

# Mechanically Jointed Rodless Cylinder

New

ø10, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

Five types of guide allow a wide range of selections.



**MY1 Series**



CAT.ES20-261A

# With 5 standardized guide types

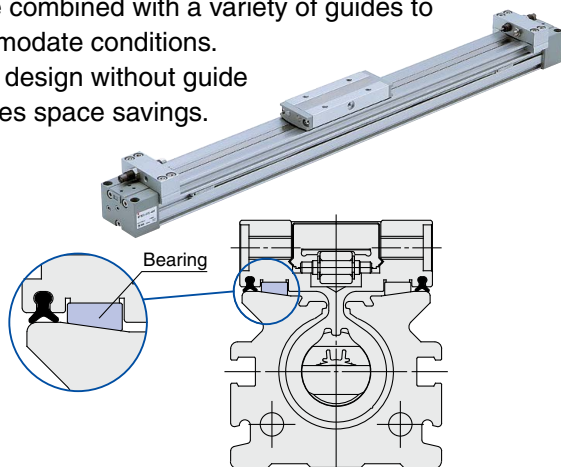
## Basic Type

*MY1B Series* p. 12

### Wide variations from $\varnothing 10$ to $\varnothing 100$

Can be combined with a variety of guides to accommodate conditions.

Simple design without guide facilitates space savings.

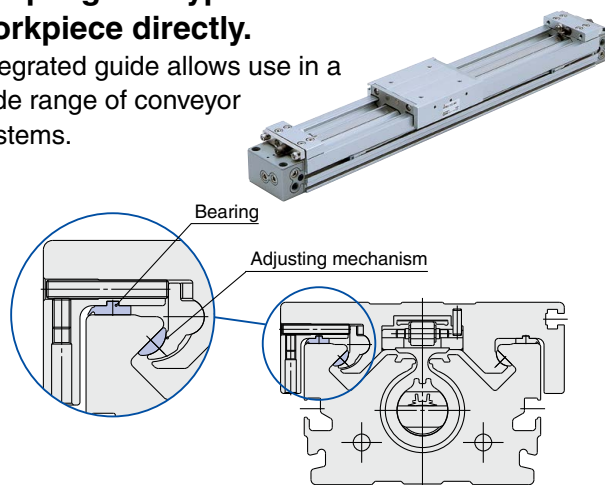


## Slide Bearing Guide Type

*MY1M Series* p. 38

### Simple guide type that can mount a workpiece directly.

Integrated guide allows use in a wide range of conveyor systems.

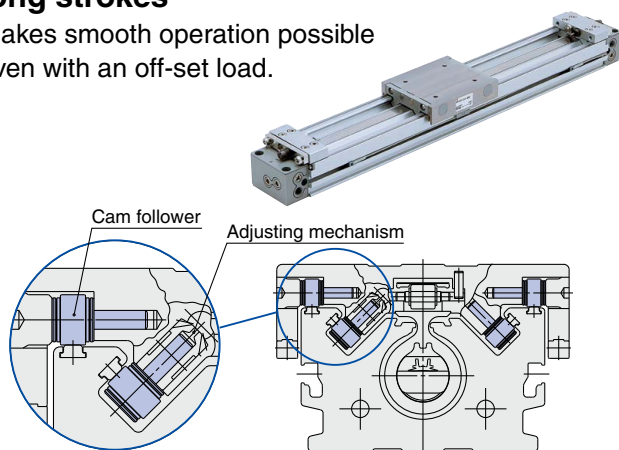


## Cam Follower Guide Type

*MY1C Series* p. 56

### Strong against moment, compatible with long strokes

Makes smooth operation possible even with an off-set load.

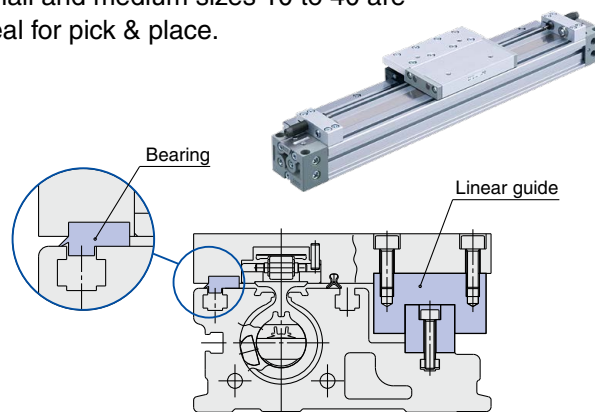


## Linear Guide Type

*MY1H Series* p. 72

### Uses a linear guide to achieve high repeatability

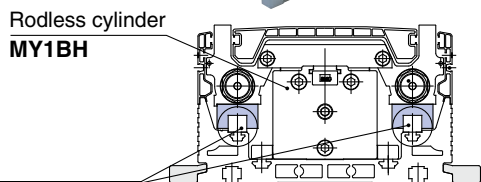
Small and medium sizes 10 to 40 are ideal for pick & place.



## High Rigidity/Linear Guide Type

*MY1HT Series* p. 98

### Linear guide heavy loaded workpieces can be accommodated by using two linear guides.



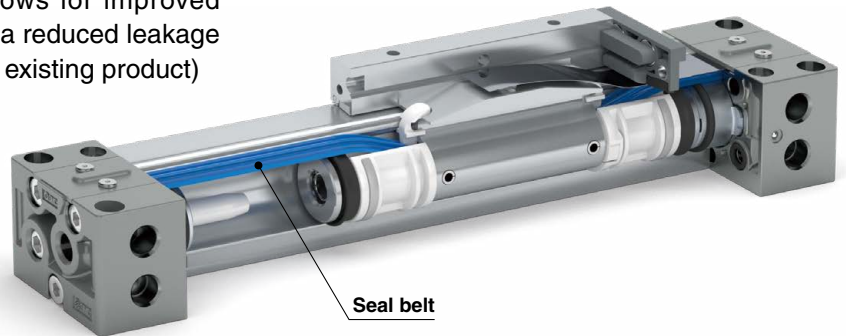
2 linear guides

## Minimal leakage seal construction

- The flexible material of the seal belt allows for improved adherence to the cylinder tube, resulting in a reduced leakage amount. (50% reduction compared with the existing product)

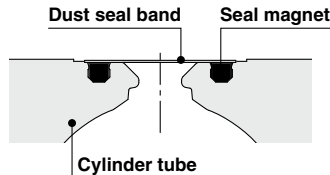
### Applicable models

MY1□16 to 50



## Dust seal band with improved holding force

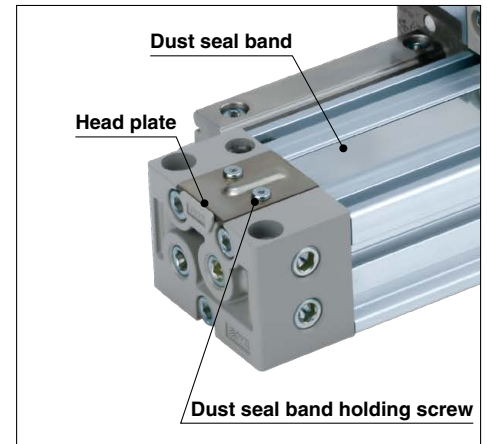
- The seal magnet on the cylinder tube adsorbs the dust seal band with magnetic force, resulting in improved holding force.



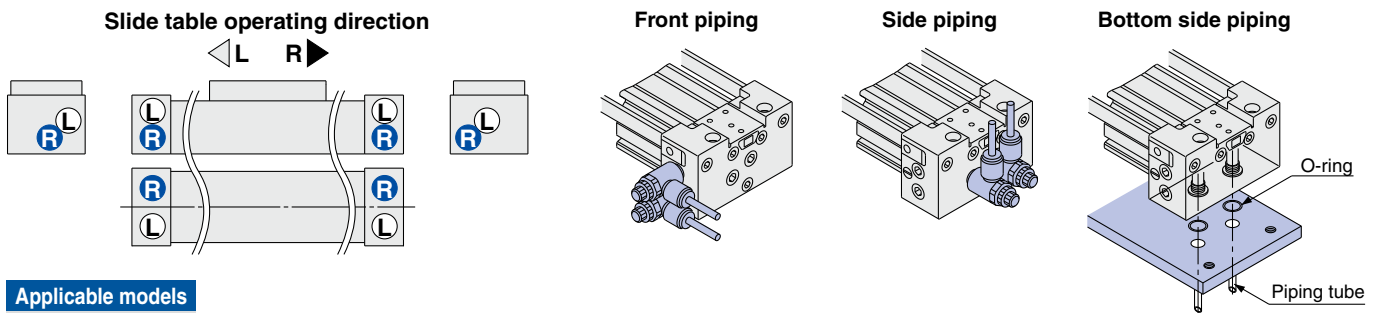
- The dust seal band can be easily removed for replacement by simply loosening the two holding screws. Easier maintenance

### Applicable models

MY1B10, 25 to 40, 80, 100  
MY1H10, 25 to 40



## Allows for piping to be connected according to installation conditions. Centralized piping type for increased piping freedom



### Applicable models

All models

## MY1M and MY1C compatibility guaranteed

- With the same outer dimensions and workpiece mounting dimensions, both series are compatible with stroke adjustment units, side supports, auto switches, etc.

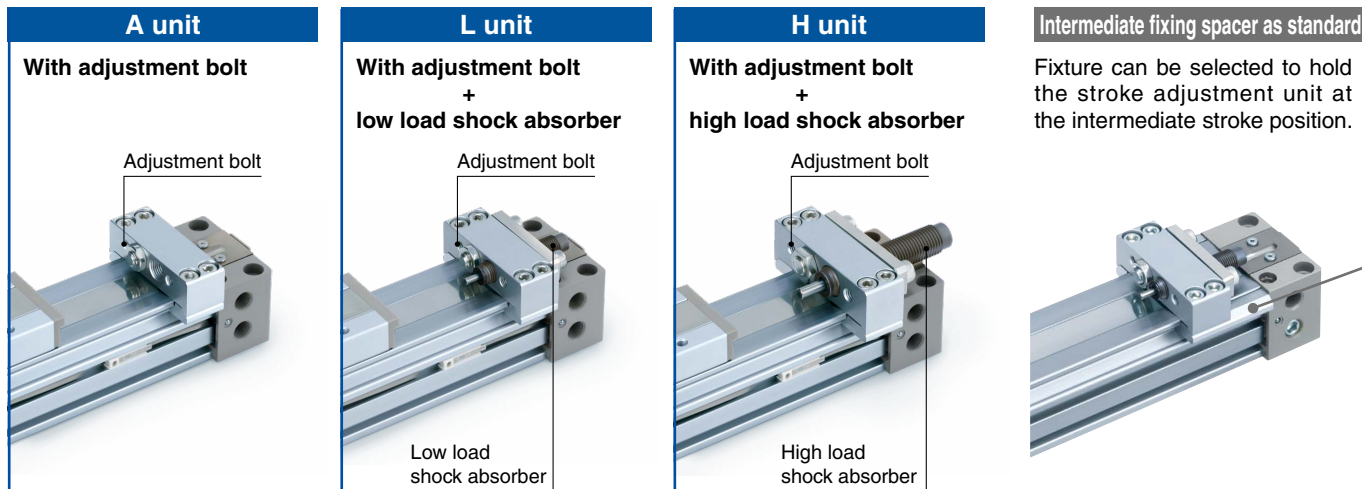
### Applicable models

MY1M16 to 63  
MY1C16 to 63



## Built-in adjustment bolt and shock absorber, 3 stroke adjustment unit types

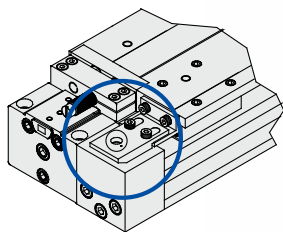
- The shock absorber softens the impact of workpieces at the stroke end, and the adjustment bolt increases the repeatability of the stopping position.
- The following 3 unit types each meet the specification requirements.
- An intermediate fixing spacer for stopping slide tables in the middle of the stroke is available as well.



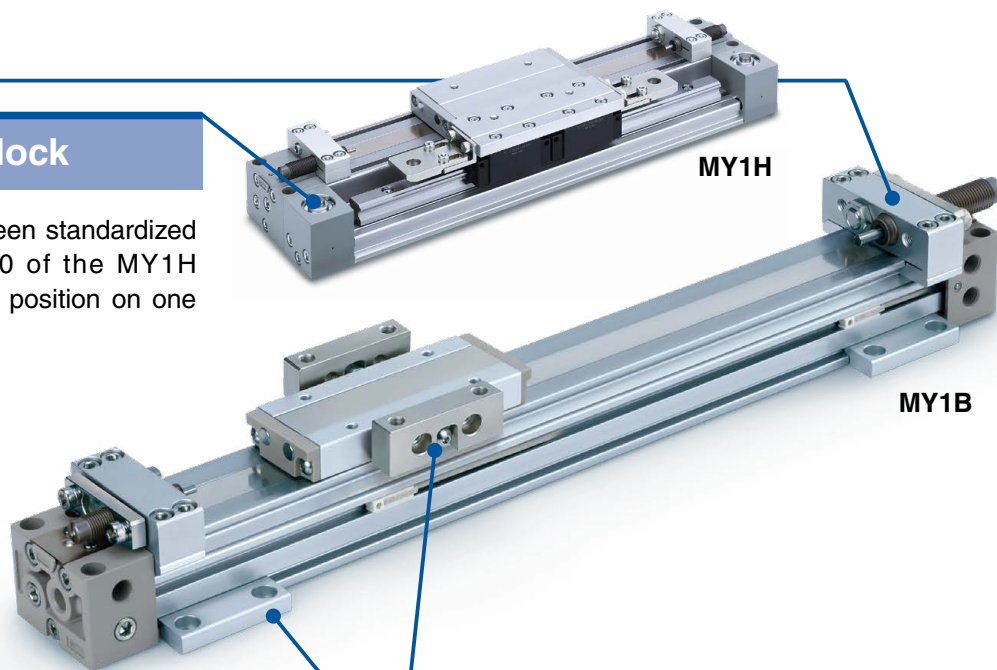
**Applicable models**  
All models  
Except MY1B50 to 100

## Standardized end lock

- The end lock type has been standardized for bore sizes 16 to 40 of the MY1H series. Mountable at any position on one or both sides

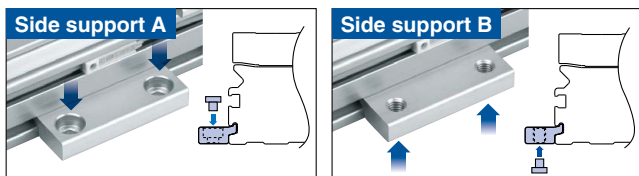


**Applicable models**  
MY1H16 to 40



## Side support

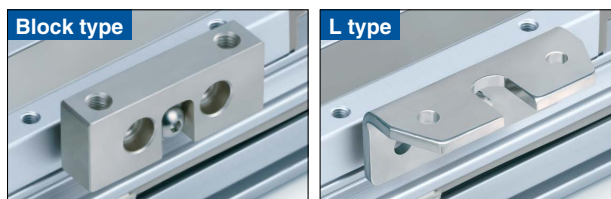
- Prevents deflection of the cylinder tube at a long stroke. Makes linear operation possible
- Now with 2 selectable mounting options in order to support mounting frames



**Applicable models**  
All models

## Floating bracket

- 2 connection types can be selected. (ø25 to ø40)  
Easier to connect to other guide types.

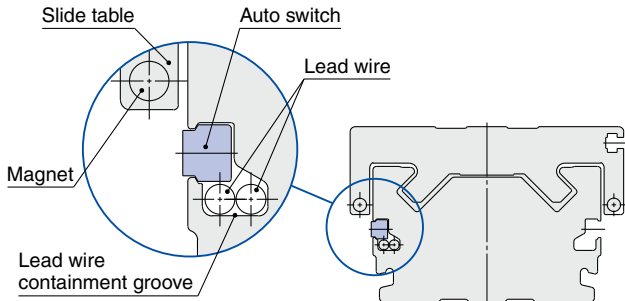


**Applicable models**  
MY1B10 to 100



**Auto switch wiring storage system**  
To increase safety, auto switch lead wires can be stored to prevent accidental contact with slide tables.

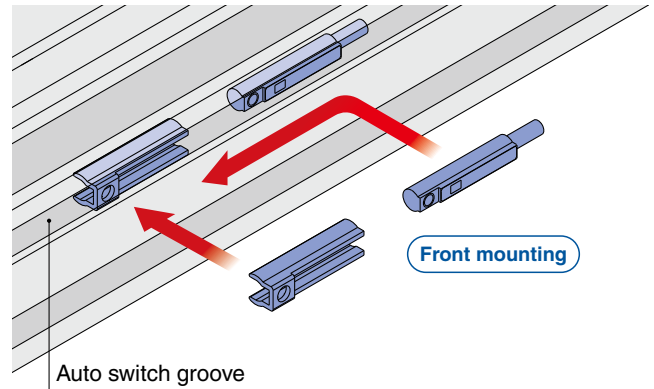
- Improved safety and accuracy of the entire system can be achieved by storing auto switch lead wires in the product's designated lead wire containment grooves.



**Applicable models**  
MY1M25 to 63  
MY1C25 to 63

Auto switches can be mounted from the front. Contributes to reduction in mounting time.

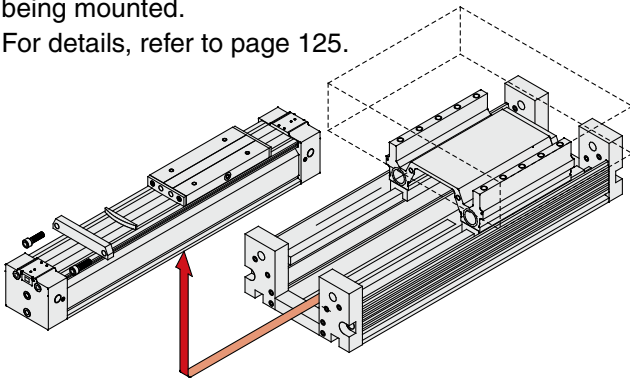
- Auto switches can be mounted from the front at any position on the mounting groove.



**Applicable models**  
MY1B25 to 40  
MY1H25 to 40  
MY1HT50, 63

**Extremely easy to maintain**

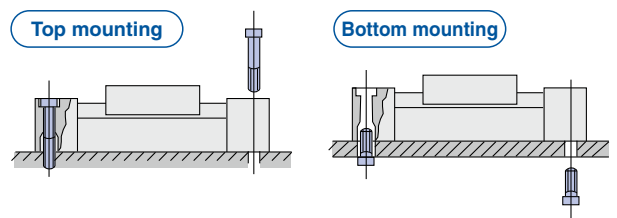
- It is possible to replace cylinders with a workpiece being mounted. For details, refer to page 125.



**Applicable models**  
MY1HT50, 63

**Two mounting types, Space saving**

- The cylinder body can be secured directly from either the top or bottom without the use of mounting brackets. This does not change the overall length dimension.



**Applicable models**  
MY1□16 to 63

## Series Variations

Series	Guide type	Piping type <sup>*1</sup>	Bore size [mm]								Air cushion	Stroke adjustment unit	Side support	Floating bracket	End lock	Made to order <sup>*3</sup>	Page	
			10	16	20	25	32	40	50	63								80
MY1B	Basic	Centralized piping Standard piping	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	12
MY1M	Slide bearing guide		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	38
MY1C	Cam follower guide		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	56
MY1H	Linear guide		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	72
MY1HT	High rigidity/Linear guide		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	98

\*1  $\phi 10$  is available with centralized piping only. \*2  $\phi 10$  is available with rubber bumper only.  
\*3 Availability for made-to-order differs, depending on the size and the model.  
\*4 Except  $\phi 50$  to  $\phi 100$  \*5 Except  $\phi 10$



# Related Products

## Deceleration Controller DAS Series

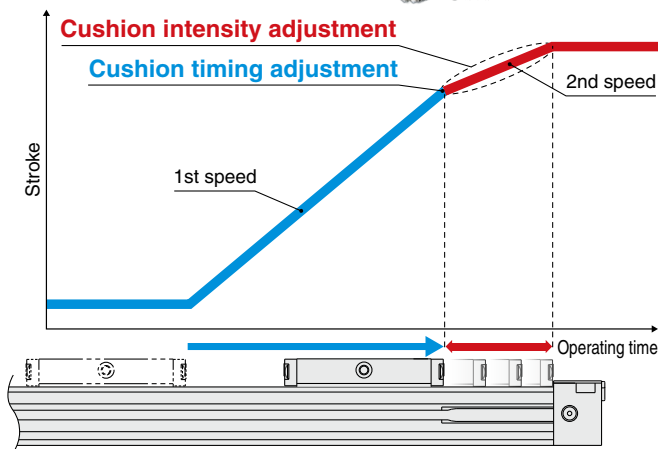
[Click here for details](#)

**2-speed control reduces cycle time**  
**Allows for the impact relaxation of the stroke end**

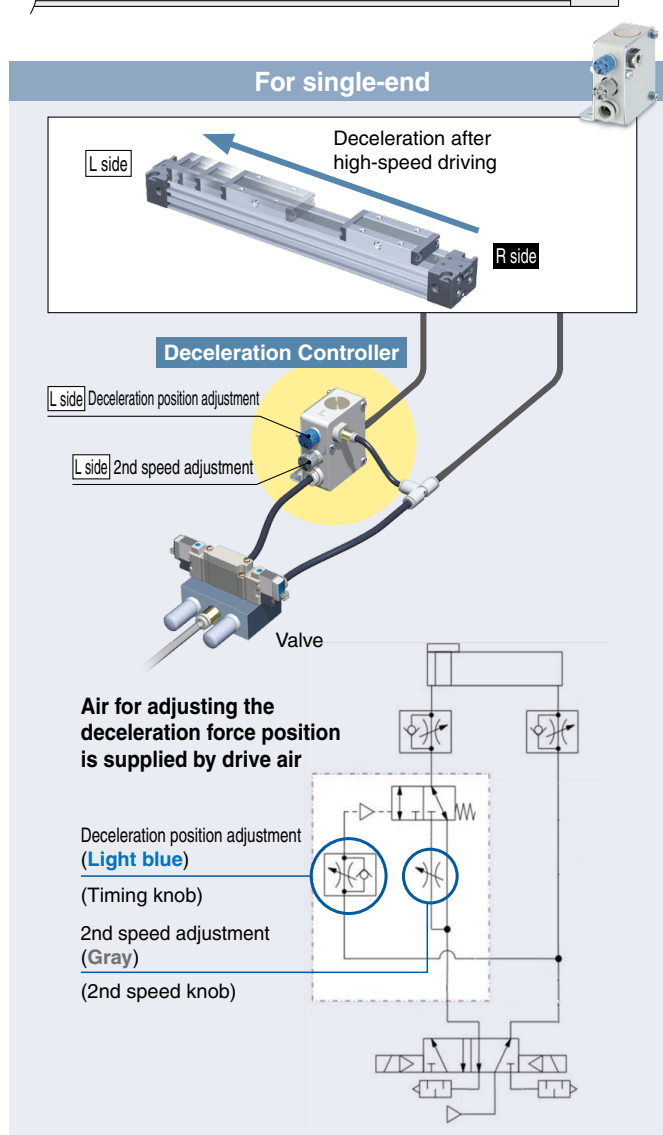
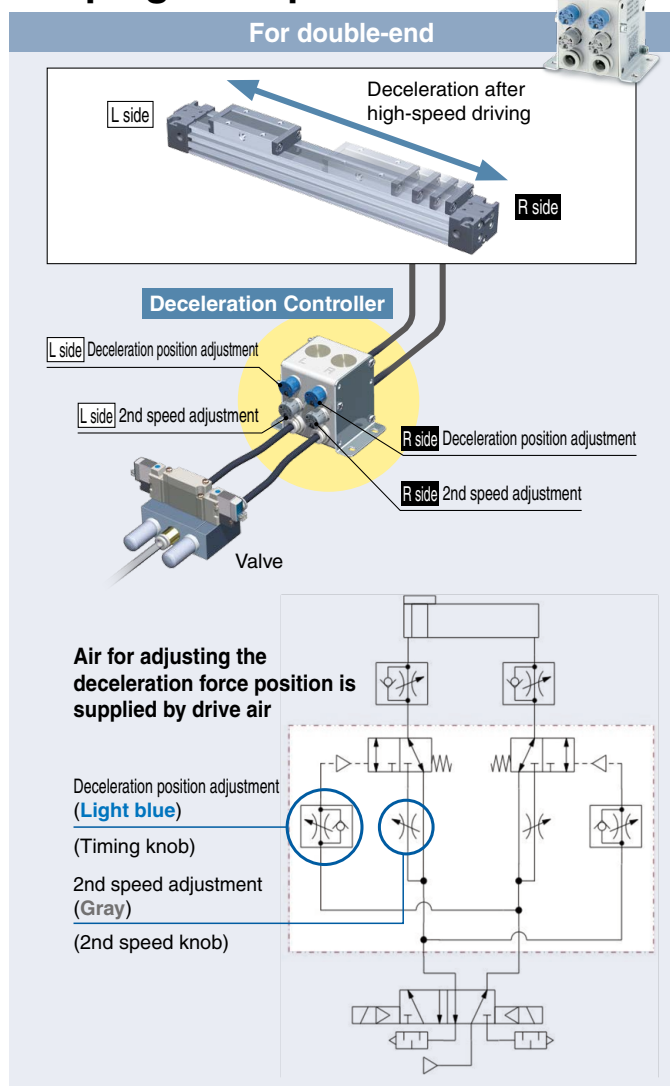
**Allows for the 2-speed control of cylinders**

The deceleration position (cushion timing) and **2nd speed (cushion intensity)**

can be adjusted.



### Piping Example



### Variations

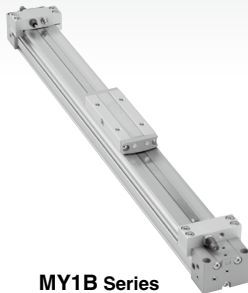
Mounting	Body size	Applicable tubing O.D.										Bore size
		Metric size					Inch size					
		4	6	8	10	12	5/32"	1/4"	5/16"	3/8"	1/2"	
	5	•	•	•			•	•	•			ø10 to ø40
	7			•	•	•			•	•	•	



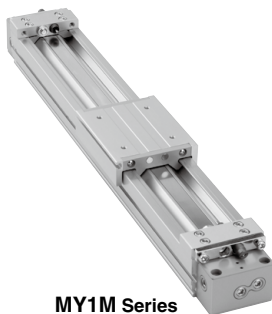


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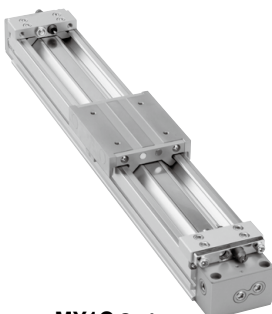
## Mechanically Jointed Rodless Cylinder *MY1 Series*



MY1B Series

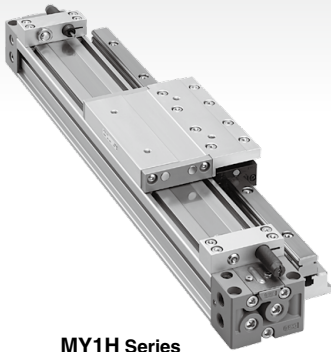


MY1M Series



MY1C Series

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MY1H Series



MY1HT Series

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# MY1 Series Model Selection

Following are the steps for selecting the most suitable MY1 series to your application.

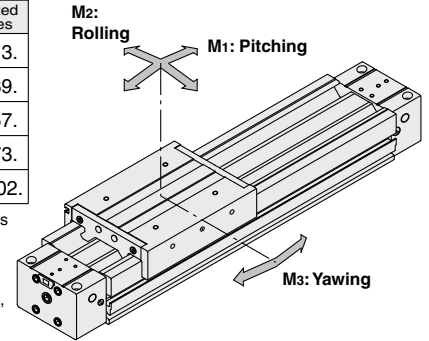
## Standards for Tentative Model Selection

Cylinder model	Guide type	Standards for guide selection	Graphs for related allowable values
<b>MY1B</b>	Basic	Guaranteed accuracy not required, generally combined with separate guide	Refer to p. 13.
<b>MY1M</b>	Slide bearing guide	Slide table accuracy approx. $\pm 0.12 \text{ mm}^{*1}$	Refer to p. 39.
<b>MY1C</b>	Cam follower guide	Slide table accuracy approx. $\pm 0.05 \text{ mm}^{*1}$	Refer to p. 57.
<b>MY1H</b>	Linear guide	Slide table accuracy of $\pm 0.05 \text{ mm}$ or less required <sup>*1</sup>	Refer to p. 73.
<b>MY1HT</b>	High rigidity/Linear guide	Slide table accuracy of $\pm 0.05 \text{ mm}$ or less required <sup>*1</sup>	Refer to p. 102.

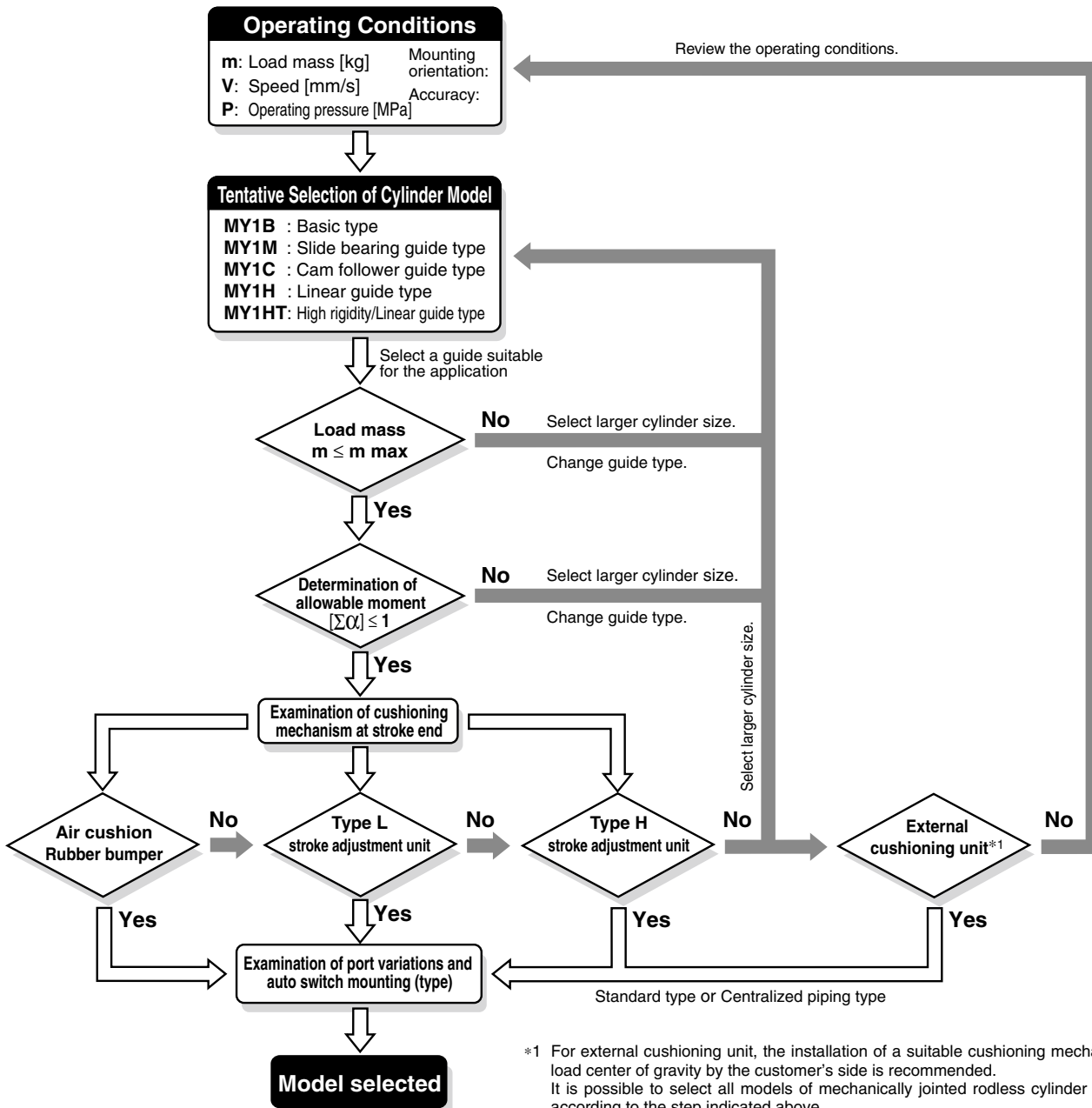
\*1 "Accuracy" here means displacement of the slide table (at stroke end) when 50% of the allowable moment shown in the catalog is applied (reference value).

\* These accuracy values for each guide should be used only as a guide during selection. Please contact SMC when guaranteed accuracy for MY1C/MY1H is required.

\* Consider selecting the MY1□W with protective cover for use in environments where coolant, cutting oil, water droplets, dust particles, etc., may come in contact with the product.



## Selection Flow Chart



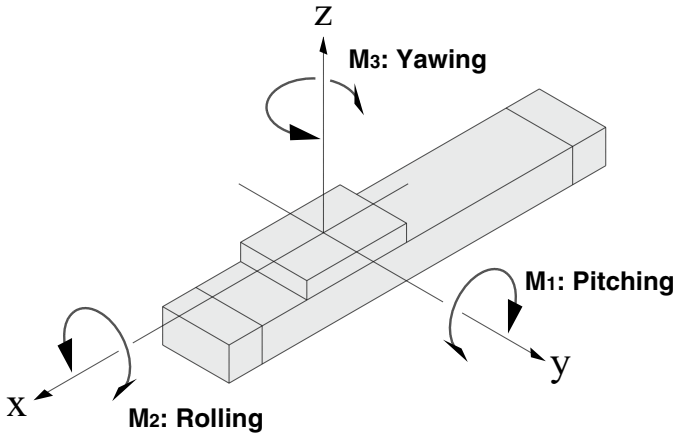
\*1 For external cushioning unit, the installation of a suitable cushioning mechanism near the load center of gravity by the customer's side is recommended. It is possible to select all models of mechanically jointed rodless cylinder (MY1□ series) according to the step indicated above. Refer to the separate operation manual for further details. If you have any questions, please contact SMC.



**Types of Moment Applied to 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**

**Bottom mounting**

**Wall mounting**

**Vertical mounting**

**g: Gravitational acceleration**

Mounting orientation	Horizontal	Bottom	Wall	Vertical
Static load (m)	<b>m<sub>1</sub></b>	<b>m<sub>2</sub></b>	<b>m<sub>3</sub></b>	<b>m<sub>4</sub>*1</b>
Static moment	<b>M<sub>1</sub></b>	<b>m<sub>1</sub> × g × X</b>	<b>m<sub>2</sub> × g × X</b>	—
	<b>M<sub>2</sub></b>	<b>m<sub>1</sub> × g × Y</b>	<b>m<sub>2</sub> × g × Y</b>	<b>m<sub>3</sub> × g × Z</b>
	<b>M<sub>3</sub></b>	—	—	<b>m<sub>3</sub> × g × X</b>

\*1 m<sub>4</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**

Mounting orientation	Horizontal	Bottom	Wall	Vertical
Dynamic load (FE)	<b>1.4 Ua × δ × m<sub>n</sub> × g</b>			
Dynamic moment	<b>M<sub>1E</sub></b>	<b><math>\frac{1}{3} \times FE \times Z</math></b>		
	<b>M<sub>2E</sub></b>	<b>Dynamic moment M<sub>2E</sub> is not generated.</b>		
	<b>M<sub>3E</sub></b>	<b><math>\frac{1}{3} \times FE \times Y</math></b>		

\* Regardless of the mounting orientation, dynamic moment is calculated with the formulae above.

**g: Gravitational acceleration, Ua: Average speed, δ: Bumper coefficient**

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

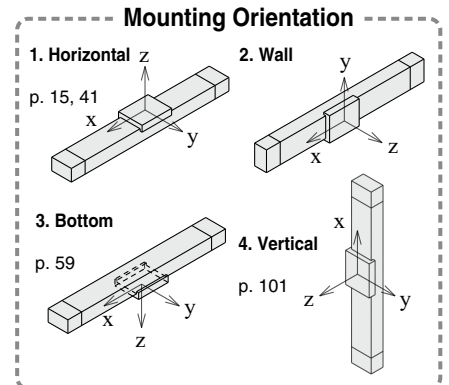
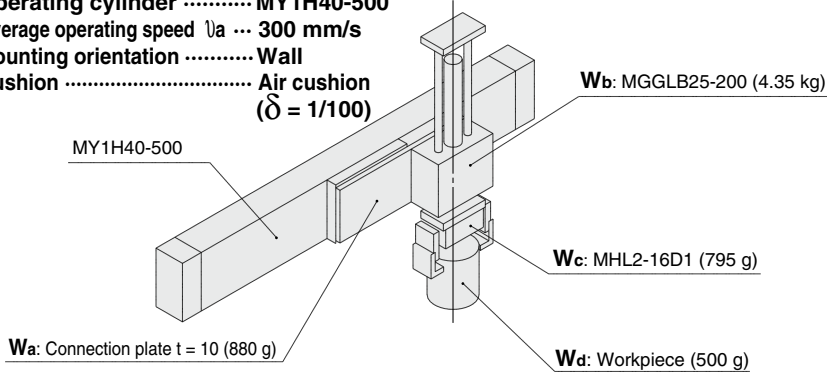
Made to Order Common Specifications

Specific Product Precautions

## Calculation of Guide Load Factor

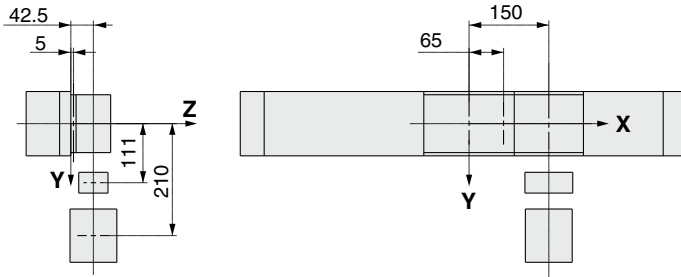
### 1. Operating Conditions

Operating cylinder ..... MY1H40-500  
 Average operating speed  $v_a$  ... 300 mm/s  
 Mounting orientation ..... Wall  
 Cushion ..... Air cushion  
 ( $\delta = 1/100$ )



For actual examples of calculation for each orientation, refer to the pages above.

### 2. Load Blocking



### Mass and Center of Gravity for Each Workpiece

Workpiece no. <b>W<sub>n</sub></b>	Mass <b>m<sub>n</sub></b>	Center of gravity		
		X-axis <b>X<sub>n</sub></b>	Y-axis <b>Y<sub>n</sub></b>	Z-axis <b>Z<sub>n</sub></b>
<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>	0.5 kg	150 mm	210 mm	42.5 mm

n = a, b, c, d

### 3. Composite Center of Gravity Calculation

$$m_3 = \sum m_n$$

$$= 0.88 + 4.35 + 0.795 + 0.5 = \mathbf{6.525 \text{ kg}}$$

$$X = \frac{1}{m_3} \times \sum (m_n \times X_n)$$

$$= \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = \mathbf{138.5 \text{ mm}}$$

$$Y = \frac{1}{m_3} \times \sum (m_n \times Y_n)$$

$$= \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = \mathbf{29.6 \text{ mm}}$$

$$Z = \frac{1}{m_3} \times \sum (m_n \times Z_n)$$

$$= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = \mathbf{37.4 \text{ mm}}$$

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

**m<sub>3</sub>**: Mass

$$m_3 \text{ max (from ① of graph MY1H/m}_3) = 50 \text{ [kg]}$$

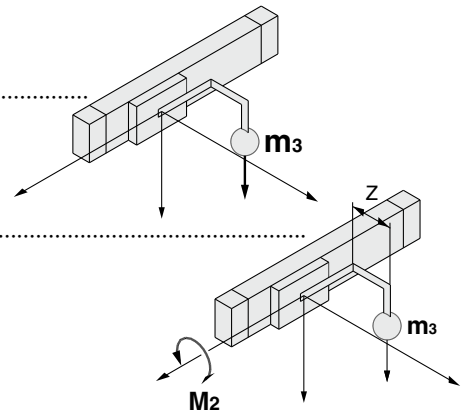
$$\text{Load factor } \alpha_1 = m_3 / m_3 \text{ max} = 6.525 / 50 = \mathbf{0.13}$$

**M<sub>2</sub>**: Moment

$$M_2 \text{ max (from ② of graph MY1H/M}_2) = 50 \text{ [N}\cdot\text{m]}$$

$$M_2 = m_3 \times g \times Z = 6.525 \times 9.8 \times 37.4 \times 10^{-3} = 2.39 \text{ [N}\cdot\text{m]}$$

$$\text{Load factor } \alpha_2 = M_2 / M_2 \text{ max} = 2.39 / 50 = \mathbf{0.05}$$

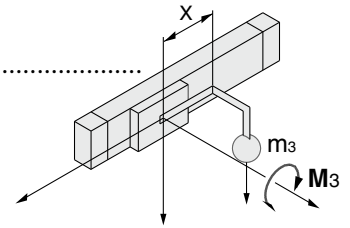


**M<sub>3</sub>: Moment**

**M<sub>3</sub> max** (from ③ of graph MY1H/M<sub>3</sub>) = 38.7 [N·m] .....

$$M_3 = m_3 \times g \times X = 6.525 \times 9.8 \times 138.5 \times 10^{-3} = 8.86 \text{ [N·m]}$$

$$\text{Load factor } \alpha_3 = M_3 / M_3 \text{ max} = 8.86 / 38.7 = 0.23$$



**5. Calculation of Load Factor for Dynamic Moment**

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

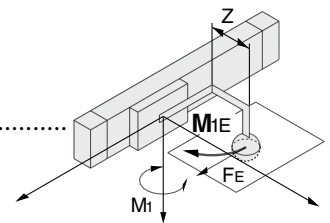
$$F_E = 1.4 \nu_a \times \delta \times m \times g = 1.4 \times 300 \times \frac{1}{100} \times 6.525 \times 9.8 = 268.6 \text{ [N]}$$

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

**M<sub>1E</sub> max** (from ④ of graph MY1H/M<sub>1</sub> where 1.4ν<sub>a</sub> = 420 mm/s) = 35.9 [N·m] .....

$$M_{1E} = \frac{1}{3} \times F_E \times Z = \frac{1}{3} \times 268.6 \times 37.4 \times 10^{-3} = 3.35 \text{ [N·m]}$$

$$\text{Load factor } \alpha_4 = M_{1E} / M_{1E} \text{ max} = 3.35 / 35.9 = 0.09$$

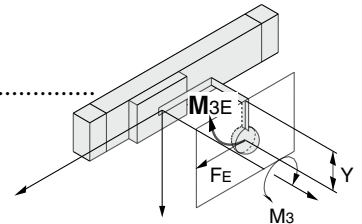


**M<sub>3E</sub>: Moment**

**M<sub>3E</sub> max** (from ⑤ of graph MY1H/M<sub>3</sub> where 1.4ν<sub>a</sub> = 420 mm/s) = 27.6 [N·m] .....

$$M_{3E} = \frac{1}{3} \times F_E \times Y = \frac{1}{3} \times 268.6 \times 29.6 \times 10^{-3} = 2.65 \text{ [N·m]}$$

$$\text{Load factor } \alpha_5 = M_{3E} / M_{3E} \text{ max} = 2.65 / 27.6 = 0.10$$



**6. Sum and Examination of Guide Load Factors**

$$\sum \alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 = 0.60 \leq 1$$

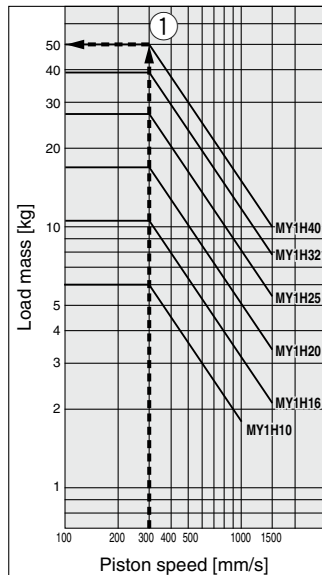
The above calculation is within the allowable value, and therefore the selected model can be used.

Select a shock absorber separately.

In an actual calculation, when the sum of guide load factors  $\sum \alpha$  in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the "Guide Cylinder Selection Software" on the SMC website.

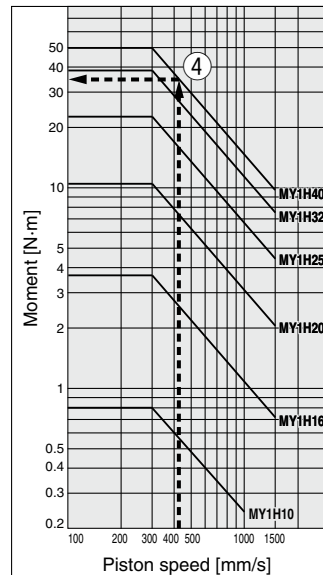
**Load Mass**

MY1H/m<sub>3</sub>

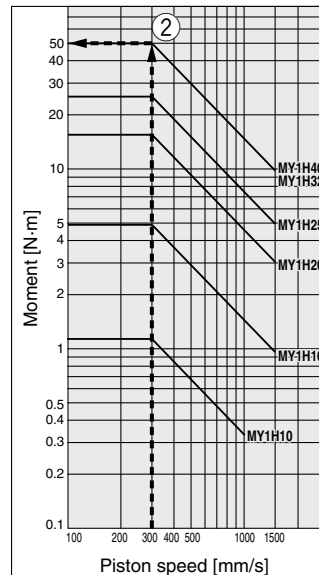


**Allowable Moment**

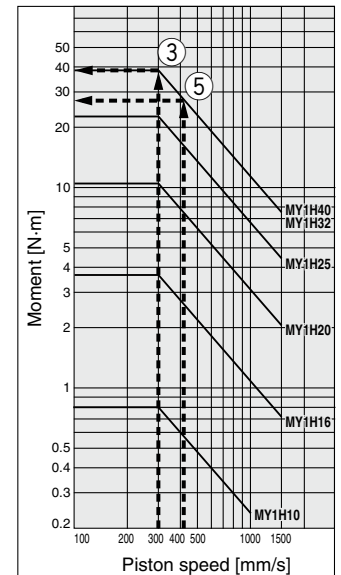
MY1H/M<sub>1</sub>



MY1H/M<sub>2</sub>



MY1H/M<sub>3</sub>



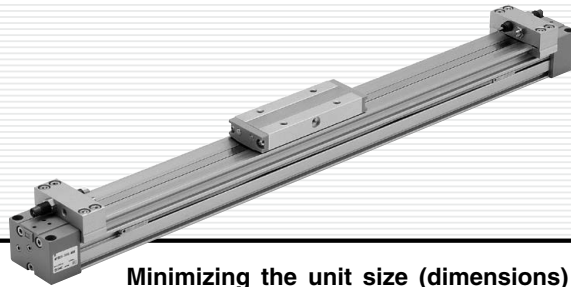




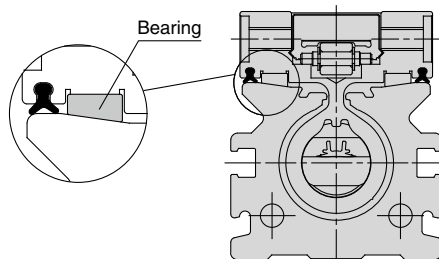
# MY1B Series

## Basic Type

ø10, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100



Minimizing the unit size (dimensions) and combination with other guides is possible.



## INDEX

Prior to Use.....	p. 13
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Cushion Capacity.....	p. 20
Construction.....	p. 22
Dimensions.....	p. 26
Stroke Adjustment Units.....	p. 31
Accessory Brackets (Option).....	p. 33
Floating Brackets.....	p. 35

# MY1B Series

## Prior to Use

### 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>
MY1B	10	0.8	0.1	0.3	5.0	1.0	0.5
	16	2.5	0.3	0.8	15	3.0	1.7
	20	5.0	0.6	1.5	21	4.2	3.0
	25	10	1.2	3.0	29	5.8	5.4
	32	20	2.4	6.0	40	8.0	8.8
	40	40	4.8	12	53	10.6	14
	50	78	9.3	23	70	14	20
	63	160	19	48	83	16.6	29
	80	315	37	95	120	24	42
100	615	73	184	150	30	60	

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

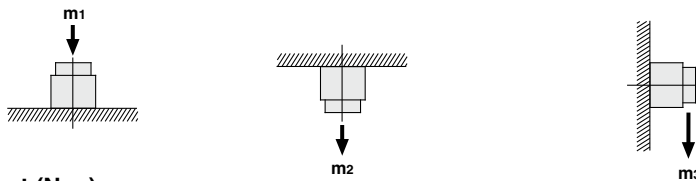
### Maximum Allowable Moment

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 load mass for the selected conditions.

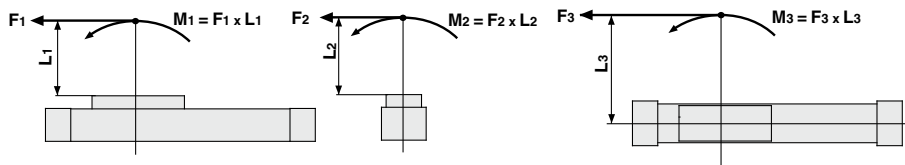
### Caution on Design

- We recommend installing an external shock absorber when the cylinder is combined with another guide (connection with floating bracket, etc.) and the maximum allowable load is exceeded, or when the operating speed is 1000 to 1500 mm/s for ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, and ø100.
- If the product is operated with a guide load factor which exceeds the standard value, malfunction may occur due to damage to the end cover and bearings. Therefore, be sure to confirm that the guide load factor is 1 or less.

### 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  $\bar{v}_a$  (average speed) for (1) and (2), and  $v$  (collision speed  $v = 1.4 \bar{v}_a$ ) 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 ( $M_1, M_2, M_3$ ).

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

- \*1 Moment caused by the load, etc., with cylinder in resting condition
- \*2 Moment caused by the load equivalent to impact at the stroke end (at the time of impact with stopper)
- \* 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 formula [Dynamic moment at the time of impact]

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

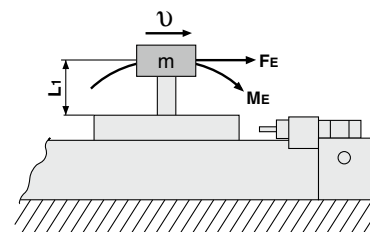
- m:** Load mass [kg]
- F:** Load [N]
- F<sub>E</sub>:** Load equivalent to impact (at the time of impact with stopper) [N]
- $\bar{v}_a$ :** Average speed [mm/s]
- M:** Static moment [N·m]
- $v = 1.4\bar{v}_a$**  [mm/s]  **$F_E = 1.4\bar{v}_a \cdot \delta \cdot m \cdot g$**
- $\therefore M_E = \frac{1}{3} \cdot F_E \cdot L_1 = 4.57\bar{v}_a \delta m L_1$**
- $v$ :** Collision speed [mm/s]
- $L_1$ :** Distance to the load center of gravity [m]
- $M_E$ :** Dynamic moment [N·m]
- $\delta$ :** Bumper coefficient
  - With rubber bumper = 4/100 (MY1B10, MY1H10)
  - With air cushion = 1/100
  - With shock absorber = 1/100
- g:** Gravitational acceleration (9.8 m/s<sup>2</sup>)

- \*3  $1.4\bar{v}_a \delta$  is a dimensionless coefficient for calculating impact force.
- \*4 Average load coefficient ( $= \frac{1}{3}$ ): For averaging the maximum load moment at the time of impact with stopper according to service life calculations

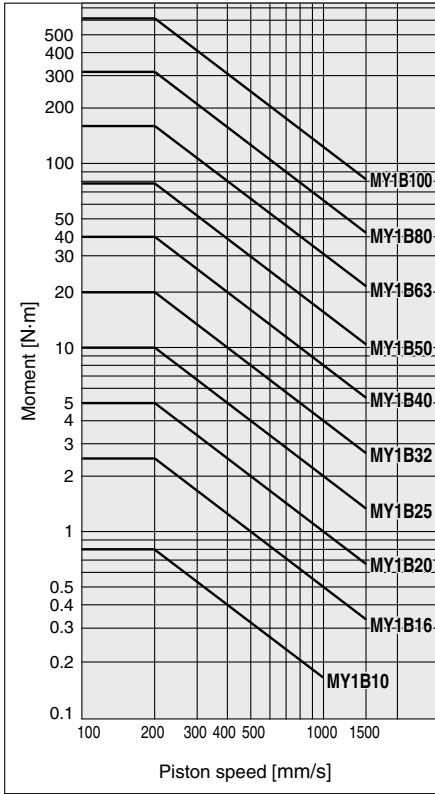
### 3. For detailed selection procedures, refer to pages 15 and 16.

### Maximum Load Mass

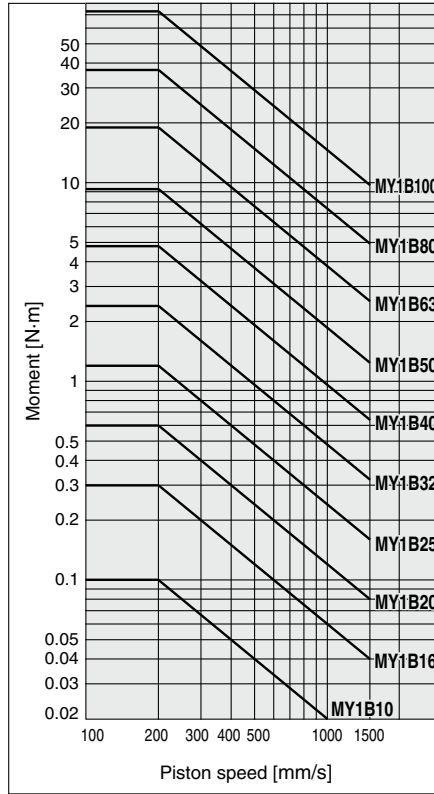
Select the load mass from within the range of limits shown in the graphs. Note that the maximum allowable moment value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable moment for the selected conditions.



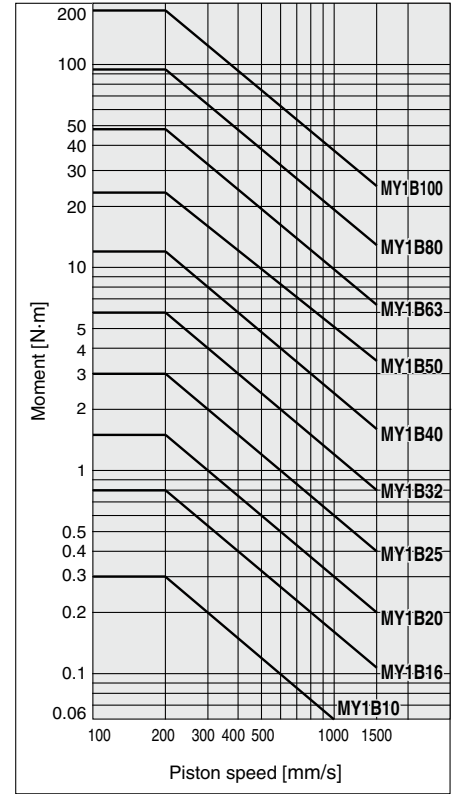
**MY1B/M1**



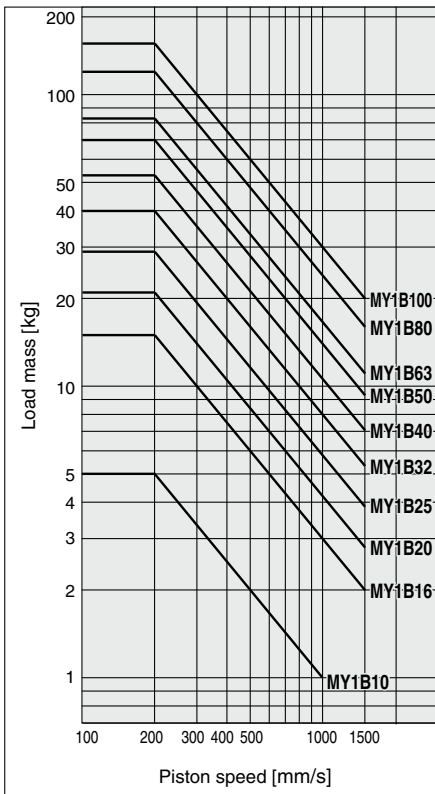
**MY1B/M2**



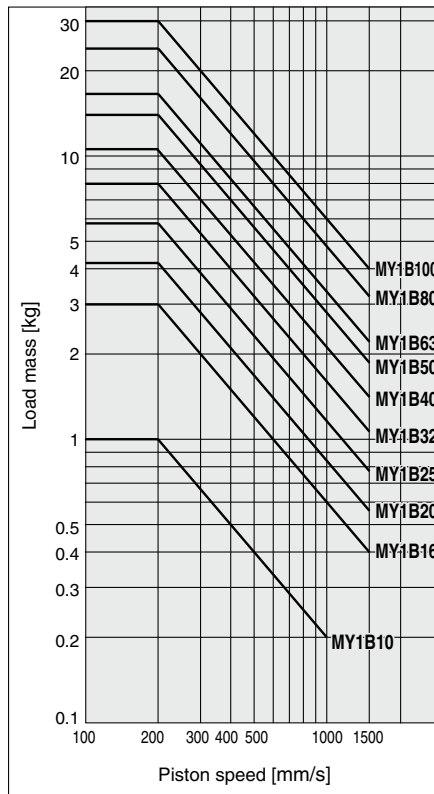
**MY1B/M3**



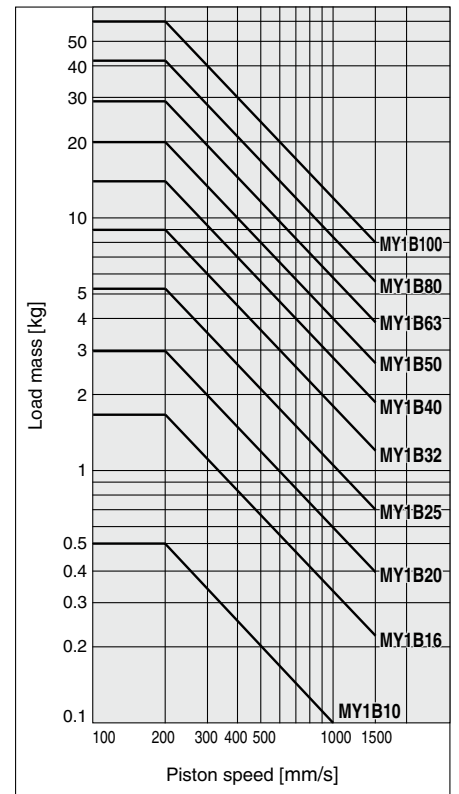
**MY1B/m1**



**MY1B/m2**



**MY1B/m3**



Model Selection

**MY1B**

**MY1M**

**MY1C**

**MY1H**

**MY1HT**

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

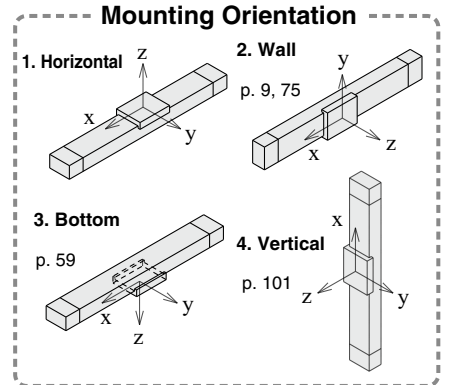
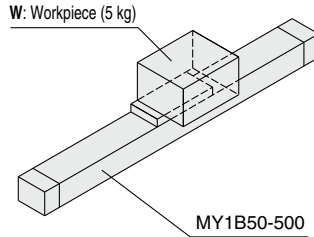
# MY1B Series Model Selection

Following are the steps for selecting the most suitable MY1B series to your application.

## Calculation of Guide Load Factor

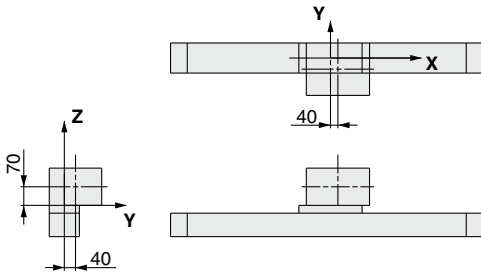
### 1. Operating Conditions

Cylinder ..... MY1B50-500  
 Average operating speed  $v_a$  .... 300 mm/s  
 Mounting orientation ..... Horizontal  
 Cushion ..... Air cushion  
 ( $\delta = 1/100$ )



For actual examples of calculation for each orientation, refer to the pages above.

### 2. Load Blocking



#### Mass and Center of Gravity for Workpiece

Workpiece no.	Mass <b>m</b>	Center of gravity		
		X-axis	Y-axis	Z-axis
<b>W</b>	5 kg	40 mm	40 mm	70 mm

### 3. Calculation of Load Factor for Static Load

**m<sub>1</sub>**: Mass

**m<sub>1</sub> max** (from ① of graph MY1B/m<sub>1</sub>) = 47 [kg].....

Load factor  $\alpha_1 = m_1/m_1 \text{ max} = 5/47 = 0.11$

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

**M<sub>1</sub> max** (from ② of graph MY1B/M<sub>1</sub>) = 52 [N·m].....

**M<sub>1</sub>** = **m<sub>1</sub>** x **g** x **X** = 5 x 9.8 x 40 x 10<sup>-3</sup> = 1.96 [N·m]

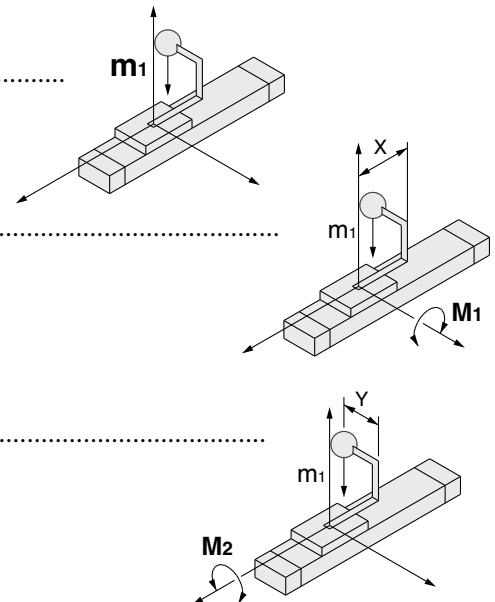
Load factor  $\alpha_2 = M_1/M_1 \text{ max} = 1.96/52 = 0.04$

**M<sub>2</sub>**: Moment

**M<sub>2</sub> max** (from ③ of graph MY1B/M<sub>2</sub>) = 6.2 [N·m].....

**M<sub>2</sub>** = **m<sub>1</sub>** x **g** x **Y** = 5 x 9.8 x 40 x 10<sup>-3</sup> = 1.96 [N·m]

Load factor  $\alpha_3 = M_2/M_2 \text{ max} = 1.96/6.2 = 0.32$





**4. Calculation of Load Factor for Dynamic Moment**

**Equivalent load  $F_E$  at impact**

$$F_E = 1.4 \cdot \Delta a \times \delta \times m \times g = 1.4 \times 300 \times \frac{1}{100} \times 5 \times 9.8 = 205.8 \text{ [N]}$$

**$M_{1E}$ : Moment**

**$M_{1E} \text{ max}$**  (from ④ of graph MY1B/ $M_1$  where  $1.4 \Delta a = 420 \text{ mm/s}$ ) = 37 [N·m].....

$$M_{1E} = \frac{1}{3} \times F_E \times Z = \frac{1}{3} \times 205.8 \times 70 \times 10^{-3} = 4.81 \text{ [N·m]}$$

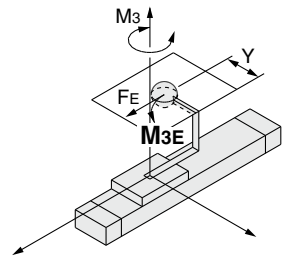
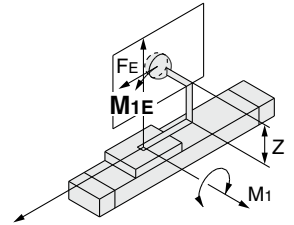
Load factor  $\alpha_4 = M_{1E} / M_{1E} \text{ max} = 4.81 / 37 = 0.13$

**$M_{3E}$ : Moment**

**$M_{3E} \text{ max}$**  (from ⑤ of graph MY1B/ $M_3$  where  $1.4 \Delta a = 420 \text{ mm/s}$ ) = 11.0 [N·m].....

$$M_{3E} = \frac{1}{3} \times F_E \times Y = \frac{1}{3} \times 205.8 \times 40 \times 10^{-3} = 2.75 \text{ [N·m]}$$

Load factor  $\alpha_5 = M_{3E} / M_{3E} \text{ max} = 2.75 / 11.0 = 0.25$



**5. Sum and Examination of Guide Load Factors**

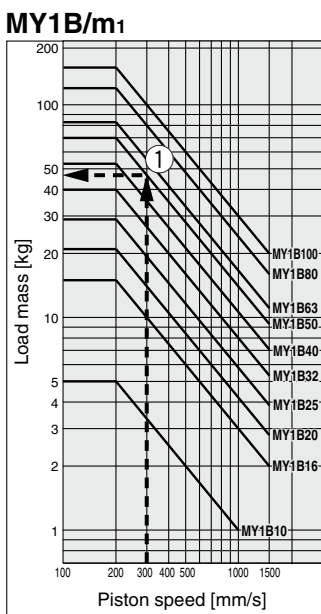
$$\Sigma \alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 = 0.85 \leq 1$$

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

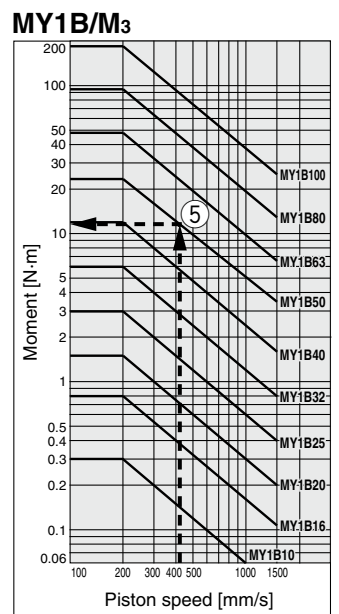
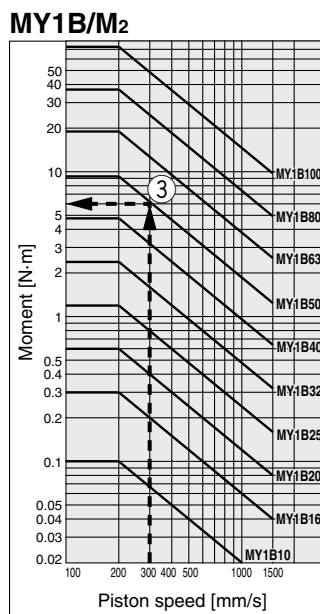
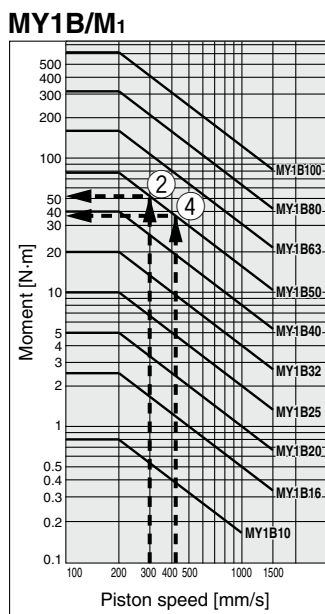
Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors  $\Sigma \alpha$  in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the "Guide Cylinder Selection Software" on the SMC website.

