

# Mechanically Jointed Rodless Cylinder

## MY2 Series

ø16, ø25, ø40



Compact and low profile design

MY1B  
MY1H  
MY1B  
MY1M  
MY1C  
MY1H  
MY1  
HT  
MY1  
□W  
MY2C  
MY2  
H/HT  
MY3A  
MY3B  
MY3M

D-□  
-X□  
Technical  
Data



1367

## Mechanically Jointed Rodless Cylinder

# MY2 Series

## Compact and low profile design

A complete reduction in height of the cylinder allows mounting in a narrow space.

The low profile design of the cylinder built with a high precision single or double axis guide, provides same load capacity as the earlier MY1 series.

Three types of guide options to suit a variety of applications.

### MY2C

#### Cam Follower Guide

*Available with long stroke*

The new MY2C series accommodates longer stroke up to 5000 mm.

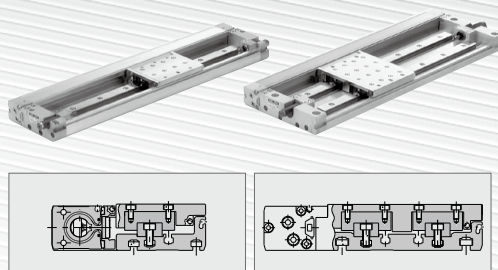


### MY2H

#### Single-axis Linear Guide

### MY2HT

#### Double-axis Linear Guide



All 3 types have the same cylinder height and actuator (cylinder).

## Increased load capacity

The dynamic load mass has been increased with improved guide performance. (Compared to previous MY1 series.)

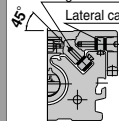
### Cam Follower Guide

### Linear Guide

Higher rigidity of the diagonal cam follower and change in the mounting angle provides improved load and moment capacity.

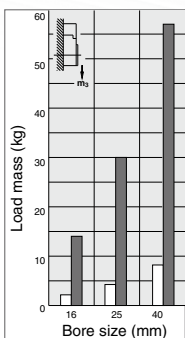
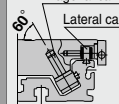
#### MY1C

Diagonal cam follower  
Lateral cam follower

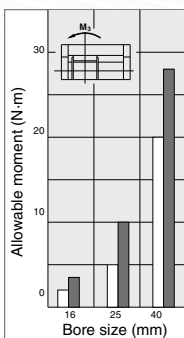


#### MY2C

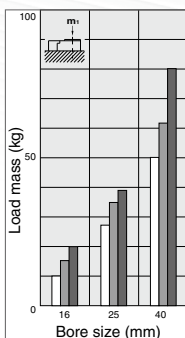
Diagonal cam follower  
Lateral cam follower



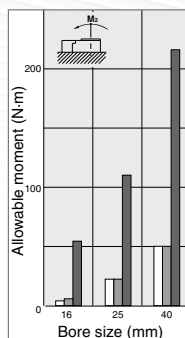
MY2C  
MY1C



MY2C  
MY1C



MY2HT  
MY2H  
MY1H



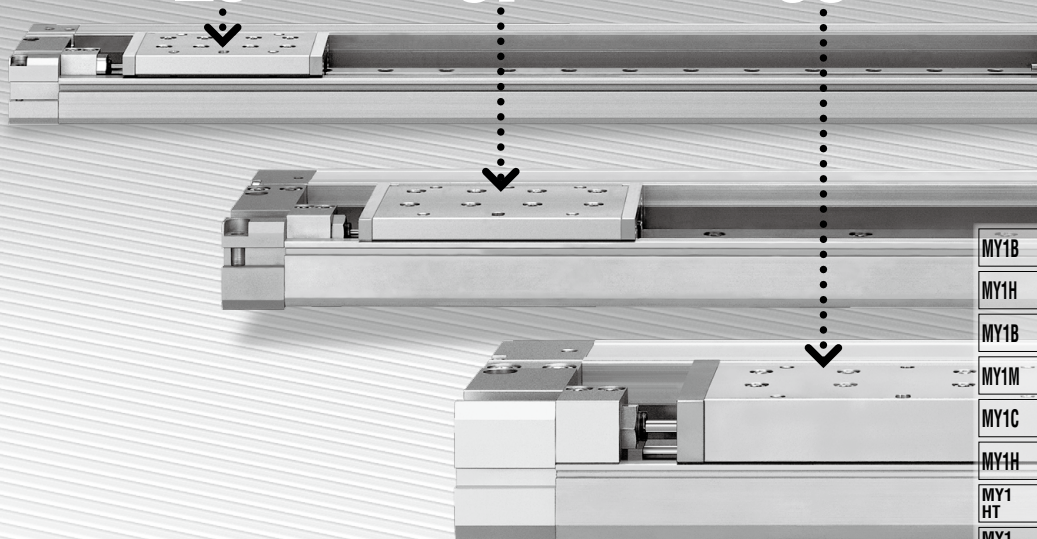
MY2HT  
MY2H  
MY1H

# Height reduction by 30% (Compared to previous MY1 series.)

Low profile achieved by placing the guide unit and cylinder body next to one another.  
(dimension reduced by 12 mm to 26 mm)

| Series              | ø16 | ø25 | ø40 |
|---------------------|-----|-----|-----|
| MY2C                |     |     |     |
| MY2H (Single axis)  | 28  | 37  | 58  |
| MY2HT (Double axis) |     |     |     |
| MY1C, MY1H          | 40  | 54  | 84  |

ø16 / **28mm**    ø25 / **37mm**    ø40 / **58mm**

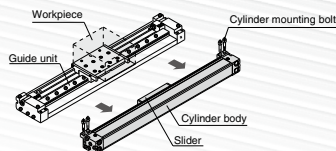


MY1B  
MY1H  
MY1B  
MY1M  
MY1C  
MY1H  
MY1 HT  
MY1  
W  
MY2C  
MY2 H/HT  
MY3A  
MY3B  
MY3M

## Easy replacement of cylinder body

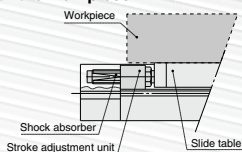
The cylinder can be replaced without removing the workpiece

The cylinder can be detached by simply removing the four mounting bolts, and pulling it off in the direction of the arrows.

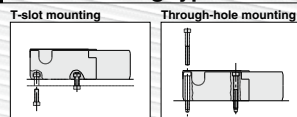


## Improved mounting flexibility

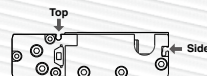
The low profile design allows mounting of heavy-loaded shock absorber (H unit) without interfering with the workpiece.



## Two mounting types



## Auto switch mounting on two sides



## Option

Optional side support is available (MY2C series)

A side support prevents guide deflection for the long stroke application.

## Standard with air cushion and centralized piping

## Series Variations

|  |                | Standard stroke (mm) |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      | Max. available stroke (mm) | Made to order                                    |  |
|--|----------------|----------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|----------------------------|--|--|
| Model                                    | Bore size (mm) | 50                   | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 550 | 600 | 700 | 800 | 900 | 1000 | 1200 | 1400 | 1600 | 1800 | 2000                       |  |  |
| <b>MY2C</b><br>Cam follower guide        | 16             |                      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      | 5000<br>(3000<br>for ø16)  | · Intermediate strokes<br>· Long strokes         |  |
| <b>MY2H</b><br>Linear guide/Single axis  | 25             |                      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      | 1500<br>(1000<br>for ø16)  | · Helical insert threads                         |  |
| <b>MY2HT</b><br>Linear guide/Double axis | 40             |                      |     |     |     |     |     |     |     |     |     |     |     |     |     |     |      |      |      |      |      |                            | Shock absorber<br>soft type RJ<br>series mounted |  |

Note) Availability for Made-to-Order differs, depending on the size and the model.



D-☐  
-X☐  
Technical Data

# Model Selection 1

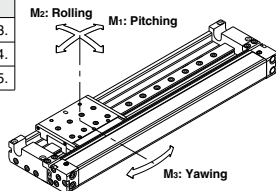
The following are the steps for selection of the MY2 series best suited to your application.

## Standards for Tentative Model Selection

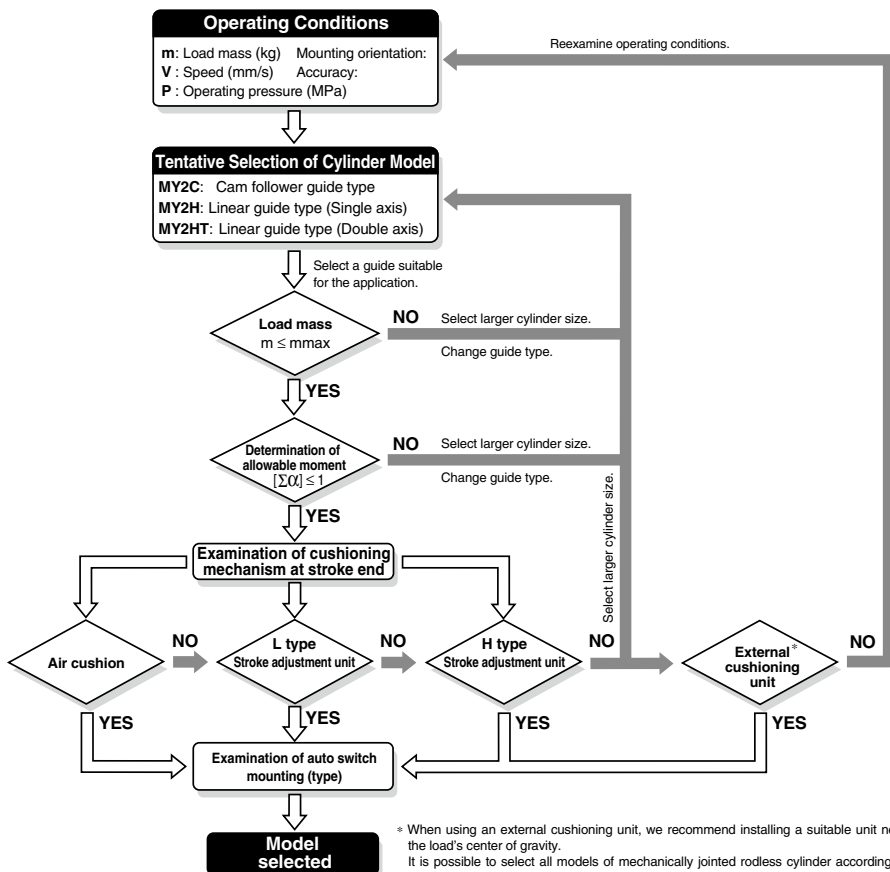
| Cylinder model | Guide type                      | Standards for guide selection                                 | Graphs for related allowable values |
|----------------|---------------------------------|---|-------------------------------------|
| <b>MY2C</b>    | Cam follower guide              | Slide table accuracy approx. $\pm 0.05$ mm <sup>Note 2)</sup> | Refer to page 1373.                 |
| <b>MY2H</b>    | Linear guide type (Single axis) | Slide table accuracy $\pm 0.05$ mm or less <sup>Note 2)</sup> | Refer to page 1374.                 |
| <b>MY2HT</b>   | Linear guide type (Double axis) | Slide table accuracy $\pm 0.05$ mm or less <sup>Note 2)</sup> | Refer to page 1375.                 |

Note 1) Please use the precision of each guide as a guideline for selection. Please contact SMC if warranty on precision is required.

Note 2) Accuracy indicates displacement of the table (at stroke end) when 50% of the allowable moment shown in the catalog is applied. (Reference value)



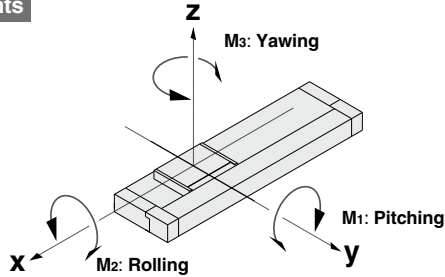
## Selection Flow Chart



### Types of Moment Applied on Rodless Cylinders

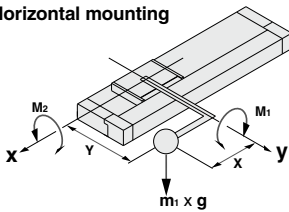
Multiple moments may be generated depending on the mounting orientation, load, and position of the center of gravity.

#### Coordinates and Moments

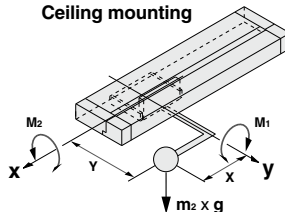


#### Static Moment

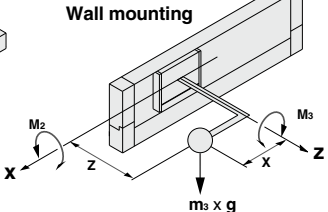
##### Horizontal mounting



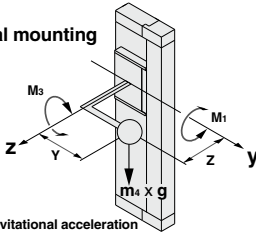
##### Ceiling mounting



##### Wall mounting



##### Vertical mounting

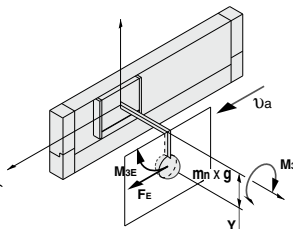
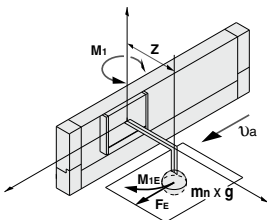


g: Gravitational acceleration

| Mounting orientation | Horizontal     | Ceiling                 | Wall                    | Vertical                |
|----------------------|----------------|-------------------------|-------------------------|-------------------------|
| Static load m        | m <sub>1</sub> | m <sub>2</sub>          | m <sub>3</sub>          | m <sub>4</sub> (Note)   |
| Static moment        | M <sub>1</sub> | $m_1 \times g \times X$ | $m_2 \times g \times X$ | —                       |
|                      | M <sub>2</sub> | $m_1 \times g \times Y$ | $m_2 \times g \times Y$ | $m_3 \times g \times Z$ |
|                      | M <sub>3</sub> | —                       | —                       | $m_4 \times g \times X$ |

Note) m<sub>i</sub> is a mass movable by thrust. Use 0.3 to 0.7 times the thrust (differs depending on the operating speed) as a guide for actual use.

#### Dynamic Moment



g: Gravitational acceleration, Ua: Average speed

| Mounting orientation | Horizontal                                       | Ceiling                                 | Wall | Vertical |
|----------------------|--|---|------|----------|
| Dynamic load $F_E$   | $\frac{1.4}{100} \times U_a \times m_n \times g$ |   |      |          |
| Dynamic moment       | $M_{1E}$   | $\frac{1}{3} \times F_E \times Z$       |      |          |
|                      | $M_{2E}$   | Dynamic moment $M_{2E}$ does not occur. |      |          |
|                      | $M_{3E}$   | $\frac{1}{3} \times F_E \times Y$       |      |          |

Note) Regardless of the mounting orientation, dynamic moment is calculated with the formulas above.

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1

HT

MY1

W

MY2C

MY2

H/HT

MY3A

MY3B

MY3M

D-□

-X□

Technical  
Data



## Maximum Allowable Moment/Maximum Load Mass

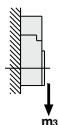
| Model | Bore size (mm) | Maximum allowable moment (N-m) |                |                | Maximum load mass (kg) |                |                |
|-------|----------------|--------------------------------|----------------|----------------|------------------------|----------------|----------------|
|       |                | M <sub>1</sub>                 | M <sub>2</sub> | M <sub>3</sub> | m <sub>1</sub>         | m <sub>2</sub> | m <sub>3</sub> |
| MY2C  | 16             | 5                              | 4              | 3.5            | 18                     | 16             | 14             |
|       | 25             | 13                             | 14             | 10             | 35                     | 35             | 30             |
|       | 40             | 45                             | 33             | 28             | 68                     | 66             | 57             |
| MY2H  | 16             | 7                              | 6              | 7              | 15                     | 13             | 13             |
|       | 25             | 28                             | 26             | 26             | 32                     | 30             | 30             |
|       | 40             | 60                             | 50             | 60             | 62                     | 62             | 62             |
| MY2HT | 16             | 46                             | 55             | 46             | 20                     | 18             | 18             |
|       | 25             | 100                            | 120            | 100            | 38                     | 35             | 35             |
|       | 40             | 200                            | 220            | 200            | 80                     | 80             | 80             |

The above values are the maximum allowable values for moment and load. Refer to each graph regarding the maximum allowable moment and maximum load mass for a particular piston speed.

