

5 Port Solenoid Valve

Body Ported/Single Unit

SY3000/5000/7000/9000 Series



(Option)
Note) AC-type models that are CE-compliant have DIN terminals only.

Body Ported **SY3000/5000/7000/9000 Series**

How to Order

Series

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

Type of actuation

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

Coil specifications

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

Rated voltage

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

Thread piping

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

One-touch fitting (Metric size)

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

One-touch fitting (Inch size)

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

Bracket

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

* SY9000 has no bracket.

Thread type

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

* Except for M5

CE-compliant

| | |
|-----|--|
| Nil | — |
| X20 | Body part external paint (Refer to page 624) |
| X90 | Main valve fluororubber (Refer to page 624) |

Nil
Q CE-compliant

Note) AC-type models that are CE-compliant have DIN terminals only.

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) |

Electrical entry for D, Y

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

* For AC voltage valves there is no "S" option. 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.

Note) When placing an order for body ported solenoid valve as a single unit, mounting screw for manifold and gasket are not attached. Order them separately, if necessary. (For details, refer to page 467.)

Electrical entry

| | | |
|--|----------------------|-----------------------------------|
| 24, 12, 6, 5, 3 VDC/100, 110, 200, 220 VAC | | 24, 12 VDC/100, 110, 200, 220 VAC |
| Grommet | L plug connector | M plug connector |
| DIN terminal | D, Y: With connector | D, Y: Without connector |

M8 connector

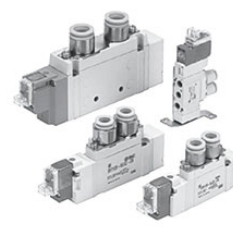
W: Without connector cable
W: With connector cable

DC/AC

| | |
|----|---|
| DC | — |
| AC | — |

Notes:

- LN, MN type: with 2 sockets.
- For DIN terminal of SY3000 series, refer to page 639.
- *"Y" type is a DIN terminal conforming to EN-175301-803C (former DIN43650C). For details, refer to page 638.
- For connector cable of M8 connector, refer to page 641.
- M8 connector conforming to IEC60947-5-2 standard is also available. Refer to page 623 for details.
- Refer to page 638 for the lead wire length of L and M plug connectors.
- Refer to page 639 for the connector assembly with cover for L and M plug connectors.
- Note) Enter the cable length symbols in □. Please be sure to fill in the blank referring to page 642.



Made to Order (For details, refer to pages 616 to 628.)

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) | | | |
| Max. operating frequency (Hz) | 2 position single, double | 10 | 5 | 5 |
| | 3 position | 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 ²) ^{Note} | 150/30 | | | |
| Enclosure | Dust proof (= DIN terminal and M8 connector: IP65) | | | |

* Based on IEC60529
Note) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)
Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. 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)

Solenoid Specifications

| | | |
|-------------------------------|--|--|
| Electrical entry | Grommet (G), (H) L plug connector (L) M plug connector (M) | DIN terminal (D), (Y) M8 connector (W) |
| Coil rated voltage (V) | DC AC 50/60 Hz | D, Y 24, 12, 6, 5, 3 |
| Allowable voltage fluctuation | ±10% of rated voltage * | |
| Power consumption (W) | Standard With power saving circuit | 0.35 (With indicator light: 0.4 DIN terminal with indicator light: 0.45) 0.1 (With indicator light only) * (Starting 0.4, Holding 0.1) |
| Apparent power (VA) * | 100 V | 0.78 (With indicator light: 0.81) 0.78 (With indicator light: 0.87) |
| | 110 V [115 V] | 0.86 (With indicator light: 0.89) 0.86 (With indicator light: 0.97) [0.94 (With indicator light: 0.97)] |
| | 200 V | 1.18 (With indicator light: 1.22) 1.15 (With indicator light: 1.30) |
| | 220 V | 1.30 (With indicator light: 1.34) 1.27 (With indicator light: 1.46) |
| | [230 V] | 1.42 (With indicator light: 1.46) [1.39 (With indicator light: 1.60)] |
| Surge voltage suppressor | Diode (Varistor is for DIN terminal and Non-polar type.) | |
| Indicator light | LED (AC of DIN connector is neon light.) | |

* 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.
* DIN terminal and M8 connector with power saving circuit are not available.
* For details, refer to page 636.

Response Time

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

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 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 |

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 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 |

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 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 |

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 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 |