**Load Mass**



**Allowable Moment**

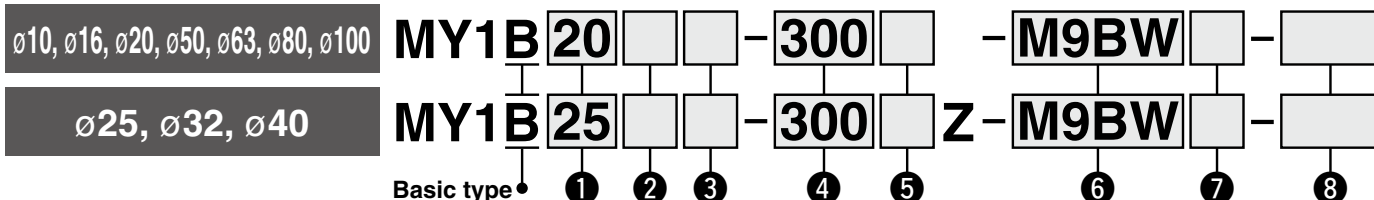


# Mechanically Jointed Rodless Cylinder Basic Type

# MY1B Series

ø10, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

## How to Order



### ① Bore size

10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

### ② Port thread type

Symbol	Type	Bore size
Nil	M thread	ø10, ø16, ø20
	Rc	ø25, ø32, ø40, ø50, ø63, ø80, ø100
TN	NPT	ø50, ø63, ø80, ø100
TF	G	ø100

### ③ Piping

Nil	Standard type
G	Centralized piping type

\* For ø10, only G is available.

### ④ Cylinder stroke [mm]

Bore size	Standard stroke*1	Long stroke	Maximum manufacturable stroke
10, 16	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000	Strokes of 2001 to 3000 mm (1 mm increments) exceeding the standard stroke	3000
20, 25, 32, 40, 50, 63, 80, 100	*1 The stroke can be manufactured in 1 mm increments from 1 mm stroke.	Strokes of 2001 to 5000 mm (1 mm increments) exceeding the standard stroke	5000

Ordering example

\* Long stroke can be ordered the same as the standard stroke. MY1B20-3000L-M9BW

\* Please be advised that with a stroke of 49 mm or less, there are cases where auto switch mounting is not possible, and the performance of the air cushion may decline.

### ⑤ Stroke adjustment unit symbol

For stroke adjustment units, refer to page 18.

### ⑥ Auto switch

Nil	ø10	Without auto switch (Built-in magnet for reed switch)
		Without auto switch (Built-in magnet for solid state switch) (Made to order: -X1810)
	ø16 to ø100	Without auto switch (Built-in magnet)

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

Applicable auto switches vary depending on the bore size. Select an applicable one referring to the table below.

### ⑦ Number of auto switches

Nil	2
S	1
n	n

### ⑧ Made to Order Made to Order Common Specifications (For details, refer to page 114.)

Symbol	Specifications
-XB22	Shock absorber soft type RJ series mounted
-XC67*1	NBR rubber lining in dust seal band
-X168	Helical insert thread specifications
-X1810	Magnet for ø10 solid state auto switch specifications

\*1 Only ø16, ø20, ø50, and ø63 are available for the -XC67.

## Applicable Auto Switches/Refer to the Web Catalog 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)			
							ø10 to ø40	ø50 to ø100	ø10 to ø40	ø50 to ø100							
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	—	M9NV [Y69A]*3	M9N [Y59A]*3	●	●	○	○	○	IC circuit	Relay, PLC		
				3-wire (PNP)			M9PV [Y7PV]*3	M9P [Y7P]*3	●	●	○	○					
				2-wire			M9BV [Y69B]*3	M9B [Y59B]*3	●	●	○	○					
				3-wire (NPN)			M9NV [Y7NWV]*3	M9NW [Y7NW]*3	●	●	○	○					
				3-wire (PNP)			M9PV [Y7P WV]*3	M9PW [Y7PW]*3	●	●	○	○					
				2-wire			M9BV [Y7B WV]*3	M9BW [Y7BW]*3	●	●	○	○					
	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	—	M9NAV [—]*1,3	M9NA [—]*1,3	○	○	●	○	○	IC circuit	Relay, PLC		
				3-wire (PNP)			M9PAV [—]*1,3	M9PA [—]*1,3	○	○	●	○					
				2-wire			M9BAV [—]*1,3	M9BA [Y7BA]*1,3	○	○	●	○					
				—			—	—	—	—	—	—	—				
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	12 V	A96V	—	A96	Z76	●	—	●	—	IC circuit	Relay, PLC	
				2-wire			100 V	A93V*2	—	A93	Z73	●	●	●			●
							100 V or less	A90V	—	A90	Z80	●	—	●			—

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

Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\*3 D-M9□□ type cannot be mounted on ø50. Select auto switches in brackets.

\* For details on auto switch mounting brackets and part numbers, refer to page 112.

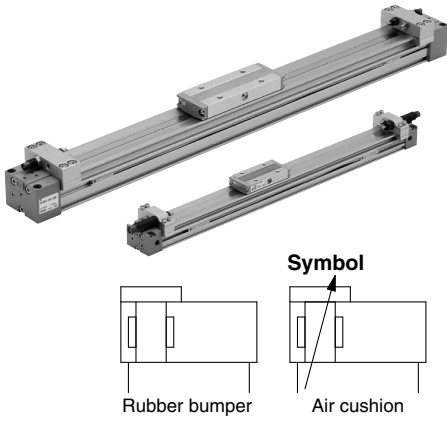
\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW 3 m ..... L (Example) M9NWL  
1 m ..... M (Example) M9NWM 5 m ..... Z (Example) M9NWX

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

\* Since there are applicable auto switches other than those listed above, refer to page 112 for details.

\* Auto switches are shipped together with the product but do not come assembled.

# Mechanically Jointed Rodless Cylinder **MY1B Series**



## Specifications

Bore size [mm]	10	16	20	25	32	40	50	63	80	100
<b>Fluid</b>	Air									
<b>Action</b>	Double acting									
<b>Operating pressure range</b>	0.2 to 0.8 MPa	0.15 to 0.8 MPa	0.1 to 0.8 MPa							
<b>Proof pressure</b>	1.2 MPa									
<b>Ambient and fluid temperatures</b>	5 to 60°C									
<b>Cushion</b>	Rubber bumper	Air cushion								
<b>Lubrication</b>	Non-lube									
<b>Stroke length tolerance</b>	1000 or less $^{+1.8}_0$		1001 to 3000 $^{+2.8}_0$		2700 or less $^{+1.8}_0$ , 2701 to 5000 $^{+2.8}_0$					
<b>Piping port size</b>	<b>Front/Side port</b>	M5 x 0.8			1/8	1/4	3/8	1/2		
	<b>Bottom port</b>	ø4			ø6	ø8	ø10	ø18		

## Piston Speed

Bore size [mm]	10	16	20 to 40	50 to 100
<b>Without stroke adjustment unit</b>	100 to 500 mm/s	100 to 1000 mm/s		
<b>Stroke adjustment unit</b>	<b>A unit</b>	100 to 200 mm/s	100 to 1000 mm/s*1	
	<b>L unit and H unit</b>	100 to 1000 mm/s	100 to 1000 mm/s	100 to 1500 mm/s*2

\*1 Be aware that when the stroke adjustment range is increased with the adjustment bolt, the air cushion capacity decreases.  
Also, when exceeding the air cushion stroke ranges on page 20, the piston speed should be 100 to 200 mm/s.

\*2 The piston speed is 100 to 1000 mm/s for centralized piping.

\* Use at a speed within the absorption capacity range. Refer to page 20.

\* Due to the construction of this product, it may have more fluctuation in operating speed compared to a rod type air cylinder. For applications that require constant speed, select the equipment corresponding to the required level.

## Stroke Adjustment Unit Specifications

Bore size [mm]		10		16		20			25			32			40				
Unit symbol		A	H	A	L	A	L	H	A	L	H	A	L	H	A	L	H		
<b>Configuration Shock absorber model</b>	With adjustment bolt	RB 0805 + with adjustment bolt	With adjustment bolt	RJ 0604 (without adjustment bolt)	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt	With adjustment bolt	RB 1007 + with adjustment bolt	RB 1412 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt		
	<b>Stroke adjustment range by intermediate fixing spacer [mm]</b>	Without spacer		0 to -5		0 to -5.6		0 to -6			0 to -11.5			0 to -12			0 to -16		
	With short spacer	—		-5.6 to -11.2		-6 to -12			-11.5 to -23			-12 to -24			-16 to -32				
With long spacer	—		-11.2 to -16.8		-12 to -18			-23 to -34.5			-24 to -36			-32 to -48					

\* Intermediate fixing spacer is not available for ø10.

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

## Stroke Adjustment Unit Symbol

		Right side stroke adjustment unit									
		Without unit	A: With adjustment bolt		L: With low load shock absorber + Adjustment bolt		H: With high load shock absorber + Adjustment bolt				
			With short spacer	With long spacer	With short spacer	With long spacer	With short spacer	With long spacer	With short spacer	With long spacer	
<b>Left side stroke adjustment unit</b>	<b>Without unit</b>	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7
	<b>A: With adjustment bolt</b>	AS	A	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7
	With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7
	With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7
<b>L: With low load shock absorber + Adjustment bolt</b>	<b>Without unit</b>	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7
	With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7
	With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7
<b>H: With high load shock absorber + Adjustment bolt</b>	<b>Without unit</b>	HS	HA	HA6	HA7	HL	HL6	HL7	H	HH6	HH7
	With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7
	With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7

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

For details on spacers and stroke adjustment units, refer to "Accessory Brackets (Option)" on page 33.

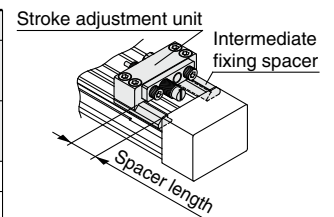
\* For precautions, refer to page 121.

## Accessory Brackets (Option)

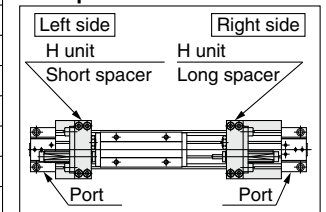
Stroke adjustment unit	p. 33
Side support	p. 34
Floating bracket	p. 35 to 37

Refer to pages 109 to 112 for the specifications with auto switch.

## Stroke adjustment unit mounting diagram



## Example of H6H7 attachment



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1B Series

## Shock Absorbers for L and H Units

Model	Stroke adjustment unit	Bore size [mm]					
		10	16	20	25	32	40
Standard (Shock absorber/RB series)	L	—	RJ0604*1	RB0806	RB1007	RB1412	
	H	RB0805	—	RB1007	RB1412	RB2015	
Shock absorber/soft type RJ series mounted (-XB22)	L	—	—	RJ0806H	RJ1007H	RJ1412H	
	H	RJ0805	—	RJ1007H	RJ1412H	—	—

- \*1 The  $\phi 16$  standard model uses an RJ series soft type shock absorber.
- \* The shock absorber service life is different from that of the MY1B cylinder depending on operating conditions. Refer to the RB/RJ Series Specific Product Precautions for the replacement period.
- \* Shock absorber soft type RJ series mounted (-XB22) is made-to-order common specifications. For details, refer to page 115.

## 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	
10	78	15	23	31	39	46	54	62	
16	200	40	60	80	100	120	140	160	
20	314	62	94	125	157	188	219	251	
25	490	98	147	196	245	294	343	392	
32	804	161	241	322	402	483	563	643	
40	1256	251	377	502	628	754	879	1005	
50	1962	392	588	784	981	1177	1373	1569	
63	3115	623	934	1246	1557	1869	2180	2492	
80	5024	1004	1507	2009	2512	3014	3516	4019	
100	7850	1570	2355	3140	3925	4710	5495	6280	

\* Theoretical output [N] = Pressure [MPa] x Piston area [mm<sup>2</sup>]

## Shock Absorber Specifications

Model	RJ 0604	RB 0805	RB 0806	RB 1007	RB 1412	RB 2015	
Max. absorbed energy [J]	0.5	1.0	2.9	5.9	19.6	58.8	
Stroke absorption [mm]	4	5	6	7	12	15	
Max. collision speed [mm/s]	1000	1000	1500	1500	1500	1500	
Max. operating frequency [cycle/min]	80	80	80	70	45	25	
Spring force [N]	Extended	1.3	1.96	1.96	4.22	6.86	8.34
	Retracted	3.9	3.83	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 MY1B cylinder depending on operating conditions. Refer to the RB series Specific Product Precautions for the replacement period.

## 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)		
					Type A and B	A unit weight	L unit weight
10	0.15	0.04	0.03	0.003	0.01	—	0.02
16	0.61	0.06	0.07	0.01	0.04	0.04	—
20	1.06	0.10	0.14	0.02	0.05	0.05	0.10
25	1.14	0.11	0.21	0.02	0.06	0.10	0.18
32	2.28	0.17	0.47	0.02	0.12	0.21	0.40
40	3.11	0.25	0.91	0.04	0.23	0.32	0.49
50	7.78	0.44	1.40	0.04	—	—	—
63	13.10	0.70	2.20	0.08	—	—	—
80	20.70	1.18	4.80	0.17	—	—	—
100	35.70	1.97	8.20	0.17	—	—	—

Calculation: (Example) **MY1B20-300A**

- Basic weight .....1.06 kg
- Cylinder stroke .....300 mm stroke
- Additional weight ...0.10/50 mm stroke 1.06 + 0.10 x 300/50 + 0.05 x 2 = 1.76 kg
- Weight of A unit .....0.05 kg

## ⚠ Precautions

For details on the MY1B Series Mechanically Jointed Rodless Cylinder, refer to “Specific Product Precautions” on pages 119 to 122.

## Cushion Capacity

### Cushion Selection

#### <Rubber bumper>

Rubber bumpers are a standard feature on MY1B10. Since the stroke absorption of rubber bumpers is short, when adjusting the stroke with an A unit, install an external shock absorber. The load and speed range which can be absorbed by a rubber bumper is inside the rubber bumper limit line of the graph.

#### <Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders. (Except  $\phi 10$ ) The air cushion mechanism is incorporated to prevent excessive impact of the piston with high kinetic energy at the stroke end. The purpose of air cushion, thus, is not 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 and speed exceeding the air cushion limit line, or when cushioning is required outside of the effective air cushion stroke range due to stroke adjustment.

#### L unit

Use this unit when cushioning is required 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

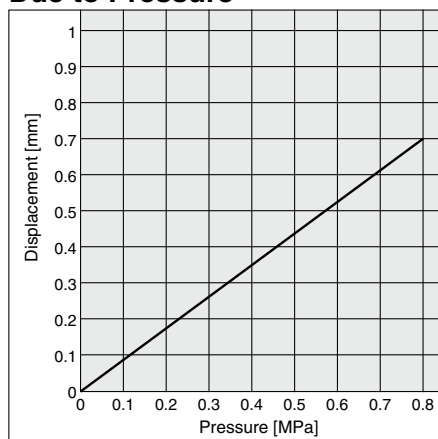
Use this unit when the cylinder is operated in a load and speed range above the L unit limit line and below the H unit limit line.

\* For details on stroke adjustment using the adjustment bolt, refer to page 121.

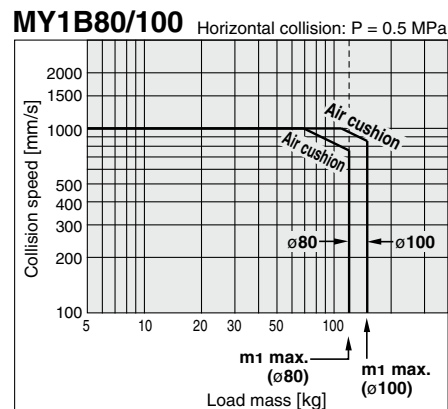
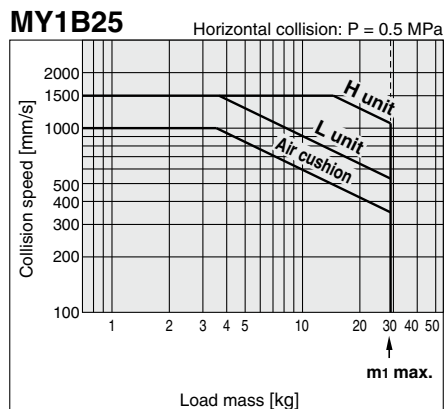
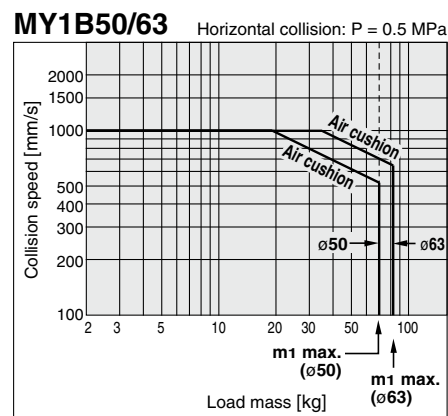
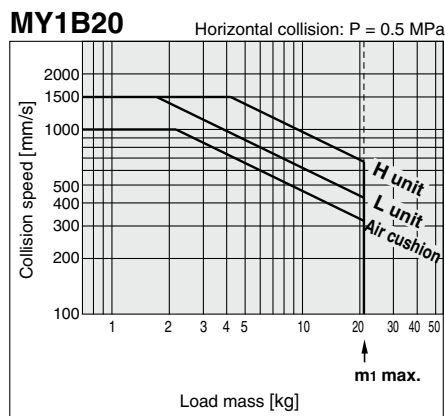
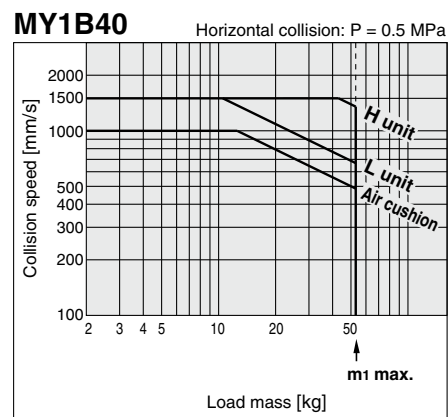
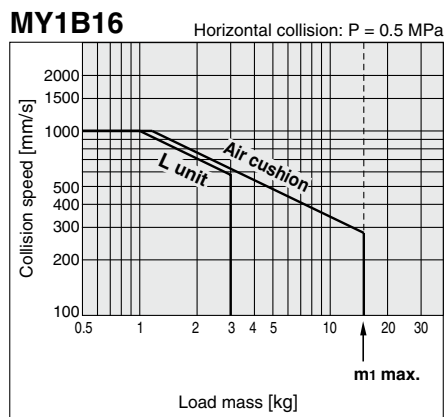
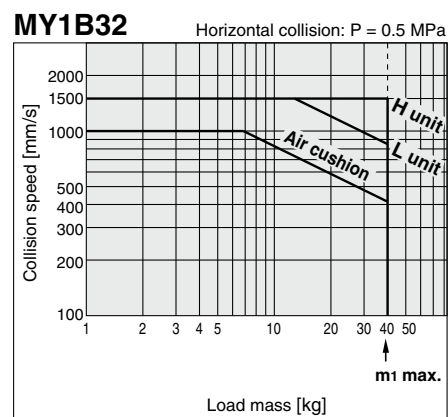
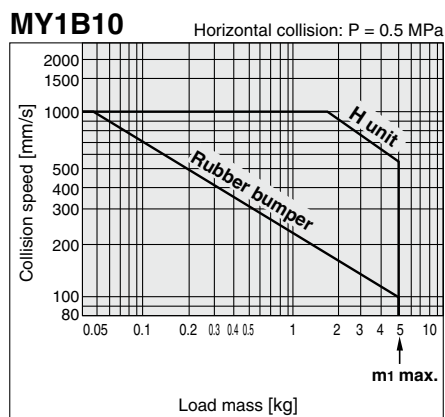
### Air Cushion Stroke

Bore size [mm]	Cushion stroke [mm]
16	12
20	15
25	15
32	19
40	24
50	30
63	37
80	40
100	40

### Rubber Bumper ( $\phi 10$ only) Positive Stroke from One End Due to Pressure



### Absorption Capacity of Rubber Bumper, Air Cushion and Stroke Adjustment Units



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

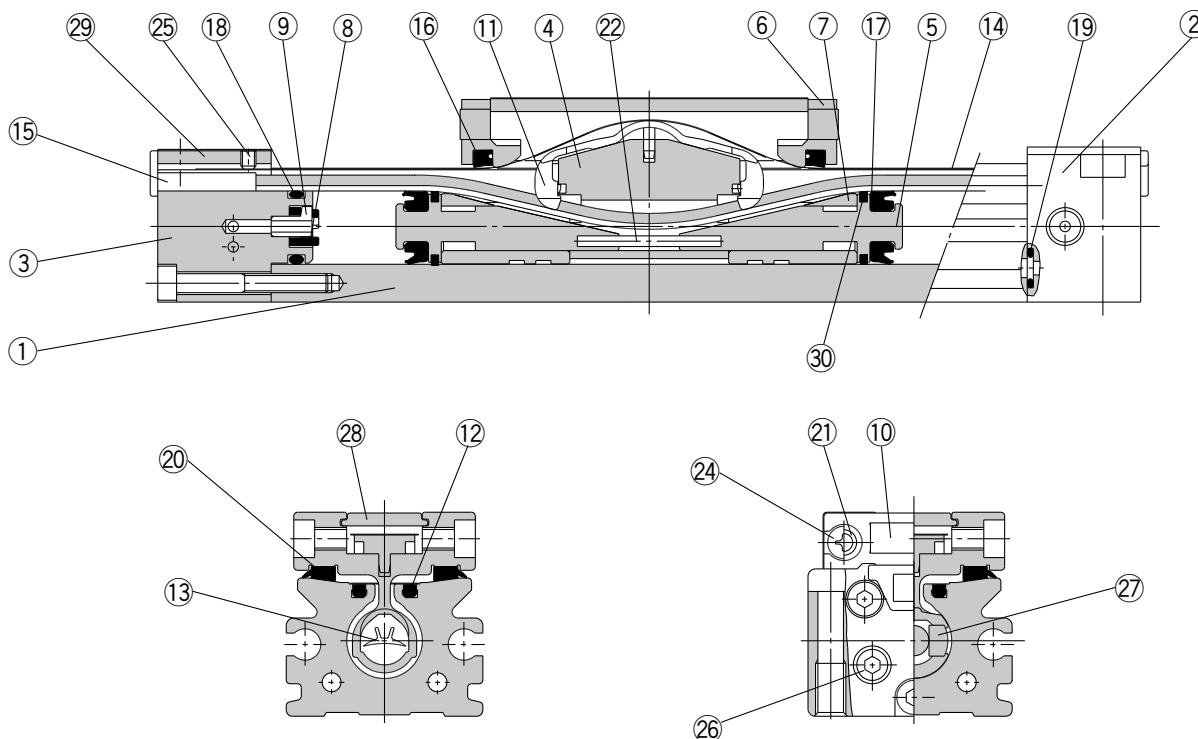
Specific Product Precautions





**Construction:  $\varnothing 10$**

**Centralized piping type: MY1B10G**



**Component Parts**

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Piston yoke	Aluminum alloy	Hard anodized
5	Piston	Aluminum alloy	Chromated
6	End cover	Special resin	
7	Wear ring	Special resin	
8	Bumper	Polyurethane rubber	
9	Holder	Stainless steel	
10	Stopper	Carbon steel	Nickel plating
11	Belt separator	Special resin	
12	Seal magnet	Rubber magnet	

No.	Description	Material	Note
15	Belt clamp	Special resin	
20	Bearing	Special resin	
21	Spacer	Chromium molybdenum steel	Nickel plating
22	Spring pin	Stainless steel	
23	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
24	Cross recessed binding head screw	Carbon steel	Chromated
25	Slotted set screw	Carbon steel	Black zinc chromated
26	Hexagon socket head plug	Carbon steel	Chromated
27	Magnet	—	
28	Top plate	Stainless steel	
29	Head plate	Stainless steel	
30	Lube-retainer	Special resin	

**Replacement Parts/Seal Kit**

No.	Description	Qty.	MY1B10
13	Seal belt	1	MY10-16A-Stroke
14	Dust seal band	1	MY10-16B-Stroke
16	Scraper	2	MY1B10-PS
17	Piston seal	2	
18	Tube gasket	2	
19	O-ring	4	

\* Seal kit includes 16, 17, 18, and 19.  
 Seal kit includes a grease pack (10 g).  
 When 13 and 14 are shipped independently, a grease pack is included. (10 g per 1000 mm stroke)  
 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)**

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

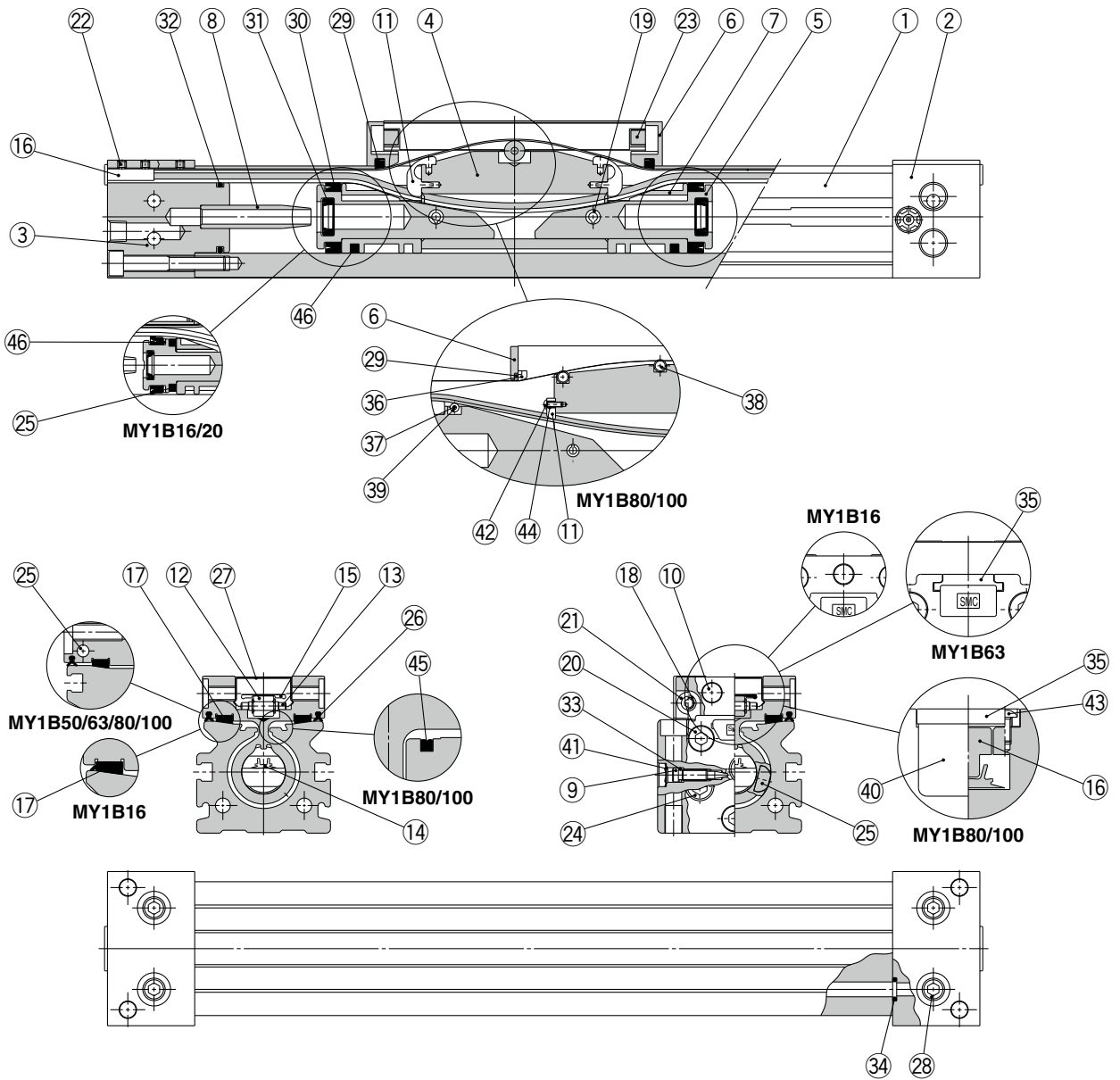
Made to Order Common Specifications

Specific Product Precautions

# MY1B Series

Construction:  $\varnothing 16$ ,  $\varnothing 20$ ,  $\varnothing 50$  to  $\varnothing 100$

MY1B16, 20, 50 to 100



## MY1B16, 20, 50 to 100

### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Piston yoke	Aluminum alloy	Anodized
5	Piston	Aluminum alloy	Chromated
6	End cover	Special resin	
		Carbon steel	Nickel plating (ø80, ø100)
7	Wear ring	Special resin	
8	Cushion ring	Aluminum alloy	Anodized
9	Cushion needle	Rolled steel	Nickel plating
10	Stopper	Carbon steel	Nickel plating
11	Belt separator	Special resin	
12	Guide roller	Special resin	(ø16, ø20, ø50, ø63)
13	Guide roller shaft	Stainless steel	(ø16, ø20, ø50, ø63)
16	Belt clamp	Special resin	
		Aluminum alloy	Chromated (ø80, ø100)
17	Bearing	Special resin	
18	Spacer	Stainless steel	(ø16, ø20, ø50, ø63)
19	Spring pin	Carbon tool steel	
20	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
21	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
22	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/Chromated
23	Double round parallel key	Carbon steel	(ø16, ø20)
24	Hexagon socket head taper plug	Carbon steel	Chromated

No.	Description	Material	Note
25	Magnet	—	
27	Top cover	Stainless steel	
28	Hexagon socket head taper plug	Carbon steel	Chromated
35	Head plate	Aluminum alloy	Painted (ø63 to ø100)
36	Backup plate	Special resin	(ø80, ø100)
37	Guide roller B	Special resin	(ø80, ø100)
38	Guide roller A	Stainless steel	(ø80, ø100)
39	Guide roller shaft B	Stainless steel	(ø80, ø100)
40	Side cover	Aluminum alloy	Hard anodized (ø80, ø100)
41	Type CR retaining ring	Spring steel	
42	Hexagon socket button head screw	Chromium molybdenum steel	Chromated (ø80, ø100)
43	Hexagon socket button head screw	Chromium molybdenum steel	Chromated (ø80, ø100)
44	Spacer B	Stainless steel	(ø80, ø100)
45	Seal magnet	Rubber magnet	(ø80, ø100)
46	Lube-retainer	Special resin	(ø16, ø20, ø50, ø63)

### Replacement Parts/Seal Kit

No.	Description	Qty.	MY1B16	MY1B20
14	Seal belt	1	MY16-16C- <u>Stroke</u>	MY20-16C- <u>Stroke</u>
15	Dust seal band	1	MY16-16B- <u>Stroke</u>	MY20-16B- <u>Stroke</u>
26	Side scraper	2	—	MYB20-15CA7164B
33	O-ring	2	KA00309 (ø4 x ø1.8 x ø1.1)	KA00309 (ø4 x ø1.8 x ø1.1)
29	Scraper	2	MY1B16-PS	MY1B20-PS
30	Piston seal	2		
31	Cushion seal	2		
32	Tube gasket	2		
34	O-ring	4		

No.	Description	Qty.	MY1B50	MY1B63	MY1B80	MY1B100
14	Seal belt	1	MY50-16C- <u>Stroke</u>	MY63-16A- <u>Stroke</u>	MY80-16A- <u>Stroke</u>	MY100-16A- <u>Stroke</u>
15	Dust seal band	1	MY50-16B- <u>Stroke</u>	MY63-16B- <u>Stroke</u>	MY80-16B- <u>Stroke</u>	MY100-16B- <u>Stroke</u>
26	Side scraper	2	MYB50-15CA7165B	MYB63-15CA7166B	MYB80-15CK2470B	MYB100-15CK2471B
33	O-ring	2	KA00402 (ø8.3 x ø4.5 x ø1.9)	KA00777	KA00050	KA00050
29	Scraper	2	MY1B50-PS	MY1B63-PS	MY1B80-PS	MY1B100-PS
30	Piston seal	2				
31	Cushion seal	2				
32	Tube gasket	2				
34	O-ring	4				

\* Seal kit includes 29, 30, 31, 32, and 34. Order the seal kit based on each bore size.

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

When 14 and 15 are shipped independently, a grease pack is included. (10 g per 1000 mm stroke)

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)**

\* Two types of dust seal bands are available for the MY1B16, 20, 50, 63. Since the part number varies depending on the treatment of the hexagon socket head set screw 22, please check a proper dust seal band carefully.

A: Black zinc chromated → MY□□-16B-stroke, B: Chromated → MY□□-16BW-stroke

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

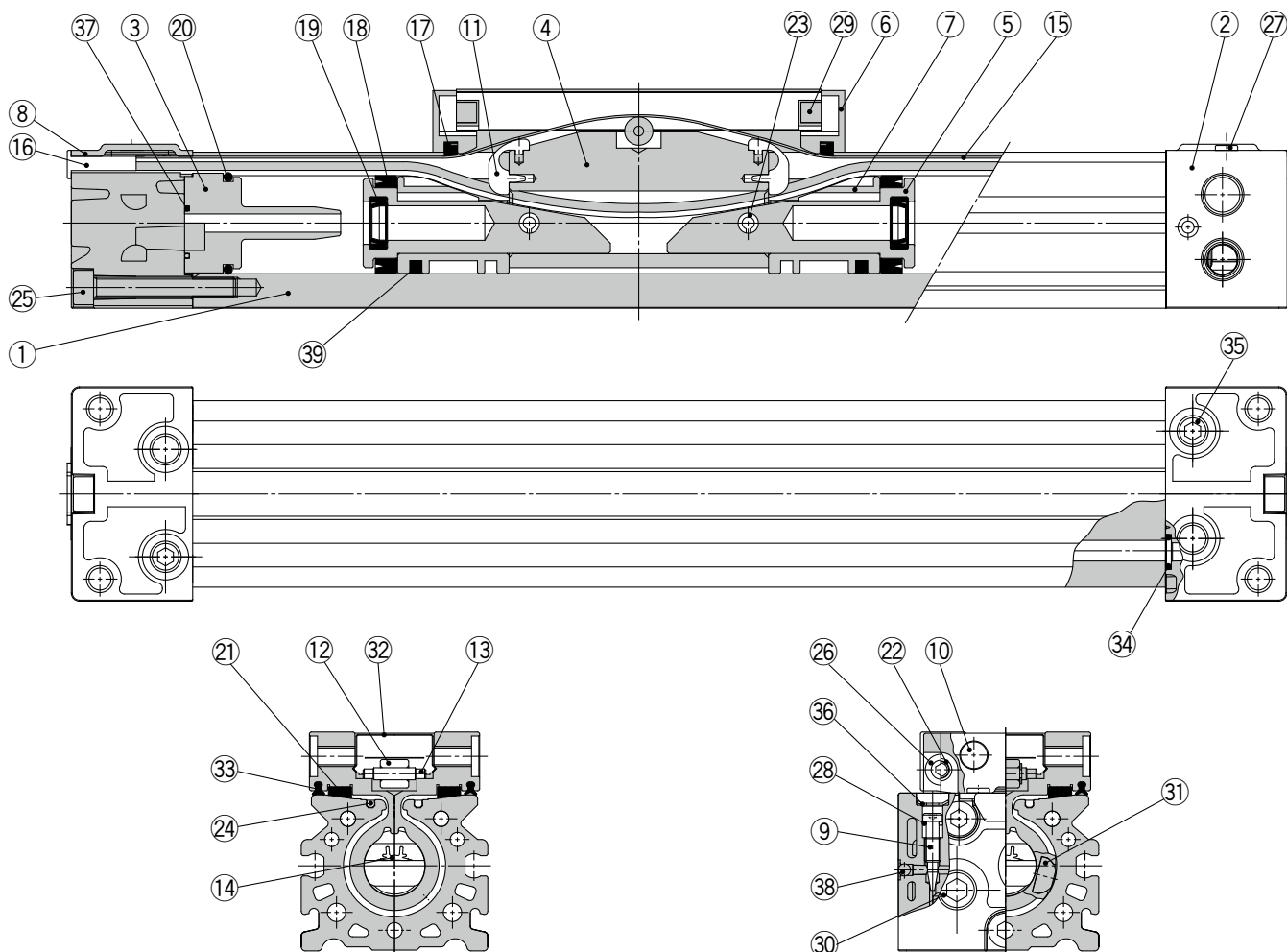
Made to Order Common Specifications

Specific Product Precautions

# MY1B Series

Construction:  $\varnothing 25$ ,  $\varnothing 32$ ,  $\varnothing 40$

## MY1B25 to 40



### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Aluminum alloy	Painted
3	Cushion boss	Polyacetal	
4	Piston yoke	Aluminum alloy	Anodized
5	Piston	Aluminum alloy	Chromated
6	End cover	Polyacetal	
7	Wear ring	Polyacetal	
8	Head plate	Stainless steel	
9	Cushion needle	Rolled steel	Nickel plating
10	Stopper	Carbon steel	Nickel plating
11	Belt separator	Polyacetal	
12	Guide roller	Polyacetal	
13	Parallel pin	Carbon steel	
16	Belt clamp	Polybutylene terephthalate	
21	Bearing	Polyacetal	
22	Spacer	Stainless steel	

No.	Description	Material	Note
23	Spring pin	Carbon tool steel	
24	Seal magnet	Rubber magnet	
25	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
26	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
27	Thin head screw	Chromium molybdenum steel	Chromated
29	Double round parallel key	Carbon steel	
30	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 7 pcs.)
31	Magnet	Rare earth magnet	
32	Top cover	Stainless steel	
35	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 3 pcs.)
36	Type CR retaining ring	Spring steel	
38	Steel ball	Bearing steel	
39	Lube-retainer	Special resin	

### Replacement Parts/Seal Kit

No.	Description	Material	Qty.	MY1B25	MY1B32	MY1B40
14	Seal belt	Urethane	1	MY25-16C-Stroke	MY32-16C-Stroke	MY40-16C-Stroke
15	Dust seal band	Stainless steel	1	MY1B25-16B-Stroke	MY1B32-16B-Stroke	MY1B40-16B-Stroke
33	Side scraper	Polyamide	2	MYB25-15BA5900B	MYB32-15BA5901B	MYB40-15BA5902B
28	O-ring	NBR	2	KA00311 ( $\varnothing 5.1 \times \varnothing 3 \times \varnothing 1.05$ )	KA00320 ( $\varnothing 7.15 \times \varnothing 3.75 \times \varnothing 1.7$ )	KA00320 ( $\varnothing 7.15 \times \varnothing 3.75 \times \varnothing 1.7$ )
37	Cushion boss gasket	NBR	2	MYB25-16GA5900	MYB32-16GA5901	MYB40-16GA5902
17	Scraper	NBR	2			
18	Piston seal	NBR	2			
19	Cushion seal	NBR	2	MY1B25-PS	MY1B32-PS	MY1B40-PS
20	Tube gasket	NBR	2			
34	O-ring	NBR	4			

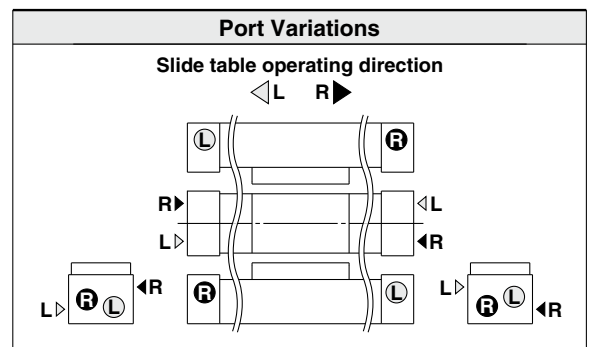
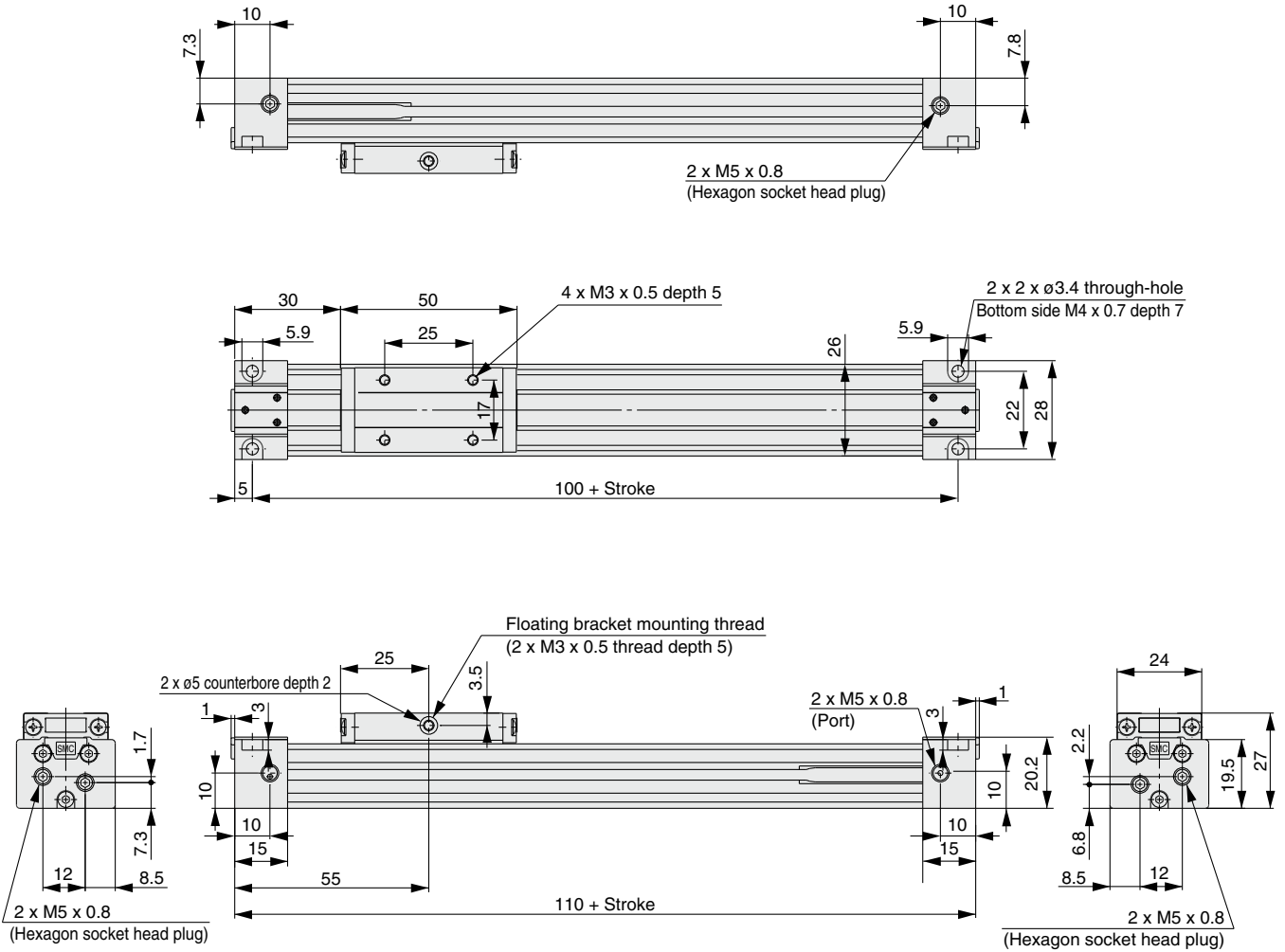
\* Seal kit includes 17, 18, 19, 20, and 34. Order the seal kit based on each bore size.

\* Seal kit includes a grease pack (10 g). When 14 and 15 are shipped independently, a grease pack is included. (10 g per 1000 mm stroke) 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)



**Centralized Piping Type  $\phi 10$**

**MY1B10G — Stroke**



Model Selection

**MY1B**

**MY1M**

**MY1C**

**MY1H**

**MY1HT**

Auto Switch Mounting

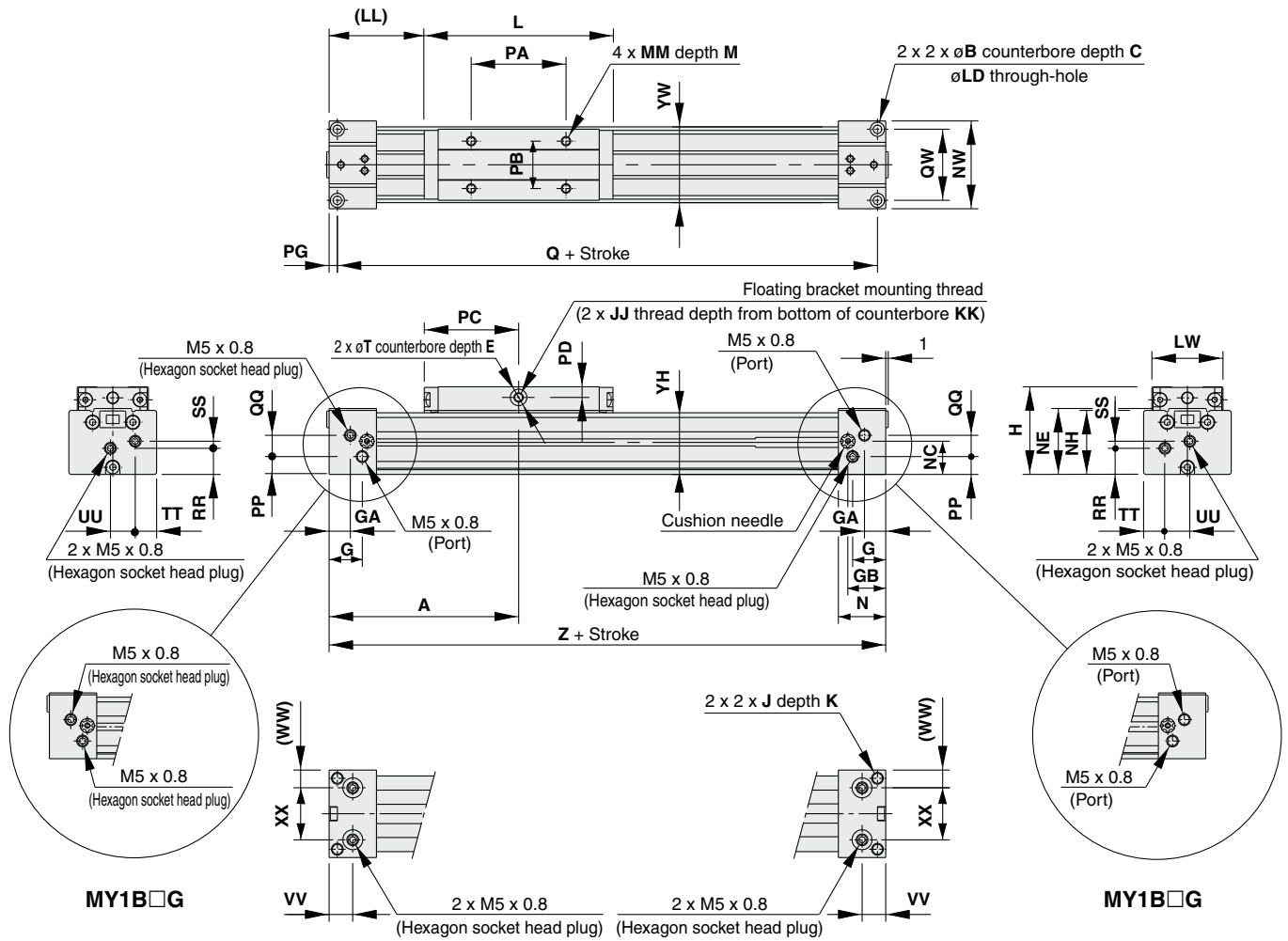
Made to Order Common Specifications

Specific Product Precautions

# MY1B Series

## Standard Type/Centralized Piping Type $\phi 16, \phi 20$

MY1B16□/20□ — **Stroke**



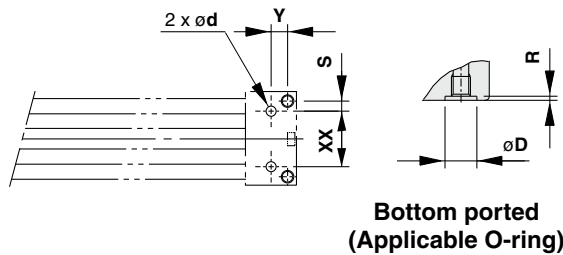
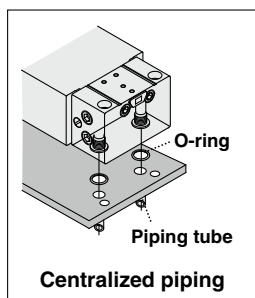
[mm]

Model	A	B	C	E	G	GA	GB	H	J	JJ	K	KK	L	LD	LL	LW	M	MM	N	NC	NE
MY1B16□	80	6	3.5	2	14	9	16	37	M5 x 0.8	M4 x 0.7	10	6.5	80	3.5	40	30	6	M4 x 0.7	20	14	27.8
MY1B20□	100	7.5	4.5	2	12.5	12.5	20.5	46	M6 x 1	M4 x 0.7	12	10	100	4.5	50	37	8	M5 x 0.8	25	17.5	34

[mm]

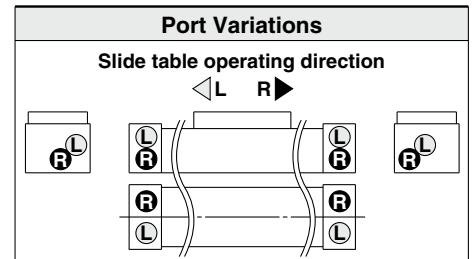
Model	NH	NW	PA	PB	PC	PD	PG	PP	Q	QQ	QW	RR	SS	T	TT	UU	VV	WW	XX	YH	YW	Z
MY1B16□	27	37	40	20	40	4.5	3.5	7.5	153	9	30	11	3	7	9	10.5	10	7.5	22	26	32	160
MY1B20□	33.5	45	50	25	50	5	4.5	11.5	191	11	36	14.5	5	8	10.5	12	12.5	10.5	24	32.5	40	200

## Centralized Piping on the Bottom



[mm]

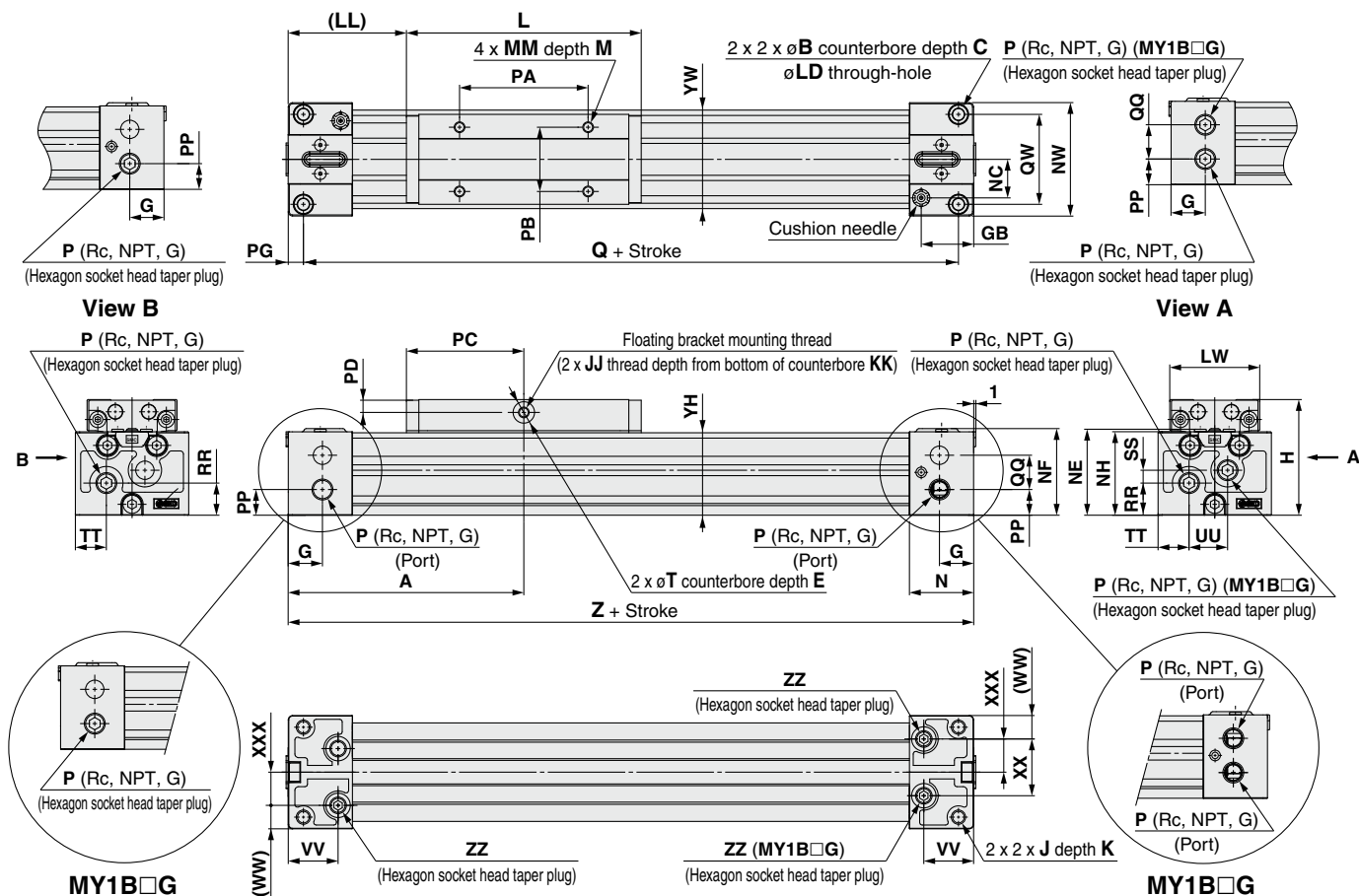
Model	WX	Y	S	d	D	R	Applicable O-ring
MY1B16□	22	6.5	4	4	8.4	1.1	C6
MY1B20□	24	8	6	4	8.4	1.1	



# Mechanically Jointed Rodless Cylinder **MY1B Series**

## Standard Type/Centralized Piping Type $\phi 25, \phi 32, \phi 40$

MY1B25□/32□/40□ - Stroke Z



### Standard piping/Centralized piping

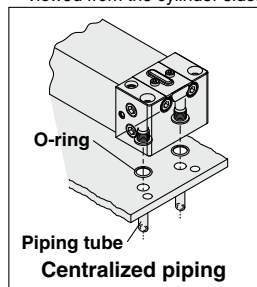
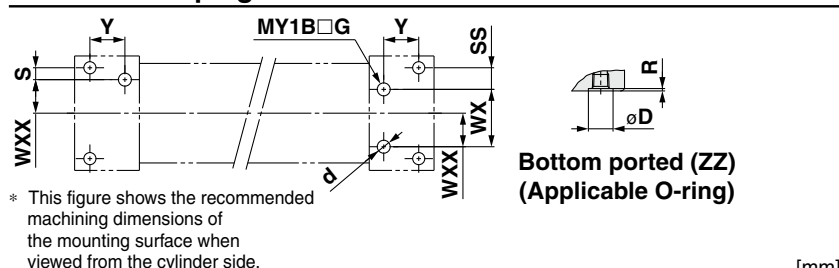
Model	A	B	C	E	G	GB	H	J	JJ	K	KK	L	LD	LL	LW	M	MM	N	NC	NE	NF	NH	NW
MY1B25□	110	9	5.5	2	16	24.5	54	M6 x 1	M5 x 0.8	9.5	9	110	5.6	55	42	9	M5 x 0.8	30	18	40.2	40.5	39	53
MY1B32□	140	11	6.6	2	19	28.5	68	M8 x 1.25	M5 x 0.8	16	10	140	6.8	70	52	12	M6 x 1	37	22	50.2	50	49	64
MY1B40□	170	14	8.5	2	23	35	84	M10 x 1.5	M6 x 1	15	13	170	8.6	85	64	12	M6 x 1	45	26.5	62.7	62	61.5	75

Model	P	PA	PB	PC	PD	PP	PG	Q	QW	RR	T	TT	VV	WW	XXX	YH	YW	Z	ZZ
MY1B25□	1/8	60	30	55	6	12	7	206	42	15	10	14.5	23.3	11	15.5	38.5	46	220	Rc1/16
MY1B32□	1/8	80	35	70	10	16	8	264	51	16	10	16	28.5	12	20	48	55	280	Rc1/16
MY1B40□	1/4	100	40	85	12	18.5	9	322	59	23.5	14	20	35	14	23.5	60.5	67	340	Rc1/8

### Centralized piping

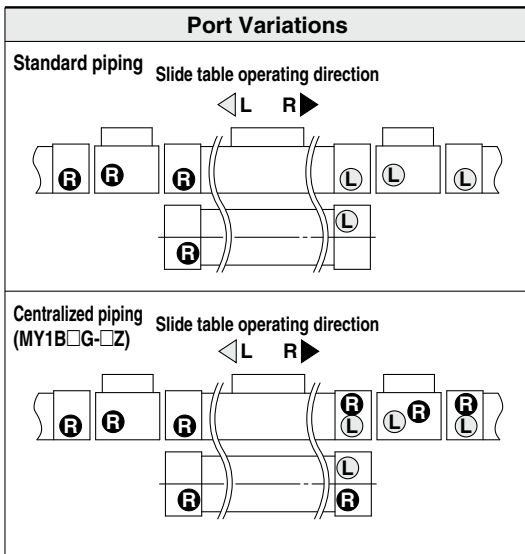
Model	QQ	SS	UU	XX
MY1B25□	16	6	18	26.5
MY1B32□	16	11	32	40
MY1B40□	24	12	35	47

### Centralized Piping on the Bottom



Model	WXX	Y	S	d	D	R	Applicable O-ring
MY1B25□	15.5	16.2	5.5	6	11.4	1.1	C9
MY1B32□	20	20.4	5.5	6	11.4	1.1	C9
MY1B40□	23.5	25.9	6	8	13.4	1.1	C11.2

Model	WX	SS
MY1B25□	26.5	10
MY1B32□	40	5.5
MY1B40□	47	6



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

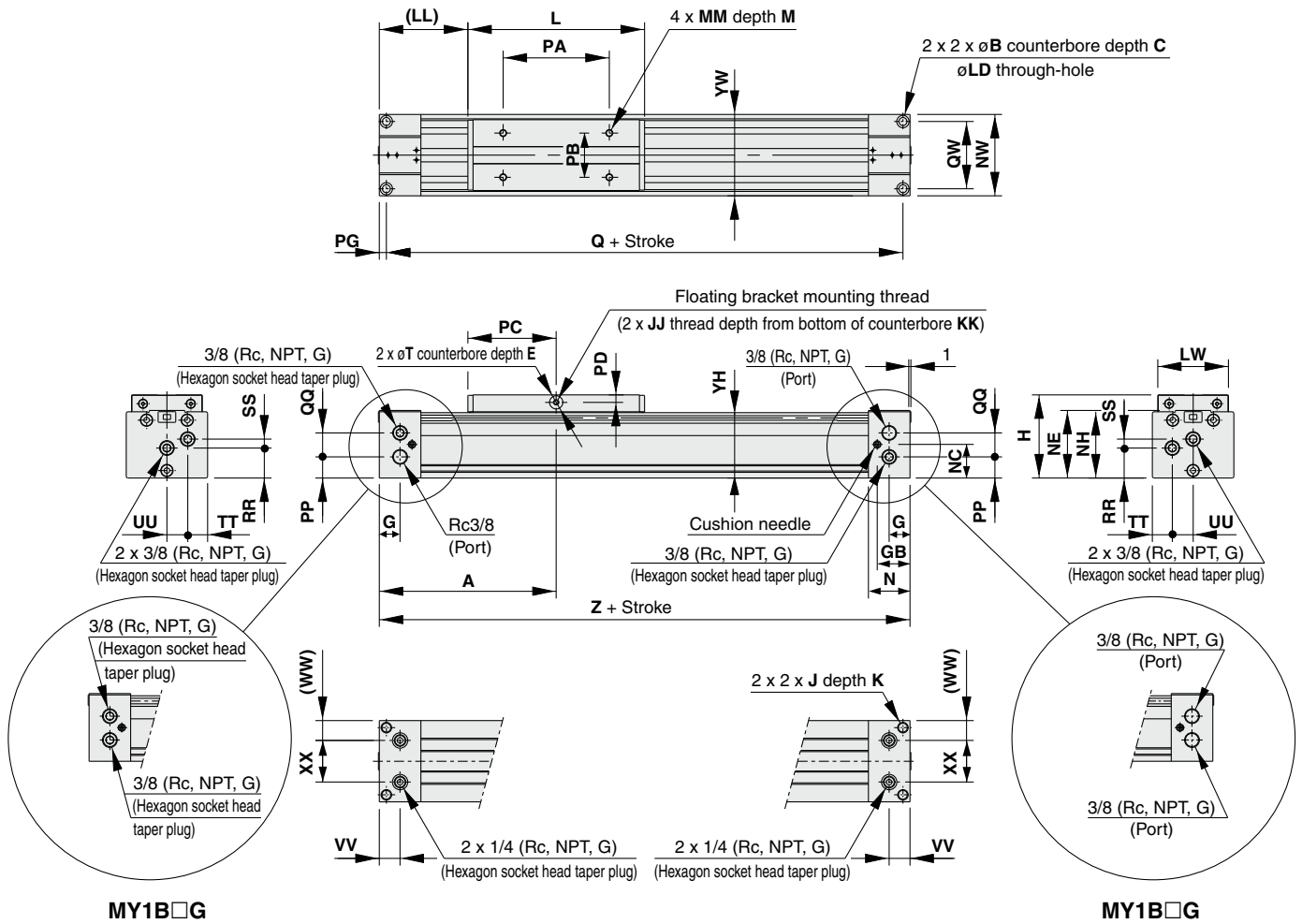
Made to Order Common Specifications

Specific Product Precautions

# MY1B Series

## Standard Type/Centralized Piping Type $\phi 50, \phi 63$

MY1B50□/63□ — Stroke



Model	A	B	C	E	G	GB	H	J	JJ	K	KK	L	LD	LL	LW	M	MM	N	NC	NE
MY1B50□	200	14	8.5	3	23.5	37	94	M12 x 1.75	M6 x 1	25	17	200	9	100	80	14	M8 x 1.25	47	38	76.5
MY1B63□	230	17	10.5	3	25	39	116	M14 x 2	M8 x 1.25	28	24	230	11	115	96	16	M8 x 1.25	50	51	100

Model	NH	NW	PA	PB	PC	PD	PG	PP	Q	QQ	QW	RR	SS	T	TT	UU	VV	WW	XX	YH	YW	Z
MY1B50□	75	92	120	50	100	8.5	8	24	384	27	76	34	10	15	22.5	23.5	23.5	22.5	47	74	92	400
MY1B63□	95	112	140	60	115	9.5	10	37.5	440	29.5	92	45.5	13.5	16	27	29	25	28	56	94	112	460

### Centralized Piping on the Bottom

O-ring

Piping tube

Centralized piping

2 x  $\phi d$

Y

S

WX

$\phi D$

R

Bottom ported  
(Applicable O-ring)

**Port Variations**

Slide table operating direction

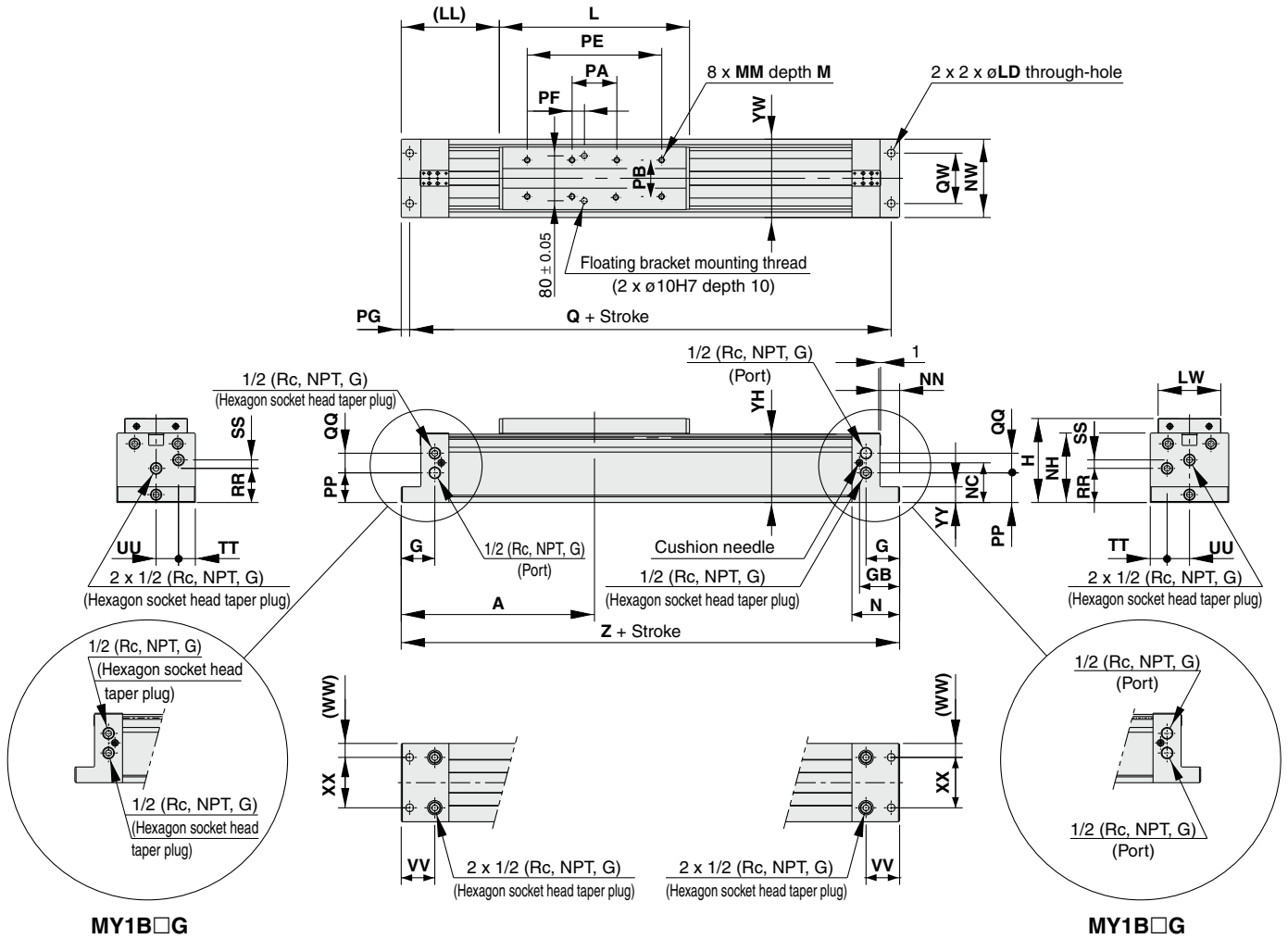
◀ L ▶ R ▶

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1B50□	47	15.5	14.5	10	17.5	1.1	C15
MY1B63□	56	15	18	10	17.5	1.1	

# Mechanically Jointed Rodless Cylinder **MY1B Series**

## Standard Type/Centralized Piping Type $\phi 80, \phi 100$

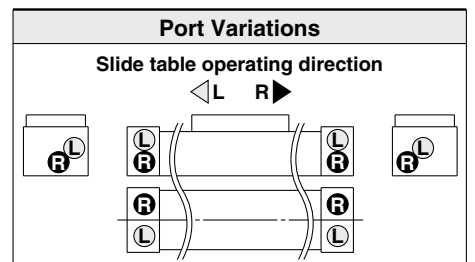
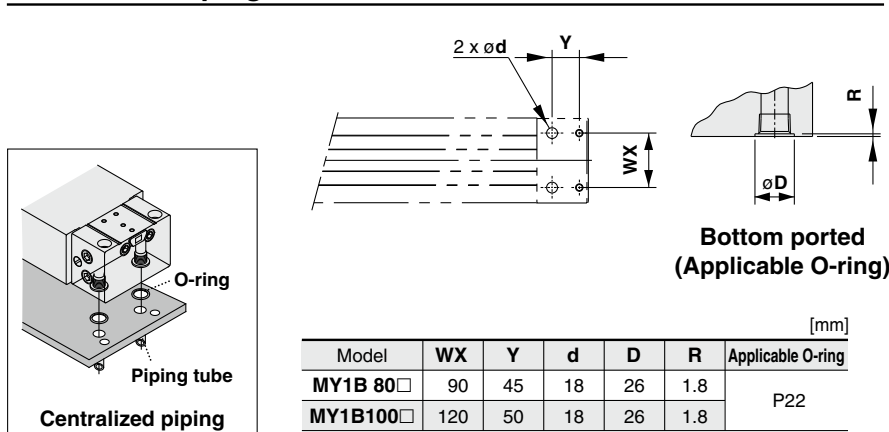
MY1B80□/100□ — Stroke



Model	A	G	GB	H	L	LD	LL	LW	M	MM	N	NC	NH	NN	NW	PA	PB	PE
MY1B 80□	345	60	71.5	150	340	14	175	112	20	M10 x 1.5	85	71	124	35	140	80	65	240
MY1B100□	400	70	79.5	190	400	18	200	140	25	M12 x 1.75	95	85	157	45	176	120	85	280

Model	PF	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	WW	XX	YH	YW	YY	Z
MY1B 80□	22	15	53	660	35	90	61	15	30	40	60	25	90	122	140	28	690
MY1B100□	42	20	69	760	38	120	75	20	40	48	70	28	120	155	176	35	800

## Centralized Piping on the Bottom



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

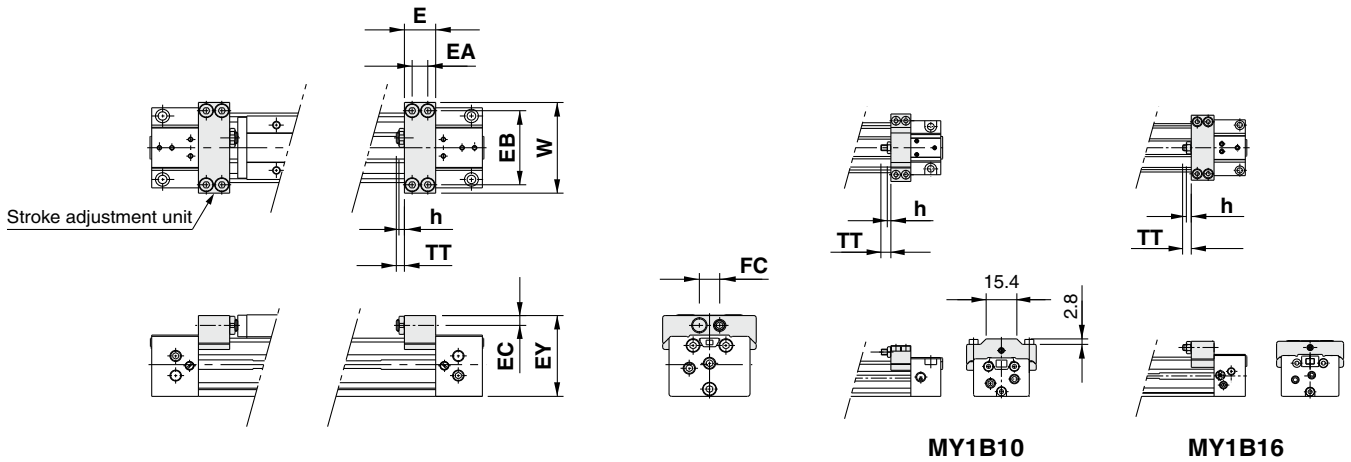


# MY1B Series

## Stroke Adjustment Units

With adjustment bolt

MY1B Bore size □ — Stroke A(Z)

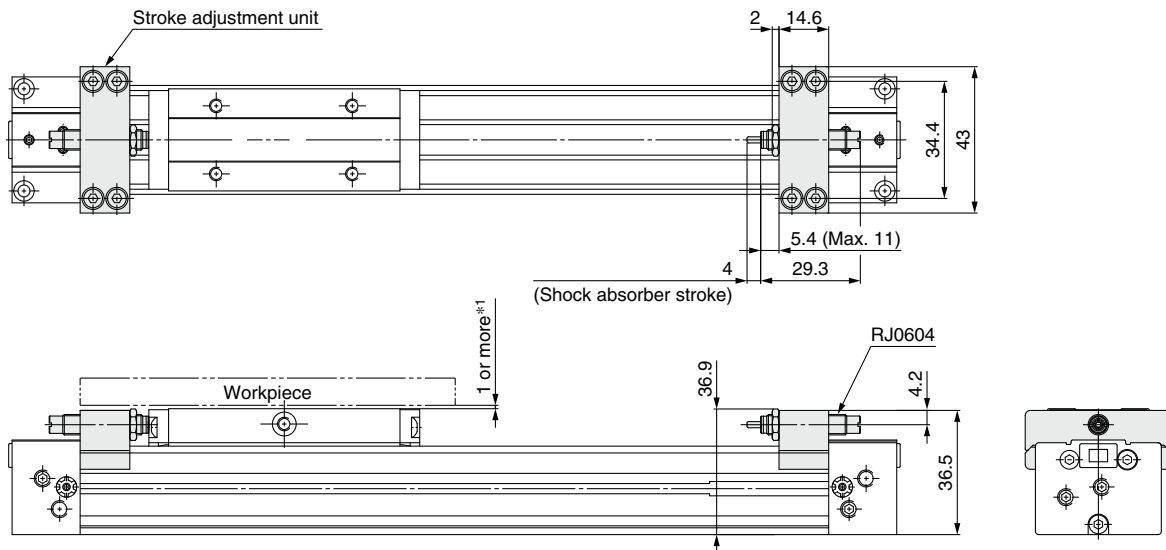


Applicable cylinder	E	EA	EB	EC	EY	FC	h	TT	W
MY1B10	10	5	28	3.3	26.3	—	1.8	5 (Max. 10)	35
MY1B16	14.6	7	34.4	4.2	36.5	—	2.4	5.4 (Max. 11)	43
MY1B20	19	9	43	5.8	45.6	13	3.2	6 (Max. 12)	53
MY1B25	20	10	49	6.5	53.5	13	3.5	5 (Max. 16.5)	60
MY1B32	25	12	61	8.5	67	17	4.5	8 (Max. 20)	74
MY1B40	31	15	76	9.5	81.5	17	4.5	9 (Max. 25)	94

With low load shock absorber + Adjustment bolt

MY1B Bore size □ — Stroke L(Z)

ø16



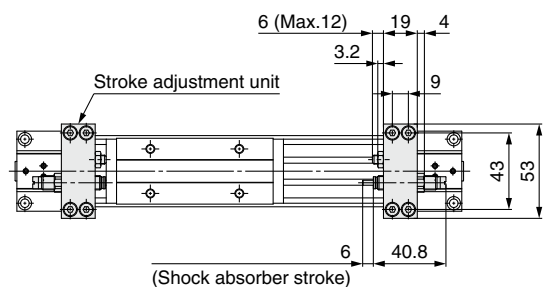
\*1 The clearance between the stroke adjustment unit height dimension (36.9 mm) and the slide table top height (37 mm) is very small, so there is a possibility of interference. For this reason, when mounting a workpiece that exceeds the overall length of the slide table, secure a clearance of 1 mm or more on the workpiece side.

