# Magnetically Coupled Rodless Cylinder Slider Type: Slide Bearing 

 CY1S Series $\varnothing 6, \varnothing 10, \varnothing 15, \varnothing 20, \varnothing 25, \varnothing 32, \varnothing 40$
## How to Order



Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

| Type | Special function | Electrical entry |  | Wiring (Output) | Load voltage |  |  | Auto switch model |  | Lead wire length ( m ) |  |  |  | Pre-vired connector | Applicable load |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  |  | DC |  | AC | Perpendicular | In-line | $\begin{gathered} 0.5 \\ \text { (Nil) } \end{gathered}$ | $\left\lvert\, \begin{gathered} 1 \\ (M) \end{gathered}\right.$ | $\begin{array}{\|c} \hline 3 \\ \text { (L) } \end{array}$ | $\begin{gathered} 5 \\ (Z) \\ \hline \end{gathered}$ |  |  |  |
|  |  | Grommet | Yes 3 | 3-wire (NPN) | 24 V | $5 \mathrm{~V}, 12 \mathrm{~V}$ | - | M9NV | M9N | $\bullet$ | $\bullet$ | $\bullet$ | $\bigcirc$ | $\bigcirc$ | IC circuit | Relay, PLC |
|  |  |  |  | 3-wire (PNP) |  |  |  | M9PV | M9P | - | - | - | $\bigcirc$ | $\bigcirc$ |  |  |
|  |  |  |  | 2-wire |  | 12 V |  | M9BV | M9B | - | - | $\bullet$ | $\bigcirc$ | $\bigcirc$ | - |  |
|  |  |  |  | 3-wire (NPN) |  |  |  | M9NWV | M9NW | - | - | - | $\bigcirc$ | $\bigcirc$ |  |  |
|  |  |  |  | 3-wire (PNP) |  | V |  | M9PWV | M9PW | - | - | $\bullet$ | 0 | $\bigcirc$ | IC circuit |  |
|  |  |  |  | 2-wire |  | 12 V |  | M9BWV | M9BW | - | $\bullet$ | $\bullet$ | 0 | $\bigcirc$ | - |  |
|  | Water resistant (2-color indicator) |  |  | 3-wire (NPN) |  | $5 \mathrm{~V}, 12 \mathrm{~V}$ |  | M9NAV*1 | M9NA ${ }^{* 1}$ | O | $\bigcirc$ | $\bullet$ | 0 | $\bigcirc$ | IC circuit |  |
|  |  |  |  | 3-wire (PNP) |  |  |  | M9PAV*1 | M9PA ${ }^{\text {* }}$ | $\bigcirc$ | $\bigcirc$ | - | O | $\bigcirc$ | IC circuit |  |
|  |  |  |  | 2-wire |  | 12 V |  | M9BAV*1 | M9BA* ${ }^{\text {* }}$ | $\bigcirc$ | $\bigcirc$ | $\bullet$ | $\bigcirc$ | $\bigcirc$ | - |  |
| - |  | Grommet | Yes | 3 -wire (NPN equivalent) | - | 5 V | - | A96V | A96 | $\bullet$ | - | - | - | - | IC circuit | - |
| $\stackrel{0}{0}$ |  |  |  | 2-wire | $24 \mathrm{~V}$ | $12 \mathrm{~V}$ | 100 V | A93V*2 | A93 | - | - | $\bullet$ | $\bullet$ | - | - | Relay, |
| ¢ |  |  |  |  |  |  | 100 V or less | A90V | A90 | $\bullet$ | - | $\bullet$ | - | - | IC circuit | PLC |

*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
Please consult with SMC regarding water resistant types with the above model numbers.
*2 1 m type lead wire is only applicable to D-A93.

* Lead wire length symbols: 0.5 m

Nil (Example) M9NW

* Solid state auto switches marked with "○" are produced upon receipt of order.

$$
\begin{aligned}
& 1 \mathrm{~m} . . . . . . . . . . . . . . ~ M ~(E x a m p l e) ~ M 9 N W M ~ \\
& 3 \mathrm{~m} . . . . . . . . . . . . . . \mathrm{L} \text { (Example) M9NWL } \\
& 5 \mathrm{~m} . . . . . . . . . . . . . . . Z ~(E x a m p l e) ~ M 9 N W Z
\end{aligned}
$$

* There are other applicable auto switches other than listed above. For details, refer to page 1506.
* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.
* Auto switches are shipped together, (but not assembled).

