# Mechanically Jointed Rodless Cylinder New

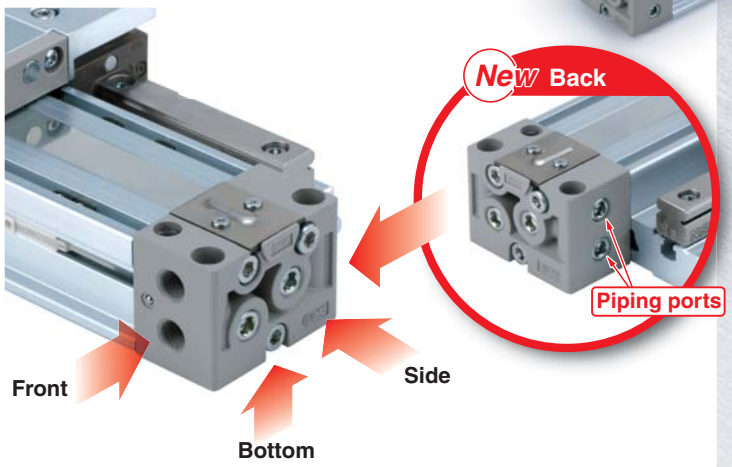
## Linear Guide Type: ø25, ø32, ø40

RoHS

- Piping can be connected from 4 directions on the head cover.
- Allows on-site piping to suit the installation conditions.



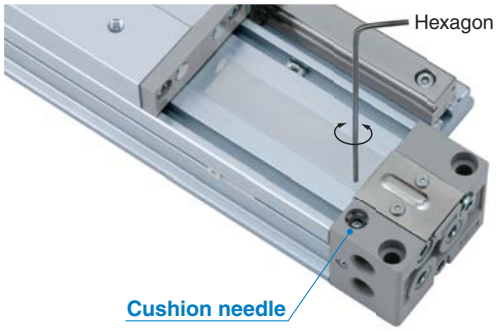
### Piping from 3 directions to 4 directions




New

### Easy adjustment of cushion needle

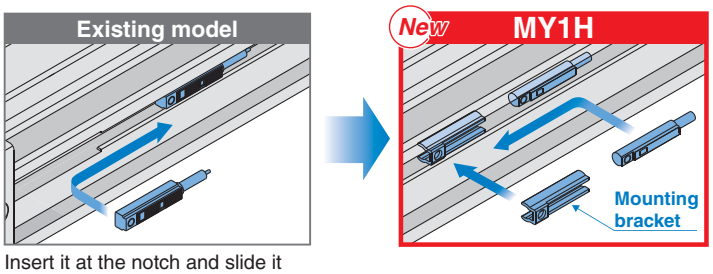
Adjustment is easier by changing the cushion needle adjustment from side to top.




New

### Auto switch can be mounted in any desired position. (D-M9□, D-A9□)

- The auto switch can be fixed in any desired position with a mounting bracket.
- This reduces man-hours for mounting.

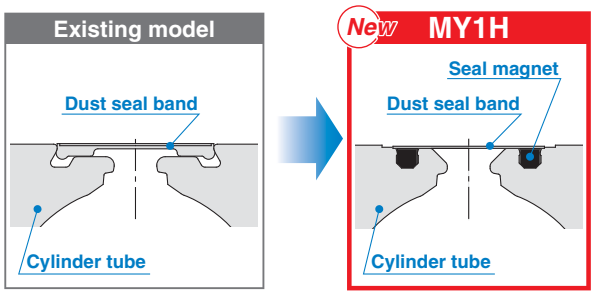



Insert it at the notch and slide it along the mounting groove.

New

### New dust seal band improves life.

- The conventional groove mounting is changed to a magnetically sealed type.
- This means the dust seal band is always in contact with the cylinder, which reduces ingress of foreign matter, improving the life of the cylinder.




## Series MY1H

SMC

CAT.EUS20-221A-UK

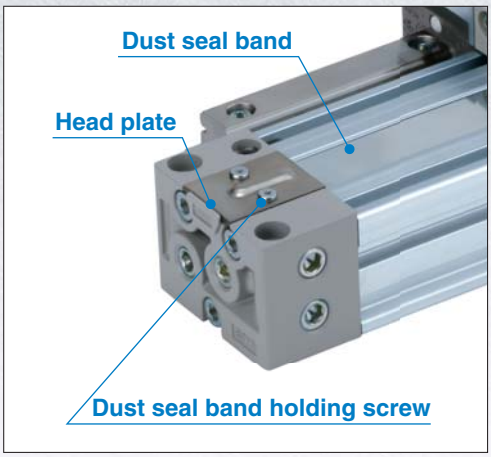
# The mounting and performance are the same as before, but the weight is reduced.

- **Weight is reduced by the die cast head cover and removal of guide cover.**

| Bore size [mm] | New MY1H | Reduction rate | Existing model |
|---|---|---|---|
| 25 | 2.17 kg | 6% | 2.31 kg |
| 32 | 4.37 kg | 6% | 4.65 kg |
| 40 | 5.84 kg | 8% | 6.37 kg |

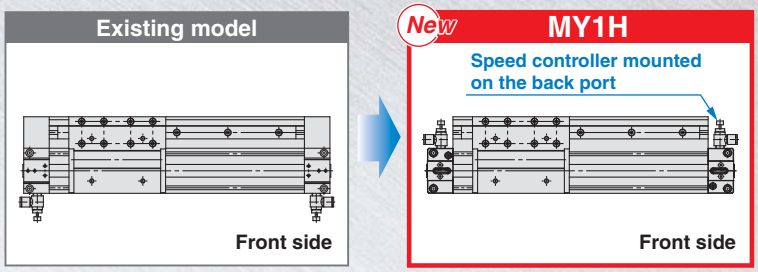
## Maintenance of dust seal band improved