### Stroke Adjustment Units

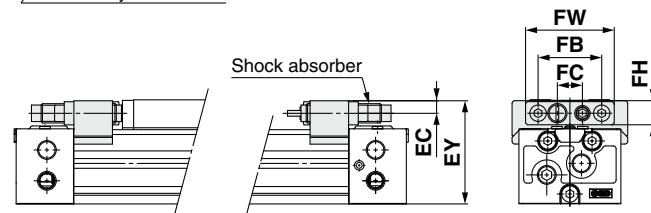
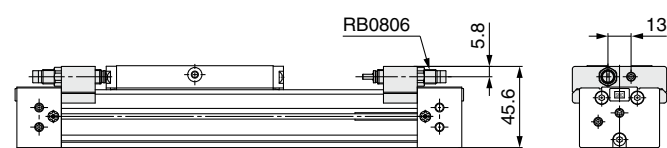
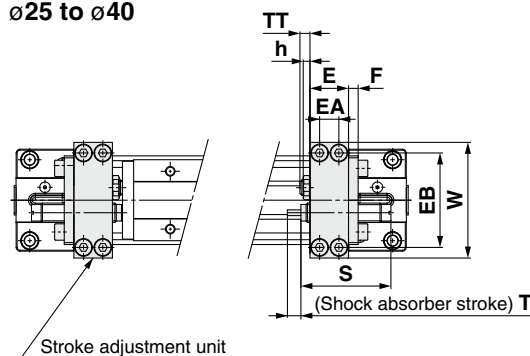
With low load shock absorber + Adjustment bolt

MY1B Bore size □ — Stroke L(Z)

ø20



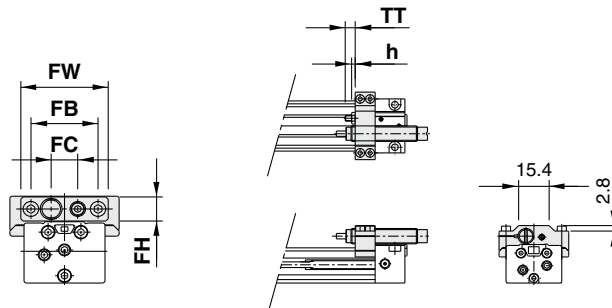
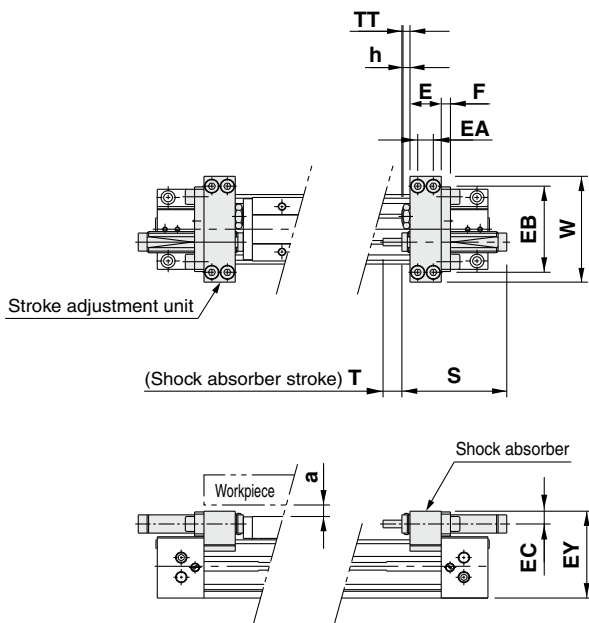
ø25 to ø40



Applicable cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock absorber model
MY1B25	20	10	49	6.5	53.5	6	33	13	12	46	3.5	46.7	7	5 (Max. 16.5)	60	RB1007
MY1B32	25	12	61	8.5	67	6	43	17	16	56	4.5	67.3	12	8 (Max. 20)	74	RB1412
MY1B40	31	15	76	9.5	81.5	6	43	17	16	56	4.5	67.3	12	9 (Max. 25)	94	RB1412

With high load shock absorber + Adjustment bolt

MY1B Bore size □ — Stroke H(Z)



\* Since the EY dimension of H unit is longer than the table top height (H dimension), when mounting a workpiece that exceeds the overall length (L dimension) of the slide table, allow a clearance of dimension "a" or longer on the workpiece side.

Applicable cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock absorber model	a
MY1B10	10	5	28	5.5	29.8	—	—	8	—	—	1.8	40.8	5	5 (Max. 10)	35	RB0805	3.5
MY1B20	20	10	49	6.5	47.5	6	33	13	12	46	3.5	46.7	7	5 (Max. 11)	60	RB1007	2.5
MY1B25	20	10	57	8.5	57.5	6	43	17	16	56	4.5	67.3	12	5 (Max. 16.5)	70	RB1412	4.5
MY1B32	25	12	74	11.5	73	8	57	22	22	74	5.5	73.2	15	8 (Max. 20)	90	RB2015	6
MY1B40	31	15	82	12	87	8	57	22	22	74	5.5	73.2	15	9 (Max. 25)	100	RB2015	4

Model Selection

**MY1B**

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1B Series Accessory Brackets (Option)

## Stroke Adjustment Units

MY - A 20 H2 - 6N

Stroke adjustment unit

Bore size

10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm

\* Stroke adjustment unit is not available for  $\phi 50$ ,  $\phi 63$ ,  $\phi 80$ , and  $\phi 100$ .

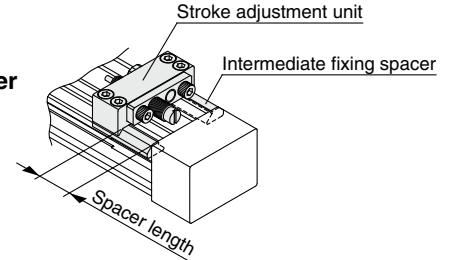
Intermediate fixing spacer

Nil	Without spacer
6	Short spacer
7	Long spacer

Spacer delivery type

Nil	Unit installed
N	Spacer only

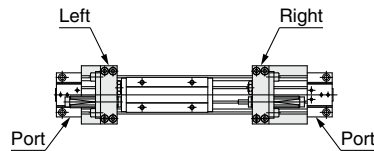
\* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.  
\* Spacers are shipped for a set of two.  
\* Intermediate fixing spacer is not available for  $\phi 10$ .



Unit no.

Symbol	Stroke adjustment unit	Mounting position
A1	A unit	Left
A2		Right
L1	L unit	Left
L2		Right
H1	H unit	Left
H2		Right

\* A and H unit only for  $\phi 10$ , A unit only for  $\phi 16$



## Stroke adjustment range

[mm]

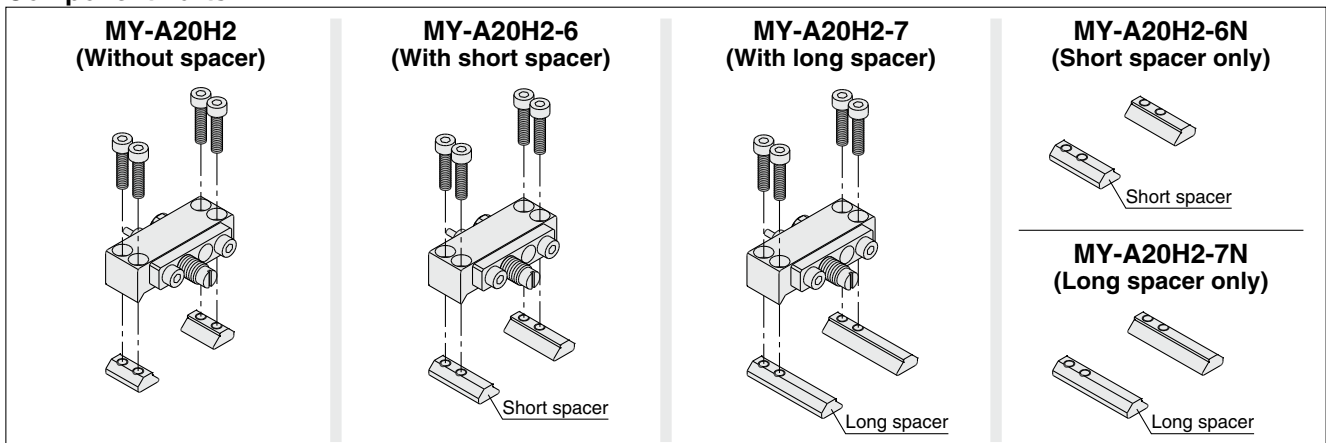
Bore size	10		16		20			25			32			40		
Unit symbol	A	H	A	L	A	L	H	A	L	H	A	L	H	A	L	H
Without spacer	0 to -5		0 to -5.6		0 to -6			0 to -11.5			0 to -12			0 to -16		
With short spacer	—	—	-5.6 to -11.2		-6 to -12			-11.5 to -23			-12 to -24			-16 to -32		
With long spacer	—	—	-11.2 to -16.8		-12 to -18			-23 to -34.5			-24 to -36			-32 to -48		

## Spacer length

[mm]

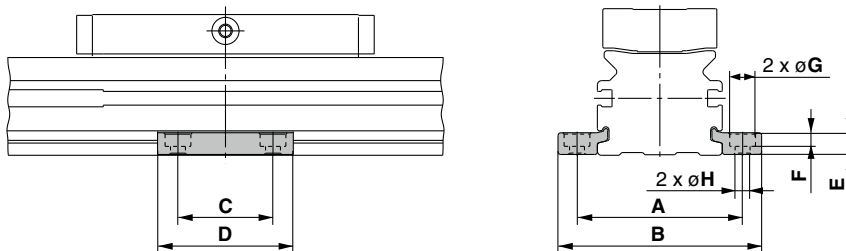
Bore size	16	20	25	32	40
Short spacer	5.6	6	11.5	12	16
Long spacer	11.2	12	23	24	32

## Component Parts

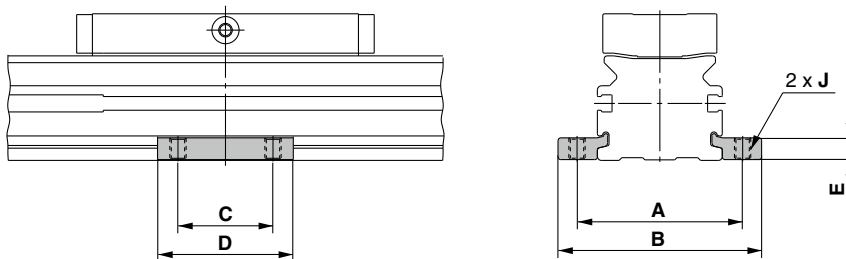


## Side Supports

### Side support A MY-S□A



### Side support B MY-S□B

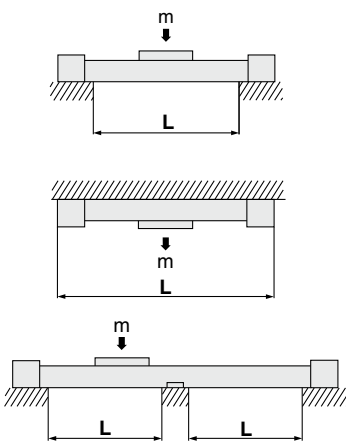


Model	Applicable cylinder	A	B	C	D	E	F	G	H	J
MY-S10 <sub>A/B</sub>	MY1B 10	35	43.6	12	21	3	1.2	6.5	3.4	M4 x 0.7
MY-S16 <sub>A/B</sub>	MY1B 16	43	53.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 <sub>A/B</sub>	MY1B 20	53	65.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25 <sub>A/B</sub>	MY1B 25	61	75	35	50	8	5	9.5	5.5	M6 x 1
	MY1B 32	70	84							
MY-S32 <sub>A/B</sub>	MY1B 40	87	105	45	64	11.7	6	11	6.6	M8 x 1.25
	MY1B 50	113	131							
MY-S50 <sub>A/B</sub>	MY1B 63	136	158	55	80	14.8	8.5	14	9	M10 x 1.5
MY-S63 <sub>A/B</sub>	MY1B 80	170	200	70	100	18.3	10.5	17.5	11.5	M12 x 1.75
	MY1B100	206	236							

\* Side supports consist of a set of right and left brackets.

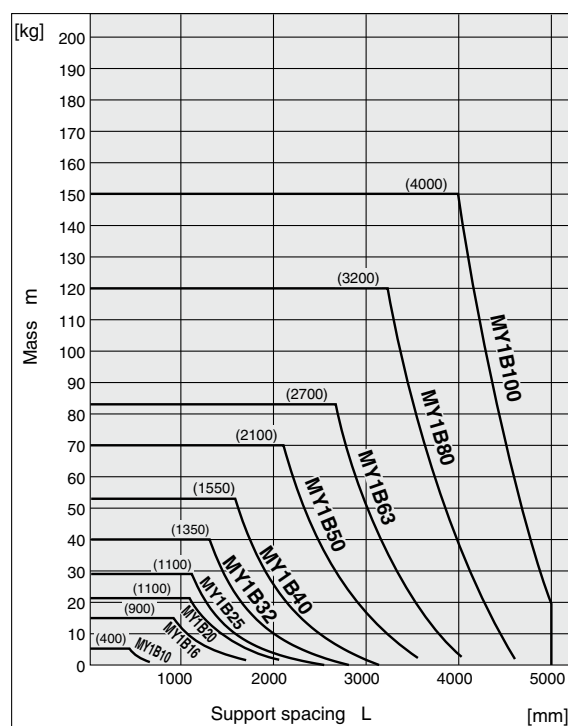
## Guide for Side Support Application

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load. In such a case, use a side support in the middle section. The spacing (L) of the support must be no more than the values shown in the graph on the right.



### Caution

1. If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting it. Also, for long stroke operation involving vibration and impact, the use of a side support is recommended even if the spacing value is within the allowable limits shown in the graph.
2. Support brackets are not for mounting; use them solely for providing support.



# MY1B Series

## Floating Brackets

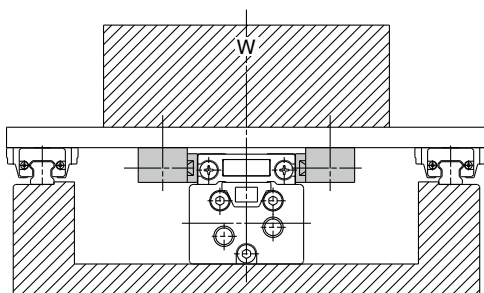
Facilitates connection to other guide systems.

Applicable bore size

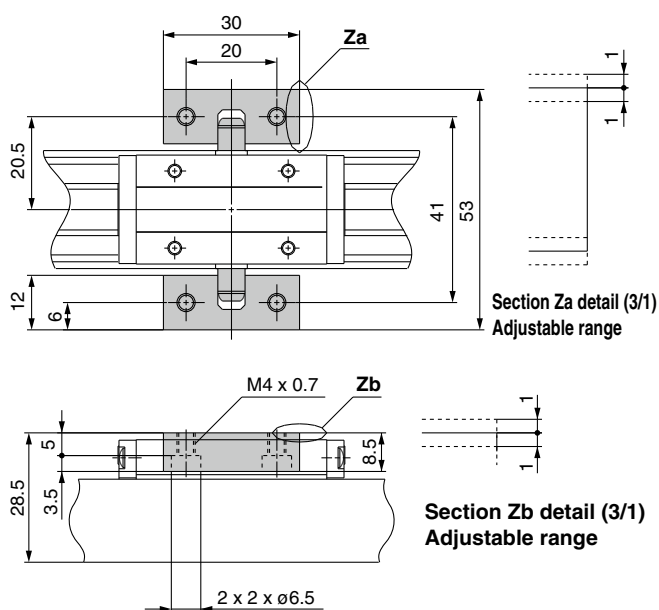
**ø10**

### MY-J10

#### Application Example



#### Mounting Example



\* Floating brackets consist of a set of right and left brackets.

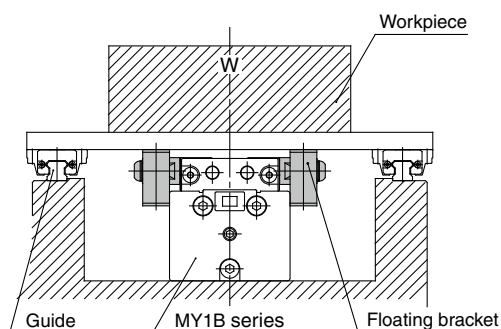
\* For details on how to secure the holding bolt, refer to page 120.

Applicable bore size

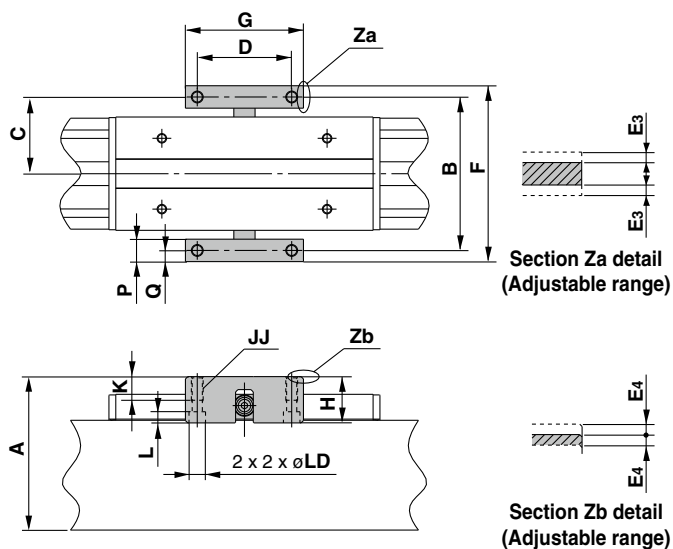
**ø16, ø20**

### MY-J16/MY-J20

#### Application Example



#### Mounting Example



		[mm]							
Model	Applicable cylinder	A	B	C	D	F	G	H	
MY-J16	MY1B16□	45	45	22.5	30	52	38	18	
MY-J20	MY1B20□	55	52	26	35	59	50	21	
Model	Applicable cylinder	JJ	K	L	P	Q	E <sub>3</sub>	E <sub>4</sub>	LD
MY-J16	MY1B16□	M4 x 0.7	10	4	7	3.5	1	1	6
MY-J20	MY1B20□	M4 x 0.7	10	4	7	3.5	1	1	6

\* Floating brackets consist of a set of right and left brackets.

#### MY-J10 to 20 (1 set) Component Parts

Description	Qty.	Material
Bracket	2	Carbon steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

## Floating Brackets

Facilitates connection to other guide systems.

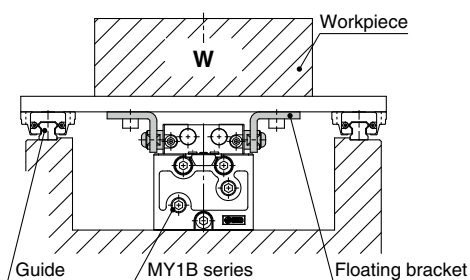
Applicable bore size

**ø25, ø32, ø40**

**MY□J25/MY□J32/MY□J40**

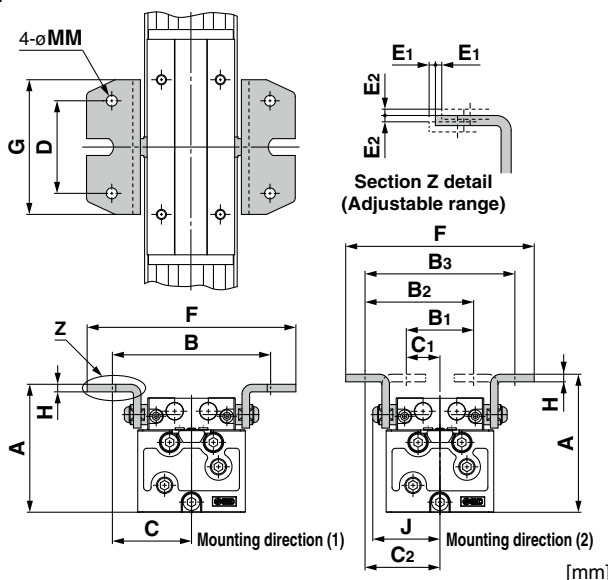
**L Type**

### Application Example



### Mounting Dimensions

One set of brackets can be mounted in two directions for compact combinations.



Part no.	Applicable cylinder	Common					Mounting direction (1)			
		D	G	H	J	MM	A	B	C	F
MY-J25	MY1B25□	40	60	3.2	35	5.5	63	78	39	100
MY-J32	MY1B32□	55	80	4.5	40	6.5	76	94	47	124
MY-J40	MY1B40□	74	100	4.5	47	6.5	92	112	56	144

Part no.	Applicable cylinder	Mounting direction (2)							Adjustable range	
		A	B1	B2	B3	C1	C2	F	E1	E2
MY-J25	MY1B25□	65	28	53	78	14	39	96	1	1
MY-J32	MY1B32□	82	40	64	88	20	44	111	1	1
MY-J40	MY1B40□	98	44	76	108	22	54	131	1	1

\* Floating brackets consist of a set of right and left brackets.

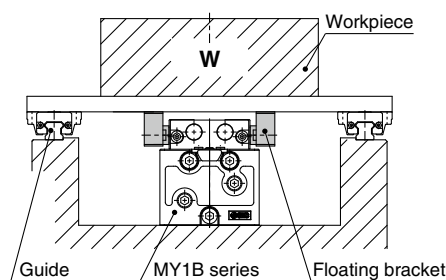
\* For details on how to secure the holding bolt, refer to page 120.

### MY-J25 (1 set) Component Parts

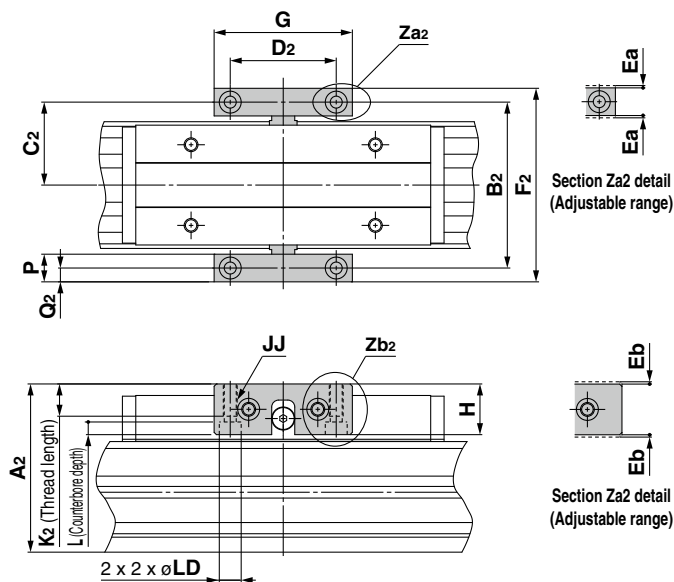
Description	Qty.	Material
Bracket	2	Carbon steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

**Block Type**

### Application Example



### Mounting Dimensions



Part no.	Applicable cylinder	G	H	JJ	L	P	LD	Adjustable range	
								Ea	Eb
MYAJ25	MY1B25□	55	22	M6 x 1	5.5	12	9.5	1	1
MYAJ32	MY1B32□	60	22	M6 x 1	5.5	12	9.5	1	1
MYAJ40	MY1B40□	72	32	M8 x 1.25	6.5	16	11	1	1

Part no.	Applicable cylinder	A2	B2	C2	D2	F2	K2	Q2
MYAJ32	MY1B32□	73	72	36	46	84	14	6
MYAJ40	MY1B40□	93.5	88	44	55	104	19	8

\* For details on how to secure the holding bolt, refer to page 120.

### MYAJ25 to 40 (1 set) Component Parts

Description	Qty.	Material
Bracket	2	Rolled steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions



# MY1B Series

## Floating Brackets

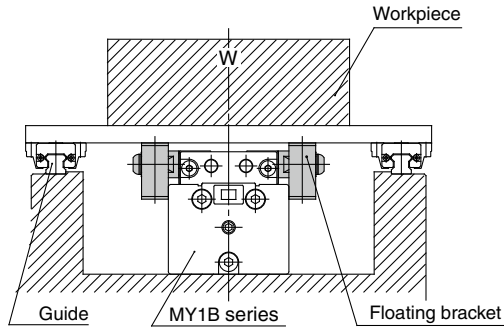
Facilitates connection to other guide systems.

Applicable bore size

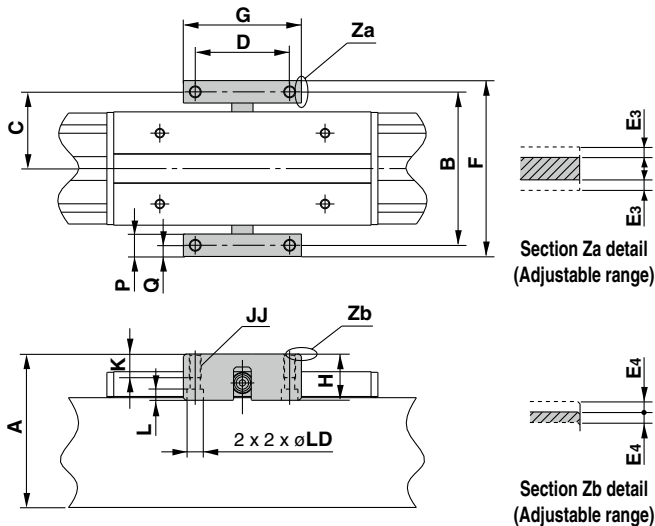
**ø50, ø63**

### MY-J50/MY-J63

#### Application Example



#### Mounting Example



[mm]

Model	Applicable cylinder	A	B	C	D	F	G	H
MY-J50	MY1B50□	110	110	55	70	126	90	37
MY-J63	MY1B63□	131	130	65	80	149	100	37

Model	Applicable cylinder	JJ	K	L	P	Q	E3	E4	LD
MY-J50	MY1B50□	M8 x 1.25	20	7.5	16	8	2.5	2.5	11
MY-J63	MY1B63□	M10 x 1.5	20	9.5	19	9.5	2.5	2.5	14

- \* Floating brackets consist of a set of right and left brackets.
- \* For details on how to secure the holding bolt, refer to page 120.

#### MY-J50, 63 (1 set) Component Parts

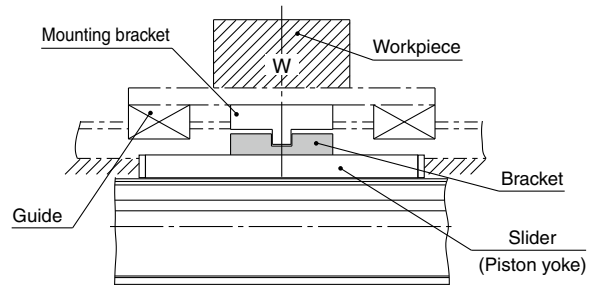
Description	Qty.	Material
Bracket	2	Carbon steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

Applicable bore size

**ø80, ø100**

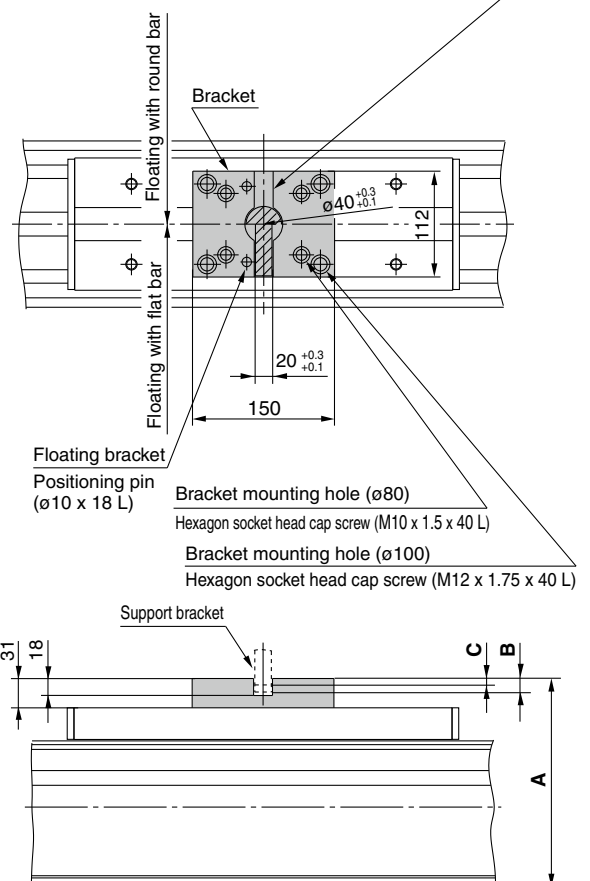
### MY-J80/MY-J100

#### Application Example



#### Mounting Example

Support bracket mounting area is heat treated at Hrc40 or above.



Model	Applicable cylinder	A	B (max.)	C (min.)
MY-J80	MY1B 80□	181	15	9
MY-J100	MY1B100□	221	15	9

- \* Flat bar or round bar mounting are possible for the support bracket (slanted lines) mounted by the customer.
- \* "B" and "C" indicate the allowable mounting dimensions for the support bracket (flat bar or round bar).
- \* Consider support brackets with dimensions that allow the floating mechanism to function properly.

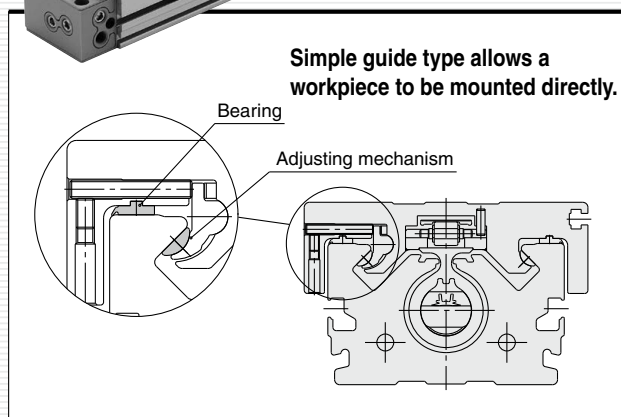
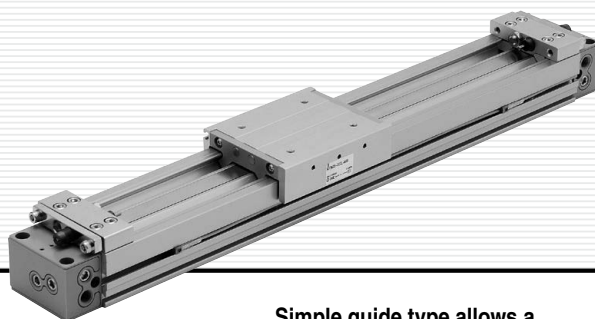
#### MY-J80, 100 (1 set) Component Parts

Description	Qty.	Material
Bracket	1	Rolled steel
Parallel pin	2	Carbon steel
Holding bolt	4	Chromium molybdenum steel

# MY1M Series

## Slide Bearing Guide Type

ø16, ø20, ø25, ø32, ø40, ø50, ø63



## INDEX

Prior to Use.....	p. 39
Model Selection .....	p. 41
How to Order .....	p. 43
Specifications .....	p. 44
Cushion Capacity .....	p. 46
Construction.....	p. 47
Dimensions.....	p. 49
Stroke Adjustment Units.....	p. 52
Accessory Brackets (Option).....	p. 54

# MY1M Series

## Prior to Use

### Maximum Allowable Moment/Maximum Load Mass

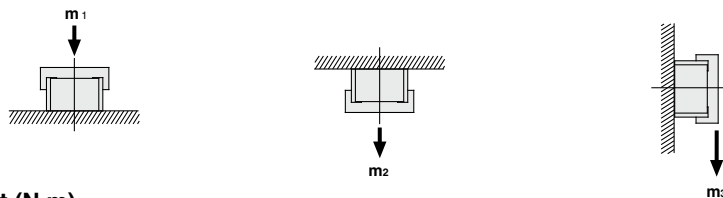
Model	Bore size [mm]	Maximum allowable moment [N·m]			Maximum load mass [kg]		
		M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>
MY1M	16	6.0	3.0	1.0	18	7	2.1
	20	10	5.2	1.7	26	10.4	3
	25	15	9.0	2.4	38	15	4.5
	32	30	15	5.0	57	23	6.6
	40	59	24	8.0	84	33	10
	50	115	38	15	120	48	14
	63	140	60	19	180	72	21

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

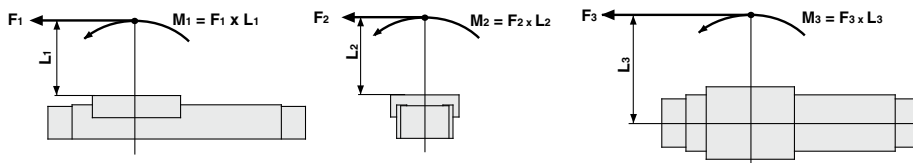
### Caution on Design

If the product is operated with a guide load factor which exceeds the standard value, malfunction may occur due to damage to the end cover and bearings. Therefore, be sure to confirm that the guide load factor is 1 or less.

### 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  $\bar{v}_a$  (average speed) for (1) and (2), and  $v$  (collision speed  $v = 1.4\bar{v}_a$ ) 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 ( $M_1, M_2, M_3$ ).

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

\*1 Moment caused by the load, etc., with cylinder in resting condition

\*2 Moment caused by the load equivalent to impact at the stroke end (at the time of impact with stopper)

\* 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 formula [Dynamic moment at the time of impact]

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

- m:** Load mass [kg]
- F:** Load [N]
- F<sub>E</sub>:** Load equivalent to impact (at the time of impact with stopper) [N]
- $\bar{v}_a$ :** Average speed [mm/s]
- M:** Static moment [N·m]
- $v = 1.4\bar{v}_a$  (mm/s)  $F_E = 1.4\bar{v}_a \cdot \delta \cdot m \cdot g$
- $\therefore M_E = \frac{1}{3} \cdot F_E \cdot L_1 = 4.57\bar{v}_a \delta m L_1$  [N·m]
- v:** Collision speed [mm/s]
- L<sub>1</sub>:** Distance to the load center of gravity [m]
- M<sub>E</sub>:** Dynamic moment [N·m]
- $\delta$ :** Bumper coefficient  
With rubber bumper = 4/100 (MY1B10, MY1H10)  
With air cushion = 1/100  
With shock absorber = 1/100
- g:** Gravitational acceleration (9.8 m/s<sup>2</sup>)
- At collision:  $v = 1.4\bar{v}_a$

\*3  $1.4\bar{v}_a \delta$  is a dimensionless coefficient for calculating impact force.

\*4 Average load coefficient ( $= \frac{1}{3}$ ): For averaging the maximum load moment at the time of impact with stopper according to service life calculations

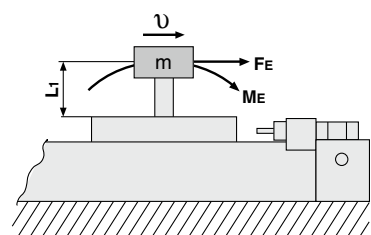
3. For detailed selection procedures, refer to pages 41 and 42.

### Maximum Allowable Moment

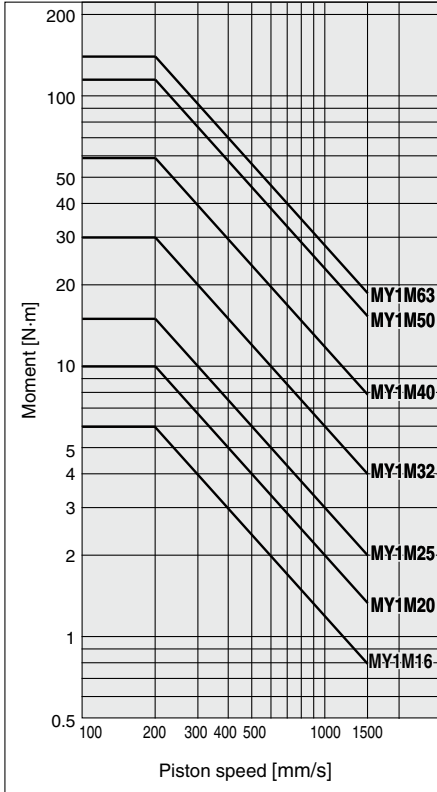
Select the moment from within the range of operating limits shown in the graphs. Note that the maximum load mass value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the load mass for the selected conditions.

### Maximum Load Mass

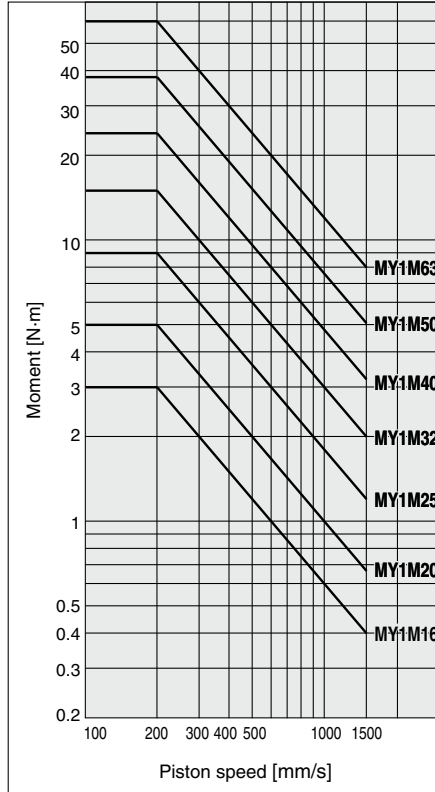
Select the load mass from within the range of limits shown in the graphs. Note that the maximum allowable moment value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable moment for the selected conditions.



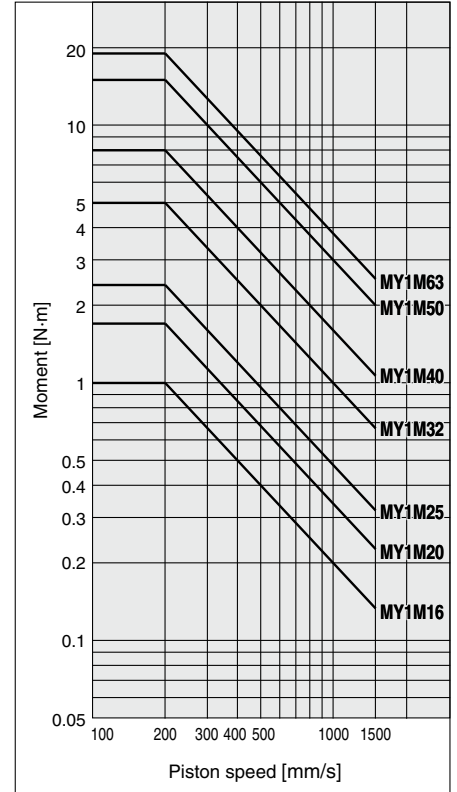
**MY1M/M1**



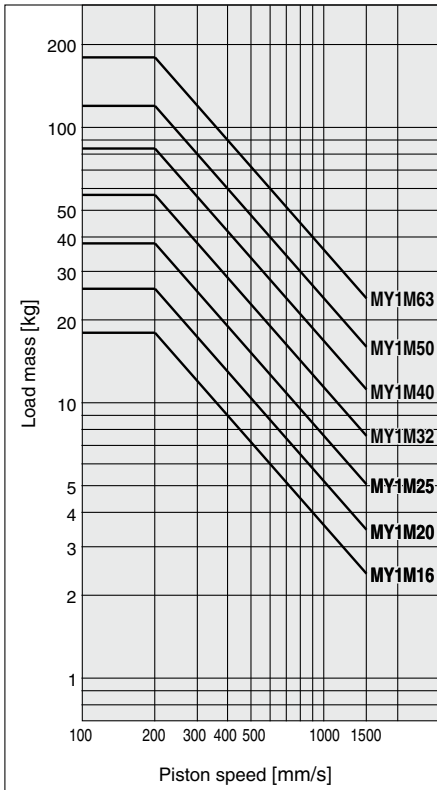
**MY1M/M2**



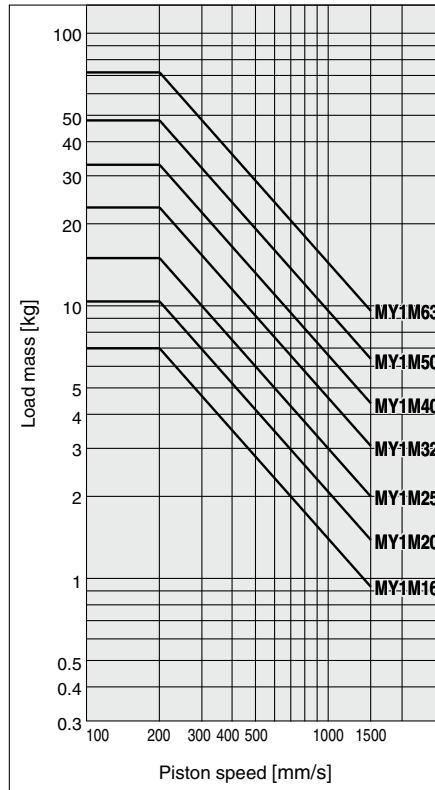
**MY1M/M3**



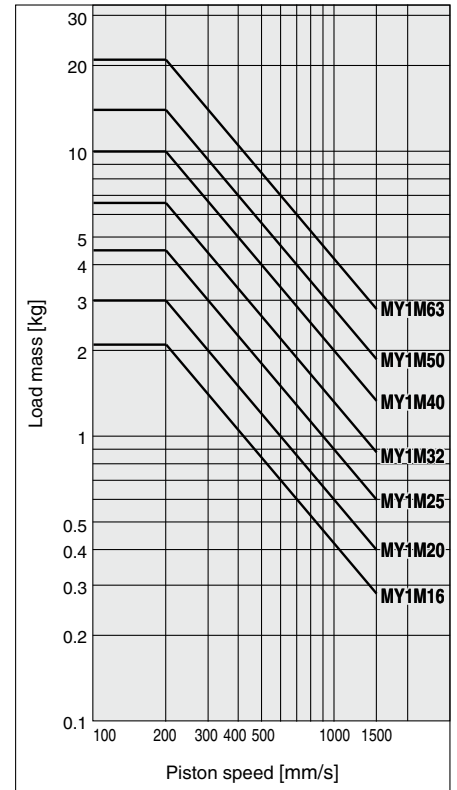
**MY1M/m1**



**MY1M/m2**



**MY1M/m3**



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1M Series Model Selection

Following are the steps for selecting the most suitable MY1M series to your application.

## Calculation of Guide Load Factor

### 1. Operating Conditions

Cylinder ..... MY1M40-500

Average operating speed  $v_a$  ... 200 mm/s

Mounting orientation ..... Horizontal

Cushion ..... Air cushion

( $\delta = 1/100$ )

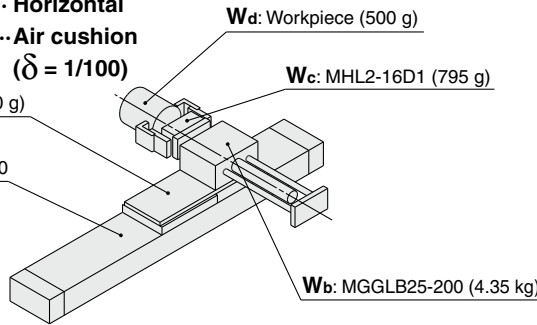
**W<sub>a</sub>**: Connection plate  $t = 10$  (880 g)

**W<sub>d</sub>**: Workpiece (500 g)

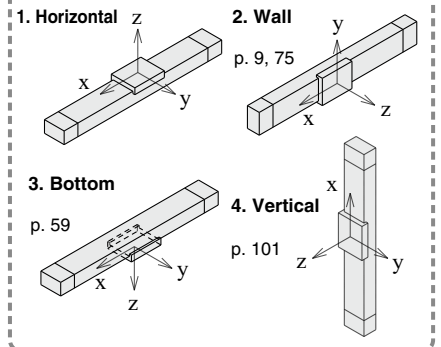
**W<sub>c</sub>**: MHL2-16D1 (795 g)

MY1M40-500

**W<sub>b</sub>**: MGGLB25-200 (4.35 kg)

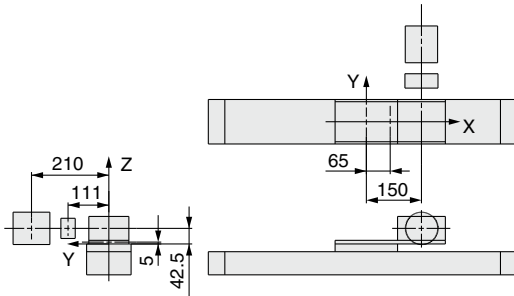


### Mounting Orientation



For actual examples of calculation for each orientation, refer to the pages above.

### 2. Load Blocking



### Mass and Center of Gravity for Each Workpiece

Workpiece no. <b>W<sub>n</sub></b>	Mass <b>m<sub>n</sub></b>	Center of gravity		
		X-axis <b>X<sub>n</sub></b>	Y-axis <b>Y<sub>n</sub></b>	Z-axis <b>Z<sub>n</sub></b>
<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>	0.5 kg	150 mm	210 mm	42.5 mm

$n = a, b, c, d$

### 3. Composite Center of Gravity Calculation

$$m_1 = \sum m_n$$

$$= 0.88 + 4.35 + 0.795 + 0.5 = \mathbf{6.525 \text{ kg}}$$

$$X = \frac{1}{m_1} \times \sum (m_n \times x_n)$$

$$= \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = \mathbf{138.5 \text{ mm}}$$

$$Y = \frac{1}{m_1} \times \sum (m_n \times y_n)$$

$$= \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = \mathbf{29.6 \text{ mm}}$$

$$Z = \frac{1}{m_1} \times \sum (m_n \times z_n)$$

$$= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = \mathbf{37.4 \text{ mm}}$$

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

**m<sub>1</sub>**: Mass

**m<sub>1</sub> max** (from ① of graph MY1M/m<sub>1</sub>) = 84 [kg].....

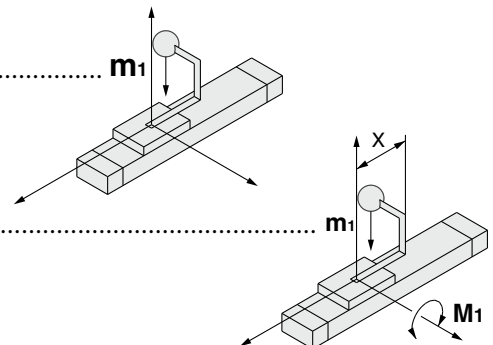
Load factor  $\alpha_1 = m_1 / m_{1 \text{ max}} = 6.525 / 84 = \mathbf{0.08}$

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

**M<sub>1</sub> max** (from ② of graph MY1M/M<sub>1</sub>) = 59 [N·m].....

**M<sub>1</sub>** = **m<sub>1</sub>** × **g** × **X** = 6.525 × 9.8 × 138.5 × 10<sup>-3</sup> = 8.86 [N·m]

Load factor  $\alpha_2 = M_1 / M_{1 \text{ max}} = 8.86 / 59 = \mathbf{0.15}$

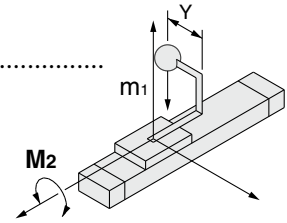


**M<sub>2</sub>:** Moment

**M<sub>2</sub> max** (from ③ of graph MY1M/M<sub>2</sub>) = 24 [N·m].....

**M<sub>3</sub>** = m<sub>1</sub> × g × Y = 6.525 × 9.8 × 29.6 × 10<sup>-3</sup> = 1.89 [N·m]

Load factor **α<sub>3</sub>** = M<sub>2</sub>/M<sub>2</sub> max = 1.89/24 = **0.08**



**5. Calculation of Load Factor for Dynamic Moment**

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

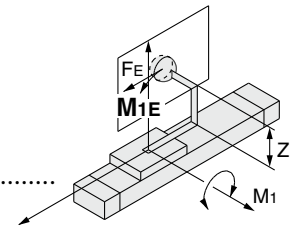
**F<sub>E</sub>** = 1.4Va × δ × m × g = 1.4 × 200 ×  $\frac{1}{100}$  × 6.525 × 9.8 = 179.1 [N]

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

**M<sub>1E</sub> max** (from ④ of graph MY1M/M<sub>1</sub> where 1.4Va = 280 mm/s) = 42.1 [N·m].....

**M<sub>1E</sub>** =  $\frac{1}{3}$  × F<sub>E</sub> × Z =  $\frac{1}{3}$  × 179.1 × 37.4 × 10<sup>-3</sup> = 2.23 [N·m]

Load factor **α<sub>4</sub>** = M<sub>1E</sub>/M<sub>1E</sub> max = 2.23/42.1 = **0.05**

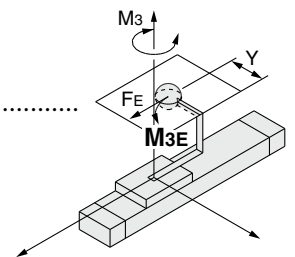


**M<sub>3E</sub>:** Moment

**M<sub>3E</sub> max** (from ⑤ of graph MY1M/M<sub>3</sub> where 1.4Va = 280 mm/s) = 5.7 [N·m].....

**M<sub>3E</sub>** =  $\frac{1}{3}$  × F<sub>E</sub> × Y =  $\frac{1}{3}$  × 179.1 × 29.6 × 10<sup>-3</sup> = 1.77 [N·m]

Load factor **α<sub>5</sub>** = M<sub>3E</sub>/M<sub>3E</sub> max = 1.77/5.7 = **0.31**



**6. Sum and Examination of Guide Load Factors**

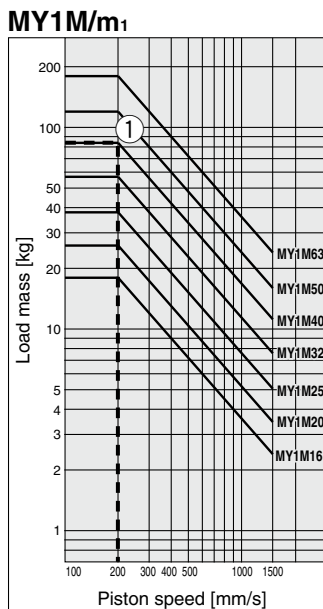
$\sum\alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 = 0.67 \leq 1$

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

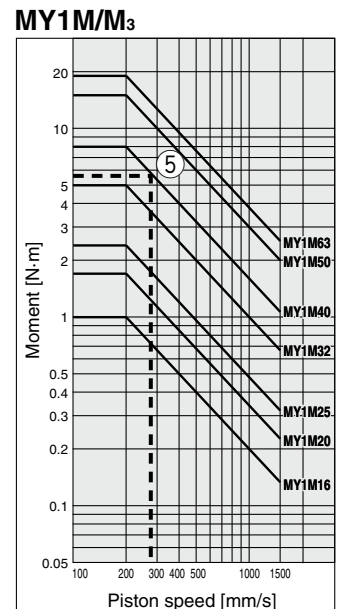
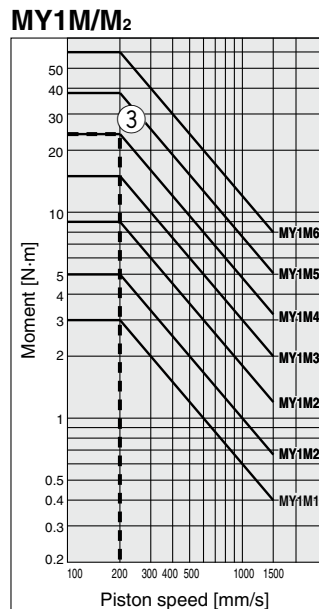
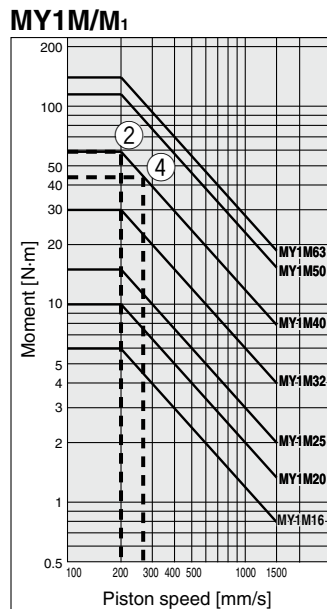
Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors  $\sum\alpha$  in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the “Guide Cylinder Selection Software” on the SMC website.

**Load Mass**



**Allowable Moment**



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions



# Mechanically Jointed Rodless Cylinder Slide Bearing Guide Type

## MY1M Series

ø16, ø20, ø25, ø32, ø40, ø50, ø63

### How to Order

Slide bearing guide type **MY1M** **20** **G** - **300** - **M9BW** -

Slide bearing guide type • ① ② ③ ④ ⑤ ⑥ ⑦ ⑧

#### ① Bore size

16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

#### ② Port thread type

Symbol	Type	Bore size
Nil	M thread	ø16, ø20
	Rc	ø25, ø32,
TN	NPT	ø40, ø50,
TF	G	ø63

#### ③ Piping

Nil	Standard type
G	Centralized piping type

#### ④ Cylinder stroke [mm]

Bore size	Standard stroke* <sup>1</sup>	Long stroke	Maximum manufacturable stroke
16	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000	Strokes of 2001 to 3000 mm (1 mm increments) exceeding the standard stroke	3000
20, 25, 32, 40, 50, 63	* <sup>1</sup> The stroke can be manufactured in 1 mm increments from 1 mm stroke.	Strokes of 2001 to 5000 mm (1 mm increments) exceeding the standard stroke	5000

Ordering example

\* Long stroke can be ordered the same as the standard stroke. MY1M20-3000L-M9BW

\* Please be advised that with a stroke of 49 mm or less, there are cases where auto switch mounting is not possible, and the performance of the air cushion may decline.

#### ⑤ Stroke adjustment unit symbol

For stroke adjustment units, refer to page 44.

#### ⑥ Auto switch

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

Applicable auto switches vary depending on the bore size. Select an applicable one referring to the table below.

#### ⑦ Number of auto switches

Nil	2
S	1
n	n

#### ⑧ Made to Order Common Specifications

Refer to page 44 for details.

### Applicable Auto Switches/Refer to the Web Catalog 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)			
							ø16, ø20	ø25 to ø63								ø16, ø20
Solid state auto switch	Diagnostic indication (2-color indicator)	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)				M9NWV	M9NW	●	●	●	○			
	Water resistant (2-color indicator)			3-wire (PNP)	M9PWV	M9PW	●	●	●	○						
				2-wire	M9BWV	M9BW	●	●	●	○						
				3-wire (NPN)	M9NAV* <sup>1</sup>	M9NA* <sup>1</sup>	○	○	●	○						
				3-wire (PNP)	M9PAV* <sup>1</sup>	M9PA* <sup>1</sup>	○	○	●	○						
2-wire	M9BAV* <sup>1</sup>	M9BA* <sup>1</sup>	○	○	●	○										
Reed auto switch	—	Grommet	No	3-wire (NPN equivalent)	—	5 V	—	A96V	—	A96	Z76	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V* <sup>2</sup>	—	A93	Z73	●	●	●	●	—
						100 V or less		A90V	—	A90	Z80	●	—	—	IC circuit	—

\*<sup>1</sup> Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance.

Please contact SMC regarding water-resistant types with the above model numbers.

\*<sup>2</sup> The 1 m lead wire is only applicable to the D-A93.

\* For details on auto switch mounting brackets and part numbers, refer to page 112.

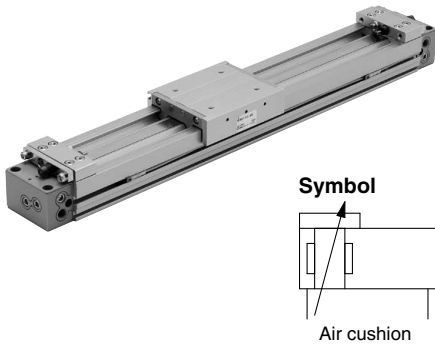
\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW 3 m ..... L (Example) M9NWL  
1 m ..... M (Example) M9NWM 5 m ..... Z (Example) M9NWZ

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

\* Since there are applicable auto switches other than those listed above, refer to page 112 for details.

\* Auto switches are shipped together with the product but do not come assembled. (Refer to page 109 for the details of auto switch mounting.)

# Mechanically Jointed Rodless Cylinder Slide Bearing Guide Type **MY1M Series**



**Made to Order Common Specifications**  
(For details, refer to page 114.)

Symbol	Specifications
-XB22*1	Shock absorber soft type RJ series mounted
-XC67	NBR rubber lining in dust seal band
-X168	Helical insert thread specifications

\*1 Excludes ø50 and ø63 for the -XB22

## Specifications

Bore size [mm]	16	20	25	32	40	50	63
Fluid	Air						
Action	Double acting						
Operating pressure range	0.2 to 0.8 MPa			0.15 to 0.8 MPa			
Proof pressure	1.2 MPa						
Ambient and fluid temperatures	5 to 60°C						
Cushion	Air cushion						
Lubrication	Non-lube						
Stroke length tolerance	1000 or less $^{+1.8}_0$ 1001 to 3000 $^{+2.8}_0$		2700 or less $^{+1.8}_0$ , 2701 to 5000 $^{+2.8}_0$				
Piping port size	Front/Side port	M5 x 0.8		1/8	1/4	3/8	
	Bottom port	ø4		ø6	ø8	ø10	

## Piston Speed

Bore size [mm]		16 to 63
Without stroke adjustment unit		100 to 1000 mm/s
Stroke adjustment unit	A unit	100 to 1000 mm/s*1
	L unit and H unit	100 to 1500 mm/s*2

\*1 Be aware that when the stroke adjustment range is increased with the adjustment bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 46, the piston speed should be 100 to 200 mm/s.

\*2 The piston speed is 100 to 1000 mm/s for centralized piping.

\* Use at a speed within the absorption capacity range. Refer to page 46.

\* Due to the construction of this product, it may have more fluctuation in operating speed compared to a rod type air cylinder. For applications that require constant speed, select the equipment corresponding to the required level.

## Stroke Adjustment Unit Specifications

Bore size [mm]		16			20			25			32			40			50			63		
Unit symbol		A	L	H	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H			
Configuration Shock absorber model	Without spacer	With adjustment bolt RB 0806	With adjustment bolt RB 0806 + with adjustment bolt	With adjustment bolt RB 1007 + with adjustment bolt	With adjustment bolt RB 1007	With adjustment bolt RB 1412 + with adjustment bolt	With adjustment bolt RB 1412 + with adjustment bolt	With adjustment bolt RB 1412	With adjustment bolt RB 2015 + with adjustment bolt	With adjustment bolt RB 2015 + with adjustment bolt	With adjustment bolt RB 1412	With adjustment bolt RB 2015 + with adjustment bolt	With adjustment bolt RB 2015 + with adjustment bolt	With adjustment bolt RB 2015	With adjustment bolt RB 2725 + with adjustment bolt	With adjustment bolt RB 2725 + with adjustment bolt	With adjustment bolt RB 2015	With adjustment bolt RB 2015 + with adjustment bolt	With adjustment bolt RB 2725 + with adjustment bolt			
	With short spacer	-5.6 to -11.2	-6 to -12	-11.5 to -23	-12 to -24	-16 to -32	-20 to -40	-25 to -50														
	With long spacer	-11.2 to -16.8	-12 to -18	-23 to -34.5	-24 to -36	-32 to -48	-40 to -60	-50 to -75														
Stroke adjustment range by intermediate fixing spacer [mm]	Without spacer	0 to -5.6	0 to -6	0 to -11.5	0 to -12	0 to -16	0 to -20	0 to -25														

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

## Stroke Adjustment Unit Symbol

		Right side stroke adjustment unit												
		Without unit	A: With adjustment bolt		L: With low load shock absorber + Adjustment bolt		H: With high load shock absorber + Adjustment bolt		Without unit					
Left side stroke adjustment unit	Without unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7			
	A: With adjustment bolt	Without unit	AS	A	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7		
		With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7		
		With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7		
	L: With low load shock absorber + Adjustment bolt	Without unit	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7		
		With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7		
		With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7		
	H: With high load shock absorber + Adjustment bolt	Without unit	HS	HA	HA6	HA7	HL	HL6	HL7	H	HH6	HH7		
		With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7		
		With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7		

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

For details on spacers and stroke adjustment units, refer to "Accessory Brackets (Option)" on page 54.

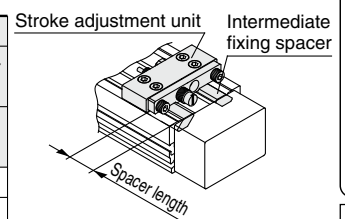
\* For precautions, refer to page 121.

## Accessory Brackets (Option)

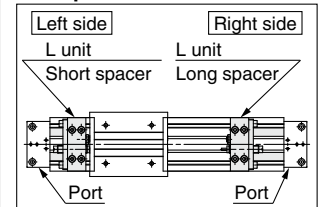
Stroke adjustment unit	p. 54
Side support	p. 55

Refer to pages 109 to 112 for the specifications with auto switch.

