

Series SY3000/5000

Valve Specifications 1

Valve Specifications

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

Note 1) Use below 5 Hz for with power saving circuit.

Note 2) Impact resistance: No malfunction occurred when it is tested in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

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

Note 3) Due to voltage drops by the internal circuit in S/Z type and T type (with power saving circuit), use within the allowable voltage fluctuation as follows.

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

Response Time

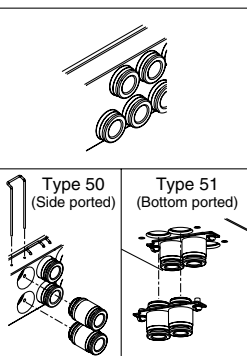
| Series | Seal type | Model | Type of actuation | Response time (ms) | | | | | |
|--------|-------------|------------|------------------------------|--|-------------------------------------|------------|--|-------------------------------------|------------|
| | | | | Standard | | | Quick response type | | |
| | | | | Without light/surge voltage suppressor | With light/surge voltage suppressor | | Without light/surge voltage suppressor | With light/surge voltage suppressor | |
| | | | | | S/Z type | R/U type | | S/Z type | R/U type |
| SY3000 | Rubber seal | SY31□0 | 2-position single | 15 or less | 20 or less | 15 or less | 12 or less | 15 or less | 12 or less |
| | Metal seal | SY31□1 | | 15 or less | 20 or less | 15 or less | 12 or less | 15 or less | 12 or less |
| | Rubber seal | SY32□0 | 2-position double | 12 or less | 15 or less | 12 or less | 10 or less | 13 or less | 10 or less |
| | Metal seal | SY32□1 | | 12 or less | 15 or less | 12 or less | 10 or less | 13 or less | 10 or less |
| | Rubber seal | SY33/4/5□0 | 3-position | 18 or less | 22 or less | 18 or less | 14 or less | 18 or less | 14 or less |
| | Metal seal | SY33/4/5□1 | | 18 or less | 22 or less | 18 or less | 14 or less | 18 or less | 14 or less |
| | Rubber seal | SY3A/B/C□0 | 4-position dual 3-port valve | 18 or less | 22 or less | 18 or less | 15 or less | 19 or less | 15 or less |
| SY5000 | Rubber seal | SY51□0 | 2-position single | 24 or less | 31 or less | 24 or less | 18 or less | 25 or less | 18 or less |
| | Metal seal | SY51□1 | | 24 or less | 31 or less | 24 or less | 18 or less | 25 or less | 18 or less |
| | Rubber seal | SY52□0 | 2-position double | 12 or less | 15 or less | 12 or less | 10 or less | 13 or less | 10 or less |
| | Metal seal | SY52□1 | | 12 or less | 15 or less | 12 or less | 10 or less | 13 or less | 10 or less |
| | Rubber seal | SY53/4/5□0 | 3-position | 30 or less | 34 or less | 30 or less | 24 or less | 28 or less | 24 or less |
| | Metal seal | SY53/4/5□1 | | 28 or less | 30 or less | 28 or less | 23 or less | 25 or less | 23 or less |
| | Rubber seal | SY5A/B/C□0 | 4-position dual 3-port valve | 35 or less | 42 or less | 35 or less | 28 or less | 35 or less | 28 or less |

8 A, B port size (Thread piping)

| Symbol | A, B port | SY3000 | SY5000 |
|--------|-----------|--------|--------|
| M5 | M5 x 0.8 | ● | — |
| 01 | 1/8 | ● | ● |
| 02 | 1/4 | — | ● |

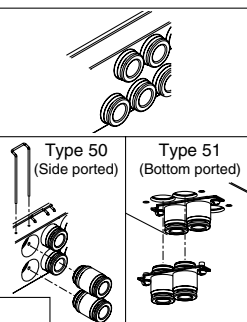
A, B port size (Metric)

| Symbol | A, B port | SY3000 | SY5000 |
|--------------------------------|----------------------------|--------|--------|
| Fixed | C2 ø2 One-touch fitting | ● | — |
| | C3 ø3.2 One-touch fitting | ● | — |
| | C4 ø4 One-touch fitting | ● | ● |
| | C6 ø6 One-touch fitting | ● | ● |
| | C8 ø8 One-touch fitting | — | ● |
| Replaceable | KC2 ø2 One-touch fitting | ● | — |
| | KC3 ø3.2 One-touch fitting | ● | — |
| | KC4 ø4 One-touch fitting | ● | ● |
| | KC6 ø6 One-touch fitting | ● | ● |
| | KC8 ø8 One-touch fitting | — | ● |
| M* Mixed sizes | | ● | ● |
| P, E port size (Thread piping) | | 1/8 | 1/4 |