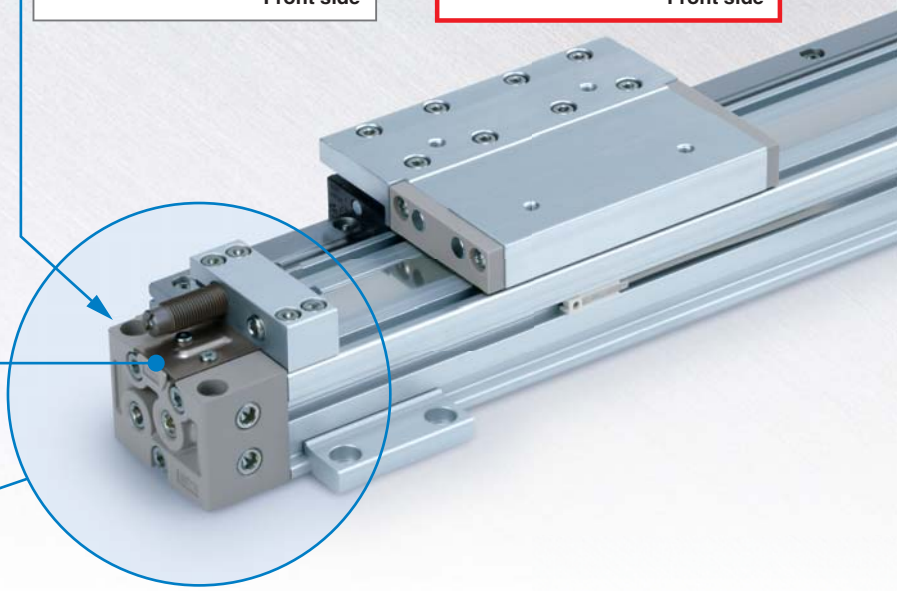
- **No need to select the dust seal band from two types.**
- **The dust seal band can be removed by loosening two holding screws (on one side).**




## Space saving achieved by piping on the back

**When a speed controller is mounted, the cylinder installation area can be reduced significantly.**

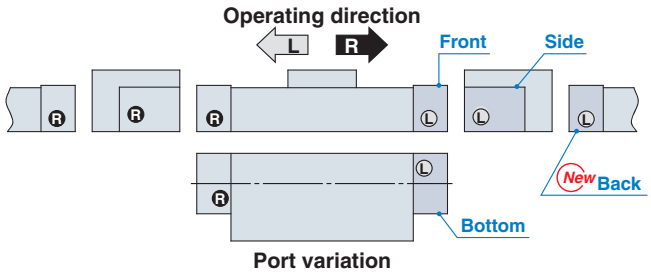


## Improvement of port variations

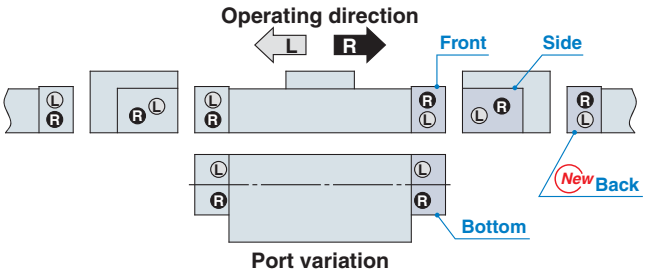
**With addition of the back port, piping can be connected to suit the installation conditions.**

**Standard piping type**




R and L can be mounted in any desired position.

**Centralised piping type**




R and L can be mounted in any desired position.

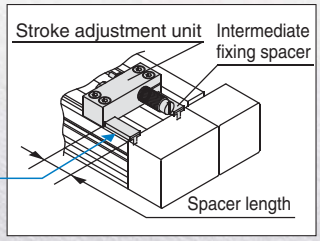
## Stroke Adjustment Unit

• With adjustment bolt • With low/high load shock absorber + adjustment bolt (L/H unit)

| A unit | L unit | H unit |
|---|---|---|
|  |  |  |

### Intermediate fixing spacer as standard

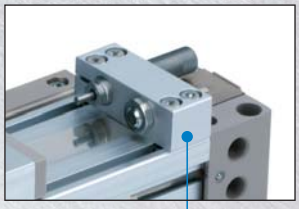
**Fixture can be selected to hold the stroke adjustment unit at the intermediate stroke position.**




### Improved shock-less characteristics when a workpiece is stopped

**Soft type of shock absorber can be selected for the stroke adjustment unit. (Made to Order: -XB22)**

The cross section of the liquid passage is changed in proportion to the stroke by a unique mechanism. This allows a smooth absorption process.



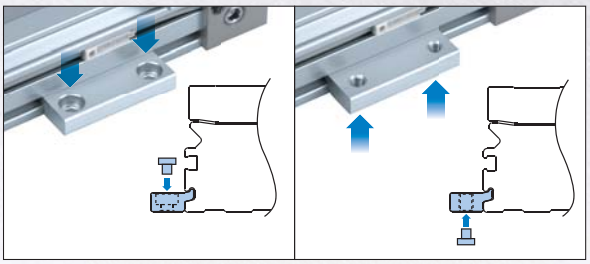


### Improvement of positioning accuracy

**Uses a linear guide to achieve high repeatability.**

### Side Support

**Prevents deflection of the cylinder tube at a long stroke.**



## MY1 Series Variations

| Series | Bore size [mm] 10 | 16 | 20 | 25 | 32 | 40 | 50 | 63 | 80 | 100 | Page |
|---|---|---|---|---|---|---|---|---|---|---|---|
| MY1B | | | | ● | ● | ● | | | | | Digital Catalogue<br>Digital catalogue<br>www.smc.eu |
| MY1B | ● | ● | ● | | | | ● | ● | ● | ● | |
| MY1M | | ● | ● | ● | ● | ● | ● | ● | | | |
| MY1C | | ● | ● | ● | ● | ● | ● | ● | | | |
| New MY1H | | | | ● | ● | ● | | | | | Page 1 of this catalogue |
| MY1H End lock | | | | ● | ● | ● | | | | | |
| MY1H | ● | ● | ● | | | | | | | | Digital Catalogue<br>Digital catalogue<br>www.smc.eu |
| MY1H End lock | | ● | ● | | | | | | | | |
| MY1HT | | | | | | | ● | ● | | | |
| MY1□W | | ● | ● | ● | ● | ● | ● | ● | | | |

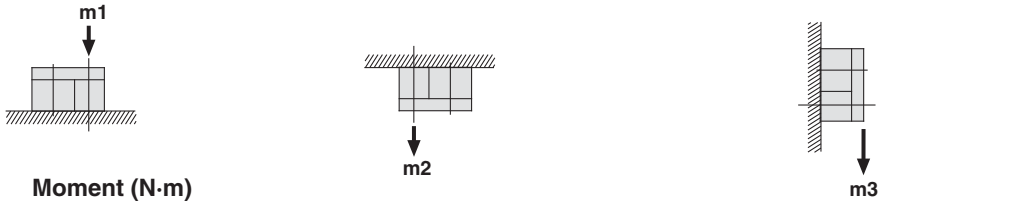
# Series MY1H
# Prior to Use

## Maximum Allowable Moment/Maximum Load Weight

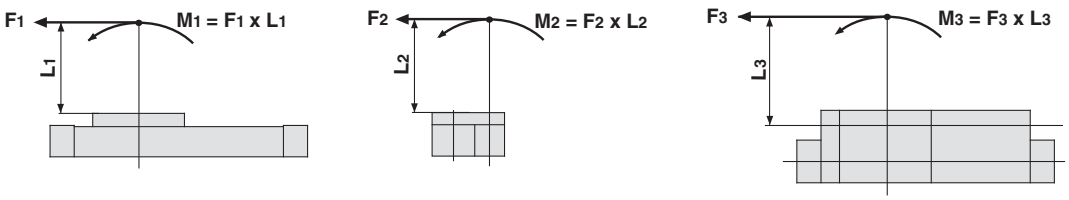
| Model | Bore size [mm] | Maximum allowable moment [N·m] | | | Maximum load weight [kg] | | |
|---|---|---|---|---|---|---|---|
| | | $M_1$ | $M_2$ | $M_3$ | $m_1$ | $m_2$ | $m_3$ |
| MY1H | 25 | 23 | 26 | 23 | 27.5 | 27.5 | 27.5 |
| | 32 | 39 | 50 | 39 | 39.2 | 39.2 | 39.2 |
| | 40 | 50 | 50 | 39 | 50 | 50 | 50 |