## Stroke adjustment unit mounting diagram



## Example of L6L7 attachment



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1M Series

## Shock Absorbers for L and H Units

Type	Stroke adjustment unit	Bore size [mm]						
		16	20	25	32	40	50	63
Standard (Shock absorber/RB series)	L	RB0806		RB1007	RB1412		RB2015	
	H	—	RB1007	RB1412	RB2015		RB2725	
Shock absorber/soft type RJ series mounted (-XB22)	L	RJ0806H		RJ1007H	RJ1412H		—	—
	H	—	RJ1007H	RJ1412H	—	—	—	—

- \* The shock absorber service life is different from that of the MY1M cylinder depending on operating conditions. Refer to the RB/RJ Series Specific Product Precautions for the replacement period.
- \* Shock absorber soft type RJ series mounted (-XB22) is made-to-order common specifications. For details, refer to page 115.

## Shock Absorber Specifications

Model	RB 0806	RB 1007	RB 1412	RB 2015	RB 2725	
Max. absorbed energy [J]	2.9	5.9	19.6	58.8	147	
Stroke absorption [mm]	6	7	12	15	25	
Max. collision speed [mm/s]	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 MY1M cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

## 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
20	314	62	94	125	157	188	219	251
25	490	98	147	196	245	294	343	392
32	804	161	241	322	402	483	563	643
40	1256	251	377	502	628	754	879	1005
50	1962	392	588	784	981	1177	1373	1569
63	3115	623	934	1246	1557	1869	2180	2492

- \* Theoretical output [N] = Pressure [MPa] x Piston area [mm<sup>2</sup>]

## Weight

Bore size [mm]	Basic weight	Additional weight per each 50 mm of stroke	Weight of moving parts	Side support bracket weight (per set) Type A and B	Stroke adjustment unit weight (per unit)		
					A unit weight	L unit weight	H unit weight
16	0.67	0.12	0.19	0.01	0.03	0.04	—
20	1.11	0.16	0.28	0.02	0.04	0.05	0.08
25	1.64	0.24	0.39	0.02	0.07	0.11	0.18
32	3.27	0.38	0.81	0.04	0.14	0.23	0.39
40	5.88	0.56	1.41	0.08	0.25	0.34	0.48
50	10.06	0.77	2.51	0.08	0.36	0.51	0.81
63	16.57	1.11	3.99	0.17	0.68	0.83	1.08

Calculation: (Example) **MY1M25-300A**

- Basic weight ..... 1.64 kg
- Cylinder stroke ..... 300 mm stroke
- Additional weight ..... 0.24/50 mm stroke  
1.64 + 0.24 x 300/50 + 0.07 x 2 ≈ 3.22 kg
- Weight of A unit ..... 0.07 kg

## ⚠ Precautions

For details on the MY1M Series Mechanically Jointed Rodless Cylinder, refer to “Specific Product Precautions” on pages 119 to 122.

## Cushion Capacity

### Cushion Selection

#### <Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders. The air cushion mechanism is incorporated to prevent excessive impact of the piston with high kinetic energy at the stroke end. The purpose of air cushion, thus, is not 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 and speed exceeding the air cushion limit line, or when cushioning is required outside of the effective air cushion stroke range due to stroke adjustment.

#### L unit

Use this unit when cushioning is required 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.

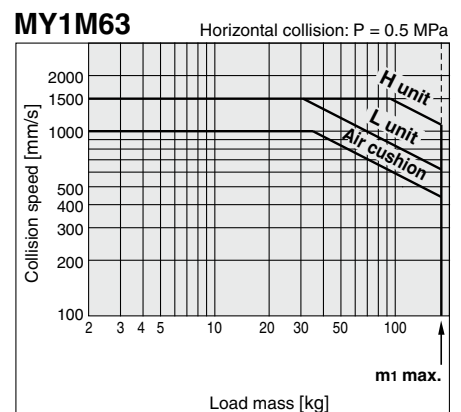
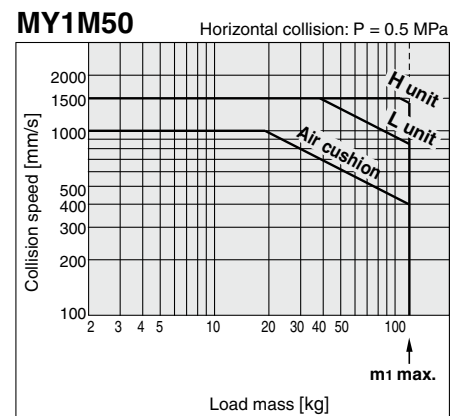
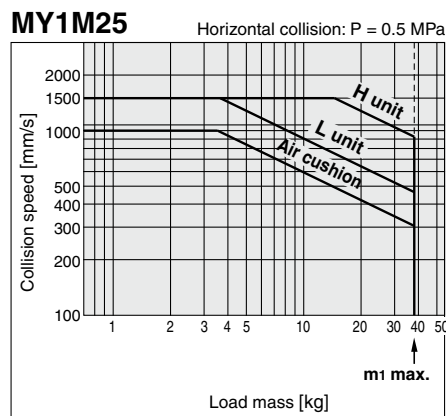
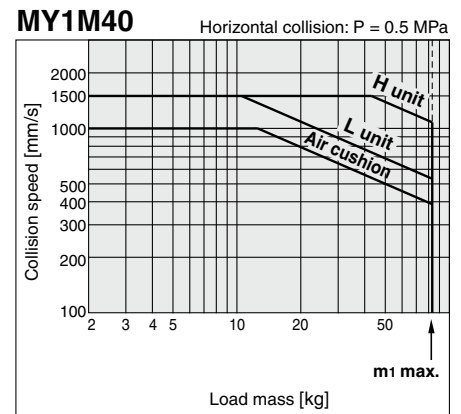
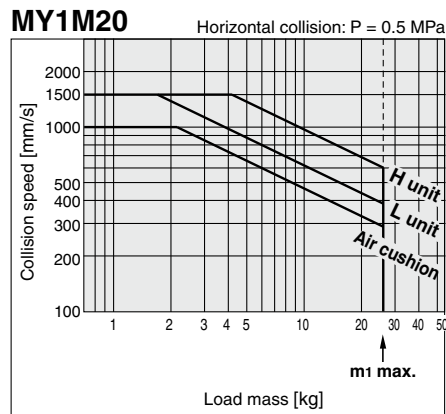
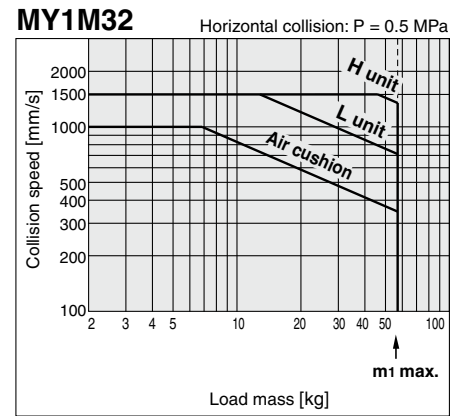
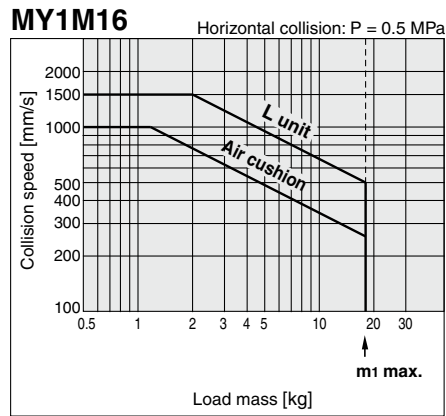
\* For details on stroke adjustment using the adjustment bolt, refer to page 121.

### Air Cushion Stroke

[mm]

Bore size [mm]	Cushion stroke
16	12
20	15
25	15
32	19
40	24
50	30
63	37

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



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

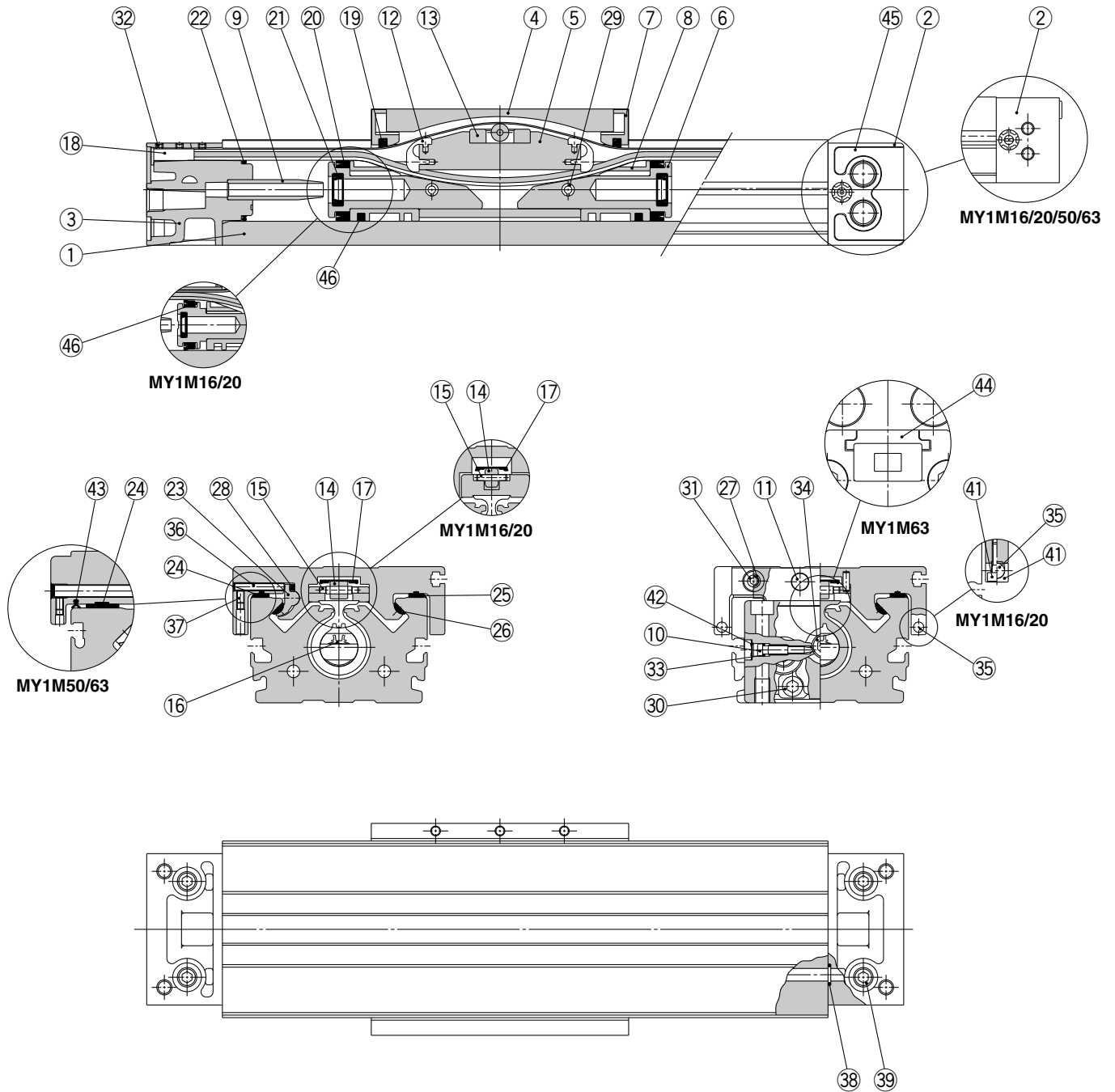
Made to Order Common Specifications

Specific Product Precautions

# MY1M Series

**Construction:  $\varnothing 16$  to  $\varnothing 63$**

**MY1M16 to 63**



## MY1M16 to 63

### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Slide table	Aluminum alloy	Hard anodized
5	Piston yoke	Aluminum alloy	Chromated
6	Piston	Aluminum alloy	Chromated
7	End cover	Special resin	
8	Wear ring	Special resin	
9	Cushion ring	Aluminum alloy	Anodized
10	Cushion needle	Rolled steel	Nickel plating
11	Stopper	Carbon steel	Nickel plating
12	Belt separator	Special resin	
13	Coupler	Sintered iron material	
14	Guide roller	Special resin	
15	Guide roller shaft	Stainless steel	
18	Belt clamp	Special resin	
23	Adjusting arm	Aluminum alloy	Chromated
24	Bearing R	Special resin	
25	Bearing L	Special resin	
26	Bearing S	Special resin	

No.	Description	Material	Note
27	Spacer	Stainless steel	
28	Backup spring	Stainless steel	
29	Spring pin	Carbon tool steel	
30	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
31	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
32	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/Chromated
34	Hexagon socket head taper plug	Carbon steel	Chromated
35	Magnet	—	
36	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated
37	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated
39	Hexagon socket head taper plug	Carbon steel	Chromated
40	Magnet holder	Special resin	(ø16, ø20)
41	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plating
42	Type CR retaining ring	Spring steel	
44	Head plate	Aluminum alloy	Hard anodized (ø63)
45	Port cover	Special resin	(ø25 to ø40)
46	Lube-retainer	Special resin	

### Replacement Parts/Seal Kit

No.	Description	Qty.	MY1M16	MY1M20	MY1M25	MY1M32	MY1M40	MY1M50	MY1M63
16	Seal belt	1	MY16-16C-Stroke	MY20-16C-Stroke	MY25-16C-Stroke	MY32-16C-Stroke	MY40-16C-Stroke	MY50-16C-Stroke	MY63-16A-Stroke
17	Dust seal band	1	MY16-16B-Stroke	MY20-16B-Stroke	MY25-16B-Stroke	MY32-16B-Stroke	MY40-16B-Stroke	MY50-16B-Stroke	MY63-16B-Stroke
33	O-ring	2	KA00309 (ø4 x ø1.8 x ø1.1)	KA00311 (ø5.1 x ø3 x ø1.05)	KA00311 (ø5.1 x ø3 x ø1.05)	KA00320 (ø7.15 x ø3.75 x ø1.7)	KA00402 (ø8.3 x ø4.5 x ø1.9)	KA00777 —	KA00777 —
43	Side scraper	2	—	—	—	—	—	MYM50-15CK0502B	MYM63-15CK0503B
19	Scraper	2							
20	Piston seal	2							
21	Cushion seal	2	MY1M16-PS	MY1M20-PS	MY1M25-PS	MY1M32-PS	MY1M40-PS	MY1M50-PS	MY1M63-PS
22	Tube gasket	2							
38	O-ring	4							

\* Seal kit includes (19), (20), (21), (22), and (38). Order the seal kit based on each bore size.

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

When (16) and (17) are shipped independently, a grease pack is included. (10 g per 1000 mm stroke)  
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)

\* Two types of dust seal bands are available. Since the part number varies depending on the treatment of the hexagon socket head set screw (32), please check a proper dust seal band carefully.

A: Black zinc chromated → MY□□-16B-stroke, B: Chromated → MY□□-16BW-stroke

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

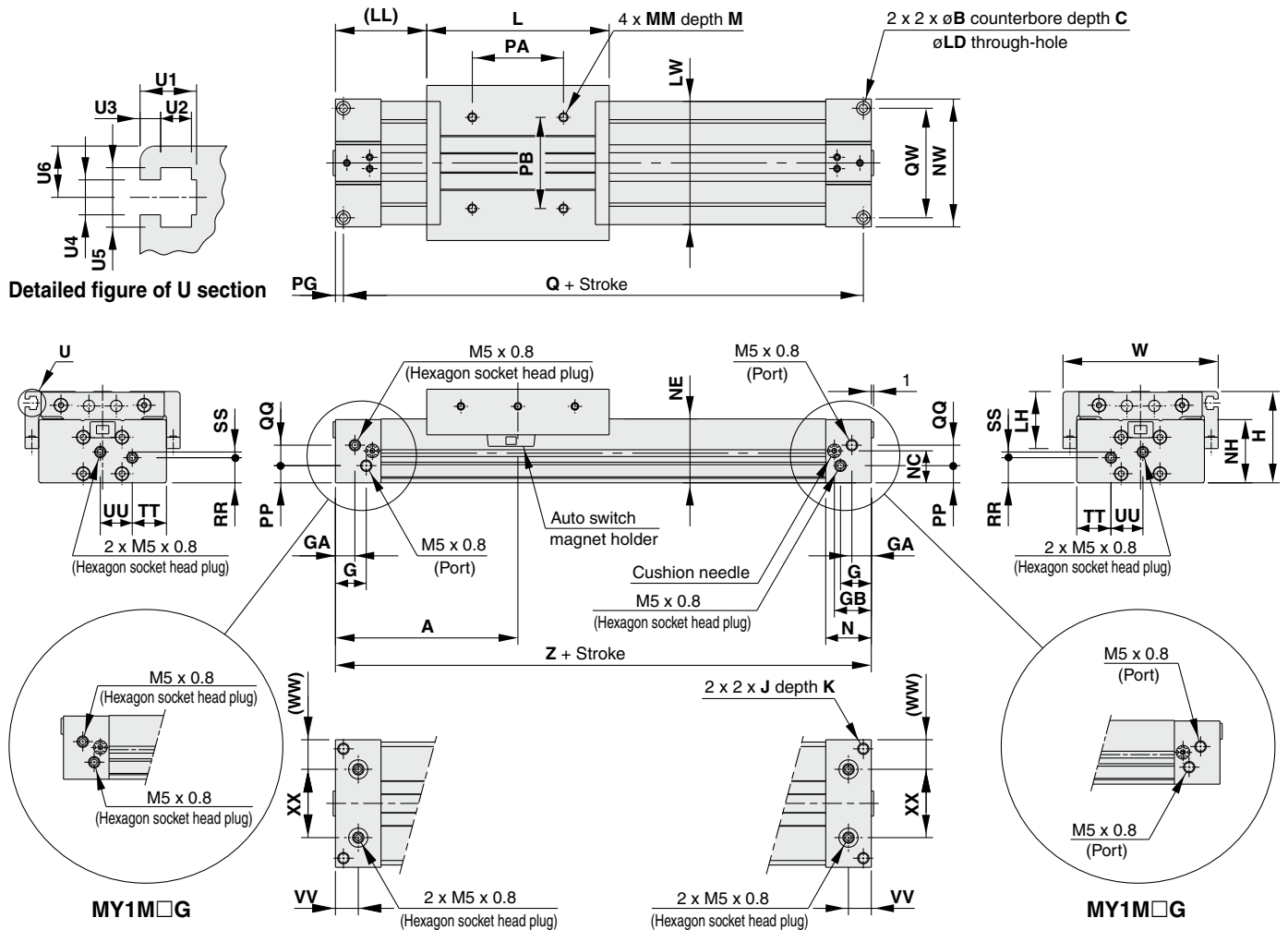
Specific Product Precautions



# MY1M Series

## Standard Type/Centralized Piping Type $\phi 16, \phi 20$

MY1M16□/20□ — Stroke



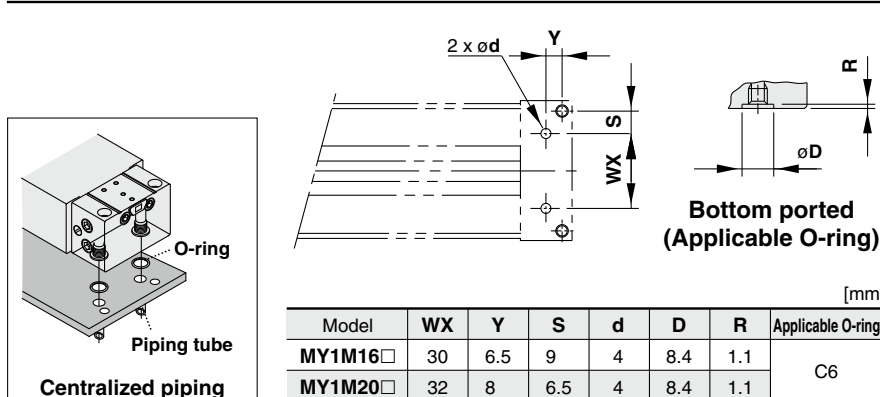
Model	A	B	C	G	GA	GB	H	J	K	L	LD	LH	LL	LW	M	MM	N	NC	NE	NH	NW	PA
MY1M16□	80	6	3.5	13.5	8.5	16.2	40	M5 x 0.8	10	80	3.6	22.5	40	54	6	M4 x 0.7	20	14	28	27.7	56	40
MY1M20□	100	7.5	4.5	12.5	12.5	20	46	M6 x 1	12	100	4.8	23	50	58	7.5	M5 x 0.8	25	17	34	33.7	60	50

Model	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	W	WW	XX	Z
MY1M16□	40	3.5	7.5	153	9	48	11	2.5	15	14	10	68	13	30	160
MY1M20□	40	4.5	11.5	191	10	45	14.5	5	18	12	12.5	72	14	32	200

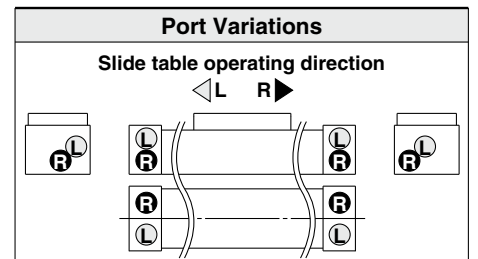
### Detailed Dimensions of U Section [mm]

Model	U1	U2	U3	U4	U5	U6
MY1M16□	5.5	3	2	3.4	5.8	5
MY1M20□	5.5	3	2	3.4	5.8	5.5

### Centralized Piping on the Bottom



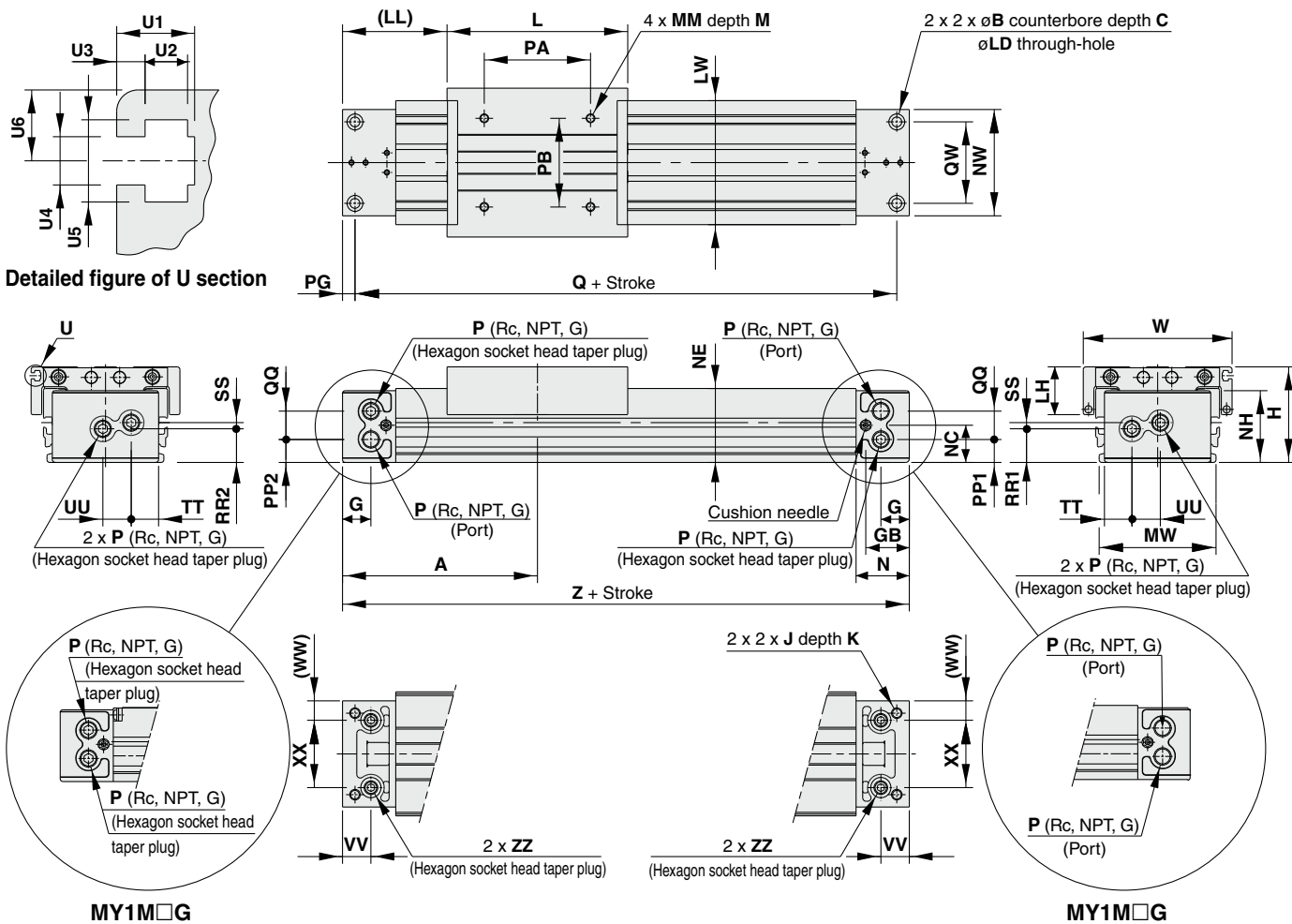
Model	WX	Y	S	d	D	R	Applicable O-ring
MY1M16□	30	6.5	9	4	8.4	1.1	C6
MY1M20□	32	8	6.5	4	8.4	1.1	



# Mechanically Jointed Rodless Cylinder Slide Bearing Guide Type **MY1M Series**

## Standard Type/Centralized Piping Type $\phi 25, \phi 32, \phi 40$

MY1M25□/32□/40□ — Stroke



Model	A	B	C	G	GB	H	J	K	L	LD	LH	LL	LW	M	MM	MW	N	NC	NE	NH	NW	P	PA
MY1M25□	110	9	5.5	17	24.5	54	M6 x 1	9.5	102	5.6	27	59	70	10	M5 x 0.8	66	30	21	41.8	40.5	60	1/8	60
MY1M32□	140	11	6.5	19	30	68	M8 x 1.25	16	132	6.8	35	74	88	13	M6 x 1	80	37	26	52.3	50	74	1/8	80
MY1M40□	170	14	8.5	23	36.5	84	M10 x 1.5	15	162	8.6	38	89	104	13	M6 x 1	96	45	32	65.3	63.5	94	1/4	100

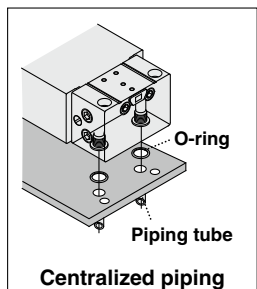
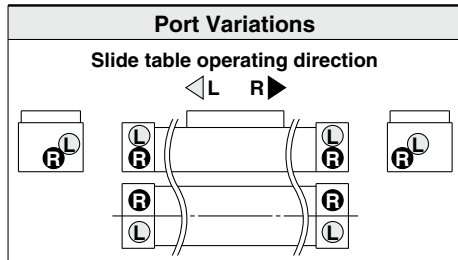
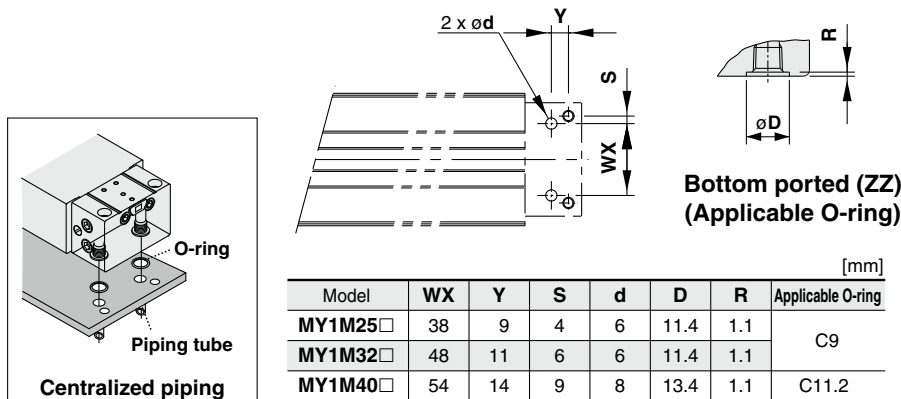
"P" indicates cylinder supply ports.

Model	PB	PG	PP1	PP2	Q	QQ	QW	RR1	RR2	SS	TT	UU	VV	W	WW	XX	Z	ZZ
MY1M25□	50	7	12.7	12.7	206	15.5	46	18.9	17.9	4.1	15.5	16	16	84	11	38	220	Rc1/16
MY1M32□	60	8	15.5	18.5	264	16	60	22	24	4	21	16	19	102	13	48	280	Rc1/16
MY1M40□	80	9	17.5	20	322	26	72	25.5	29	9	26	21	23	118	20	54	340	Rc1/8

### Detailed Dimensions of U Section [mm]

Model	U1	U2	U3	U4	U5	U6
MY1M25□	5.5	3	2	3.4	5.8	5
MY1M32□	5.5	3	2	3.4	5.8	7
MY1M40□	6.5	3.8	2	4.5	7.3	8

### Centralized Piping on the Bottom



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

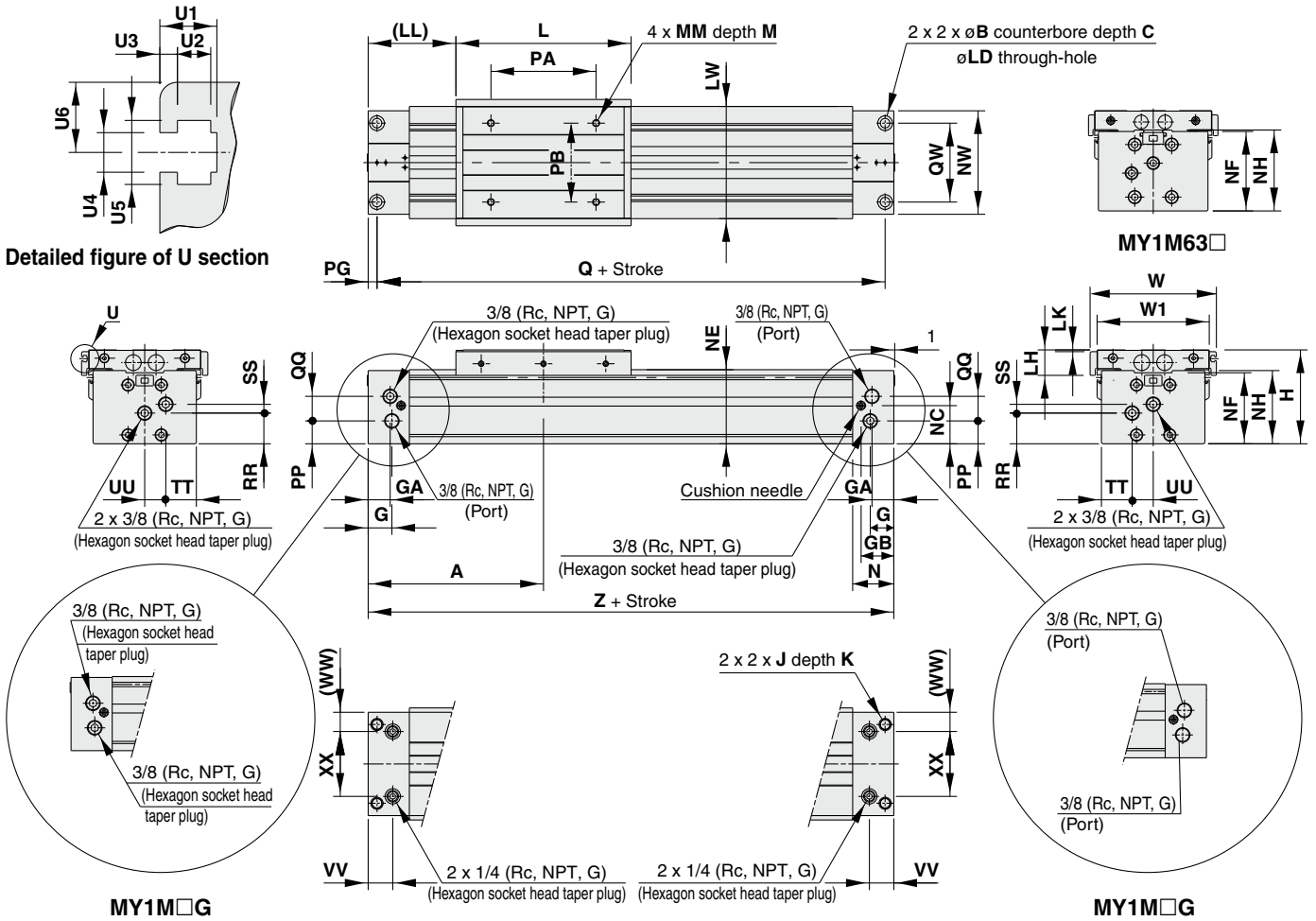
Made to Order Common Specifications

Specific Product Precautions

# MY1M Series

## Standard Type/Centralized Piping Type $\phi 50, \phi 63$

MY1M50□/60□ — Stroke

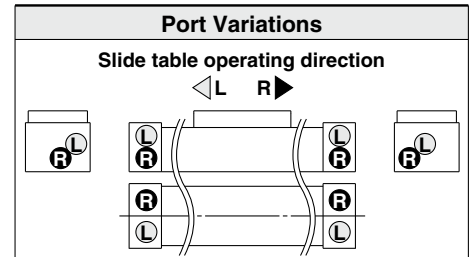
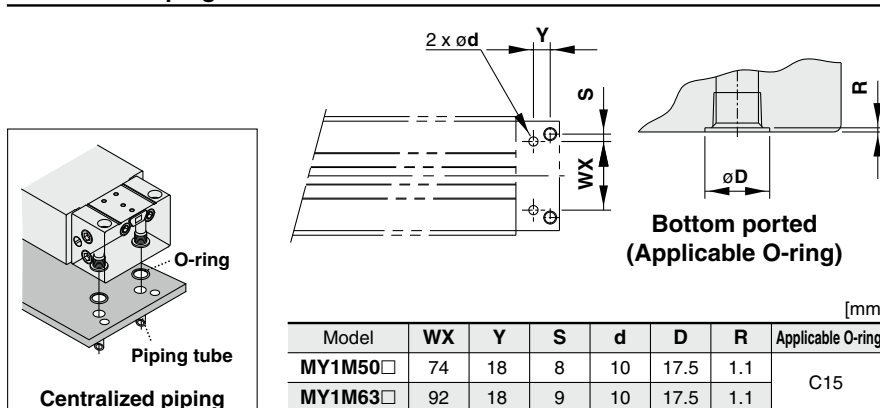


Model	A	B	C	G	GA	GB	H	J	K	L	LD	LH	LK	LL	LW	M	MM	N	NC	NE	NF	NH	NW	PA
MY1M50□	200	17	10.5	27	25	37.5	107	M14 x 2	28	200	11	29	2	100	128	15	M8 x 1.25	47	43.5	84.5	81	83.5	118	120
MY1M63□	230	19	12.5	29.5	27.5	39.5	130	M16 x 2	32	230	13.5	32.5	5.5	115	152	16	M10 x 1.5	50	56	104	103	105	142	140

Model	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	W	W1	WW	XX	Z
MY1M50□	90	10	26	380	28	90	35	10	35	24	28	144	128	22	74	400
MY1M63□	110	12	42	436	30	110	49	13	43	28	30	168	152	25	92	460

Model	U1	U2	U3	U4	U5	U6
MY1M50□	6.5	3.8	2	4.5	7.3	8
MY1M63□	8.5	5	2.5	5.5	8.4	8

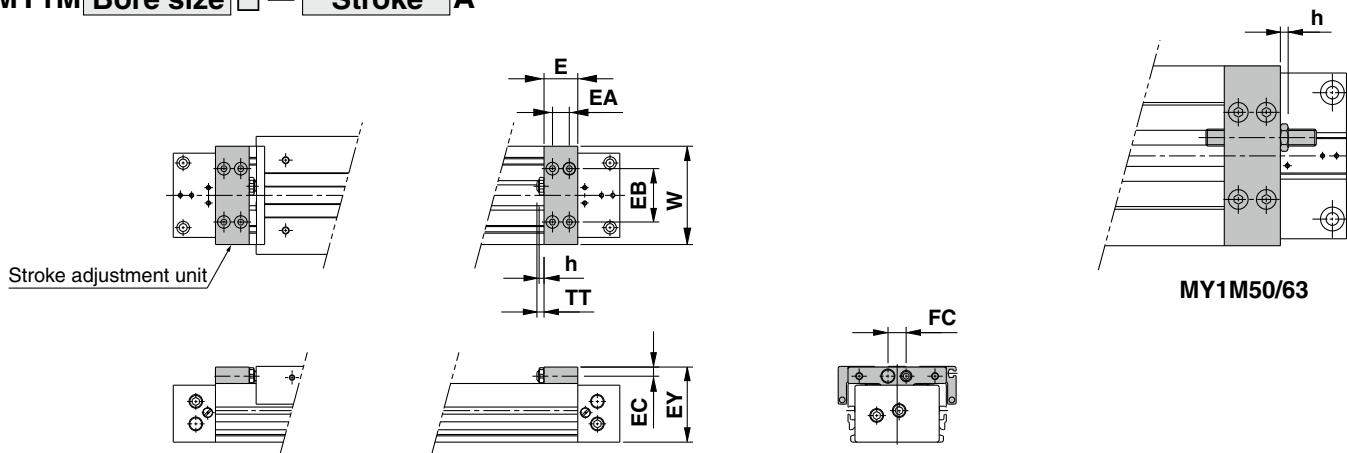
### Centralized Piping on the Bottom



### Stroke Adjustment Units

With adjustment bolt

MY1M  Bore size  —  Stroke  A

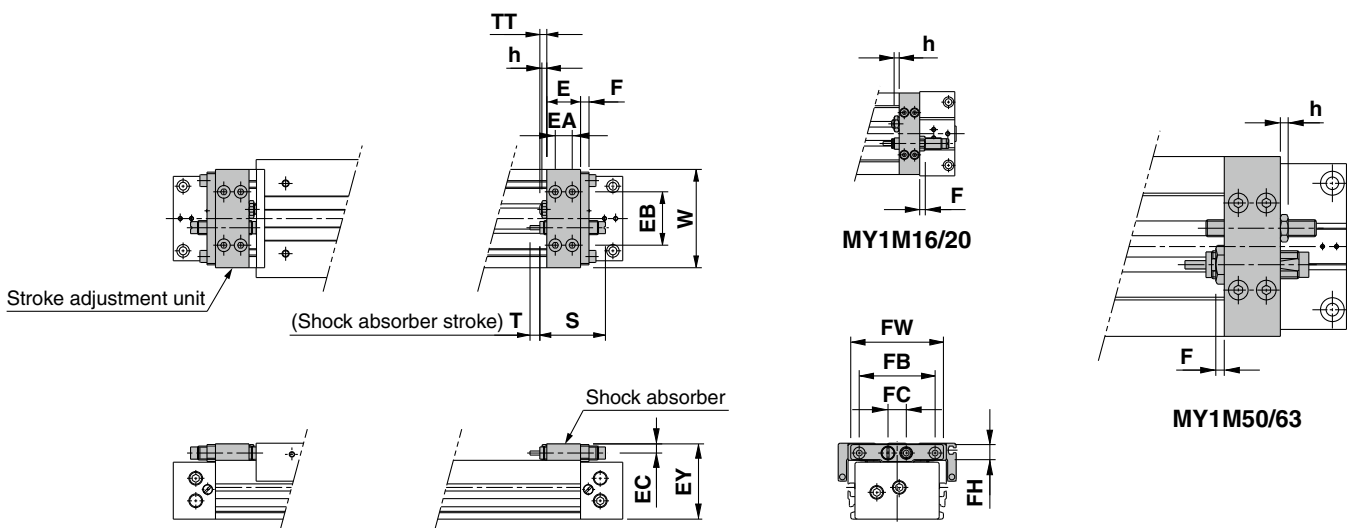


Applicable cylinder	E	EA	EB	EC	EY	FC	h	TT	W
MY1M16	14.6	7	30	5.8	39.5	14	3.6	5.4 (Max. 11)	58
MY1M20	20	10	32	5.8	45.5	14	3.6	5 (Max. 11)	58
MY1M25	24	12	38	6.5	53.5	13	3.5	5 (Max. 16.5)	70
MY1M32	29	14	50	8.5	67	17	4.5	8 (Max. 20)	88
MY1M40	35	17	57	10	83	17	4.5	9 (Max. 25)	104
MY1M50	40	20	66	14	106	26	5.5	13 (Max. 33)	128
MY1M63	52	26	77	14	129	31	5.5	13 (Max. 38)	152

[mm]

With low load shock absorber + Adjustment bolt

MY1M  Bore size  —  Stroke  L



Applicable cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock absorber model
MY1M16	14.6	7	30	5.8	39.5	4	—	14	—	—	3.6	40.8	6	5.4 (Max. 11)	58	RB0806
MY1M20	20	10	32	5.8	45.5	4	—	14	—	—	3.6	40.8	6	5 (Max. 11)	58	RB0806
MY1M25	24	12	38	6.5	53.5	6	54	13	13	66	3.5	46.7	7	5 (Max. 16.5)	70	RB1007
MY1M32	29	14	50	8.5	67	6	67	17	16	80	4.5	67.3	12	8 (Max. 20)	88	RB1412
MY1M40	35	17	57	10	83	6	78	17	17.5	91	4.5	67.3	12	9 (Max. 25)	104	RB1412
MY1M50	40	20	66	14	106	6	—	26	—	—	5.5	73.2	15	13 (Max. 33)	128	RB2015
MY1M63	52	26	77	14	129	6	—	31	—	—	5.5	73.2	15	13 (Max. 38)	152	RB2015

[mm]

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

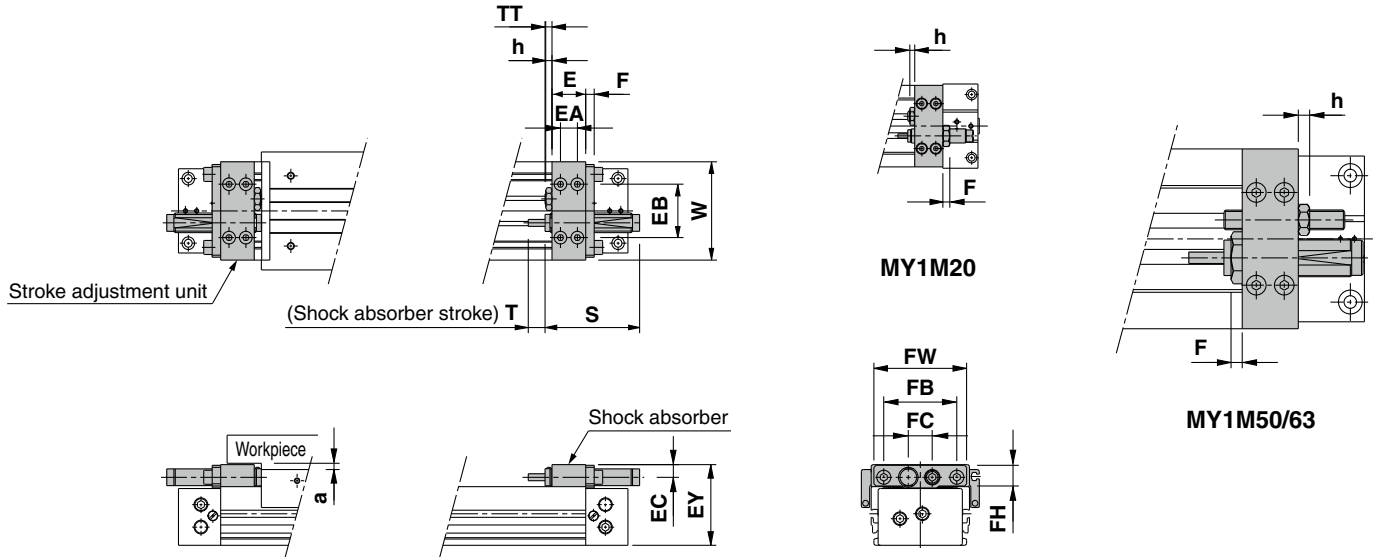
Specific Product Precautions

# MY1M Series

## Stroke Adjustment Units

With high load shock absorber + Adjustment bolt

MY1M  —  H



\* Since the EY dimension of H unit is longer than the table top height (H dimension), when mounting a workpiece that exceeds the overall length (L dimension) of the slide table, allow a clearance of dimension "a" or longer on the workpiece side.

Applicable cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock absorber model	a
MY1M20	20	10	32	7.7	50	5	—	14	—	—	3.5	46.7	7	5 (Max. 11)	58	RB1007	5
MY1M25	24	12	38	9	57.5	6	52	17	16	66	4.5	67.3	12	5 (Max. 16.5)	70	RB1412	4.5
MY1M32	29	14	50	11.5	73	8	67	22	22	82	5.5	73.2	15	8 (Max. 20)	88	RB2015	6
MY1M40	35	17	57	12	87	8	78	22	22	95	5.5	73.2	15	9 (Max. 25)	104	RB2015	4
MY1M50	40	20	66	18.5	115	8	—	30	—	—	11	99	25	13 (Max. 33)	128	RB2725	9
MY1M63	52	26	77	19	138.5	8	—	35	—	—	11	99	25	13 (Max. 38)	152	RB2725	9.5

# MY1M Series Accessory Brackets (Option)

## Stroke Adjustment Units

**MYM-A 25 L2-6N**

Stroke adjustment unit

Bore size

16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

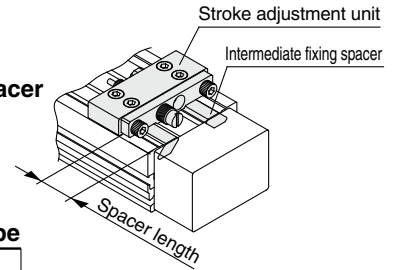
Intermediate fixing spacer

Nil	Without spacer
6	Short spacer
7	Long spacer

Spacer delivery type

Nil	Unit installed
N	Spacer only

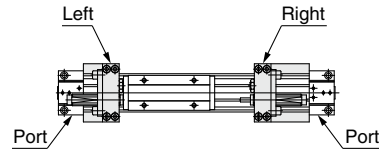
- \* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.
- \* Spacers are shipped for a set of two.



Unit no.

Symbol	Stroke adjustment unit	Mounting position
A1	A unit	Left
A2		Right
L1	L unit	Left
L2		Right
H1	H unit	Left
H2		Right

\* A and L unit only for ø16



## Stroke adjustment range

Bore size	16		20			25			32			40			50			63		
	A	L	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H
Without spacer	0 to -5.6		0 to -6			0 to -11.5			0 to -12			0 to -16			0 to -20			0 to -25		
With short spacer	-5.6 to -11.2		-6 to -12			-11.5 to -23			-12 to -24			-16 to -32			-20 to -40			-25 to -50		
With long spacer	-11.2 to -16.8		-12 to -18			-23 to -34.5			-24 to -36			-32 to -48			-40 to -60			-50 to -75		

## Spacer length

Bore size	16	20	25	32	40	50	63
Short spacer	5.6	6	11.5	12	16	20	25
Long spacer	11.2	12	23	24	32	40	50

## Component Parts

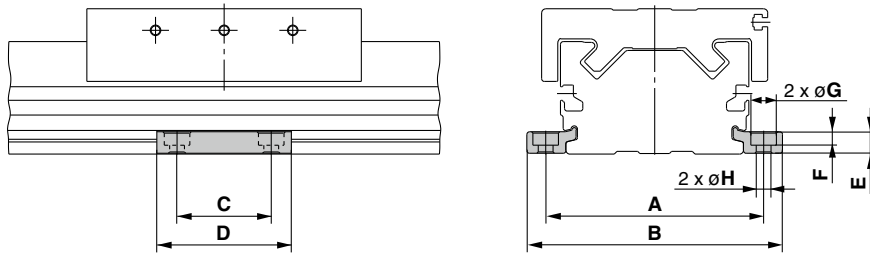
<p><b>MYM-A25L2</b> (Without spacer)</p>	<p><b>MYM-A25L2-6</b> (With short spacer)</p>	<p><b>MYM-A25L2-7</b> (With long spacer)</p>	<p><b>MYM-A25L2-6N</b> (Short spacer only)</p> <p><b>MYM-A25L2-7N</b> (Long spacer only)</p>
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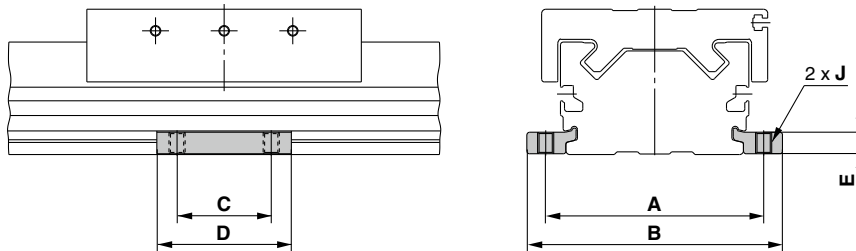
# MY1M Series

## Side Supports

### Side support A MY-S□A



### Side support B MY-S□B



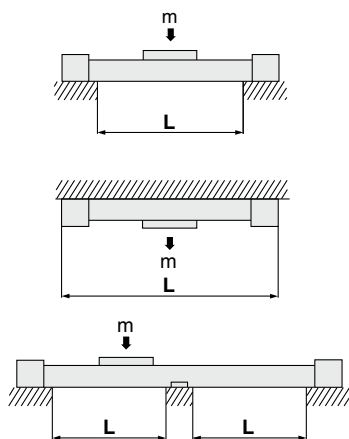
[mm]

Model	Applicable cylinder	A	B	C	D	E	F	G	H	J
MY-S16 <sup>A</sup> <sub>B</sub>	MY1M16	61	71.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 <sup>A</sup> <sub>B</sub>	MY1M20	67	79.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25 <sup>A</sup> <sub>B</sub>	MY1M25	81	95	35	50	8	5	9.5	5.5	M6 x 1
MY-S32 <sup>A</sup> <sub>B</sub>	MY1M32	100	118	45	64	11.7	6	11	6.6	M8 x 1.25
MY-S40 <sup>A</sup> <sub>B</sub>	MY1M40	120	142	55	80	14.8	8.5	14	9	M10 x 1.5
	MY1M50	142	164							
MY-S63 <sup>A</sup> <sub>B</sub>	MY1M63	172	202	70	100	18.3	10.5	17.5	11.5	M12 x 1.75

\* Side supports consist of a set of right and left brackets.

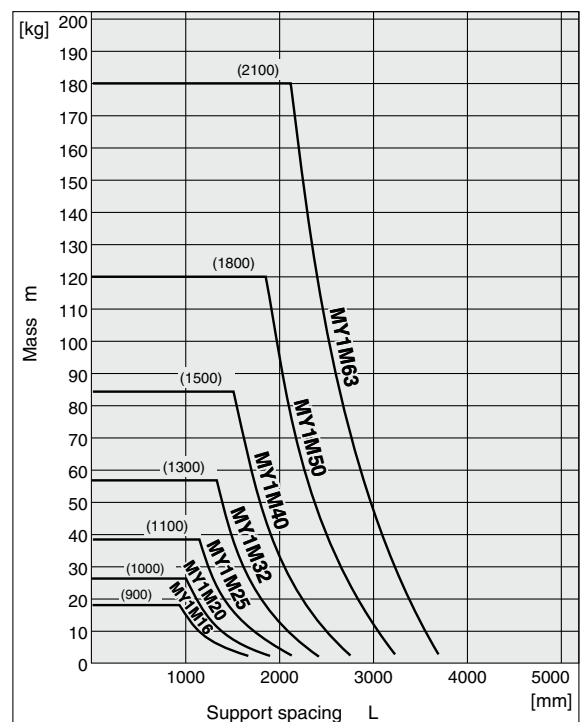
## Guide for Side Support Application

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load. In such a case, use a side support in the middle section. The spacing (L) of the support must be no more than the values shown in the graph on the right.



### ⚠ Caution

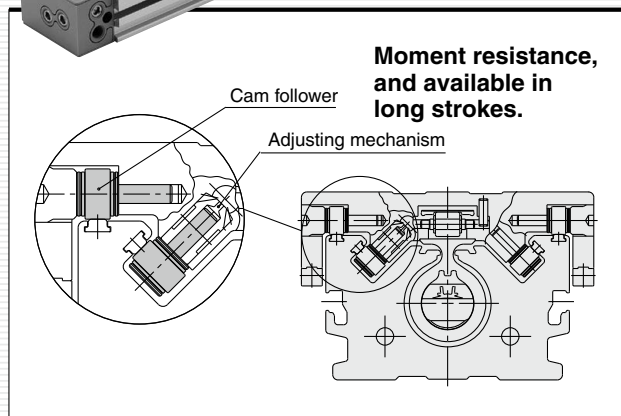
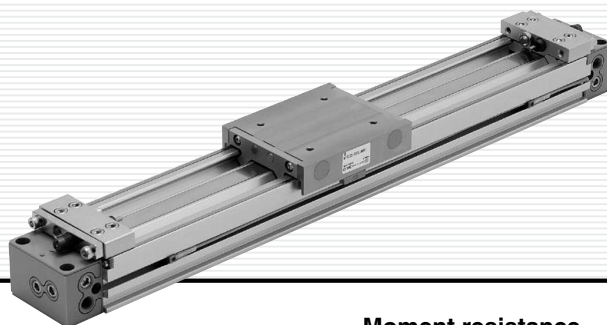
1. If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting it. Also, for long stroke operation involving vibration and impact, the use of a side support is recommended even if the spacing value is within the allowable limits shown in the graph.
2. Support brackets are not for mounting; use them solely for providing support.



# MY1C Series

**Cam Follower Guide Type**

ø16, ø20, ø25, ø32, ø40, ø50, ø63



## INDEX

Prior to Use.....	p. 57
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How to Order .....	p. 61
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Cushion Capacity.....	p. 64
Construction.....	p. 65
Dimensions.....	p. 67
Accessory Brackets (Option).....	p. 70
Side Supports .....	p. 71

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1C Series

## Prior to Use

### Maximum Allowable Moment/Maximum Load Mass

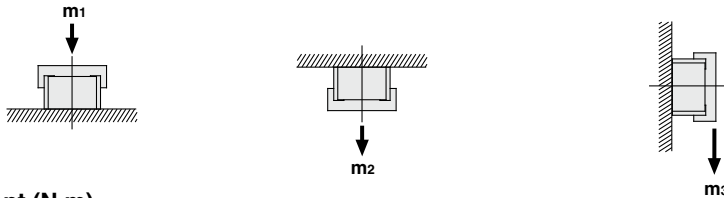
Model	Bore size [mm]	Maximum allowable moment [N·m]			Maximum load mass [kg]		
		M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>
MY1C	16	6.0	3.0	2.0	18	7	2.1
	20	10	5.0	3.0	25	10	3
	25	15	8.5	5.0	35	14	4.2
	32	30	14	10	49	21	6
	40	60	23	20	68	30	8.2
	50	115	35	35	93	42	11.5
	63	150	50	50	130	60	16

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

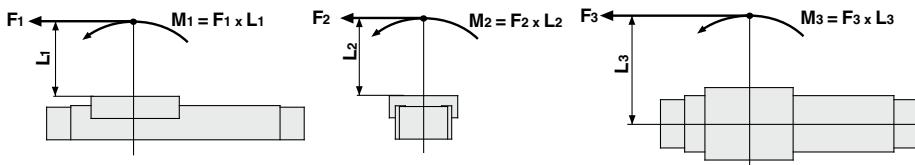
#### ⚠ Caution on Design

If the product is operated with a guide load factor which exceeds the standard value, malfunction may occur due to damage to the cam follower. Therefore, be sure to confirm that the guide load factor is 1 or less.

#### 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  $U_a$  (average speed) for (1) and (2), and  $U$  (collision speed  $U = 1.4U_a$ ) 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 ( $M_1, M_2, M_3$ ).

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

\*1 Moment caused by the load, etc., with cylinder in resting condition

\*2 Moment caused by the load equivalent to impact at the stroke end (at the time of impact with stopper)

\* 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 formula [Dynamic moment at the time of impact]

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

- m:** Load mass [kg]
- F:** Load [N]
- F<sub>E</sub>:** Load equivalent to impact (at the time of impact with stopper) [N]
- U<sub>a</sub>:** Average speed [mm/s]
- M:** Static moment [N·m]
- U:** Collision speed [mm/s]
- L<sub>1</sub>:** Distance to the load center of gravity [m]
- M<sub>E</sub>:** Dynamic moment [N·m]
- δ:** Bumper coefficient At collision:  $U = 1.4U_a$   
With rubber bumper = 4/100  
(MY1B10, MY1H10)  
With air cushion = 1/100  
With shock absorber = 1/100
- g:** Gravitational acceleration (9.8 m/s<sup>2</sup>)

$$U = 1.4U_a \text{ (mm/s)} \quad F_E = 1.4U_a \cdot \delta \cdot m \cdot g^{*3}$$

$$\therefore M_E = \frac{1}{3} \cdot F_E \cdot L_1 = 4.57U_a \delta m L_1 \text{ [N·m]}$$

\*3  $1.4U_a \delta$  is a dimensionless coefficient for calculating impact force.

\*4 Average load coefficient ( $= \frac{1}{3}$ ): For averaging the maximum load moment at the time of impact with stopper according to service life calculations

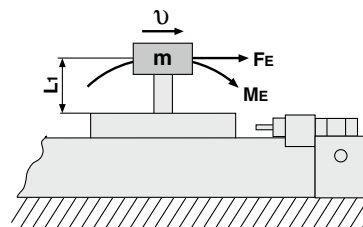
3. For detailed selection procedures, refer to pages 59 and 60.

### Maximum Allowable Moment

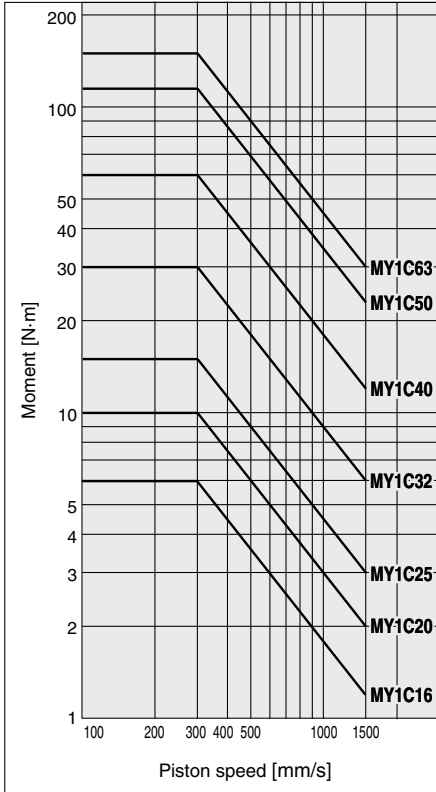
Select the moment from within the range of operating limits shown in the graphs. Note that the maximum load mass value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the load mass for the selected conditions.

### Maximum Load Mass

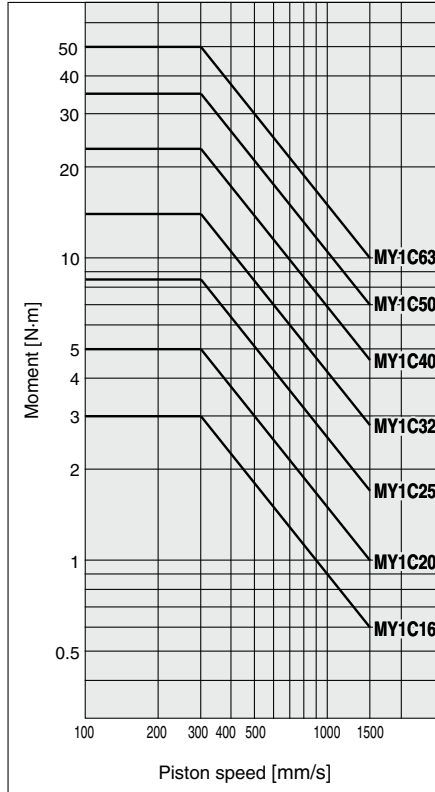
Select the load mass from within the range of limits shown in the graphs. Note that the maximum allowable moment value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable moment for the selected conditions.



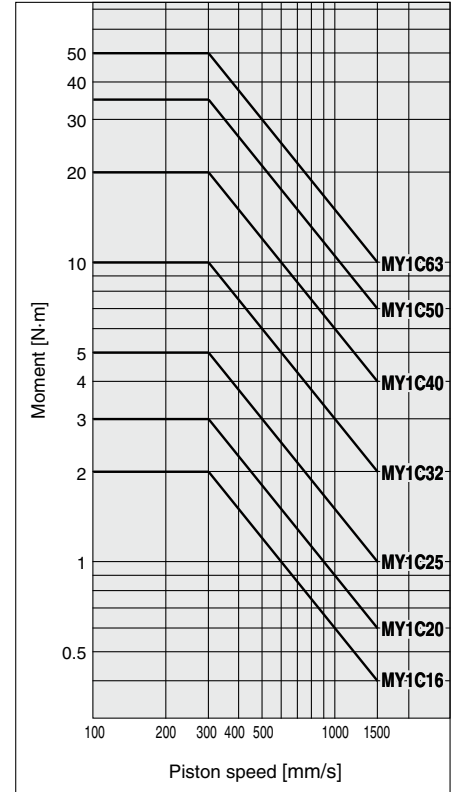
**MY1C/M<sub>1</sub>**



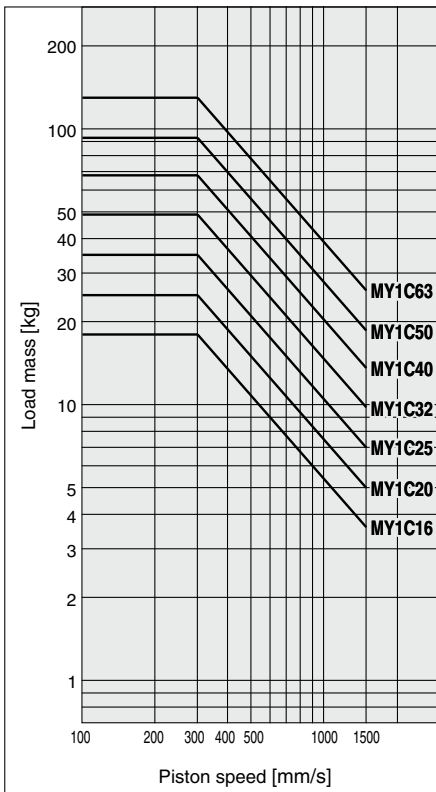
**MY1C/M<sub>2</sub>**



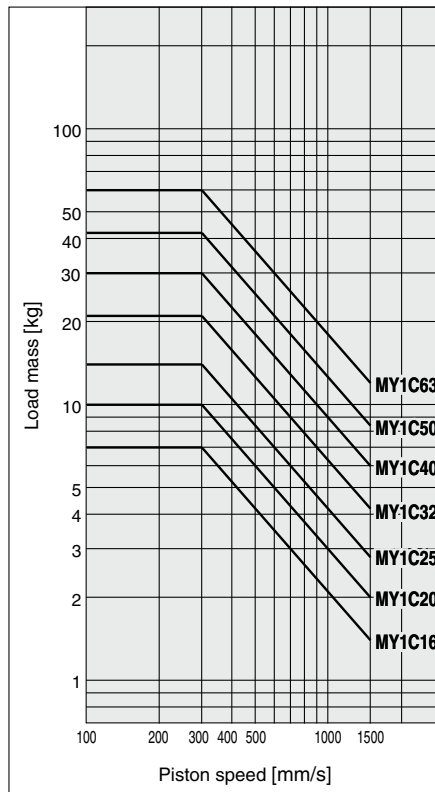
**MY1C/M<sub>3</sub>**



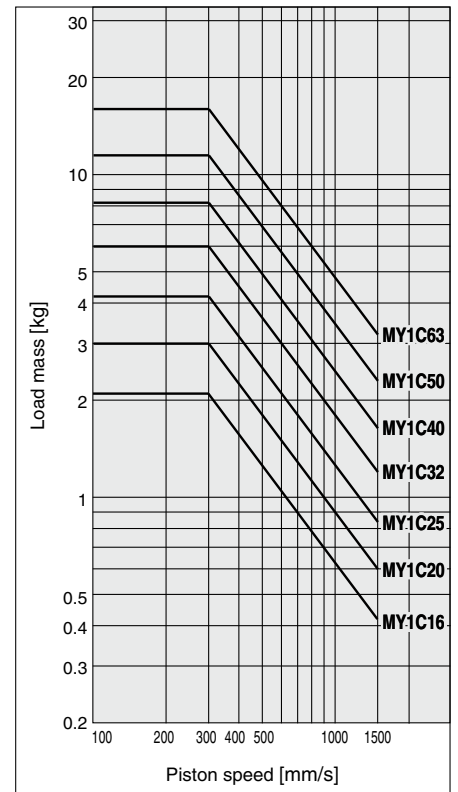
**MY1C/m<sub>1</sub>**



**MY1C/m<sub>2</sub>**



**MY1C/m<sub>3</sub>**



Model Selection

MY1B

MY1M

**MY1C**

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

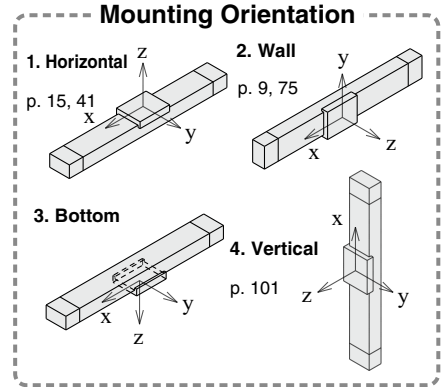
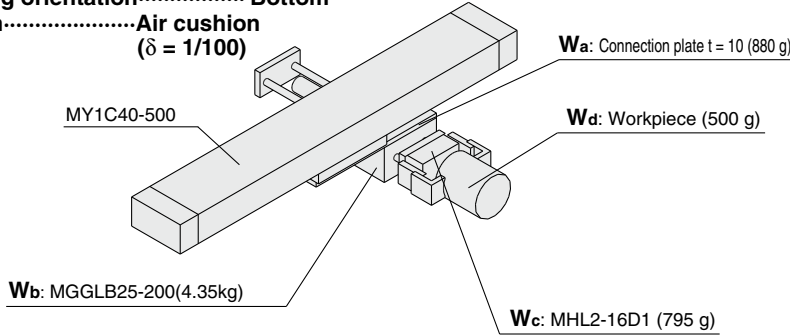
# MY1C Series Model Selection

Following are the steps for selecting the most suitable MY1C series to your application.

## Calculation of Guide Load Factor

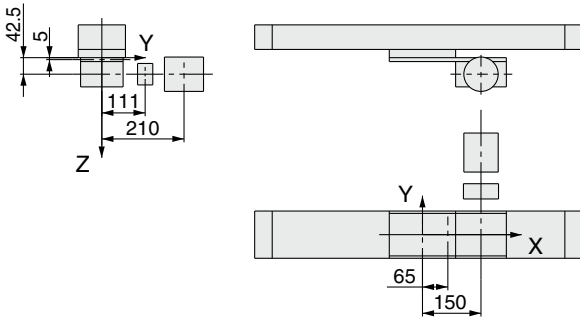
### 1. Operating Conditions

Cylinder..... MY1C40-500  
Average operating speed  $v_a$  ... 300 mm/s  
Mounting orientation..... Bottom  
Cushion..... Air cushion  
( $\delta = 1/100$ )



For actual examples of calculation for each orientation, refer to the pages above.

