacement Parts

| No. | Description            | Part no.   |
|-----|------------------------|--|
| ⑥   | Pilot valve assembly   | Refer to "How to Order Pilot Valve Assembly" on page 1-4-10. |
| ⑦   | M5 port block assembly | Refer to "How to Order Port Block Assembly" on page 1-4-11.  |

### Bracket Assembly Part No.

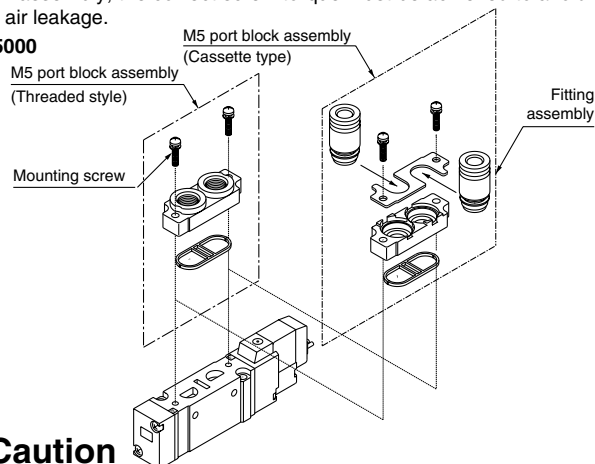
| Description      | part no.  |
|------------------|---|
| Bracket (For F1) | SX <sup>3</sup> 000-16-2A (with mounting screw) |
| Bracket (For F2) | SX <sup>3</sup> 000-16-1A (with mounting screw) |

\* SY9000 has no bracket.

### How to Change Port Block Assembly

If using body port type, both A and B port sizes can be changed by replacing the port block assembly mounted on the body. When changing this block assembly, the correct screw torque must be achieved to avoid possible air leakage.

For SY5000



### Caution

Mounting screw tightening torques

SY3000 (M2): 0.12 N·m  
SY<sup>5</sup>000 (M3): 0.6 N·m  
SY9000 (M4): 1.4 N·m

\* Refer to "How to Order Port Block Assembly" on page 1-4-11 for part no.

## How to Order Pilot Valve Assembly

## How to Order Connector Assembly for L/M Plug Connector

V111 5 G

### Coil specifications

|            |   |
|------------|---|
| <b>Nil</b> | Standard: DC specifications                     |
| <b>A</b>   | Standard: AC specifications                     |
| <b>T</b>   | With power saving circuit (24 VDC, 12 VDC only) |

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

### Rated voltage

|          |  |
|----------|--|
| <b>5</b> | 24 VDC   |
| <b>6</b> | 12 VDC   |
| <b>V</b> | 6 VDC  |
| <b>S</b> | 5 VDC  |
| <b>R</b> | 3 VDC  |
| <b>1</b> | 100 VDC <sup>50/60</sup> Hz                                  |
| <b>2</b> | 200 VAC <sup>50/60</sup> Hz                                  |
| <b>3</b> | 110 VAC <sup>50/60</sup> Hz<br>[115 VAC <sup>50/60</sup> Hz] |
| <b>4</b> | 220 VAC <sup>50/60</sup> Hz<br>[230 VAC <sup>50/60</sup> Hz] |

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

### Light/Surge voltage suppressor

|            |  |
|------------|--|
| <b>Nil</b> | Without light/surge voltage suppressor               |
| <b>S</b>   | With surge voltage suppressor                        |
| <b>Z</b>   | With light/surge voltage suppressor                  |
| <b>R</b>   | With surge voltage suppressor (Non-polar type)       |
| <b>U</b>   | With light/surge voltage suppressor (Non-polar type) |

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

### Electrical entry

|           |                                      |                   |
|-----------|--------------------------------------|-------------------|
| <b>G</b>  | Grommet, 300 mm lead wire            |                   |
| <b>H</b>  | Grommet, 600 mm lead wire            |                   |
| <b>L</b>  | L plug connector                     | With lead wire    |
| <b>LN</b> |                                      | Without lead wire |
| <b>LO</b> | Without connector                    |                   |
| <b>M</b>  | M plug connector                     | With lead wire    |
| <b>MN</b> |                                      | Without lead wire |
| <b>MO</b> |                                      | Without connector |
| <b>WO</b> | M8 connector Without connector cable |                   |

Note) For connector cable of M8 connector, refer to page 1-4-209.

For DC: **SY100-30-4A**

For 100 VAC: **SY100-30-1A**

For 200 VAC: **SY100-30-2A**

For other voltages of AC: **SY100-30-3A**

Without lead wire: **SY100-30-A**

(with connector and 2 of sockets only)

### Lead wire length

|            |         |
|------------|---------|
| <b>Nil</b> | 300 mm  |
| <b>6</b>   | 600 mm  |
| <b>10</b>  | 1000 mm |
| <b>15</b>  | 1500 mm |
| <b>20</b>  | 2000 mm |
| <b>25</b>  | 2500 mm |
| <b>30</b>  | 3000 mm |
| <b>50</b>  | 5000 mm |

## ■ DIN terminal type

V115 5 D

### Rated voltage

|          |  |
|----------|--|
| <b>5</b> | 24 VDC   |
| <b>6</b> | 12 VDC   |
| <b>1</b> | 100 VAC <sup>50/60</sup> Hz                                  |
| <b>2</b> | 200 VAC <sup>50/60</sup> Hz                                  |
| <b>3</b> | 110 VAC <sup>50/60</sup> Hz<br>[115 VAC <sup>50/60</sup> Hz] |
| <b>4</b> | 220 VAC <sup>50/60</sup> Hz<br>[230 VAC <sup>50/60</sup> Hz] |

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

### Light/Surge voltage suppressor

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

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

### Electrical entry

|           |              |                   |
|-----------|--------------|-------------------|
| <b>D</b>  | DIN terminal | With connector    |
| <b>DO</b> | terminal     | Without connector |

Note) Do not replace V111 (G, H, L, M) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

## How to Order M8 Connector Cable

### ■ Straight type

V100-49-1-□

### Cable length

|          |         |
|----------|---------|
| <b>1</b> | 300 mm  |
| <b>2</b> | 500 mm  |
| <b>3</b> | 1000 mm |
| <b>4</b> | 2000 mm |
| <b>7</b> | 5000 mm |

## How to Order Port Block Assembly

SY   000—6A—   

Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |
| 9 | SY9000 |

Thread type

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

A, B port size

Thread piping

| Symbol | Port size | Applicable series |
|--------|-----------|-------------------|
| M5     | M5 x 0.8  | SY3000            |
| 01     | 1/8       | SY5000            |
| 02     | 1/4       | SY7000            |
| 02     | 1/4       | SY9000            |
| 03     | 3/8       |                   |

One-touch fitting (Metric size)

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

One-touch fitting (Inch size)

| Symbol | Port size                     | Applicable series |
|--------|-------------------------------|-------------------|
| N3     | One-touch fitting for ø 5/32" | SY3000            |
| N7     | One-touch fitting for ø 1/4"  |                   |
| N3     | One-touch fitting for ø 5/32" | SY5000            |
| N7     | One-touch fitting for ø 1/4"  |                   |
| N9     | One-touch fitting for ø 5/16" | SY7000            |
| N9     | One-touch fitting for ø 5/16" |                   |
| N11    | One-touch fitting for ø 3/8"  | SY9000            |
| N9     | One-touch fitting for ø 5/16" |                   |
| N11    | One-touch fitting for ø 3/8"  |                   |

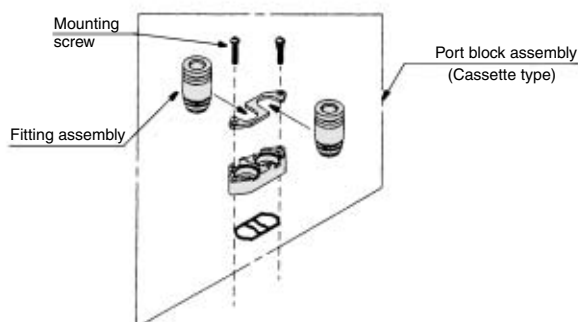
\* Only replacement of the fittings assembly is possible.

Metric size

|        |                           |                 |
|--------|---------------------------|-----------------|
| SY3000 | One-touch fitting for ø4  | VVQ1000-50A-C4  |
|        | One-touch fitting for ø6  | VVQ1000-50A-C6  |
| SY5000 | One-touch fitting for ø4  | VVQ1000-51A-C4  |
|        | One-touch fitting for ø6  | VVQ1000-51A-C6  |
|        | One-touch fitting for ø8  | VVQ1000-51A-C8  |
| SY7000 | One-touch fitting for ø8  | VVQ2000-51A-C8  |
|        | One-touch fitting for ø10 | VVQ2000-51A-C10 |
| SY9000 | One-touch fitting for ø8  | VVQ4000-50B-C8  |
|        | One-touch fitting for ø10 | VVQ4000-50B-C10 |
|        | One-touch fitting for ø12 | VVQ4000-50B-C12 |

Inch size

|        |                               |                 |
|--------|-------------------------------|-----------------|
| SY3000 | One-touch fitting for ø 5/32" | VVQ1000-50A-N3  |
|        | One-touch fitting for ø 1/4"  | VVQ1000-50A-N7  |
| SY5000 | One-touch fitting for ø 5/32" | VVQ1000-51A-N3  |
|        | One-touch fitting for ø 1/4"  | VVQ1000-51A-N7  |
|        | One-touch fitting for ø 5/16" | VVQ1000-51A-N9  |
| SY7000 | One-touch fitting for ø 5/16" | VVQ2000-51A-N9  |
|        | One-touch fitting for ø 3/8"  | VVQ2000-51A-N11 |
| SY9000 | One-touch fitting for ø 5/16" | VVQ4000-50B-N9  |
|        | One-touch fitting for ø 3/8"  | VVQ4000-50B-N11 |



SV

SZ

**SY**

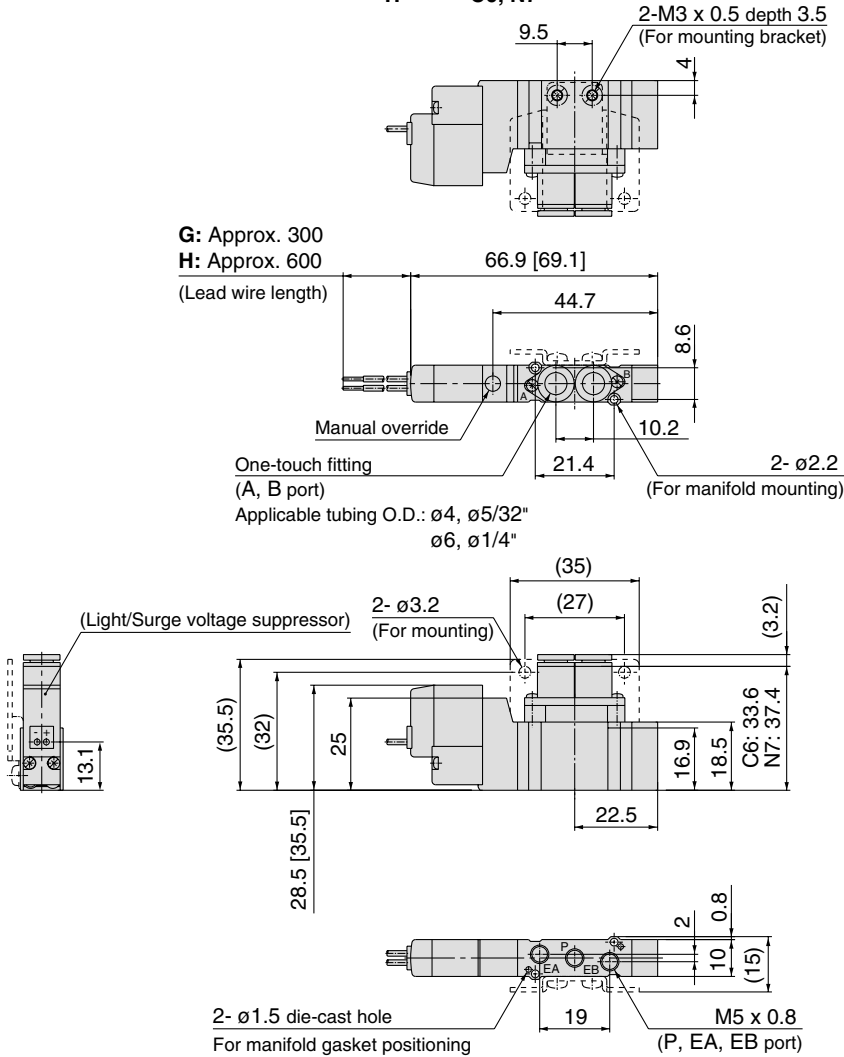
SYJ

SX

Dimensions: Series SY3000

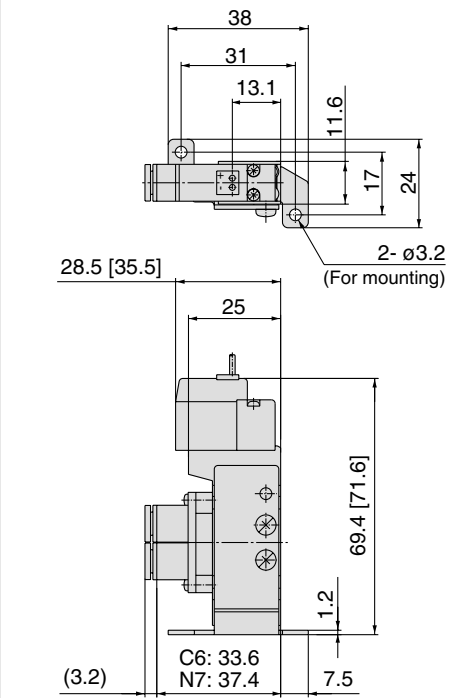
2 position single

Grommet (G), (H): SY3120-□<sup>G</sup>□□- C4, N3  
C6, N7(-F2)

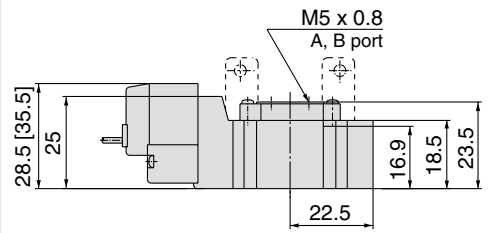


Foot bracket

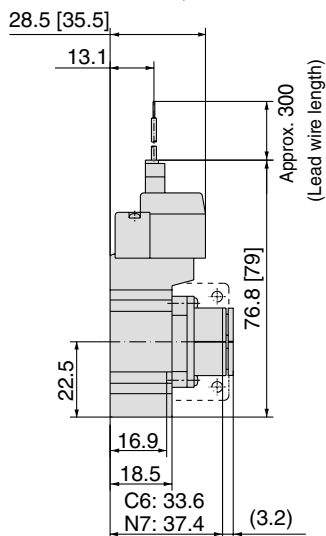
SY3120-□<sup>G</sup>□□- C4, N3  
C6, N7(-F1)