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

**Load weight (kg)**




**Moment (N·m)**




## Calculation of Guide Load Factor

1) Maximum load weight (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 $\upsilon a$ (average speed) for (1) and (2), and $\upsilon$ (collision speed $\upsilon = 1.4\upsilon a$) for (3). Calculate m max for (1) from the maximum load weight graph ($m_1$, $m_2$, $m_3$) and M max for (2) and (3) from the maximum allowable moment graph ($M_1$, $M_2$, $M_3$).

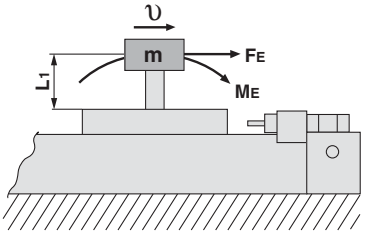
**Sum of guide load factors**

$$\Sigma\alpha = \frac{\text{Load weight [m]}}{\text{Maximum load weight [m max]}} + \frac{\text{Static moment [M]}^{\text{Note 1)}}}{\text{Allowable static moment [M max]}} + \frac{\text{Dynamic moment [M}_E\text{]}^{\text{Note 2)}}}{\text{Allowable dynamic moment [M}_E\text{ max]}} \leq 1$$

Note 1) Moment caused by the load, etc., with cylinder in resting condition
Note 2) Moment caused by the load equivalent to impact at the stroke end (at the time of impact with stopper)
Note 3) Depending on the shape of a 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 weight [kg]
- **F** : Load [N]
- $F_E$ : Load equivalent to impact (at the time of impact with stopper) [N]
- $\upsilon a$: Average speed [mm/s]
- **M** : Static moment [N·m]
- $\upsilon$ : Collision speed [mm/s]
- $L_1$ : Distance to the load center of gravity [m]
- $M_E$: Dynamic moment [N·m]
- $\delta$ : Bumper coefficient
  With air cushion = 1/100
  With shock absorber = 1/100
- **g** : Gravitational acceleration (9.8 m/s²)




$\upsilon = 1.4\upsilon a$ [mm/s] $\quad F_E = \overset{\text{Note 4)}}{1.4\upsilon a \cdot \delta \cdot m \cdot g}$

$$\therefore M_E = \frac{1}{3}^{\text{Note 5)}} \cdot F_E \cdot L_1 = 4.57\upsilon a \delta m L_1 \text{ [N·m]}$$

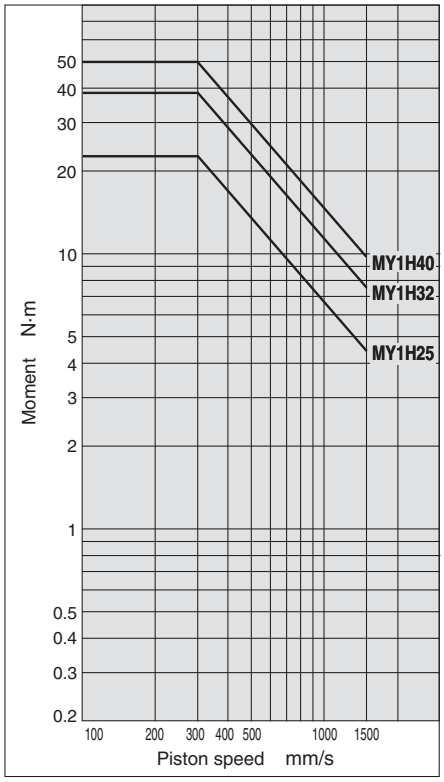
Note 4) $1.4\upsilon a\delta$ is a dimensionless coefficient for calculating impact force.
Note 5) Average load coefficient ($=\frac{1}{3}$): For averaging the maximum load moment at the time of impact with stopper according to service life calculations.

3) For detailed selection procedures, refer to Front matter 3 and 4.