### 2. Load Blocking



#### Mass and Center of Gravity for Each Workpiece

Workpiece no. $W_n$	Mass $m_n$	Center of gravity		
		X-axis $X_n$	Y-axis $Y_n$	Z-axis $Z_n$
<b>Wa</b>	0.88 kg	65 mm	0 mm	5 mm
<b>Wb</b>	4.35 kg	150 mm	0 mm	42.5 mm
<b>Wc</b>	0.795 kg	150 mm	111 mm	42.5 mm
<b>Wd</b>	0.5 kg	150 mm	210 mm	42.5 mm

$n = a, b, c, d$

### 3. Composite Center of Gravity Calculation

$$m_2 = \sum m_n$$

$$= 0.88 + 4.35 + 0.795 + 0.5 = \mathbf{6.525 \text{ kg}}$$

$$X = \frac{1}{m_2} \times \sum (m_n \times x_n)$$

$$= \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = \mathbf{138.5 \text{ mm}}$$

$$Y = \frac{1}{m_2} \times \sum (m_n \times y_n)$$

$$= \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = \mathbf{29.6 \text{ mm}}$$

$$Z = \frac{1}{m_2} \times \sum (m_n \times z_n)$$

$$= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = \mathbf{37.4 \text{ mm}}$$

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

$m_2$ : Mass

$$m_2 \text{ max (from ① of graph MY1C}/m_2) = 30 \text{ [kg]}$$

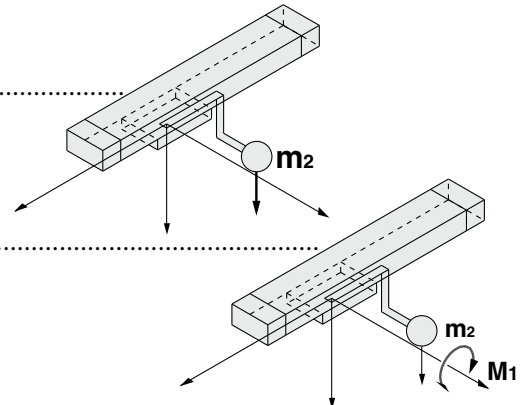
$$\text{Load factor } \alpha_1 = m_2/m_2 \text{ max} = 6.525/30 = \mathbf{0.22}$$

$M_1$ : Moment

$$M_1 \text{ max (from ② of graph MY1C}/M_1) = 60 \text{ [N}\cdot\text{m]}$$

$$M_1 = m_2 \times g \times X = 6.525 \times 9.8 \times 138.5 \times 10^{-3} = 8.86 \text{ [N}\cdot\text{m]}$$

$$\text{Load factor } \alpha_2 = M_1/M_1 \text{ max} = 8.86/60 = \mathbf{0.15}$$

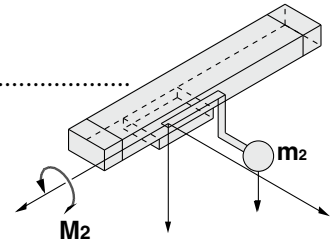


**M<sub>2</sub>**: Moment

**M<sub>2</sub> max** (from ③ of graph MY1C/M<sub>2</sub>) = 23.0 [N·m].....

**M<sub>2</sub>** = m<sub>2</sub> × g × Y = 6.525 × 9.8 × 29.6 × 10<sup>-3</sup> = 1.89 [N·m]

Load factor **α<sub>3</sub>** = M<sub>2</sub>/M<sub>2</sub> max = 1.89/23.0 = **0.08**



**5. Calculation of Load Factor for Dynamic Moment**

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

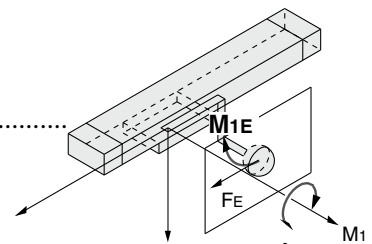
**F<sub>E</sub>** = 1.4Va × δ × m × g = 1.4 × 300 ×  $\frac{1}{100}$  × 6.525 × 9.8 = 268.6 [N]

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

**M<sub>1E</sub> max** (from ④ of graph MY1C/M<sub>1</sub> where 1.4Va = 420 mm/s) = 42.9 [N·m].....

**M<sub>1E</sub>** =  $\frac{1}{3}$  × F<sub>E</sub> × Z =  $\frac{1}{3}$  × 268.6 × 37.4 × 10<sup>-3</sup> = 3.35 [N·m]

Load factor **α<sub>4</sub>** = M<sub>1E</sub>/M<sub>1E</sub> max = 3.35/42.9 = **0.08**

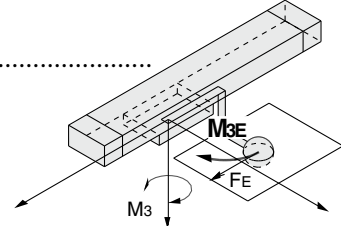


**M<sub>3E</sub>**: Moment

**M<sub>3E</sub> max** (from ⑤ of graph MY1C/M<sub>3</sub> where 1.4Va = 420 mm/s) = 14.3 [N·m].....

**M<sub>3E</sub>** =  $\frac{1}{3}$  × F<sub>E</sub> × Y =  $\frac{1}{3}$  × 268.6 × 29.6 × 10<sup>-3</sup> = 2.65 [N·m]

Load factor **α<sub>5</sub>** = M<sub>3E</sub>/M<sub>3E</sub> max = 2.65/14.3 = **0.19**



**6. Sum and Examination of Guide Load Factors**

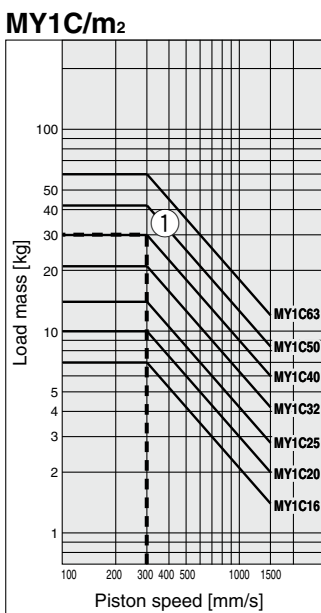
$\Sigma\alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 = 0.72 \leq 1$

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

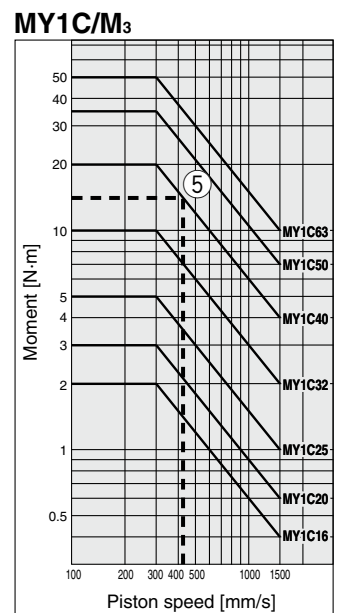
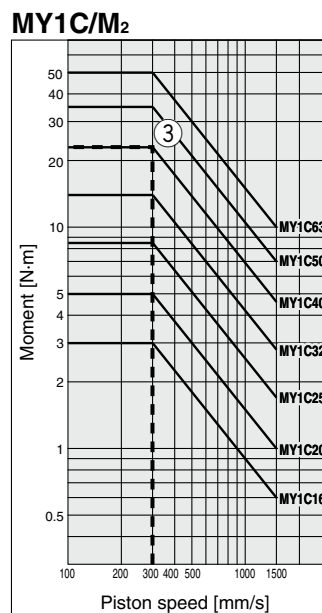
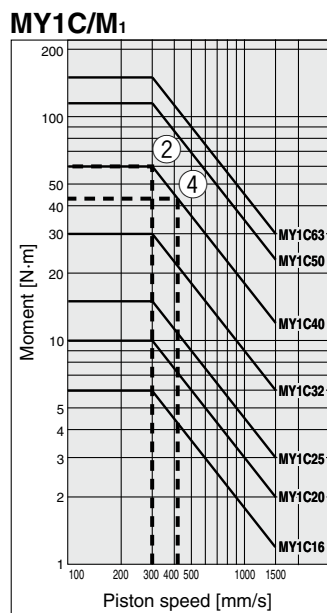
Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors  $\Sigma\alpha$  in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the “Guide Cylinder Selection Software” on the SMC website.

**Load Mass**



**Allowable Moment**



Model Selection

MY1B

MY1M

**MY1C**

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# Mechanically Jointed Rodless Cylinder Cam Follower Guide Type

## MY1C Series

∅16, ∅20, ∅25, ∅32, ∅40, ∅50, ∅63

### How to Order

Cam follower guide type

MY1C 25 [ ] [ ] - 300 [ ] - M9BW [ ] - [ ]

Cam follower guide type

1 2 3 4 5 6 7 8

#### 1 Bore size

16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

#### 2 Port thread type

Symbol	Type	Bore size
Nil	M thread	∅16, ∅20
	Rc	∅25, ∅32,
TN	NPT	∅40, ∅50,
TF	G	∅63

#### 3 Piping

Nil	Standard type
G	Centralized piping type

#### 4 Cylinder stroke [mm]

Bore size	Standard stroke*1	Long stroke	Maximum manufacturable stroke
16	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000	Strokes of 2001 to 3000 mm (1 mm increments) exceeding the standard stroke	3000
20, 25, 32, 40, 50, 63	*1 The stroke can be manufactured in 1 mm increments from 1 mm stroke.	Strokes of 2001 to 5000 mm (1 mm increments) exceeding the standard stroke	5000

Ordering example

\* Long stroke can be ordered the same as the standard stroke. MY1C20-3000L-M9BW

\* Please be advised that with a stroke of 49 mm or less, there are cases where auto switch mounting is not possible, and the performance of the air cushion may decline.

#### 5 Stroke adjustment unit symbol

For stroke adjustment units, refer to page 62.

#### 6 Auto switch

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

Applicable auto switches vary depending on the bore size. Select an applicable one referring to the table below.

#### 7 Number of auto switches

Nil	2
S	1
n	n

#### 8 Made to Order Common Specifications

Refer to page 62 for details.

**Applicable Auto Switches**/Refer to the **Web Catalog** 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)		
							∅16, ∅20	∅25 to ∅63	∅16, ∅20	∅25 to ∅63						
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC	
				3-wire (PNP)			M9PV	M9P	●	●	●	○	○			
				2-wire	M9BV		M9B	●	●	●	○	○				
	3-wire (NPN)			24 V	5 V, 12 V		M9NWW	M9NW	●	●	●	○	○	IC circuit		
	3-wire (PNP)				5 V, 12 V		M9PWW	M9PW	●	●	●	○	○			
	2-wire			12 V	M9BWW		M9BW	●	●	●	○	○	—			
	Water resistant (2-color indicator)	Grommet	No	3-wire (NPN)	5 V, 12 V	M9NAV*1	M9NA*1	○	○	●	○	○	IC circuit			
				3-wire (PNP)		M9PAV*1	M9PA*1	○	○	●	○	○				
				2-wire	12 V	M9BAV*1	M9BA*1	○	○	●	○	○	—			
Reed auto switch	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	A96V	—	A96	Z76	●	—	●	—	IC circuit	—	
			2-wire	24 V	12 V	100 V	A93V*2	—	A93	Z73	●	●	●	●	—	—
						100 V or less	A90V	—	A90	Z80	●	—	●	—	—	IC circuit

\*1 Water-resistant type auto switches can be mounted on the above models, but SMC cannot guarantee water resistance. Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* For details on auto switch mounting brackets and part numbers, refer to page 112.

\* 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 "O" are produced upon receipt of order.

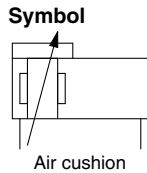
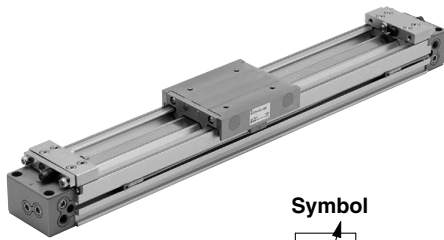
\* Auto switch mounting brackets (BMG2-012) are separately required to retrofit auto switches (M9 type) on ∅25 to ∅63 cylinders.

\* Since there are applicable auto switches other than those listed above, refer to page 112 for details.

\* Auto switches are shipped together with the product but do not come assembled. (Refer to page 109 for the details of auto switch mounting.)



# Mechanically Jointed Rodless Cylinder Cam Follower Guide Type **MY1C Series**



**Made to Order Common Specifications**  
(For details, refer to page 114.)

Symbol	Specifications
-XB22*1	Shock absorber soft type RJ series mounted
-XC56	With knock pin hole
-XC67	NBR rubber lining in dust seal band
-X168	Helical insert thread specifications

\*1 Excludes ø50 and ø63 for the -XB22

## Specifications

Bore size [mm]	16	20	25	32	40	50	63
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 temperatures	5 to 60°C						
Cushion	Air cushion						
Lubrication	Non-lube						
Stroke length tolerance	1000 or less $^{+1.8}_0$ 1001 to 3000 $^{+2.8}_0$		2700 or less $^{+1.8}_0$ , 2701 to 5000 $^{+2.8}_0$				
Piping port size	Front/Side port	M5 x 0.8		1/8	1/4	3/8	
	Bottom port	ø4		ø6	ø8	ø10	

## Piston Speed

Bore size [mm]		16 to 63
Without stroke adjustment unit		100 to 1000 mm/s
Stroke adjustment unit	A unit	100 to 1000 mm/s*1
	L unit and H unit	100 to 1500 mm/s*2

\*1 Be aware that when the stroke adjustment range is increased with the adjustment bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 64, the piston speed should be 100 to 200 mm/s.

\*2 The piston speed is 100 to 1000 mm/s for centralized piping.

\* Use at a speed within the absorption capacity range. Refer to page 64.

\* Due to the construction of this product, it may have more fluctuation in operating speed compared to a rod type air cylinder. For applications that require constant speed, select the equipment corresponding to the required level.

## Stroke Adjustment Unit Specifications

Bore size [mm]		16		20			25			32			40			50			63		
Unit symbol		A	L	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H
Configuration Shock absorber model	Without spacer	With adjustment bolt	RB 0806 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt	With adjustment bolt	RB 1007 + with adjustment bolt	RB 1412 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 2015 + with adjustment bolt	RB 2725 + with adjustment bolt	With adjustment bolt	RB 2015 + with adjustment bolt	RB 2725 + with adjustment bolt
	With short spacer	-5.6 to -11.2	-6 to -12	-11.5 to -23	-12 to -24	-16 to -32	-20 to -40	-25 to -50													
	With long spacer	-11.2 to -16.8	-12 to -18	-23 to -34.5	-24 to -36	-32 to -48	-40 to -60	-50 to -75													
Stroke adjustment range by intermediate fixing spacer [mm]	Without spacer	0 to -5.6	0 to -6	0 to -11.5	0 to -12	0 to -16	0 to -20	0 to -25													

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

## Stroke Adjustment Unit Symbol

		Right side stroke adjustment unit											
		Without unit	A: With adjustment bolt		L: With low load shock absorber + Adjustment bolt		H: With high load shock absorber + Adjustment bolt		Without unit		Without unit		
Left side stroke adjustment unit	Without unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7		
	A: With adjustment bolt	AS	A	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7		
With short spacer		A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7		
With long spacer		A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7		
L: With low load shock absorber + Adjustment bolt	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7			
	With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7		
	With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7		
H: With high load shock absorber + Adjustment bolt	HS	HA	HA6	HA7	HL	HL6	HL7	H	HH6	HH7			
	With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7		
	With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7		

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

For details on spacers and stroke adjustment units, refer to "Accessory Brackets (Option)" on page 70.

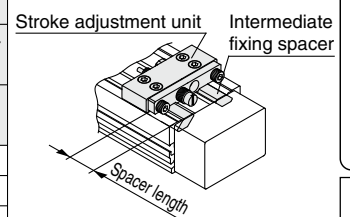
\* For precautions, refer to page 121.

## Accessory Brackets (Option)

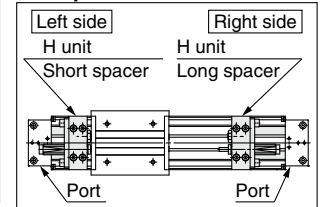
Stroke adjustment unit	p. 70
Side support	p. 71

Refer to pages 109 to 112 for the specifications with auto switch.

## Stroke adjustment unit mounting diagram



## Example of H6H7 attachment



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1C Series

## Shock Absorbers for L and H Units

Type	Stroke adjustment unit	Bore size [mm]						
		16	20	25	32	40	50	63
Standard (Shock absorber/RB series)	L	RB0806		RB1007	RB1412		RB2015	
	H	—	RB1007	RB1412	RB2015		RB2725	
Shock absorber/soft type RJ series mounted (-XB22)	L	RJ0806H		RJ1007H	RJ1412H		—	—
	H	—	RJ1007H	RJ1412H	—	—	—	—

- \* The shock absorber service life is different from that of the MY1C cylinder depending on operating conditions. Refer to the RB/RJ Series Specific Product Precautions for the replacement period.
- \* Shock absorber soft type RJ series mounted (-XB22) is made-to-order common specifications. For details, refer to page 115.

## Shock Absorber Specifications

Model	RB 0806	RB 1007	RB 1412	RB 2015	RB 2725	
Max. absorbed energy [J]	2.9	5.9	19.6	58.8	147	
Stroke absorption [mm]	6	7	12	15	25	
Max. collision speed [mm/s]	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 MY1C cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

## 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
20	314	62	94	125	157	188	219	251
25	490	98	147	196	245	294	343	392
32	804	161	241	322	402	483	563	643
40	1256	251	377	502	628	754	879	1005
50	1962	392	588	784	981	1177	1373	1569
63	3115	623	934	1246	1557	1869	2180	2492

- \* Theoretical output [N] = Pressure [MPa] x Piston area [mm<sup>2</sup>]

## Weight

Bore size [mm]	Basic weight	Additional weight per each 50 mm of stroke	Weight of moving parts	Side support bracket weight (per set) Type A and B	Stroke adjustment unit weight (per unit)		
					A unit weight	L unit weight	H unit weight
16	0.67	0.12	0.22	0.01	0.03	0.04	—
20	1.06	0.15	0.31	0.02	0.04	0.05	0.08
25	1.58	0.24	0.41	0.02	0.07	0.11	0.18
32	3.14	0.37	0.86	0.04	0.14	0.23	0.39
40	5.60	0.52	1.49	0.08	0.25	0.34	0.48
50	10.14	0.76	2.59	0.08	0.36	0.51	0.81
63	16.67	1.10	4.26	0.17	0.68	0.83	1.08

Calculation: (Example) **MY1C25-300A**

- Basic weight..... 1.58 kg
- Cylinder stroke ..... 300 mm stroke
- Additional weight..... 0.24/50 mm stroke  
1.58 + 0.24 x 300/50 + 0.07 x 2 ≈ 3.16 kg
- Weight of A unit..... 0.07 kg

## Precautions

For details on the MY1C Series Mechanically Jointed Rodless Cylinder, refer to “Specific Product Precautions” on pages 119 to 122.

## Cushion Capacity

### Cushion Selection

#### <Air cushion>

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

The air cushion mechanism is incorporated to prevent excessive impact of the piston with high kinetic energy at the stroke end. The purpose of air cushion, thus, is not 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 and speed exceeding the air cushion limit line, or when cushioning is required outside of the effective air cushion stroke range due to stroke adjustment.

#### L unit

Use this unit when cushioning is required 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.

\* For details on stroke adjustment using the adjustment bolt, refer to page 121.

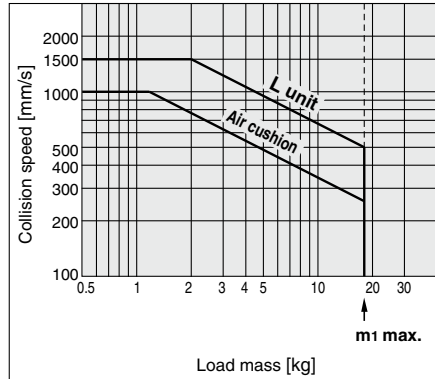
### Air Cushion Stroke

[mm]

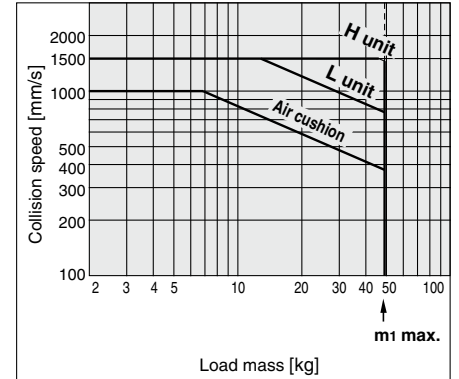
Bore size [mm]	Cushion stroke
16	12
20	15
25	15
32	19
40	24
50	30
63	37

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

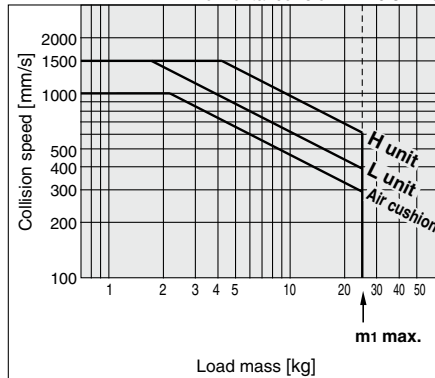
**MY1C16** Horizontal collision: P = 0.5 MPa



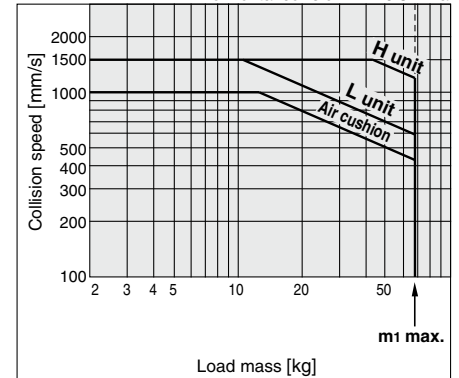
**MY1C32** Horizontal collision: P = 0.5 MPa



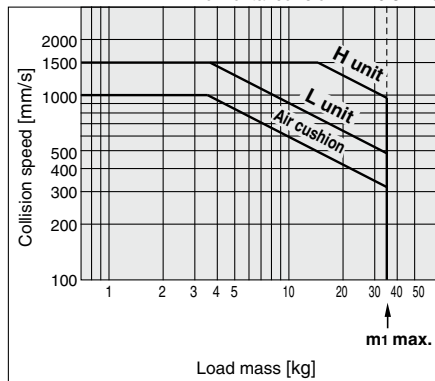
**MY1C20** Horizontal collision: P = 0.5 MPa



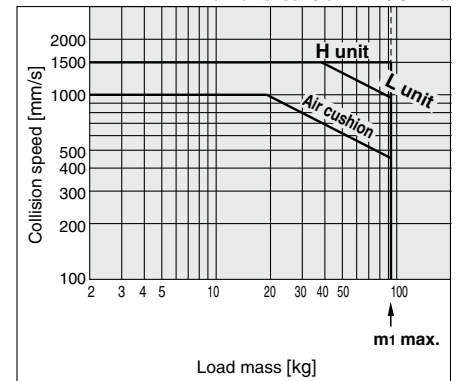
**MY1C40** Horizontal collision: P = 0.5 MPa



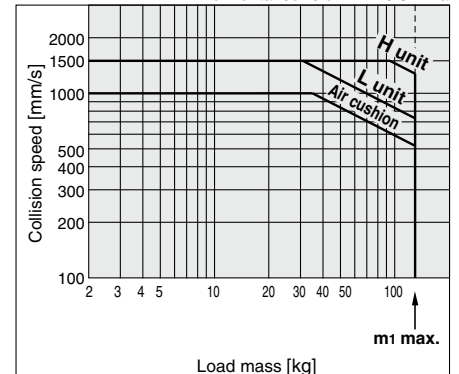
**MY1C25** Horizontal collision: P = 0.5 MPa



**MY1C50** Horizontal collision: P = 0.5 MPa



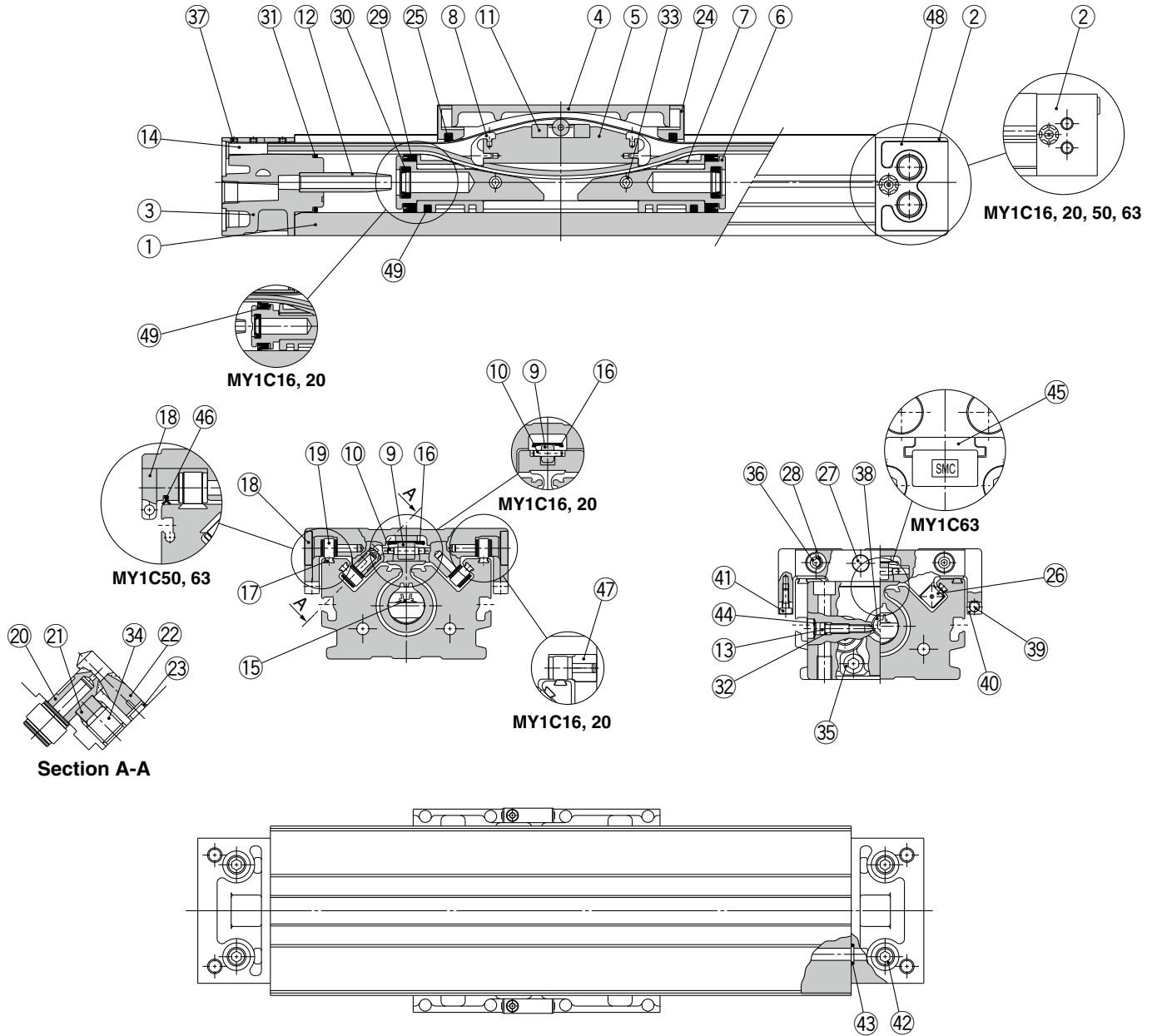
**MY1C63** Horizontal collision: P = 0.5 MPa



# MY1C Series

**Construction:  $\varnothing 16$  to  $\varnothing 63$**

**MY1C16 to 63**



## MY1C16 to 63

### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Slide table	Aluminum alloy	Electroless nickel plating
5	Piston yoke	Aluminum alloy	Chromated
6	Piston	Aluminum alloy	Chromated
7	Wear ring	Special resin	
8	Belt separator	Special resin	
9	Guide roller	Special resin	
10	Guide roller shaft	Stainless steel	
11	Coupler	Sintered iron material	
12	Cushion ring	Aluminum alloy	Anodized
13	Cushion needle	Rolled steel	Nickel plating
14	Belt clamp	Special resin	
17	Rail	Hard steel wire	
18	Cam follower cap	Special resin	( $\phi 25$ to $\phi 40$ )
19	Cam follower	—	
20	Eccentric gear	Stainless steel	
21	Gear bracket	Stainless steel	
22	Adjustment gear	Stainless steel	
23	Retaining ring	Stainless steel	

No.	Description	Material	Note
24	End cover	Special resin	
26	Backup plate	Special resin	
27	Stopper	Carbon steel	Nickel plating
28	Spacer	Stainless steel	
33	Spring pin	Carbon tool steel	
34	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated
35	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
36	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
37	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/Chromated
38	Hexagon socket head taper plug	Carbon steel	Chromated
39	Magnet		
40	Magnet holder	Special resin	
41	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
42	Hexagon socket head taper plug	Carbon steel	Chromated
44	Type CR retaining ring	Spring steel	
45	Head plate	Aluminum alloy	Hard anodized ( $\phi 63$ )
46	Side scraper	Special resin	( $\phi 50$ to $\phi 63$ )
47	Bushing	Aluminum alloy	( $\phi 16$ to $\phi 20$ )
48	Port cover	Special resin	( $\phi 25$ to $\phi 40$ )
49	Lube-retainer	Special resin	

### Replacement Parts/Seal Kit

No.	Description	Qty.	MY1C16	MY1C20	MY1C25	MY1C32	MY1C40	MY1C50	MY1C63
15	Seal belt	1	MY16-16C- Stroke	MY20-16C- Stroke	MY25-16C- Stroke	MY32-16C- Stroke	MY40-16C- Stroke	MY50-16C- Stroke	MY63-16A- Stroke
16	Dust seal band	1	MY16-16B- Stroke	MY20-16B- Stroke	MY25-16B- Stroke	MY32-16B- Stroke	MY40-16B- Stroke	MY50-16B- Stroke	MY63-16B- Stroke
32	O-ring	2	KA00309 ( $\phi 4 \times \phi 1.8 \times \phi 1.1$ )	KA00311 ( $\phi 5.1 \times \phi 3 \times \phi 1.05$ )	KA00311 ( $\phi 5.1 \times \phi 3 \times \phi 1.05$ )	KA00320 ( $\phi 7.15 \times \phi 3.75 \times \phi 1.7$ )	KA00402 ( $\phi 8.3 \times \phi 4.5 \times \phi 1.9$ )	KA00777 —	KA00777 —
46	Side scraper	2	—	—	—	—	—	MYM50-15CK0502B	MYM63-15CK0503B
25	Scraper	2							
29	Piston seal	2							
30	Cushion seal	2	MY1M16-PS	MY1M20-PS	MY1M25-PS	MY1M32-PS	MY1M40-PS	MY1M50-PS	MY1M63-PS
31	Tube gasket	2							
43	O-ring	4							

\* Seal kit includes 25, 29, 30, 31, and 43. Order the seal kit based on each bore size.

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

When 15 and 16 are shipped independently, a grease pack is included. (10 g per 1000 mm stroke)

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)

\* Two types of dust seal bands are available. Since the part number varies depending on the treatment of the hexagon socket head set screw 37, please check a proper dust seal band carefully.

A: Black zinc chromated → MY□□-16B-stroke, B: Chromated → MY□□-16BW-stroke

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

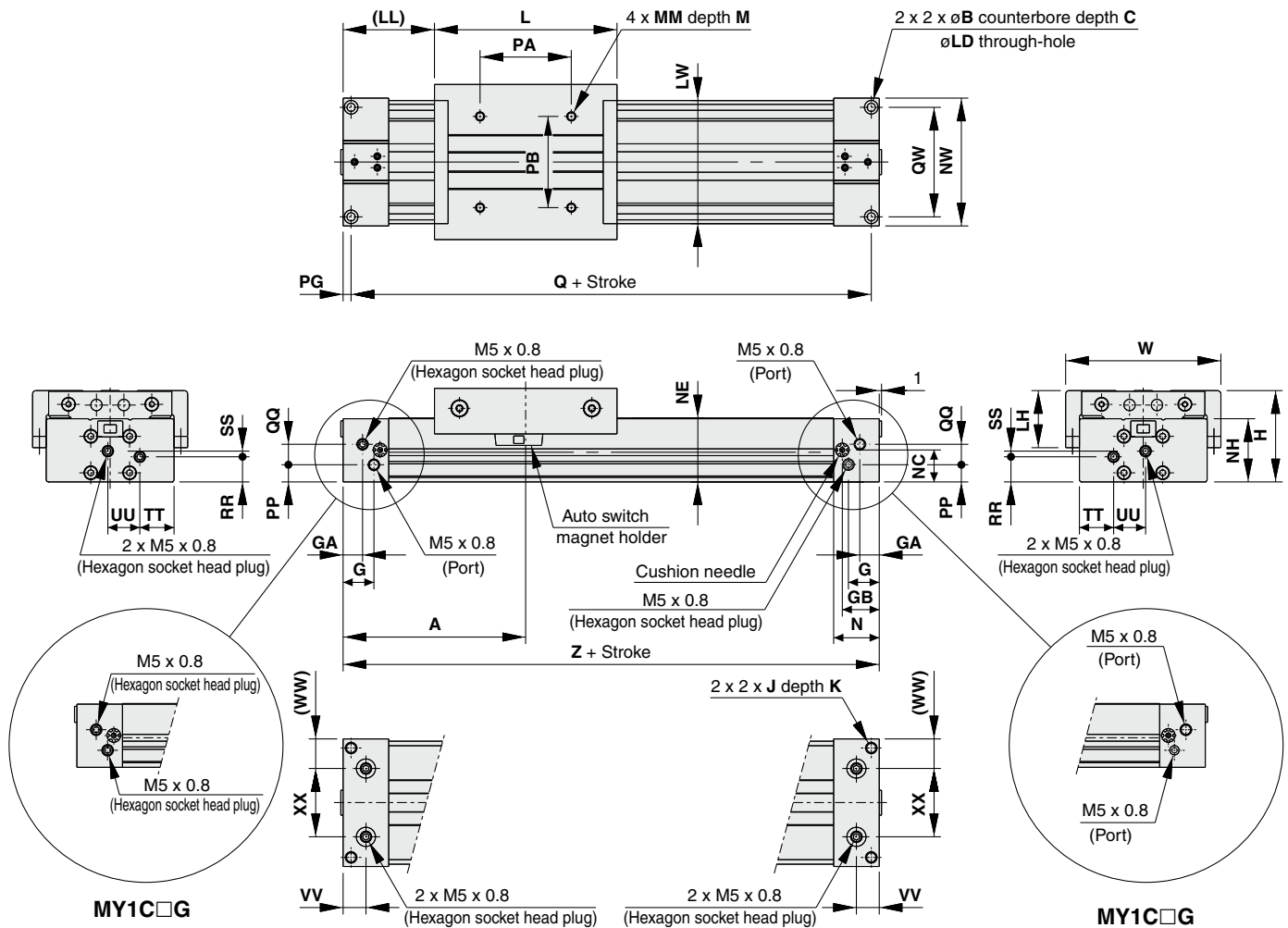
Specific Product Precautions

# MY1C Series

The stroke adjustment unit for the MY1C is the same as that of the MY1M. For external dimensions, refer to pages 52 and 53.

## Standard Type/Centralized Piping Type $\phi 16, \phi 20$

### MY1C16□/20□ — Stroke



Model	A	B	C	G	GA	GB	H	J	K	L	LD	LH	LL	LW	M	MM	N	NC
MY1C16□	80	6	3.5	13.5	8.5	16.2	40	M5 x 0.8	10	80	3.6	22.5	40	54	6	M4 x 0.7	20	14
MY1C20□	100	7.5	4.5	12.5	12.5	20	46	M6 x 1	12	100	4.8	23	50	58	7.5	M5 x 0.8	25	17

Model	NE	NH	NW	PA	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	W	WW	XX	Z
MY1C16□	28	27.7	56	40	40	3.5	7.5	153	9	48	11	2.5	15	14	10	68	13	30	160
MY1C20□	34	33.7	60	50	40	4.5	11.5	191	10	45	14.5	5	18	12	12.5	72	14	32	200

### Centralized Piping on the Bottom

**Centralized piping**

**Bottom ported (Applicable O-ring)**

**Port Variations**

Slide table operating direction  
◀ L R ▶

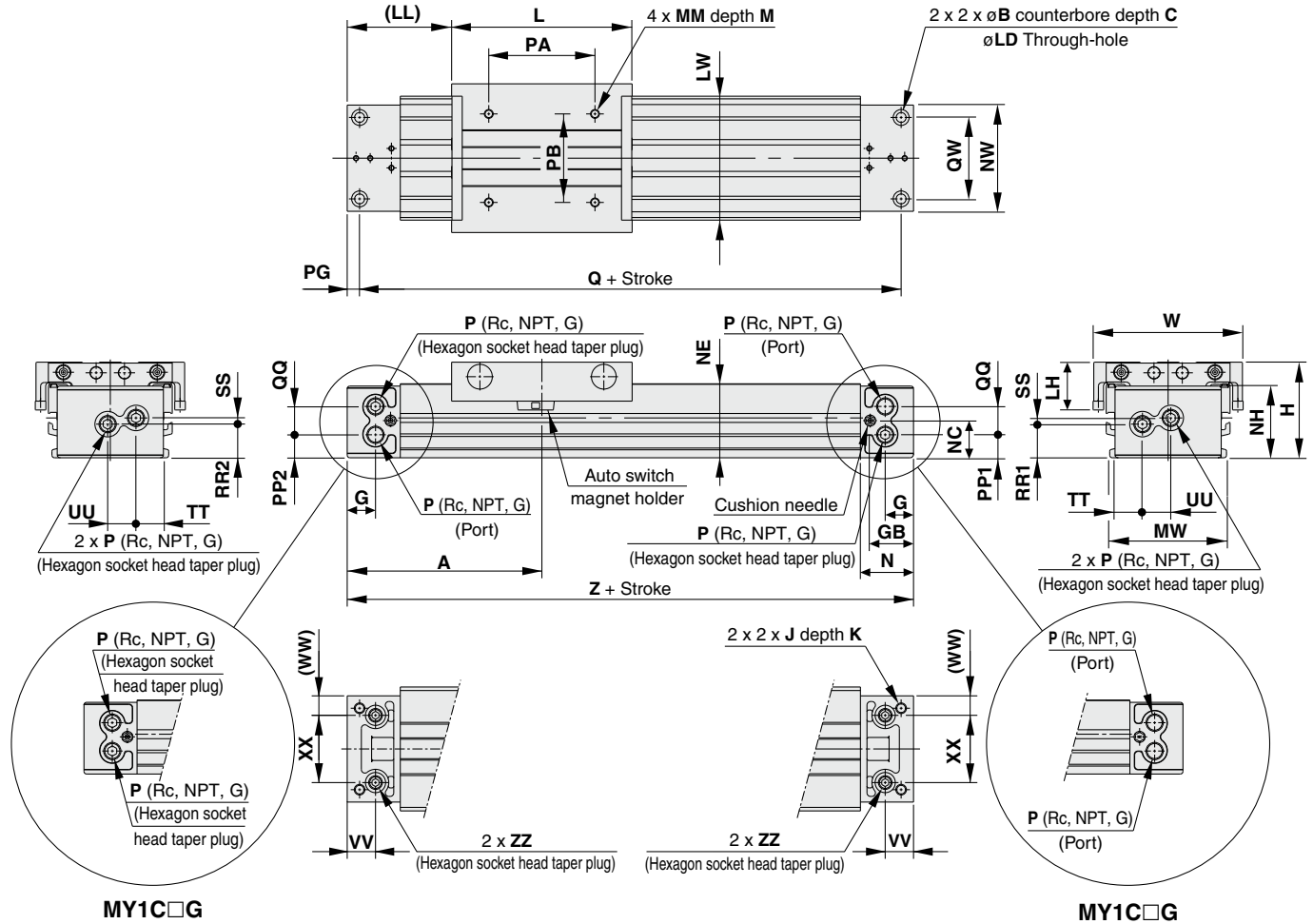
Model	WX	Y	S	d	D	R	Applicable O-ring
MY1C16□	30	6.5	9	4	8.4	1.1	C6
MY1C20□	32	8	6.5	4	8.4	1.1	

# Mechanically Jointed Rodless Cylinder Cam Follower Guide Type **MY1C Series**

The stroke adjustment unit for the MY1C is the same as that of the MY1M. For external dimensions, refer to pages 52 and 53.

## Standard Type/Centralized Piping Type $\phi 25, \phi 32, \phi 40$

MY1C25□/32□/40□ — **Stroke**



MY1C□G

MY1C□G

Model	A	B	C	G	GB	H	J	K	L	LD	LH	LL	LW	M	MM	MW	N	NC	NE	NH	NW	P	PA
MY1C25□	110	9	5.5	17	24.5	54	M6 x 1	9.5	102	5.6	27	59	70	10	M5 x 0.8	66	30	21	41.8	40.5	60	1/8	60
MY1C32□	140	11	6.5	19	30	68	M8 x 1.25	16	132	6.8	35	74	88	13	M6 x 1	80	37	26	52.3	50	74	1/8	80
MY1C40□	170	14	8.5	23	36.5	84	M10 x 1.5	15	162	8.6	38	89	104	13	M6 x 1	96	45	32	65.3	63.5	94	1/4	100

Model	PB	PG	PP1	PP2	Q	QQ	QW	RR1	RR2	SS	TT	UU	VV	W	WW	XX	Z	ZZ
MY1C25□	50	7	12.7	12.7	206	15.5	46	18.9	17.9	4.1	15.5	16	16	84	11	38	220	Rc1/16
MY1C32□	60	8	15.5	18.5	264	16	60	22	24	4	21	16	19	102	13	48	280	Rc1/16
MY1C40□	80	9	17.5	20	322	26	72	25.5	29	9	26	21	23	118	20	54	340	Rc1/8

"P" indicates cylinder supply ports.

### Centralized Piping on the Bottom

O-ring  
Piping tube  
Centralized piping

2 x ød  
Y  
S  
WX  
Bottom ported (ZZ)  
(Applicable O-ring)

**Port Variations**

Slide table operating direction  
◀ L ▶ R

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1C25□	38	9	4	6	11.4	1.1	C9
MY1C32□	48	11	6	6	11.4	1.1	
MY1C40□	54	14	9	8	13.4	1.1	

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

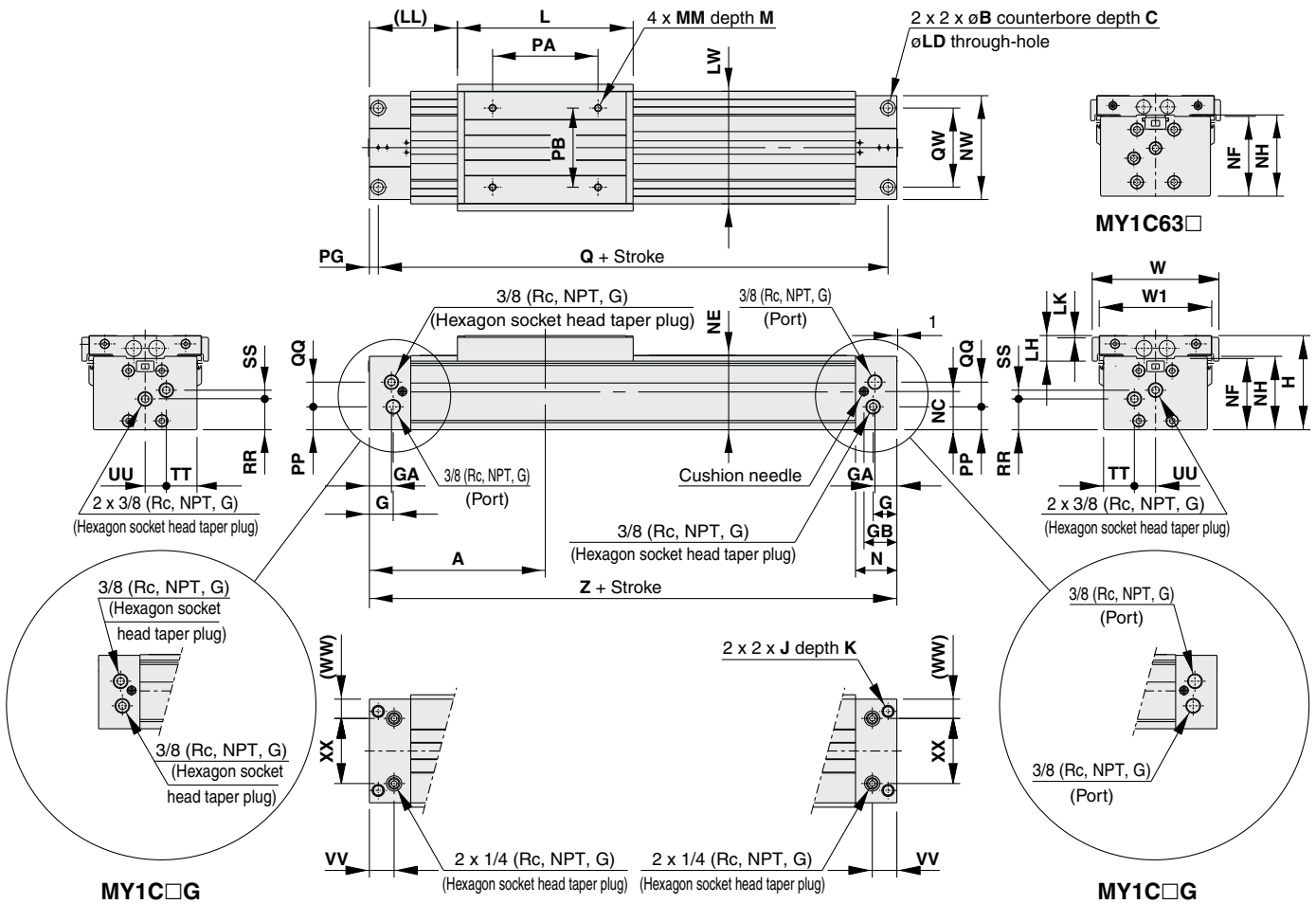


# MY1C Series

The stroke adjustment unit for the MY1C is the same as that of the MY1M. For external dimensions, refer to pages 52 and 53.

## Standard Type/Centralized Piping Type $\phi 50, \phi 63$

MY1C50□/63□ — Stroke



Model	A	B	C	G	GA	GB	H	J	K	L	LD	LH	LK	LL	LW	M	MM	N	NC	NE
MY1C50□	200	17	10.5	27	25	37.5	107	M14 x 2	28	200	11	29	2	100	128	15	M8 x 1.25	47	43.5	84.5
MY1C63□	230	19	12.5	29.5	27.5	39.5	130	M16 x 2	32	230	13.5	32.5	5.5	115	152	16	M10 x 1.5	50	60	104

Model	NF	NH	NW	PA	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	W	W1	WW	XX	Z
MY1C50□	81	83.5	118	120	90	10	26	380	28	90	35	10	35	24	28	144	128	22	74	400
MY1C63□	103	105	142	140	110	12	42	436	30	110	49	13	43	28	30	168	152	25	92	460

### Centralized Piping on the Bottom

**Centralized piping**

**Bottom ported (ZZ)  
(Applicable O-ring)**

**Port Variations**

Slide table operating direction  
◀ L ▶ R

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1C50□	74	18	8	10	17.5	1.1	C15
MY1C63□	92	18	9	10	17.5	1.1	

# MY1C Series Accessory Brackets (Option)

## Stroke Adjustment Units

**MYM-A 25 L2-6N**

Stroke adjustment unit

Bore size

16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

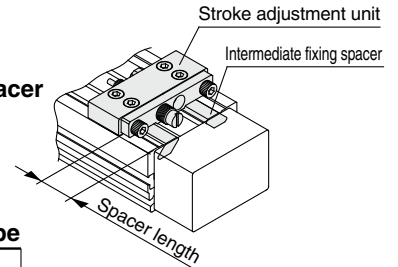
Intermediate fixing spacer

Nil	Without spacer
6	Short spacer
7	Long spacer

Spacer delivery type

Nil	Unit installed
N	Spacer only

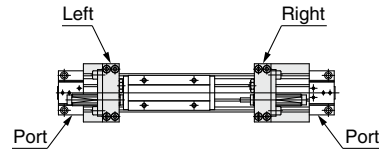
- \* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.
- \* Spacers are shipped for a set of two.



Unit no.

Symbol	Stroke adjustment unit	Mounting position
A1	A unit	Left
A2		Right
L1	L unit	Left
L2		Right
H1	H unit	Left
H2		Right

\* A and L unit only for ø16



## Stroke adjustment range

Bore size	16		20			25			32			40			50			63		
	A	L	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H
Without spacer	0 to -5.6		0 to -6			0 to -11.5			0 to -12			0 to -16			0 to -20			0 to -25		
With short spacer	-5.6 to -11.2		-6 to -12			-11.5 to -23			-12 to -24			-16 to -32			-20 to -40			-25 to -50		
With long spacer	-11.2 to -16.8		-12 to -18			-23 to -34.5			-24 to -36			-32 to -48			-40 to -60			-50 to -75		

## Spacer length

Bore size	16	20	25	32	40	50	63
Short spacer	5.6	6	11.5	12	16	20	25
Long spacer	11.2	12	23	24	32	40	50

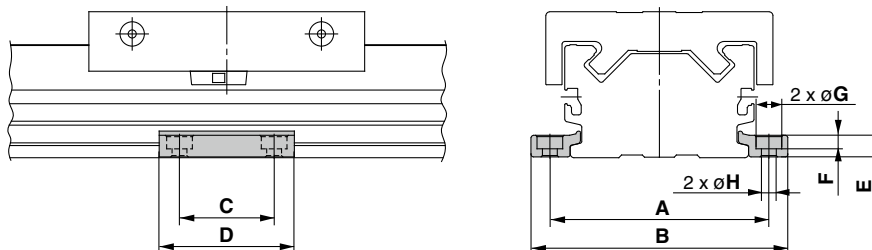
## Component Parts

<p><b>MYM-A25L2</b> (Without spacer)</p>	<p><b>MYM-A25L2-6</b> (With short spacer)</p>	<p><b>MYM-A25L2-7</b> (With long spacer)</p>	<p><b>MYM-A25L2-6N</b> (Short spacer only)</p> <p><b>MYM-A25L2-7N</b> (Long spacer only)</p>
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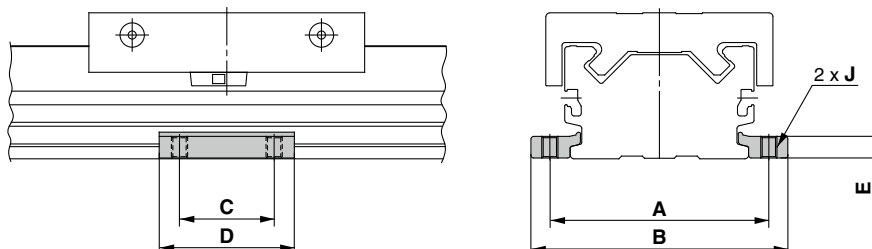
# MY1C Series

## Side Supports

### Side support A MY-S□A



### Side support B MY-S□B

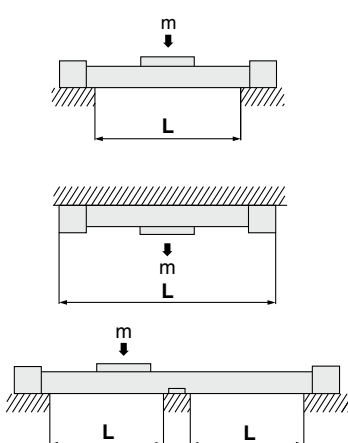


Model	Applicable cylinder	A	B	C	D	E	F	G	H	J
MY-S16 <sup>A</sup> <sub>B</sub>	MY1C16	61	71.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 <sup>A</sup> <sub>B</sub>	MY1C20	67	79.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25 <sup>A</sup> <sub>B</sub>	MY1C25	81	95	35	50	8	5	9.5	5.5	M6 x 1
MY-S32 <sup>A</sup> <sub>B</sub>	MY1C32	100	118	45	64	11.7	6	11	6.6	M8 x 1.25
MY-S40 <sup>A</sup> <sub>B</sub>	MY1C40	120	142	55	80	14.8	8.5	14	9	M10 x 1.5
	MY1C50	142	164							
MY-S63 <sup>A</sup> <sub>B</sub>	MY1C63	172	202	70	100	18.3	10.5	17.5	11.5	M12 x 1.75

\* Side supports consist of a set of right and left brackets.

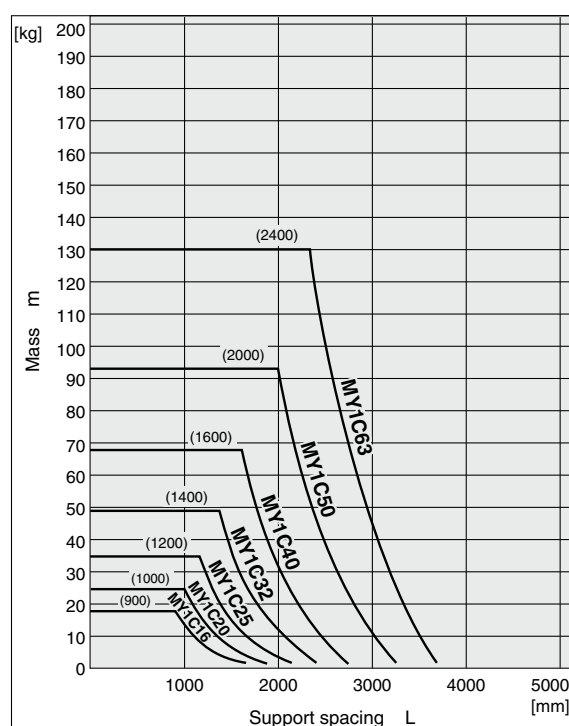
## Guide for Side Support Application

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load. In such a case, use a side support in the middle section. The spacing (L) of the support must be no more than the values shown in the graph on the right.



### ⚠ Caution

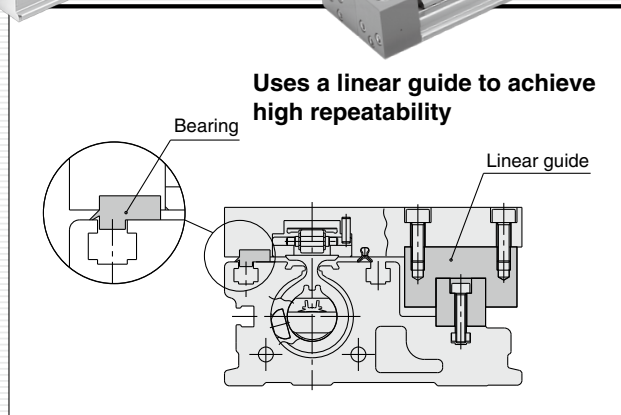
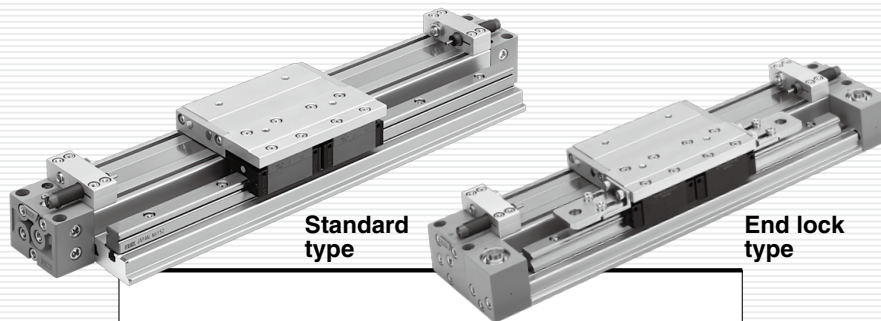
1. If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting it. Also, for long stroke operation involving vibration and impact, the use of a side support is recommended even if the spacing value is within the allowable limits shown in the graph.
2. Support brackets are not for mounting; use them solely for providing support.



# MY1H Series

## Linear Guide Type

ø10, ø16, ø20, ø25, ø32, ø40



## INDEX

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Model Selection .....	p. 75
How to Order .....	p. 77
Specifications .....	p. 78
Cushion Capacity.....	p. 80
Construction.....	p. 82
Dimensions.....	p. 89
Stroke Adjustment Units.....	p. 94
Accessory Brackets (Option).....	p. 96

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1H Series

## Prior to Use

### Maximum Allowable Moment/Maximum Load Mass

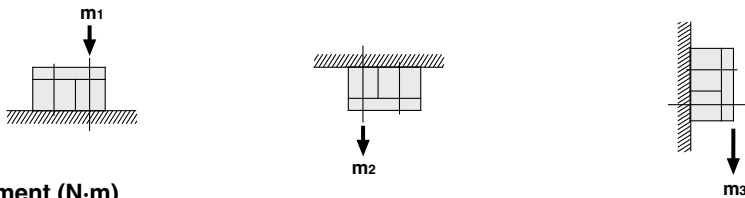
Model	Bore size [mm]	Maximum allowable moment [N·m]			Maximum load mass [kg]		
		M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>
MY1H	10	0.8	1.1	0.8	6.1	6.1	6.1
	16	3.7	4.9	3.7	10.8	10.8	10.8
	20	11	16	11	17.6	17.6	17.6
	25	23	26	23	27.5	27.5	27.5
	32	39	50	39	39.2	39.2	39.2
	40	50	50	39	50	50	50

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

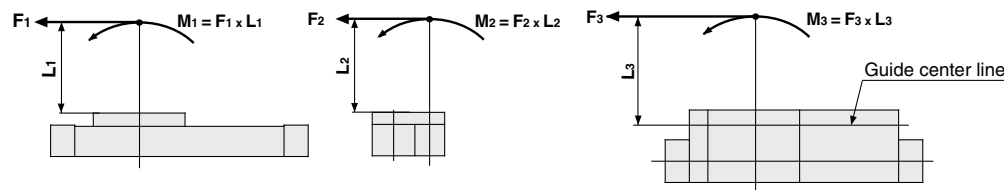
### Caution on Design

If the product is operated with a guide load factor which exceeds the standard value, malfunction may occur due to damage to the guide portion. Therefore, be sure to confirm that the guide load factor is 1 or less.

### 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  $\bar{v}_a$  (average speed) for (1) and (2), and  $v$  (collision speed  $v = 1.4\bar{v}_a$ ) 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 ( $M_1, M_2, M_3$ ).

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

\*1 Moment caused by the load, etc., with cylinder in resting condition

\*2 Moment caused by the load equivalent to impact at the stroke end (at the time of impact with stopper)

\* 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 formula [Dynamic moment at the time of impact]

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

**m:** Load mass [kg]

**F:** Load [N]

**F<sub>E</sub>:** Load equivalent to impact

(at the time of impact with stopper) [N]

**$\bar{v}_a$ :** Average speed [mm/s]

**M:** Static moment [N·m]

$$v = 1.4\bar{v}_a \text{ (mm/s)} \quad F_E = 1.4\bar{v}_a \cdot \delta \cdot m \cdot g$$

$$\therefore M_E = \frac{1}{3} \cdot F_E \cdot L_1 = 4.57\bar{v}_a \delta m L_1 \text{ [N·m]}$$

**v:** Collision speed [mm/s]

**L<sub>1</sub>:** Distance to the load center of gravity [m]

**M<sub>E</sub>:** Dynamic moment [N·m]

**$\delta$ :** Bumper coefficient

With rubber bumper = 4/100

(MY1B10, MY1H10)

With air cushion = 1/100

With shock absorber = 1/100

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

\*3  $1.4\bar{v}_a\delta$  is a dimensionless coefficient for calculating impact force.

\*4 Average load coefficient ( $= \frac{1}{3}$ ): For averaging the maximum load moment at the time of impact with stopper according to service life calculations

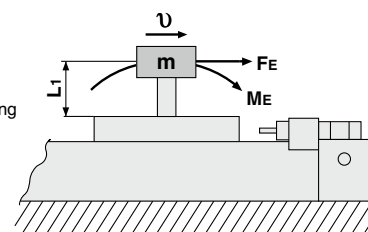
3. For detailed selection procedures, refer to pages 75 and 76.

### Maximum Allowable Moment

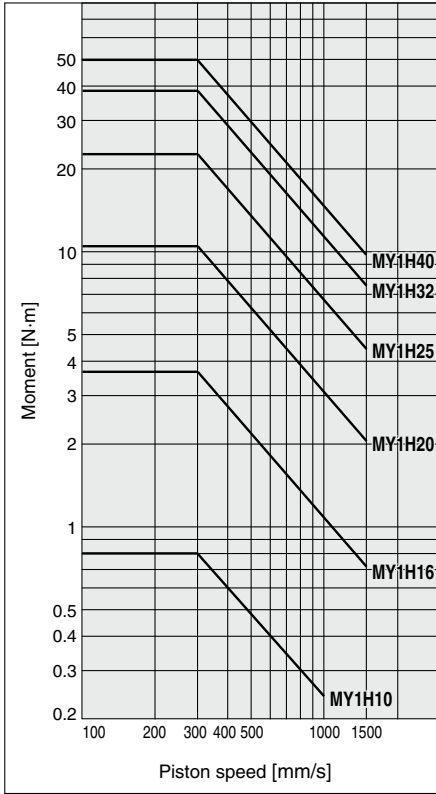
Select the moment from within the range of operating limits shown in the graphs. Note that the maximum load mass value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the load mass for the selected conditions.

### Maximum Load Mass

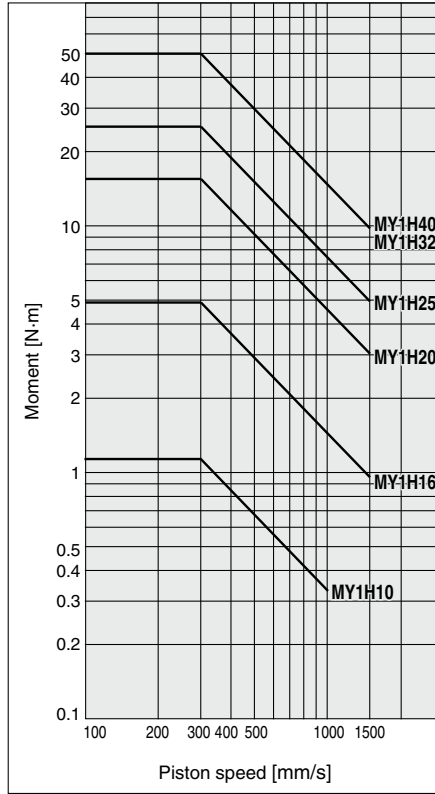
Select the load mass from within the range of limits shown in the graphs. Note that the maximum allowable moment value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable moment for the selected conditions.



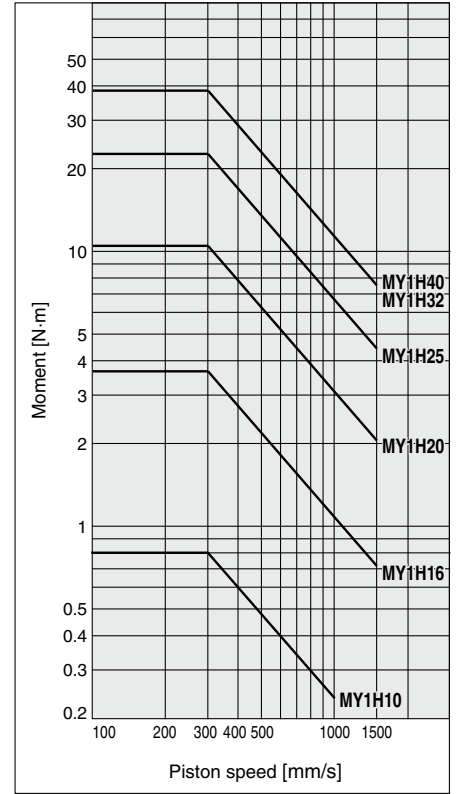
**MY1H/M<sub>1</sub>**



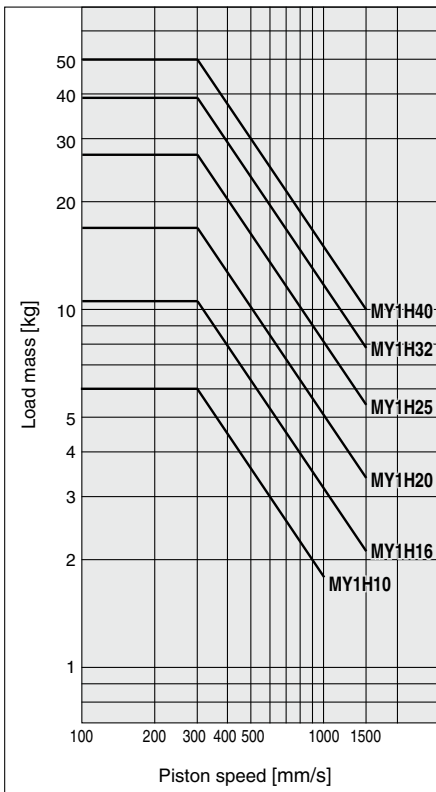
**MY1H/M<sub>2</sub>**



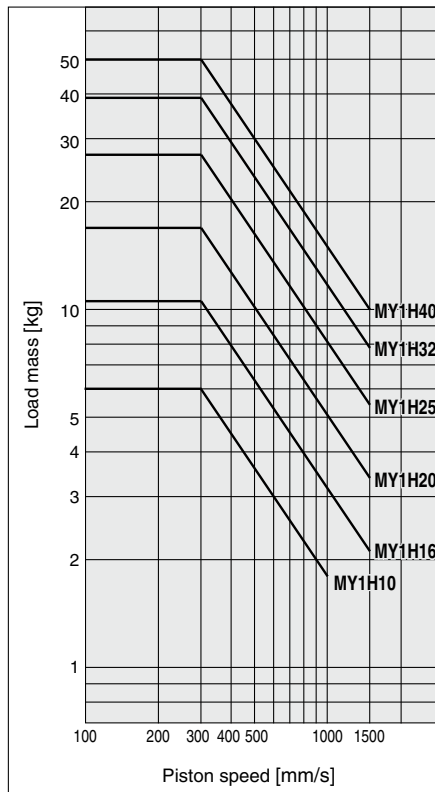
**MY1H/M<sub>3</sub>**



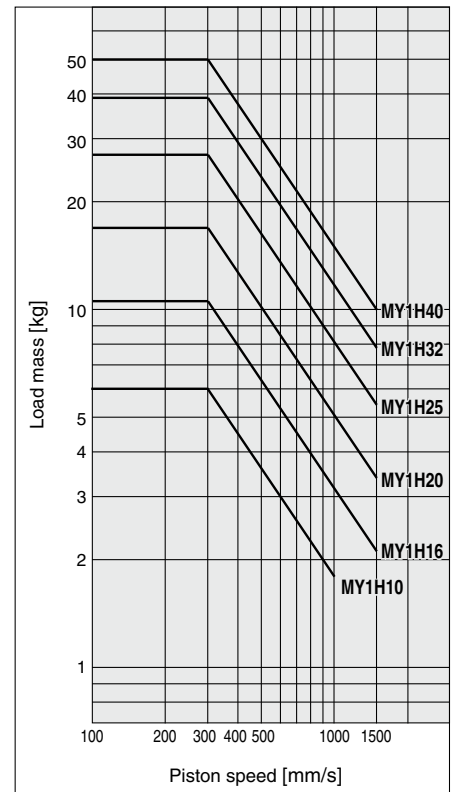
**MY1H/m<sub>1</sub>**



**MY1H/m<sub>2</sub>**



**MY1H/m<sub>3</sub>**



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

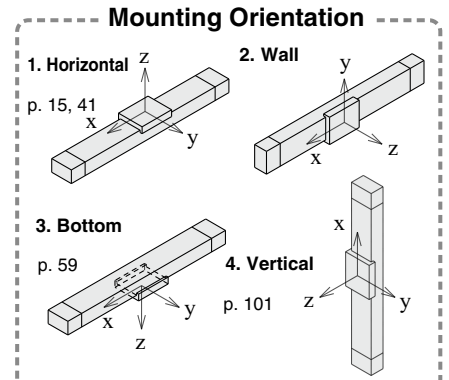
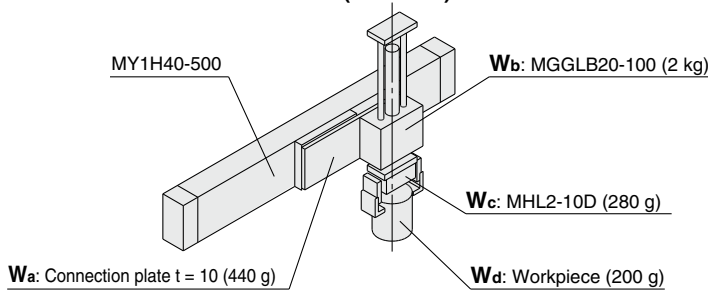
# MY1H Series Model Selection

Following are the steps for selecting the most suitable MY1H series to your application.