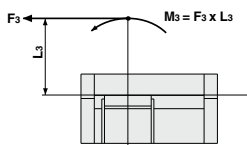
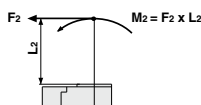
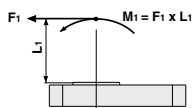
### Maximum Allowable Moment

Select the moment from within the range of operating limits shown in the graphs. Note that the maximum load mass value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable load for the selected conditions.

### Load mass (kg)



### Moment (N-m)



### <Calculation of guide load factor>

1. Maximum load mass (1), static moment (2), and dynamic moment (3) (at the time of impact with stopper) must be examined for the selection calculations.

\* To evaluate, use  $\bar{U}$  (average speed) for (1) and (2), and  $U$  (impact speed  $U = 1.4\bar{U}$ ) for (3). Calculate  $m$  max for (1) from the maximum load mass graph ( $m_1, m_2, m_3$ ) and  $M_{max}$  for (2) and (3) from the maximum allowable moment graph ( $M_1, M_2, M_3$ ).

$$\text{Sum of guide load factors } \Sigma\alpha = \frac{\text{Load mass [m]}}{\text{Maximum load mass [m max]}} + \frac{\text{Static moment [M]}^{(1)}}{\text{Allowable static moment [Mmax]}} + \frac{\text{Dynamic moment [ME]}^{(2)}}{\text{Allowable dynamic moment [Mmax]}} \leq 1$$

Note 1) Moment caused by the load, etc., with cylinder in resting condition.

Note 2) Moment caused by the impact load equivalent at the stroke end (at the time of impact with stopper).

Note 3) Depending on the shape of the workpiece, multiple moments may occur. When this happens, the sum of the load factors ( $\Sigma\alpha$ ) is the total of all such moments.

### 2. Reference formulas [Dynamic moment at impact]

Use the following formulas to calculate dynamic moment when taking stopper impact into consideration.

$m$  : Load mass (kg)

$F$  : Load (N)

$F_E$  : Load equivalent to impact (at impact with stopper) (N)

$\bar{U}$  : Average speed (mm/s)

$M$  : Static moment (N-m)

$U$  : Impact speed (mm/s)

$L_1$  : Distance to the load's center of gravity (m)

$ME$  : Dynamic moment (N-m)

$g$  : Gravitational acceleration (9.8 m/s<sup>2</sup>)

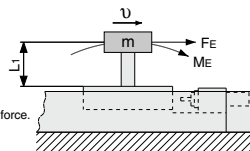
$$U = 1.4\bar{U} \text{ (mm/s)} \quad F_E = \frac{1.4}{100} \bar{U} \cdot g \cdot m \text{ (Note 4)}$$

$$\therefore ME = \frac{1}{3} \cdot F_E \cdot L_1 = 0.05\bar{U} \cdot m \cdot L_1 \text{ (N-m) (Note 5)}$$

Note 4)  $\frac{1.4}{100} \bar{U}$  is a dimensionless coefficient for calculating impact force.

Note 5) Average load coefficient ( $= \frac{1}{3}$ ):

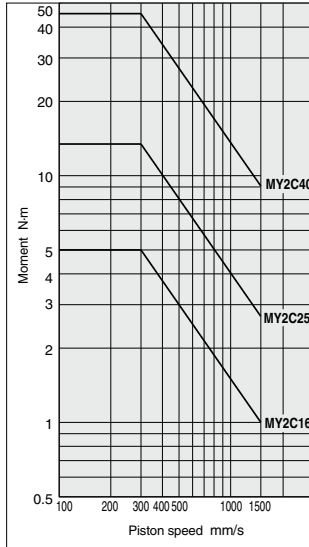
This coefficient is for averaging the maximum load moment at the time of stopper impact according to service life calculations.



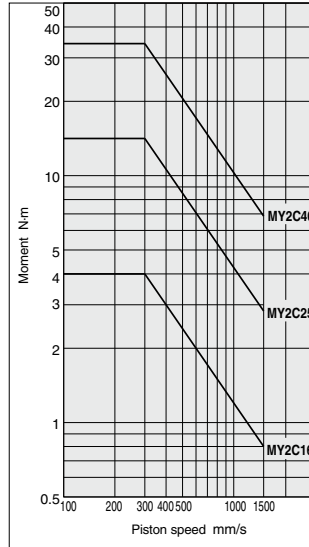
3. Refer to pages 1378 and 1379 for detailed selection procedures.

**Moment/MY2C**

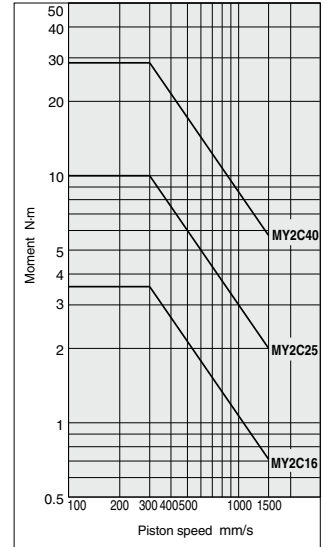
**MY2C/M<sub>1</sub>**



**MY2C/M<sub>2</sub>**

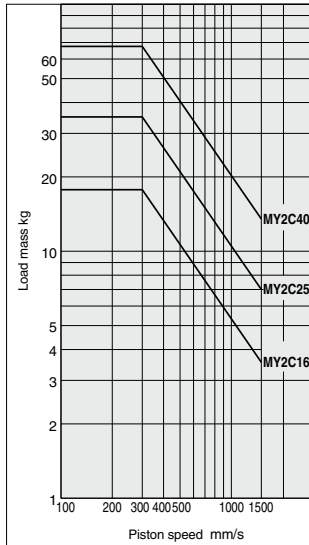


**MY2C/M<sub>3</sub>**

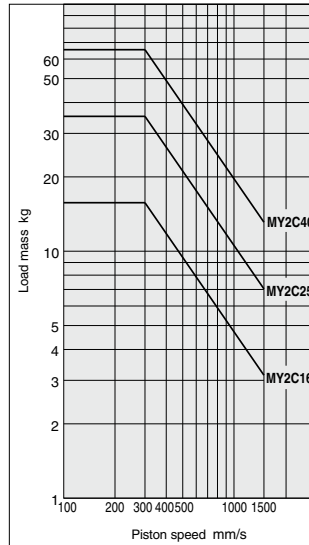


**Load Mass/MY2C**

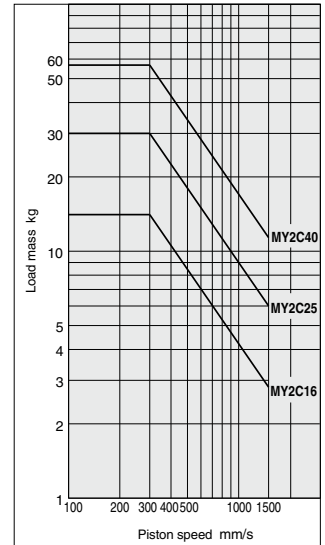
**MY2C/m<sub>1</sub>**



**MY2C/m<sub>2</sub>**



**MY2C/m<sub>3</sub>**



MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1

☐ W

MY2C

MY2 H/HT

MY3A

MY3B

MY3M

D-☐

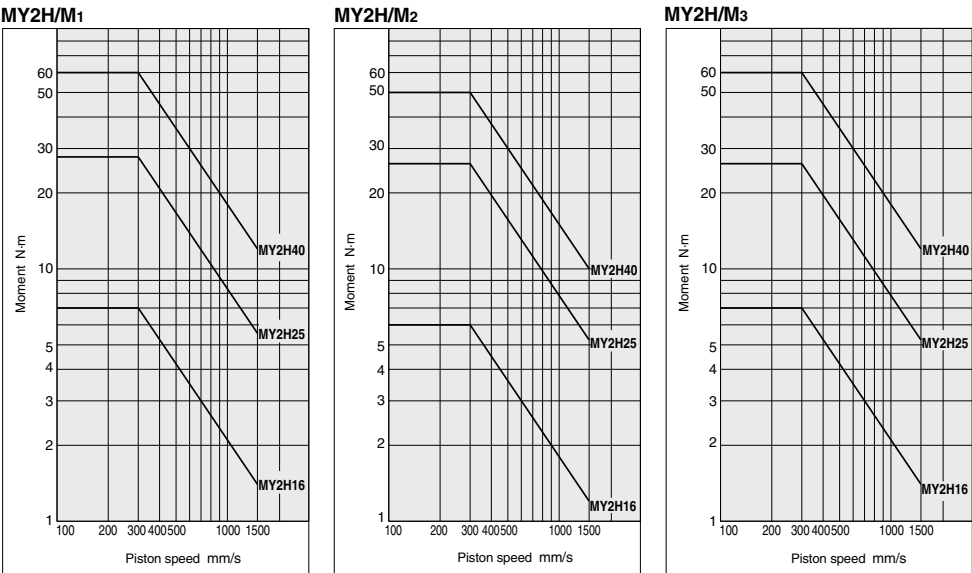
-X☐

Technical Data

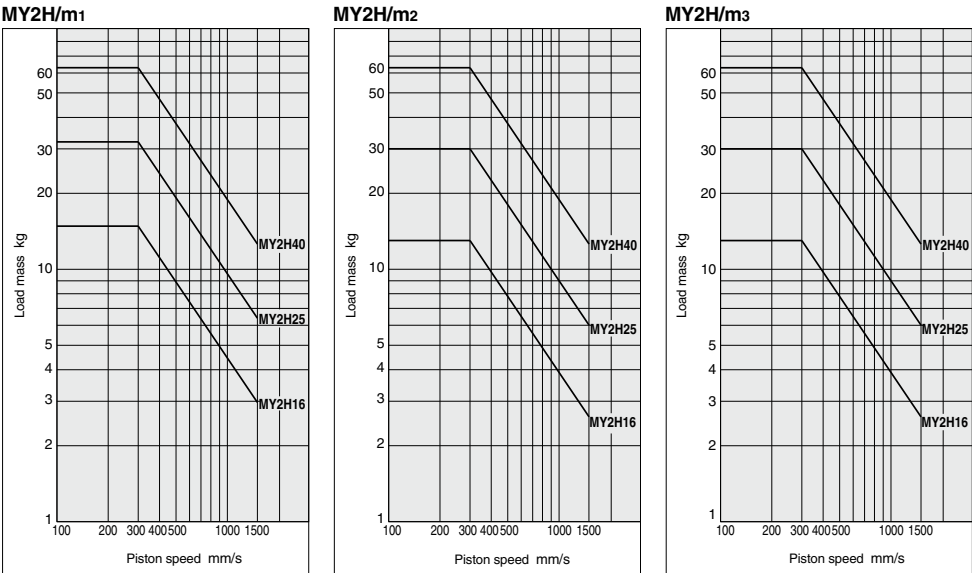
# MY2 Series

## Maximum Allowable Moment/Maximum Load Mass

### Moment/MY2H (Single axis)



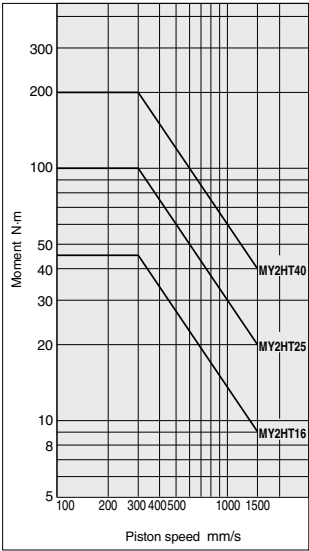
### Load Mass/MY2H (Single axis)



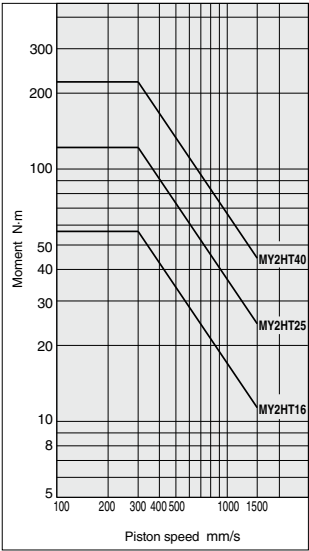


Moment/MY2HT (Double axis)

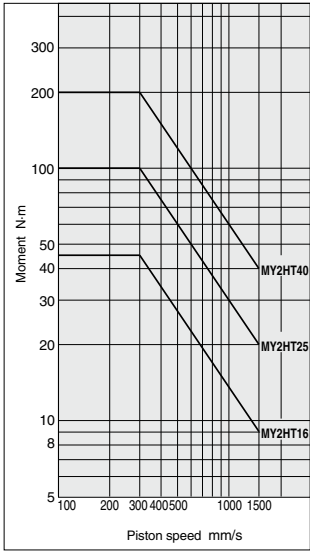
MY2HT/M<sub>1</sub>



MY2HT/M<sub>2</sub>

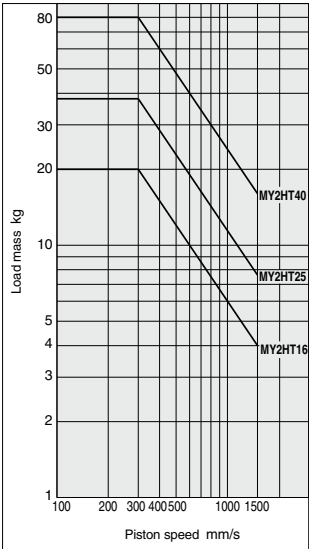


MY2HT/M<sub>3</sub>

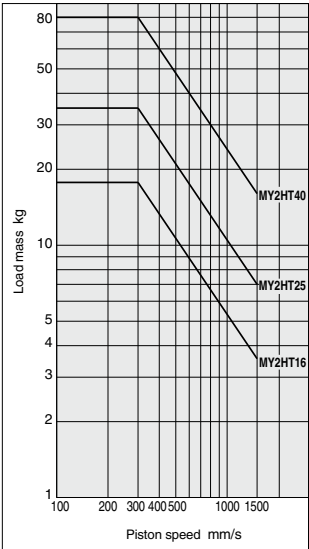


Load Mass/MY2HT (Double axis)

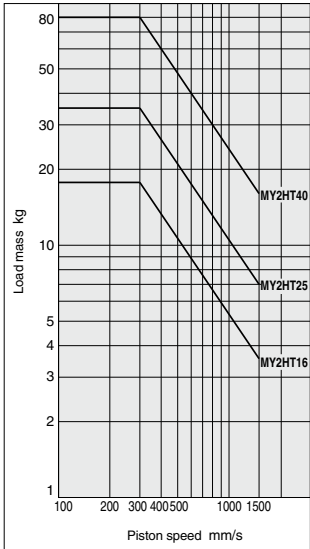
MY2HT/m<sub>1</sub>



MY2HT/m<sub>2</sub>



MY2HT/m<sub>3</sub>



MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1

W

MY2C

MY2 H/HT

MY3A

MY3B

MY3M

D-☐

-X☐

Technical Data

# MY2 Series

## Cushion Capacity

### Cushion Selection

#### <Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders.

The air cushion mechanism is installed to avoid excessive impact of the piston at the stroke end during high speed operation. The air cushion does not act to decelerate the piston near the stroke end.

The ranges of load and speed that air cushions can absorb are within the air cushion limit lines shown in the graphs.

#### <Stroke adjustment unit with shock absorber>

Use this unit when operating with a load or speed exceeding the air cushion limit line, or when cushioning is necessary because the cylinder stroke is outside of the effective air cushion stroke range due to stroke adjustment.

#### L unit

Use this unit when cushioning is necessary outside of the effective air cushion range even if the load and speed are within the air cushion limit line, or when the cylinder is operated in a load and speed range above the air cushion limit line and below the L unit limit line.

#### H unit

Use this unit when the cylinder is operated in a load and speed range above the L unit limit line and below the H unit limit line.

## Caution

Do not use a shock absorber and air cushion together.