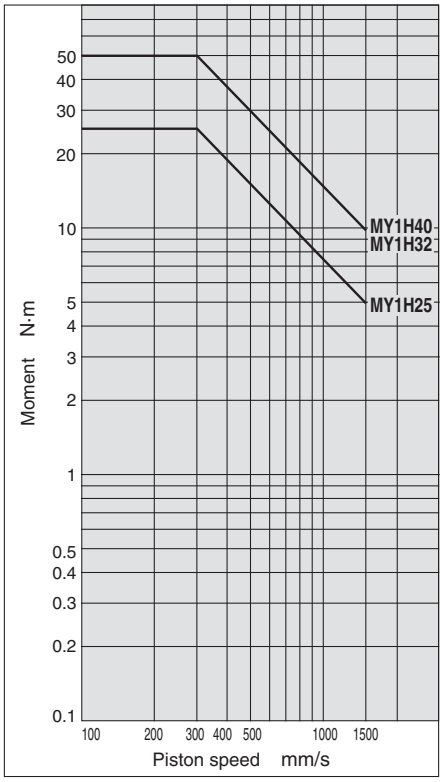
## Maximum Allowable Moment

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

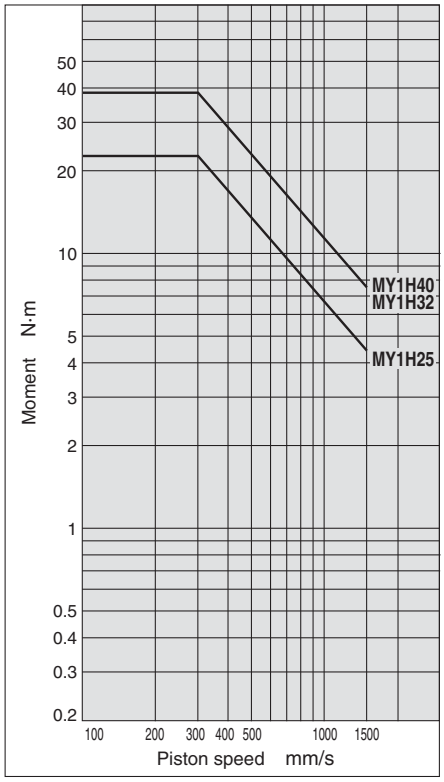
### MY1H/M1




### MY1H/M2



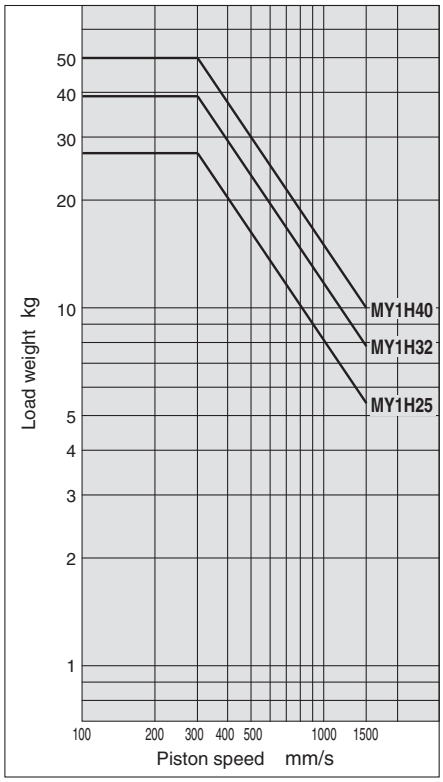

### MY1H/M3



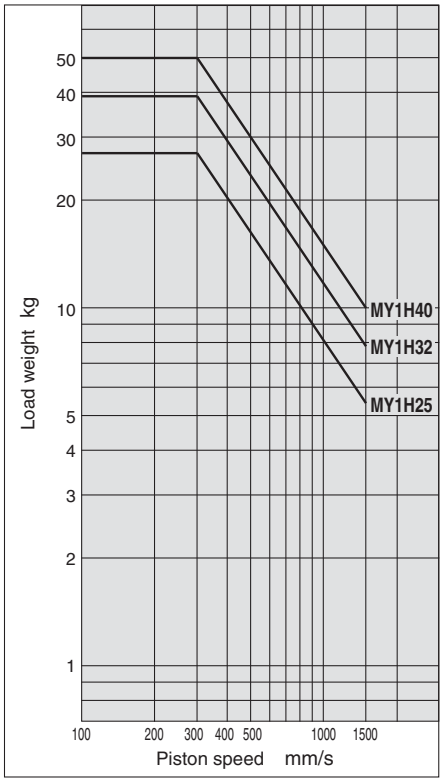

## Maximum Load Weight

Select the load weight 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.

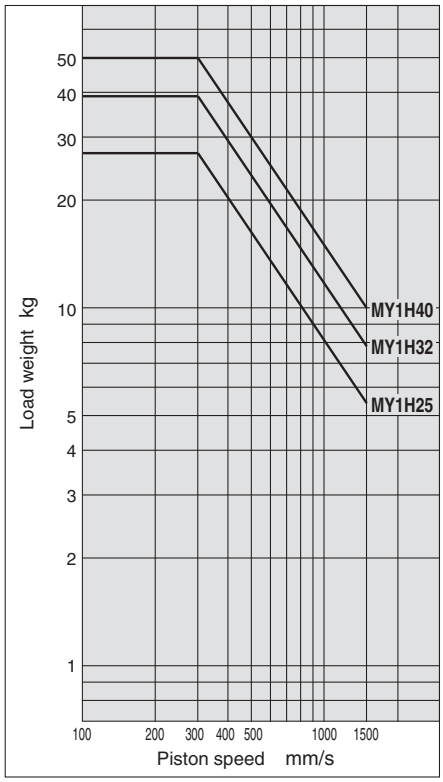
### MY1H/m1




### MY1H/m2




### MY1H/m3



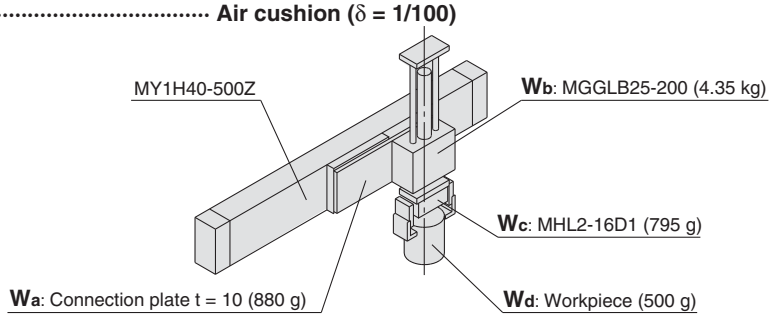
# *Series MY1H*
# Model Selection

The following is the steps for selecting the most suitable MY1H series to your application.

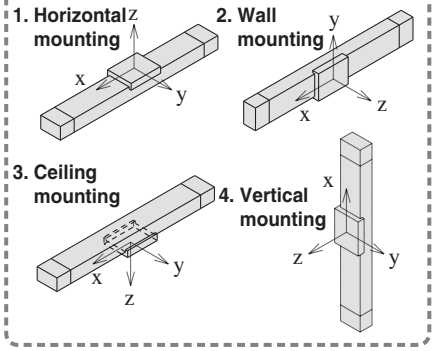
## Calculation of Guide Load Factor

### 1. Operating Conditions

**Cylinder ····· MY1H40-500Z**
**Average operating speed υa ··· 300 mm/s**
**Mounting orientation ····· Wall mounting**
**Cushion ····· Air cushion (δ = 1/100)**

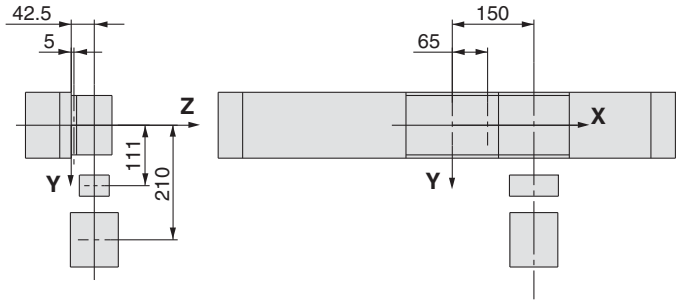



**Mounting Orientation**




Consult with SMC for wall mounting, ceiling mounting and vertical mounting types.