## Calculation of Guide Load Factor

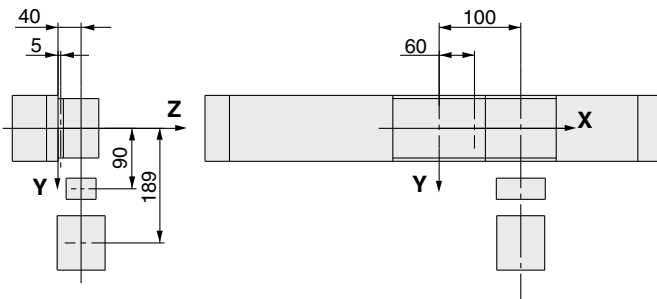
### 1. Operating Conditions

Operating cylinder ..... MY1H20-500  
 Average operating speed  $v_a$  ... 300 mm/s  
 Mounting orientation ..... Wall  
 Cushion ..... Air cushion ( $\delta = 1/100$ )



For actual examples of calculation for each orientation, refer to the pages above.

### 2. Load Blocking



### Mass and Center of Gravity for Each Workpiece

Workpiece no. $W_n$	Mass $m_n$	Center of gravity		
		X-axis $X_n$	Y-axis $Y_n$	Z-axis $Z_n$
<b>Wa</b>	0.44 kg	60 mm	0 mm	5 mm
<b>Wb</b>	2.0 kg	100 mm	0 mm	40 mm
<b>Wc</b>	0.280 kg	100 mm	90 mm	40 mm
<b>Wd</b>	0.2 kg	100 mm	189 mm	40 mm

$n = a, b, c, d$

### 3. Composite Center of Gravity Calculation

$$m_3 = \sum m_n = 0.44 + 2.0 + 0.280 + 0.2 = 2.92 \text{ kg}$$

$$X = \frac{1}{m_3} \times \sum (m_n \times x_n) = \frac{1}{2.92} (0.44 \times 60 + 2.0 \times 100 + 0.280 \times 100 + 0.2 \times 100) = 94.0 \text{ mm}$$

$$Y = \frac{1}{m_3} \times \sum (m_n \times y_n) = \frac{1}{2.92} (0.44 \times 0 + 2.0 \times 0 + 0.280 \times 90 + 0.2 \times 189) = 21.6 \text{ mm}$$

$$Z = \frac{1}{m_3} \times \sum (m_n \times z_n) = \frac{1}{2.92} (0.44 \times 5 + 2.0 \times 40 + 0.280 \times 40 + 0.2 \times 40) = 34.8 \text{ mm}$$

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

$m_3$ : Mass

$m_3 \text{ max}$  (from ① of graph MY1H/ $m_3$ ) = 17.6 [kg].....

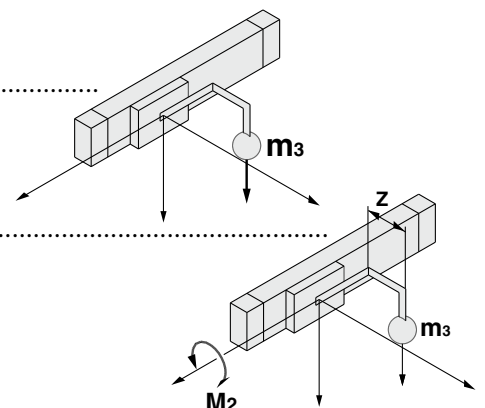
$$\text{Load factor } \alpha_1 = m_3 / m_3 \text{ max} = 2.92 / 17.6 = 0.17$$

$M_2$ : Moment

$m_2 \text{ max}$  (from ② of graph MY1H/ $M_2$ ) = 16.0 [N·m].....

$$M_2 = m_3 \times g \times Z = 2.92 \times 9.8 \times 34.8 \times 10^{-3} = 1.00 \text{ [N·m]}$$

$$\text{Load factor } \alpha_2 = M_2 / M_2 \text{ max} = 1.00 / 16.0 = 0.07$$



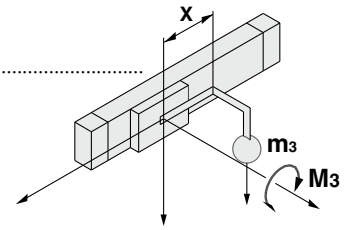


**M<sub>3</sub>**: Moment

**M<sub>3</sub> max** (from ③ of graph MY1H/M<sub>3</sub>) = 11.0 [N·m].....

$$M_3 = m_3 \times g \times X = 2.92 \times 9.8 \times 94.0 \times 10^{-3} = 2.69 \text{ [N·m]}$$

$$\text{Load factor } \alpha_3 = M_3 / M_{3 \text{ max}} = 2.69 / 11.0 = 0.25$$



### 5. Calculation of Load Factor for Dynamic Moment

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

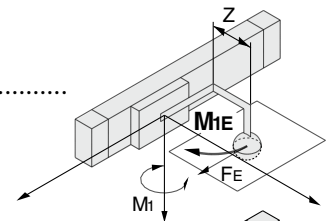
$$F_E = 1.4 \nu_a \times \delta \times m \times g = 1.4 \times 300 \times \frac{1}{100} \times 2.92 \times 9.8 = 120.2 \text{ [N]}$$

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

**M<sub>1E</sub> max** (from ④ of graph MY1H/M<sub>1</sub> where 1.4ν<sub>a</sub> = 420 mm/s) = 7.9 [N·m].....

$$M_{1E} = \frac{1}{3} \times F_E \times Z = \frac{1}{3} \times 120.2 \times 34.8 \times 10^{-3} = 1.40 \text{ [N·m]}$$

$$\text{Load factor } \alpha_4 = M_{1E} / M_{1E \text{ max}} = 1.40 / 7.9 = 0.18$$

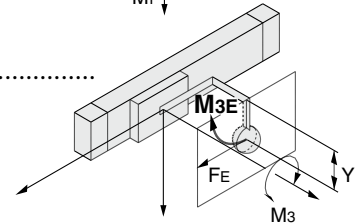


**M<sub>3E</sub>**: Moment

**M<sub>3E</sub> max** (from ⑤ of graph MY1H/M<sub>3</sub> where 1.4ν<sub>a</sub> = 420 mm/s) = 7.9 [N·m].....

$$M_{3E} = \frac{1}{3} \times F_E \times Y = \frac{1}{3} \times 120.2 \times 21.6 \times 10^{-3} = 0.87 \text{ [N·m]}$$

$$\text{Load factor } \alpha_5 = M_{3E} / M_{3E \text{ max}} = 0.87 / 7.9 = 0.12$$



### 6. Sum and Examination of Guide Load Factors

$$\sum \alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 = 0.79 \leq 1$$

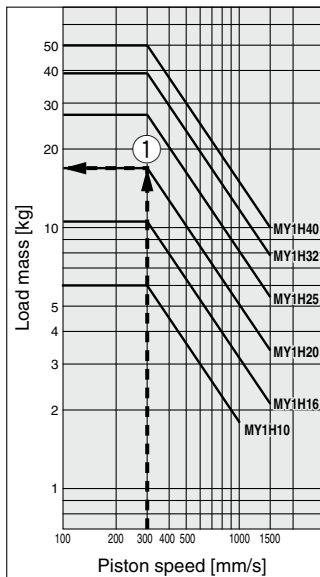
The above calculation is within the allowable value, and therefore the selected model can be used.

Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors  $\sum \alpha$  in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the "Guide Cylinder Selection Software" on the SMC website.

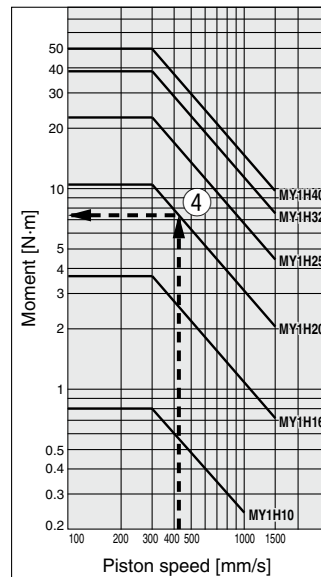
### Load Mass

MY1H/m<sub>3</sub>

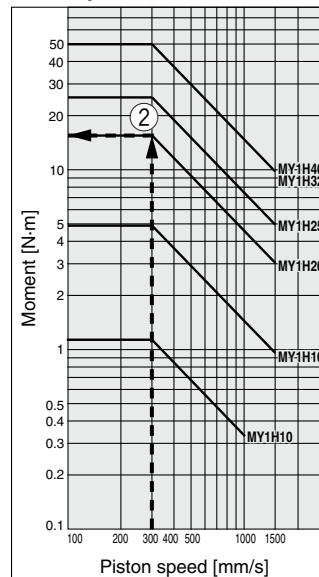


### Allowable Moment

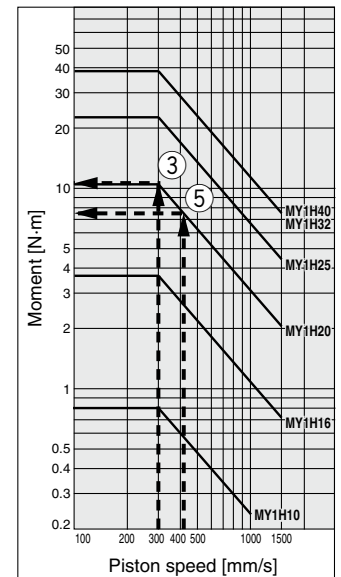
MY1H/M<sub>1</sub>



MY1H/M<sub>2</sub>



MY1H/M<sub>3</sub>



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

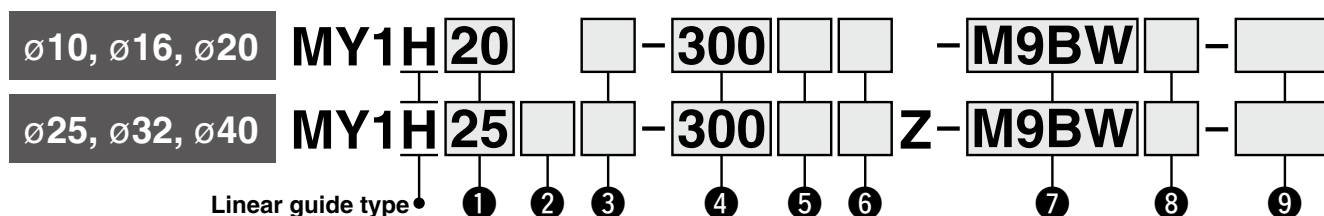
Specific Product Precautions

# Mechanically Jointed Rodless Cylinder Linear Guide Type

## MY1H Series

ø10, ø16, ø20, ø25, ø32, ø40

### How to Order



#### 1 Bore size

10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm

#### 2 Port thread type

Symbol	Type	Bore size
Nil	M thread	ø10, ø16, ø20
	Rc	ø25, ø32, ø40
TN	NPT	
TF	G	

#### 4 Cylinder stroke [mm]

Bore size	Standard stroke	Intermediate stroke	Long stroke	Maximum manufacturable stroke
10	50, 100, 150, 200, 250, 300,	Strokes of 60 to 590 mm (10 mm increments) other than standard strokes	—	—
16, 20	350, 400, 450, 500, 550, 600	Strokes of 51 to 599 mm (1 mm increments) other than standard strokes	Strokes of 601 to 1000 mm (1 mm increments) exceeding the standard stroke	1000
25, 32, 40			Strokes of 601 to 1500 mm (1 mm increments) exceeding the standard stroke	1500

\* Long stroke is not available for MY1H10.

Ordering example

\* Intermediate stroke can be ordered the same as the standard stroke.

MY1H10-60-M9BW

\* Long stroke can be ordered the same as the standard stroke.

MY1H20-800L-M9BW

#### 3 Piping

Nil	Standard type
G	Centralized piping type

\* For ø10, only G is available.

#### 5 Stroke adjustment unit symbol

For stroke adjustment units, refer to on page 78.

Intermediate fixing spacer is not available for end lock mounting side.

#### 6 End lock position

Nil	Without end lock
E	Right end
F	Left end
W	Both ends

\* MY1H10 is not available with end lock.

\* For end lock positions, refer to pages 92 and 93.

#### 7 Auto switch

Nil	ø10	Without auto switch (Built-in magnet for reed switch)
		Without auto switch (Built-in magnet for solid state switch) (Made to order: -X1810)
	ø16 to ø100	Without auto switch (Built-in magnet)

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

#### 8 Number of auto switches

Nil	2
S	1
n	n

#### 9 Made to Order

##### Common Specifications

Refer to page 78 for details.

### Applicable Auto Switches/Refer to the Web Catalog 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)	None (N)		IC circuit	Relay, PLC	
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	●	●	●	○	○	○		
	Diagnostic indication (2-color indicator)			3-wire (NPN)	5 V, 12 V	—	M9NWX	M9NW	●	●	●	○	○	○	IC circuit		
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	○	○			
				2-wire			M9BWX	M9BW	●	●	●	○	○	○			
	Water resistant (2-color indicator)			3-wire (NPN)	5 V, 12 V	—	M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	○	—	○	IC circuit		
				3-wire (PNP)			M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	○	—	○			
				2-wire			M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	○	—	○			
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	12 V	100 V or less	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire				A93V <sup>*2</sup>	A93	●	●	●	●	—	—	—	
			No					A90V	A90	●	—	●	—	—	—	IC circuit	Relay, PLC

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

Please contact SMC regarding water-resistant types with the above model numbers.

\*2 The 1 m lead wire is only applicable to the D-A93.

\* For details on auto switch mounting brackets and part numbers, refer to page 112.

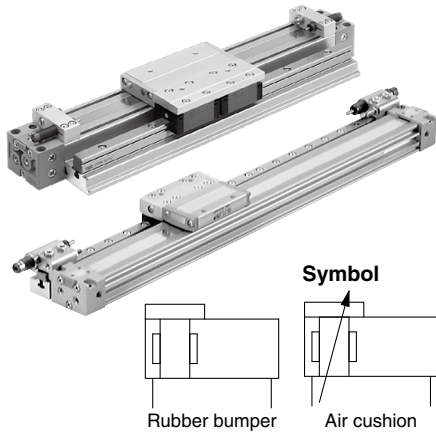
\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW 3 m ..... L (Example) M9NWL  
1 m ..... M (Example) M9NWM 5 m ..... Z (Example) M9NWZ

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

\* Since there are applicable auto switches other than those listed above, refer to page 112 for details.

\* Auto switches are shipped together with the product but do not come assembled. (Refer to page 110 for the details of auto switch mounting.)

# Mechanically Jointed Rodless Cylinder Linear Guide Type **MY1H Series**



**Made to Order Common Specifications**  
(For details, refer to page 114.)

Symbol	Specifications
-XB22	Shock absorber soft type RJ series mounted
-XC56	With knock pin hole
-XC67*1	NBR rubber lining in dust seal band
-X168	Helical insert thread specifications
-X1810	Magnet for ø10 solid state auto switch specifications

\*1 Only ø16 and ø20 are available for the -XC67.

## Specifications

Bore size [mm]	10	16	20	25	32	40
Fluid	Air					
Action	Double acting					
Operating pressure range	0.2 to 0.8 MPa	0.15 to 0.8 MPa		0.1 to 0.8 MPa		
Proof pressure	1.2 MPa					
Ambient and fluid temperatures	5 to 60°C					
Cushion	Rubber bumper	Air cushion				
Lubrication	Non-lube					
Stroke length tolerance	+1.8 0					
Piping port size	Front/Side port	M5 x 0.8			1/8	1/4
	Bottom port	ø4		ø6		ø8

## Piston Speed

Bore size [mm]	10	16 to 40
Without stroke adjustment unit	100 to 500 mm/s	100 to 1000 mm/s
Stroke adjustment unit	A unit	100 to 1000 mm/s*1
	L unit and H unit	100 to 1500 mm/s*2

\*1 Be aware that when the stroke adjustment range is increased with the adjustment bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 80, the piston speed should be 100 to 200 mm/s.

\*2 The piston speed is 100 to 1000 mm/s for centralized piping.

\* Use at a speed within the absorption capacity range. Refer to page 80.

## Stroke Adjustment Unit Specifications

Bore size [mm]	10	16	20	25	32	40
Unit symbol	H	A	L	A	L	H
Configuration Shock absorber model	RB 0805 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt
	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt
Stroke adjustment range by intermediate fixing spacer [mm]	Without spacer	0 to -10	0 to -5.6	0 to -6		0 to -11.5
	With short spacer	—*1	-5.6 to -11.2	-6 to -12		-11.5 to -23
	With long spacer	—*1	-11.2 to -16.8	-12 to -18		-23 to -34.5
						0 to -12
						0 to -16
						-12 to -24
						-24 to -36
						-16 to -32
						-32 to -48

\*1 For ø10, stroke adjustment is available. Refer to page 122 for details.

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

## Stroke Adjustment Unit Symbol

Left side stroke adjustment unit	Right side stroke adjustment unit												
	Without unit	A: With adjustment bolt				L: With low load shock absorber + Adjustment bolt				H: With high load shock absorber + Adjustment bolt			
		Without spacer	With short spacer	With long spacer	Without spacer	With short spacer	With long spacer	Without spacer	With short spacer	With long spacer	Without spacer	With short spacer	With long spacer
Without unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7			
A: With adjustment bolt	AS	A	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7			
With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7			
With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7			
L: With low load shock absorber + Adjustment bolt	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7			
With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7			
With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7			
H: With high load shock absorber + Adjustment bolt	HS	HA	HA6	HA7	HL	HL6	HL7	H	HH6	HH7			
With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7			
With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7			

\* Intermediate fixing spacer is not available for end lock mounting side.

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

For details on spacers and stroke adjustment units, refer to "Accessory Brackets (Option)" on page 96.

\* For precautions, refer to page 121.

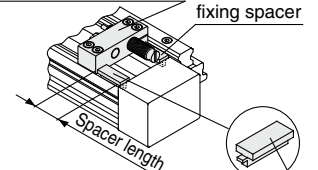
## Accessory Brackets (Option)

Stroke adjustment unit	p. 96
Side support	p. 97

Refer to pages 109 to 112 for the specifications with auto switch.

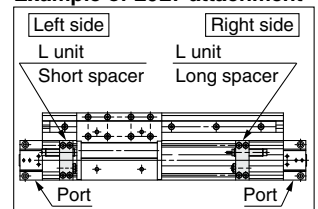
## Stroke adjustment unit mounting diagram

Stroke adjustment unit Intermediate fixing spacer



Place the protruding section on the stroke adjustment unit side.

## Example of L6L7 attachment



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1H Series

## Shock Absorbers for L and H Units

Type	Stroke adjustment unit	Bore size [mm]					
		10	16	20	25	32	40
Standard (Shock absorber/RB series)	L	—	RB0806		RB1007	RB1412	
	H	RB0805	—	RB1007	RB1412	RB2015	
Shock absorber/soft type RJ series mounted (-XB22)	L	—	RJ0806H		RJ1007H	RJ1412H	
	H	RJ0805	—	RJ1007H	RJ1412H	—	—

- \* The shock absorber service life is different from that of the MY1H cylinder depending on operating conditions. Refer to the RB/RJ Series Specific Product Precautions for the replacement period.
- \* Shock absorber soft type RJ series mounted (-XB22) is made-to-order common specifications. For details, refer to page 115.

## Shock Absorber Specifications

Model	RB 0805	RB 0806	RB 1007	RB 1412	RB 2015	
Max. absorbed energy [J]	1.0	2.9	5.9	19.6	58.8	
Stroke absorption [mm]	5	6	7	12	15	
Max. collision speed [mm/s]	1000	1500	1500	1500	1500	
Max. operating frequency [cycle/min]	80	80	70	45	25	
Spring force [N]	Extended	1.96	1.96	4.22	6.86	8.34
	Retracted	3.83	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 MY1H cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

## 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	
10	78	15	23	31	39	46	54	62	
16	200	40	60	80	100	120	140	160	
20	314	62	94	125	157	188	219	251	
25	490	98	147	196	245	294	343	392	
32	804	161	241	322	402	483	563	643	
40	1256	251	377	502	628	754	879	1005	

- \* Theoretical output [N] = Pressure [MPa] x Piston area [mm<sup>2</sup>]

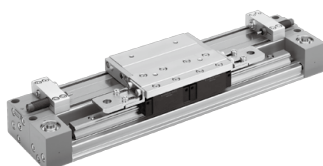
## Weight

Bore size [mm]	Basic weight	Additional weight per each 50 mm of stroke	Weight of moving parts	Side support bracket weight (per set) Type A and B	Stroke adjustment unit weight (per unit)		
					A unit weight	L unit weight	H unit weight
10	0.26	0.08	0.05	0.003	—	—	0.02
16	0.74	0.14	0.19	0.01	0.02	0.04	—
20	1.35	0.25	0.40	0.02	0.03	0.05	0.07
25	2.17	0.30	0.73	0.02	0.04	0.07	0.11
32	4.37	0.46	1.30	0.04	0.08	0.14	0.23
40	5.84	0.55	1.89	0.08	0.12	0.19	0.28

Calculation: (Example) MY1H20-300A

- Basic weight..... 1.35 kg
- Cylinder stroke..... 300 mm stroke
- Additional weight..... 0.25/50 mm stroke  
1.35 + 0.25 x 300/50 + 0.03 x 2 ≈ 2.19 kg
- Weight of A unit..... 0.03 kg

## With End Lock



### Specifications

Bore size [mm]	16	20	25	32	40
Lock position	One end (Selectable), Both ends				
Holding force (Max.) [N]	110	170	270	450	700
Fine stroke adjustment range [mm]	0 to -5.6	0 to -6	0 to -11.5	0 to -12	0 to -16
Backlash	1 mm or less				
Manual release	Possible (Non-lock type)				

**!** Refer to page 123 in “Specific Product Precautions” for the product MY1H with end lock function.

## **!** Precautions

For details on the MY1H Series Mechanically Jointed Rodless Cylinder, refer to “Specific Product Precautions” on pages 119 to 123.

## Cushion Capacity

### Cushion Selection

#### <Rubber bumper>

Rubber bumpers are a standard feature on MY1H10.

Since the stroke absorption of rubber bumpers is short, when adjusting the stroke with an A unit, install an external shock absorber.

The load and speed range which can be absorbed by a rubber bumper is inside the rubber bumper limit line of the graph.

#### <Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders. (Except  $\phi 10$ )

The air cushion mechanism is incorporated to prevent excessive impact of the piston with high kinetic energy at the stroke end. The purpose of air cushion, thus, is not 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 and speed exceeding the air cushion limit line, or when cushioning is required outside of the effective air cushion stroke range due to stroke adjustment.

#### L unit

Use this unit when cushioning is required 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

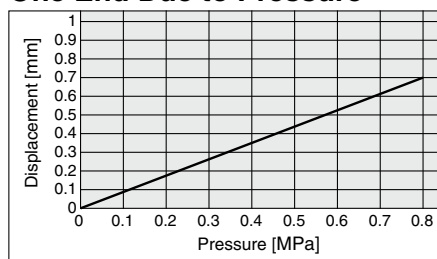
Use this unit when the cylinder is operated in a load and speed range above the L unit limit line and below the H unit limit line.

\* For details on stroke adjustment using the adjustment bolt, refer to page 121.

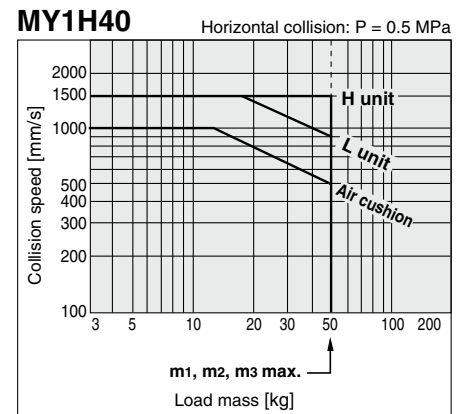
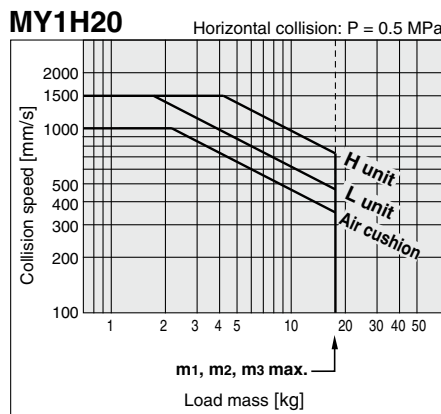
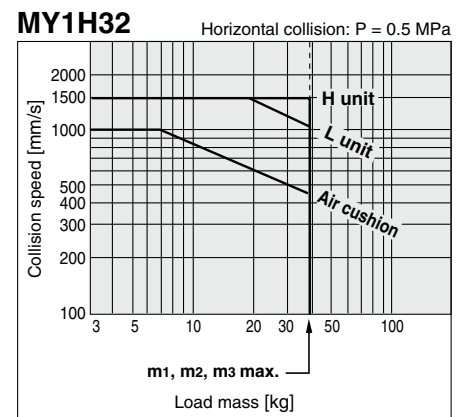
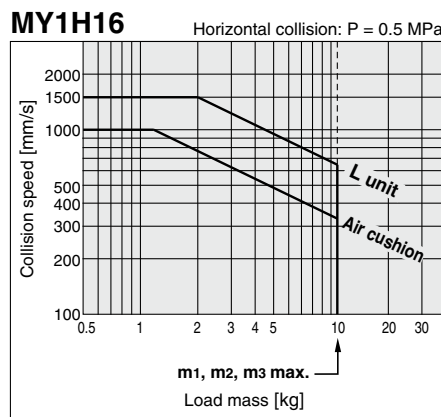
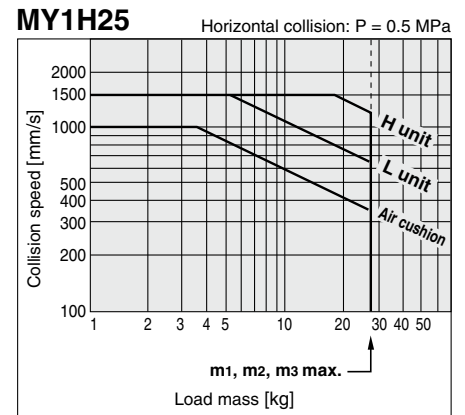
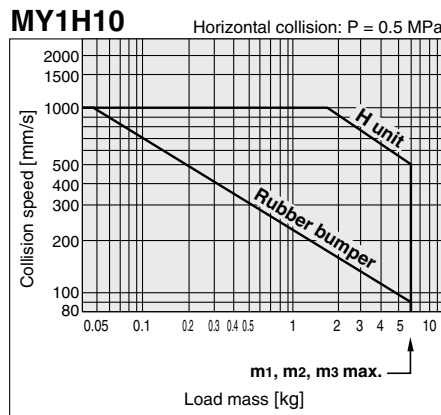
### Air Cushion Stroke [mm]

Bore size [mm]	Cushion stroke
16	12
20	15
25	15
32	19
40	24

### Rubber Bumper ( $\phi 10$ only) Positive Stroke from One End Due to Pressure



### Absorption Capacity of Rubber Bumper, Air Cushion and Stroke Adjustment Units



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

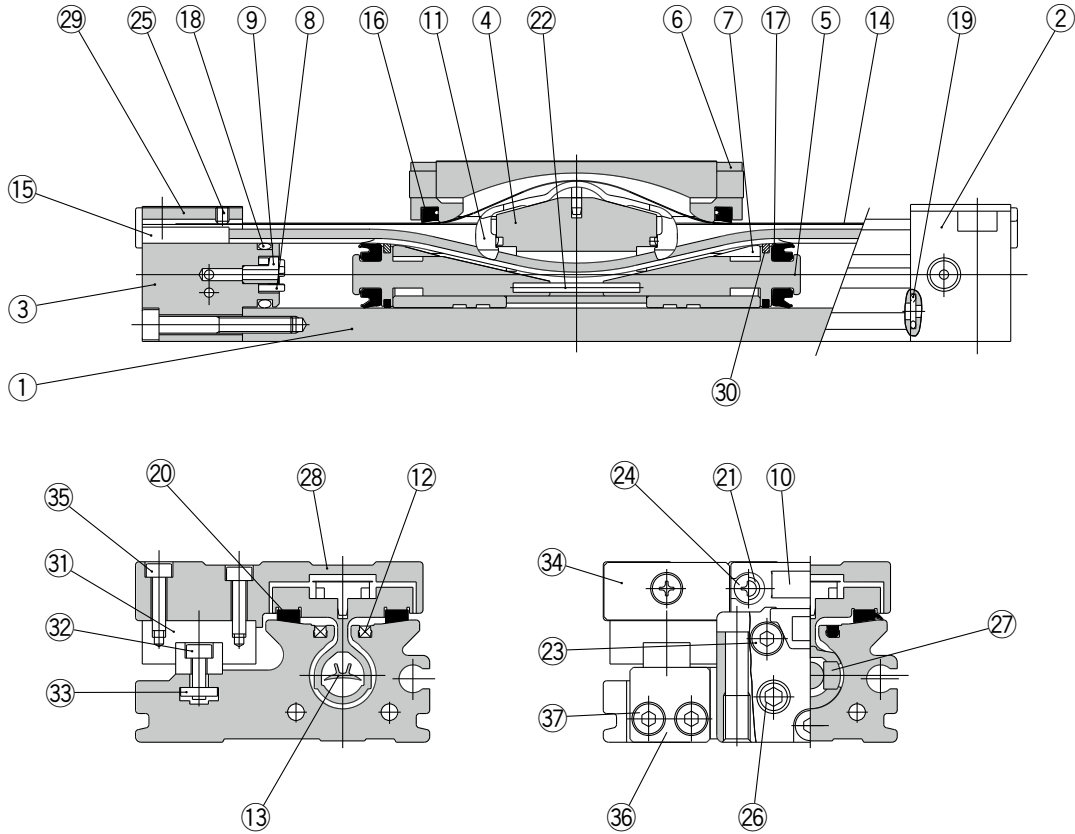
Made to Order Common Specifications

Specific Product Precautions



**Construction:  $\varnothing 10$**

**Centralized piping type**



**Component Parts**

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Piston yoke	Aluminum alloy	Hard anodized
5	Piston	Aluminum alloy	Chromated
6	End cover	Special resin	
7	Wear ring	Special resin	
8	Bumper	Polyurethane rubber	
9	Holder	Stainless steel	
10	Stopper	Carbon steel	Nickel plating
11	Belt separator	Special resin	
12	Seal magnet	Rubber magnet	
15	Belt clamp	Special resin	
20	Bearing	Special resin	
21	Spacer	Chromium molybdenum steel	Nickel plating

No.	Description	Material	Note
22	Spring pin	Stainless steel	
23	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
24	Cross recessed binding head screw	Carbon steel	Chromated
25	Hexagon socket head set screw	Carbon steel	Black zinc chromated
26	Hexagon socket head plug	Carbon steel	Chromated
27	Magnet	—	
28	Slide table	Aluminum alloy	Hard anodized
29	Head plate	Stainless steel	
30	Lube-retainer	Special resin	
31	Linear guide	—	
32	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
33	Square pin	Carbon steel	Chromated
34	Stopper plate	Carbon steel	Chromated
35	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
36	Guide stopper	Carbon steel	Nickel plating
37	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated

**Replacement Parts/Seal Kit**

No.	Description	Qty.	
<b>MY1H10</b>			
13	Seal belt	1	MY10-16A-Stroke
14	Dust seal band	1	MY10-16B-Stroke
16	Scraper	2	MY1B10-PS
17	Piston seal	2	
18	Tube gasket	2	
19	O-ring	4	

\* Seal kit includes 16, 17, 18, and 19.  
 Seal kit includes a grease pack (10 g).  
 When 13 and 14 are shipped independently, a grease pack 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)**

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

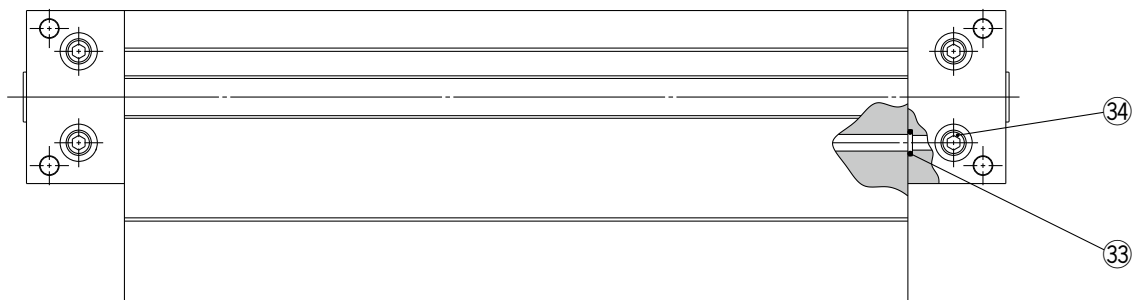
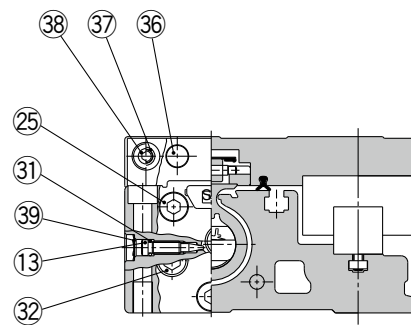
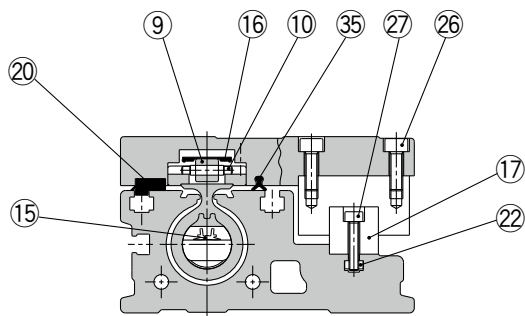
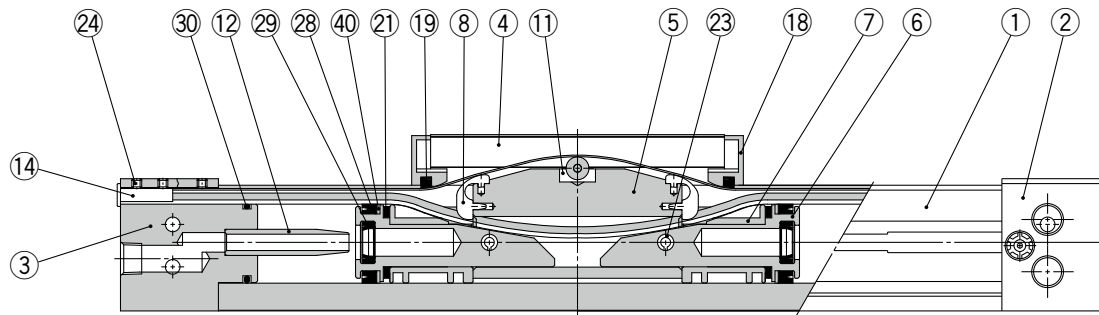
Specific Product Precautions



# MY1H Series

Construction:  $\varnothing 16$ ,  $\varnothing 20$

MY1H16, 20



## MY1H16, 20

### Component Parts

No.	Description	Material	Note
1	<b>Cylinder tube</b>	Aluminum alloy	Hard anodized
2	<b>Head cover WR</b>	Aluminum alloy	Painted
3	<b>Head cover WL</b>	Aluminum alloy	Painted
4	<b>Slide table</b>	Aluminum alloy	Hard anodized
5	<b>Piston yoke</b>	Aluminum alloy	Chromated
6	<b>Piston</b>	Aluminum alloy	Chromated
7	<b>Wear ring</b>	Special resin	
8	<b>Belt separator</b>	Special resin	
9	<b>Guide roller</b>	Special resin	
10	<b>Guide roller shaft</b>	Stainless steel	
11	<b>Coupler</b>	Sintered iron material	
12	<b>Cushion ring</b>	Aluminum alloy	Anodized
13	<b>Cushion needle</b>	Rolled steel	Nickel plating
14	<b>Belt clamp</b>	Special resin	
17	<b>Guide</b>	—	
18	<b>End cover</b>	Special resin	
20	<b>Bearing</b>	Special resin	

No.	Description	Material	Note
21	<b>Magnet</b>	—	
22	<b>Square nut</b>	Carbon steel	Chromated
23	<b>Spring pin</b>	Carbon tool steel	
24	<b>Hexagon socket head set screw</b>	Chromium molybdenum steel	Black zinc chromated/Chromated
25	<b>Hexagon socket head cap screw</b>	Chromium molybdenum steel	Chromated
26	<b>Hexagon socket head cap screw</b>	Chromium molybdenum steel	Chromated
27	<b>Hexagon socket head cap screw</b>	Chromium molybdenum steel	Chromated
32	<b>Hexagon socket head taper plug</b>	Carbon steel	Chromated
34	<b>Hexagon socket head taper plug</b>	Carbon steel	Chromated
36	<b>Stopper</b>	Carbon steel	Nickel plating
37	<b>Spacer</b>	Stainless steel	
38	<b>Hexagon socket button head screw</b>	Chromium molybdenum steel	Chromated
39	<b>Type CR retaining ring</b>	Spring steel	
40	<b>Lube-retainer</b>	Special resin	

### Replacement Parts/Seal Kit

No.	Description	Qty.	MY1H16	MY1H20
15	<b>Seal belt</b>	1	MY16-16C- <u>Stroke</u>	MY20-16C- <u>Stroke</u>
16	<b>Dust seal band</b>	1	MY16-16B- <u>Stroke</u>	MY20-16B- <u>Stroke</u>
31	<b>O-ring</b>	2	KA00309 ( $\phi 4 \times \phi 1.8 \times \phi 1.1$ )	KA00309 ( $\phi 4 \times \phi 1.8 \times \phi 1.1$ )
35	<b>Side scraper</b>	1	MYH16-15BK2900B	MYH20-15BK2901B
19	<b>Scraper</b>	2		
28	<b>Piston seal</b>	2		
29	<b>Cushion seal</b>	2	MY1H16-PS	MY1H20-PS
30	<b>Tube gasket</b>	2		
33	<b>O-ring</b>	4		

\* Seal kit includes 19, 28, 29, 30, and 33. Order the seal kit based on each bore size.

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

When 15 and 16 are shipped independently, 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)

\* Two types of dust seal bands are available. Since the part number varies depending on the treatment of the hexagon socket head set screw 24, please check a proper dust seal band carefully.

A: Black zinc chromated → MY□□-16B-stroke, B: Chromated → MY□□-16BW-stroke

Model  
Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch  
Mounting

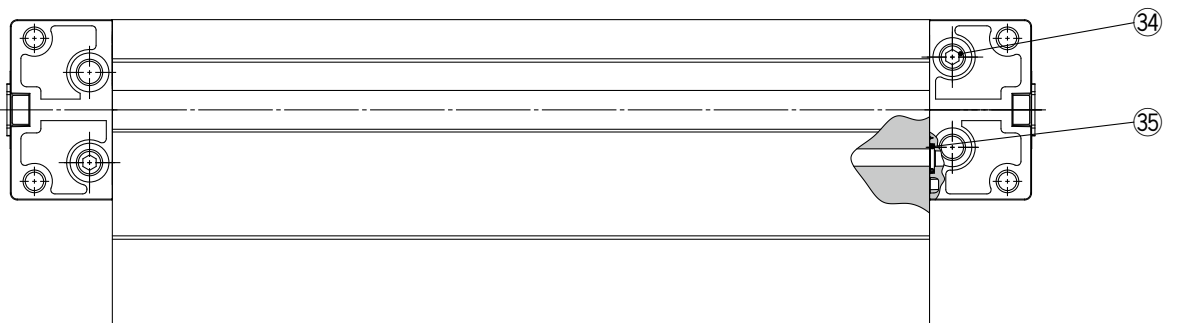
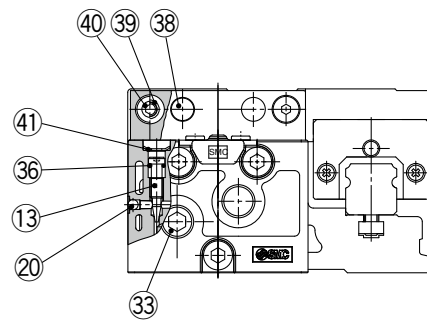
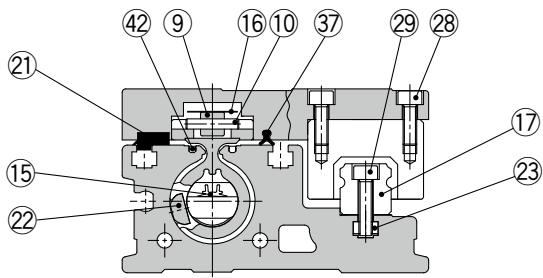
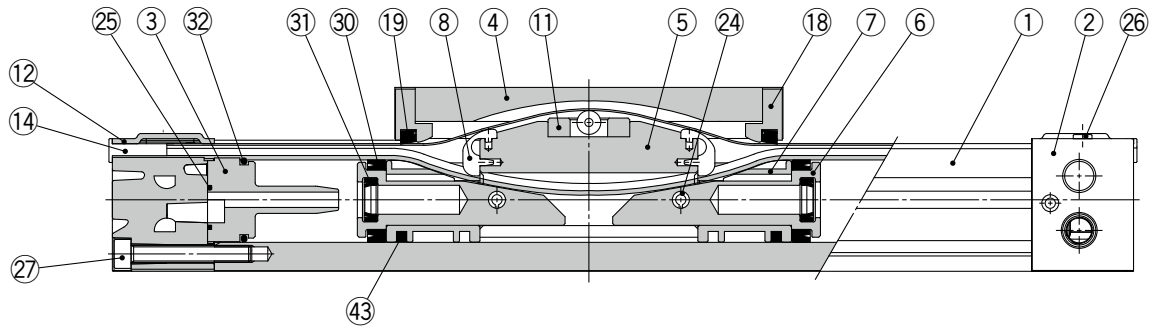
Made to Order  
Common  
Specifications

Specific Product  
Precautions

# MY1H Series

**Construction:  $\varnothing 25$ ,  $\varnothing 32$ ,  $\varnothing 40$**

**MY1H25, 32, 40**



**MY1H25, 32, 40**

**Component Parts**

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Aluminum alloy	Painted
3	Cushion boss	Special resin	
4	Slide table	Aluminum alloy	Hard anodized
5	Piston yoke	Aluminum alloy	Chromated
6	Piston	Aluminum alloy	Chromated
7	Wear ring	Special resin	
8	Belt separator	Special resin	
9	Guide roller	Special resin	
10	Parallel pin	Stainless steel	
11	Coupler	Sintered iron material	
12	Head plate	Stainless steel	
13	Cushion needle	Rolled steel	Nickel plating
14	Belt clamp	Special resin	
17	Guide	—	
18	End cover	Special resin	
20	Steel ball	Carbon tool steel	
21	Bearing	Special resin	
22	Magnet	Rare earth magnet	
23	Square nut	Carbon steel	Chromated
24	Spring pin	Bearing steel	
26	Thin head screw	Chromium molybdenum steel	Chromated
27	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
28	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
29	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
33	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 10 pcs.)
34	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 4 pcs.)
38	Stopper	Carbon steel	
39	Spacer	Stainless steel	
40	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
41	Type CR retaining ring	Spring steel	
42	Seal magnet	Rubber magnet	
43	Lube-retainer	Special resin	

**Replacement Parts/Seal Kit**

No.	Description	Material	Qty.	MY1H25	MY1H32	MY1H40
15	Seal belt	Urethane	1	MY25-16C-[Stroke]	MY32-16C-[Stroke]	MY40-16C-[Stroke]
16	Dust seal band	Stainless steel	1	MY1B25-16B-[Stroke]	MY1B32-16B-[Stroke]	MY1B40-16B-[Stroke]
25	Cushion boss gasket	NBR	2	MYB25-16GA5900	MYB32-16GA5901	MYB40-16GA5902
36	O-ring	NBR	2	KA00311 ( $\phi 5.1 \times \phi 3 \times \phi 1.05$ )	KA00320 ( $\phi 7.15 \times \phi 3.75 \times \phi 1.7$ )	KA00320 ( $\phi 7.15 \times \phi 3.75 \times \phi 1.7$ )
37	Side scraper	Special resin	2	MYH25-15BK2902B	MYH32-15BK2903B	MYH40-15BK2904B
19	Scraper	NBR	2	MY1H25-PS	MY1H32-PS	MY1H40-PS
30	Piston seal	NBR	2			
31	Cushion seal	NBR	2			
32	Tube gasket	NBR	2			
35	O-ring	NBR	4			

\* Seal kit includes 19, 30, 31, 32, and 35. Order the seal kit based on each bore size.

\* Seal kit includes a grease pack (10 g). When 15 or 16 is shipped independently, 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)

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

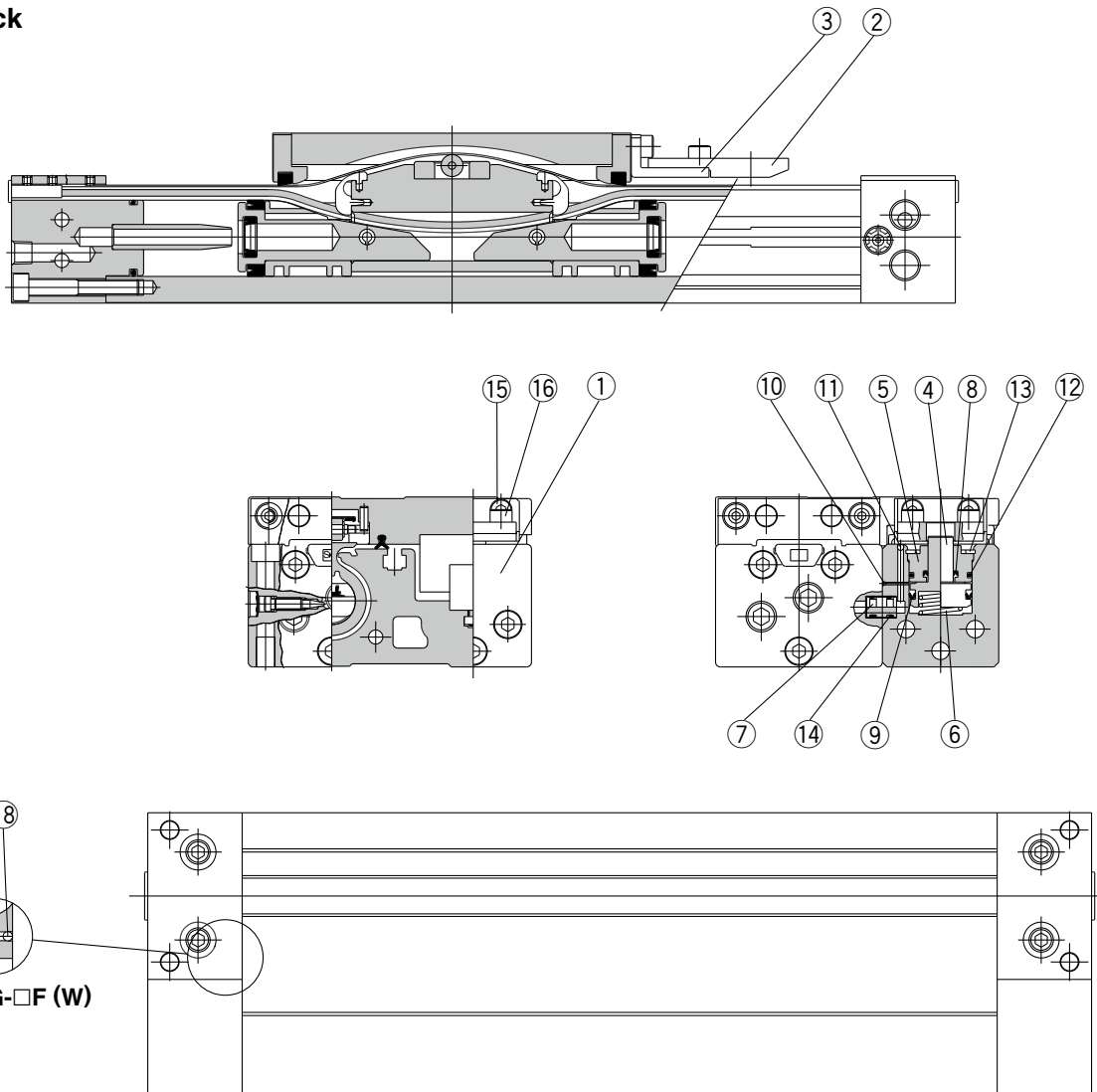
Made to Order Common Specifications

Specific Product Precautions

# MY1H Series

Construction:  $\varnothing 16$ ,  $\varnothing 20$

With end lock



## Component Parts

No.	Description	Material	Note
1	Locking body	Aluminum alloy	Painted
2	Lock finger	Carbon steel	After quenching, nickel plated
3	Lock finger bracket	Rolled steel	Nickel plating
4	Lock piston	Carbon tool steel	After quenching, electroless nickel plated
5	Rod cover	Aluminum alloy	Hard anodized
6	Return spring	Spring steel	Zinc chromated
7	Bypass pipe	Aluminum alloy	Chromated
10	Steel ball	High carbon chrome bearing steel	
11	Steel ball	High carbon chrome bearing steel	
13	Inverted internal retaining ring	Carbon tool steel	Nickel plating
14	O-ring	NBR	
15	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plating
16	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plating
17	Steel ball	High carbon chrome bearing steel	
18	Steel ball	High carbon chrome bearing steel	

## Replacement Parts: Seals

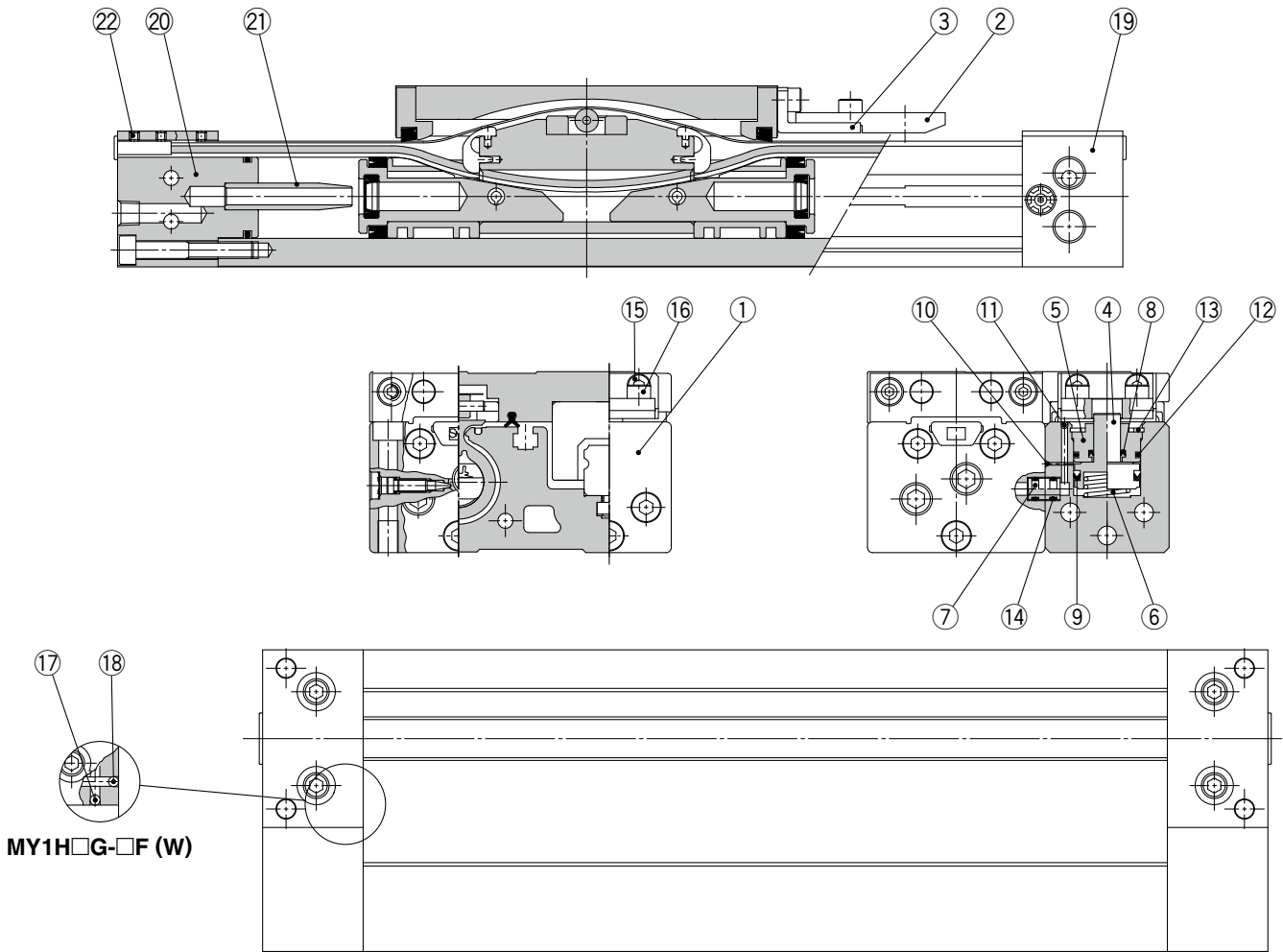
No.	Description	Material	Qty.	MY1H16	MY1H20
8	Rod seal	NBR	1	KB00257	KB00257
9	Piston seal	NBR	1	KB00202	KB00202
12	O-ring	NBR	1	KA00057	KA00057

\* Since the seal does not include a grease pack, order it separately.

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

**Construction:  $\varnothing 25$ ,  $\varnothing 32$ ,  $\varnothing 40$**

**With end lock**



**Component Parts**

No.	Description	Material	Note
1	Locking body	Aluminum alloy	Painted
2	Lock finger	Carbon steel	After quenching, nickel plated
3	Lock finger bracket	Rolled steel	Nickel plating
4	Lock piston	Carbon tool steel	After quenching, electroless nickel plated
5	Rod cover	Aluminum alloy	Hard anodized
6	Return spring	Spring steel	Zinc chromated
7	Bypass pipe	Aluminum alloy	Hard anodized
10	Steel ball	High carbon chromium bearing steel	
11	Steel ball	High carbon chromium bearing steel	
13	Inverted internal retaining ring	Carbon tool steel	Nickel plating
15	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
16	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
17	Steel ball	High carbon chromium bearing steel	
18	Steel ball	High carbon chromium bearing steel	
19	Head cover WR	Aluminum alloy	Painted
20	Head cover WL	Aluminum alloy	Painted
21	Cushion ring	Aluminum alloy	
22	Hexagon socket head set screw	Chromium molybdenum steel	Chromated

**Replacement Parts: Seals**

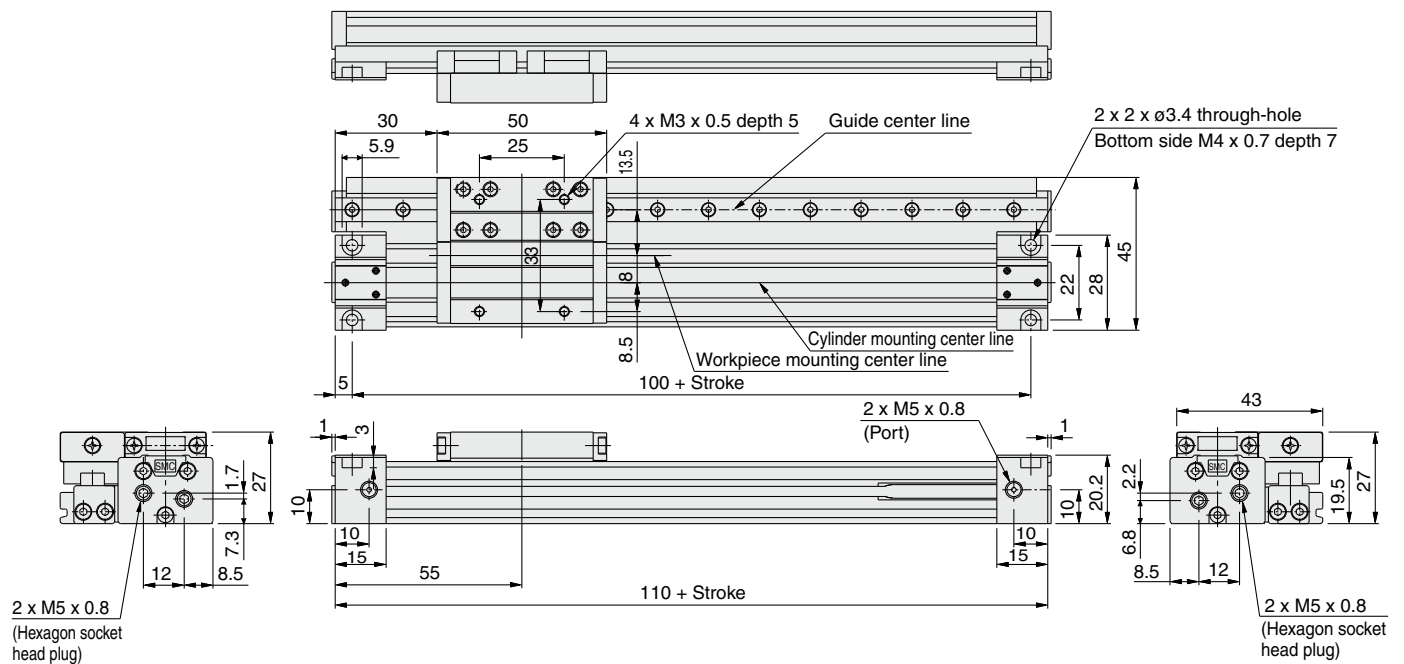
No.	Description	Material	Qty.	MY1H25	MY1H32	MY1H40
8	Rod seal	NBR	1	KB00267	KB00267	KB00267
9	Piston seal	NBR	1	KB00217	KB00217	KB00217
12	O-ring	NBR	1	KA00037	KA00037	KA00037
14	O-ring	NBR	2	KA00048	KA00048	KA00048

\* Since the seal does not include a grease pack, order it separately.  
Grease pack part number: GR-S-010 (10 g)

# MY1H Series

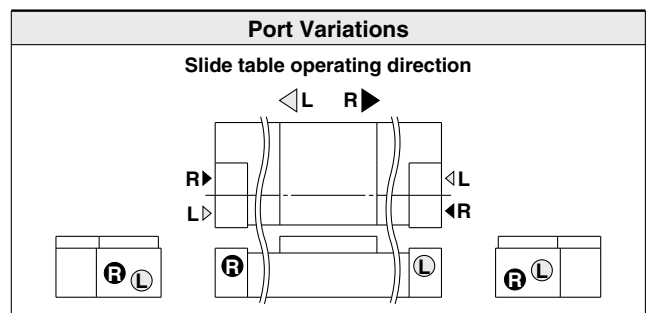
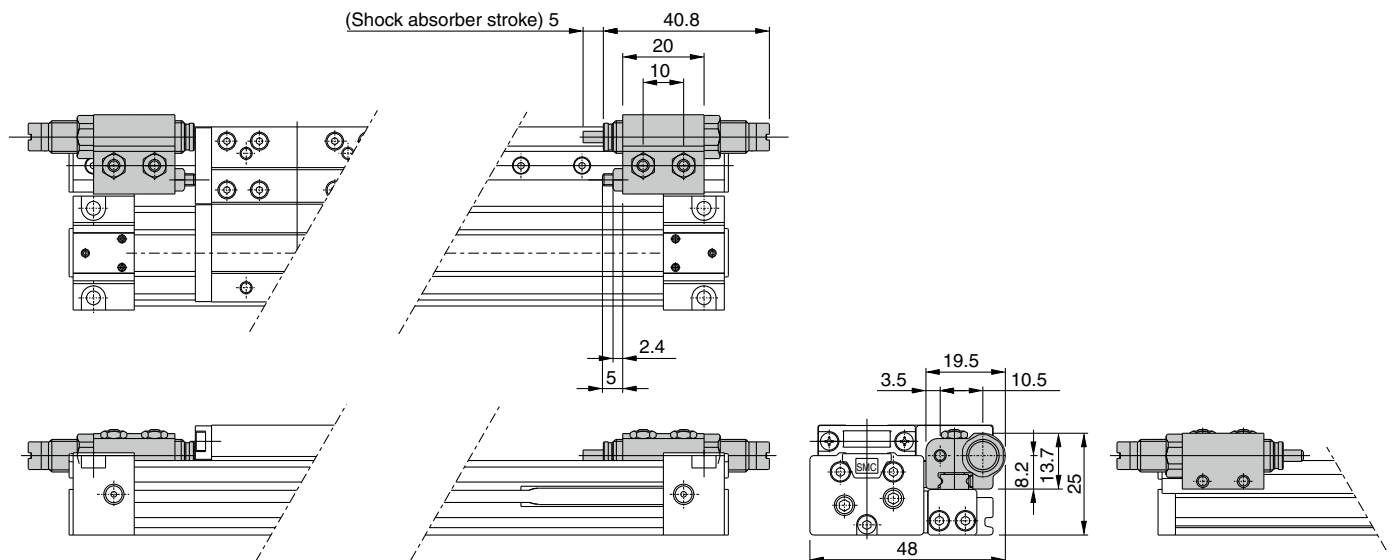
## Centralized Piping Type $\phi 10$

### MY1H10G — Stroke



### With shock absorber + Adjustment bolt

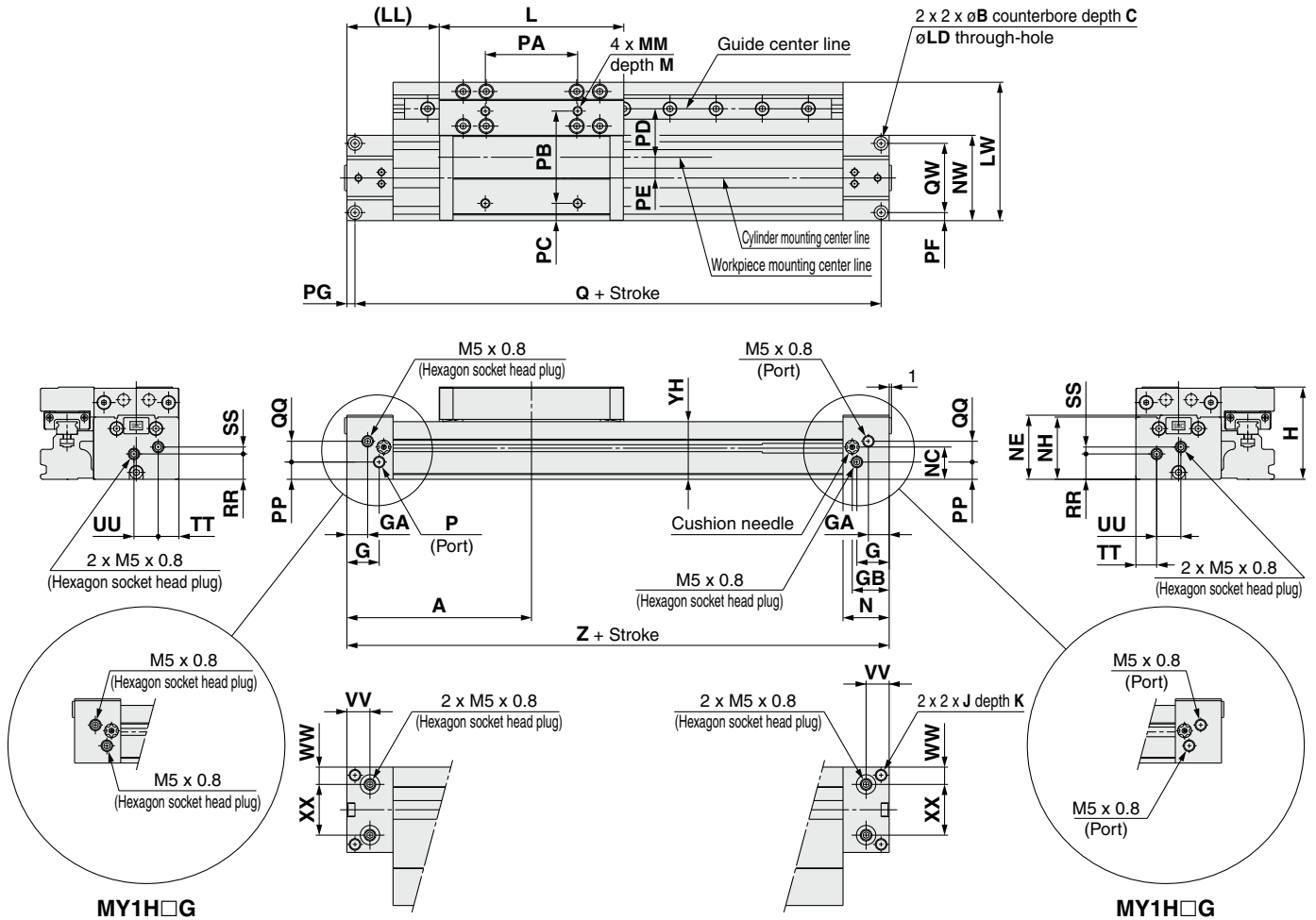
### MY1H10G — Stroke H





**Standard Type/Centralized Piping Type  $\phi 16, \phi 20$**

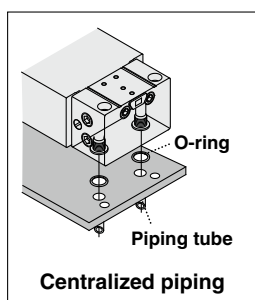
MY1H16□/20□ – Stroke



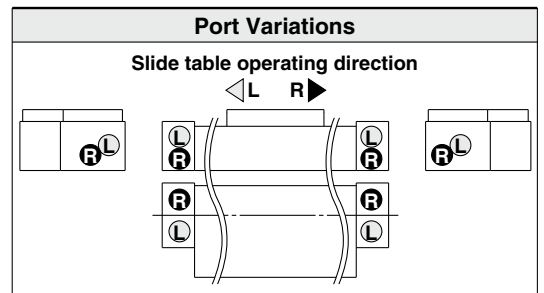
Model	A	B	C	G	GA	GB	H	J	K	L	LD	LL	LW	M	MM	N	NC	NE	NH	NW
MY1H16□	80	6	3.5	14	9	16	40	M5 x 0.8	10	80	3.5	40	60	7	M4 x 0.7	20	14	27.8	27	37
MY1H20□	100	7.5	4.5	12.5	12.5	20.5	46	M6 x 1	12	100	4.5	50	78	8	M5 x 0.8	25	17.5	34	33.5	45

Model	PA	PB	PC	PD	PE	PF	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	WW	XX	YH	Z
MY1H16□	40	40	7.5	21	9	3.5	3.5	7.5	153	9	30	11	3	9	10.5	10	7.5	22	25	160
MY1H20□	50	40	14.5	27	12	4.5	4.5	11.5	191	11	36	14.5	5	10.5	12	12.5	10.5	24	31.5	200

**Centralized Piping on the Bottom**



Model	WX	Y	S	d	D	R	Applicable O-ring
MY1H16□	22	6.5	4	4	8.4	1.1	C6
MY1H20□	24	8	6	4	8.4	1.1	



Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

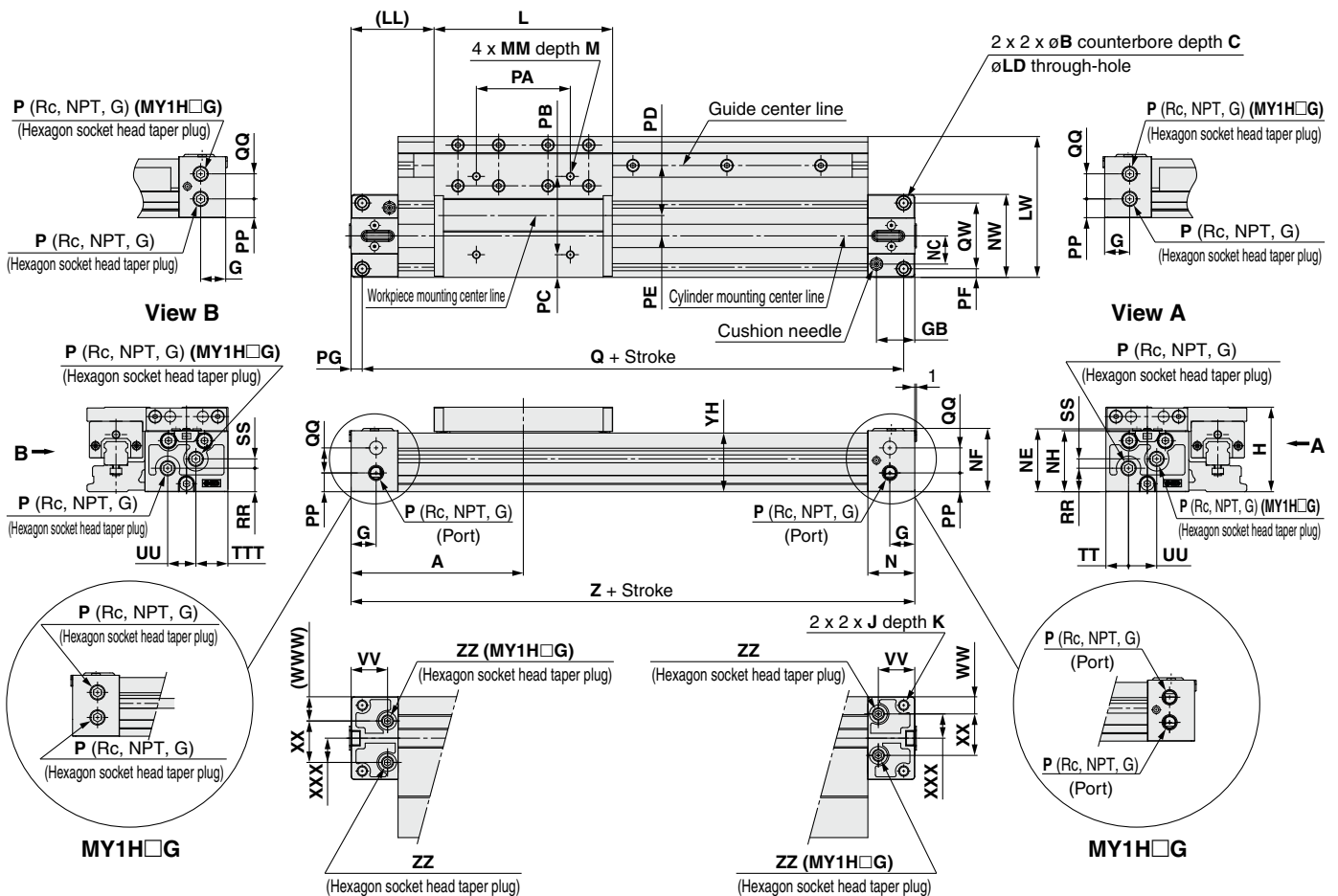
Made to Order Common Specifications

Specific Product Precautions

# MY1H Series

## Standard Type/Centralized Piping Type $\varnothing 25, \varnothing 32, \varnothing 40$

MY1H25□/32□/40□ - Stroke Z



### Standard piping/Centralized piping

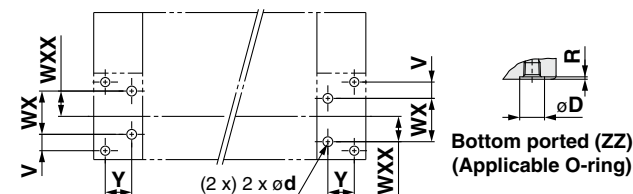
Model	A	B	C	G	GB	H	J	K	L	LD	LL	LW	M	MM	N	NC	NE	NF	NH	NW	P	PA	PB	PC
MY1H25	110	9	5.5	16	24.5	54	M6 x 1	9.5	114	5.6	53	90	9	M5 x 0.8	30	18	40.2	40.5	39	53	1/8	60	50	14.5
MY1H32	140	11	6.6	19	28.5	68	M8 x 1.25	16	140	6.8	70	110	13	M6 x 1	37	22	50.2	50	49	64	1/8	80	60	15
MY1H40	170	14	8.5	23	35	84	M10 x 1.5	15	170	8.6	85	121	13	M6 x 1	45	26.5	62.7	62	61.5	75	1/4	100	80	20.5

Model	PD	PE	PF	PG	PP	Q	QW	RR	TT	TTT	VV	WW	WWW	XXX	YH	Z	ZZ
MY1H25	32	13	5.5	7	12	206	42	15	14.5	20.5	23.3	11	15.5	15.5	37.5	220	1/16
MY1H32	42	13	6.5	8	16	264	51	16	16	16	28.5	12	12	20	47	280	1/16
MY1H40	37.5	23	8	9	18.5	322	59	23.5	20	20	35	14	14	23.5	59.5	340	1/8

### Centralized piping [mm]

Model	QQ	SS	UU	XX
MY1H25	16	6	18	26.5
MY1H32	16	11	32	40
MY1H40	24	12	35	47

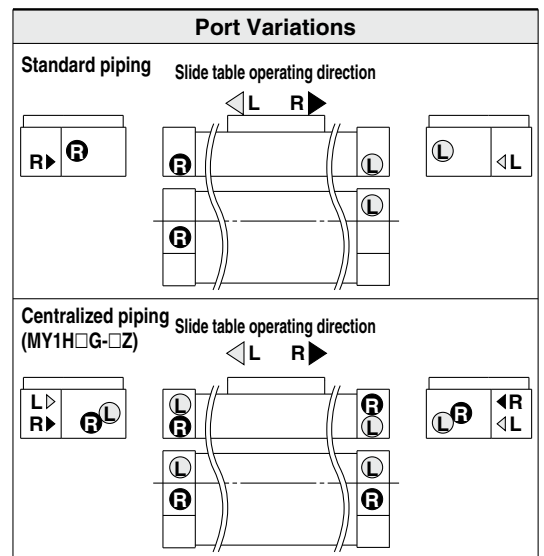
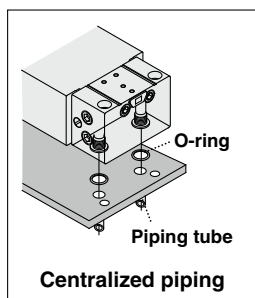
### Centralized Piping on the Bottom



\* This figure shows the recommended machining dimensions of the mounting surface when viewed from the cylinder side.  
 \* Values inside the parentheses are those for MY1H□G. [mm]

Model	WXX	Y	d	D	R	Applicable O-ring
MY1H25	15.5	16.2	6	11.4	1.1	C9
MY1H32	20	20.4	6	11.4	1.1	
MY1H40	23.5	25.9	8	13.4	1.1	

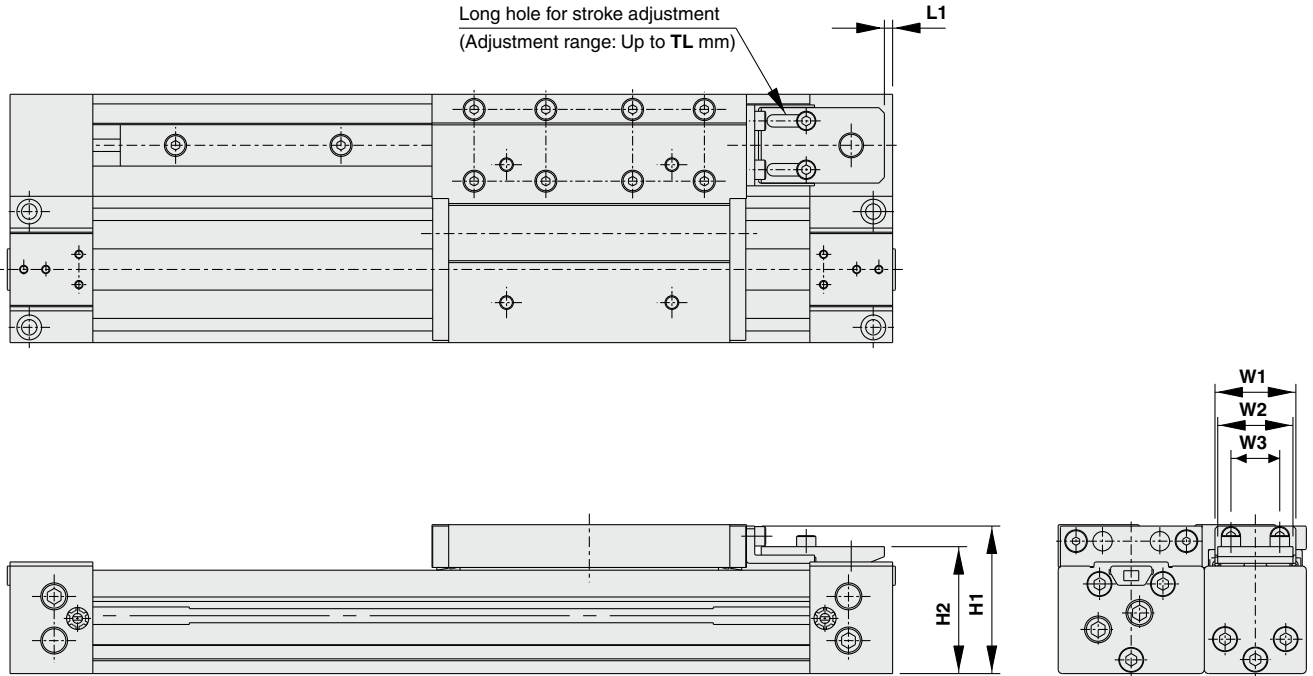
Model	WX	V
MY1H25	26.5	10
MY1H32	40	5.5
MY1H40	47	6



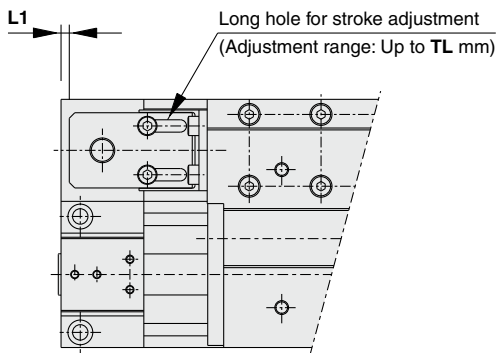
**With End Lock  $\phi 16, \phi 20$**

(Dimensions for types other than end lock are identical to the standard type dimensions. For details about dimensions, etc., refer to page 90.)

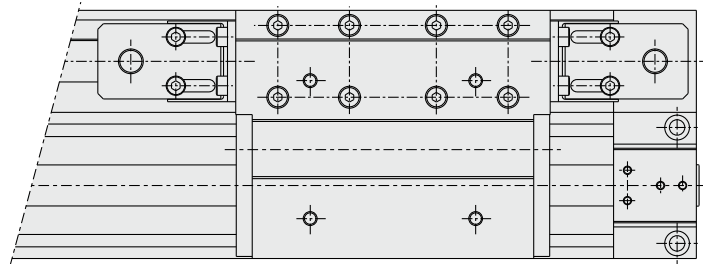
**MY1H□—□E  
(Right end)**



**MY1H□—□F  
(Left end)**



**MY1H□—□W  
(Both ends)**



Model	H1	H2	L1	TL	W1	W2	W3
MY1H16□	39.2	33	0.5	5.6	18	16	10.4
MY1H20□	45.7	39.5	3	6	18	16	10.4

[mm]

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

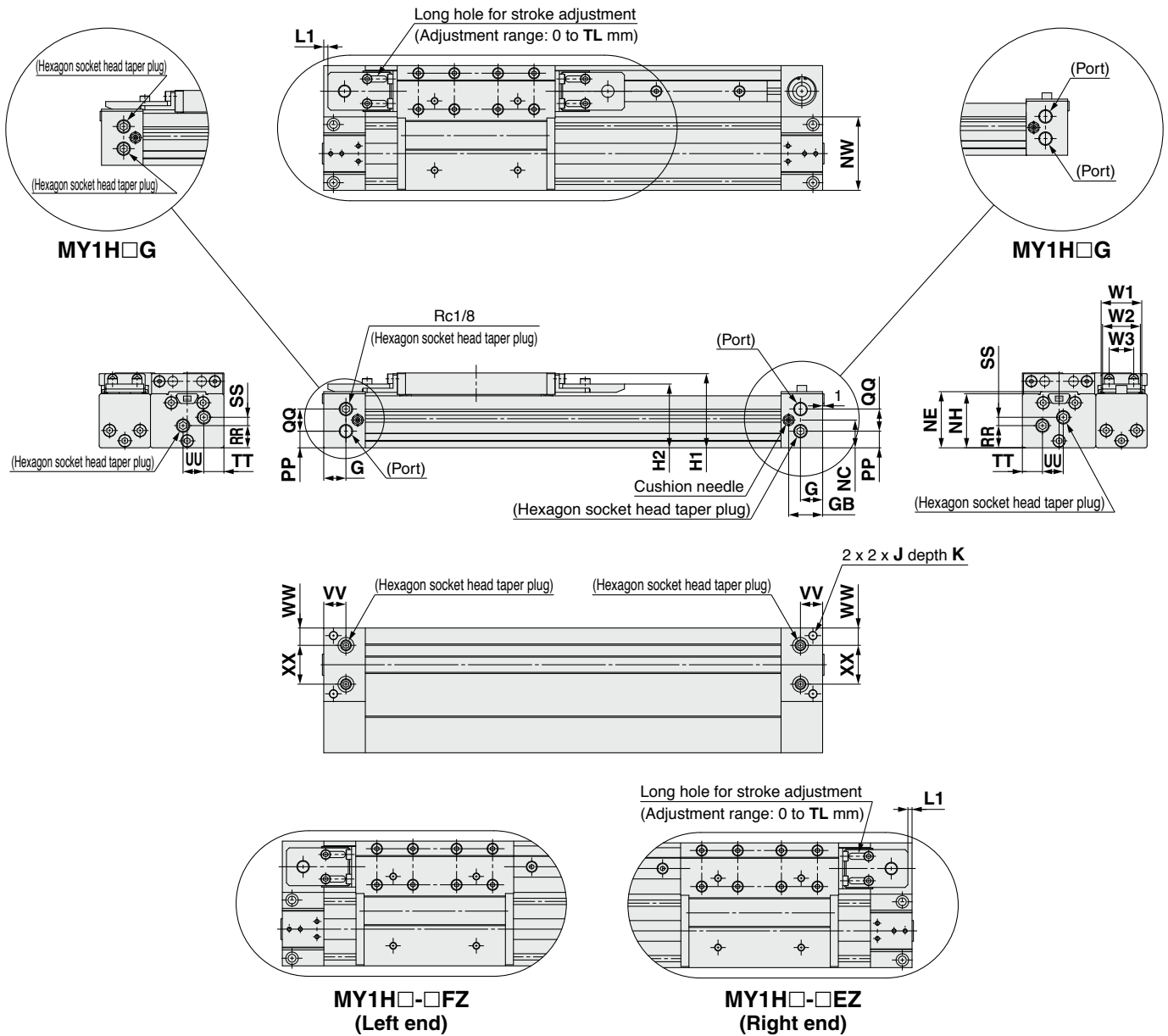
Specific Product Precautions

# MY1H Series

## With End Lock $\varnothing 25$ , $\varnothing 32$ , $\varnothing 40$

(Dimensions for types other than end lock are identical to the standard type) dimensions. For details about dimensions, etc., refer to page 91.

### MY1H□—□WZ (Both ends)



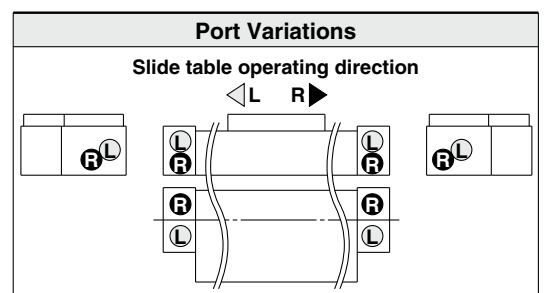
Standard piping/Centralized piping [mm]

Model	NC	NE	PP	RR	SS	UU	VV	WW	XX
MY1H25	20	40.5	12	16	6	15	16	12.5	28
MY1H32	25	50	17	23	4	16	19	16	32
MY1H40	30.5	63	8.5	27	10.5	22	23	19.5	36

\* The dimensions of the TT, G, GB, and NA are the same as those of the standard product.

End lock mechanism (Standard piping/Centralized piping) [mm]

Model	H1	H2	L1	TL	W1	W2	W3
MY1H25	53.5	46	3	11.5	29.3	27.3	17.7
MY1H32	67	56	6.5	12	29.3	27.3	17.7
MY1H40	83	68.5	10.5	16	38	35	24.4



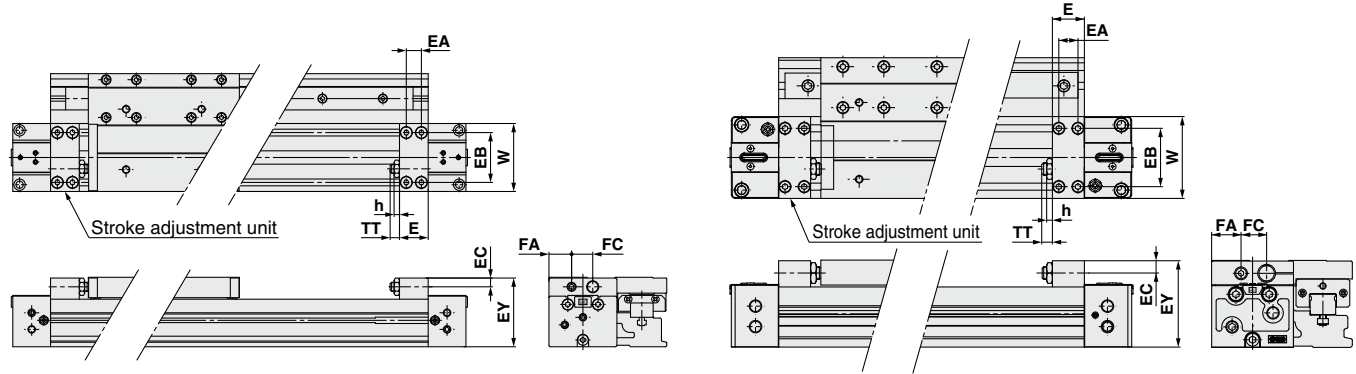
## Stroke Adjustment Units

With adjustment bolt

MY1H **Bore size** □ – **Stroke** A(Z)

ø16, ø20

ø25, ø32, ø40



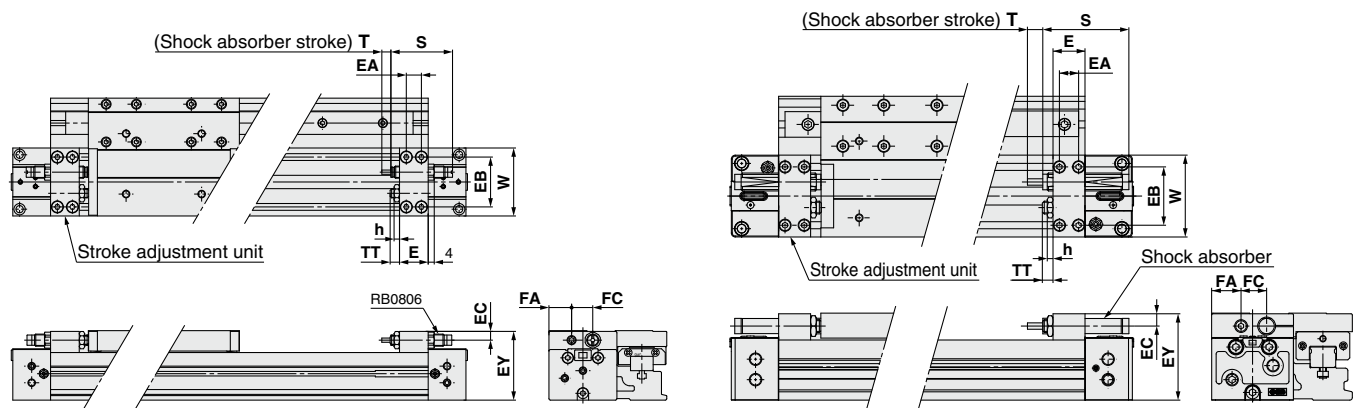
Applicable cylinder	E	EA	EB	EC	EY	FA	FC	h	TT	W
MY1H16	14.6	7	28	5.8	39.5	11.5	13	3.6	5.4 (Max. 11)	37
MY1H20	19	10	33	5.8	45.5	15	14	3.6	6 (Max. 12)	45
MY1H25	18	9	40	7.5	53.5	16	21	3.5	5 (Max. 16.5)	53
MY1H32	25	14	45.6	9.5	67.5	23	20	4.5	8 (Max. 20)	64
MY1H40	31	19	55	11	82	24.5	26	4.5	9 (Max. 25)	75

With low load shock absorber + Adjustment bolt

MY1H **Bore size** □ – **Stroke** L(Z)

ø16, ø20

ø25, ø32, ø40



Applicable cylinder	E	EA	EB	EC	EY	FA	FC	h	S	T	TT	W	Shock absorber model
MY1H16	14.6	7	28	5.8	39.5	11.5	13	3.6	40.8	6	5.4 (Max. 11)	37	RB0806
MY1H20	19	10	33	5.8	45.5	15	14	3.6	40.8	6	6 (Max. 12)	45	RB0806
MY1H25	18	9	40	7.5	53.5	16	21	3.5	46.7	7	5 (Max. 16.5)	53	RB1007
MY1H32	25	14	45.6	9.5	67.5	23	20	4.5	67.3	12	8 (Max. 20)	64	RB1412
MY1H40	31	19	55	11	82	24.5	26	4.5	67.3	12	9 (Max. 25)	75	RB1412

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

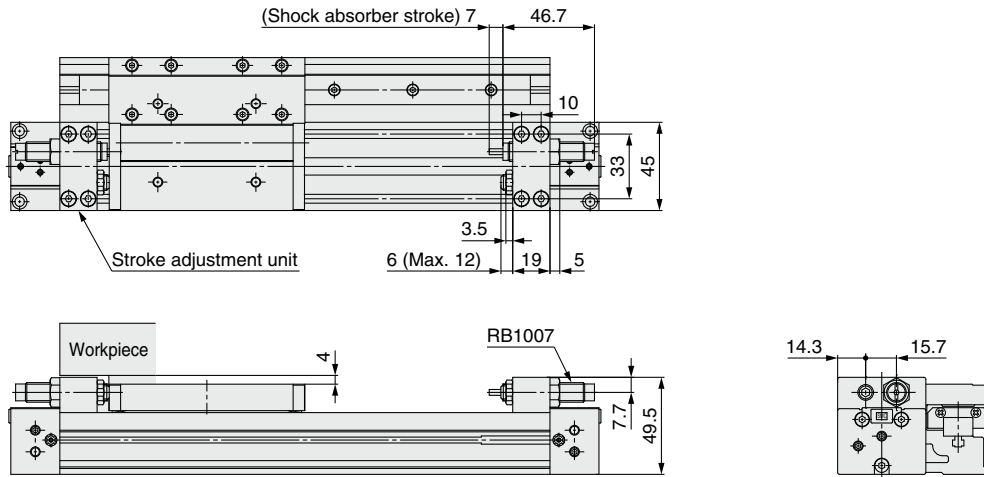
# MY1H Series

## Stroke Adjustment Units

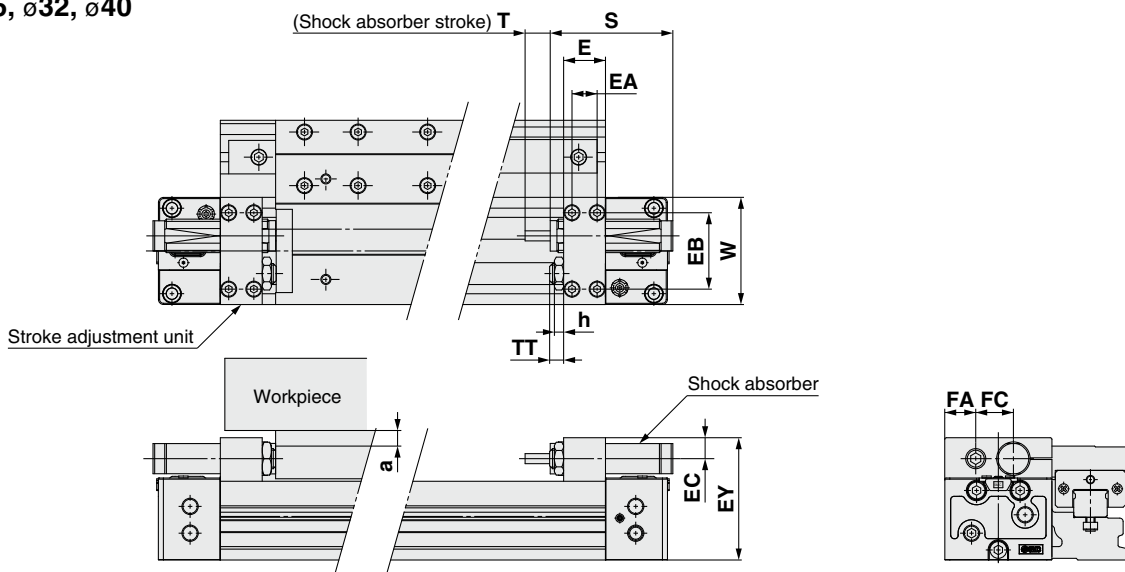
With high load shock absorber + Adjustment bolt

MY1H Bore size □ – Stroke H(Z)

ø20



ø25, ø32, ø40



\* Since the EY dimension of H unit is longer than the table top height (H dimension), when mounting a workpiece that exceeds the overall length (L dimension) of the slide table, allow a clearance of dimension "a" or longer on the workpiece side.

Applicable cylinder	E	EA	EB	EC	EY	F	FA	FC	h	S	T	TT	W	Shock absorber model	a
MY1H25	18	9	40	9	57	—	18	17.5	4.5	67.3	12	5 (Max. 16.5)	53	RB1412	3.5
MY1H32	25	14	45.6	12.4	73	—	18.5	22.5	5.5	73.2	15	8 (Max. 20)	64	RB2015	5.5
MY1H40	31	19	55	12.4	86	—	26.5	22	5.5	73.2	15	9 (Max. 25)	75	RB2015	2.5

# MY1H Series Accessory Brackets (Option)

## Stroke Adjustment Units

**MYH-A 25 L2 - 6N**

Stroke adjustment unit

Bore size

10	10 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm

Unit no.

Symbol	Stroke adjustment unit	Mounting position
A1	A unit	Left
A2		Right
L1	L unit	Left
L2		Right
H1	H unit	Left
H2		Right

Intermediate fixing spacer

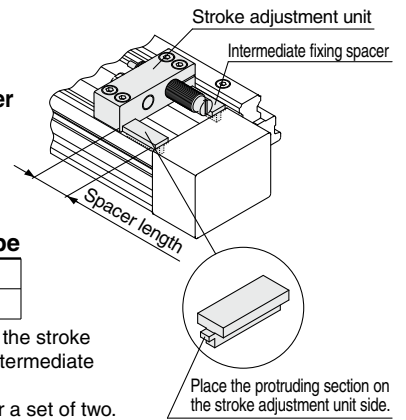
Nil	Without spacer
6	Short spacer
7	Long spacer

Spacer delivery type

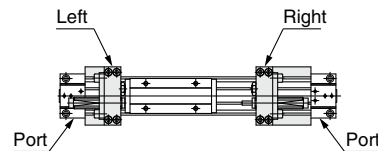
Nil	Unit installed
N	Spacer only

\* 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.



## Stroke adjustment range

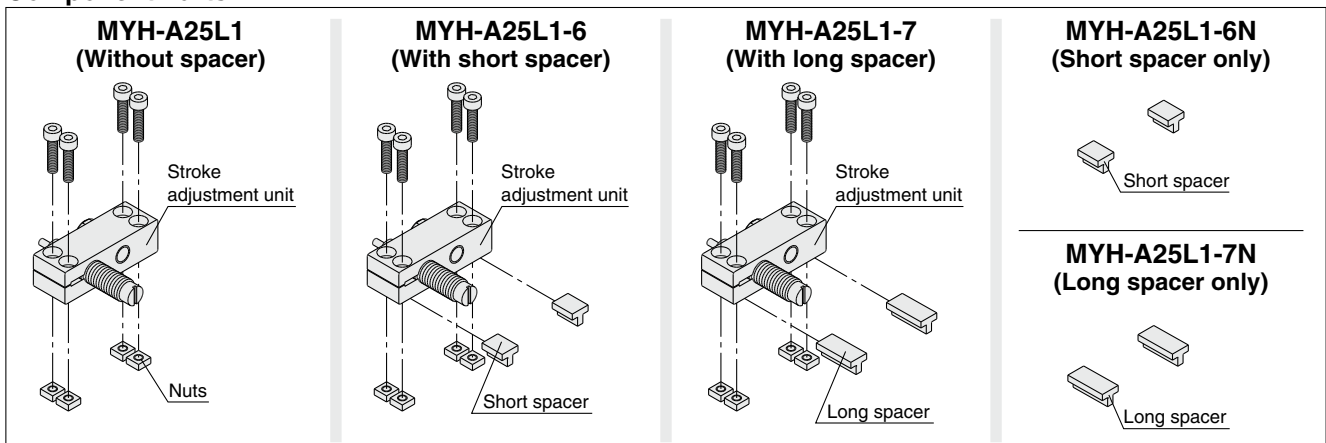
Bore size	10			16			20			25			32			40		
	Unit symbol	H	A, L	A, L, H	A, L, H	A, L, H	A, L, H	A, L, H	A, L, H	A, L, H	A, L, H	A, L, H						
Without spacer	0 to -10	0 to -5.6	0 to -6	0 to -11.5	0 to -12	0 to -16												
With short spacer	—*1	-5.6 to -11.2	-6 to -12	-11.5 to -23	-12 to -24	-16 to -32												
With long spacer	—*1	-11.2 to -16.8	-12 to -18	-23 to -34.5	-24 to -36	-32 to -48												

\*1 For ø10, stroke adjustment is available. Refer to page 122 for details.

## Spacer length

Bore size	16	20	25	32	40
Short spacer	5.6	6	11.5	12	16
Long spacer	11.2	12	23	24	32

## Component Parts



\* Nuts are equipped on the cylinder body.

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

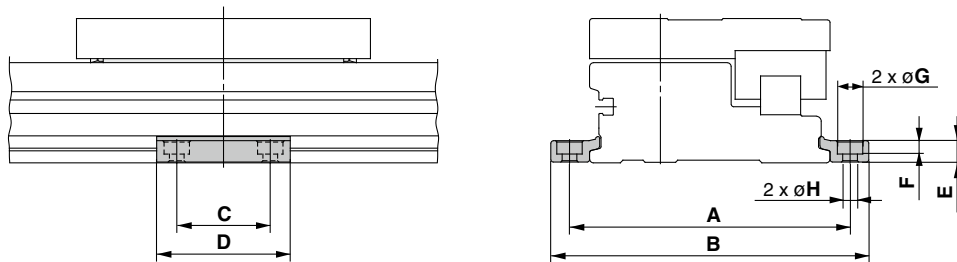
Specific Product Precautions



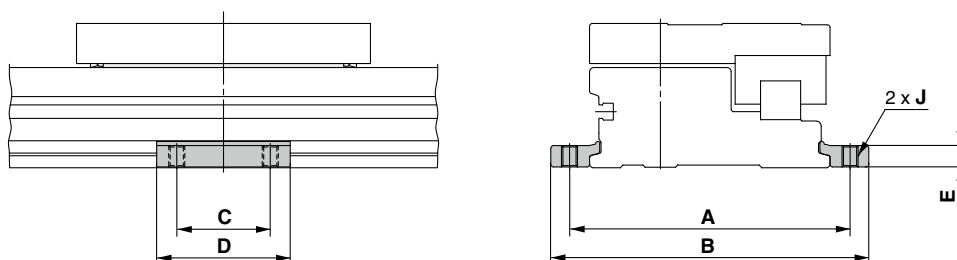
# MY1H Series

## Side Supports

### Side support A MY-S□A



### Side support B MY-S□B



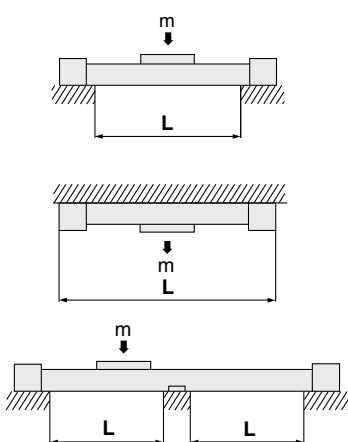
[mm]

Model	Applicable cylinder	A	B	C	D	E	F	G	H	J
MY-S10 <sup>A</sup> <sub>B</sub>	MY1H10	53	61.6	12	21	3	1.2	6.5	3.4	M4 x 0.7
MY-S16 <sup>A</sup> <sub>B</sub>	MY1H16	71	81.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 <sup>A</sup> <sub>B</sub>	MY1H20	91	103.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25 <sup>A</sup> <sub>B</sub>	MY1H25	105	119	35	50	8	5	9.5	5.5	M6 x 1
MY-S32 <sup>A</sup> <sub>B</sub>	MY1H32	130	148	45	64	11.7	6	11	6.6	M8 x 1.25
MY-S40 <sup>A</sup> <sub>B</sub>	MY1H40	145	167	55	80	14.8	8.5	14	9	M10 x 1.5

\* Side supports consist of a set of right and left brackets.

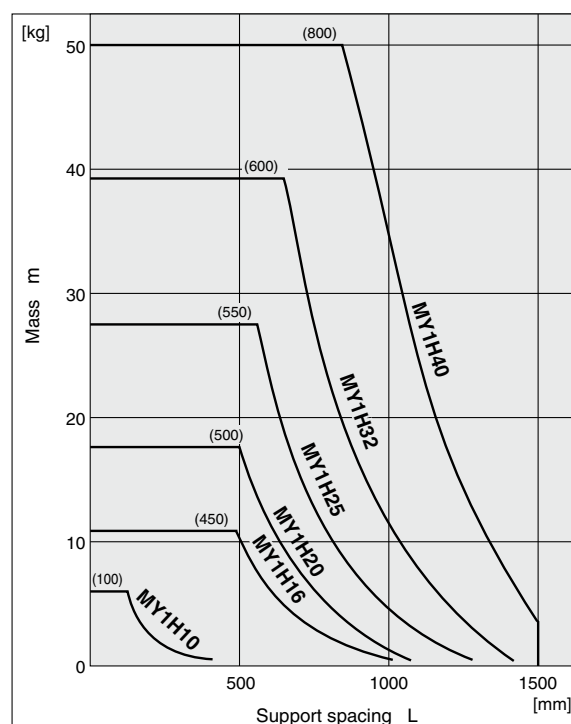
## Guide for Side Support Application

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load. In such a case, use a side support in the middle section. The spacing (L) of the support must be no more than the values shown in the graph on the right.



### ⚠ Caution

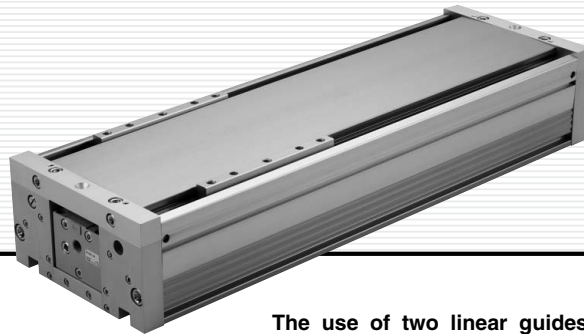
1. If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting it. Also, for long stroke operation involving vibration and impact, the use of a side support is recommended even if the spacing value is within the allowable limits shown in the graph.
2. Support brackets are not for mounting; use them solely for providing support.



# MY1HT Series

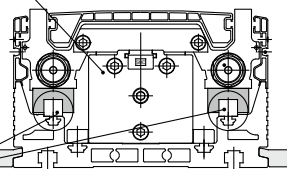
High Rigidity/Linear Guide Type

ø50, ø63



The use of two linear guides allows a maximum load of 320 kg. (ø63)

Rodless cylinder  
MY1BH



2 linear guides

## INDEX

Prior to Use	p. 99
Model Selection	p. 101
How to Order	p. 103
Specifications	p. 104
Cushion Capacity	p. 105
Construction	p. 106
Dimensions	p. 107
Side Supports	p. 108

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1HT Series

## Prior to Use

### Maximum Allowable Moment/Maximum Load Mass

### 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 load mass for the selected conditions.

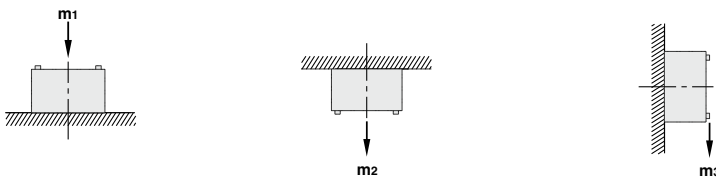
Model	Bore size [mm]	Maximum allowable moment [N·m]			Maximum load mass [kg]		
		M <sub>1</sub>	M <sub>2</sub>	M <sub>3</sub>	m <sub>1</sub>	m <sub>2</sub>	m <sub>3</sub>
MY1HT	50	140	180	140	200	140	200
	63	240	300	240	320	220	320

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

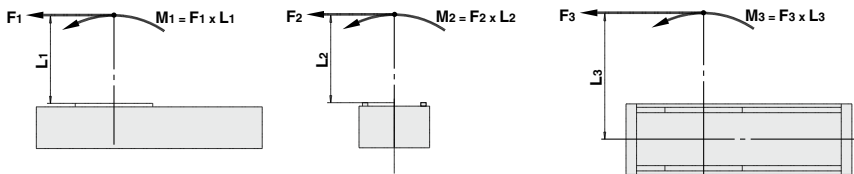
### Caution on Design

If the product is operated with a guide load factor which exceeds the standard value, malfunction may occur due to damage to the guide portion. Therefore, be sure to confirm that the guide load factor is 1 or less.

### 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  $U_a$  (average speed) for (1) and (2), and  $U$  (collision speed  $U = 1.4U_a$ ) 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 ( $M_1, M_2, M_3$ ).

### Maximum Load Mass

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

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

\*1 Moment caused by the load, etc., with cylinder in resting condition

\*2 Moment caused by the load equivalent to impact at the stroke end (at the time of impact with stopper)

\* 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 formula [Dynamic moment at the time of impact]

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

**m:** Load mass [kg]

**F:** Load [N]

**F<sub>E</sub>:** Load equivalent to impact (at the time of impact with stopper) [N]

**U<sub>a</sub>:** Average speed [mm/s]

**M:** Static moment [N·m]

$$U = 1.4U_a \text{ (mm/s)} \quad F_E = 1.4U_a \cdot \delta \cdot m \cdot g$$

$$\therefore M_E = \frac{1}{3} \cdot F_E \cdot L_1 = 4.57U_a \delta m L_1$$

**U:** Collision speed [mm/s]

**L<sub>1</sub>:** Distance to the load center of gravity [m]

**M<sub>E</sub>:** Dynamic moment [N·m]

**δ:** Bumper coefficient

With rubber bumper = 4/100

(MY1B10, MY1H10)

With air cushion = 1/100

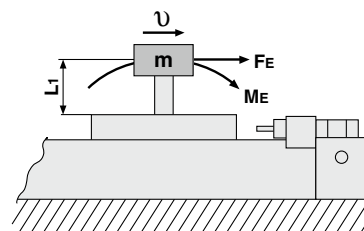
With shock absorber = 1/100

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

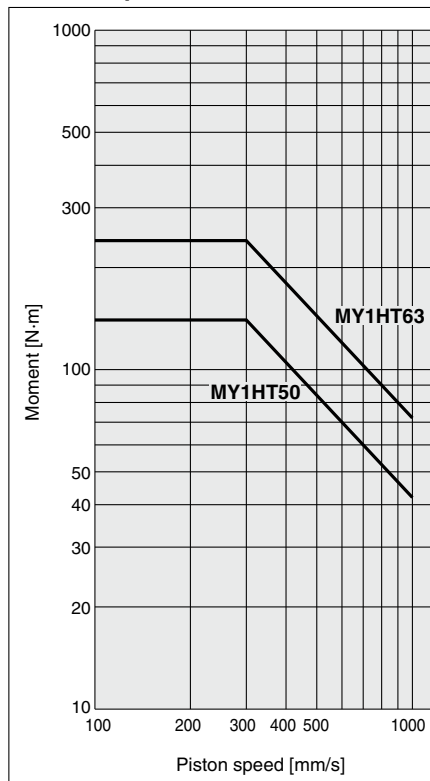
\*3  $1.4U_a \delta$  is a dimensionless coefficient for calculating impact force.

\*4 Average load coefficient ( $= \frac{1}{3}$ ): For averaging the maximum load moment at the time of impact with stopper according to service life calculations

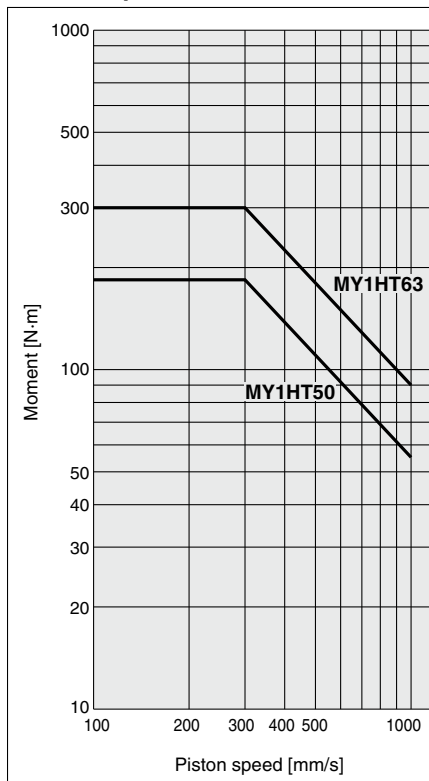
3. For detailed selection procedures, refer to pages 101 and 102.



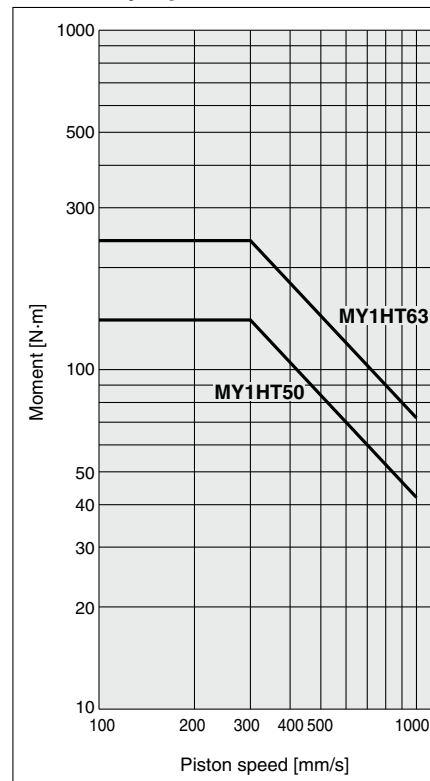
**MY1HT/M<sub>1</sub>**



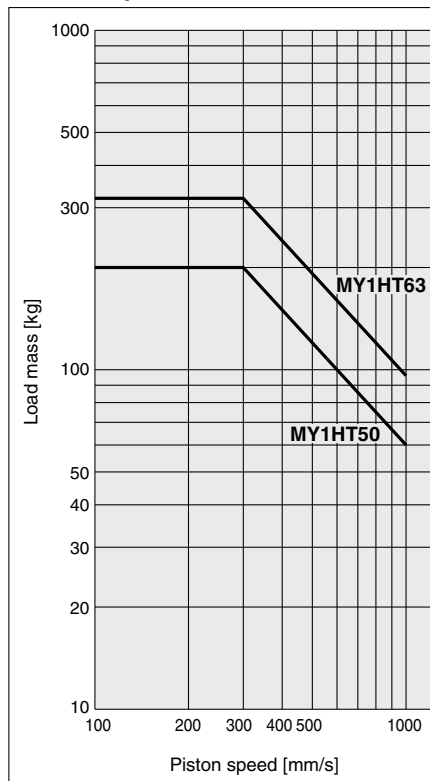
**MY1HT/M<sub>2</sub>**



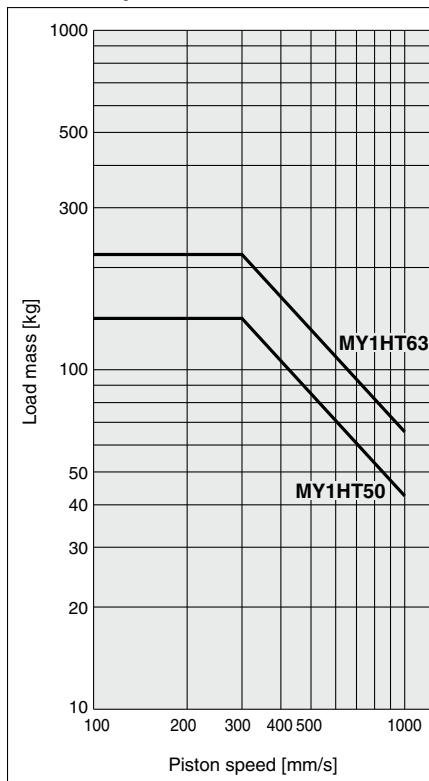
**MY1HT/M<sub>3</sub>**



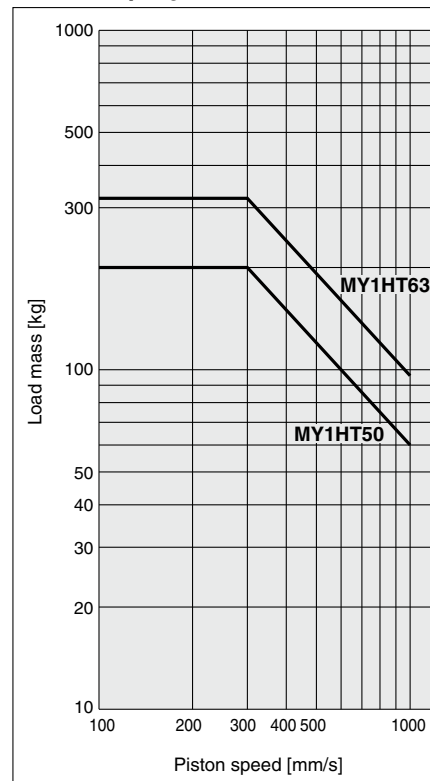
**MY1HT/m<sub>1</sub>**



**MY1HT/m<sub>2</sub>**



**MY1HT/m<sub>3</sub>**



Model Selection

MY1B

MY1M

MY1C

MY1H

**MY1HT**

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

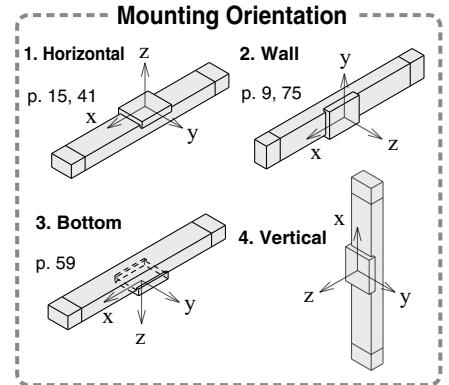
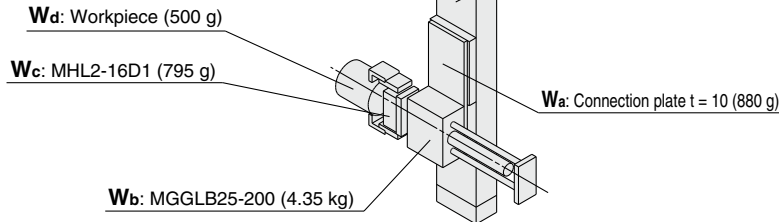
# MY1HT Series Model Selection

Following are the steps for selecting the most suitable MY1HT series to your application.

## Calculation of Guide Load Factor

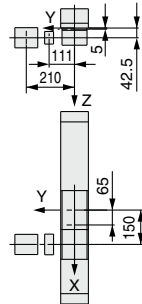
### 1. Operating Conditions

Cylinder ..... MY1HT50-600  
Average operating speed  $v_a$  ... 700 mm/s  
Mounting orientation ..... Vertical  
Cushion ..... Shock absorber  
( $\delta = 1/100$ )



For actual examples of calculation for each orientation, refer to the pages above.

### 2. Load Blocking



### Mass and Center of Gravity for Each Workpiece

Workpiece no. $W_n$	Mass $m_n$	Center of gravity		
		X-axis $X_n$	Y-axis $Y_n$	Z-axis $Z_n$
$W_a$	0.88 kg	65 mm	0 mm	5 mm
$W_b$	4.35 kg	150 mm	0 mm	42.5 mm
$W_c$	0.795 kg	150 mm	111 mm	42.5 mm
$W_d$	0.5 kg	150 mm	210 mm	42.5 mm

$n = a, b, c, d$

### 3. Composite Center of Gravity Calculation

$$m_4 = \sum m_n = 0.88 + 4.35 + 0.795 + 0.5 = 6.525 \text{ kg}$$

$$X = \frac{1}{m_4} \times \sum (m_n \times x_n) = \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = 138.5 \text{ mm}$$

$$Y = \frac{1}{m_4} \times \sum (m_n \times y_n) = \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = 29.6 \text{ mm}$$

$$Z = \frac{1}{m_4} \times \sum (m_n \times z_n) = \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = 37.4 \text{ mm}$$

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

$m_4$ : Mass

$m_4$  is the mass which can be transferred by the thrust, and as a rule, is actually .....

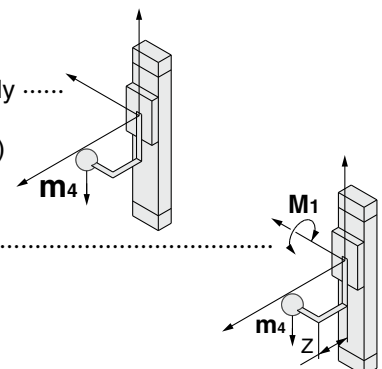
about 0.3 to 0.7 of the thrust. (This differs depending on the operating speed.)

$M_1$ : Moment

$M_1 \text{ max}$  (from ① of graph MY1HT/ $M_1$ ) = 60 [N·m] .....

$$M_1 = m_4 \times g \times Z = 6.525 \times 9.8 \times 37.4 \times 10^{-3} = 2.39 \text{ [N·m]}$$

$$\text{Load factor } \alpha_1 = M_1 / M_1 \text{ max} = 2.39 / 60 = 0.04$$

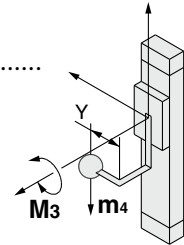


**M<sub>3</sub>**: Moment

**M<sub>3</sub> max** (from ② of graph MY1HT/M<sub>3</sub>) = 60 [N·m] .....

$$M_3 = m_4 \times g \times Y = 6.525 \times 9.8 \times 29.6 \times 10^{-3} = 1.89 \text{ [N·m]}$$

$$\text{Load factor } \alpha_2 = M_3 / M_3 \text{ max} = 1.89 / 60 = 0.03$$



## 5. Calculation of Load Factor for Dynamic Moment

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

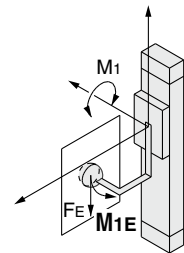
$$F_E = 1.4 \nu a \times \delta \times m \times g = 1.4 \times 700 \times \frac{1}{100} \times 6.525 \times 9.8 = 626.7 \text{ [N]}$$

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

**M<sub>1E</sub> max** (from ③ of graph MY1HT/M<sub>1</sub> where 1.4νa = 980 mm/s) = 42.9 [N·m] .....

$$M_{1E} = \frac{1}{3} \times F_E \times Z = \frac{1}{3} \times 626.7 \times 37.4 \times 10^{-3} = 7.82 \text{ [N·m]}$$

$$\text{Load factor } \alpha_3 = M_{1E} / M_{1E} \text{ max} = 7.82 / 42.9 = 0.18$$

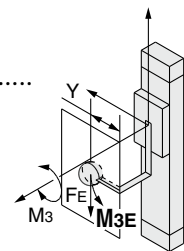


**M<sub>3E</sub>**: Moment

**M<sub>3E</sub> max** (from ④ of graph MY1HT/M<sub>3</sub> where 1.4νa = 980 mm/s) = 42.9 [N·m] .....

$$M_{3E} = \frac{1}{3} \times F_E \times Y = \frac{1}{3} \times 626.7 \times 29.6 \times 10^{-3} = 6.19 \text{ [N·m]}$$

$$\text{Load factor } \alpha_4 = M_{3E} / M_{3E} \text{ max} = 6.19 / 42.9 = 0.14$$



## 6. Sum and Examination of Guide Load Factors

$$\sum \alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 = 0.39 \leq 1$$

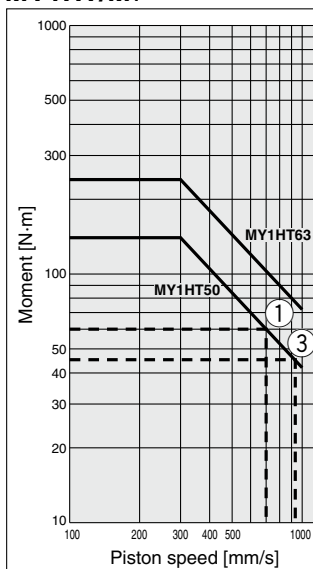
The above calculation is within the allowable value, and therefore the selected model can be used.

Select a shock absorber separately.

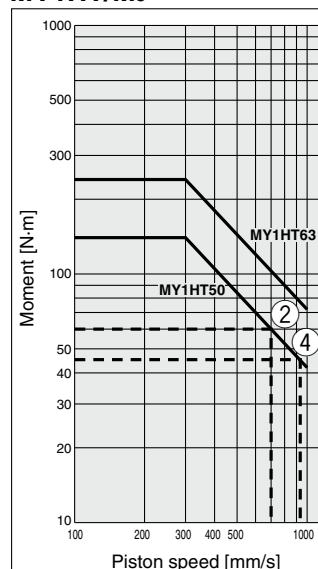
In an actual calculation, when the total sum of guide load factors  $\sum \alpha$  in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the “Guide Cylinder Selection Software” on the SMC website.

## Allowable Moment

**MY1HT/M<sub>1</sub>**



**MY1HT/M<sub>3</sub>**



# Mechanically Jointed Rodless Cylinder High Rigidity/Linear Guide Type

## MY1HT Series

ø50, ø63

### How to Order

High Rigidity/  
Linear Guide Type

MY1HT 50 [ ] [ ] - 400 L - Y7BW [ ] - [ ]

High rigidity/Linear guide type  
(2 linear guides)

#### 1 Bore size

50	50 mm
63	63 mm

#### 2 Port thread type

Symbol	Type	Bore size
Nil	Rc	ø50, ø63
TN	NPT	
TF	G	

#### 3 Piping

Nil	Standard type
G	Centralized piping type

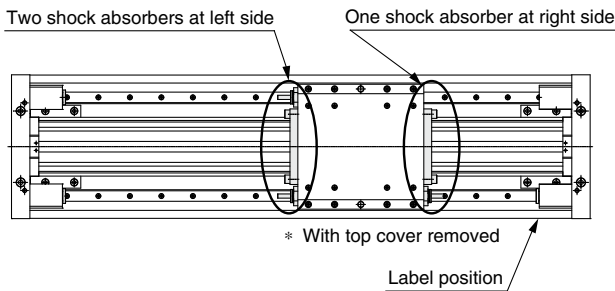
#### 4 Stroke

Refer to "Standard Stroke" on page 104.

#### 5 Stroke adjustment unit

L	One shock absorber at each stroke end
H	Two shock absorbers at each stroke end
LH	One shock absorber at left side, two shock absorbers at right side
HL	Two shock absorbers at left side, one shock absorber at right side

\* The positions right and left are for when the label is on the front side. Refer to the figure below for details.



#### 6 Auto switch

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

\* For the applicable auto switch model, refer to the table below.

#### 7 Number of auto switches

Nil	2
S	1
n	n

#### 8 Made to Order Common Specifications

Refer to page 104.

#### Option

##### Stroke Adjustment Unit Part No.

Bore size [mm]	50	63
Unit part no.	MYT-A50L	MYT-A63L

For component parts, refer to page 124.

##### Side Support Part No.

Type	Bore size [mm]	
	50	63
Side support A	MY-S63A	
Side support B	MY-S63B	

For details about dimensions, etc., refer to page 108. Side supports consist of a set of right and left brackets.

### Applicable Auto Switches/Refer to the Web Catalog 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)	3 (L)	5 (Z)				
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	Y69A	Y59A	●	●	○	○	IC circuit	
				3-wire (PNP)				Y7PV	Y7P	●	●	○	○		
				2-wire				Y69B	Y59B	●	●	○	○		
	Diagnostic indication (2-color indicator)			3-wire (NPN)				Y7NWV	Y7NW	●	●	○	○		IC circuit
				3-wire (PNP)				Y7PWV	Y7PW	●	●	○	○		
				2-wire				Y7BWV	Y7BW	●	●	○	○		
Water resistant (2-color indicator)	—	—	—	Y7BA*1	—	●	○	○	—						
Reed auto switch	—	Grommet	No	3-wire (NPN equivalent)	24 V	5 V	—	—	Z76	●	●	—	—	IC circuit	—
				2-wire				100 V	12 V	100 V	—	Z73	●	●	
							100 V or less	—	Z80	●	●	—	—	IC circuit	Relay, PLC

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

Please contact SMC regarding water-resistant types with the above model numbers.

\* For details on auto switch mounting brackets and part numbers, refer to page 112.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) Y7BW

3 m ..... L (Example) Y7BWL

5 m ..... Z (Example) Y7BWZ

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

\* Switch spacers (BMP1-032) are separately required to retrofit auto switches.

\* Since there are applicable auto switches other than those listed above, refer to page 112 for details.

\* Auto switches are shipped together with the product but do not come assembled. (For details about auto switch mounting, etc., refer to page 110.)

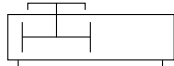


# Mechanically Jointed Rodless Cylinder **MY1HT Series** High Rigidity/Linear Guide Type

## Specifications



Symbol



Bore size [mm]	50	63
Fluid	Air	
Action	Double acting	
Operating pressure range	0.1 to 0.8 MPa	
Proof pressure	1.2 MPa	
Ambient and fluid temperatures	5 to 60°C	
Piston speed	100 to 1000 mm/s	
Cushion	Shock absorbers on both ends (Standard)	
Lubrication	Non-lube	
Stroke length tolerance	2700 or less $^{+1.8}_0$ , 2701 to 5000 $^{+2.8}_0$	
Port size	3/8	
Side port		

\* Use at a speed within the absorption capacity range. Refer to page 105.

## Stroke Adjustment Unit Specifications

Applicable bore size [mm]	50		63	
	L	H	L	H
Unit symbol, contents	RB2015 and adjustment bolt: 1 set each	RB2015 and adjustment bolt: 2 sets each	RB2725 and adjustment bolt: 1 set each	RB2725 and adjustment bolt: 2 sets each
Fine stroke adjustment range [mm]	0 to -20		0 to -25	
Stroke adjustment range	For adjustment method, refer to page 124.			

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

Shock absorber model	RB2015 x 1 pc.	RB2015 x 2 pcs.	RB2725 x 1 pc.	RB2725 x 2 pcs.	
Maximum absorbed energy [J]	58.8	88.2 <sup>*1</sup>	147	220.5 <sup>*1</sup>	
Stroke absorption [mm]	15	15	25	25	
Maximum collision speed [mm/s]	1000		1000		
Maximum operating frequency [cycle/min]	25	25	10	10	
Spring force [N]	Extended	8.34	16.68	8.83	17.66
	Retracted	20.50	41.00	20.01	40.02
Operating temperature range [°C]	5 to 60				

\*1 Maximum absorbed energy for 2 pcs. is calculated by multiplying the value for 1 pc. by 1.5.

\* The shock absorber service life is different from that of the MY1HT cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

## 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
50	1962	392	588	784	981	1177	1373	1569
63	3115	623	934	1246	1557	1869	2180	2492

\* Theoretical output [N] = Pressure [MPa] x Piston area [mm<sup>2</sup>]



Made to Order Common Specifications  
(For details, refer to page 114.)

Symbol	Specifications
-XC67	NBR rubber lining in dust seal band

## Standard Stroke

Bore size [mm]	Standard stroke [mm]	Intermediate stroke	Maximum manufacturable stroke
50, 63	200, 400, 600, 800, 1000, 1500, 2000	Strokes of 201 to 1999 mm (1 mm increments) other than standard strokes	5000

Ordering example

\* Intermediate stroke can be ordered the same as the standard stroke. MY1HT50-500L-Y7BW

## Weight

Bore size [mm]	Basic weight	Additional weight per each 25 mm of stroke	Weight of moving parts	Side support weight (per set)	Stroke adjustment unit weight		
				Type A and B	L unit weight	LH unit weight	H unit weight
50	30.62	0.87	5.80	0.17	0.62	0.93	1.24
63	41.69	1.13	8.10	0.17	1.08	1.62	2.16

Calculation: (Example) **MY1HT50-400L**

- Basic weight .....30.62 kg
- Additional weight ....0.87/25 mm stroke
- L unit weight .....0.62 kg
- Cylinder stroke..... 400 mm stroke  
30.62 + 0.87 x 400/25 + 0.62 x 2 = 45.8

Refer to pages 109 to 112 for the specifications with auto switch.

# MY1HT Series

## Cushion Capacity

### Cushion Selection

<Stroke adjustment unit with built-in shock absorber>

#### L unit

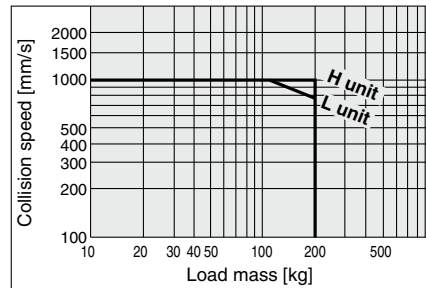
Use this unit when cushioning is required outside of the effective air cushion range even if the load and speed are within the air cushion limit line, or when the cylinder is operated in a load and speed range above the air cushion limit line and below the L unit limit line.

#### H unit

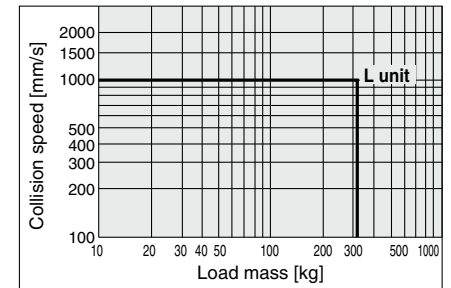
Use this unit when the cylinder is operated in a load and speed range above the L unit limit line and below the H unit limit line.

### Stroke Adjustment Unit Absorption Capacity

**MY1HT50** Horizontal collision: P = 0.5 MPa



**MY1HT63** Horizontal collision: P = 0.5 MPa

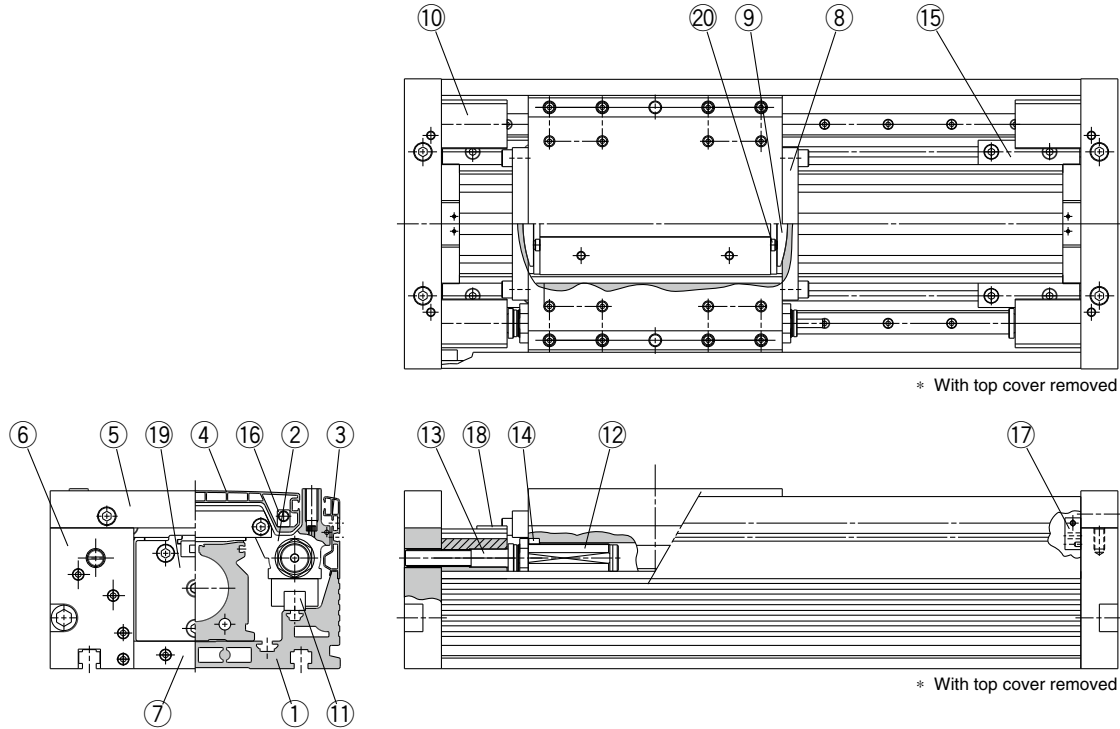


## ⚠ Precautions

For details on the MY1HT Series Mechanically Jointed Rodless Cylinder, refer to "Specific Product Precautions" on pages 119 to 125.

## Construction

### Standard type



### Component Parts

No.	Description	Material	Note
1	Guide frame	Aluminum alloy	Hard anodized
2	Slide table	Aluminum alloy	Hard anodized
3	Side cover	Aluminum alloy	Hard anodized
4	Top cover	Aluminum alloy	Hard anodized
5	Upper plate	Aluminum alloy	Hard anodized
6	End plate	Aluminum alloy	Hard anodized
7	Bottom plate	Aluminum alloy	Hard anodized
8	End cover	Aluminum alloy	Chromated
9	Coupler	Aluminum alloy	Chromated
10	Adjuster holder	Aluminum alloy	Hard anodized
11	Guide	—	
12	Shock absorber	—	
13	Stopper bolt	Carbon steel	Nickel plating
14	Absorber ring	Rolled steel	Nickel plating
15	End support	Aluminum alloy	Hard anodized
16	Top block	Aluminum alloy	Chromated
17	Side block	Aluminum alloy	Chromated
18	Slide plate	Special resin	
19	Rodless cylinder	—	MY1BH
20	Stopper	Carbon steel	Nickel plating

\* For disassembly and assembly procedure, refer to page 125.