Magnetically Coupled Rodless Cylinder Slider Type: Slide Bearing

## Specifications

| Bore size (mm) | 6 | 10 | 15 | 20 | 25 | 32 | 40 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Fluid | Air |  |  |  |  |  |  |
| Proof pressure | 1.05 MPa |  |  |  |  |  |  |
| Maximum operating pressure | 0.7 MPa |  |  |  |  |  |  |
| Minimum operating pressure | 0.18 MPa |  |  |  |  |  |  |
| Ambient and fluid temperature | -10 to $60^{\circ} \mathrm{C}$ (No freezing) |  |  |  |  |  |  |
| Piston speed* | 50 to $400 \mathrm{~mm} / \mathrm{s}$ |  |  |  |  |  |  |
| Cushion | Rubber bumper/Shock absorber |  |  |  |  |  |  |
| Lubrication | Non-lube |  |  |  |  |  |  |
| Stroke length tolerance (mm) | 0 to 250 st: ${ }^{+1.0}, 251$ to 1000 st: ${ }^{+1.4}, 1001$ st or longer: ${ }^{+1.8}{ }_{0}^{+8}$ |  |  |  |  |  |  |
| Magnetic holding force (N) | 19.6 | 53.9 | 137 | 231 | 363 | 588 | 922 |

* In the case of setting an auto switch at the intermediate position, the maximum piston speed is subject to restrict for detection upon the response time of a load (relays, sequence controller, etc.).


## Standard Strokes

| Bore size <br> $(\mathrm{mm})$ | Standard stroke $(\mathrm{mm})$ | Maximum <br> manufacturable <br> stroke $(\mathrm{mm})$ |
| :---: | :--- | :---: |
| $\mathbf{6}$ | $50,100,150,200$ | 300 |
| $\mathbf{1 0}$ | $50,100,150,200,250,300$ | 500 |
| $\mathbf{1 5}$ | $50,100,150,200,250,300,350,400,450,500$ | 750 |
| $\mathbf{2 0}$ | $100,150,200,250,300,350,400,450$, | 1000 |
| $\mathbf{2 5}$ | $500,600,700,800$ | 1500 |
| $\mathbf{3 2}$ | $100,150,200,250,300,350,400,450$, <br> 500 <br> 40 | $1500,700,800,900,1000$ |

Note 1) Intermediate stroke is available in 1 mm increments. (Produced upon receipt of order)
Note 2) Minimum stroke available without auto switch or with one auto switch is 15 mm and minimum 25 mm for with 2 auto switches.
Note 3) For 2 or more auto switches with stroke less than 25 mm (minimum 15 mm ), consider "-X431" (2 switch rails).

Weights

| $(\mathrm{kg})$ |  |  |  |  |  |  |  |  |  |
| :--- | :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Bore size (mm) | $\mathbf{6}$ | $\mathbf{1 0}$ | $\mathbf{1 5}$ | $\mathbf{2 0}$ | $\mathbf{2 5}$ | $\mathbf{3 2}$ |  |
| $\mathbf{4 0}$ |  |  |  |  |  |  |  |  |  |
| CY1S $\square$ | Basic weight | 0.231 | 0.428 | 0.743 | 1.317 | 1.641 | 2.870 | 4.508 |  |
|  | Additional weight for 50 stroke | 0.053 | 0.082 | 0.111 | 0.184 | 0.186 | 0.284 | 0.430 |  |
| CY1SG $\square$ | Basic weight | 0.236 | 0.435 | 0.743 | 1.331 | 1.662 | 2.903 | 4.534 |  |
|  | Additional weight for 50 stroke | 0.050 | 0.079 | 0.108 | 0.176 | 0.178 | 0.273 | 0.411 |  |

Calculation: (Example) CY1SG25-500Z
Basic weight (At 0 stroke) ... 1.662 kg Additional weight for 50 stroke ... 0.178 kg
Cylinder stroke ... 500 st
$1.662+0.178 \times 500 \div 50=3.442 \mathrm{~kg}$

## Shock Absorber Specifications

| Applicable cylinder | CY1S $\square \mathbf{6}$ | CY1S $\square \mathbf{1 0}$ | CY1S $\square \mathbf{1 5}$ | CY1S $\square \mathbf{2 0}$ | CY1S $\square \mathbf{2 5}$ | CY1S $\square \mathbf{3 2}$ | CY1S $\square \mathbf{4 0}$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Shock absorber model | RJ0604 | RJ0806H | RJ0806L | RJ1007L | RJ1412L | RJ2015H | RJ2015L |
| Max. absorbed energy (J) | 0.5 | 1 | 3 | 10 | 30 |  |  |
| Stroke absorption (mm) | 4 | 6 | 7 | 12 | 15 |  |  |
| Collision speed (m/s) | 0.05 to 1 | 0.05 to 2 | 0.05 to 1 | 0.05 to 1 | 0.05 to 1 | 0.05 to 2 | 0.05 to 1 1 |
| Max. operating frequency (cycle/min) | 80 | 80 | 70 | 45 | 25 |  |  |
| Max. allowable thrust (N) | 150 | 245 | 422 | 814 | 1961 |  |  |
| Ambient temperature ( ${ }^{\circ}$ C) | -10 to $60^{\circ}$ C (No freezing) |  |  |  |  |  |  |

Note) The maximum absorbed energy and maximum operating frequency was measured at ordinary temperature (approximately 20 to $25^{\circ} \mathrm{C}$.)