### Air Cushion Stroke

| Bore size (mm) | Cushion stroke (mm) |
|----------------|---------------------|
| 16             | 12                  |
| 25             | 15                  |
| 40             | 24                  |

### Stroke Adjustment Unit Holding Bolt Tightening Torque

| Bore size (mm) | Tightening torque (N·m) |
|----------------|-------------------------|
| 16             | 0.7                     |
| 25             | 1.8                     |
| 40             | 5.8                     |

### Calculation of Absorbed Energy for Stroke Adjustment Unit with Shock Absorber

| Type of impact                | Horizontal                      | Vertical (downward) | Vertical (upward) |
|-------------------------------|---------------------------------|---------------------|-------------------|
|                               |                                 |                     |                   |
| Kinetic energy E <sub>1</sub> | $\frac{1}{2} m v^2$             |                     |                   |
| Thrust energy E <sub>2</sub>  | Fs                              | Fs + mgs            | Fs - mgs          |
| Absorbed energy E             | E <sub>1</sub> + E <sub>2</sub> |                     |                   |

#### Symbols

v: Speed of impacting object (m/s) m: Mass of impacting object (kg)

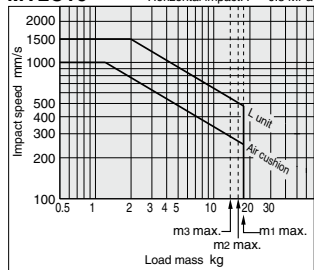
F: Cylinder thrust (N) g: Gravitational acceleration (9.8 m/s<sup>2</sup>)

s: Shock absorber stroke (m)

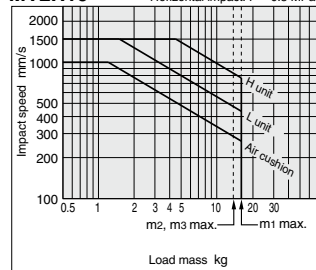
Note) The speed of the impacting object is measured at the time of impact with the shock absorber.

### Absorption Capacity of Air Cushion and Stroke Adjustment Units

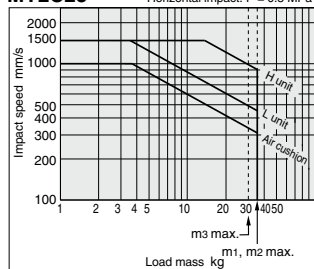
#### MY2C16



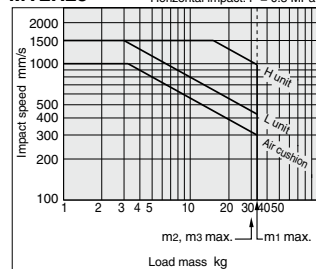
#### MY2H16



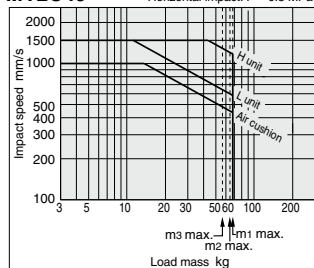
#### MY2C25



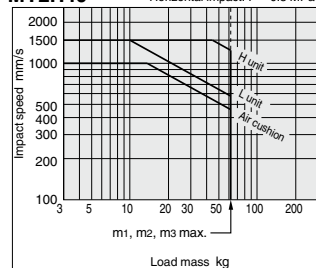
#### MY2H25



#### MY2C40

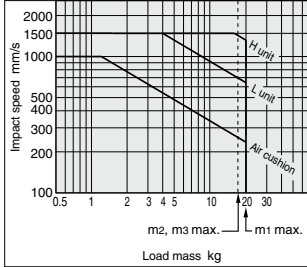


#### MY2H40



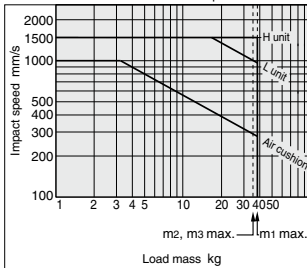
### MY2HT16

Horizontal impact: P = 0.5 MPa



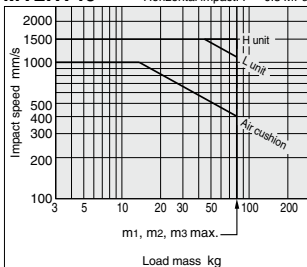
### MY2HT25

Horizontal impact: P = 0.5 MPa



### MY2HT40

Horizontal impact: P = 0.5 MPa



## ⚠ Specific Product Precautions

Be sure to read this before handling the products.  
Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

### Handling

#### ⚠ Caution

1. Do not get your hands caught during cylinder operation.

For the cylinder with a stroke adjustment unit, the space between the slide table and stroke adjustment unit is very small, and your hands may get caught. When operating without a protective cover, be careful not to get your hands caught.

2. Do not operate with the stroke adjustment unit fixed in an intermediate position.

When the stroke adjustment unit is fixed in an intermediate position, slippage can occur depending on the amount of energy released at the time of an impact. In such cases, as a stroke adjustment unit with the spacer for intermediate securing is available, it is recommended to use it.

For other lengths, please consult with SMC.

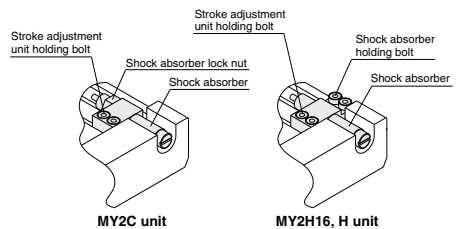
#### <Securing the unit body>

The unit body is secured by equally tightening the two stroke adjustment unit holding bolts. (See drawings below.)

#### <Stroke adjustment of shock absorber>

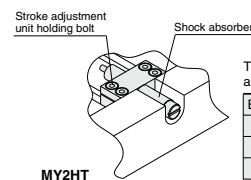
##### For MY2C and MY2H

Loosen the shock absorber lock nut (shock absorber holding bolts for MY2H16, H unit), and adjust the stroke by rotating the shock absorber. After the adjustment, tighten the lock nut (holding bolts) to secure the shock absorber.



##### For MY2HT

Loosen the two unit holding bolts on the shock absorber side, rotate the shock absorber and adjust the stroke. After the adjustment, secure the shock absorber by tightening the unit holding bolts equally.



| Tightening torque for stroke adjustment unit holding bolts |                   | N·m |
|--|-------------------|-----|
| Bore size (mm)   | Tightening torque |     |
| 16   | 0.7               |     |
| 25   | 1.8               |     |
| 40   | 5.8               |     |

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1  
□W

MY2C

MY2  
H/HT

MY3A

MY3B

MY3M

D-□

-X□

Technical  
Data

# MY2 Series

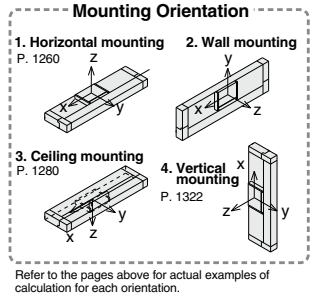
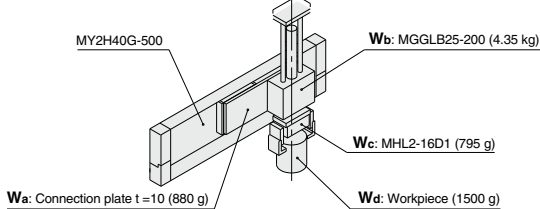
## Model Selection 2

The following are the steps for selection of the MY2 series best suited to your application.

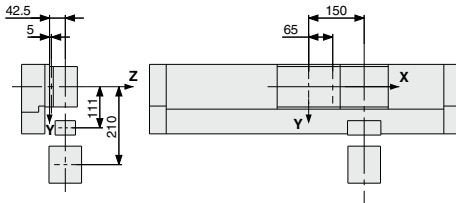
### Calculation of Guide Load Factor

#### 1 Operating Conditions

Cylinder ..... MY2H40G-500  
Average operating speed  $v_a$  ... 300 mm/s  
Mounting orientation ..... Wall mounting



#### 2 Load Blocking



#### Workpiece Mass and Center of Gravity

| Workpiece no.<br>$W_n$ | Mass<br>$m_n$ | Center of gravity |                 |                 |
|------------------------|---------------|-------------------|-----------------|-----------------|
|                        |               | X-axis<br>$X_n$   | Y-axis<br>$Y_n$ | Z-axis<br>$Z_n$ |
| <b>W<sub>a</sub></b>   | 0.88 kg       | 65 mm             | 0 mm            | 5 mm            |
| <b>W<sub>b</sub></b>   | 4.35 kg       | 150 mm            | 0 mm            | 42.5 mm         |
| <b>W<sub>c</sub></b>   | 0.795 kg      | 150 mm            | 111 mm          | 42.5 mm         |
| <b>W<sub>d</sub></b>   | 1.5 kg        | 150 mm            | 210 mm          | 42.5 mm         |

$n = a, b, c, d$

#### 3 Composite Center of Gravity Calculation

$$\begin{aligned}
 m_3 &= \sum m_n \\
 &= 0.88 + 4.35 + 0.795 + 1.5 = 7.525 \text{ kg} \\
 X &= \frac{1}{m_3} \times \sum (m_n \times x_n) \\
 &= \frac{1}{7.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 1.5 \times 150) = 140.1 \text{ mm} \\
 Y &= \frac{1}{m_3} \times \sum (m_n \times y_n) \\
 &= \frac{1}{7.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 1.5 \times 210) = 53.6 \text{ mm} \\
 Z &= \frac{1}{m_3} \times \sum (m_n \times z_n) \\
 &= \frac{1}{7.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 1.5 \times 42.5) = 38.1 \text{ mm}
 \end{aligned}$$

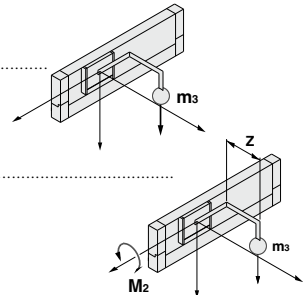
#### 4 Calculation of Load Factor for Static Load

$m_3$ : Mass

$m_3 \text{ max}$  (from 1 of graph MY2H/ $m_3$ ) = 62 (kg) .....  
Load factor  $\alpha_1 = m_3 / m_3 \text{ max} = 7.525/62 = 0.12$

$M_2$ : Moment

$M_2 \text{ max}$  (from 2 of graph MY2H/ $M_2$ ) = 50 (N-m) .....  
 $M_2 = m_3 \times g \times Z = 7.525 \times 9.8 \times 38.1 \times 10^{-3} = 2.81 \text{ (N-m)}$   
Load factor  $\alpha_2 = M_2 / M_2 \text{ max} = 2.81/50 = 0.06$



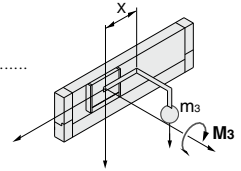
### Calculation of Guide Load Factor

**M<sub>3</sub>**: Moment

**M<sub>3</sub> max** (from 3 of graph MY2H/M<sub>3</sub>) = 60 (N·m) .....

**M<sub>3</sub> = m<sub>3</sub> × g × X** = 7.525 × 9.8 × 140.1 × 10<sup>-3</sup> = 10.33 (N·m)

Load factor **α<sub>3</sub> = M<sub>3</sub>/M<sub>3</sub> max** = 10.33/60 = **0.17**



### 5 Calculation of Load Factor for Dynamic Moment

**Equivalent load F<sub>E</sub> at impact**

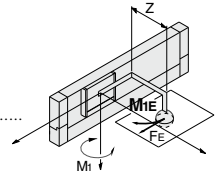
**F<sub>E</sub> =  $\frac{1.4}{100} \times v_a \times g \times m$**  =  $\frac{1.4}{100} \times 300 \times 9.8 \times 7.525$  = 309.7 (N)

**M<sub>1E</sub>**: Moment

**M<sub>1E</sub> max** (from 4 of graph MY2H/M<sub>1</sub> where 1.4v<sub>a</sub> = 420 mm/s) = 42.9 (N·m) .....

**M<sub>1E</sub> =  $\frac{1}{3} \times F_E \times Z$**  =  $\frac{1}{3} \times 309.7 \times 38.1 \times 10^{-3}$  = 3.93 (N·m)

Load factor **α<sub>4</sub> = M<sub>1E</sub>/M<sub>1E</sub> max** = 3.93/42.9 = **0.09**

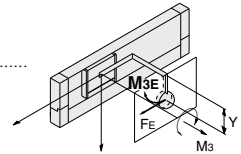


**M<sub>3E</sub>**: Moment

**M<sub>3E</sub> max** (from 5 of graph MY2H/M<sub>3</sub> where 1.4v<sub>a</sub> = 420 mm/s) = 42.9 (N·m) .....

**M<sub>3E</sub> =  $\frac{1}{3} \times F_E \times Y$**  =  $\frac{1}{3} \times 309.7 \times 53.6 \times 10^{-3}$  = 5.53 (N·m)

Load factor **α<sub>5</sub> = M<sub>3E</sub>/M<sub>3E</sub> max** = 5.53/42.9 = **0.13**



### 6 Sum and Examination of Guide Load Factors

**Σα = α<sub>1</sub> + α<sub>2</sub> + α<sub>3</sub> + α<sub>4</sub> + α<sub>5</sub> = 0.57 ≤ 1**

The above calculation is within the allowable value and the selected model can be used.

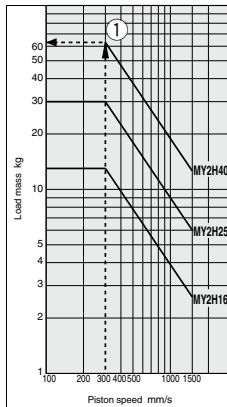
Select a separate shock absorber.

In an actual calculation, when the sum of guide load factors Σα in the formula above is more than 1, consider decreasing the speed, increasing the bore size, or changing the product series. Also, this calculation can be performed easily with the "SMC Pneumatics CAD System".

MY1B  
MY1H  
MY1B  
MY1M  
MY1C  
MY1H  
MY1HT  
MY1W  
MY2C  
MY2H/HT  
MY3A  
MY3B  
MY3M

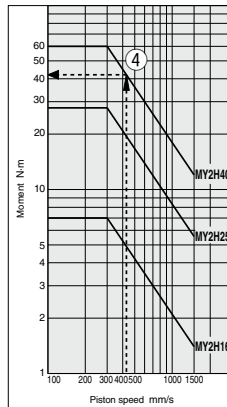
### Load Mass

MY2H/m<sub>3</sub>

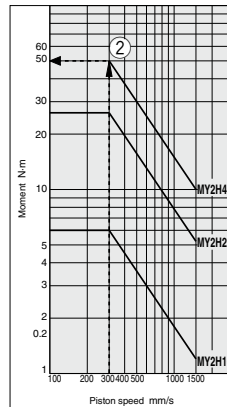


### Allowable Moment

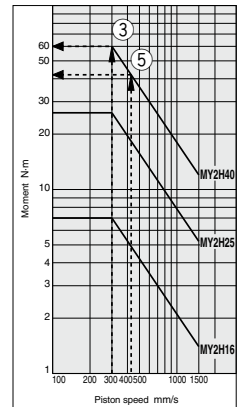
MY2H/M<sub>1</sub>



MY2H/M<sub>2</sub>



MY2H/M<sub>3</sub>



D-☐  
-X☐  
Technical Data

# Mechanically Jointed Rodless Cylinder

## Cam Follower Guide Type

# MY2C Series

ø16, ø25, ø40

### How to Order

Cam Follower Guide Type

**MY2C16** **G** - **300** - **M9BW**

**Guide type**  
**C** Cam follower guide

**Bore size**  
**16** 16 mm  
**25** 25 mm  
**40** 40 mm

**Port thread type**

| Symbol | Type     | Bore size |
|--------|----------|-----------|
| Nil    | M thread | ø16       |
|        | Rc       |           |
| TN     | NPT      | ø25, ø40  |
| TF     | G        |           |

**Piping**  
**G** Centralized piping type (Standard)

**Stroke (mm)**

| Bore size (mm) | Standard stroke (mm)*                       | Maximum manufacturable stroke (mm) |
|----------------|---|------------------------------------|
| <b>16</b>      | 100, 200, 300, 400, 500, 600, 700, 800, 900 | 3000                               |
| <b>25, 40</b>  | 1000, 1200, 1400, 1600, 1800, 2000          | 5000                               |

\* Strokes are manufacturable in 1 mm increments, up to the maximum stroke. However, please be advised that with stroke 49 or less, there are cases where auto switch mounting is not possible and the performance of the air cushion may decline.  
 Also when exceeding a 2000 mm stroke, specify "XB11" at the end of the model number.  
 Refer to the Made to Order Specifications.