### 2. Load Blocking




**Weight and Centre of Gravity for Each Workpiece**

| Workpiece **Wn** | Weight **mn** | Centre of gravity | | |
|---|---|---|---|---|
| | | X-axis **Xn** | Y-axis **Yn** | Z-axis **Zn** |
| **Wa** | 0.88 kg | 65 mm | 0 mm | 5 mm |
| **Wb** | 4.35 kg | 150 mm | 0 mm | 42.5 mm |
| **Wc** | 0.795 kg | 150 mm | 111 mm | 42.5 mm |
| **Wd** | 0.5 kg | 150 mm | 210 mm | 42.5 mm |

n = a, b, c, d

### 3. Calculation of Composite Centre of Gravity

$\mathbf{m_3} = \Sigma \mathbf{m_n}$
$= 0.88 + 4.35 + 0.795 + 0.5 = \mathbf{6.525\ kg}$

$\mathbf{X} = \frac{1}{\mathbf{m_3}} \times \Sigma\ (\mathbf{m_n} \times \mathbf{x_n})$
$= \frac{1}{6.525}(0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = \mathbf{138.5\ mm}$

$\mathbf{Y} = \frac{1}{\mathbf{m_3}} \times \Sigma\ (\mathbf{m_n} \times \mathbf{y_n})$
$= \frac{1}{6.525}(0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = \mathbf{29.6\ mm}$

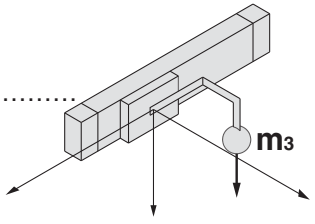
$\mathbf{Z} = \frac{1}{\mathbf{m_3}} \times \Sigma\ (\mathbf{m_n} \times \mathbf{z_n})$
$= \frac{1}{6.525}(0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = \mathbf{37.4\ mm}$

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

**$m_3$**: Weight

**$m_3$ max** (from ① of graph MY1H/**$m_3$**) = 50 [kg]·····

Load factor $\alpha_1$ = **$m_3$/$m_3$ max** = 6.525/50 = **0.13**

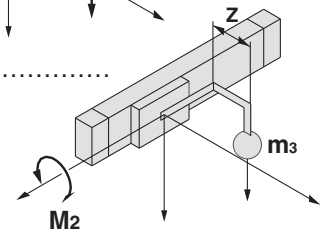



**$M_2$**: Moment

**$M_2$ max** (from ② of graph MY1H/**$M_2$**) = 50 [N·m]·····

**$M_2$** = **$m_3$** x **g** x **Z** = 6.525 x 9.8 x 37.4 x $10^{-3}$ = 2.39 [N·m]

Load factor $\alpha_2$ = **$M_2$/$M_2$ max** = 2.39/50 = **0.05**

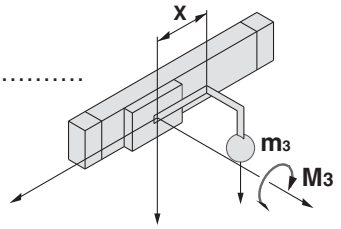


**$M_3$**: Moment

**$M_3$ max** (from ③ of graph MY1H/**$M_3$**) = 38.7 [N·m].....

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

Load factor $\alpha_3$ = **$M_3$/$M_3$ max** = 8.86/38.7 = **0.23**




## 5. Calculation of Load Factor for Dynamic Moment

**Equivalent load $F_E$ at impact**

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

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

**$M_{1E}$ max** (from ④ of graph MY1H/**$M_1$** where 1.4$\upsilon$**a** = 420 mm/s) = 35.9 [N·m].....

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

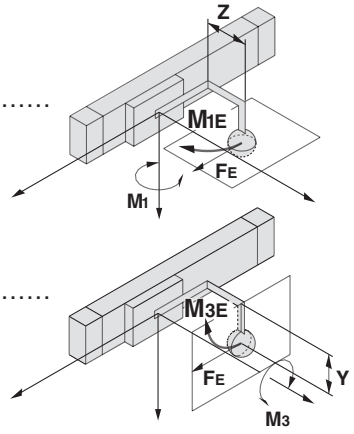
Load factor $\alpha_4$ = **$M_{1E}$/$M_{1E}$ max** = 3.35/35.9 = **0.09**

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

**$M_{3E}$ max** (from ⑤ of graph MY1H/**$M_3$** where 1.4$\upsilon$**a** = 420 mm/s) = 27.6 [N·m].....

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

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




## 6. Sum and Examination of Guide Load Factors

$\Sigma\alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5$ = **0.60** ≤ **1**

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

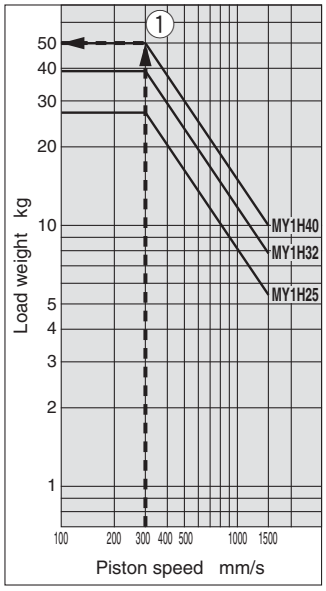
Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors $\Sigma\alpha$ in the formula above is over 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", download it from http://www.smc.eu.