Model  
Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch  
Mounting

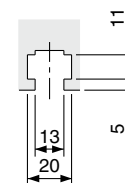
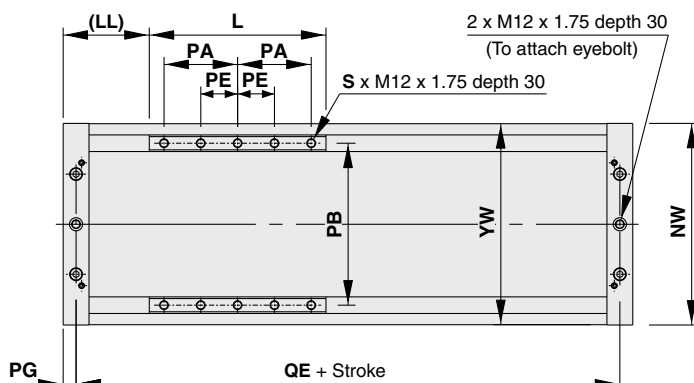
Made to Order  
Common  
Specifications

Specific Product  
Precautions

# MY1HT Series

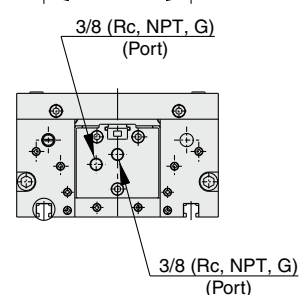
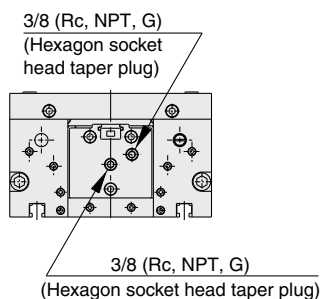
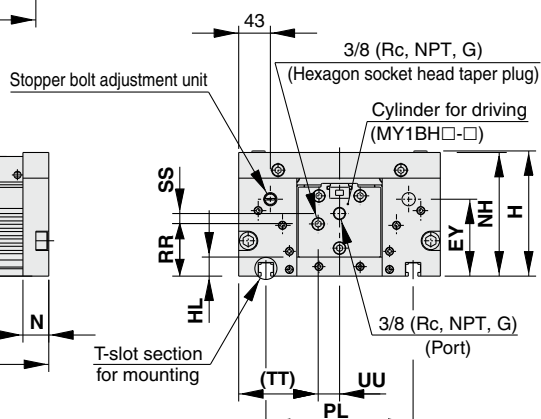
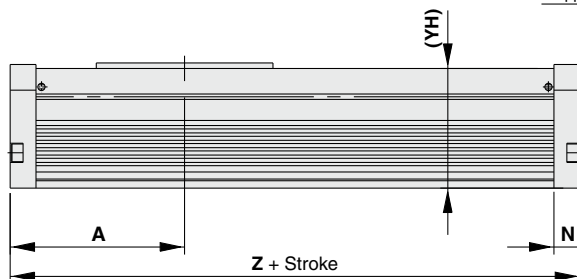
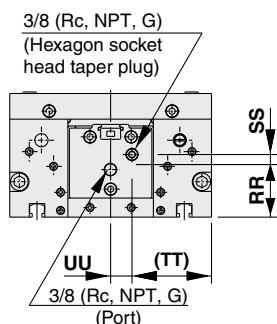
## Standard Type/Centralized Piping Type $\phi 50, \phi 63$

### MY1HT50□/63□ — Stroke



Applicable nut JIS B 1163  
Square nut M12

**Dimensions of T-slot for mounting**

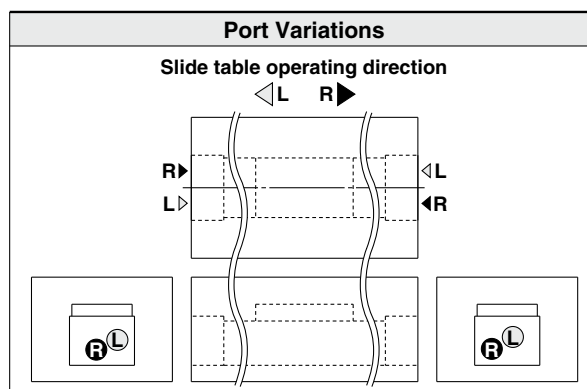


**MY1HT□G**

**MY1HT□G**

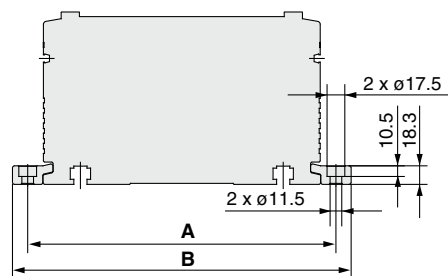
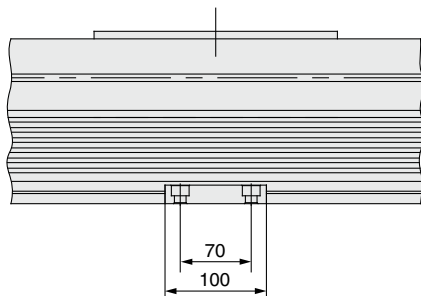
Model	A	EY	H	HL	L	LL	N	NH	NW	PA	PB	PE	PG
MY1HT50□	207	97.5	145	23	210	102	30	143	254	90	200	—	15
MY1HT63□	237	104.5	170	26	240	117	35	168	274	100	220	50	17.5

Model	PL	QE	RR	S	SS	TT	UU	YH	YW	Z
MY1HT50□	180	384	57	6	10	103.5	23.5	136.4	253	414
MY1HT63□	200	439	71.5	10	13.5	108	29	162.6	273	474

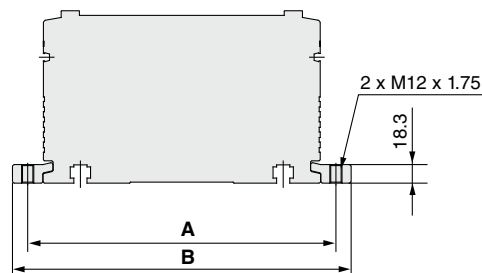
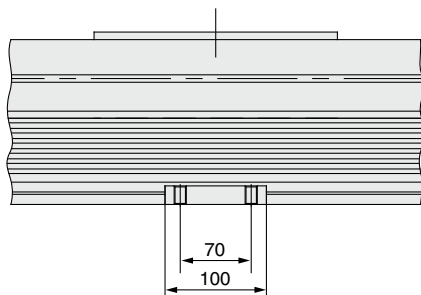


## Side Supports

### Side support A MY-S63A



### Side support B MY-S63B



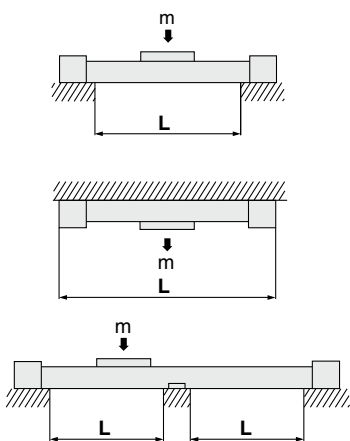
#### Dimensions

		[mm]	
Model	Applicable cylinder	A	B
MY-S63 <sub>A</sub>	MY1HT50	284	314
	MY1HT63	304	334

\* Side supports consist of a set of right and left brackets.

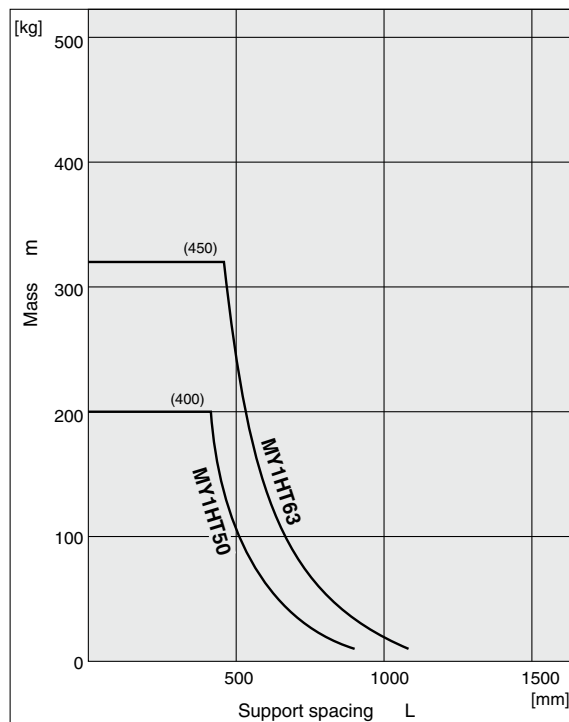
## Guide for Side Support Application

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load. In such a case, use a side support in the middle section. The spacing (L) of the support must be no more than the values shown in the graph on the right.



### Caution

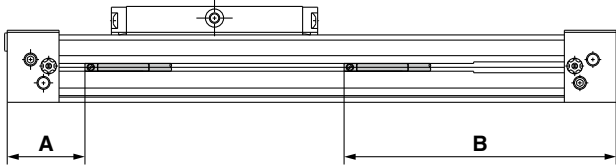
1. If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting it. Also, for long stroke operation involving vibration and impact, the use of a side support is recommended even if the spacing value is within the allowable limits shown in the graph.
2. Support brackets are not for mounting; use them solely for providing support.



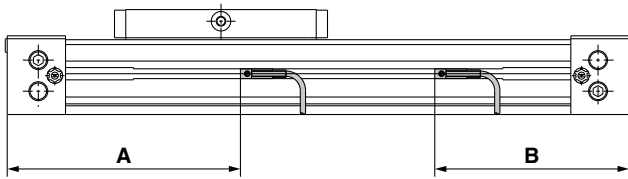
# MY1 Series Auto Switch Mounting

## Proper Auto Switch Mounting Position (Detection at Stroke End)

### MY1B (Basic type) ø10 to ø20



### ø25 to ø100



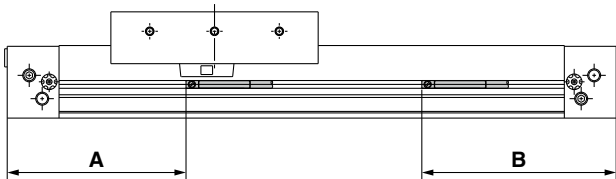
### Proper Auto Switch Mounting Position [mm]

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Y7BA D-Z7□/Z80	
	A	B	A	B	A	B
Bore size						
10	24	86	20	90	—	—
16	31.5	128.5	27.5	132.5	—	—
20	39	161	35	165	—	—
25	138	82	134	86	—	—
32	186.5	93.5	182.5	97.5	—	—
40	222.5	117.5	218.5	212.5	—	—
50	—	—	—	—	272.5	127.5
63	322.5	137.5	—	—	317.5	142.5
80	489.5	200.5	—	—	484.5	205.5
100	574.5	225.5	—	—	569.5	230.5

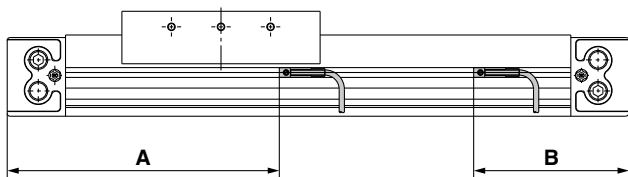
\* D-M9□□□ type cannot be mounted on ø50.

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

### MY1M (Slide bearing guide type) ø16, ø20



### ø25 to ø63

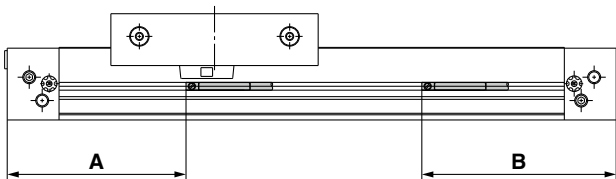


### Proper Auto Switch Mounting Position [mm]

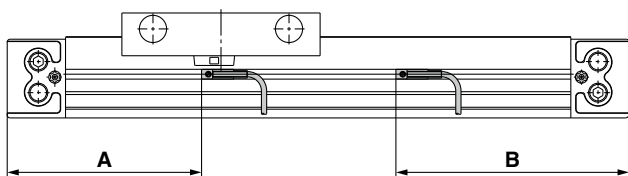
Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Z7□/Z80	
	A	B	A	B	A	B
Bore size						
16	74	86	70	90	—	—
20	94	106	90	110	—	—
25	143.5	75.5	—	—	139.5	80.5
32	189.5	90.5	—	—	184.5	95.5
40	234.5	105.5	—	—	229.5	110.5
50	283.5	116.5	—	—	278.5	121.5
63	328.5	131.5	—	—	323.5	136.5

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

### MY1C (Cam follower guide type) ø16, ø20



### ø25 to ø63



### Proper Auto Switch Mounting Position [mm]

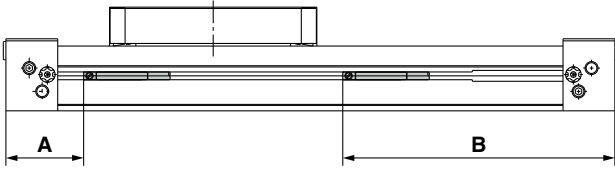
Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Z7□/Z80	
	A	B	A	B	A	B
Bore size						
16	74	86	70	90	—	—
20	94	106	90	110	—	—
25	102	118	—	—	97	123
32	132	148	—	—	127	153
40	162.5	175.5	—	—	157.5	182.5
50	283.5	116.5	—	—	278.5	121.5
63	328.5	131.5	—	—	323.5	136.5

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

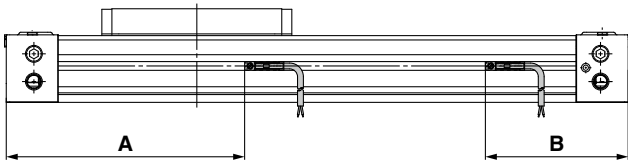
## Proper Auto Switch Mounting Position (Detection at Stroke End)

### MY1H (Linear guide type)

ø10 to ø20



ø25 to ø40



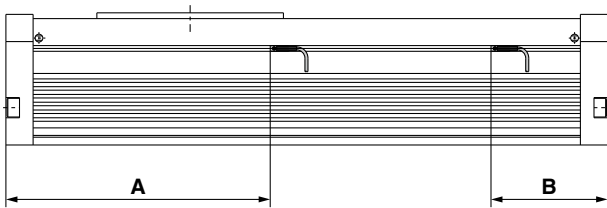
### Proper Auto Switch Mounting Position [mm]

Auto switch model	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Z7□/Z80	
	A	B	A	B	A	B
Bore size						
10	24	86	20	90	—	—
16	31.5	128.5	27.5	132.5	—	—
20	39	161	35	165	—	—
25	138	82	134	86	—	—
32	186.5	93.5	182.5	97.5	—	—
40	222.5	117.5	218.5	121.5	—	—

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

### MY1HT (High rigidity/Linear guide type)

ø50, ø63



### Proper Auto Switch

### Mounting Position [mm]

Auto switch model	D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Y7BA D-Z7□/Z80	
	A	B
Bore size		
50	290.5	123.5
63	335.5	138.5

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

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions



# MY1 Series

## Operating Range

\* Values which include hysteresis are for reference purpose only. They are not a guarantee (assuming approximately  $\pm 30\%$  dispersion) and may change substantially depending on the ambient environment.

### MY1B (Basic type)

[mm]

Auto switch model	Bore size									
	10	16	20	25	32	40	50	63	80	100
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	3.5	4	5.5	5.0	5.5	5.5	—	12	12	11.5
D-A9□/A9□V	6	6.5	8.5	7.0	10.0	9.0	—	—	—	—
D-Z7□/Z80	—	—	—	—	—	—	11.5	11.5	11.5	11.5
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	—	—	—	—	—	—	3.5	3.5	3.5	3.5

\* D-M9□□□ type cannot be mounted on  $\phi 50$ .

### MY1H (Linear guide type)

[mm]

Auto switch model	Bore size					
	10	16	20	25	32	40
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	3	4.5	5	5.0	5.5	5.5
D-A9□/A9□V	11	6.5	8.5	7.0	10.0	9.0
D-Z7□/Z80	—	—	—	—	—	—
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	—	—	—	—	—	—

### MY1M (Slide bearing guide type)

[mm]

Auto switch model	Bore size						
	16	20	25	32	40	50	63
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	7.5	7.5	8.5	8.5	9.5	7	6
D-A9□/A9□V	11	7.5	—	—	—	—	—
D-Z7□/Z80	—	—	12	12	12	11.5	11.5
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	—	—	5	5	5	5.5	5.5

### MY1HT

(High rigidity/Linear guide type) [mm]

Auto switch model	Bore size	
	50	63
D-Z7□/Z80	11	11
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA	5	5

### MY1C (Cam follower guide type)

[mm]

Auto switch model	Bore size						
	16	20	25	32	40	50	63
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	7.5	7.5	7	8	8.5	7	6
D-A9□/A9□V	11	7.5	—	—	—	—	—
D-Z7□/Z80	—	—	12	12	12	11.5	11.5
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	—	—	5	5	5	5.5	5.5

## Auto Switch Mounting Bracket/Part No.

Auto switch model	Bore size [mm]	
	MY1B, MY1H	
	ø10 to ø20	ø50 to ø100
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	—	BMG2-012

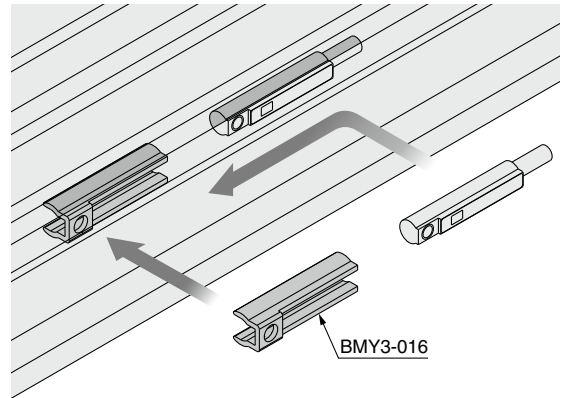
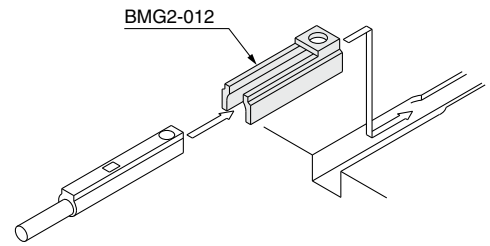
- \* The D-M9□(V)/M9□W(V)/M9□A(V) are not available for bore size ø50 of the MY1B.
- \* The D-A9□(V) is not available for bore sizes ø50 to ø100 of the MY1B.
- \* There are no bore sizes ø50 to ø100 for the MY1H.

Auto switch model	Bore size [mm]	
	MY1B-Z, MY1H-Z	
	ø25 to ø40	
D-A9□/A9□V D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	BMY3-016	

Auto switch model	Bore size [mm]	
	MY1M, MY1C	
	ø10 to ø20	ø25 to ø63
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV D-A9□/A9□V	—	BMG2-012

- \* The D-A9□(V) is not available for bore sizes ø25 to ø63.

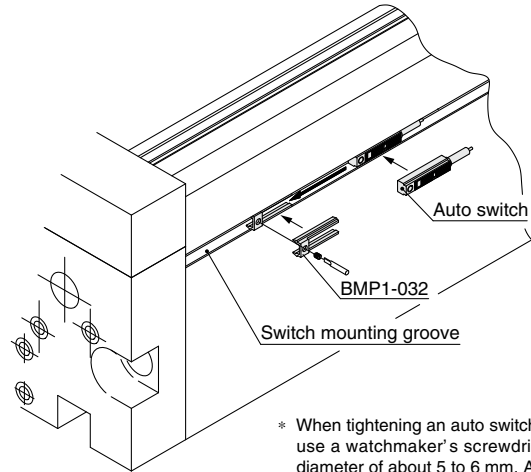
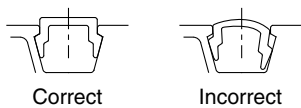
### ø25 to ø100: M9□(V)/M9□W(V)/M9□A(V)



## Switch Spacer No.

Cylinder series	Applicable bore size [mm]	
	50	63
MY1HT	BMP1-032	

When attaching an auto switch, first take a switch spacer between your fingers and press it into a switch mounting groove. When doing this, confirm that it is set in the correct mounting orientation, or reattach if necessary. Next, insert an auto switch into the groove and slide it until it is positioned under the switch spacer. After establishing the mounting position, use a watchmaker's flat head screwdriver to tighten the auto switch mounting screw which is included.



- \* When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a handle diameter of about 5 to 6 mm. Also, tighten with a torque of about 0.05 to 0.1 N·m. As a guide, it should be turned about 90° past the point at which tightening can be felt.

Other than the applicable auto switches listed in "How to Order," the following auto switches are mountable. For detailed specifications, refer to the **Web Catalog**.

Type	Model	Electrical entry	Features	Applicable bore size
Solid state auto switch	D-Y69A, Y69B, Y7PV	Grommet (Perpendicular)	—	MY1B ø50 to ø100 MY1M ø25 to ø63 MY1C ø25 to ø63
	D-Y7NWV, Y7PWV, Y7BWV		Diagnostic indication (2-color indicator)	
	D-Y59A, Y59B, Y7P	Grommet (In-line)	—	
	D-Y7NW, Y7PW, Y7BW		Diagnostic indication (2-color indicator)	

- \* With pre-wired connector is also available for solid state auto switches. For details, refer to the **Web Catalog**.
- \* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)/Y7G/Y7H) are also available. For details, refer to the **Web Catalog**.

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

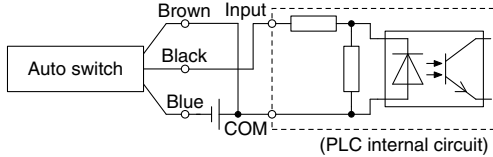
Specific Product Precautions

# Prior to Use

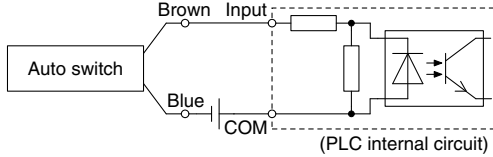
## Auto Switch Connections and Examples

### Sink Input Specifications

#### 3-wire, NPN

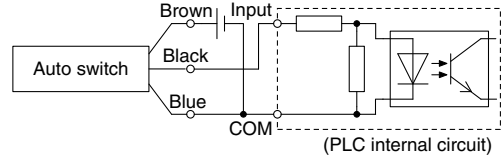


#### 2-wire

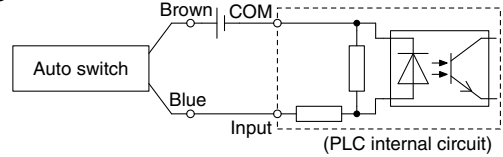


### Source Input Specifications

#### 3-wire, PNP



#### 2-wire

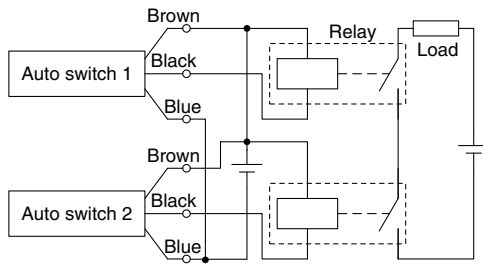


Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

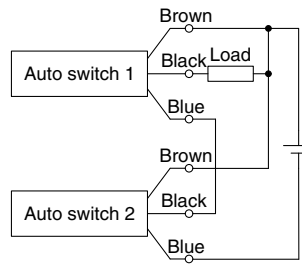
### Examples of AND (Series) and OR (Parallel) Connections

\* When using solid state auto switches, ensure the application is set up so the signals for the first 50 ms are invalid. Depending on the operating environment, the product may not operate properly.

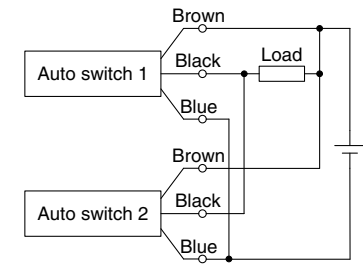
#### 3-wire AND connection for NPN output (Using relays)



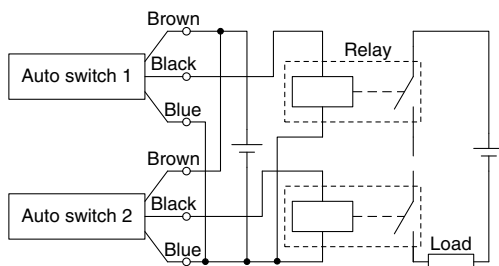
#### (Performed with auto switches only)



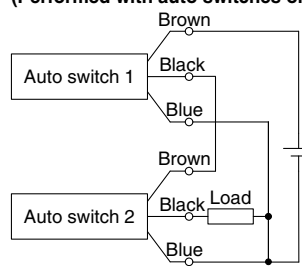
#### 3-wire OR connection for NPN output



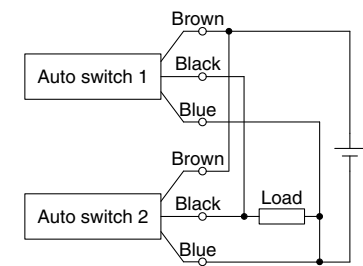
#### 3-wire AND connection for PNP output (Using relays)



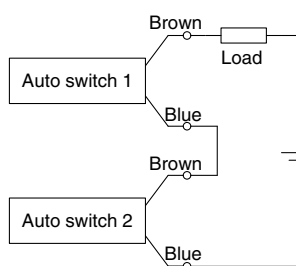
#### (Performed with auto switches only)



#### 3-wire OR connection for PNP output



#### 2-wire AND connection

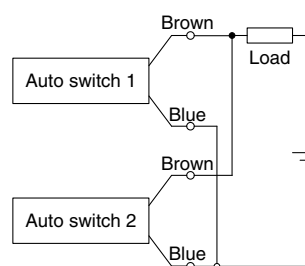


When two auto switches are connected in series, a load may malfunction because the load voltage will decline when in the ON state. The indicator lights will light up when both of the auto switches are in the ON state. Auto switches with a load voltage less than 20 V cannot be used.

$$\begin{aligned} \text{Load voltage at ON} &= \text{Power supply voltage} - \\ &\quad \text{Residual voltage} \times 2 \text{ pcs.} \\ &= 24 \text{ V} - 4 \text{ V} \times 2 \text{ pcs.} \\ &= 16 \text{ V} \end{aligned}$$

Example: Power supply is 24 VDC  
Internal voltage drop in auto switch is 4 V.

#### 2-wire OR connection



(Solid state)  
When two auto switches are connected in parallel, malfunction may occur because the load voltage will increase when in the OFF state.

(Reed)  
Because there is no current leakage, the load voltage will not increase when turned OFF. However, depending on the number of auto switches in the ON state, the indicator lights may sometimes grow dim or not light up, due to the dispersion and reduction of the current flowing to the auto switches.

$$\begin{aligned} \text{Load voltage at OFF} &= \text{Leakage current} \times 2 \text{ pcs.} \times \\ &\quad \text{Load impedance} \\ &= 1 \text{ mA} \times 2 \text{ pcs.} \times 3 \text{ k}\Omega \\ &= 6 \text{ V} \end{aligned}$$

Example: Load impedance is 3 k $\Omega$ .  
Leakage current from auto switch is 1 mA.

# MY1 Series

# Made to Order Common Specifications

Please contact SMC for detailed specifications, delivery, and prices.



## Made to Order Common Specifications

Symbol	Specifications	MY1B (Basic type)	MY1M (Slide bearing guide type)	MY1C (Cam follower guide type)	MY1H (Linear guide type)	MY1HT (High rigidity/Linear guide type)	Page
		ø10, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100	ø16, ø20, ø25, ø32, ø40, ø50, ø63	ø16, ø20, ø25, ø32, ø40, ø50, ø63	ø10, ø16, ø20, ø25, ø32, ø40	ø50, ø63	
-XB22	Shock absorber Soft type RJ series mounted	●*1	●*5	●*5	●		115
-XC56	With knock pin holes			●	●		117
-XC67	Dust seal band NBR lining specifications	●*2	●	●	●*6	●	118
-X168	Helical insert thread specifications	●*3	●	●	●*3	●*7	118
-X1810	Magnet for ø10 solid state auto switch specifications	●*4			●*4		118

- \*1 Only applicable to ø10 to ø40
- \*2 Only applicable to ø16, ø20, ø50, and ø63
- \*3 ø10 is only available as a special product.
- \*4 Only applicable to ø10
- \*5 Only applicable to ø16 to ø40
- \*6 Only applicable to ø16 and ø20
- \*7 Produced upon receipt of order.

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions



Symbol  
**-XB22**

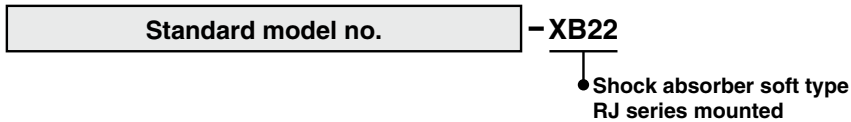
## 1 Shock Absorber Soft Type RJ Series Mounted

The standard cylinder has been equipped with shock absorber soft type RJ series type to enable soft stopping at the stroke end. Two different shock absorbers are available in accordance with the operating conditions.

### Applicable Series

Description	Model	Bearing type	Applicable bore size
Mechanically jointed rodless cylinder	<b>MY1B</b>	Basic	ø10 to ø40
	<b>MY1M</b>	Slide bearing guide	ø16 to ø40
	<b>MY1C</b>	Cam follower guide	ø16 to ø40
	<b>MY1H</b>	Single-axis linear guide	ø10 to ø40

### How to Order



### How to Order a Stroke Adjustment Unit for MY Itself



### Specifications

Absorbed energy	For the impact mass graph, refer to page 116.
Specifications other than the above and dimensions	Same as the standard type

### Cylinders

Model	Type	Stroke adjustment unit	Bore size					
			ø10	ø16	ø20	ø25	ø32	ø40
MY1B	<b>-XB22</b>	L	/	/	RJ0806H	RJ1007H	RJ1412H	
		H	RJ0805	/	RJ1007H	RJ1412H	—	—
	Standard	L	/	RJ0604*1	RB0806	RB1007	RB1412	
		H	RB0805	/	RB1007	RB1412	RB2015	
MY1M MY1C	<b>-XB22</b>	L	/	RJ0806H		RJ1007H	RJ1412H	
		H	/	RJ1007H		RJ1412H	—	—
	Standard	L	/	RB0806		RB1007	RB1412	
		H	/	RB1007		RB1412	RB2015	
MY1H	<b>-XB22</b>	L	/	RJ0806H		RJ1007H	RJ1412H	
		H	RJ0805	/	RJ1007H	RJ1412H	—	—
	Standard	L	/	RB0806		RB1007	RB1412	
		H	RB0805	/	RB1007	RB1412	RB2015	

\*1 The MY1B16 standard model uses an RJ0604.

- \* Refer to the **Web Catalog** for the details of the shock absorber RJ and RB series.
- \* The shock absorber service life is different from that of each cylinder. Refer to the "Specific Product Precautions" of the RJ series for the replacement period.

Symbol  
**-XB22**

**1 Shock Absorber Soft Type RJ Series Mounted**

**Impact Mass Graph (Shock Absorber Performance Line Graph)**

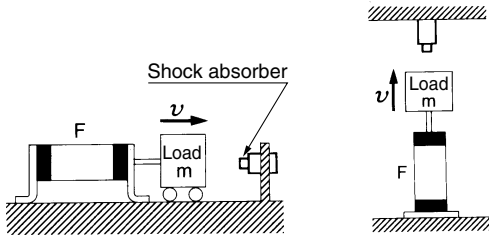
\* Values in the impact mass graph are at room temperature (20 to 25°C).

Ensure that the impact mass and the collision speed are within the absorbed energy graphs below.  
Refer to each cylinder selection calculation for load factors and guide load factors.

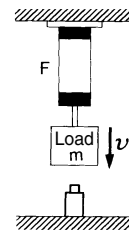
**Type of collision**

Horizontally-applied impact

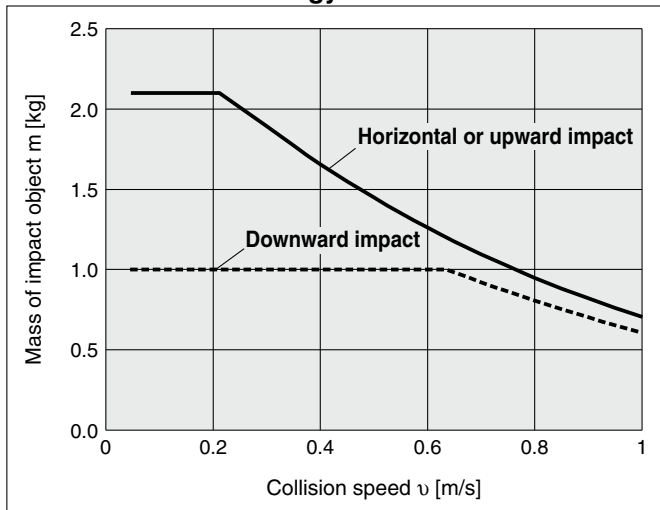
Air cylinder impact (horizontal/upward)



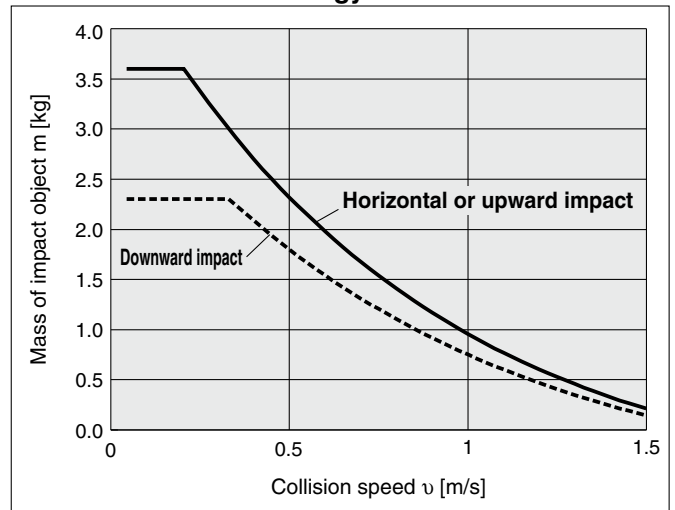
Air cylinder impact (downward)



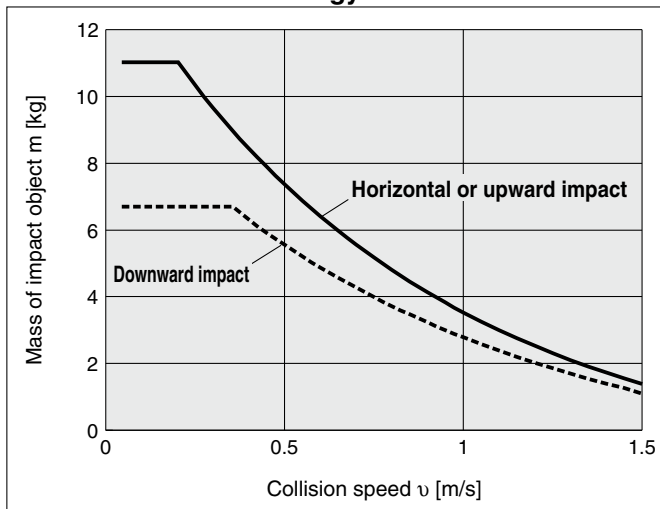
**RJ0805 Absorbed Energy**



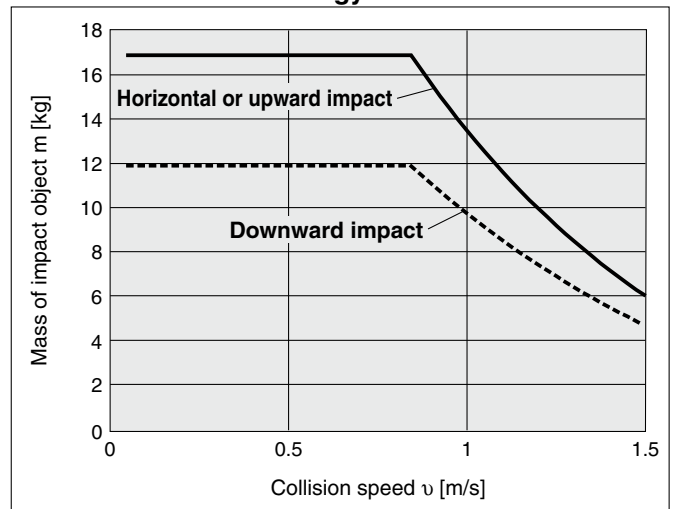
**RJ0806H Absorbed Energy**



**RJ1007H Absorbed Energy**



**RJ1412H Absorbed Energy**



\* Be sure to read "Handling Precautions for SMC Products" (M-E03-3) and "Shock Absorber Soft Type RJ Series" (Web Catalog) before use.

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions

# MY1 Series

Symbol  
**-XC56**

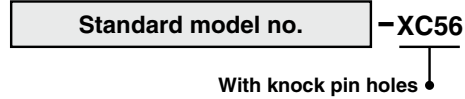
## 2 With Knock Pin Holes

Cylinder with knock positioning pin hole

### Applicable Series

Description	Model	Action
Mechanically jointed rodless cylinder	<b>MY1C</b>	Cam follower guide
	<b>MY1H</b>	Linear guide

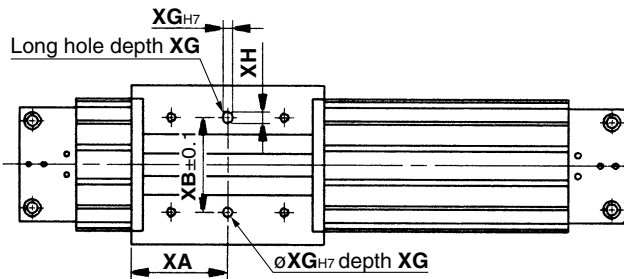
### How to Order



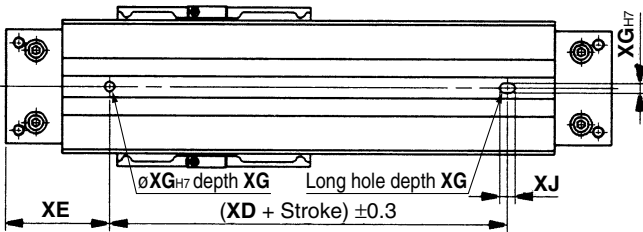
Specifications: Same as the standard type

### Dimensions (Dimensions other than specified below are the same as the standard type.)

#### MY1C series



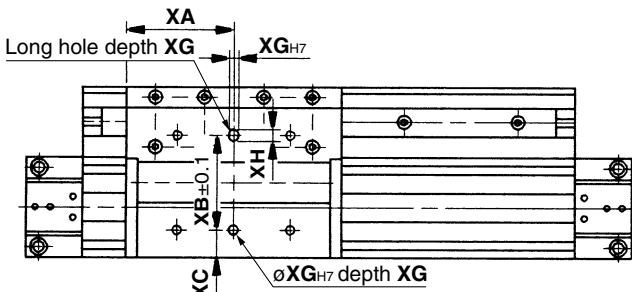
Mounting surface of a workpiece for the slide table



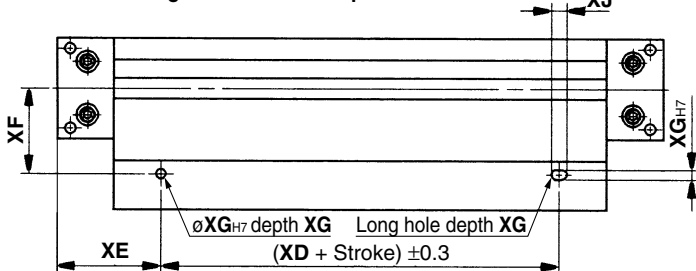
Mounting surface of cylinder tube

Bore size [mm]	XA	XB	XD	XE	XG	XH	XJ
16	40	40	80	40	4	5	9
20	50	40	100	50	4	5	9
25	51	50	110	55	5	6	10
32	66	60	140	70	6	7	11
40	81	80	180	80	6	7	11
50	100	90	230	85	8	9	13
63	115	110	280	90	10	10	15

#### MY1H(-Z) series



Mounting surface of a workpiece for the slide table



Mounting surface of cylinder tube

Bore size [mm]	XA	XB	XC	XD	XE
10	25	33	3.5	70	20
16	40	40	7.5	80	40
20	50	40	14.5	100	50
25	57	50	14.5	110	55
32	70	60	15	140	70
40	85	80	20.5	180	80

Bore size [mm]	XF	XG	XH	XJ
10	21.5	3	4	5
16	30	4	5	7
20	39	4	5	7
25	45	5	6	8
32	60	6	7	9
40	60.5	6	7	9



### 3 Dust Seal Band NBR Lining Specifications

Symbol  
**-XC67**

The standard vinyl chloride lining specification is changed to NBR lining.  
Oil resistance and peeling resistance are improved.

\* Please consult with SMC for specific details on oil resistance.

MY1 **B** **Bore size** - **Stroke** **Stroke adjustment unit** - **Auto switch** **Suffix** -XC67

Type/Bore size		10	16	20	25	32	40	50	63	80	100
<b>B</b>	Basic	●	●	●	●	●	●	●	●	●	●
<b>M</b>	Slide bearing guide	●	●	●	●	●	●	●	●	●	●
<b>C</b>	Cam follower guide	●	●	●	●	●	●	●	●	●	●
<b>H</b>	Linear guide	●	●	●	●	●	●	●	●	●	●
<b>HT</b>	High rigidity/Linear guide							●	●		

Example) MY1B40G-300L-Z73-XC67

For ordering dust seal band (NBR lining) only

MY **Bore size** - 16 **B** **N** **Stroke**

Dust seal band  
NBR lining

Dust seal band  
Hexagon socket head set  
screw thread treatment

<b>Nil</b>	Black zinc chromated
<b>W</b>	Nickel plating

Example) MY25-16BNW-300

For details, refer to "Dust seal band" in the construction of each series.

#### Applicable Series

Description	Model	Type
Mechanically jointed rodless cylinder	<b>MY1B</b>	Basic
	<b>MY1M</b>	Slide bearing guide
	<b>MY1C</b>	Cam follower guide
	<b>MY1H</b>	Linear guide
	<b>MY1HT</b>	High rigidity/Linear guide

### 4 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.

MY1 **B** **Bore size** - **Stroke** **(Z)**\*1 - **Auto switch** **Suffix** -X168

Type/Bore size		10	16	20	25	32	40	50	63	80	100
<b>B</b>	Basic	●	●	●	●	●	●	●	●	●	●
<b>M</b>	Slide bearing guide	●	●	●	●	●	●	●	●	●	●
<b>C</b>	Cam follower guide	●	●	●	●	●	●	●	●	●	●
<b>H</b>	Linear guide	●	●	●	●	●	●	●	●	●	●
<b>HT</b>	High rigidity/Linear guide							●	●		

(●) is available as special orders.

Example) MY1B20G-300L-M9BW-X168

\*1 Please specify "Z" for the MY1B25 to 40 and the MY1H25 to 40.

### 5 Magnet for ø10 Solid State Auto Switch Specifications

Symbol  
**-X1810**

By incorporating the use of the magnet for solid state auto switches, switch operation stability can be achieved.

\* If you are using, or planning to use, the cylinder in combination with a solid state auto switch, but are currently only ordering the cylinder, please add the "-X1810" suffix to the end of the product number.

MY1 **B** 10G - **Stroke** **Stroke adjustment unit** -X1810

● Magnet for ø10 solid state auto switch specifications

Type	
<b>B</b>	Basic
<b>H</b>	Linear guide

\* If an auto switch is included in the product number, the "-X1810" suffix does not need to be added to the end of the product number.

Example) MY1B10G-300H-M9BL

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions



# MY1 Series

## Specific Product Precautions 1

Be sure to read this before handling the products.

Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smcworld.com>

### Selection

#### ⚠ Caution

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

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

Refer to the Guide for Side Support Application on pages 34, 55, 71, 97, and 108.

##### 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 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 0.5 or less. (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

Mechanically jointed rodless cylinders do not guarantee traveling parallelism. When accuracy in traveling parallelism and intermediate stroke position is required, please consult SMC.

##### 8. Air leakage

Due to the mechanically jointed rodless cylinder's special seal construction, a small amount of air leakage that does not affect the thrust will occur. A subtle "hissing" sound may be heard as a result.

### Mounting

#### ⚠ Caution

##### 1. Do not apply strong impacts or excessive moment to the slide table (slider).

- The slide table (slider) is supported by precision bearings (MY1C, MY1H) or resin bearings. Therefore, do not apply strong impacts or excessive moment, etc., when mounting workpieces.

### Mounting

#### ⚠ Caution

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

- Mechanically jointed rodless cylinders can be used with a direct load within the allowable range for each type of guide. Please note that careful alignment is necessary when connecting to a load having an external guide mechanism. Mount the external guide mounting brackets and floating brackets in a place where the required degree of freedom for the floating Y and Z axes can be secured.

The thrust transmission area of the floating bracket must be fixed so that it does not partially contact the body.

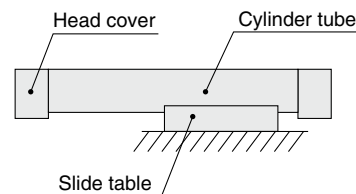
- \* Refer to the Coordinates and Moments in Model Selection on page 8 for the details of floating Y and Z axes.

##### 3. 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.

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

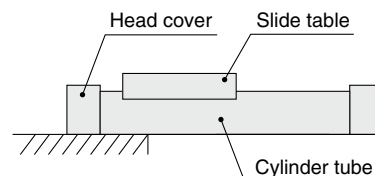
It may cause damage or malfunctions since an excessive load is applied to the bearing.



Mounting with a slide table (slider)

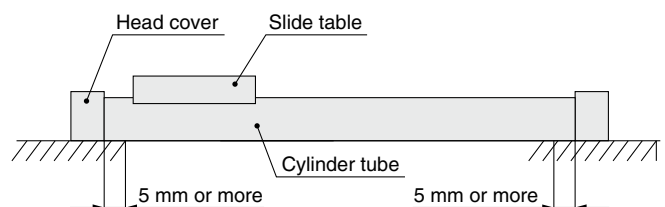
##### 5. Consult SMC when mounting in a cantilevered way.

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



Mounting in a cantilevered way

##### 6. 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.





# MY1 Series Specific Product Precautions 2

Be sure to read this before handling the products.

Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smcworld.com>

## Mounting

### Caution

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

When the cylinder is in a non-pressurized state, such as during a test run, maintenance, etc., external or inertial force may cause negative pressure to be generated inside the cylinder. In such cases, the seal belt may come off, resulting in a temporary air leak.

- Examples:

- 1) When external force is used to move a slide table all at once during installation, a test run, etc.
- 2) When a vertically-mounted slide table carrying a load drops due to its weight  
(In either case, the smaller the speed controller's opening is set, the more likely negative pressure is to be generated.)

- For negative pressure prevention

When using external force to move a slide table, move it slowly and steadily at about 20 mm/s. (If the speed controller's opening is set extremely small, increase the opening only during manual operation.)

- If the seal belt comes off

If the seal belt comes off due to negative pressure and the air is leaking, manually move the slide table from the beginning to the end of the cylinder's full stroke slowly and steadily at about 20 mm/s.

(If the speed controller's opening is set extremely small, increase the opening only during manual operation.)

If air continues to leak even after the above-mentioned restoration methods have been tried, please contact your nearest sales office.

#### 8. 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. However, series other than the MY1H series can be readjusted and their bearings can be replaced.

To perform these operations, refer to the bearing replacement procedure in the operation manual.

#### 9. 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.

#### 10. Do not use a shock absorber together with air cushion.

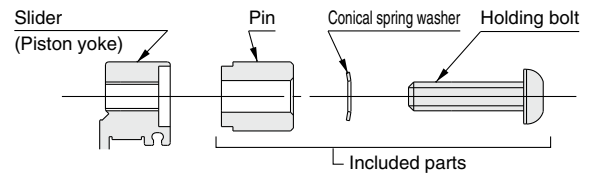
#### 11. Air cushion adjustment

To adjust the air cushion, gradually release the cushion needle from the fully closed state until the required deceleration speed is reached. Keep in mind that the full stroke cannot be operated when in the fully closed state and that deceleration cannot be achieved when in the fully open state.

#### 12. Refer to the figures below for how to install the holding bolt for the floating bracket.

<ø10 to ø63>

#### Installation of Holding Bolts

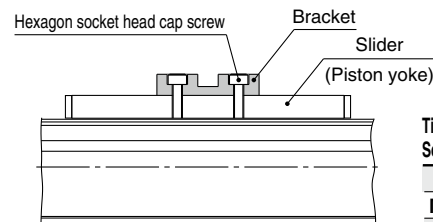


#### Tightening Torque for Holding Bolts [N·m]

Part no.	Tightening torque	Part no.	Tightening torque	Part no.	Tightening torque
MY-J10	0.6	MY-J25	3	MY-J50	5
MY-J16	1.5	MY-J32	5	MY-J63	13
MY-J20	1.5	MY-J40	5		

<ø80 to ø100>

#### Installation of Hexagon Socket Head Cap Screws



#### Tightening Torque for Hexagon Socket Head Cap Screws [N·m]

Part no.	Tightening torque
MY-J 80	25
MY-J100	44

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions



# MY1 Series

## Specific Product Precautions 3

Be sure to read this before handling the products.

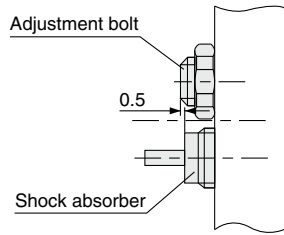
Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smworld.com>

### Mounting

#### Caution

##### 12. Refer to the figure below when using the adjustment bolt to perform stroke adjustment.

When the effective stroke of the shock absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Secure the adjustment bolt at the position where it protrudes approximately 0.5 mm from the shock absorber.



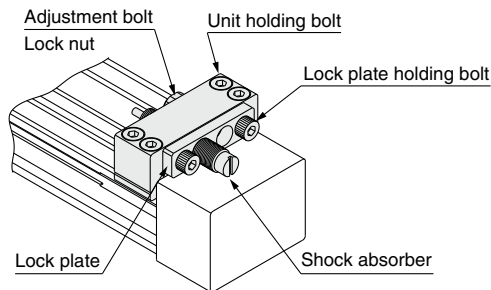
##### 13. Tightening Torque for Stroke Adjustment Unit (Lock Plate) Holding Bolts

Use caution not to get your hands caught in the unit.

When using a product with stroke adjustment unit, the space between the slide table (slider) and the stroke adjustment unit becomes narrow at the stroke end, causing a danger of hands getting caught. Install a protective cover to prevent direct contact with the human body.

##### <Fastening of unit>

The unit can be secured by evenly tightening the four unit holding bolts.



#### Caution

Do not operate with the stroke adjustment unit fixed at an intermediate position. (MY1H: Excludes ø10)

When the stroke adjustment unit is fixed at 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. (MY1B: Excludes ø10)

For other lengths, please consult with SMC (Refer to “Tightening Torque for Stroke Adjustment Unit Holding Bolts”).

##### <Stroke adjustment with adjustment bolt>

Loosen the adjustment bolt lock nut, and adjust the stroke from the lock plate side using a hexagon wrench. Retighten the lock nut.

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

Loosen the two lock plate holding bolts, turn the shock absorber and adjust the stroke. Then, uniformly tighten the lock plate holding bolts to secure the shock absorber.

Take care not to over-tighten the holding bolts. (MY1B: Excludes ø10, ø16, ø20 L unit, MY1M/C: Excludes ø16, ø20, ø50, and ø63)

(Refer to “Tightening Torque for Stroke Adjustment Unit Lock Plate Holding Bolts”).

\* Although the lock plate may slightly bend due to tightening of the lock plate holding bolt, this does not affect the shock absorber and locking function.

##### <MY1B>

##### Tightening Torque for Stroke Adjustment Unit Holding Bolts [N·m]

Bore size [mm]	Unit	Tightening torque
10	A	0.4
	H	
16	A	0.7
	L	
20	A	1.8
	L	
	H	
25	A	3.5
	L	
	H	
32	A	5.8
	L	
	H	
40	A	13.8
	L	
	H	

##### Tightening Torque for Stroke Adjustment Unit Lock Plate Holding Bolts [N·m]

Bore size [mm]	Unit	Tightening torque
20	H	1.2
	L	1.2
25	H	3.3
	L	3.3
32	H	10
	L	10
40	H	3.3
	L	10

##### <MY1M, MY1C>

##### Tightening Torque for Stroke Adjustment Unit Holding Bolts [N·m]

Bore size [mm]	Unit	Tightening torque
16	A	0.7
	L	
20	A	1.8
	L	
25	A	3.5
	L	
	H	
32	A	5.8
	L	
	H	
40	A	13.8
	L	
	H	
50	A	13.8
	L	
	H	
63	A	27.5
	L	
	H	

##### Tightening Torque for Stroke Adjustment Unit Lock Plate Holding Bolts [N·m]

Bore size [mm]	Unit	Tightening torque
25	L	1.2
	H	3.3
32	L	3.3
	H	10
40	L	3.3
	H	10



# MY1 Series

## Specific Product Precautions 4

Be sure to read this before handling the products.

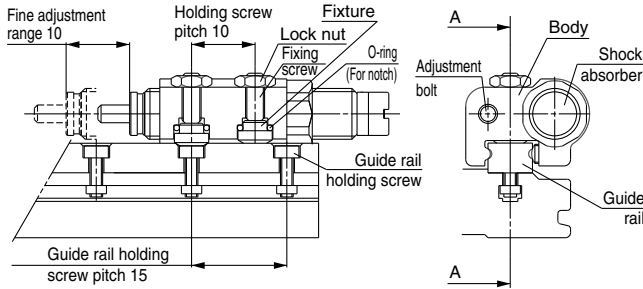
Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smcworld.com>

### Mounting

#### Caution

<MY1H>

To adjust the stroke adjustment unit of the MY1H10, follow the step shown below.



Section A-A

#### Adjusting Procedure

- Loosen the two lock nuts, and then loosen the holding screws by turning them approximately two turns.
- Move the body to the notch just before the desired stroke. (The notches are found in alternating increments of 5 mm and 10 mm.)
- Tighten the holding screw to 0.3 N·m. Make sure that the tightening does not cause excessive torque.

The fixture fits into the fastening hole in the guide rail to prevent slippage, which enables fastening with low torque.

- Tighten the lock nut to 0.6 N·m.
- Make fine adjustments with the adjustment bolt and shock absorber.

#### Tightening Torque for Stroke Adjustment Unit Holding Bolts [N·m]

Bore size [mm]	Tightening torque
10	Refer to "Adjusting Procedure" above.
16	0.7
20	1.8
25	1.8
32	3.5
40	5.8

- Use the formula below to calculate the absorbed energy of the stroke adjustment unit with shock absorber.

[N·m]

Type of impact	Horizontal collision	Vertical collision (Downward)	Vertical collision (Upward)
Kinetic energy E <sub>1</sub>	$\frac{1}{2} m \cdot v^2$		
Thrust energy E <sub>2</sub>	F · s	F · s + m · g · s	F · s - m · g · s
Absorbed energy E	E <sub>1</sub> + E <sub>2</sub>		

Symbol

- v: Collision speed (m/s)
- F: Cylinder thrust (N)
- s: Shock absorber stroke (m)
- m: Mass of impact object (kg)
- g: Gravitational acceleration (9.8 m/s<sup>2</sup>)

\* The speed of the impact object is measured at the time of impact with the shock absorber.

### Operating Environment

#### Warning

- Do not use in an environment where the cylinder is exposed to coolant, cutting oil, water drops, adhesive foreign matter, dust, etc. and avoid use with compressed air containing drainage and foreign matter.

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

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

- 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 parts of the dust seal band and bearing (guide). Also, apply grease to the top side of the cylinder tube and the rotating parts of the dust seal band and bearing (guide) when used in an environment prone to dryness, etc. We recommend the above cleaning and grease application be carried out once a month as a guide as this will improve the service life of the product. For cleaning of the slide table (slider) interior and grease application, please consult SMC.

- The product is not designed to be used in a clean room.

If you are considering using it in a clean room, please consult with SMC.

### Service Life and Replacement Period of Shock Absorber

#### Caution

- The cylinder, equipment and/or workpieces might be destroyed if the table collides the end of the stroke without being buffered properly by the shock absorber. See below for the number of cycles that are possible within the catalog usage range (model selection graph range), and check the operating conditions periodically, adjusting or replacing the shock absorber when necessary.

RJ0604 : 1.5 million times  
 RB08□□ : 1.2 million times  
 RB10□□ to RB2725: 2 million times

\* 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 shock absorber may need to be replaced before the allowable operating cycle above.

Model Selection

MY1B

MY1M

MY1C

MY1H

MY1HT

Auto Switch Mounting

Made to Order Common Specifications

Specific Product Precautions





# MY1H Series

## Specific Product Precautions 5

Be sure to read this before handling the products.

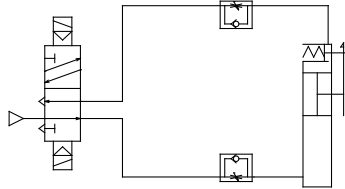
Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smcworld.com>

### MY1H: With End Lock

#### Recommended Pneumatic Circuit

#### Caution

This is necessary for the correct locking and unlocking actions.



#### Operating Precautions

#### Caution

##### 1. Do not use 3-position solenoid valves.

Avoid use in combination with 3-position solenoid valves (especially closed center metal seal types). If pressure is trapped in the port on the lock mechanism side, the cylinder cannot be locked.

Furthermore, even after being locked, the lock may be released after some time due to air leaking from the solenoid valve and entering the cylinder.

##### 2. Back pressure is required to release the lock.

Before starting operation, be sure to control the system so that air is supplied to the side without a lock mechanism (in case of locks on both ends, the side where the slide table is not locked) as shown in the figure above. There is a possibility that the lock may not be released. (Refer to "Lock Release.")

##### 3. Release the lock when mounting or adjusting the cylinder.

If mounting or other work is performed when the cylinder is locked, the lock unit may be damaged.

##### 4. Set the load to be at 50% or less of the theoretical output.

If the load exceeds 50% of the theoretical output, this may cause problems such as failure of the lock to release, or damage to the lock unit.

##### 5. Do not operate multiple cylinders in synchronization.

Avoid applications in which two or more end lock cylinders are synchronized to move one workpiece, as one of the cylinder locks may not be able to release when required.

##### 6. Use a speed controller with meter-out control.

Lock cannot be released occasionally by meter-in control.

##### 7. Be sure to operate completely to the cylinder stroke end on the side with the lock.

If the cylinder piston does not reach the end of the stroke, locking and unlocking may not be possible. (Refer to "End Lock Mechanism Adjustment.")

#### Operating Pressure

#### Caution

1. Supply air pressure of 0.15 MPa or higher to the port on the lock mechanism side, as it is necessary for releasing the lock.

#### Exhaust Speed

#### Caution

1. Locking will occur automatically if the pressure applied to the port on the lock mechanism side falls to 0.05 MPa or less. In the cases where the piping on the lock mechanism side is long and thin, or the speed controller is separated at some distance from the cylinder port, the exhaust speed will be reduced. Take note that some time may be required for the lock to engage. In addition, clogging of a silencer mounted on the solenoid valve exhaust port can produce the same effect.

#### Relation to Cushion

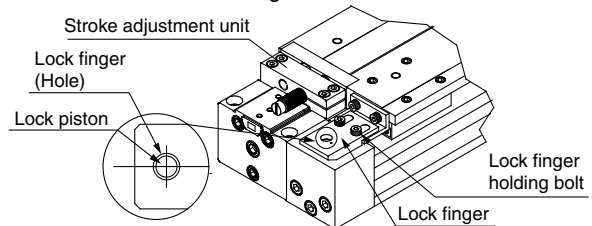
#### Caution

1. When the air cushion on the lock mechanism side is in a fully closed or nearly closed state, there is a possibility that the slide table will not reach the stroke end, in which case locking will not occur.

#### End Lock Mechanism Adjustment

#### Caution

1. The end lock mechanism is adjusted at the time of shipping. Therefore, adjustment for operation at the stroke end is unnecessary.
2. Adjust the end lock mechanism after the stroke adjustment unit has been adjusted. The adjustment bolt and shock absorber of the stroke adjustment unit must be adjusted and secured first. Locking and unlocking may not occur otherwise.
3. Perform fine adjustment of the end lock mechanism as follows. Loosen the lock finger holding bolts, and then adjust by aligning the center of the lock piston with the center of the lock finger hole. Secure the lock finger.



#### Lock Release

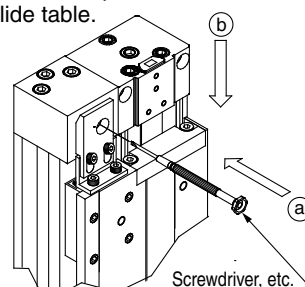
#### Warning

1. Before releasing the lock, be sure to supply air to the side without a lock mechanism, so that there is no load applied to the lock mechanism when it is released. (Refer to "Recommended Pneumatic Circuit.") If the lock is released when the port on the side without the lock is in an exhaust state, and with a load applied to the lock unit, the lock unit may be subjected to an excessive force and be damaged. Furthermore, sudden movement of the slide table is very dangerous.

#### Manual Release

#### Caution

1. When manually releasing the end lock, be sure to release the pressure. If it is unlocked while the air pressure still remains, it will lead to damage a workpiece, etc. due to unexpected lurching.
2. Perform manual release of the end lock mechanism as follows. Push the lock piston down with a screwdriver, etc., and move the slide table.



Other handling precautions regarding mounting, piping and environment are the same as the standard series.



# MY1HT Series Specific Product Precautions 6

Be sure to read this before handling the products.

Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smcworld.com>

## MY1HT

### Mounting

#### ⚠ Caution

1. Do not put hands or fingers inside when the body is suspended.

Since the body is heavy, use eyebolts when suspending it. (The eyebolts are not included with the body.)

### Stroke Adjustment Method

#### ⚠ Caution

1. As shown in Fig. 1, to adjust the stopper bolt within the adjustment range A, insert a hexagon wrench from the top to loosen the hexagon socket head set screw by approximately one turn, and then adjust the stopper bolt with a flat head screwdriver.

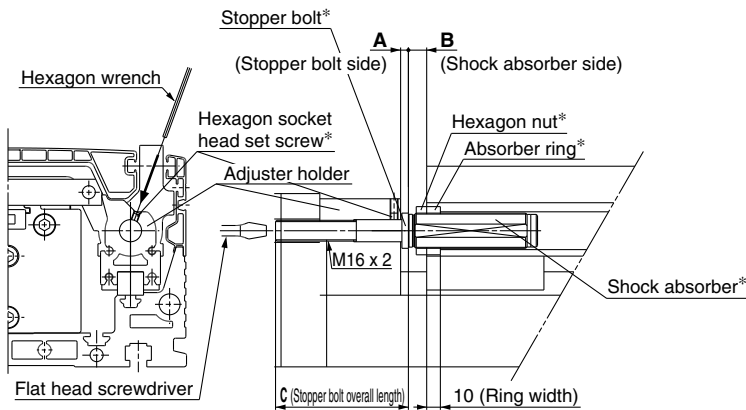


Fig. 1 Stroke adjusting section detail

- The stroke adjustment unit is composed of the components with a \* mark in Fig. 1.

#### Stroke Adjustment Unit Part No.

Bore size [mm]	50	63
Unit part no.	MYT-A50L	MYT-A63L
Shock absorber	RB2015	RB2725

\* The shock absorber is included in the unit part no.

2. When the adjustment described in 1 above is insufficient, the shock absorber can be adjusted. Remove the covers as shown in Fig. 2 and make further adjustment by loosening the hexagon nut.

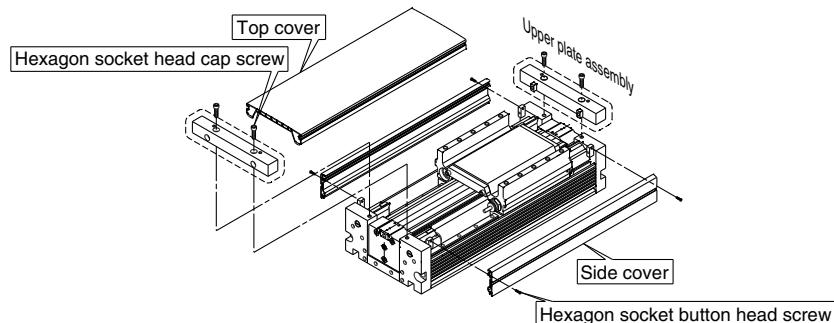


Fig. 2 Cover installation and removal

3. Various dimensions are indicated in Table 1. Never make an adjustment that exceeds the dimensions in the table, as it may cause an accident and/or damage.

Bore size [mm]	50	63
A to A <sub>MAX</sub>	6 to 26	6 to 31
B to B <sub>MAX</sub>	14 to 54	14 to 74
C	87	102
Max. adjustment range	60	85

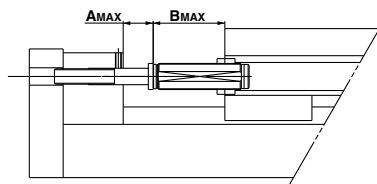


Fig. 3 Maximum stroke adjustment detail





# MY1HT Series Specific Product Precautions 7

Be sure to read this before handling the products.

Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products" and the "Operation Manual" on the SMC website: <https://www.smcworld.com>

## Disassembly and Assembly Procedure

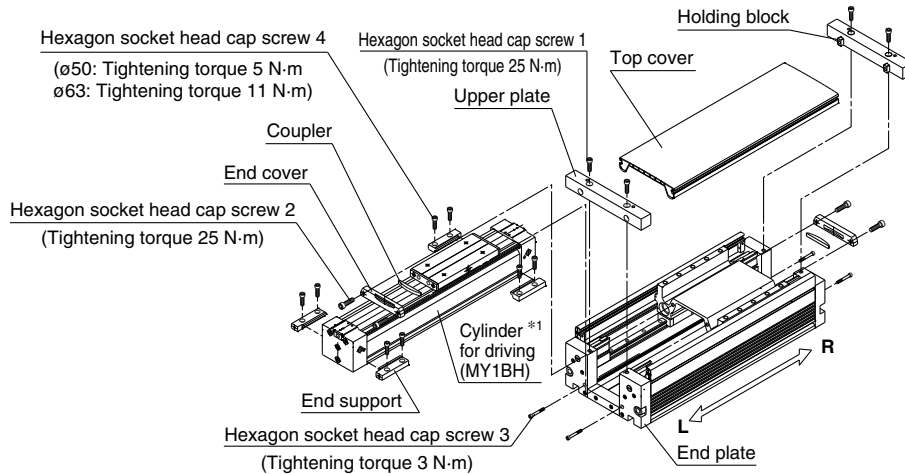
### ⚠ Caution

#### Disassembly step

1. Remove the hexagon socket head cap screws 1, and remove the upper plates.
2. Remove the top cover.
3. Remove the hexagon socket head cap screws 2, and remove the end covers and couplers.
4. Remove the hexagon socket head cap screws 3.
5. Remove the hexagon socket head cap screws 4, and remove the end supports.
6. Remove the cylinder.

#### Assembly step

1. Insert the MY1BH cylinder.
2. Temporarily fasten the end supports with the hexagon socket head cap screws 4.
3. With two hexagon socket head cap screws 3 on the L or R side, pull the end support and the cylinder.
4. Tighten the hexagon socket head cap screws 3 on the other side to eliminate the looseness in the axial direction. (At this point, a space is created between the end support and the end plate on one side, but this is not a problem.)
5. Retighten the hexagon socket head cap screws 4.
6. Fasten the end cover with the hexagon head cap screws 2, while making sure that the coupler is in the right direction.
7. Place the top cover on the body.
8. Insert the holding blocks into the top cover and fasten the upper plates with the hexagon socket head cap screws 1.



#### \*1 Cylinder For Driving (MY1BH Series)

Since the MY1BH series is a cylinder for driving for the MY1HT series, its construction is different from the MY1B series. Do not use the MY1B series as a cylinder for driving, since it will lead to damage.

#### How to Order


High rigidity/Linear guide type **MY1HT** **50** **300** **L** - **Z73**


Cylinder for driving **MY1BH** **50** **300**


Bore size		Stroke [mm]	Piping	
50	50 mm		Nil	Standard type
63	63 mm	G	Centralized piping type	
Port thread type				
Symbol	Type	Bore size		
Nil	Rc	ø50, ø63		
TN	NPT			
TF	G			

## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Danger :** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

\*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.  
ISO 4413: Hydraulic fluid power – General rules relating to systems.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines.  
(Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots – Safety.  
etc.

### Warning

#### 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

#### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

#### 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

#### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

### Caution

#### 1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.  
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.  
If anything is unclear, contact your nearest sales branch.

### Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

#### Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)  
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.  
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

##### \*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.  
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

#### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

### Caution

#### SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

## Safety Instructions

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.