**Made to Order**  
 Refer to page 1381 for details.

**Number of auto switches**

|     |          |
|-----|----------|
| Nil | 2 pcs.   |
| S   | 1 pc.    |
| n   | "n" pcs. |

**Auto switch**  
**Nil** Without auto switch (Built-in magnet)

\* Refer to the table below for the applicable auto switch model.

**Stroke adjustment unit symbol**  
 Refer to "Stroke adjustment unit" on page 1381.

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

| Type                    | Special function                          | Electrical entry | Indicator light | Wiring (Output) | Load voltage            |                     | Auto switch model  |                    | Lead wire length (m) |       |       |       |   | Pre-wired connector | Applicable load |            |            |
|-------------------------|---|------------------|-----------------|-----------------|-------------------------|---------------------|--------------------|--------------------|----------------------|-------|-------|-------|---|---------------------|-----------------|------------|------------|
|                         |   |                  |                 |                 | DC                      | AC                  | Perpendicular      | In-line            | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z) |   |                     |                 |            |            |
| Solid state auto switch | —   | Grommet          | Yes             | 3-wire (NPN)    | 24 V                    | 5 V, 12 V           | —                  | M9NV               | M9N                  | ●     | ●     | ●     | ○ | ○                   | —               | IC circuit | Relay, PLC |
|                         | 3-wire (PNP)                              |                  |                 | M9PV            |                         |                     |                    | M9P                | ●                    | ●     | ●     | ○     | ○ |                     |                 |            |            |
|                         | 2-wire                                    |                  |                 | M9BV            |                         |                     |                    | M9B                | ●                    | ●     | ●     | ○     | ○ |                     |                 |            |            |
|                         | 3-wire (NPN)                              |                  |                 | M9NVW           |                         |                     |                    | M9NW               | ●                    | ●     | ●     | ○     | ○ |                     |                 |            |            |
|                         | Diagnostic indication (2-color indicator) |                  |                 | 3-wire (PNP)    | 5 V, 12 V               | M9PWV               | M9PW               | ●                  | ●                    | ●     | ○     | ○     | — | IC circuit          |                 |            |            |
|                         | Water resistant (2-color indicator)       |                  |                 | 2-wire          | 12 V                    | M9BWW               | M9BW               | ●                  | ●                    | ●     | ○     | ○     | — |                     |                 |            |            |
|                         |   |                  |                 | 3-wire (NPN)    | 5 V, 12 V               | M9NAV <sup>*1</sup> | M9NA <sup>*1</sup> | ○                  | ○                    | ●     | ○     | ○     | — |                     |                 |            |            |
|                         |   |                  |                 | 3-wire (PNP)    | 5 V, 12 V               | M9PAV <sup>*1</sup> | M9PA <sup>*1</sup> | ○                  | ○                    | ●     | ○     | ○     | — |                     |                 |            |            |
| Reed auto switch        |   | —                | Grommet         | Yes             | 3-wire (NPN equivalent) | —                   | 5 V                | —                  | A96V                 | A96   | ●     | —     | ● | —                   | —               | —          | IC circuit |
|                         | No  | 2-wire           |                 |                 | 24 V                    | 12 V                | 100 V or less      | A93V <sup>*2</sup> | A93                  | ●     | ●     | ●     | — | —                   | —               | —          | Relay, PLC |
|                         |   |                  |                 |                 |                         |                     | A90V               | A90                | ●                    | —     | ●     | —     | — | —                   | —               | IC circuit |            |
|                         |   |                  |                 |                 |                         |                     | A90V               | A90                | ●                    | —     | ●     | —     | — | —                   | —               | —          | —          |

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.  
 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  
 1 m ..... M (Example) M9NWM  
 3 m ..... L (Example) M9NWL  
 5 m ..... Z (Example) M9NZW

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

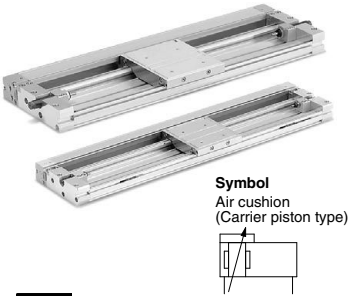
\* There are other applicable auto switches than listed above. For details, refer to page 1398.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

\* Auto switches are shipped together (not assembled). (Refer to page 1398 for the details of auto switch mounting.)



# Mechanically Jointed Rodless Cylinder Cam Follower Guide Type **MY2C Series**



**Made to Order: Individual Specifications**  
(For details, refer to page 1399)

| Symbol | Specifications        |
|--------|-----------------------|
| -X168  | Helical insert thread |

## Made to Order Specifications (Refer to pages 1703 to 1896 for details.)

| Symbol | Specifications                          |
|--------|---|
| -XB11  | Long stroke type                        |
| -XB22  | Shock absorber soft type RJ series type |

## Specifications

| Bore size (mm)                | 16   | 25  | 40     |
|-------------------------------|--|---|--------|
| Fluid                         | Air  |   |        |
| Action                        | Double acting  |   |        |
| Operating pressure range      | 0.15 to 0.8 MPa  | 0.1 to 0.8 MPa  |        |
| Proof pressure                | 1.2 MPa  |   |        |
| Ambient and fluid temperature | 5 to 60°C  |   |        |
| Cushion                       | Air cushion, Shock absorber  |   |        |
| Lubrication                   | Not required (Non-lube)  |   |        |
| Stroke length tolerance       | 1000 or less <sup>+1.8</sup> <sub>0</sub><br>1001 to 3000 <sup>+2.8</sup> <sub>0</sub> | 2700 or less <sup>+1.8</sup> <sub>0</sub> , 2701 to 5000 <sup>+2.8</sup> <sub>0</sub> |        |
| Port size                     | M5 x 0.8   | Rc 1/8  | Rc 1/4 |

## Piston Speed

| Bore size (mm)                 | 16                              | 25               | 40 |
|--------------------------------|---------------------------------|------------------|----|
| Without stroke adjustment unit | 100 to 1000 mm/s <sup>(1)</sup> |                  |    |
| Stroke adjustment unit         | L unit and H unit               | 100 to 1500 mm/s |    |

Note 1) When exceeding the air cushion stroke ranges on page 1376, the **piston speed** should be **100 to 200 mm/s**.

Note 2) Use at a piston speed within the absorption capacity range. Refer to page 1376.

## Stroke Adjustment Unit Specifications

| Bore size (mm)   |                   | 16             | 25           |        | 40         |        |
|--|-------------------|----------------|--------------|--------|------------|--------|
| Unit symbol  |                   | L              | L            | H      | L          | H      |
| Shock absorber model   |                   | RB0806         | RB1007       | RB1412 | RB1412     | RB2015 |
| Stroke adjustment range<br>by intermediate fixing<br>spacer (mm) | Without spacer    | 0 to -5.6      | 0 to -11.5   |        | 0 to -16   |        |
|  | With short spacer | -5.6 to -11.2  | -11.5 to -23 |        | -16 to -32 |        |
|  | With long spacer  | -11.2 to -16.8 | -23 to -34.5 |        | -32 to -48 |        |

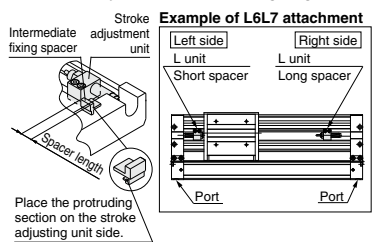
\* Stroke adjustment range is applicable for one side when mounted on a cylinder.

## Stroke Adjustment Unit Symbol

|                                  |                                  | Right side stroke adjustment unit |                                 |      |      |     |                                  |      |  |
|----------------------------------|----------------------------------|-----------------------------------|---------------------------------|------|------|-----|----------------------------------|------|--|
|                                  |                                  | Without unit                      | L: With low load shock absorber |      |      |     | H: With high load shock absorber |      |  |
| Left side stroke adjustment unit | Without unit                     | Nil                               | SL                              | SL6  | SL7  | SH  | SH6                              | SH7  |  |
|                                  | L: With low load shock absorber  | LS                                | L                               | LL6  | LL7  | LH  | LH6                              | LH7  |  |
|                                  | With short spacer                | L6S                               | L6L                             | L6   | L6L7 | L6H | L6H6                             | L6H7 |  |
|                                  | With long spacer                 | L7S                               | L7L                             | L7L6 | L7   | L7H | L7H6                             | L7H7 |  |
|                                  | H: With high load shock absorber | HS                                | HL                              | HL6  | HL7  | H   | HH6                              | HH7  |  |
|                                  | With short spacer                | H6S                               | H6L                             | H6L6 | H6L7 | H6H | H6                               | H6H7 |  |
|                                  | With long spacer                 | H7S                               | H7L                             | H7L6 | H7L7 | H7H | H7H6                             | H7   |  |

\* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.

## Stroke adjustment unit mounting diagram



## Shock Absorbers for L and H Units

| Type   | Stroke adjustment unit | Bore size (mm) |         |         |
|--|------------------------|----------------|---------|---------|
|  |                        | 16             | 25      | 40      |
| Standard (Shock absorber/RB series)                | L                      | RB0806         | RB1007  | RB1412  |
|  | H                      | —              | RB1412  | RB2015  |
| Shock absorber/soft type RJ series mounted (-XB22) | L                      | RJ0806H        | RJ1007H | RJ1412H |
|  | H                      | —              | RJ1412H | —       |

\* The shock absorber service life is different from that of the MY2C cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

\* Mounted shock absorber soft type RJ series (-XB22) is made to order specifications. For details, refer to page 1752.

## Shock Absorber Specifications

| Model                                |           | RB<br>0806 | RB<br>1007 | RB<br>1412 | RB<br>2015 |
|--------------------------------------|-----------|------------|------------|------------|------------|
| Max. energy absorption (J)           |           | 2.9        | 5.9        | 19.6       | 58.8       |
| Stroke absorption (mm)               |           | 6          | 7          | 12         | 15         |
| Max. collision speed (mm/s)          |           | 1500       | 1500       | 1500       | 1500       |
| Max. operating frequency (cycle/min) |           | 80         | 70         | 45         | 25         |
| Spring<br>force (N)                  | Extended  | 1.96       | 4.22       | 6.86       | 8.34       |
|                                      | Retracted | 4.22       | 6.86       | 15.98      | 20.50      |
| Operating temperature range (°C)     |           |            | 5 to 60    |            |            |

\* The shock absorber service life is different from that of the MY2C cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1 W

MY2C

MY2 H/HT

MY3A

MY3B

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M

MY3M



# MY2C Series

## Theoretical Output

| Bore size (mm) | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |     |     |     |     |     |      |
|----------------|--------------------------------|--------------------------|-----|-----|-----|-----|-----|------|
|                |                                | 0.2                      | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8  |
| 16             | 200                            | 40                       | 60  | 80  | 100 | 120 | 140 | 160  |
| 25             | 490                            | 98                       | 147 | 196 | 245 | 294 | 343 | 392  |
| 40             | 1256                           | 251                      | 377 | 502 | 628 | 754 | 879 | 1005 |

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

## Replacement Parts

### Drive Unit (Cylinder) Replacement Part No.

| Bore size (mm) | Model            | MY2C |
|----------------|------------------|------|
| 16             | MY2BH16G-Stroke  |      |
| 25             | MY2BH25□G-Stroke |      |
| 40             | MY2BH40□G-Stroke |      |

Enter a symbol for port thread type inside □.

Note) Order auto switches separately.

## Option

### Stroke Adjustment Unit Part No.

**MY2C - A 25 L2 - 6N**

Stroke adjustment unit

Bore size

|    |       |
|----|-------|
| 16 | 16 mm |
| 25 | 25 mm |
| 40 | 40 mm |

Unit no.

| Symbol | Stroke adjustment unit | Mounting position |
|--------|------------------------|-------------------|
| L1     | L unit                 | Left              |
| L2     |                        | Right             |
| H1     | H unit                 | Left              |
| H2     |                        | Right             |

Note 1) Refer to page 1381 for details about adjustment range.

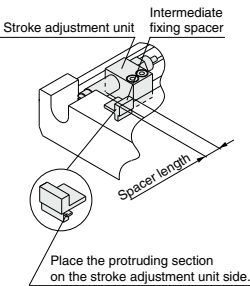
Note 2) L unit only for ø16

## Weight

| Bore size (mm) | Basic weight | Additional weight per each 50 mm of stroke | Weight of moving parts | Side support bracket weight (per set) | Stroke adjustment unit weight (per unit) |               |
|----------------|--------------|--|------------------------|---------------------------------------|--|---------------|
|                |              |  |                        |                                       | L unit weight                            | H unit weight |
| 16             | 1.05         | 0.13                                       | 0.34                   | 0.01                                  | 0.03                                     | —             |
| 25             | 2.59         | 0.29                                       | 0.97                   | 0.02                                  | 0.06                                     | 0.09          |
| 40             | 8.78         | 0.67                                       | 3.09                   | 0.04                                  | 0.17                                     | 0.23          |

Calculation: (Example) MY2C25G-300L

- Basic weight..... 2.59 kg
- Cylinder stroke..... 300 stroke
- Additional weight.....  $0.29/50 \text{ stroke} \times 259 + 0.29 \times 300/50 + 0.06 \times 2 \cong 4.45 \text{ kg}$
- Weight of L unit..... 0.06 kg



### Intermediate fixing spacer

|     |                |
|-----|----------------|
| Nil | Without spacer |
| 6   | Short spacer   |
| 7   | Long spacer    |

### Spacer delivery type

|     |                |
|-----|----------------|
| Nil | Unit installed |
| N   | Spacer only    |

- \* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.
- \* Spacers are shipped for a set of two.

\* When ordering the intermediate fixing spacer for the stroke adjustment unit, the intermediate fixing spacer is shipped together.

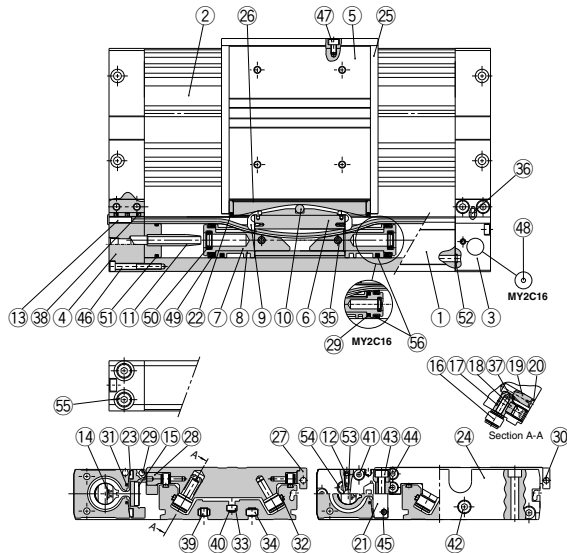
## Component Parts

|  |   |  |  |
|--|---|--|--|
| <b>MY2C-A25L2 (Without spacer)</b><br> | <b>MY2C-A25L2-6 (With short spacer)</b><br> | <b>MY2C-A25L2-7 (With long spacer)</b><br> | <b>MY2C-A25L2-6N (Short spacer only)</b><br> |
|  |   |  | <b>MY2C-A25L2-7N (Long spacer only)</b><br>  |

\* Nuts are equipped on the cylinder body.