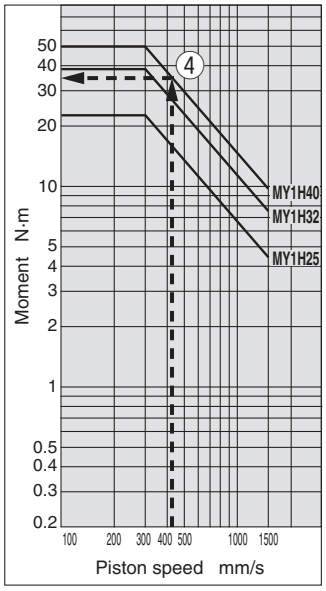
### Load Weight

**MY1H/$m_3$**

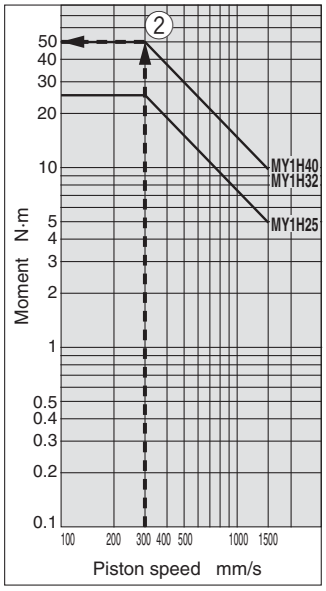



### Allowable Moment

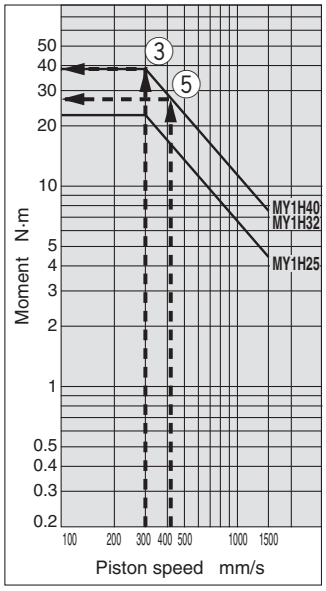
**MY1H/$M_1$**




**MY1H/$M_2$**




**MY1H/$M_3$**



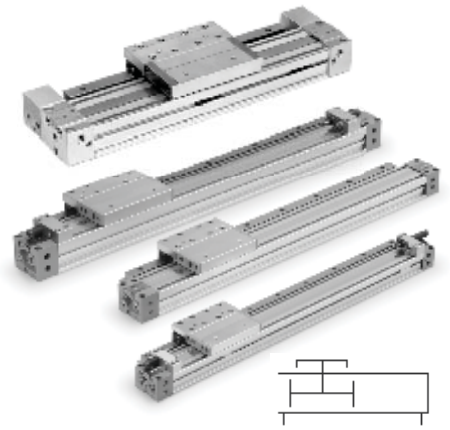
# Бесштоковый ленточный цилиндр с прецизионной направляющей

# *Серия MY1H*

∅10 ~ 40

### Технические характеристики

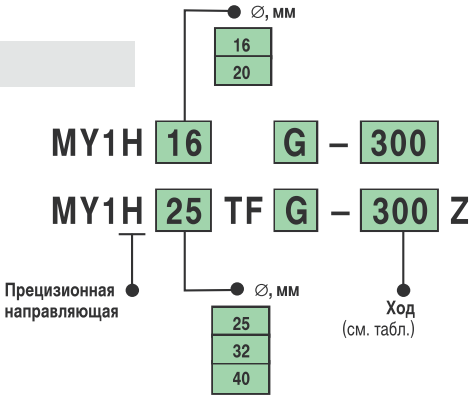
| Диаметр цилиндра | 10 | 16 | 20 | 25 | 32 | 40 |
|---|---|---|---|---|---|---|
| Среда | Очищенный сжатый воздух, с содержанием масла или без него | | | | | |
| Принцип действия | Двустороннего действия | | | | | |
| Рабочее давление (МПа) | 0.2 ~ 0.8 | 0.1 ~ 0.8 | | | | |
| Испытательное давление (МПа) | 1.2 | | | | | |
| Диапазон рабочих температур (°C) | 5 ~ 60 | | | | | |
| Скорость хода поршня (мм/с) | 100 ~1500 | | | | | |
| Демпфирование в конце хода | Упругое | Воздушное, двустороннее, регулируемое | | | | |
| Допуск по длине хода | $^{+1.8}_{0}$ | | | | | |
| Присоединение | M5 | | | G1/8 | | G1/4 |



### Технические характеристики нормализованного узла регулировки хода и номер для заказа амортизатора

| ∅ цилиндра | | 10 | 16 | 20 | | 25 | | 32 | | 40 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Узел | | H | A | A | H | A | H | A | H | A | H |
| Диапазон регулировки хода | | По всей длине хода | | | | | | | | | |
| Диапазон тонкой регулировки (мм) | | 0 ~ -10 | 0 ~ -5.6 | 0 ~ -6 | | 0 ~ -11.5 | | 0 ~ -12 | | 0 ~-16 | |
| **Амортизатор** | | **RB0805** | **–** | **–** | **RB1007** | **–** | **RB1412** | **–** | **RB2015** | **–** | **RB2015** |
| Макс. доп. поглощение энергии на ход (Дж) | | – | – | – | 5.9 | – | 19.6 | – | 58.8 | – | 58.8 |
| Ход (мм) | | 5 | – | – | 7 | – | 12 | – | 15 | – | 15 |
| Макс. скорость столкновения (мм/с) | | 1000 | 200 | 200 | 1500 | 200 | 1500 | 200 | 1500 | 200 | 1500 |
| Макс. число двойных ходов в минуту | | 80 | – | – | 70 | – | 45 | – | 25 | – | 25 |
| Усилие пружины (Н) | растянутой | 1.96 | – | – | 4.22 | – | 6.86 | – | 8.34 | – | 8.34 |
| | сжатой | 3.83 | – | – | 6.86 | – | 15.98 | – | 20.50 | – | 20.50 |
| Диапазон рабочих температур (°C) | | 5 ~ 60 | | | | | | | | | |

## *Номер для заказа*




### Стандартный ход

| ∅ поршня (мм) | Стандартные значения длины хода (мм) |
|---|---|
| 10, 16, 20, 25, 32, 40 | 50, 100, 150, 200, 250, 300, 350, 400, 450, 500, 550, 600 |

Большие значения длины хода (до 1500 мм) по запросу

### Датчики

Для цилиндров MY1H используются электронные датчики положения D-M9N(V)L, D-M9P(V)L, D-M9B(V)L и герконовые датчики положения D-A90(V)L и D-A93(V)L. Технические характеристики датчиков приведены в разделе «Универсальные датчики положения»

### Принадлежности

### Узел регулировки хода

| ∅ поршня | | 10 | 16 | 20 | 25 | 32 | 40 |
|---|---|---|---|---|---|---|---|
| Узел A | Левый | - | **MYH-A16A1** | **MYH-A20A1** | **MYH-A25A1** | **MYH-A32A1** | **MYH-A40A1** |
| | Правый | - | **MYH-A16A2** | **MYH-A20A2** | **MYH-A25A2** | **MYH-A32A2** | **MYH-A40A2** |
| Узел H | Левый | **MYH-A10H1** | - | **MYH-A20H1** | **MYH-A25H1** | **MYH-A32H1** | **MYH-A40H1** |
| | Правый | **MYH-A10H2** | - | **MYH-A20H2** | **MYH-A25H2** | **MYH-A32H2** | **MYH-A40H2** |

### Крепежный элемент

| ∅ поршня | 10 | 16 | 20 | 25 | 32 | 40 |
|---|---|---|---|---|---|---|
| Вид крепления A | **MY-S10A** | **MY-S16A** | **MY-S20A** | **MY-S25A** | **MY-S32A** | **MY-S40A** |
| Вид крепления B | **MY-S10B** | **MY-S16B** | **MY-S20B** | **MY-S25B** | **MY-S32B** | **MY-S40B** |

Компания SMC сохраняет за собой право на внесение технических и размерных изменений