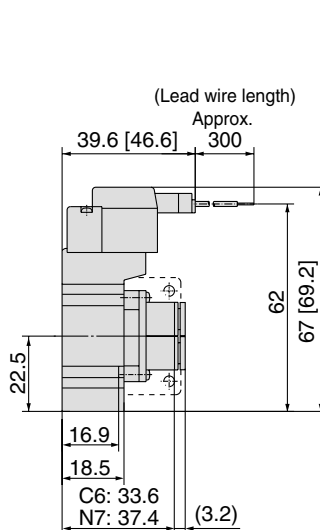
SY3120-□<sup>G</sup>□□-M5(-F2)



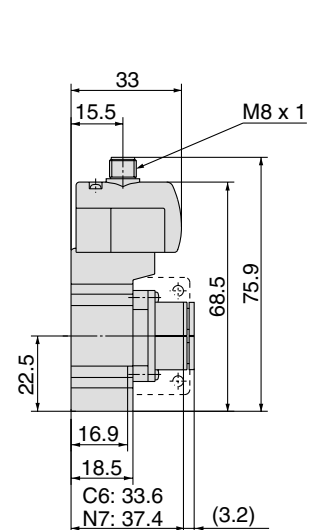
L plug connector (L):  
SY3120-□L□□- C4, N3  
C6, N7(-F1)



M plug connector (M):  
SY3120-□M□□- C4, N3  
C6, N7(-F1)



M8 connector (WO):  
SY3120-□WO□□- C4, N3  
C6, N7(-F1)



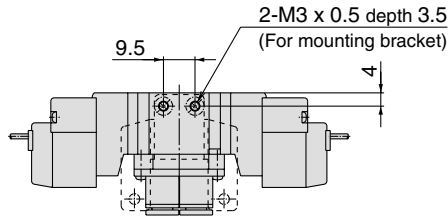
Note) Refer to page 1-4-210 for dimensions of connector types.

Dimensions: Series SY3000

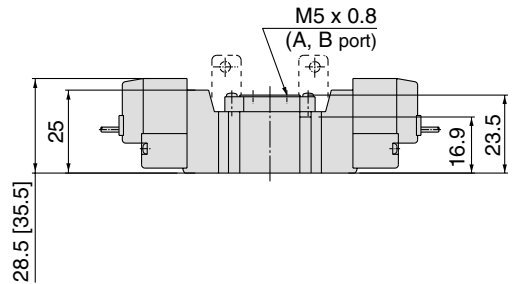


2 position double

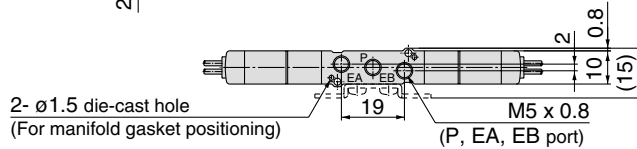
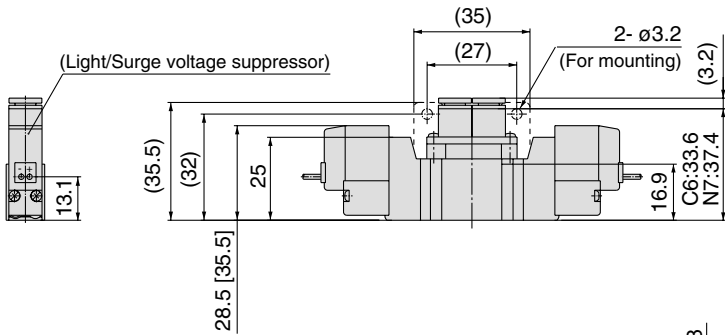
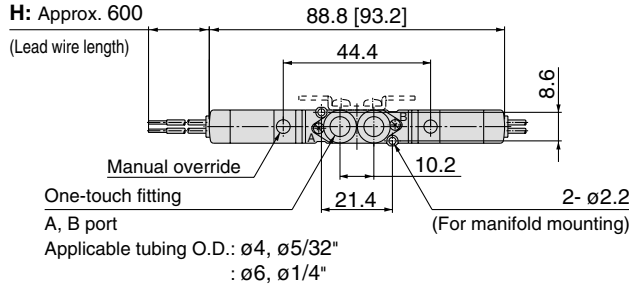
Grommet (G), (H): SY3220-□G□□-C4, N3  
C6, N7(-F2)



SY3220-□G□□-M5(-F2)

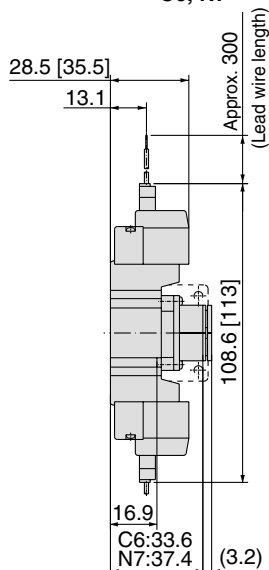


G: Approx. 300  
H: Approx. 600

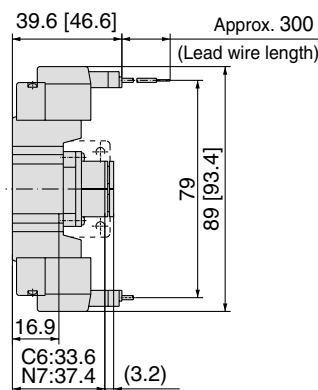


- SV
- SZ
- SY**
- SYJ
- SX

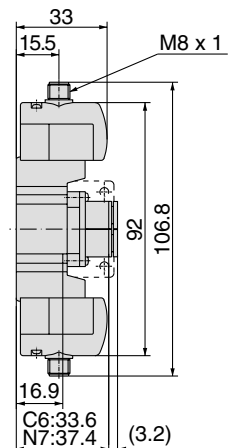
L plug connector (L):  
SY3220-□L□□-C4, N3  
C6, N7(-F1)



M plug connector (M):  
SY3220-□M□□-C4, N3  
C6, N7(-F1)



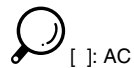
M8 connector (WO):  
SY3220-WO□□-C4, N3  
C6, N7(-F1)



Note) Refer to page 1-4-210 for dimensions of connector types.

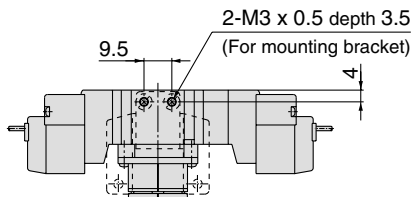


Dimensions: Series SY3000

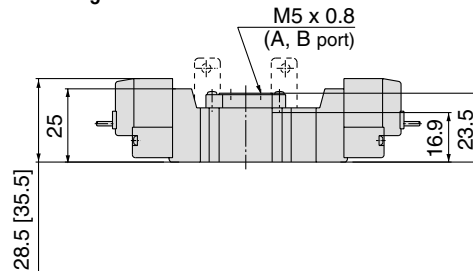


3 position closed center/exhaust center/pressure center

Grommet (G), (H): SY3<sup>3</sup>/<sub>5</sub>20-□G□□-C<sub>4</sub>, N<sub>3</sub>(-F2)  
C<sub>6</sub>, N<sub>7</sub>



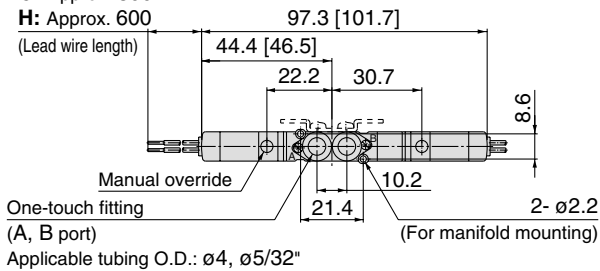
SY3<sup>3</sup>/<sub>5</sub>20-□H□□-M5(-F2)



G: Approx. 300

H: Approx. 600

(Lead wire length)



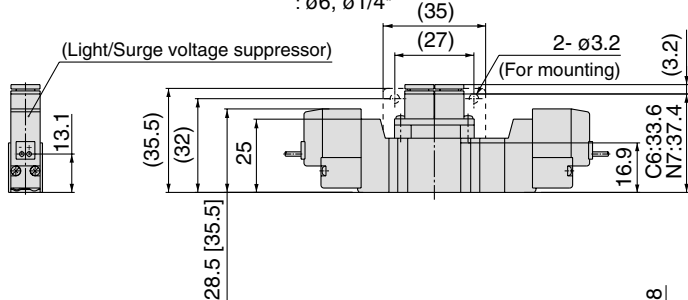
Manual override

One-touch fitting

(A, B port)

Applicable tubing O.D.: ø4, ø5/32"

: ø6, ø1/4"



(Light/Surge voltage suppressor)

(35)

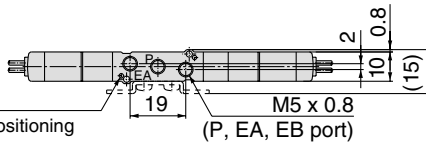
(27)

(For mounting)

(3.2)

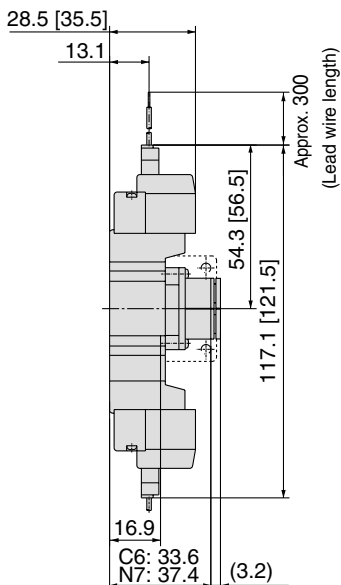
2-ø1.5 die-cast hole

For manifold gasket positioning



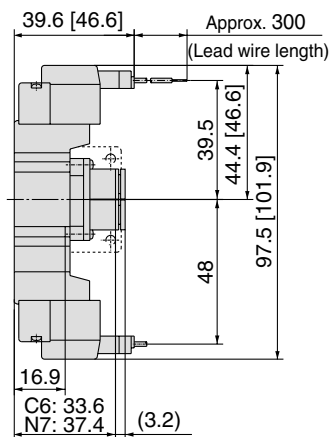
L plug connector (L):

SY3<sup>3</sup>/<sub>5</sub>20-□L□□-C<sub>4</sub>, N<sub>3</sub>(-F2)  
C<sub>6</sub>, N<sub>7</sub>



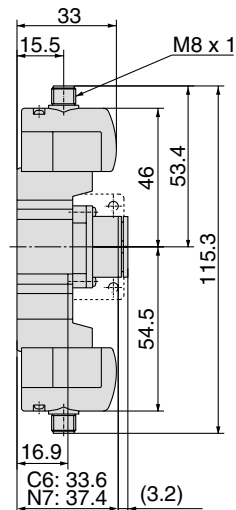
M plug connector (M):

SY3220-□M□□-C<sub>4</sub>, N<sub>3</sub>(-F2)  
C<sub>6</sub>, N<sub>7</sub>



M8 connector (WO):

SY3<sup>3</sup>/<sub>5</sub>20-□WO□□-C<sub>4</sub>, N<sub>3</sub>(-F2)  
C<sub>6</sub>, N<sub>7</sub>



Note) Refer to page 1-4-210 for dimensions of connector types.



# Series SY3000/5000/7000/9000 Base Mounted Valve Single Unit

## How to Order

**SY 5 2 40** **5 L**

**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |
| 7 | SY7000 |
| 9 | SY9000 |

**Type of actuation**

|   |                                |
|---|--------------------------------|
| 1 | 2 position single<br>          |
| 2 | 2 position double<br>          |
| 3 | 3 position closed center<br>   |
| 4 | 3 position exhaust center<br>  |
| 5 | 3 position pressure center<br> |

**Pilot type**

|     |                |
|-----|----------------|
| Nil | Internal pilot |
| R   | External pilot |

**Coil specifications**

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

**Rated voltage**

**DC**

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

**AC (50/60 Hz)**

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

**Port size**

| Symbol | Port size             | Applicable series |
|--------|-----------------------|-------------------|
| Nil    | Without sub-plate     |                   |
| 01     | 1/8<br>With sub-plate | SY3000            |
| 02     | 1/4<br>With sub-plate | SY5000<br>SY7000  |
| 03     | 3/8<br>With sub-plate | SY7000<br>SY9000  |
| 04     | 1/2<br>With sub-plate | SY9000            |

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**Manual override**

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

**(Light/Surge voltage suppressor)**

| Electrical entry for G, H, L, M, W |  | Electrical entry for D |  |
|------------------------------------|--|------------------------|--|
| Nil                                | Without light/surge voltage suppressor               | Nil                    | Without light/surge voltage suppressor               |
| S                                  | With surge voltage suppressor                        | S                      | With surge voltage suppressor (Non-polar type)       |
| Z                                  | With light/surge voltage suppressor                  | Z                      | With light/surge voltage suppressor (Non-polar type) |
| R                                  | With surge voltage suppressor (Non-polar type)       |                        |  |
| U                                  | With light/surge voltage suppressor (Non-polar type) |                        |  |

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

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

**Electrical entry**

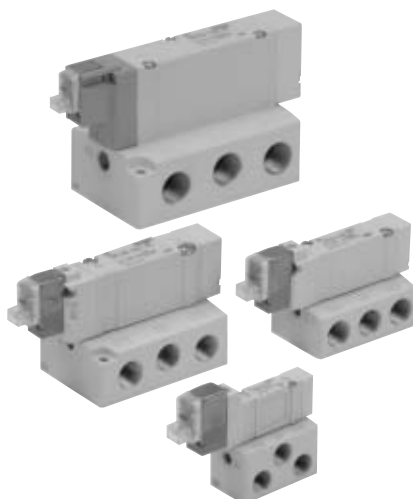
| 24, 12, 6, 5, 3 VDC / 100, 110, 200, 220 VAC |                                       |                                       |                           | 24, 12 VDC / 100, 110, 200, 220 VAC               | 24, 12, 6, 5, 3 VDC             |
|--|---------------------------------------|---------------------------------------|---------------------------|---|---------------------------------|
| Grommet                                      | L plug connector                      | M plug connector                      | MN: Without lead wire     | DIN terminal (Except SY3000)<br>D: With connector | M8 connector                    |
| G: Lead wire length 300 mm<br>               | L: With lead wire (Length 300 mm)<br> | M: With lead wire (Length 300 mm)<br> | MN: Without lead wire<br> | D: With connector<br>                             | WO: Without connector cable<br> |
| H: Lead wire length 600 mm<br>               | LN: Without lead wire<br>             | LO: Without connector<br>             | MO: Without connector<br> | DO: Without connector<br>                         |                                 |

\* "LN", "MN" type: with 2 sockets.  
\* For DIN terminal of SY3000 series, refer to page 1-4-207.  
\* DIN terminal type "Y" conforming to DIN43650C standard is also available. For details, refer to page 1-4-201.  
\* For connector cable of M8 connector, refer to page 1-4-210.