## Construction

### MY2C



### Component Parts

| No. | Description     | Material        | Note                          |
|-----|-----------------|-----------------|-------------------------------|
| 1   | Cylinder tube   | Aluminium alloy | Hard anodized                 |
| 2   | Body            | Aluminium alloy | Hard anodized                 |
| 3   | Head cover WR   | Aluminium alloy | Hard anodized                 |
| 4   | Head cover WL   | Aluminium alloy | Hard anodized                 |
| 5   | Slide table     | Aluminium alloy | Hard anodized                 |
| 6   | Piston yoke     | Aluminium alloy | Hard anodized                 |
| 7   | Piston          | Aluminium alloy | Chromated                     |
| 8   | Wear ring       | Special resin   |                               |
| 9   | Belt separator  | Special resin   |                               |
| 10  | Parallel pin    | Stainless steel |                               |
| 11  | Cushion ring    | Aluminium alloy | Anodized                      |
| 12  | Cushion needle  | Rolled steel    | Nickel plated                 |
| 13  | Belt clamp      | Special resin   |                               |
| 16  | Cam follower    | —               |                               |
| 17  | Eccentric gear  | Stainless steel |                               |
| 18  | Gear fixture    | Stainless steel |                               |
| 19  | Adjustment gear | Stainless steel |                               |
| 20  | Retaining ring  | Stainless steel |                               |
| 21  | End cover       | Aluminium alloy | Hard anodized                 |
| 23  | Bearing         | Special resin   |                               |
| 24  | End plate       | Aluminium alloy | Hard anodized                 |
| 25  | Stopper         | Carbon steel    | Nickel plated after quenching |
| 26  | Top cover       | Stainless steel |                               |
| 27  | Side cover      | Aluminium alloy | Hard anodized                 |

| No. | Description                      | Material                 | Note                 |
|-----|----------------------------------|--------------------------|----------------------|
| 28  | Cam follower cap                 | Aluminium alloy          | Hard anodized        |
| 29  | Magnet                           | —                        |                      |
| 30  | Magnet                           | —                        |                      |
| 31  | Seal magnet                      | Rubber magnet            |                      |
| 32  | Rail                             | Hard steel wire material |                      |
| 33  | Square nut                       | Carbon steel             | Chromated            |
| 34  | Square nut                       | Carbon steel             | Chromated            |
| 35  | Spring pin                       | Carbon tool steel        |                      |
| 36  | Parallel pin                     | Stainless steel          |                      |
| 37  | Hexagon socket set screw         | Chrome molybdenum steel  | Black zinc chromated |
| 38  | Hexagon socket set screw         | Chrome molybdenum steel  | Black zinc chromated |
| 39  | Hexagon socket set screw         | Chrome molybdenum steel  | Chromated            |
| 40  | Hexagon socket set screw         | Chrome molybdenum steel  | Chromated            |
| 41  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 42  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 43  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 44  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 45  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 46  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 47  | Hexagon socket head cap screw    | Chrome molybdenum steel  | Chromated            |
| 48  | Steel ball                       | Spring steel             | Nickel plated        |
| 54  | Hexagon socket head (taper) plug | Carbon steel             | Chromated            |
| 55  | Hexagon socket head (taper) plug | Carbon steel             | Chromated            |
| 56  | Lube retainer                    | Special resin            |                      |

### Replacement Parts: Seal Kit

| No. | Description    | Qty. | MY2C16G                       | MY2C25G                       | MY2C40G                           |
|-----|----------------|------|-------------------------------|-------------------------------|-----------------------------------|
| 14  | Seal belt      | 1    | MY16-16C-[Stroke]             | MY25-16C-[Stroke]             | MY40-16C-[Stroke]                 |
| 15  | Dust seal band | 1    | MY2H16-16B-[Stroke]           | MY2H25-16B-[Stroke]           | MY2H40-16B-[Stroke]               |
| 53  | O-ring         | 2    | KA00309<br>(ø4 x ø1.8 x ø1.1) | KA00309<br>(ø4 x ø1.8 x ø1.1) | KA00320<br>(ø7.15 x ø3.75 x ø1.7) |
| 22  | Scraper        | 2    | MY2B16-PS                     | MY2B25-PS                     | MY2B40-PS                         |
| 49  | Piston seal    | 2    |                               |                               |                                   |
| 50  | Cushion seal   | 2    |                               |                               |                                   |
| 51  | Tube gasket    | 2    |                               |                               |                                   |
| 52  | O-ring         | 4    |                               |                               |                                   |

\* Seal kit includes 22, 49, 50, 51 and 52. Order the seal kit based on each bore size.

\* Seal kit includes a grease pack (10 g).  
When 15 and 19 are shipped as single units, a grease pack (10 g per 1000 strokes) is included.  
Order with the following part number when only the grease pack is needed.  
Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)



MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1 □W

MY2C

MY2 H/HT

MY3A

MY3B

MY3M

D-□

-X□

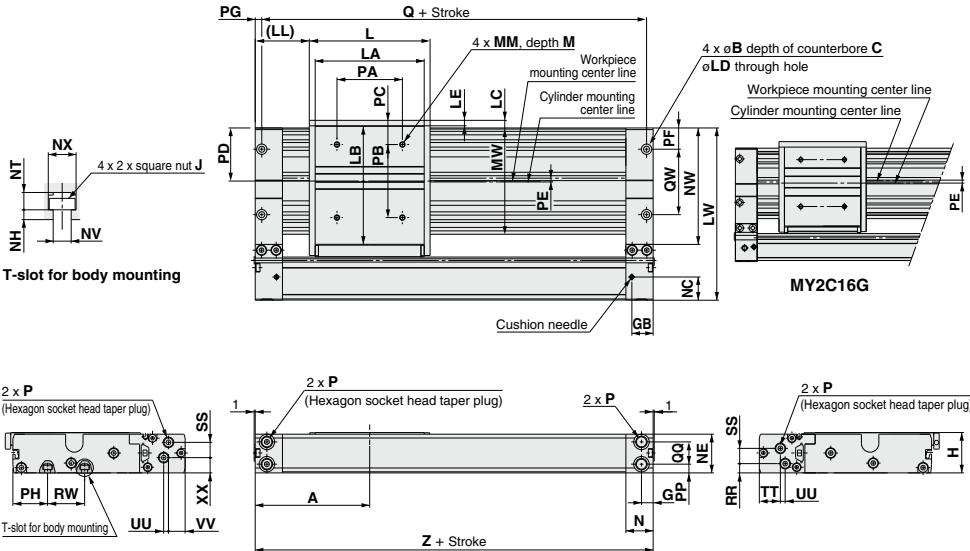
Technical Data

# MY2C Series

ø16, ø25, ø40

Refer to page 1402 regarding port variations.

MY2C Bore size G – Stroke



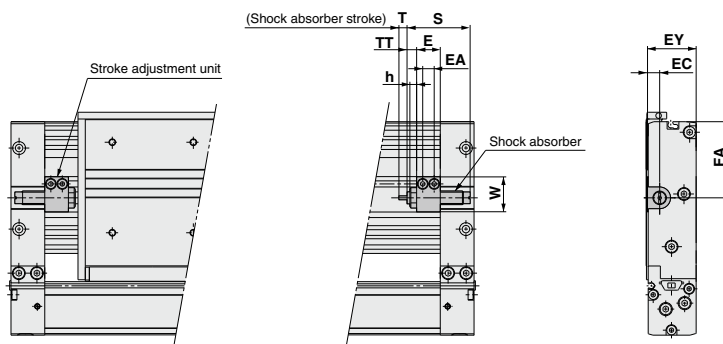
| Model   | A   | B     | C    | G        | GB   | H  | L     | J        | LA  | LB    | LC | LD   | LE  | (LL) | LW   | M  | MM       | MW    | N    | NC   | NE   | NH   | NT  |     |
|---------|-----|-------|------|----------|------|----|-------|----------|-----|-------|----|------|-----|------|------|----|----------|-------|------|------|------|------|-----|-----|
| MY2C16G | 80  | 6.5   | 3.3  | 8.5      | 17   | 28 | 80    | M3 x 0.5 | 70  | 72.4  | 6  | 3.4  | 5   | 40   | 104  | 7  | M4 x 0.7 | 64.6  | 20   | 14   | 27   | 2    | 3.5 |     |
| MY2C25G | 105 | 9.5   | 5.4  | 10.7     | 19.5 | 37 | 110.8 | M5 x 0.8 | 100 | 108.7 | 7  | 5.5  | 5   | 49.6 | 158  | 9  | M5 x 0.8 | 97.5  | 25   | 21.3 | 35.5 | 3    | 5.3 |     |
| MY2C40G | 165 | 14    | 8.6  | 15.5     | 31.5 | 58 | 180   | M6 x 1   | 158 | 135.3 | 7  | 9    | 5   | 75   | 214  | 13 | M6 x 1   | 121.5 | 40   | 32.4 | 56.5 | 4    | 6.5 |     |
| Model   | NV  | NW    | NX   | P        | PA   | PB | PC    | PD       | PE  | PF    | PG | PH   | PP  | Q    | QQ   | QW | RR       | RW    | SS   | TT   | UU   | VV   | XX  | Z   |
| MY2C16G | 3.4 | 69.2  | 5.8  | M5 x 0.8 | 40   | 43 | 16.5  | 32       | 2.2 | 9.8   | 4  | 21.3 | 5.3 | 152  | 16.4 | 40 | 5.3      | 22    | 9.7  | 12.5 | 3    | 10.5 | 12  | 160 |
| MY2C25G | 5.5 | 106.8 | 8.5  | 1/8      | 60   | 67 | 22.2  | 48.7     | 0.8 | 19.5  | 6  | 31.8 | 8   | 198  | 20.4 | 60 | 8.5      | 34    | 14   | 19.3 | 4.4  | 15.3 | 14  | 210 |
| MY2C40G | 6.6 | 135.1 | 10.5 | 1/4      | 100  | 77 | 29    | 60.5     | 8.5 | 40.5  | 9  | 38   | 16  | 312  | 25.5 | 57 | 11       | 45    | 21.5 | 35.4 | 2    | 29   | 23  | 330 |

\*P\* indicates cylinder supply ports. \* The plug for "P" MY2C16G is a hexagon socket head plug.

## Stroke adjustment unit

### Low load shock absorber

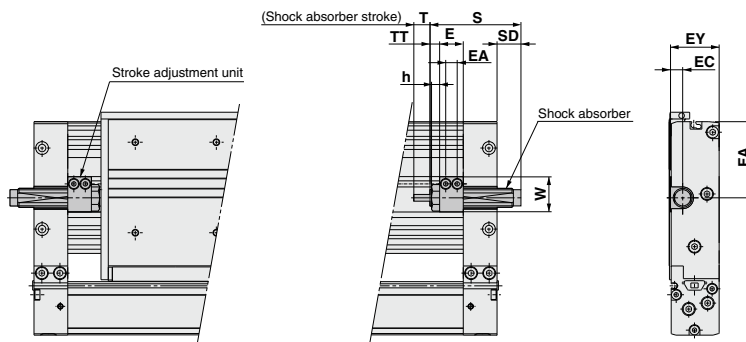
MY2C Bore size G – Stroke L



| Applicable cylinder | E    | EA  | EC   | EY   | FA   | h | S    | T  | TT              | W    | Shock absorber model |
|---------------------|------|-----|------|------|------|---|------|----|-----------------|------|----------------------|
| MY2C16              | 14.4 | 7   | 6    | 27   | 38.5 | 4 | 40.8 | 6  | 5.6 (Max. 11.2) | 16.5 | RB0806               |
| MY2C25              | 17.5 | 8.5 | 9    | 36   | 56.4 | 5 | 46.7 | 7  | 7.1 (Max. 18.6) | 25.8 | RB1007               |
| MY2C40              | 25   | 13  | 13.5 | 56.5 | 67.8 | 6 | 67.3 | 12 | 10 (Max. 26)    | 38   | RB1412               |

### High load shock absorber

MY2C Bore size G – Stroke H



| Applicable cylinder | E    | EA  | EC   | EY   | FA   | h | S    | SD   | T  | TT              | W    | Shock absorber model |
|---------------------|------|-----|------|------|------|---|------|------|----|-----------------|------|----------------------|
| MY2H25              | 17.5 | 8.5 | 9    | 36   | 56.4 | 6 | 67.3 | 17.7 | 12 | 7.1 (Max. 18.6) | 25.8 | RB1412               |
| MY2H40              | 25   | 13  | 13.5 | 56.5 | 67.8 | 6 | 73.2 | —    | 15 | 10 (Max. 26)    | 38   | RB2015               |

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1  
HT

MY1  
□W

**MY2C**

MY2  
H/HT

MY3A

MY3B

MY3M

D-□

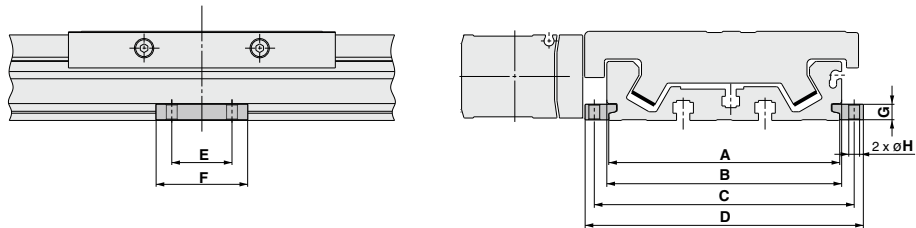
-X□

Technical  
Data

# MY2C Series

## Side Support

Side support  
MYC-S□A



| Model    | Applicable cylinder | A     | B     | C     | D     | E  | F  | G    | øH  |
|----------|---------------------|-------|-------|-------|-------|----|----|------|-----|
| MYC-S16A | MY2C16              | 60.6  | 64.6  | 70.6  | 77.2  | 15 | 26 | 4.9  | 3.4 |
| MYC-S25A | MY2C25              | 95.9  | 97.5  | 107.9 | 115.5 | 25 | 38 | 6.4  | 4.5 |
| MYC-S40A | MY2C40              | 121.5 | 121.5 | 134.5 | 145.5 | 45 | 64 | 11.7 | 6.6 |

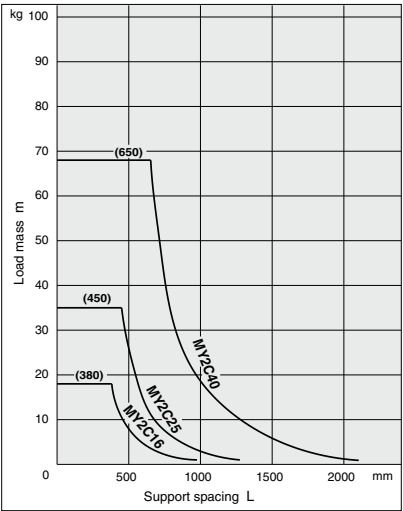
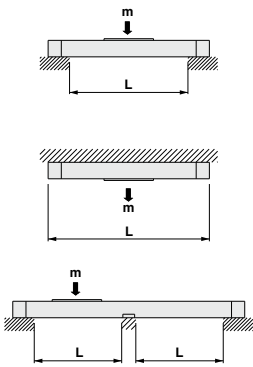
\* A set of side supports consists of a left support and a right support.

## Guide for Using Side Support

For long stroke operation, the cylinder tube may deflect due to its own weight and/or load mass. In such cases, install a side support at the intermediate stroke position. The spacing (L) of the side support must be no more than the values shown in the graph at right.

### ⚠ Caution

- ① If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Make sure to level the cylinder tube when mounting the cylinder. For long stroke operation involving vibration and impact, the use of side supports is recommended even if the support spacing is within the allowable limits shown in the graph.
- ② Support brackets are not for mounting. They should be used only to provide support.





# Mechanically Jointed Rodless Cylinder Linear Guide Type **MY2H/HT Series**

ø16, ø25, ø40

## How to Order

### Linear Guide Type

**MY2** **H** **16** **G** - **300** - **M9NW** -

#### Guide type\*

|           |                           |
|-----------|---------------------------|
| <b>H</b>  | Linear guide, Single axis |
| <b>HT</b> | Linear guide, Double axis |

#### Bore size\*

|           |       |
|-----------|-------|
| <b>16</b> | 16 mm |
| <b>25</b> | 25 mm |
| <b>40</b> | 40 mm |

#### Port thread type\*

| Symbol     | Type     | Bore size |
|------------|----------|-----------|
| <b>Nil</b> | M thread | ø16       |
|            | Rc       |           |
| <b>TN</b>  | NPT      | ø25, ø40  |
| <b>TF</b>  | G        |           |

#### Piping\*

|          |                                    |
|----------|------------------------------------|
| <b>G</b> | Centralized piping type (Standard) |
|----------|------------------------------------|

#### Cylinder stroke (mm)\*

| Bore size (mm) | Standard stroke (mm)*            | Maximum manufacturable stroke (mm) |
|----------------|----------------------------------|------------------------------------|
| <b>16</b>      | 50, 100, 150, 200, 250, 300, 350 | 1000                               |
| <b>25, 40</b>  | 400, 450, 500, 550, 600          | 1500                               |

\* Strokes are manufacturable in 1 mm increments, up to the maximum stroke.  
However, add "-XB10" to the end of the part number for non-standard strokes from 51 to 599.  
Also when exceeding a 600 mm stroke, specify "-XB11" at the end of the model number.