# Mechanically Jointed Rodless Cylinder
## Linear Guide Type
# Series MY1H
## ø25, ø32, ø40

RoHS

## How to Order

**Linear guide type** **MY1H 25 □ □ – 300 □ □ Z – M9BW □ – □**

**Linear guide type**

**Bore size**

| | |
|---|---|
| **25** | 25 mm |
| **32** | 32 mm |
| **40** | 40 mm |

**Port thread type**

| Symbol | Type | Bore size |
|---|---|---|
| **—** | Rc | ø25, ø32, ø40 |
| **TN** | NPT | |
| **TF** | G | |

**Piping**

| | |
|---|---|
| **—** | Standard type |
| **G** | Centralised piping type |

**Cylinder stroke [mm]**

| Bore size [mm] | Standard stroke [mm]* | Maximum manufacturable stroke [mm] |
|---|---|---|
| **25, 32, 40** | 50, 100, 150, 200, 250, 300<br>350, 400, 450, 500, 550, 600 | 1500 |

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

**End lock position**

| | |
|---|---|
| **—** | Without end lock |
| **E** | Right end |
| **F** | Left end |
| **W** | Both ends |

* For end lock positions, refer to page 13.

**Stroke adjustment unit symbol**
For stroke adjustment unit, refer to page 2. Intermediate fixing spacer is not available for end lock mounting side.

**Auto switch**

| | |
|---|---|
| **—** | Without auto switch (Built-in magnet) |

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

**Number of auto switches**

| | |
|---|---|
| **—** | 2 pcs. |
| **S** | 1 pc. |
| **n** | "n" pcs. |

**Made to Order**
Refer to page 2 for details.

### Applicable Auto Switches/Refer to auto switch guide for further information on auto switches.

| Type | Special function | Electrical entry | Indicator light | Wiring (Output) | Load voltage DC | | Load voltage AC | Auto switch model Perpendicular | Auto switch model In-line | Lead wire length [m] 0.5 (—) | 1 (M) | 3 (L) | 5 (Z) | None (N) | Pre-wired connector | Applicable load | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | | 12 V | | **M9BV** | **M9B** | ● | ● | ● | ○ | ○ | ○ | — | |
| | Diagnostic indication (2-colour indication) | | | 3-wire (NPN) | | 5 V, 12 V | | **M9NWV** | **M9NW** | ● | ● | ● | ○ | ○ | ○ | IC circuit | |
| | | | | 3-wire (PNP) | | | | **M9PWV** | **M9PW** | ● | ● | ● | ○ | ○ | ○ | | |
| | | | | 2-wire | | 12 V | | **M9BWV** | **M9BW** | ● | ● | ● | ○ | ○ | ○ | — | |
| | Water resistant (2-colour indication) | | | 3-wire (NPN) | | 5 V, 12 V | | **M9NAV**** | **M9NA**** | ○ | ○ | ● | ○ | — | ○ | IC circuit | |
| | | | | 3-wire (PNP) | | | | **M9PAV**** | **M9PA**** | ○ | ○ | ● | ○ | — | ○ | | |
| | | | | 2-wire | | 12 V | | **M9BAV**** | **M9BA**** | ○ | ○ | ● | ○ | — | ○ | — | |
| Reed auto switch | —— | Grommet | Yes | 3-wire (NPN equivalent) | — | 5 V | — | **A96V** | **A96** | ● | — | ● | — | — | — | IC circuit | — |
| | | | No | 2-wire | 24 V | 12 V | 100 V | **A93V** | **A93** | ● | — | ● | ● | — | — | — | Relay, PLC |
| | | | | | | | 100 V or less | **A90V** | **A90** | ● | — | ● | — | — | — | IC circuit | |

** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please consult with SMC regarding water resistant types with the above model numbers.

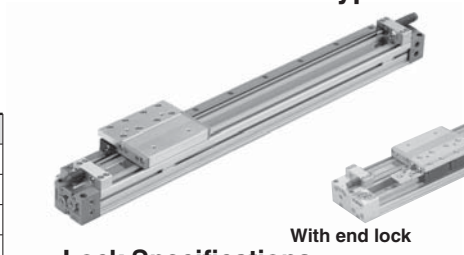
* Lead wire length symbols: 0.5 m ····· — (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ

* Solid state auto switches marked with "○" are produced upon receipt of order.
* Mounting bracket (BMY3-016) is separately required to retrofit the above auto switches.

* There are other applicable auto switches other than listed above. For details, refer to page 15.
* For details about auto switches with pre-wired connector, refer to auto switch guide.
* Auto switches are shipped together, (but not assembled). (For details about auto switch mounting, refer to page 15.)

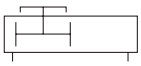
## Specifications

| Bore size [mm] | | 25 | 32 | 40 |
|---|---|---|---|---|
| **Fluid** | | Air | | |
| **Action** | | Double acting | | |
| **Operating pressure range** | | 0.1 to 0.8 MPa | | |
| **Proof pressure** | | 1.2 MPa | | |
| **Ambient and fluid temperature** | | 5 to 60°C | | |
| **Cushion** | | Air cushion | | |
| **Lubrication** | | Non-lube | | |
| **Stroke length tolerance** | | +1.8 0 | | |
| **Piping port size** | **Front/Side/Back port** | Rc1/8 | | Rc1/4 |
| | **Bottom port** | Rc1/16 | Rc1/16 | Rc1/8 |



With end lock

**Symbol**



## Lock Specifications

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

Made to Order

## Made to Order

**(For details, refer to pages 17 and 18.)**

| Symbol | Specifications |
|---|---|
| **-XB10** | Intermediate stroke (Using exclusive body) |
| **-XB11** | Long stroke |
| **-XB22** | Shock absorber/soft type RJ series mounted |
| **-XC56** | With knock pin holes |
| **-X168** | Helical insert thread |

## Piston Speed

| Bore size [mm] | | 25 to 40 |
|---|---|---|
| **Without stroke adjustment unit** | | 100 to 1000 mm/s |
| **Stroke adjustment unit** | **A unit** | 100 to 1000 mm/s Note 1) |
| | **L unit and H unit** | 100 to 1500 mm/s Note 2) |

Note 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 4, **the piston speed should be 100 to 200 mm/s.**
Note 2) The piston speed is 100 to 1000 mm/s for centralised piping.
Note 3) Use at a speed within the absorption capacity range. Refer to page 4.