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

\* DC specifications of type "D" and "DO" is only available with 12 and 24 VDC.  
\* For type "W□", DC voltage is only available.

## Specifications



**Made to Order Specification**  
(For details, refer to pages 1-4-188 to 202.)

| Series   |                            | SY3000   | SY5000          | SY7000 | SY9000 |
|--|----------------------------|--|-----------------|--------|--------|
| Fluid  |                            | Air  |                 |        |        |
| Internal pilot<br>Operating pressure<br>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   |                 |        |        |
| External pilot<br>Operating pressure<br>range (MPa)              | Operating pressure range   |  | -100 kPa to 0.7 |        |        |
|  | Pilot<br>pressure<br>range | 2 position single  | 0.25 to 0.7     |        |        |
|  |                            | 2 position double  | 0.25 to 0.7     |        |        |
|  |                            | 3 position   | 0.25 to 0.7     |        |        |
| Ambient and fluid temperature (°C)                               |                            | -10 to 50 (No freezing. Refer to page 1-7-4.)  |                 |        |        |
| Max. operating<br>frequency (Hz)                                 | 2 position single, double  | 10   | 5               | 5      | 5      |
|  | 3 position                 | 3  | 3               | 3      | 3      |
| Manual override<br>(Manual operation)                            |                            | Non-locking push type,<br>Push-turn locking slotted type, Push-turn locking lever type |                 |        |        |
| Pilot exhaust method   | Internal pilot             | Common exhaust type for main and pilot valve   |                 |        |        |
|  | External pilot             | Pilot valve individual exhaust   |                 |        |        |
| Lubrication  |                            | Not required   |                 |        |        |
| Mounting orientation   |                            | Unrestricted   |                 |        |        |
| Impact/Vibration resistance (m/s <sup>2</sup> ) <sup>Note)</sup> |                            | 150/30   |                 |        |        |
| Enclosure  |                            | Dustproof (* DIN terminal, M8 connector conforms to IP65)                              |                 |        |        |



\* Based on IEC529)

Note) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

SV

SZ

SY

SYJ

SX

## Response Time



Note) Based on dynamic performance test, JIS B 8375-1981. (Coil temperature: 20°C, at rated voltage)

### SY3000

| Type of actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|-------------------|--|------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor             |            | With light/surge voltage suppressor |            |
|                   | Type S, Z  | Type R, U  | Type S, Z                           | Type R, U  |
| 2 position single | 12 or less   | 15 or less | 12 or less                          | 15 or less |
| 2 position double | 10 or less   | 13 or less | 10 or less                          | 13 or less |
| 3 position        | 15 or less   | 20 or less | 16 or less                          | 20 or less |

### SY5000

| Type of actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|-------------------|--|------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor             |            | With light/surge voltage suppressor |            |
|                   | Type S, Z  | Type R, U  | Type S, Z                           | Type R, U  |
| 2 position single | 19 or less   | 26 or less | 19 or less                          | 26 or less |
| 2 position double | 18 or less   | 22 or less | 18 or less                          | 22 or less |
| 3 position        | 32 or less   | 38 or less | 32 or less                          | 38 or less |

### SY7000

| Type of actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|-------------------|--|------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor             |            | With light/surge voltage suppressor |            |
|                   | Type S, Z  | Type R, U  | Type S, Z                           | Type R, U  |
| 2 position single | 31 or less   | 38 or less | 33 or less                          | 40 or less |
| 2 position double | 27 or less   | 30 or less | 28 or less                          | 35 or less |
| 3 position        | 50 or less   | 56 or less | 50 or less                          | 56 or less |

### SY9000

| Type of actuation | Response time (ms)<br>(at the pressure of 0.5 MPa) |            |                                     |            |
|-------------------|--|------------|-------------------------------------|------------|
|                   | Without light/surge voltage suppressor             |            | With light/surge voltage suppressor |            |
|                   | Type S, Z  | Type R, U  | Type S, Z                           | Type R, U  |
| 2 position single | 35 or less   | 41 or less | 35 or less                          | 41 or less |
| 2 position double | 35 or less   | 41 or less | 35 or less                          | 41 or less |
| 3 position        | 62 or less   | 64 or less | 62 or less                          | 64 or less |

## Solenoid Specifications

|                                   |            |  |  |
|-----------------------------------|------------|--|--|
| Electrical entry                  |            | Grommet (G), (H)<br>L plug connector: L<br>M plug connector: M<br>DIN terminal (D)<br>M8 connector (W) |  |
| Coil rated voltage (V)            | DC         | 24, 12, 6, 5, 3  |  |
|                                   | AC 50/60Hz | 100, 110, 200, 220 *   |  |
| Allowable voltage fluctuation (%) |            | ±10% of rated voltage  |  |
| Power consumption (W)             | DC         | Standard<br>0.35 (with indicator light: 0.4 DIN terminal with indicator light: 0.45)                   |  |
|                                   | AC         | With power saving circuit<br>0.1 (With indicator light only)   |  |
| Apparent power                    | AC         | 100 V  | 1.4 (With indicator light: 1.5)                                    |
|                                   |            | 110 V<br>[115 V]   | 1.6 (With indicator light: 1.7)<br>1.7 (With indicator light: 1.8) |
|                                   |            | 200 V  | 2.3 (With indicator light: 2.4)                                    |
|                                   |            | 220 V<br>[230 V]   | 2.5 (With indicator light: 2.6)<br>2.7 (With indicator light: 2.8) |
|                                   |            | Surge voltage suppressor   | Diode (Varistor is for DIN terminal and Non-polar type.)           |
| Indicator light                   |            | LED (AC of DIN terminal is neon bulb.)   |  |



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

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

Flow Characteristics/Weight

Series SY3000

| Valve model | Type of actuation |                 | Port size | Flow characteristics <sup>Note 1)</sup> |             |             |                              |             |             | Weight (g) <sup>Note 2)</sup> |                                    |                |
|-------------|-------------------|-----------------|-----------|---|-------------|-------------|------------------------------|-------------|-------------|-------------------------------|------------------------------------|----------------|
|             |                   |                 |           | 1 → 4/2 (P → A/B)                       |             |             | 4/2 → 5/3 (A/B → EA/EB)      |             |             | Grommet                       | L plug connector, M plug connector | W M8 connector |
|             |                   |                 |           | C (dm <sup>3</sup> /(s·bar))            | b           | Cv          | C (dm <sup>3</sup> /(s·bar)) | b           | Cv          |                               |                                    |                |
| SY3□40-□-01 | 2 position        | Single          | 1/8       | 1.0                                     | 0.30        | 0.24        | 1.1                          | 0.30        | 0.26        | 84 (50)                       | 85 (53)                            | 89 (57)        |
|             |                   | Double          |           |   |             |             |                              |             |             |                               |                                    |                |
|             | 3 position        | Closed center   |           | 0.77                                    | 0.28        | 0.18        | 0.85                         | 0.30        | 0.19        | 104 (69)                      | 109 (74)                           | 117 (82)       |
|             |                   | Exhaust center  |           | 0.73                                    | 0.31        | 0.18        | 1.1 (0.55)                   | 0.26 (0.52) | 0.24 (0.16) |                               |                                    |                |
|             |                   | Pressure center |           | 1.2 (0.51)                              | 0.24 (0.45) | 0.29 (0.14) | 0.89                         | 0.47        | 0.24        |                               |                                    |                |

Note 1) [ ] : Denotes the normal position. Note 2) ( ) : Denotes without sub-plate.

Series SY5000

| Valve model | Type of actuation |                 | Port size | Flow characteristics <sup>Note 1)</sup> |             |             |                              |             |             | Weight (g) <sup>Note 2)</sup> |                                    |              |                |
|-------------|-------------------|-----------------|-----------|---|-------------|-------------|------------------------------|-------------|-------------|-------------------------------|------------------------------------|--------------|----------------|
|             |                   |                 |           | 1 → 4/2 (P → A/B)                       |             |             | 4/2 → 5/3 (A/B → EA/EB)      |             |             | Grommet                       | L plug connector, M plug connector | DIN terminal | W M8 connector |
|             |                   |                 |           | C (dm <sup>3</sup> /(s·bar))            | b           | Cv          | C (dm <sup>3</sup> /(s·bar)) | b           | Cv          |                               |                                    |              |                |
| SY5□40-□-02 | 2 position        | Single          | 1/4       | 2.4                                     | 0.41        | 0.64        | 2.8                          | 0.29        | 0.66        | 121 (58)                      | 123 (61)                           | 154 (82)     | 127 (65)       |
|             |                   | Double          |           |   |             |             |                              |             |             |                               |                                    |              |                |
|             | 3 position        | Closed center   |           | 1.8                                     | 0.47        | 0.50        | 1.8                          | 0.40        | 0.47        | 144 (82)                      | 150 (87)                           | 192 (129)    | 158 (95)       |
|             |                   | Exhaust center  |           | 1.4                                     | 0.55        | 0.44        | 3.0 (1.2)                    | 0.33 (0.48) | 0.72 (0.37) |                               |                                    |              |                |
|             |                   | Pressure center |           | 3.3 (0.84)                              | 0.36 (0.60) | 0.85 (0.28) | 1.8                          | 0.40        | 0.48        |                               |                                    |              |                |

Note 1) [ ] : Denotes the normal position. Note 2) ( ) : Denotes without sub-plate.

Series SY7000

| Valve model | Type of actuation |                 | Port size | Flow characteristics <sup>Note 1)</sup> |             |            |                              |             |            | Weight (g) <sup>Note 2)</sup> |                                    |              |                |
|-------------|-------------------|-----------------|-----------|---|-------------|------------|------------------------------|-------------|------------|-------------------------------|------------------------------------|--------------|----------------|
|             |                   |                 |           | 1 → 4/2 (P → A/B)                       |             |            | 4/2 → 5/3 (A/B → EA/EB)      |             |            | Grommet                       | L plug connector, M plug connector | DIN terminal | W M8 connector |
|             |                   |                 |           | C (dm <sup>3</sup> /(s·bar))            | b           | Cv         | C (dm <sup>3</sup> /(s·bar)) | b           | Cv         |                               |                                    |              |                |
| SY7□40-□-02 | 2 position        | Single          | 1/4       | 4.1                                     | 0.41        | 1.1        | 4.1                          | 0.29        | 1.0        | 218 (89)                      | 221 (92)                           | 242 (113)    | 225 (96)       |
|             |                   | Double          |           |   |             |            |                              |             |            |                               |                                    |              |                |
|             | 3 position        | Closed center   |           | 3.0                                     | 0.43        | 0.80       | 2.6                          | 0.41        | 0.72       | 239 (110)                     | 245 (116)                          | 287 (158)    | 253 (124)      |
|             |                   | Exhaust center  |           | 2.6                                     | 0.42        | 0.71       | 4.7 (1.7)                    | 0.35 (0.48) | 1.1 (0.49) |                               |                                    |              |                |
|             |                   | Pressure center |           | 5.3 (2.3)                               | 0.39 (0.49) | 1.3 (0.65) | 2.2                          | 0.49        | 0.63       |                               |                                    |              |                |
|             |                   | SY7□40-□-03     |           | 2 position                              | Single      | 3/8        | 4.9                          | 0.29        | 1.2        |                               |                                    |              |                |
| Double      |                   |                 |           |   |             |            |                              |             |            |                               |                                    |              |                |
| 3 position  | Closed center     |                 | 3.0       | 0.40                                    | 0.80        |            | 2.6                          | 0.45        | 0.73       | 239 (110)                     | 245 (116)                          | 287 (158)    | 253 (124)      |
|             | Exhaust center    |                 | 2.6       | 0.42                                    | 0.71        |            | 4.8 (1.7)                    | 0.35 (0.48) | 1.1 (0.49) |                               |                                    |              |                |
|             | Pressure center   |                 | 5.3 (2.3) | 0.31 (0.51)                             | 1.3 (0.64)  |            | 2.3                          | 0.45        | 0.66       |                               |                                    |              |                |

Note 1) [ ] : Denotes the normal position. Note 2) ( ) : Denotes without sub-plate.

Series SY9000

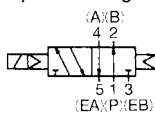
| Valve model | Type of actuation |                 | Port size | Flow characteristics <sup>Note 1)</sup> |             |            |                              |             |            | Weight (g) <sup>Note 2)</sup> |                                    |              |                |
|-------------|-------------------|-----------------|-----------|---|-------------|------------|------------------------------|-------------|------------|-------------------------------|------------------------------------|--------------|----------------|
|             |                   |                 |           | 1 → 4/2 (P → A/B)                       |             |            | 4/2 → 5/3 (A/B → EA/EB)      |             |            | Grommet                       | L plug connector, M plug connector | DIN terminal | W M8 connector |
|             |                   |                 |           | C (dm <sup>3</sup> /(s·bar))            | b           | Cv         | C (dm <sup>3</sup> /(s·bar)) | b           | Cv         |                               |                                    |              |                |
| SY9□40-□-03 | 2 position        | Single          | 3/8       | 7.9                                     | 0.34        | 2.0        | 9.6                          | 0.43        | 2.6        | 469(172)                      | 472(175)                           | 493(196)     | 476(179)       |
|             |                   | Double          |           |   |             |            |                              |             |            |                               |                                    |              |                |
|             | 3 position        | Closed center   |           | 7.5                                     | 0.33        | 1.8        | 7.3                          | 0.30        | 1.7        | 512(215)                      | 518(221)                           | 560(263)     | 526(229)       |
|             |                   | Exhaust center  |           | 7.2                                     | 0.34        | 1.7        | 13 (4.0)                     | 0.23 (0.41) | 2.8 (0.95) |                               |                                    |              |                |
|             |                   | Pressure center |           | 12 (3.3)                                | 0.26 (0.41) | 2.8 (0.84) | 6.7                          | 0.40        | 1.9        |                               |                                    |              |                |
|             |                   | SY9□40-□-04     |           | 2 position                              | Single      | 1/2        | 8.0                          | 0.48        | 2.2        |                               |                                    |              |                |
| Double      |                   |                 |           |   |             |            |                              |             |            |                               |                                    |              |                |
| 3 position  | Closed center     |                 | 7.6       | 0.32                                    | 1.8         |            | 7.3                          | 0.32        | 1.8        | 491 (194)                     | 497 (200)                          | 539          | 505(208)       |
|             | Exhaust center    |                 | 7.3       | 0.42                                    | 2.0         |            | 13 (4.7)                     | 0.32 (0.54) | 3.6 (1.5)  |                               |                                    |              |                |
|             | Pressure center   |                 | 12 (3.3)  | 0.33 (0.51)                             | 3.3 (0.94)  |            | 7.4                          | 0.33        | 1.9        |                               |                                    |              |                |

Note 1) [ ] : Denotes the normal position. Note 2) ( ) : Denotes without sub-plate.