• **Made to Order**  
Refer to page 1389 for details.

#### • Number of auto switches

|            |          |
|------------|----------|
| <b>Nil</b> | 2 pcs.   |
| <b>S</b>   | 1 pc.    |
| <b>n</b>   | "n" pcs. |

#### • Auto switch

|            |                                       |
|------------|---------------------------------------|
| <b>Nil</b> | Without auto switch (Built-in magnet) |
|------------|---------------------------------------|

\* Refer to the table below for the applicable auto switch model.

#### • Stroke adjustment unit symbol

Refer to "Stroke adjustment unit" on page 1389.

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

| Type                    | Special function                          | Electrical entry | Indicator light | Wiring (Output)         | Load voltage        |                     | Auto switch model |                    | Lead wire length (m) |       |       |       |   | Pre-wired connector | Applicable load |            |
|-------------------------|---|------------------|-----------------|-------------------------|---------------------|---------------------|-------------------|--------------------|----------------------|-------|-------|-------|---|---------------------|-----------------|------------|
|                         |   |                  |                 |                         | DC                  | AC                  | Perpendicular     | In-line            | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z) |   |                     |                 |            |
| Solid state auto switch | —   | Grommet          | Yes             | 3-wire (NPN)            | 24 V                | 5 V, 12 V           | —                 | M9NV               | M9N                  | ●     | ●     | ●     | ○ | ○                   | IC circuit      | Relay, PLC |
|                         | 3-wire (PNP)                              |                  |                 | 12 V                    |                     | M9PV                |                   | M9P                | ●                    | ●     | ●     | ○     | ○ |                     |                 |            |
|                         | 2-wire                                    |                  |                 | 5 V, 12 V               |                     | M9BV                |                   | M9B                | ●                    | ●     | ●     | ○     | ○ |                     |                 |            |
|                         | 3-wire (NPN)                              |                  |                 | 12 V                    |                     | M9NVW               |                   | M9NW               | ●                    | ●     | ●     | ○     | ○ |                     |                 |            |
|                         | Diagnostic indication (2-color indicator) |                  |                 | 3-wire (PNP)            | 5 V, 12 V           | M9PWV               |                   | M9PW               | ●                    | ●     | ●     | ○     | ○ | IC circuit          |                 |            |
|                         | Water resistant (2-color indicator)       |                  |                 | 2-wire                  | 12 V                | M9BWV               |                   | M9BW               | ●                    | ●     | ●     | ○     | ○ | —                   |                 |            |
|                         |   |                  |                 | 3-wire (NPN)            | 5 V, 12 V           | M9NAV <sup>*1</sup> |                   | M9NA <sup>*1</sup> | ○                    | ○     | ●     | ○     | ○ | IC circuit          |                 |            |
|                         |   |                  |                 | 3-wire (PNP)            | 12 V                | M9PAV <sup>*1</sup> |                   | M9PA <sup>*1</sup> | ○                    | ○     | ●     | ○     | ○ | IC circuit          |                 |            |
|                         |   |                  | 2-wire          | 12 V                    | M9BAV <sup>*1</sup> | M9BA <sup>*1</sup>  | ○                 | ○                  | ●                    | ○     | ○     | —     | — |                     |                 |            |
| Reed auto switch        | —   | Grommet          | Yes             | 3-wire (NPN equivalent) | —                   | 5 V                 | —                 | A96V               | A96                  | ●     | —     | ●     | — | —                   | IC circuit      | —          |
|                         | No  |                  |                 | 2-wire                  | 24 V                | 12 V                | 100 V or less     | A93V <sup>*2</sup> | A93                  | ●     | ●     | ●     | ● | —                   | —               | Relay, PLC |
|                         |   |                  |                 |                         |                     |                     |                   | A90V               | A90                  | ●     | —     | ●     | — | —                   | IC circuit      | —          |

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

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  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWZ

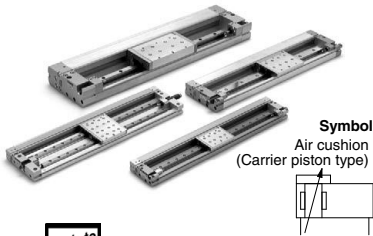
\* Solid state auto switches marked with "○" are produced upon receipt of order.

\* There are other applicable auto switches than listed above. For details, refer to page 1398.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

\* Auto switches are shipped together (not assembled). (Refer to page 1398 for the details of auto switch mounting.)

# Mechanically Jointed Rodless Cylinder Linear Guide Type **MY2H/HT Series**



Made to Order

Made to Order: Individual Specifications  
(For details, refer to page 1399)

| Symbol | Specifications        |
|--------|-----------------------|
| -X168  | Helical insert thread |

## Made to Order Specifications (Refer to pages 1703 to 1896 for details.)

| Symbol | Specifications                             |
|--------|--|
| -XB10  | Intermediate stroke (Using exclusive body) |
| -XB11  | Long stroke type                           |
| -XB20  | Stroke adjusting unit with adjusting bolt  |
| -XB22  | Shock absorber soft type RJ series type    |

## Stroke Adjustment Unit Specifications

| Bore size (mm)   |                   | 16             |        | 25           |        | 40         |        |
|--|-------------------|----------------|--------|--------------|--------|------------|--------|
| Unit symbol  |                   | L              | H      | L            | H      | L          | H      |
| Shock absorber model                                       | MY2H              | RB0806         | RB1007 | RB1007       | RB1412 | RB1412     | RB2015 |
|  | MY2HT             | RB1007         | RB1412 | RB1412       | RB2015 | RB2015     | RB2725 |
| Stroke adjustment range by intermediate fixing spacer (mm) | Without spacer    | 0 to -5.6      |        | 0 to -11.5   |        | 0 to -16   |        |
|  | With short spacer | -5.6 to -11.2  |        | -11.5 to -23 |        | -16 to -32 |        |
|  | With long spacer  | -11.2 to -16.8 |        | -23 to -34.5 |        | -32 to -48 |        |

\* Stroke adjustment range is applicable for one side when mounted on a cylinder.

## Stroke Adjustment Unit Symbol

|                                  |                  | Right side stroke adjustment unit |                                 |     |      |      |                                  |      |      |  |  |
|----------------------------------|------------------|-----------------------------------|---------------------------------|-----|------|------|----------------------------------|------|------|--|--|
|                                  |                  | Without unit                      | L: With low load shock absorber |     |      |      | H: With high load shock absorber |      |      |  |  |
| Left side stroke adjustment unit | Without unit     | Nil                               | SL                              | SL6 | SL7  | SH   | SH6                              | SH7  |      |  |  |
|                                  |                  | L: With low load shock absorber   | LS                              | L   | LL6  | LL7  | LH                               | LH6  | LH7  |  |  |
|                                  |                  | With short spacer                 | L6S                             | L6L | L6   | L6L7 | L6H                              | L6H6 | L6H7 |  |  |
|                                  | With long spacer |                                   | L7S                             | L7L | L7L6 | L7   | L7H                              | L7H6 | L7H7 |  |  |
|                                  |                  | H: With high load shock absorber  | HS                              | HL  | HL6  | HL7  | H                                | HH6  | HH7  |  |  |
|                                  |                  | With short spacer                 | H6S                             | H6L | H6L6 | H6L7 | H6H                              | H6   | H6H7 |  |  |
|                                  | With long spacer |                                   | H7S                             | H7L | H7L6 | H7L7 | H7H                              | H7H6 | H7   |  |  |

\* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.

## Shock Absorbers for L and H Units

| Model | Type   | Stroke adjustment unit | Bore size (mm) |         |         |
|-------|--|------------------------|----------------|---------|---------|
|       |  |                        | 16             | 25      | 40      |
| MY2H  | Standard (Shock absorber/RB series)                | L                      | RB0806         | RB1007  | RB1412  |
|       |  | H                      | RB1007         | RB1412  | RB2015  |
|       | Shock absorber/soft type RJ series mounted (-XB22) | L                      | RJ0806H        | RJ1007H | RJ1412H |
|       |  | H                      | RJ1007H        | RJ1412H | —       |
| MY2HT | Standard (Shock absorber/RB series)                | L                      | RB1007         | RB1412  | RB2015  |
|       |  | H                      | RB1412         | RB2015  | RB2725  |
|       | Shock absorber/soft type RJ series mounted (-XB22) | L                      | RJ1007H        | RJ1412H | —       |
|       |  | H                      | RJ1412H        | —       | —       |

\* The shock absorber service life is different from that of the MY2H/HT cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

\* Mounted shock absorber soft type RJ series (-XB22) is made to order specifications. For details, refer to page 1752.

## Specifications

| Bore size (mm)                | 16                          | 25             | 40     |
|-------------------------------|-----------------------------|----------------|--------|
| Fluid                         | Air                         |                |        |
| Action                        | Double acting               |                |        |
| Operating pressure range      | 0.15 to 0.8 MPa             | 0.1 to 0.8 MPa |        |
| Proof pressure                | 1.2 MPa                     |                |        |
| Ambient and fluid temperature | 5 to 60°C                   |                |        |
| Cushion                       | Air cushion, Shock absorber |                |        |
| Lubrication                   | Not required (Non-lube)     |                |        |
| Stroke length tolerance       | +1.8<br>0                   |                |        |
| Port size                     | M5 x 0.8                    | Rc 1/8         | Rc 1/4 |

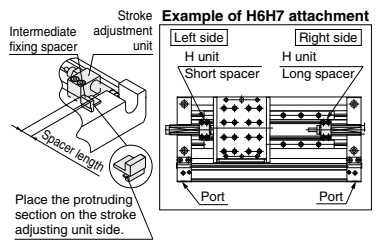
## Piston Speed

| Bore size (mm)                 | 16                                  | 25               | 40 |
|--------------------------------|-------------------------------------|------------------|----|
| Without stroke adjustment unit | 100 to 1000 mm/s <sup>Note 1)</sup> |                  |    |
| Stroke adjustment unit         | L unit and H unit                   | 100 to 1500 mm/s |    |

Note 1) When exceeding the air cushion stroke ranges on page 1376, the piston speed should be 100 to 200 mm/s.

Note 2) Use at a piston speed within the absorption capacity range. Refer to page 1376.

## Stroke adjustment unit mounting diagram



## Shock Absorber Specifications

| Model                                |           | RB 0806 | RB 1007 | RB 1412 | RB 2015 | RB 2725 |
|--------------------------------------|-----------|---------|---------|---------|---------|---------|
| Max. energy absorption (J)           |           | 2.9     | 5.9     | 19.6    | 58.8    | 147     |
| Stroke absorption (mm)               |           | 6       | 7       | 12      | 15      | 25      |
| Max. collision speed (mm/s)          |           | 1500    | 1500    | 1500    | 1500    | 1500    |
| Max. operating frequency (cycle/min) |           | 80      | 70      | 45      | 25      | 10      |
| Spring force (N)                     | Extended  | 1.96    | 4.22    | 6.86    | 8.34    | 8.83    |
|                                      | Retracted | 4.22    | 6.86    | 15.98   | 20.50   | 20.01   |
| Operating temperature range (°C)     |           | 5 to 60 |         |         |         |         |

\* The shock absorber service life is different from that of the MY2H/HT cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1 W

MY2C

MY2 H/HT

MY3A

MY3B

MY3M

D-□

-X□

Technical Data



# MY2H/HT Series

## Theoretical Output

| Bore size (mm) | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |     |     |     |     |     |      |
|----------------|--------------------------------|--------------------------|-----|-----|-----|-----|-----|------|
|                |                                | 0.2                      | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8  |
| 16             | 200                            | 40                       | 60  | 80  | 100 | 120 | 140 | 160  |
| 25             | 490                            | 98                       | 147 | 196 | 245 | 294 | 343 | 392  |
| 40             | 1256                           | 251                      | 377 | 502 | 628 | 754 | 879 | 1005 |

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

## Replacement Parts

### Drive Unit (Cylinder) Replacement Part No.

| Model          | MY2H             | MY2HT |
|----------------|------------------|-------|
| Bore size (mm) |                  |       |
| 16             | MY2BH16G-Stroke  |       |
| 25             | MY2BH25□G-Stroke |       |
| 40             | MY2BH40□G-Stroke |       |

Enter a symbol for port thread type inside □.

Note) Order auto switches separately.

## Option

### Stroke Adjustment Unit Part No.

**MY 2H - A 25 L2 - 6N**

**Guide type**

|     |         |
|-----|---------|
| 2H  | MY2H16  |
| 2H  | MY2H25  |
| 2H  | MY2H40  |
| 2HT | MY2HT16 |
| 2HT | MY2HT25 |
| 2HT | MY2HT40 |

**Stroke adjustment unit**

| Bore size |       |
|-----------|-------|
| 16        | 16 mm |
| 25        | 25 mm |
| 40        | 40 mm |

**Unit no.**

| Symbol | Stroke adjustment unit | Mounting position |
|--------|------------------------|-------------------|
| L1     | L unit                 | Left              |
| L2     | L unit                 | Right             |
| H1     | H unit                 | Left              |
| H2     | H unit                 | Right             |

Note) Refer to page 1389 for details about adjustment range.

**Intermediate fixing spacer**

|     |                |
|-----|----------------|
| Nil | Without spacer |
| 6□  | Short spacer   |
| 7□  | Long spacer    |

**Spacer delivery type**

|     |                |
|-----|----------------|
| Nil | Unit installed |
| N   | Spacer only    |

\* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.  
\* Spacers are shipped for a set of two.

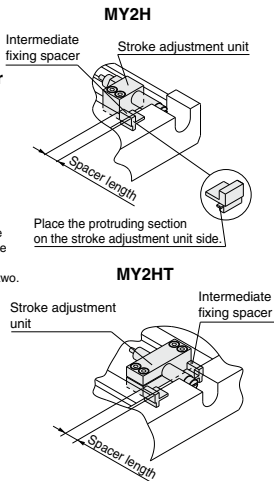
\* When ordering the intermediate fixing spacer for the stroke adjustment unit, the intermediate fixing spacer is shipped together.

## Weight

| Model | Bore size (mm) | Basic weight | Additional weight per each 50 mm of stroke | Weight of moving parts | Stroke adjustment unit weight (per unit) |               |
|-------|----------------|--------------|--|------------------------|--|---------------|
|       |                |              |  |                        | L unit weight                            | H unit weight |
| MY2H  | 16             | 0.86         | 0.22                                       | 0.21                   | 0.03                                     | 0.04          |
|       | 25             | 2.35         | 0.42                                       | 0.64                   | 0.06                                     | 0.09          |
|       | 40             | 6.79         | 0.76                                       | 2.20                   | 0.16                                     | 0.22          |
| MY2HT | 16             | 1.27         | 0.31                                       | 0.33                   | 0.04                                     | 0.08          |
|       | 25             | 3.70         | 0.61                                       | 1.20                   | 0.10                                     | 0.18          |
|       | 40             | 10.05        | 1.13                                       | 3.35                   | 0.27                                     | 0.46          |

Calculation: (Example) MY2H25G-300L

- Basic weight..... 2.35 kg
- Cylinder stroke..... 300 stroke
- Additional weight..... 0.42/50 stroke  
2.35 + 0.42 x 300/50 + 0.06 x 2 ≒ 4.99 kg
- Weight of L unit..... 0.06 kg



## Component Parts

**MY2H-A25L2 (Without spacer)**

**MY2H-A25L2-6 (With short spacer)**

**MY2H-A25L2-7 (With long spacer)**

**MY2H-A25L2-6N (Short spacer only)**

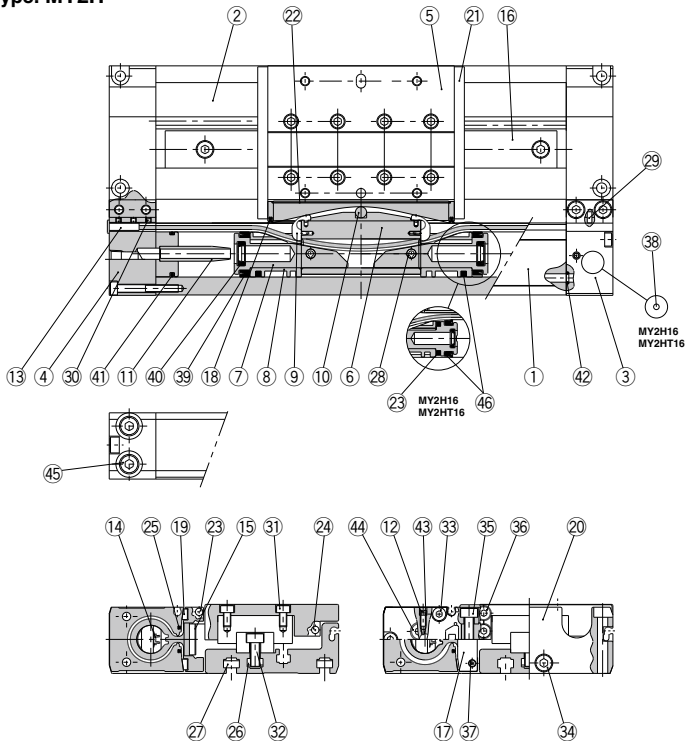
**MY2H-A25L2-7N (Long spacer only)**

\* Nuts are equipped on the cylinder body.