A, B port size (Inch)

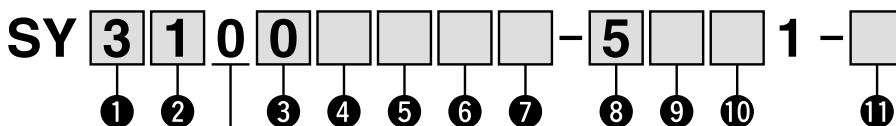
| Symbol | A, B port | SY3000 | SY5000 |
|--------------------------------|------------------------------|--------|--------|
| Fixed | N1 ø1/8" One-touch fitting | ● | — |
| | N3 ø5/32" One-touch fitting | ● | ● |
| | N7 ø1/4" One-touch fitting | ● | ● |
| | N9 ø5/16" One-touch fitting | — | ● |
| Replaceable | KN1 ø1/8" One-touch fitting | ● | — |
| | KN3 ø5/32" One-touch fitting | ● | ● |
| | KN7 ø1/4" One-touch fitting | ● | ● |
| | KN9 ø5/16" One-touch fitting | — | ● |
| M* Mixed sizes | | ● | ● |
| P, E port size (Thread piping) | | 1/8 | 1/4 |



* When ports are mixed sizes, indicate the piping specifications on the manifold specification sheet.

How to Order Valves (With two mounting screws)

Refer to page 8 for valve specifications.



1 Series

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

2 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 |
| A* | 4-position dual 3-port valve (N.C./N.C.) |
| B* | 4-position dual 3-port valve (N.O./N.O.) |
| C* | 4-position dual 3-port valve (N.C./N.O.) |

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

3 Seal type

| | |
|---|-------------|
| 0 | Rubber seal |
| 1 | Metal seal |

4 Pilot type

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

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

| | |
|-----|----------|
| Nil | None |
| H | Built-in |

* Only rubber seal type

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

Base mounted

6 Pilot valve option

| | |
|-----|-------------------------------|
| Nil | Standard (0.7 MPa) |
| B | Quick response type (0.7 MPa) |
| K* | High pressure type (1.0 MPa) |

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

7 Coil type

| | |
|-----|--|
| Nil | Standard |
| T | With power saving circuit (Continuous duty type) |

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

* Note the specified energizing time when power saving circuit is selected. Refer to page 154.

8 Rated voltage

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

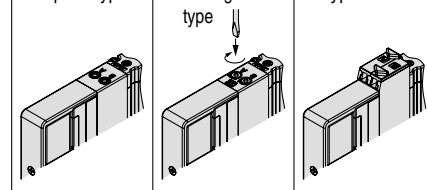
9 Light/surge voltage suppressor and common specification

| | |
|-----|---|
| Nil | Without light/surge voltage suppressor (Non-polar) |
| R | With surge voltage suppressor (Non-polar) |
| U | With light/surge voltage suppressor (Non-polar) |
| S | With surge voltage suppressor (Positive common) |
| Z | With light/surge voltage suppressor (Positive common) |
| NS | With surge voltage suppressor (Negative common) |
| NZ | With light/surge voltage suppressor (Negative common) |

* Only "Z" and "NZ" types are available for the product with power saving circuit.

10 Manual override

| | | |
|----------------------------|-----------------------------------|-----------------------|
| Nil: Non-locking push type | D: Push-turn locking slotted type | F: Slide locking type |
|----------------------------|-----------------------------------|-----------------------|



11 Type of mounting screw

| | |
|-----|---|
| Nil | Round head combination screw |
| B | Hexagon socket head cap screw |
| K | Round head combination screw (Falling-out-prevention type) |
| H | Hexagon socket head cap screw (Falling-out-prevention type) |

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

* When ordering a valve individually, the base gasket is not included. Since the base gasket is attached to the manifold, please order the base gasket separately if it is needed for maintenance service. Refer to page 47 for part numbers of the base gasket and mounting screw.

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