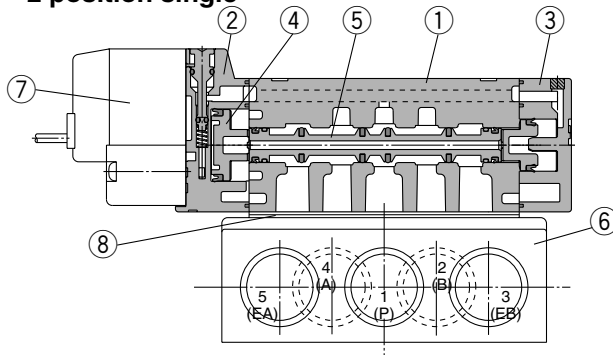
## Construction

### Series SY

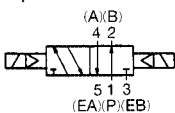
**JIS Symbol**  
2 position single



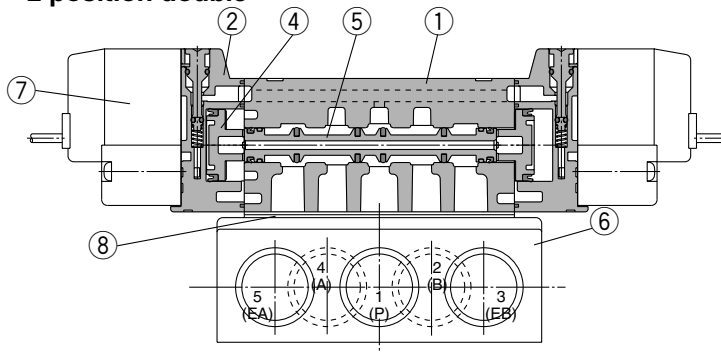
**2 position single**



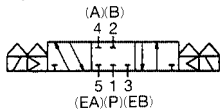
**JIS Symbol**  
2 position double



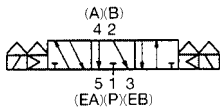
**2 position double**



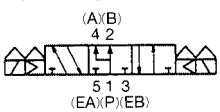
**JIS Symbol**  
3 position closed center



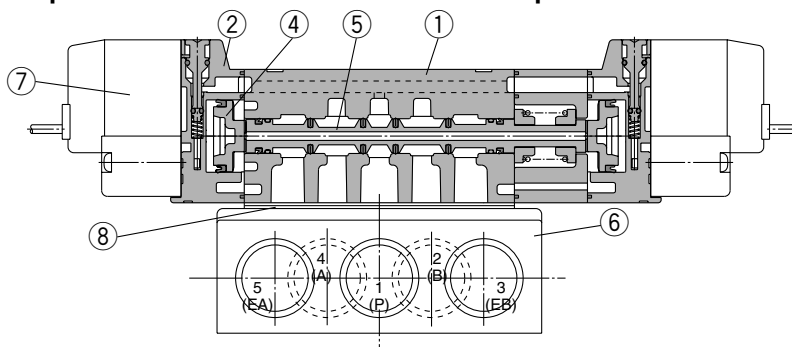
**3 position exhaust center**



**3 position pressure center**



**3 position closed center/exhaust center/pressure center**



(This figure shows a closed center type.)

### Component Parts

| No. | Description          | Material   | Note                    |
|-----|----------------------|--|-------------------------|
| ①   | Body                 | Aluminum die-casted<br>(SY3000: Zinc die-casted) | White                   |
| ②   | Adapter plate        | Resin  | White<br>(SY9000: Gray) |
| ③   | End plate            | Resin  | White                   |
| ④   | Piston               | Resin  | —                       |
| ⑤   | Spool valve assembly | Aluminum, HNBR                                   | —                       |

### Replacement Parts

| No. | Description                  | Part no.  |              |  |  | Note                                       |
|-----|------------------------------|---|--------------|--|--|--|
|     |                              | SY3□40  | SY5□40       | SY7□40                                 | SY9□40                                 |  |
| ⑥   | Sub-plate                    | SY3000-27-1*  | SY5000-27-1* | 1/4: SY7000-27-1*<br>3/8: SY7000-27-2* | 3/8: SY9000-27-1*<br>1/2: SY9000-27-2* | Aluminum die-casted                        |
| ⑦   | Pilot valve assembly         | Refer to "How to Order Pilot Valve Assembly" on page 1-4-187. |              |  |  |  |
| ⑧   | Gasket                       | SY3000-11-25  | SY5000-11-15 | SY7000-11-11                           | SY9000-11-2                            | HNBR                                       |
| —   | Round head combination screw | SY3000-23-4<br>(M2 x 21)                                      | M3 x 26      | M4 x 31                                | SY9000-18-2<br>(M3 x 42)               | For valve mounting<br>(Matt nickel plated) |

\* Thread type

SV

SZ

**SY**

SYJ

SX

### ⚠ Caution

Mounting screw  
tightening torques

M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

### How to Order Pilot Valve Assembly



Coil specifications

|     |   |
|-----|---|
| Nil | Standard: DC specifications                     |
| A   | Standard: AC specifications                     |
| T   | With power saving circuit (24 VDC, 12 VDC only) |

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

Rated voltage

|   |  |
|---|--|
| 5 | 24 VDC   |
| 6 | 12 VDC   |
| V | 6 VDC  |
| S | 5 VDC  |
| R | 3 VDC  |
| 1 | 100 VAC $\frac{50}{60}$ Hz                                 |
| 2 | 200 VAC $\frac{50}{60}$ Hz                                 |
| 3 | 110 VAC $\frac{50}{60}$ Hz<br>[115 VAC $\frac{50}{60}$ Hz] |
| 4 | 220 VAC $\frac{50}{60}$ Hz<br>[230 VAC $\frac{50}{60}$ Hz] |

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

Light/Surge voltage suppressor

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

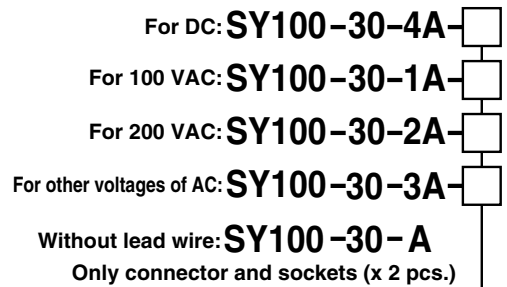
\* For AC voltage valves there is no "S" option. It is already built-in to the rectifier circuit.  
\* For "R" and "U", DC voltage is only available.  
\* Power saving circuit is only available in the "Z" type.

Electrical entry

|    |                                      |                   |
|----|--------------------------------------|-------------------|
| G  | Grommet, 300 mm lead wire            |                   |
| H  | Grommet, 600 mm lead wire            |                   |
| L  | L plug connector                     | With lead wire    |
| LN |                                      | Without lead wire |
| LO | Without connector                    |                   |
| M  | M plug connector                     | With lead wire    |
| MN |                                      | Without lead wire |
| MO |                                      | Without connector |
| WO | M8 connector Without connector cable |                   |

Note) For connector cable of M8 connector, refer to page 1-4-210.

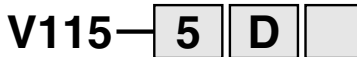
### How to Order Connector Assembly for L/M Plug Connector



Lead wire length

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

### DIN terminal type



Rated voltage

|   |  |
|---|--|
| 5 | 24 VDC   |
| 6 | 12 VDC   |
| 1 | 100 VAC $\frac{50}{60}$ Hz                                 |
| 2 | 200 VAC $\frac{50}{60}$ Hz                                 |
| 3 | 110 VAC $\frac{50}{60}$ Hz<br>[115 VAC $\frac{50}{60}$ Hz] |
| 4 | 220 VAC $\frac{50}{60}$ Hz<br>[230 VAC $\frac{50}{60}$ Hz] |

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

Light/Surge voltage suppressor

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

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

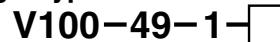
Electrical entry

|    |              |                   |
|----|--------------|-------------------|
| D  | DIN terminal | With connector    |
| DO | terminal     | Without connector |

Note) Do not replace V111 (G, H, L, M) to V115 (DIN terminal) and vice versa when replacing pilot valve assembly only.

### How to Order M8 Connector Cable

#### Straight type



Cable length

|   |         |
|---|---------|
| 1 | 300 mm  |
| 2 | 500 mm  |
| 3 | 1000 mm |
| 4 | 2000 mm |
| 7 | 5000 mm |

### How to Order Interface Regulator

#### Series SY3000

**ARBY3000-05-P-2**

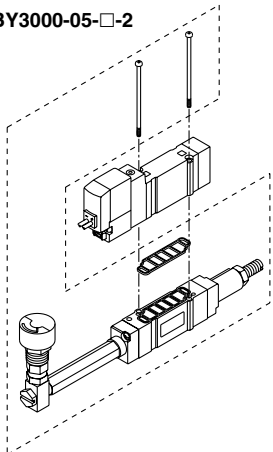
Pressure gauge connection port

|           |                            |
|-----------|----------------------------|
| <b>05</b> | Pressure gauge (G15-10-01) |
| <b>M1</b> | Plug (M-5P)                |

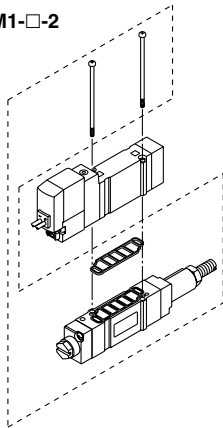
Regulating port

|           |   |
|-----------|---|
| <b>P</b>  | P port  |
| <b>A1</b> | A port (P controlled type, A port regulation) |
| <b>B1</b> | B port (P controlled type, B port regulation) |

ARBY3000-05-□-2



ARBY3000-M1-□-2



#### Series SY5000

**ARBY5000-00-P-2**

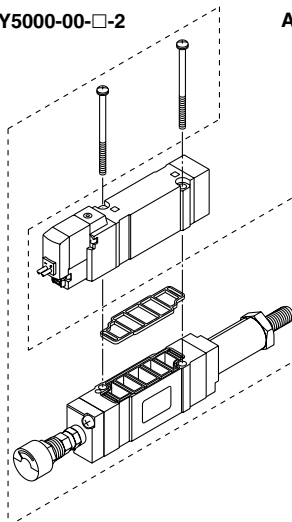
Pressure gauge connection port

|           |                            |
|-----------|----------------------------|
| <b>00</b> | Pressure gauge (G15-10-01) |
| <b>M1</b> | Plug (M-5P)                |

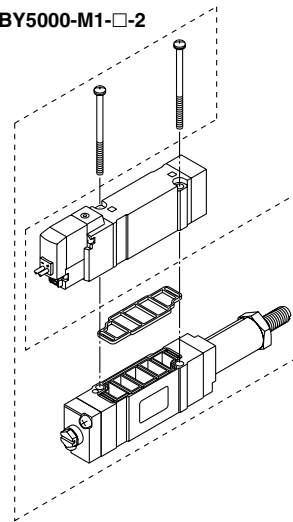
Regulating port

|           |   |
|-----------|---|
| <b>P</b>  | P port  |
| <b>A1</b> | A port (P controlled type, A port regulation) |
| <b>B1</b> | B port (P controlled type, B port regulation) |

ARBY5000-00-□-2



ARBY5000-M1-□-2



#### Series SY7000

**ARBY7000-00-P-2**

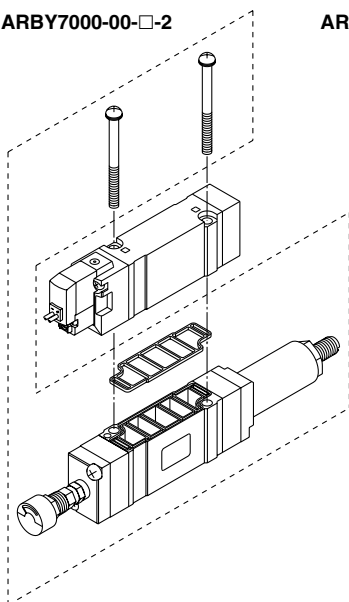
Pressure gauge connection port

|           |                            |
|-----------|----------------------------|
| <b>00</b> | Pressure gauge (G15-10-01) |
| <b>M1</b> | Plug (M-5P)                |

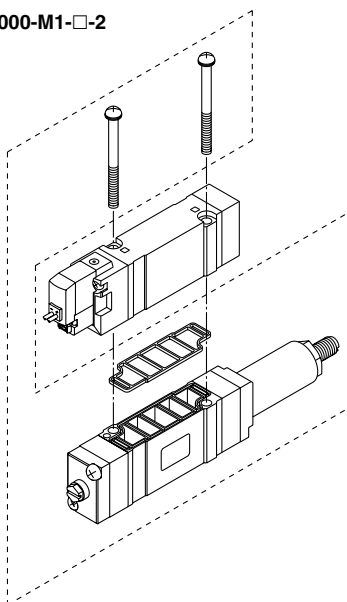
Regulating port

|           |   |
|-----------|---|
| <b>P</b>  | P port  |
| <b>A1</b> | A port (P controlled type, A port regulation) |
| <b>B1</b> | B port (P controlled type, B port regulation) |

ARBY7000-00-□-2



ARBY7000-M1-□-2



#### Accessory

| Series          | Round head combination screw  | Gasket      |
|-----------------|-------------------------------|-------------|
| <b>ARBY3000</b> | SY3000-23-10 (M2 x 36)        | SX3000-57-4 |
| <b>ARBY5000</b> | M3 x 48.5, Matt nickel plated | SX5000-57-6 |
| <b>ARBY7000</b> | M4 x 57, Matt nickel plated   | SX7000-57-4 |