# MY2H/HT Series

## Construction

### Single axis type: MY2H

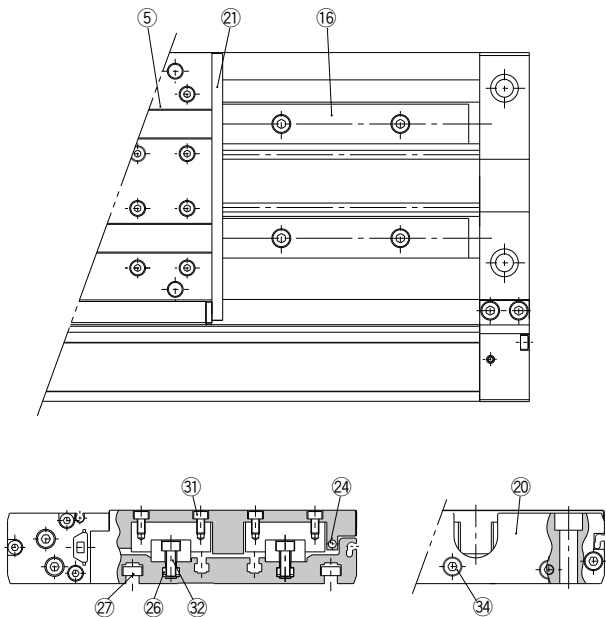


### Component Parts

| No. | Description    | Material        | Note                          |
|-----|----------------|-----------------|-------------------------------|
| 1   | Cylinder tube  | Aluminum alloy  | Hard anodized                 |
| 2   | Body           | Aluminum alloy  | Anodized                      |
| 3   | Head cover WR  | Aluminum alloy  | Hard anodized                 |
| 4   | Head cover WL  | Aluminum alloy  | Hard anodized                 |
| 5   | Slide table    | Aluminum alloy  | Hard anodized                 |
| 6   | Piston yoke    | Aluminum alloy  | Hard anodized                 |
| 7   | Piston         | Aluminum alloy  | Chromated                     |
| 8   | Wear ring      | Special resin   |                               |
| 9   | Belt separator | Special resin   |                               |
| 10  | Parallel pin   | Stainless steel |                               |
| 11  | Cushion ring   | Aluminum alloy  | Anodized                      |
| 12  | Cushion needle | Rolled steel    | Nickel plated                 |
| 13  | Belt clamp     | Special resin   |                               |
| 16  | Guide          | —               |                               |
| 17  | End cover      | Aluminum alloy  | Hard anodized                 |
| 19  | Bearing        | Special resin   |                               |
| 20  | End plate      | Aluminum alloy  | Hard anodized                 |
| 21  | Stopper        | Carbon steel    | Nickel plated after quenching |
| 22  | Top cover      | Stainless steel |                               |

| No. | Description                      | Material                | Note                 |
|-----|----------------------------------|-------------------------|----------------------|
| 23  | Magnet                           | —                       |                      |
| 24  | Magnet                           | —                       |                      |
| 25  | Seal magnet                      | Rubber magnet           |                      |
| 26  | Square nut                       | Carbon steel            | Chromated            |
| 27  | Square nut                       | Carbon steel            | Chromated            |
| 28  | Spring pin                       | Carbon tool steel       |                      |
| 29  | Parallel pin                     | Stainless steel         |                      |
| 30  | Hexagon socket set screw         | Chrome molybdenum steel | Black zinc chromated |
| 31  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 32  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 33  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 34  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 35  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 36  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 37  | Hexagon socket head cap screw    | Chrome molybdenum steel | Chromated            |
| 38  | Steel ball                       | Spring steel            | Nickel plated        |
| 44  | Hexagon socket head (taper) plug | Carbon steel            | Chromated            |
| 45  | Hexagon socket head (taper) plug | Carbon steel            | Chromated            |
| 46  | Lubretainer                      | Special resin           |                      |

Double axis type: MY2HT



Replacement Parts: Seal Kit

| No. | Description    | Qty. | MY2H16G/MY2HT16G              | MY2H25G/MY2HT25G              | MY2H40G/MY2HT40G                  |
|-----|----------------|------|-------------------------------|-------------------------------|-----------------------------------|
| 14  | Seal belt      | 1    | MY16-16C-[Stroke]             | MY25-16C-[Stroke]             | MY40-16C-[Stroke]                 |
| 15  | Dust seal band | 1    | MY2H16-16B-[Stroke]           | MY2H25-16B-[Stroke]           | MY2H40-16B-[Stroke]               |
| 43  | O-ring         | 2    | KA00309<br>(ø4 x ø1.8 x ø1.1) | KA00309<br>(ø4 x ø1.8 x ø1.1) | KA00320<br>(ø7.15 x ø3.75 x ø1.7) |
| 18  | Scraper        | 2    | MY2B16-PS                     | MY2B25-PS                     | MY2B40-PS                         |
| 39  | Piston seal    | 2    |                               |                               |                                   |
| 40  | Cushion seal   | 2    |                               |                               |                                   |
| 41  | Tube gasket    | 2    |                               |                               |                                   |
| 42  | O-ring         | 4    |                               |                               |                                   |

\* Seal kit includes 18, 39, 40, 41 and 42. Order the seal kit based on each bore size.

\* Seal kit includes a grease pack (10 g).

When 14 and 15 are shipped as single units, a grease pack (20 g) is included.

Order with the following part number when only the grease pack is needed.

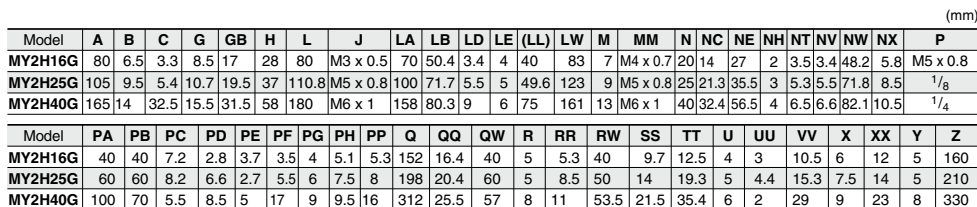
Grease pack part number:GR-S-010 (10 g) , GR-S-020 (20 g)

- MY1B
- MY1H
- MY1B
- MY1M
- MY1C
- MY1H
- MY1HT
- MY1□W
- MY2C
- MY2H/HT**
- MY3A
- MY3B
- MY3M

- D-□
- X□
- Technical Data

**Single Axis Type: Ø16, Ø25, Ø40**

MY2H Bore size G – Stroke



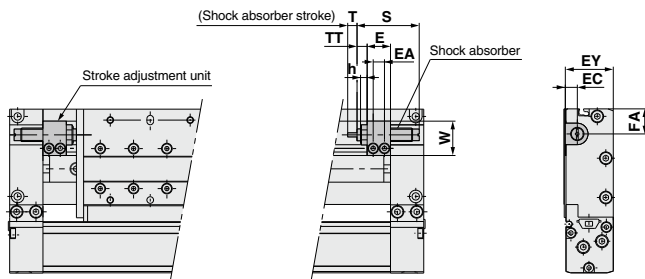
"P" indicates cylinder supply ports. \* The plug for "P" MY2H16G is a hexagon socket head plug.



## Stroke adjustment unit

### Low load shock absorber

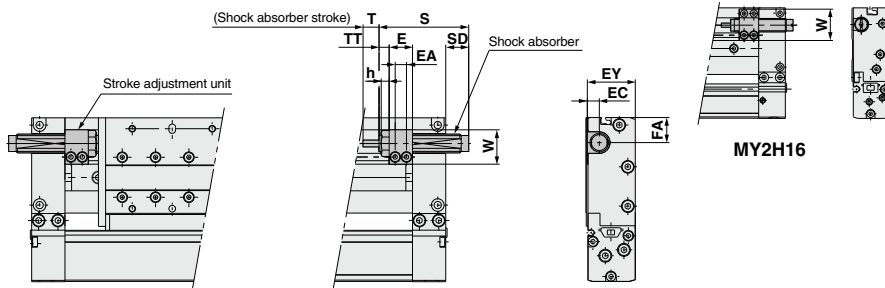
MY2H Bore size G – Stroke L



| Applicable cylinder | E    | EA  | EC | EY | FA   | h | S    | T  | TT              | W    | Shock absorber model |
|---------------------|------|-----|----|----|------|---|------|----|-----------------|------|----------------------|
| MY2H16              | 14.4 | 7   | 6  | 27 | 12.5 | 4 | 40.8 | 6  | 5.6 (Max. 11.2) | 16.5 | RB0806               |
| MY2H25              | 17.5 | 8.5 | 9  | 36 | 19.3 | 5 | 46.7 | 7  | 7.1 (Max. 18.6) | 25.8 | RB1007               |
| MY2H40              | 25   | 13  | 13 | 57 | 17   | 6 | 67.3 | 12 | 10 (Max. 26)    | 38   | RB1412               |

### High load shock absorber

MY2H Bore size G – Stroke H



| Applicable cylinder | E    | EA  | EC | EY | FA   | h | S    | SD   | T  | TT              | W    | Shock absorber model |
|---------------------|------|-----|----|----|------|---|------|------|----|-----------------|------|----------------------|
| MY2H16              | 14.4 | 7   | 6  | 27 | 12.5 | — | 46.7 | 6.7  | 7  | 5.6 (Max. 11.2) | 23.5 | RB1007               |
| MY2H25              | 17.5 | 8.5 | 9  | 36 | 19.3 | 6 | 67.3 | 17.7 | 12 | 7.1 (Max. 18.6) | 25.8 | RB1412               |
| MY2H40              | 25   | 13  | 13 | 57 | 17   | 6 | 73.2 | —    | 15 | 10 (Max. 26)    | 38   | RB2015               |

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1

HT

MY1

□W

MY2C

MY2

H/HT

MY3A

MY3B

MY3M

D-□

-X□

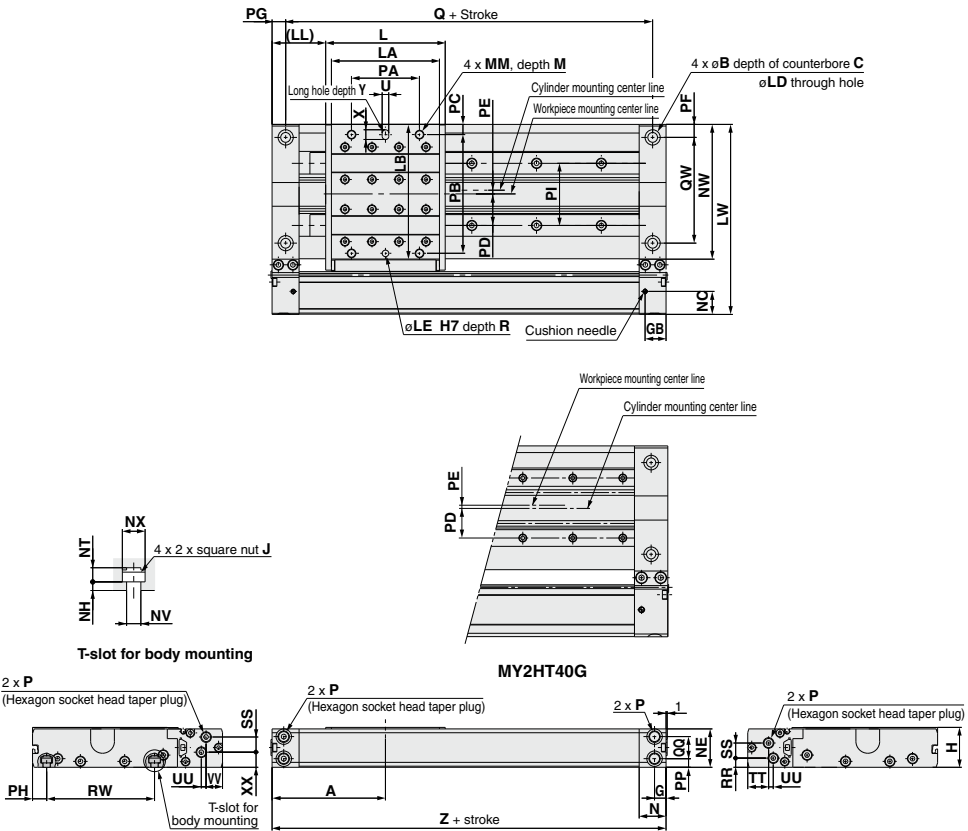
Technical  
Data

MY2H/HT Series

Double Axis Type: Ø16, Ø25, Ø40

Refer to page 1402 regarding port variations.

MY2HT Bore size G – Stroke



| Model    | A   | B    | C    | G    | GB   | H  | L     | J         | LA  | LB    | LD  | LE | (LL) | LW  | M  | MM        | N  | NC   | NE   | NH | NT  |
|----------|-----|------|------|------|------|----|-------|-----------|-----|-------|-----|----|------|-----|----|-----------|----|------|------|----|-----|
| MY2HT16G | 80  | 9.5  | 5.4  | 8.5  | 17   | 28 | 80    | M4 x 0.7  | 70  | 87.4  | 5.5 | 5  | 40   | 120 | 9  | M5 x 0.8  | 20 | 14   | 27   | 3  | 4.7 |
| MY2HT25G | 105 | 14   | 8.6  | 10.7 | 19.5 | 37 | 110.8 | M6 x 1    | 100 | 124.7 | 9   | 6  | 49.6 | 176 | 12 | M8 x 1.25 | 25 | 21.3 | 35.5 | 4  | 6.5 |
| MY2HT40G | 165 | 17.5 | 10.8 | 15.5 | 31.5 | 58 | 180   | M8 x 1.25 | 158 | 148.3 | 11  | 8  | 75   | 229 | 16 | M10 x 1.5 | 40 | 32.4 | 56.5 | 5  | 9   |

| Model    | NV  | NW    | NX   | P        | PA  | PB  | PC  | PD   | PE  | PF | PG   | PH   | PI   | PP  | Q   | QQ   | QW  | R  | RR  | RW  | SS   | TT   |
|----------|-----|-------|------|----------|-----|-----|-----|------|-----|----|------|------|------|-----|-----|------|-----|----|-----|-----|------|------|
| MY2HT16G | 4.5 | 85.2  | 7.3  | M5 x 0.8 | 44  | 80  | 4   | 23   | 1   | 10 | 10   | 10.2 | 41   | 5.3 | 140 | 16.4 | 66  | 5  | 5.3 | 69  | 9.7  | 12.5 |
| MY2HT25G | 6.6 | 124.8 | 10.5 | 1/8      | 63  | 110 | 9.4 | 29.2 | 3.4 | 12 | 12.5 | 13   | 57.6 | 8   | 185 | 20.4 | 98  | 8  | 8.5 | 100 | 14   | 19.3 |
| MY2HT40G | 9   | 150.1 | 14   | 1/4      | 113 | 132 | 8.5 | 35.5 | 0.5 | 20 | 20   | 18.5 | 72   | 16  | 290 | 25.5 | 110 | 12 | 11  | 116 | 21.5 | 35.4 |

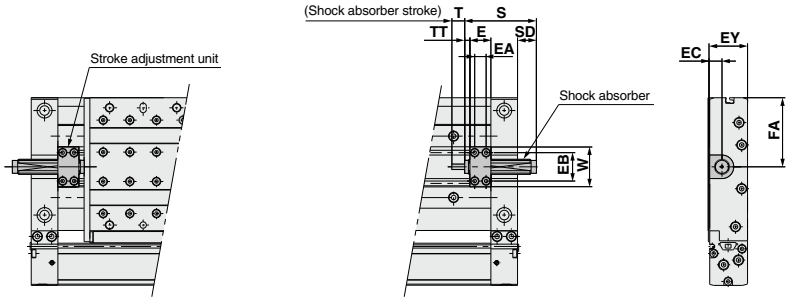
| Model    | U | UU  | VV   | X  | XX | Y  | Z   |
|----------|---|-----|------|----|----|----|-----|
| MY2HT16G | 5 | 3   | 10.5 | 7  | 12 | 5  | 160 |
| MY2HT25G | 6 | 4.4 | 15.3 | 9  | 14 | 8  | 210 |
| MY2HT40G | 8 | 2   | 29   | 12 | 23 | 12 | 330 |

"P" indicates cylinder supply ports. \* The plug for "P" MY2HT16G is a hexagon socket head plug.

Stroke adjustment unit

Low load shock absorber

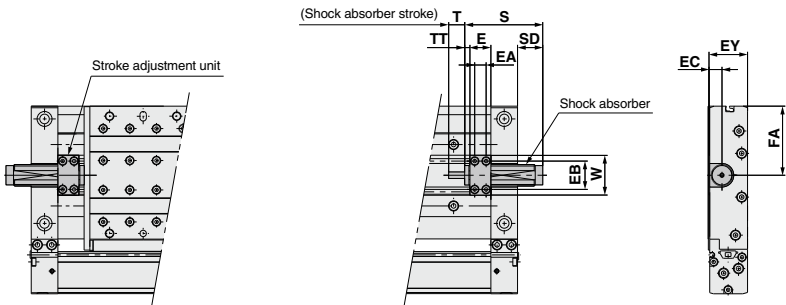
MY2HT Bore size G – Stroke L



| Applicable cylinder | E    | EA   | EB   | EC   | EY | FA   | S    | SD   | T  | TT              | W    | Shock absorber model |
|---------------------|------|------|------|------|----|------|------|------|----|-----------------|------|----------------------|
| MY2HT16             | 14.4 | 7    | 21   | 8    | 27 | 46.5 | 46.7 | 6.7  | 7  | 5.6 (Max. 11.2) | 28.6 | RB1007               |
| MY2HT25             | 19.7 | 10.7 | 26.6 | 11.2 | 36 | 64.8 | 67.3 | 17.7 | 12 | 4.9 (Max. 16.4) | 37.2 | RB1412               |
| MY2HT40             | 29.1 | 15.1 | 37   | 17.2 | 57 | 74.5 | 73.2 | —    | 15 | 5.9 (Max. 21.9) | 51.6 | RB2015               |

High load shock absorber

MY2HT Bore size G – Stroke H



| Applicable cylinder | E    | EA   | EB   | EC   | EY | FA   | S    | SD   | T  | TT              | W    | Shock absorber model |
|---------------------|------|------|------|------|----|------|------|------|----|-----------------|------|----------------------|
| MY2HT16             | 14.4 | 7    | 21   | 8    | 27 | 46.5 | 67.3 | 27.3 | 12 | 5.6 (Max. 11.2) | 28.6 | RB1412               |
| MY2HT25             | 19.7 | 10.7 | 26.6 | 11.2 | 36 | 64.8 | 73.2 | 23.6 | 15 | 4.9 (Max. 16.4) | 37.2 | RB2015               |
| MY2HT40             | 29.1 | 15.1 | 37   | 17.2 | 57 | 74.5 | 99   | 24   | 25 | 5.9 (Max. 21.9) | 51.6 | RB2725               |

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1  
□W

MY2C

MY2  
H/HT

MY3A

MY3B

MY3M

D-□

-X□

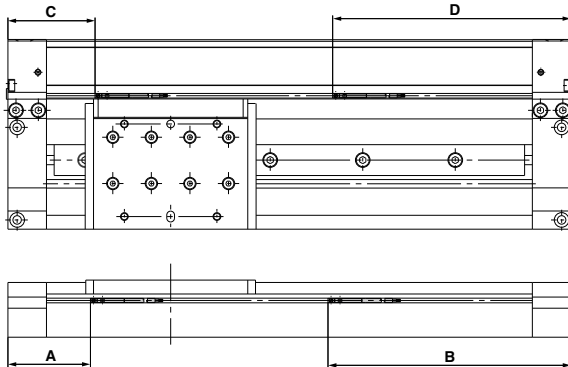
Technical  
Data

## MY2 Series

# Auto Switch Mounting

### Proper Auto Switch Mounting Position (Detection at stroke end)

Note) The operating range is a standard including hysteresis, and is not guaranteed. There may be large variations depending on the surrounding environment (variations on the order of  $\pm 30\%$ ).



#### D-A9□, D-A9□V

| Series model | A  | B   | Operating range |
|--------------|----|-----|-----------------|
| MY2C16       | 44 | 116 | 11              |
| MY2H16       | 46 | 114 |                 |
| MY2HT16      | 70 | 90  |                 |
| MY2C/H/HT25  | 54 | 156 |                 |
| MY2C/H/HT40  | 85 | 245 |                 |

| Series model | C    | D     | Operating range |
|--------------|------|-------|-----------------|
| MY2C/H/HT16  | 27.6 | 132.4 | 6.5             |
| MY2C/H/HT25  | 69   | 141   | 11              |
| MY2C/H/HT40  | 90.2 | 239.8 |                 |

#### D-M9□, D-M9□V, D-M9□W, D-M9□WV, D-M9□A, D-M9□AV

| Series model | A  | B   | Operating range |
|--------------|----|-----|-----------------|
| MY2C16       | 48 | 112 | 8.5             |
| MY2H16       | 50 | 110 |                 |
| MY2HT16      | 74 | 86  |                 |
| MY2C/H/HT25  | 58 | 152 |                 |
| MY2C/H/HT40  | 89 | 241 |                 |

| Series model | C    | D     | Operating range |
|--------------|------|-------|-----------------|
| MY2C/H/HT16  | 31.6 | 128.4 | 4               |
| MY2C/H/HT25  | 73   | 137   | 8.5             |
| MY2C/H/HT40  | 94.2 | 235.8 |                 |

\* Adjust the auto switch after confirming the operating conditions in the actual setting.

Besides the models listed in How to Order, the following auto switches are applicable.

- \* For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1648 and 1649 for details.
- \* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) are also available. Refer to page 1593 for details.



### 1 Helical Insert Thread Specifications

Symbol

**-X168**

Helical insert thread is used for the slide table mounting thread, the thread size is the same as the standard model.

MY2   Bore size - Stroke - Auto switch Suffix -X168

• Series: Bore size

|           |                                 |    |    |    |
|-----------|---------------------------------|----|----|----|
| <b>C</b>  | Cam follower guide type         | 16 | 25 | 40 |
| <b>H</b>  | Linear guide type (Single axis) | ●  | ●  | ●  |
| <b>HT</b> | Linear guide type (Double axis) | ●  | ●  | ●  |

Example) MY2H40G-300L-A93-X168

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1  
HT

MY1  
□W

MY2C

MY2  
H/HT

MY3A

MY3B

MY3M

D-□

-X□

Technical  
Data



# MY2 Series

## Specific Product Precautions 1

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

### Selection

#### Caution

##### 1. When using a cylinder with long strokes, implement an intermediate support.

When using a cylinder with long strokes, implement an intermediate support to prevent the tube from sagging and being deflected by vibration or an external load.

Refer to the Guide for Side Support Application (MY2C series) on page 1386.

##### 2. For intermediate stops, use a dual-side pressure control circuit.

Since the mechanically jointed rodless cylinders have a unique seal structure, slight external leakage may occur. Controlling intermediate stops with a 3 position valve cannot hold the stopping position of the slide table (slider). The speed at the restarting state also may not be controllable. Use the dual-side pressure control circuit with a PAB-connected 3 position valve for intermediate stops.

##### 3. Constant speed

Since the mechanically jointed rodless cylinders have a unique seal structure, a slight speed change may occur. For applications that require constant speed, select an applicable equipment for the level of demand.

##### 4. Load factor of 0.5 or less

When the load factor is high against the cylinder output, it may adversely affect the cylinder (condensation, etc.) and cause malfunctions. Select a cylinder to make the load factor less than 0.5. (Mainly when using an external guide)

##### 5. Cautions on less frequent operation

When the cylinder is used extremely infrequently, operation may be interrupted in order for anchoring and a change lubrication to be performed or service life may be reduced.

##### 6. Consider uncalculated loads such as piping, cableveyor, etc., when selecting a load moment

Calculation does not include the external acting force of piping, cableveyor, etc. Select load factors taking into account the external acting force of piping, cableveyor, etc.

##### 7. Accuracy

The mechanical jointed rodless cylinder does not guarantee traveling parallelism. When accuracy in traveling parallelism and a middle position of stroke is required, please consult with SMC.

### Mounting

#### Caution

##### 1. Do not apply a strong impact or moment on the slide table (slider).

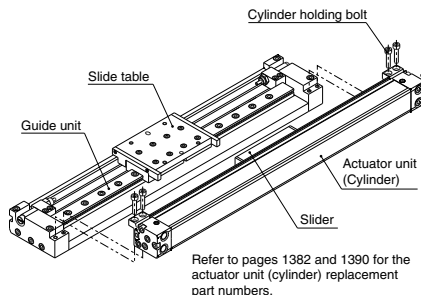
Since the slide table (slider) is supported by precision bearings, do not subject it to strong impact or excessive moment when mounting workpieces.

##### 2. When connecting to a load which has an external guide mechanism, use a discrepancy absorption mechanism.

A mechanically jointed rodless cylinder can be used with a direct load within the allowable range for each guide type, however, align carefully when connecting to a load with an external guide mechanism.

##### 3. Attaching and detaching the actuator unit (cylinder)

When detaching the actuator unit, remove the four cylinder holding bolts and take the actuator unit off the guide unit. When attaching the actuator unit, insert the slider into the slide table on the guide unit, and tighten the four holding bolts equally. Since loosened holding bolts may cause damage or malfunction, be sure to secure them tightly.







# MY2 Series

## Specific Product Precautions 2

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

### Mounting

#### Caution

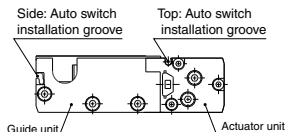
##### 4. Auto Switch Mounting

The MY2 series can be equipped with auto switches on the top of the actuator unit (cylinder) and on the side of the guide unit, but use caution in the following cases.

**<Mounting an auto switch on the top of the actuator unit (cylinder)>**

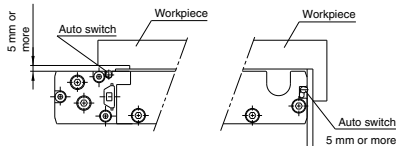
For auto switches with perpendicular electrical entry, the lead wire may interfere with the workpiece depending on the workpiece mounting type and shape.

Be sure to allow a clearance in order to keep the lead wire from interfering with the workpiece.



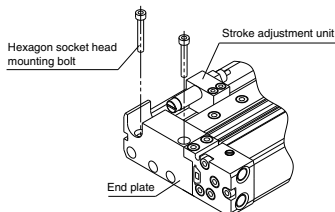
##### 5. Workpiece Mounting

When mounting a magnetic workpiece, the auto switch may stop working due to a loss of magnetic force in the cylinder depending on the mounting position. Allow a clearance of 5 mm or more between the auto switch and workpiece.



##### 6. Body Mounting

When mounting MY2H40G with stroke adjustment unit from the top, move the stroke adjustment unit and secure the body with the end plate mounting holes. After mounting, return the stroke adjustment unit to the stroke end and secure it again.



##### 7. Do not generate negative pressure in the cylinder tube.

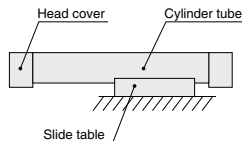
Take precautions under operating conditions in which negative pressure is generated inside the cylinder by external forces or inertial forces. Air leakage may occur due to separation of the seal belt. Do not generate negative pressure in the cylinder by forcibly moving it with an external force during the trial operation or dropping it with self-weight under the non-pressure state, etc. When the negative pressure is generated, slowly move the cylinder by hand and move the stroke back and forth. After doing so, if air leakage still occurs, please consult with SMC.

##### 8. Do not mount cylinders as they are twisted.

When mounting, be sure for a cylinder tube not to be twisted. The flatness of the mounting surface is not appropriate, the cylinder tube is twisted, which may cause air leakage due to the detachment of a seal belt, damage a dust seal band, and cause malfunctions.

##### 9. Do not mount a slide table on the fixed equipment surface.

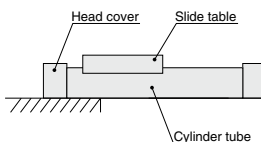
It may cause damage or malfunctions since an excessive load is applied to the bearing.



Mounting with a slide table (slider)

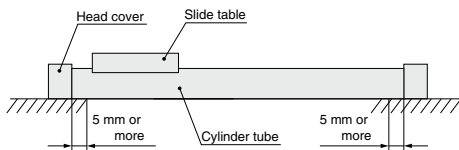
##### 10. Consult with SMC when mounting in a cantilevered way.

Since the cylinder body deflects, it may cause malfunctions. Please consult with SMC when using it this way.



Mounting in a cantilevered way

##### 11. Fixed parts of the cylinder on both ends must have at least 5 mm of contact between where the bottom of the cylinder tube and the equipment surface.



##### 12. Consider uncalculated loads such as piping, cableveyor, etc., when selecting a load moment

Calculation does not include the external acting force of piping, cableveyor, etc. Select load factors taking into account the external acting force of piping, cableveyor, etc.

MY1B

MY1H

MY1B

MY1M

MY1C

MY1H

MY1 HT

MY1 □W

MY2C

MY2 H/HT

MY3A

MY3B

MY3M

D-□

-X□

Technical Data



## MY2 Series

# Specific Product Precautions 3

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

### Handling

#### ⚠ Caution

##### 1. Do not unnecessarily alter the guide adjustment setting.

The adjustment of the guide is preset and does not require readjustment under normal operating conditions. Therefore, do not unnecessarily alter the guide adjustment setting.

##### 2. Avoid operation that causes negative pressure inside the cylinder.

Take precautions under operating conditions in which negative pressure is increased inside the cylinder by external forces or inertial forces. Air leakage may occur due to separation of the seal belt.

### Operating Environment

#### ⚠ Warning

##### 1. Do not use in environments where the cylinder will come in contact with coolants, cutting oil, water drops, adhesive foreign particles, dust, etc., and do not operate the cylinder with compressed air that contains drainage and foreign matter.

Foreign matter or liquids on the cylinder interior or exterior can wash away the lubricating grease, which can lead to deterioration and damage of the dust seal band and seal materials, causing a danger of malfunction.

When operating in locations with exposure to water, oil drops, or dust, provide protection such as a cover to prevent direct contact with the cylinder, or mount the dust seal band surface downwards, and operate it with clean compressed air.

### Operating Environment

#### ⚠ Warning

##### 2. Carry out cleaning and grease application suitable for the operating environment.

Carry out cleaning regularly when using in an operating environment in which the product is likely to get dirty.

After cleaning, be sure to apply grease to the top side of the cylinder tube and the rotating part of the dust seal band. Apply grease to these parts regularly even if not after cleaning. Please consult with SMC for the cleaning of the slide table (slider) interior and grease application.

### Service Life and Replacement Period of Shock Absorber

#### ⚠ Caution

##### 1. Allowable operating cycle under the specifications set in this catalog is shown below.

1.2 million times RB08□□

2 million times RB10□□ to RB2725

Note) Specified service life (suitable replacement period) is the value at room temperature (20 to 25 °C). The period may vary depending on the temperature and other conditions. In some cases the absorber may need to be replaced before the allowable operating cycle above.

### Centralized Piping Port Variations

#### ⚠ Caution

Head cover piping connection can be freely selected to best suit different piping conditions.