#### Caution

Mounting screw tightening torques

M2: 0.16 N·m  
M3: 0.8 N·m  
M4: 1.4 N·m

SV

SZ

SY

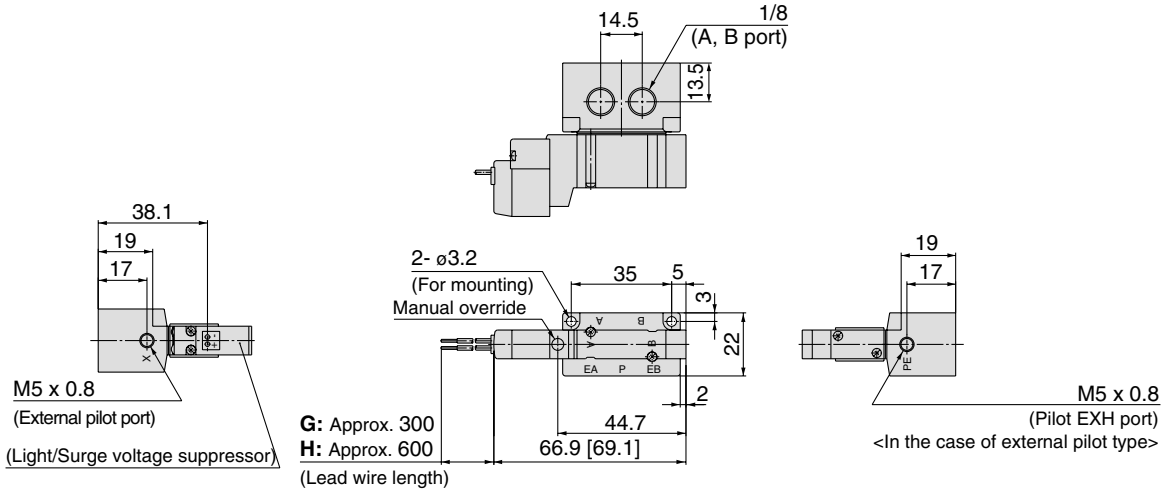
SYJ

SX

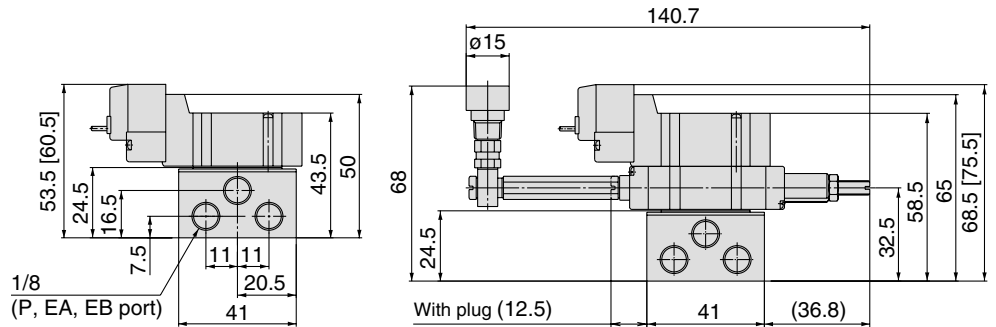
**Dimensions: Series SY3000**

**2 position single**

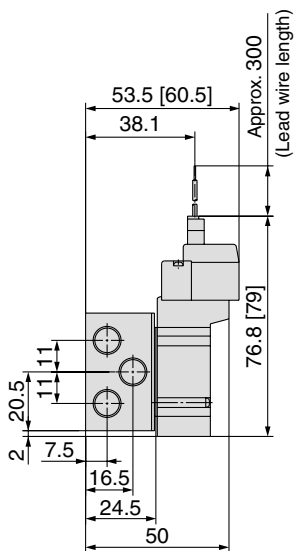
Grommet (G), (H): SY3140(R)-□ $\frac{G}{H}$ □□-01□



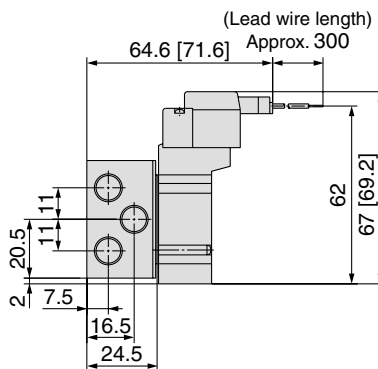
**With interface regulator**



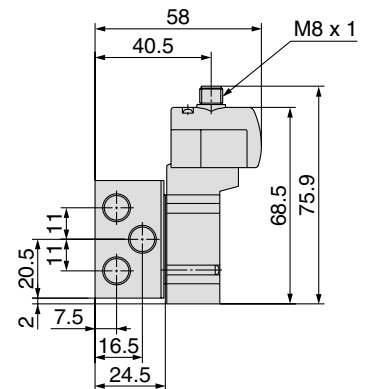
**L plug connector (L):**  
 SY3140(R)-□L□□-01□



**M plug connector (M):**  
 SY3140(R)-□M□□-01□



**M8 connector (WO):**  
 SY3140(R)-□WO□□-01□



Note) Refer to page 1-4-210 for dimensions of connector types.

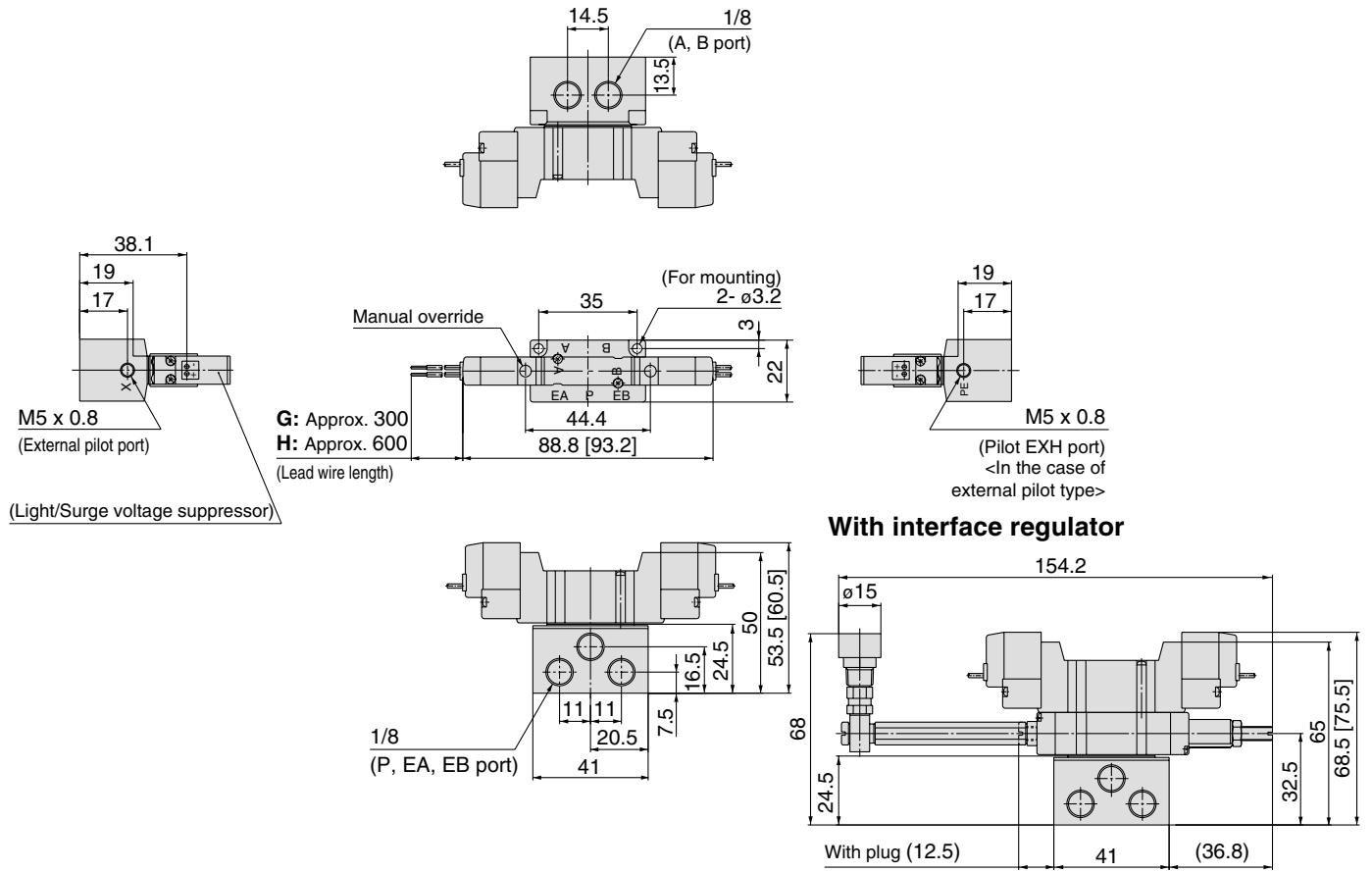


Dimensions: Series SY3000



2 position double

Grommet (G), (H): SY3240(R)-□ $\frac{G}{H}$ □□-01□



SV

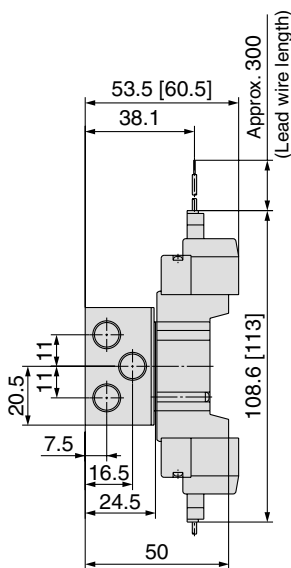
SZ

SY

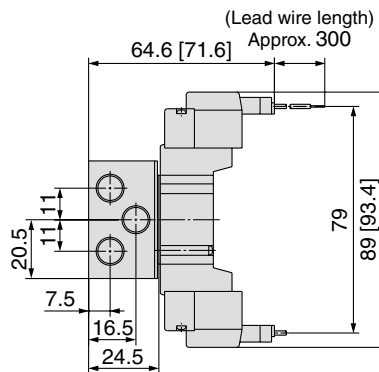
SYJ

SX

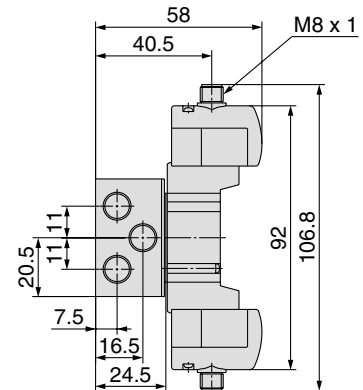
L plug connector (L):  
SY3240(R)-□L□□-01□



M plug connector (M):  
SY3240(R)-□M□□-01□



M8 connector (WO):  
SY3240(R)-□WO□□-01□

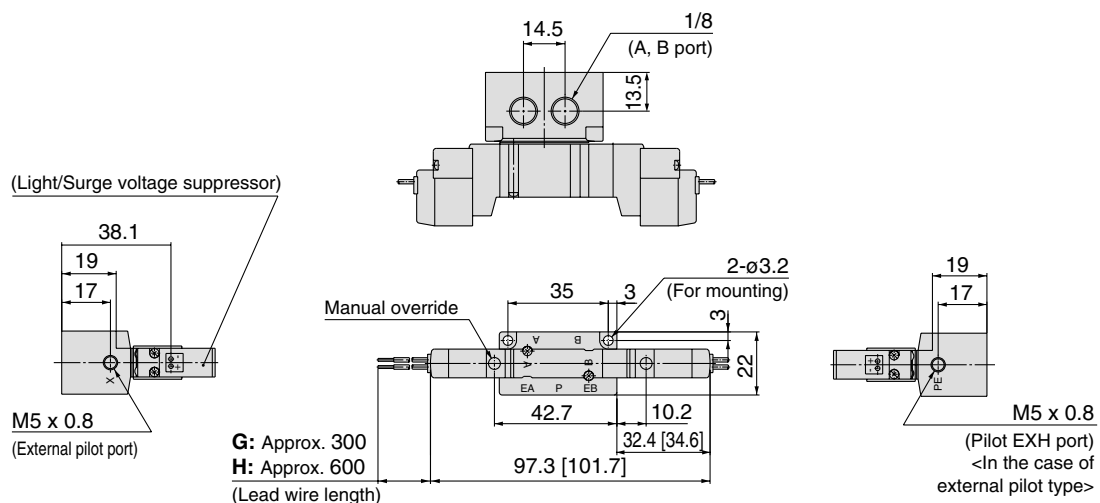


Note) Refer to page 1-4-210 for dimensions of connector types.

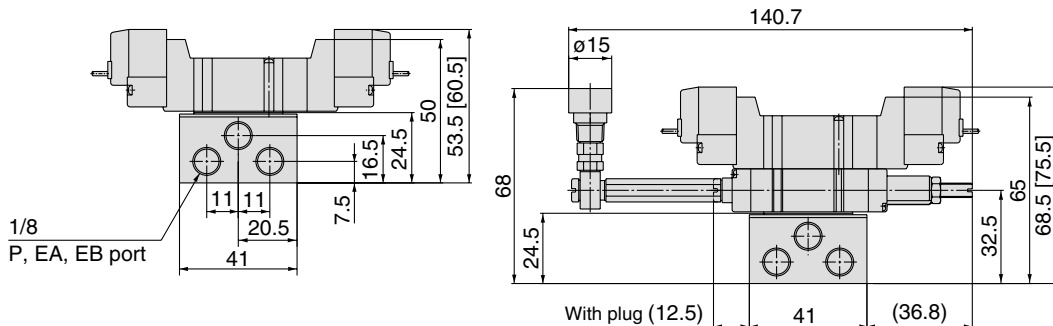
**Dimensions: Series SY3000**

3 position closed center/exhaust center/pressure center

Grommet (G), (H): SY3<sup>3</sup>/<sub>5</sub>40(R)-□G□□-01□

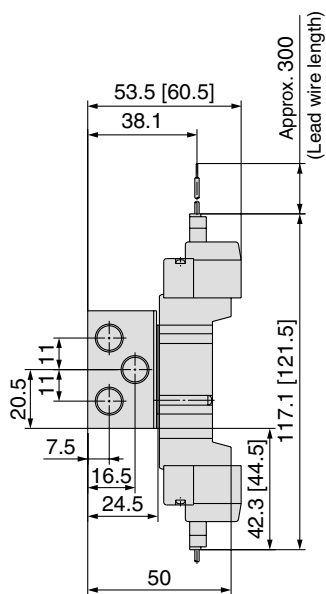


**With interface regulator**



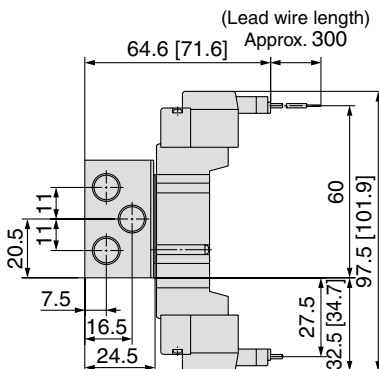
**L plug connector (L):**

SY3<sup>3</sup>/<sub>5</sub>40(R)-□L□□-01□



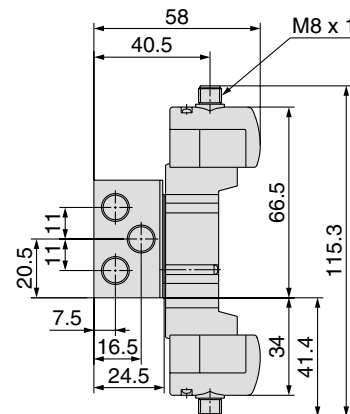
**M plug connector (M):**

SY3<sup>3</sup>/<sub>5</sub>40(R)-□M□□-01□



**M8 connector (WO):**

SY3<sup>3</sup>/<sub>5</sub>40(R)-□WO□□-01□



Note) Refer to page 1-4-210 for dimensions of connector types.

# Series SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted Plug-in

## How to Order Manifold

Type 45F (D-sub connector, 25 pins)

SS5Y 3 - 45 F D - 05 U - C4

### Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

### Common specifications

|     |                 |
|-----|-----------------|
| Nil | Positive common |
| N   | Negative common |

### Connector mounting position

| Symbol | Mounting position |
|--------|-------------------|
| U      | U side            |
| D      | D side            |

### Valve stations

| Symbol | Stations    | Note  |
|--------|-------------|---|
| 02     | 2 stations  | Single wiring spec.<br>(Applicable up to 20 solenoid valves.) |
| :      | :           |   |
| 20     | 20 stations |   |



- \* This also includes the number of blanking plate assemblies.
- \* Two stations are necessary for the double, 3 position (Dual body type).

### SUP/EXH block assembly mounting position

| Symbol | Mounting position      | Stations         |
|--------|------------------------|------------------|
| U      | U side                 | 2 to 10 stations |
| D      | D side                 | 2 to 10 stations |
| B      | (Both sides)           | 2 to 20 stations |
| M      | Special specifications |                  |

- \* For special specifications, indicate separately on the manifold specification sheet.

### A, B port size

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

| Symbol | Port size                      | Applicable series |
|--------|--------------------------------|-------------------|
| C4     | One-touch fitting for $\phi 4$ | SY3000            |
| C6     | One-touch fitting for $\phi 6$ |                   |
| M      | Mixed                          |                   |
| C4     | One-touch fitting for $\phi 4$ | SY5000            |
| C6     | One-touch fitting for $\phi 6$ |                   |
| C8     | One-touch fitting for $\phi 8$ |                   |
| M      | Mixed                          |                   |

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

| Symbol | Port size                           | Applicable series |
|--------|-------------------------------------|-------------------|
| N3     | One-touch fitting for $\phi 5/32$ " | SY3000            |
| N7     | One-touch fitting for $\phi 1/4$ "  |                   |
| M      | Mixed                               |                   |
| N3     | One-touch fitting for $\phi 5/32$ " | SY5000            |
| N7     | One-touch fitting for $\phi 1/4$ "  |                   |
| N9     | One-touch fitting for $\phi 5/16$ " |                   |
| M      | Mixed                               |                   |

- \* In the case of mixed specifications (M), indicate separately on the manifold specification sheet.

### Voltage

|     |        |
|-----|--------|
| Nil | 24 VDC |
| 12V | 12 VDC |

### Option

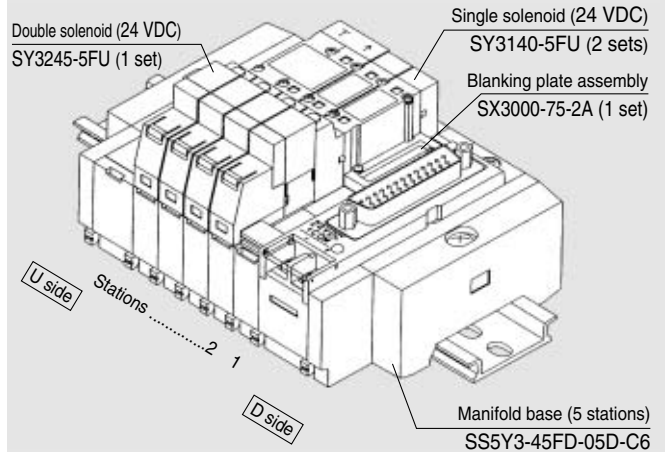
When a longer DIN rail is desired than the specified stations, specify the station number to be required.  
(20 stations at maximum)



For external pilot and built-in silencer, refer to page 1-4-197.

## How to Order Valve Manifold Assembly

### Example (Type 45F/D-sub connector (25 pins))



SS5Y3-45FD-05U-C6 1 set  
(Type 45F, D-sub connector 5 port manifold base part no.)  
\* SX3000-75-2A 1 set (Blanking plate assembly part no.)  
\* SY3140-5FU 2 sets (Single solenoid part no.)  
\* SY3245-5FU 1 set (Double solenoid part no.)

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

- The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of connector box.
- When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.

## How to Order Valves

(Type 45F, 45P□, 45T, 45T1)

2 position single SY 3 1 4 0 - 5 FU

Double, 3 position SY 3 2 4 5 - 5 FU

### Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

### Type of actuation

|   |                            |
|---|----------------------------|
| 2 | 2 position double          |
| 3 | 3 position closed center   |
| 4 | 3 position exhaust center  |
| 5 | 3 position pressure center |

Dual body type (Double, 3 position)

### Rated voltage

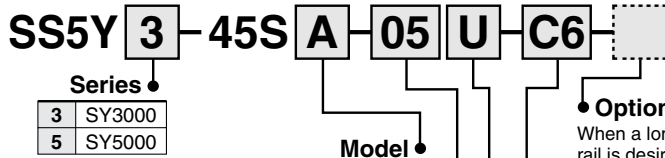
|   |        |
|---|--------|
| 5 | 24 VDC |
| 6 | 12 VDC |

### Manual override

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

# Series SY3000/5000 Base Mounted Monifold Stacking Type/DIN Rail Mounted Serial Transmission (Integrated)

## How to Order Manifold



| Symbol | Specifications   |
|--------|--|
| 0      | Without SI unit  |
| A      | With general type SI unit (Series EX300)                       |
| B      | Mitsubishi Electric Corp.: MELSECNET/ MINI-S3 Data Link System |
| C      | OMRON Corp.: SYSBUS Wire System                                |
| D      | SHARP Corp.: Satellite I/O Link System                         |
| E      | Matsushita Electric Works: MEWNET-F System                     |
| F1     | NKE Corp.: Uni-wire System (16 output points)                  |
| G      | Rockwell Automation: Allen Bradley Remote I/O (RIO) System     |
| H      | NKE Corp.: Uni-wire H System                                   |
| J1     | SUNX Corp.: S-LINK System (16 output points)                   |
| J2     | SUNX Corp.: S-LINK System (8 output points)                    |
| K      | Fuji Electric Co.: T-LINK Mini System                          |
| Q      | DeviceNet, CompoBus/D (OMRON Corp.)                            |
| R1     | OMRON Corp.: CompoBus/S System (16 output points)              |
| R2     | OMRON Corp.: CompoBus/S System (8 output points)               |
| U      | JEMANET (JPCN-1)   |
| V      | Mitsubishi Electric Corp.: CC-LINK System                      |

\* For the general purpose type, a transmission unit is require on the CPU side.  
\* Even though when it is not equipped with SI unit, DIN rail length is long enough for future expectancy of mounting SI unit.

### Valve stations

| Symbol | Stations    | Note   |
|--------|-------------|--|
| 02     | 2 stations  | Single wining spec. (Applicable up to 16 solenoid valves.) |
| :      | :           |  |
| 16     | 16 stations |  |

\* This also includes the number of blanking plate assemblies.  
\* Two stations are necessary for the double, 3 position (Dual body type).

### SUP/EXH block assembly mounting position

| Symbol | Mounting position      | Stations         |
|--------|------------------------|------------------|
| U      | U side                 | 2 to 10 stations |
| D      | D side                 | 2 to 10 stations |
| B      | (Both sides)           | 2 to 16 stations |
| M      | Special specifications |                  |

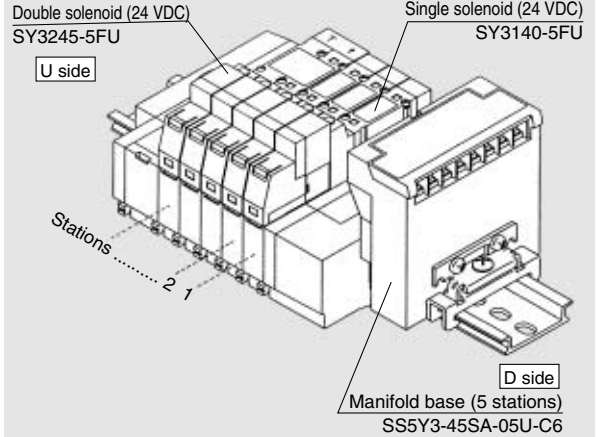
\* For special specifications, indicate separately on the manifold specification sheet.

### SI Unit Part No.

| Symbol | Specifications   | For SS5Y□-45S | Symbol | Specifications:                              | For SS5Y□-45S |
|--------|--|---------------|--------|--|---------------|
| A      | With general type SI unit (Series EX300)                       | EX322-S001    | J1     | SUNX Corp.: S-LINK System (16 output points) | EX122-SSL1    |
| B      | Mitsubishi Electric Corp.: MELSECNET/ MINI-S3 Data Link System | EX122-SMB1    | J2     | SUNX Corp.: S-LINK System (8 output points)  | EX122-SSL2    |
| C      | OMRON Corp.: SYSBUS Wire System                                | EX122-STA1    | K      | Fuji Electric Co.: T-LINK Mini System        | EX122-SFU1    |
| D      | SHARP Corp.: Satellite I/O Link System                         | EX122-SSH1    | Q      | Device Net: CompoBus/D (OMRON Corp.)         | EX122-SDN1    |
| E      | Matsushita Electric Works: MEWNET-F System                     | EX122-SPA1    | R1     | OMRON Corp.: CompoBus/S (16 output points)   | EX122-SCS1    |
| F1     | NKE Corp.: Uni-wire System (16 output points)                  | EX122-SUW1    | R2     | OMRON Corp.: CompoBus/S (8 output points)    | EX122-SCS2    |
| G      | Rockwell Automation: Allen Bradley Remote I/O (RIO) System     | EX122-SAB1    | U      | JEMANET (JPCN-1)                             | EX122-SJN1    |
| H      | NKE Corp.: Uni-wire H System                                   | EX122-SUH1    | V      | Mitsubishi Electric Corp.: CC-LINK System    | EX122-SMJ1    |

## How to Order Valve Manifold Assembly

### Ordering example

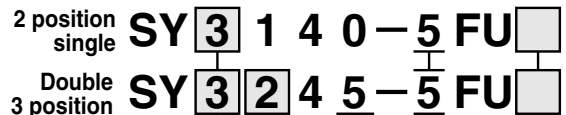


SS5Y3-45SA-05U-C6 1 set (Type 45S with serial unit 5 stations manifold base part no.)  
\* SY3140-5FU 3 sets (Single solenoid part no.)  
\* SY3245-5FU 1 set (Double solenoid part no.)

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

\* The valve arrangement is numbered as the 1st. station from D side.  
\* When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.  
\* Serial unit is available only for the D-side mounting type.

## How to Order Valves



| Series | Symbol | Specifications |
|--------|--------|----------------|
| 3      | SY3000 |                |
| 5      | SY5000 |                |

| Type of actuation          | Symbol | Specifications |
|----------------------------|--------|----------------|
| 2 position double          | 2      |                |
| 3 position closed center   | 3      |                |
| 3 position exhaust center  | 4      |                |
| 3 position pressure center | 5      |                |

Rated voltage  
5 24 VDC

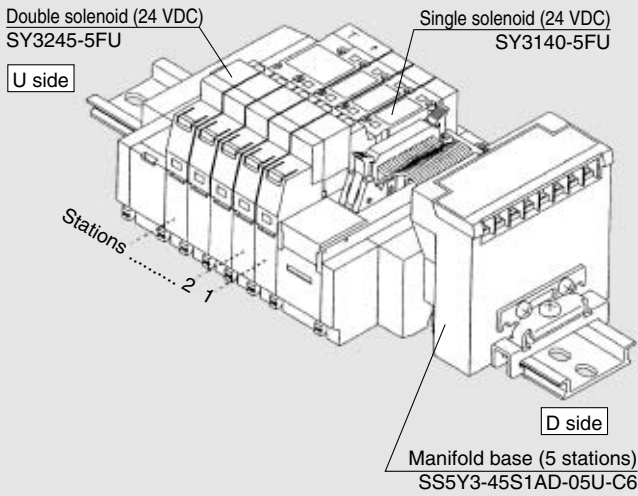
Dual body type (Double, 3 position)

### Manual override

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

## How to Order Valve Manifold Assembly

### Ordering example



SS5Y3-45S1AD-05U-C6 1 set (Type 45S1 with serial unit 5 station manifold base part no.)  
 \* SY3140-5FU 3 sets (Single solenoid part no.)  
 \* SY3245-5FU 1 set (Double solenoid part no.)

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

- The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SI unit.
- When ordering double solenoid valves/3 position (Dual body type), please keep in mind that they require two manifold stations.

## How to Order Valves

2 position single SY 3 1 4 0 - 5 FU

Double, 3 position SY 3 2 4 5 - 5 FU

Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

Type of actuation

|   |                            |
|---|----------------------------|
| 2 | 2 position double          |
| 3 | 3 position closed center   |
| 4 | 3 position exhaust center  |
| 5 | 3 position pressure center |

Dual body type (Double, 3 position)

Rated voltage

|   |        |
|---|--------|
| 5 | 24 VDC |
|---|--------|

Manual override

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

SV

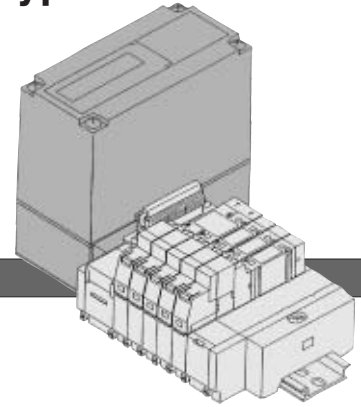
SZ

SY

SYJ

SX

# Made to Order Specifications: Series *SX3000/5000* Serial Transmission Type With **SMC's IN313**



## Serial Transmission Manifold Equipped with SMC's IN313

### How to Order Manifold

Type 45S2 (Serial type with IN313)

**SS5Y 3-45S2 U-06 D-C4** [ ]

Series •

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

SI unit mounting position •

| Symbol | Mounting position |
|--------|-------------------|
| U      | U side            |
| D      | D side            |

Valve stations •

| Symbol | Stations    | Note   |
|--------|-------------|--|
| 02     | 2 stations  | Single wiring spec.<br>(Applicable up to<br>16 solenoid valves.) |
| :      | :           |  |
| 16     | 16 stations |  |



- \* This also includes the number of blanking plate assemblies.
- \* Two stations are necessary for the double, 3 position (Dual body type).

SUP/EXH block assembly mounting position •

| Symbol | Mounting position      | Stations         |
|--------|------------------------|------------------|
| U      | U side                 | 2 to 10 stations |
| D      | D side                 | 2 to 10 stations |
| B      | Both sides             | 2 to 16 stations |
| M      | Special specifications |                  |

- \* For special specifications, indicate separately on the manifold specification sheet.

A, B port size •

One-touch fitting (Metric size)

| Symbol | Port size                | Applicable series |
|--------|--------------------------|-------------------|
| C4     | One-touch fitting for ø4 | SY3000            |
| C6     | One-touch fitting for ø6 |                   |
| M      | Mixed                    |                   |
| C4     | One-touch fitting for ø4 | SY5000            |
| C6     | One-touch fitting for ø6 |                   |
| C8     | One-touch fitting for ø8 |                   |
| M      | Mixed                    |                   |

One-touch fitting (Inch size)

| Symbol | Port size                    | Applicable series |
|--------|------------------------------|-------------------|
| N3     | One-touch fitting for ø5/32" | SY3000            |
| N7     | One-touch fitting for ø1/4"  |                   |
| M      | Mixed                        |                   |
| N3     | One-touch fitting for ø5/32" | SY5000            |
| N7     | One-touch fitting for ø1/4"  |                   |
| N9     | One-touch fitting for ø5/16" |                   |
| M      | Mixed                        |                   |

- \* In the case of mixed specifications, indicate separately on the manifold specification sheet.

Option •

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)



For external pilot specifications and built-in silencer, refer to page 1-4-196.

### How to Order Applicable SI Unit

**IN313 — MB1**

• Applicable makers

|     |                                     |
|-----|-------------------------------------|
| MB1 | For Mitsubishi Electric Corporation |
| TA1 | For OMRON Corporation               |
| FU1 | For Fuji Electric Co., Ltd.         |
| SH1 | For SHARP Corporation               |
| TY1 | For Toyoda Machine Works, Ltd.      |
| TY2 |                                     |
| PA1 | For Matsushita Electric Works Ltd.  |
| HT1 | For Hitachi, Ltd.                   |
| AB1 | For Rockwell Automation, Inc.       |
| TS1 | For TOSHIBA Corporation             |

### How to Order Valves

2 position single **SY 3 1 4 0 — 5 FU** [ ]

Double, 3 position **SY 3 2 4 5 — 5 FU** [ ]

Series •

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

Type of actuation •

|   |                            |
|---|----------------------------|
| 2 | 2 position double          |
| 3 | 3 position closed center   |
| 4 | 3 position exhaust center  |
| 5 | 3 position pressure center |

Dual body type (Double, 3 position) •

Rated voltage •

|   |        |
|---|--------|
| 5 | 24 VDC |
|---|--------|

Manual override •

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

Type **45S3**

# Made to Order Specifications: Series **SX3000/5000** Serial Transmission Type With **OMRON Corp's G71-OD16**

Serial Transmission Manifold Equipped with OMRON Corp's Transmission Unit G71-OD16

## How to Order Manifold

Type 45S3 (Serial type with transmission unit)

**SS5Y 3 - 45S3 [ ] U - 06 D - C4 [ ]**

**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

**Specifications**

| Symbol              | Specifications            |
|---------------------|---------------------------|
| Nil                 | With transmission unit    |
| 0 <sup>(Note)</sup> | Without transmission unit |

**Note)** Even though when it is not equipped with transmission unit, DIN rail length is long enough for future expectancy of mounting transmission unit. When a shorter rail is required (same as type 45□), suffix "0" in the optional blank at the end of part number.

**Transmission unit mounting position**

| Symbol | Mounting position |
|--------|-------------------|
| U      | U side            |
| D      | D side            |

**Valve stations**

| Symbol | Stations    | Note   |
|--------|-------------|--|
| 02     | 2 stations  | Single wiring spec. (Applicable up to 16 solenoid valves.) |
| :      | :           |  |
| 16     | 16 stations |  |

\* This also includes the number of blanking plate assemblies.  
\* Two stations are necessary for the double, 3 position (Dual body type).

**SUP/EXH block assembly mounting position**

| Symbol | Mounting position | Stations               |
|--------|-------------------|------------------------|
| U      | U side            | 2 to 10 stations       |
| D      | D side            | 2 to 10 stations       |
| B      | (Both sides)      | 2 to 16 stations       |
| M      |                   | Special specifications |

\* For special specifications, indicate separately on the manifold specification sheet.

**A, B port size**

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

| Symbol | Port size                | Applicable series |
|--------|--------------------------|-------------------|
| C4     | One-touch fitting for ø4 | SY3000            |
| C6     | One-touch fitting for ø6 |                   |
| M      | Mixed                    |                   |
| C4     | One-touch fitting for ø4 | SY5000            |
| C6     | One-touch fitting for ø6 |                   |
| C8     | One-touch fitting for ø8 |                   |
| M      | Mixed                    |                   |

**One-touch fitting (Inch size)**

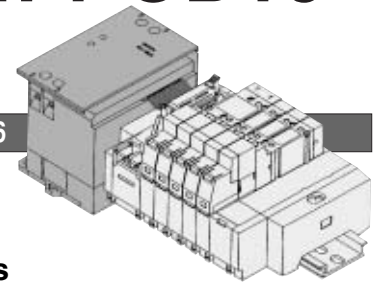
| Symbol | Port size                     | Applicable series |
|--------|-------------------------------|-------------------|
| N3     | One-touch fitting for ø 5/32" | SY3000            |
| N7     | One-touch fitting for ø 1/4"  |                   |
| M      | Mixed                         |                   |
| N3     | One-touch fitting for ø 5/32" | SY5000            |
| N7     | One-touch fitting for ø 1/4"  |                   |
| N9     | One-touch fitting for ø 5/16" |                   |
| M      | Mixed                         |                   |

\* In the case of mixed specifications, indicate separately on the manifold specification sheet.

**Option**

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

For external pilot specifications and built-in silencer, refer to page 1-4-196.



## How to Order Valves

2 position single **SY 3 1 4 0 - 5 FU [ ]**

Double, 3 position **SY 3 2 4 5 - 5 FU [ ]**

**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

**Type of actuation**

|   |                            |
|---|----------------------------|
| 2 | 2 position double          |
| 3 | 3 position closed center   |
| 4 | 3 position exhaust center  |
| 5 | 3 position pressure center |

Dual body type (Double, 3 position)

**Rated voltage**

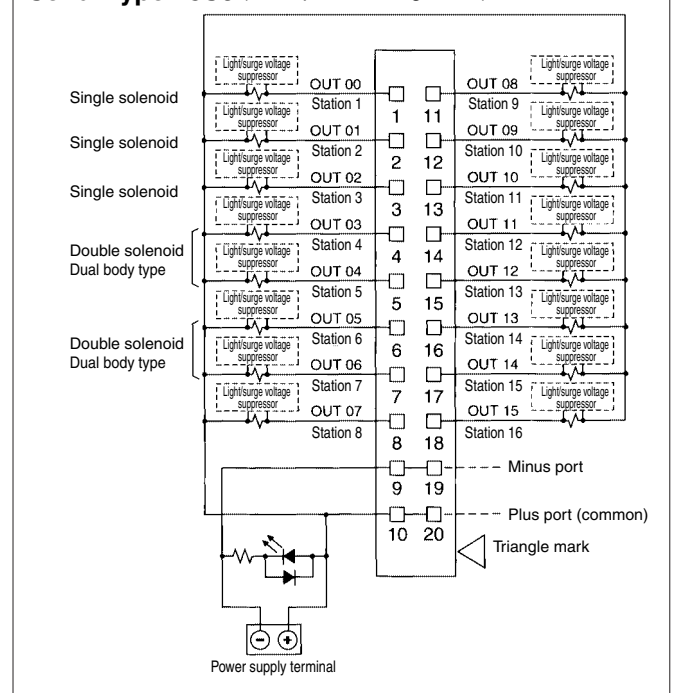
|   |        |
|---|--------|
| 5 | 24 VDC |
|---|--------|

**Manual override**

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

## Internal Wiring of Manifold

### Serial Type 45S3 (Example of arrangement)



- For specifications on OMRON Corp's transmitter terminals, refer to the instruction manual or the catalog of transmitter terminals, etc.
- Max. 16 solenoids are applicable. Please consult with SMC for more solenoids.

**Caution**

- The wiring specifications for SS5Y<sub>3</sub>-45S30 are different from those for SS5Y<sub>3</sub>-45PG.

## How to Order Valves

**SY 5 2 40** **5 L**

**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

**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 |

**Pilot type**

|     |                |
|-----|----------------|
| Nil | Internal pilot |
| R   | External pilot |

**Coil specifications**

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

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

**Rated voltage**

**DC**

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

**AC (50/60 Hz)**

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

\* DC specifications of type "D" and "DO" is only available with 12 and 24 VDC.  
 \* For type "W", DC voltage is only available.  
 \* "D" and "DO" only available for SY5000.

**Manual override**

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

**Light/Surge voltage suppressor**

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

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

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

**Electrical entry for D (SY5000 only)**

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

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

**Electrical entry**

| 24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC |  |  | 24, 12 VDC/<br>100, 110,<br>200, 220 VAC   | 24, 12, 6, 5, 3 VDC                   |
|--|--|--|--|---------------------------------------|
| Grommet                                    | L plug connector   | M plug connector   | DIN terminal   | M8 connector                          |
| <b>G:</b> Lead wire length<br>300 mm       | <b>L:</b> With lead wire<br>(Length 300 mm)                  | <b>M:</b> With lead wire<br>(Length 300 mm)                  | <b>(SY5000 only)</b><br><b>D:</b> With connector<br><b>DO:</b> Without connector | <b>WO:</b> Without connector<br>cable |
| <b>H:</b> Lead wire length<br>600 mm       | <b>LN:</b> Without lead wire<br><b>LO:</b> Without connector | <b>MN:</b> Without lead wire<br><b>MO:</b> Without connector |  |                                       |

\* "LN", "MN" type: with 2 sockets.  
 \* "D" and "DO" only available for SY5000.  
 \* DIN terminal type "Y" conforming to DIN43650C standard is also available. For details, refer to page 1-4-201.  
 \* Setting "-5LOU" is available only for connector box type.  
 \* For connector cable of M8 connector, refer to pages 1-4-209 to 210.

SV  
SZ  
SY  
SYJ  
SX



**Plug-in**

**How to Order Manifold**

Type 45 □



**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

**Common specifications**

|     |                 |
|-----|-----------------|
| Nil | Positive common |
| N   | Negative common |

No symbol is used for T, T1, S □ types.

**Connector type**

| Symbol | Mounting position         |
|--------|---------------------------|
| F      | D-sub connector           |
| P      | Flat ribbon cable 26 pins |
| PG     | Flat ribbon cable 20 pins |
| PH     | Flat ribbon cable 10 pins |
| T      | Terminal block 9 pins     |
| T1     | Terminal block 18 pins    |
| S □    | Serial transmission type  |

\* For details, refer to page 1-4-140.

**Connector mounting position**

| Symbol | Mounting position |
|--------|-------------------|
| U      | U side            |
| D      | D side            |

**Valve stations**

| Symbol | Stations    | Note                         |
|--------|-------------|------------------------------|
| 02     | 2 stations  | Single wiring specifications |
| ⋮      | ⋮           |                              |
| 20     | 20 stations |                              |

- \* This also includes the number of blanking plate assemblies.
- \* Depending on the connector, the number of stations is limited. Refer to page 1-4-143.
- \* Two stations are necessary for the double, 3 position (Dual body type).

**SUP/EXH block assembly mounting position**

| Symbol | Mounting position      | Stations         |
|--------|------------------------|------------------|
| U      | U side                 | 2 to 10 stations |
| D      | D side                 |                  |
| B      | (Both sides)           | 2 to 20 stations |
| M      | Special specifications |                  |

\* For special specifications, indicate separately on the manifold specification sheet.

**SUP/EXH block assembly specifications**

| Symbol | Specifications                   |
|--------|----------------------------------|
| R      | External pilot                   |
| S      | Internal pilot/Built-in silencer |
| RS     | External pilot/Built-in silencer |

**A, B port size**

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

| Symbol | Port size                | Applicable series |
|--------|--------------------------|-------------------|
| C4     | One-touch fitting for ø4 | SY3000            |
| C6     | One-touch fitting for ø6 |                   |
| M      | Mixed                    |                   |
| C4     | One-touch fitting for ø4 | SY5000            |
| C6     | One-touch fitting for ø6 |                   |
| C8     | One-touch fitting for ø8 |                   |
| M      | Mixed                    |                   |

**One-touch fitting (Inch size)**

| Symbol | Port size                    | Applicable series |
|--------|------------------------------|-------------------|
| N3     | One-touch fitting for ø5/32" | SY3000            |
| N7     | One-touch fitting for ø1/4"  |                   |
| M      | Mixed                        |                   |
| N3     | One-touch fitting for ø5/32" | SY5000            |
| N7     | One-touch fitting for ø1/4"  |                   |
| N9     | One-touch fitting for ø5/16" |                   |
| M      | Mixed                        |                   |

\* In the case of mixed specifications, indicate separately on the manifold specification sheet.

**Voltage**

|     |        |
|-----|--------|
| Nil | 24 VDC |
| 12V | 12 VDC |

No symbol is used for T, T1, S □ types.

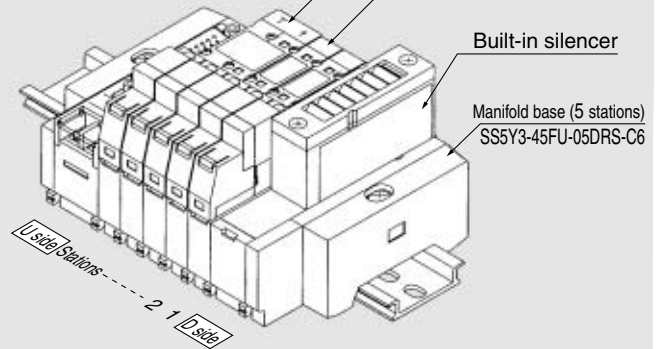
**Option**

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (20 stations at maximum)

**How to Order Valve Manifold Assembly**

**Ordering example**

Single solenoid (external pilot specifications)  
SY3140R-5FU (3 sets)  
Double solenoid (external pilot specifications)  
SY3245R-5FU (1 set)



**SS5Y3-45FU-05DRS-C6** 1 set (External pilot with built-in silencer part no.)  
\* SY3140R-5FU 3 sets (Single solenoid part no.)  
\* SY3245R-5FU 1 set (Double solenoid part no.)

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

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us. For manifolds with SUP/EXH block at each end of the manifold, external pilot ports and silencers will be also located at each end of the manifold. The SUP/EXH block assembly (SX3/5000-51-1A), for special usage, as shown on page 1-4-130, can also be mounted. Please specify the mounting position, by correctly filling in the blank space on the manifold specification sheet. Two stations of the manifold base are necessary for the double, 3 position (Dual body type). Use caution when specifying the number of stations required for the manifold base.

**How to Order Valves**



**Series**

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

**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 |

**Body Option**

|   |                                     |
|---|-------------------------------------|
| 0 | Standard (Single only)              |
| 5 | Dual body type (Double, 3 position) |

**Pilot type**

|     |                |
|-----|----------------|
| Nil | Internal pilot |
| R   | External pilot |

**Rated voltage**

|    |        |
|----|--------|
| 5  | 24 VDC |
| 6  | 12 VDC |
| V* | 6 VDC  |
| S* | 5 VDC  |
| R* | 3 VDC  |

**Manual override**

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

\* Mark: 45T and T1 only  
□ type is available for 24 VDC only.

# Made to Order Specifications: Series SY3000/5000 Mixed Mounting

Type **M45**

## Non plug-in

Use SY3000 together with SY5000, which has a large Cv and is mounted only in a place where it is needed, permits a selection of economic manifold bases.

## How to Order Manifold

### Type M45 (Mixed mounting type)

**SS5Y5-M45-05 U C86**

Mixed mounting type

#### Valve stations

| Symbol | Stations    | SUP/EXH block assembly mounting position |
|--------|-------------|--|
| 02     | 2 stations  | U  |
| 20     | 20 stations | D  |
|        |             | B  |
|        |             | M  |

The number of blanking plate ass'y is included, too.

\* For special specifications, indicate separately on the manifold specification sheet.

#### SUP/EXH block assembly specifications

| Symbol | Specifications          |
|--------|-------------------------|
| Nil    | Standard/Internal pilot |
| S      | Built-in silencer       |

\* External pilot is unavailable for mixed mounting style.

#### Option

When a longer DIN rail is desired than the specified stations, specify the station number to be required. (Max. 20 stations)

#### A, B port size

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

| Symbol | Port size  |
|--------|--|
| C44    | SY5000: One-touch fitting for $\phi 4$<br>SY3000: One-touch fitting for $\phi 4$ |
| C46    | SY5000: One-touch fitting for $\phi 4$<br>SY3000: One-touch fitting for $\phi 6$ |
| C64    | SY5000: One-touch fitting for $\phi 6$<br>SY3000: One-touch fitting for $\phi 4$ |
| C66    | SY5000: One-touch fitting for $\phi 6$<br>SY3000: One-touch fitting for $\phi 6$ |
| C84    | SY5000: One-touch fitting for $\phi 8$<br>SY3000: One-touch fitting for $\phi 4$ |
| C86    | SY5000: One-touch fitting for $\phi 8$<br>SY3000: One-touch fitting for $\phi 6$ |
| M      | Mixed  |

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

| Symbol | Port size  |
|--------|--|
| N33    | SY5000: One-touch fitting for $\phi 5/32$ "<br>SY3000: One-touch fitting for $\phi 5/32$ " |
| N37    | SY5000: One-touch fitting for $\phi 5/32$ "<br>SY3000: One-touch fitting for $\phi 1/4$ "  |
| N73    | SY5000: One-touch fitting for $\phi 1/4$ "<br>SY3000: One-touch fitting for $\phi 5/32$ "  |
| N77    | SY5000: One-touch fitting for $\phi 1/4$ "<br>SY3000: One-touch fitting for $\phi 1/4$ "   |
| N93    | SY5000: One-touch fitting for $\phi 5/16$ "<br>SY3000: One-touch fitting for $\phi 5/32$ " |
| N97    | SY5000: One-touch fitting for $\phi 5/16$ "<br>SY3000: One-touch fitting for $\phi 1/4$ "  |
| M      | Mixed  |

\* In the case of mixed specifications, indicate separately on the manifold specification sheet.

## How to Order Valve Manifold Assembly

### Ordering example

Manifold base (5 stations)  
SS5Y5-M45-05U-C86

Single solenoid valve  
SY3140-5G (3 sets)

Single solenoid valve  
SY3140-5G (2 sets)

Manifold block assembly for SY5000  
SX5000-50-1A

Manifold block assembly for SY3000  
SX5000-50-8A

U side Stations

D side

1 2

**SS5Y5-M45-05U-C86** 1 set (Type M45, manifold base part no.)  
 \* **SY3140-5G** 3 sets (Single solenoid part no.)  
 \* **SY5140-5G** 2 sets (Single solenoid part no.)

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

The valve arrangement is numbered as the 1st. station from D side regardless of the mounting position of SUP/EXH block assembly. In ordering, specify the part nos. in the order from the 1st. station on D side. Besides, when the arrangement will be complicated, fill out the manifold specification sheet to instruct us.

- SV
- SZ
- SY
- SYJ
- SX

## How to Order Valves

**SY 5 2 40 5 L**

#### Series

|   |        |
|---|--------|
| 3 | SY3000 |
| 5 | SY5000 |

#### Type of actuation

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

#### Coil specifications

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

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

#### Manual override

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

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

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

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

#### Electrical entry

| 24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC |                                   |                                   | 24, 12, 6, 5, 3 VDC         |
|--|-----------------------------------|-----------------------------------|-----------------------------|
| Grommet                                    | L plug connector                  | M plug connector                  | M8 connector                |
| G: Lead wire length 300 mm                 | L: With lead wire (Length 300 mm) | M: With lead wire (Length 300 mm) | WO: Without connector cable |
| H: Lead wire length 600 mm                 | LN: Without lead wire             | MN: Without lead wire             |                             |
|  | LO: Without connector             | MO: Without connector             |                             |

\* "LN", "MN" type: with 2 sockets.  
 \* For connector cable of M8 connector, refer to page 1-4-209.

#### Rated voltage

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

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

# Made to Order Specifications: Series SY5000/7000/9000, SY500 DIN Terminal\* (DIN 43650C)

\* DIN terminal type conforming to DIN 43650C (DIN pitch 8 mm) standard.

## How to Order Valves

**Series**

|   |       |
|---|-------|
| 5 | SY500 |
|---|-------|

**Type of actuation**

|   |                 |
|---|-----------------|
| 1 | Normally open   |
| 2 | Normally closed |

**Type**

|   |              |
|---|--------------|
| 3 | Body ported  |
| 5 | Base mounted |

**A port size**

| Symbol | Port size                    |
|--------|------------------------------|
| Nil    | Base mounted                 |
| 01     | 1/8                          |
| C4     | One-touch fitting for ø4     |
| C6     | One-touch fitting for ø6     |
| C8     | One-touch fitting for ø8     |
| N3     | One-touch fitting for ø5/32" |
| N7     | One-touch fitting for ø1/4"  |
| N9     | One-touch fitting for ø5/16" |

**Thread type**

|     |      |
|-----|------|
| Nil | Rc   |
| F   | G    |
| N   | NPT  |
| T   | NPTF |

**3 port valve (5 port valve mixed mounting style)**  
SY 5 1 3

**5 port valve**  
SY 5 2 2 0

**Series**

|   |        |
|---|--------|
| 5 | SY5000 |
| 7 | SY7000 |
| 9 | SY9000 |

**Type of actuation**

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

**Body type**

|   |              |
|---|--------------|
| 2 | Body ported  |
| 4 | Base mounted |

**Pilot type**

|     |                |
|-----|----------------|
| Nil | Internal pilot |
| R*  | External pilot |

\* Base mounted type only.

**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] |

**Electrical entry**

Y: With connector

YO: Without connector

**Light/Surge voltage suppressor**

|     |   |
|-----|---|
| Nil | Without light/surge voltage suppressor            |
| S   | With surge voltage suppressor                     |
| Z   | With indicator light and 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.

**Manual override**

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

**For body ported Thread piping**

| Symbol | Port size | Applicable series |
|--------|-----------|-------------------|
| 01     | 1/8       | SY5000            |
| 02     | 1/8       | SY7000            |
| 03     | 3/8       | SY9000            |

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

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

**One-touch fitting (Inch size)**

| Symbol | Port size                    | Applicable series |
|--------|------------------------------|-------------------|
| N3     | One-touch fitting for ø5/32" | SY5000            |
| N7     | One-touch fitting for ø1/4"  |                   |
| N9     | One-touch fitting for ø5/16" |                   |
| N9     | One-touch fitting for ø5/16" | SY7000            |
| N11    | One-touch fitting for ø3/8"  |                   |
| N9     | One-touch fitting for ø5/16" | SY9000            |
| N11    | One-touch fitting for ø3/8"  |                   |

**Base Mounted**

| Symbol | Port size          | Applicable series |
|--------|--------------------|-------------------|
| Nil    | Without sub-plate  | SY5000            |
| 02     | With sub-plate 1/4 |                   |
| 03     | With sub-plate 3/8 | SY7000            |
|        | With sub-plate 3/8 | SY9000            |
| 04     | With sub-plate 1/2 | SY9000            |
|        | With sub-plate 1/2 | SY9000            |

**Note** When placing an order for body ported solenoid valve as a single unit, mounting bolt for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to catalog on page 1-4-61.)

SV  
SZ  
SY  
SYJ  
SX

## 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

|     |  |
|-----|--|
| Nil | 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      | With connector    |
| YO | terminal | Without connector |

## DIN Terminal Part No.

|               |            |
|---------------|------------|
| Without light | SY100-82-1 |
|---------------|------------|

### With indicator light

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

## Caution

- 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 page 1-4-207.
- Type D, DIN terminal with 9.4 mm pitch between terminals if not interchangeable.
- To distinguish from the Type D, DIN connector, "N" is listed at the end of voltage symbol. (For connector parts without lights, "N" is not indicated. Please refer to the name plate to distinguish.)
- Dimensions are completely the same as type D DIN terminal.
- When exchanging the pilot valve assembly only, "SY115-□D" is interchangeable with "SY115-□Y". Do not replace SY114 (G, L, M) to SY115 (DIN terminal), and vice versa.

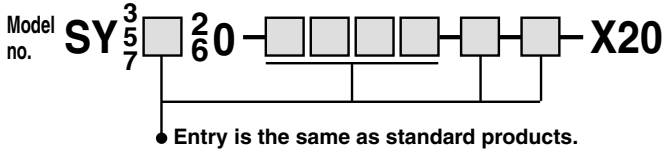
# Made to Order Specifications: Series SY3000/5000/7000/9000 Body Ported External Pilot/Fluoro Rubber



\* for Main Value

## Body Ported External Pilot

Applicable solenoid valves: Series SY3□<sub>60</sub><sup>20</sup>, SY5□<sub>60</sub><sup>20</sup>, SY7□<sub>60</sub><sup>20</sup>



## Operating Pressure Range MPa

|                          |                 |
|--------------------------|-----------------|
| Operating pressure range | -100 kPa to 0.7 |
| Pilot pressure range     | 0.25 to 0.7     |

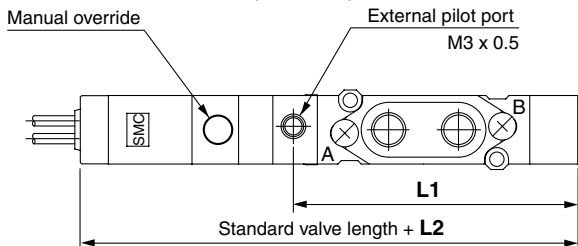
Dimensions: For SY3□<sub>60</sub><sup>20</sup>60, SY5□<sub>60</sub><sup>20</sup>60, SY7□<sub>60</sub><sup>20</sup>60

Dimensions SY3000 becomes 6.5 mm longer.  
SY5000 and SY7000 becomes 10 mm longer.

## External Pilot Port

| Series              | Port size |
|---------------------|-----------|
| SY3000              | M3 x 0.5  |
| SY <sup>5</sup> 000 | M5 x 0.8  |

Dimensions: For SY3□<sub>60</sub>, SY5□<sub>60</sub>, SY7□<sub>60</sub>

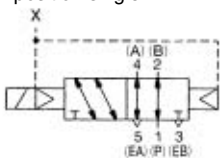


## Dimensions/External Pilot Port Position

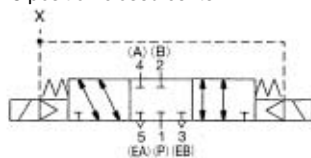
| Series | L1 dimensions | L2 dimensions |
|--------|---------------|---------------|
| SY3000 | 41.5          | 6.5           |
| SY5000 | 60.4          | 9             |
| SY7000 | 71.9          | 9             |

## JIS Symbol

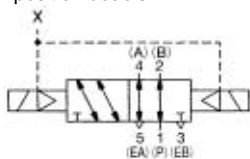
Body ported  
2 position single



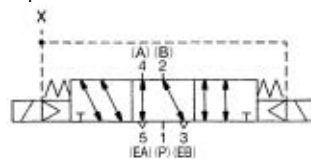
3 position closed center



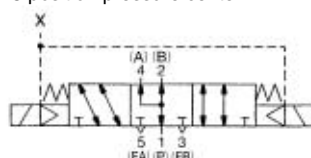
2 position double



3 position exhaust center



3 position pressure center

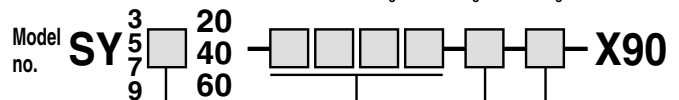


## Main Valve Fluoro Rubber Specifications

Fluoro rubber is used for rubber parts of the main valve to allow use in applications such as the following.

- When using a lubricant other than the recommended turbine oil, and there is a possibility of malfunction due to swelling of the spool valve seals.

Applicable solenoid valves: Series SY3□<sub>60</sub><sup>20</sup>, SY5□<sub>60</sub><sup>20</sup>, SY7□<sub>60</sub><sup>20</sup>, SY9□<sub>60</sub><sup>20</sup>



● Entry is the same as standard products.

Specifications and performance are the same as standard products.