## Stroke adjustment Unit Specifications

| Bore size [mm] | | 25 | | | 32 | | | 40 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Unit symbol** | | **A** | **L** | **H** | **A** | **L** | **H** | **A** | **L** | **H** |
| **Configuration Shock absorber model** | | With adjustment bolt | RB1007 + with adjustment bolt | RB1412 + with adjustment bolt | With adjustment bolt | RB1412 + with adjustment bolt | RB2015 + with adjustment bolt | With adjustment bolt | RB1412 + with adjustment bolt | RB2015 + with adjustment bolt |
| **Stroke adjustment range by intermediate fixing spacer [mm]** | **Without spacer** | 0 to –11.5 | | | 0 to –12 | | | 0 to –16 | | |
| | **With short spacer** | –11.5 to –23 | | | –12 to –24 | | | –16 to –32 | | |
| | **With long spacer** | –23 to –34.5 | | | –24 to –36 | | | –32 to –48 | | |

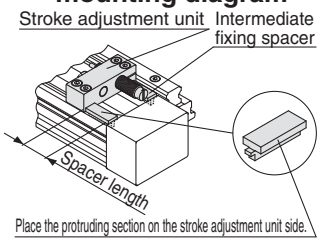
∗ Stroke adjustment range is applicable for one side when mounted on a cylinder.

## Stroke Adjustment Unit Symbol

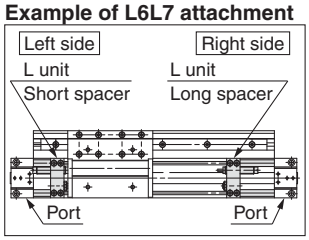
| Left side stroke adjustment unit | | Right side stroke adjustment unit: Without unit | A: With adjustment bolt | | | L: With low load shock absorber + adjustment bolt | | | H: With high load shock absorber + adjustment bolt | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | With short spacer | With long spacer | | With short spacer | With long spacer | | With short spacer | With long spacer |
| **Without unit** | | **—** | **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.

## Stroke adjustment unit mounting diagram




**Example of L6L7 attachment**




## Shock Absorber Model for L and H Units

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

∗ The shock absorber service life is different from that of the MY1H cylinder depending on operating conditions. Refer to the Series RB/RJ Specific Product Precautions for the replacement period.
∗ Shock absorber/soft type RJ series mounted (-XB22) is made to order. For details, refer to page 17.

## Shock Absorber Specifications

| Model | | RB 1007 | RB 1412 | RB 2015 |
|---|---|---|---|---|
| **Max. absorbed energy [J]** | | 5.9 | 19.6 | 58.8 |
| **Stroke absorption [mm]** | | 7 | 12 | 15 |
| **Max. collision speed [mm/s]** | | 1500 | 1500 | 1500 |
| **Max. operating frequency [cycle/min]** | | 70 | 45 | 25 |
| **Spring force [N]** | **Extended** | 4.22 | 6.86 | 8.34 |
| | **Retracted** | 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 Series RB Specific Product Precautions for the replacement period.

## Theoretical Output

Unit: N

| Bore size [mm] | Piston area [mm²] | Operating pressure [MPa] | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| **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 |

Note) Theoretical output [N] = Pressure [MPa] x Piston area [mm²]

## Weight

Unit: kg

| Bore size [mm] | Basic weight | Additional weight per each 50 mm of stroke | Side support bracket weight (per set) | Stroke adjustment unit weight (per unit) | | |
|---|---|---|---|---|---|---|
| | | | A/B type weight | A unit weight | L unit weight | H unit weight |
| **25** | 2.17 | 0.30 | 0.02 | 0.04 | 0.07 | 0.11 |
| **32** | 4.37 | 0.46 | 0.04 | 0.08 | 0.14 | 0.23 |
| **40** | 5.84 | 0.55 | 0.08 | 0.12 | 0.19 | 0.28 |

Calculation: (Example) **MY1H25-300AZ**

Basic weight ····· 2.17 kg
Cylinder stroke ····· 300 mm stroke
Additional weight ····· 0.30 kg/50 mm stroke
A unit weight ····· 0.04 kg

2.17 + 0.30 x 300 ÷ 50 + 0.04 x 2 ≈ 4.05 kg

## Options

### Stroke Adjustment Unit/Part No.

**MYH − A 25 L2 − 6N**

**Stroke adjustment unit**

**Bore size**

| | |
|---|---|
| **25** | 25 mm |
| **32** | 32 mm |
| **40** | 40 mm |

**Unit type**

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

Note) For details about adjustment range, refer to page 2.

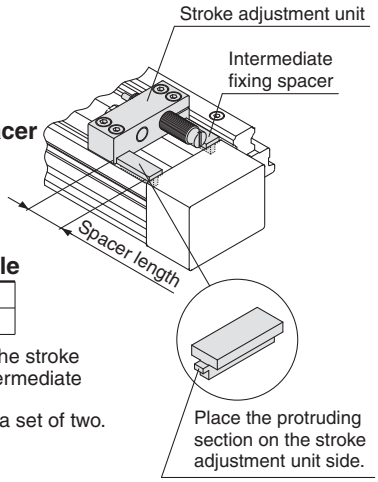
**Intermediate fixing spacer**

| | |
|---|---|
| — | Without spacer |
| **6**□ | Short spacer |
| **7**□ | Long spacer |

**Spacer delivery style**

| | |
|---|---|
| — | Unit installed |
| **N** | Spacer only |

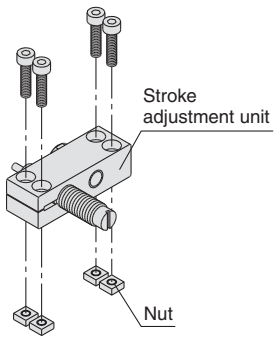
* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.
* Spacers are shipped for a set of two.



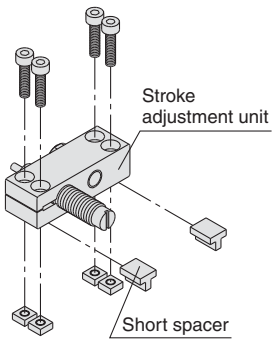

* When ordering the intermediate fixing spacer for the stroke adjustment unit, the intermediate fixing spacer is shipped together.

### Component Parts

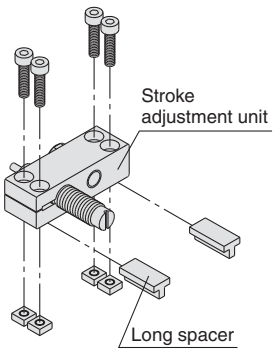
**MYH-A25L2 (Without spacer)**



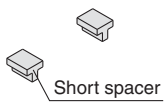

**MYH-A25L2-6 (With short spacer)**



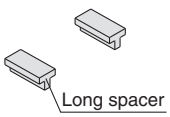

**MYH-A25L2-7 (With long spacer)**




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




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




* Nuts are equipped on the cylinder body.

### Side Support/Part No.

| Type \ Bore size [mm] | 25 | 32 | 40 |
|---|---|---|---|
| Side support A | MY-S25A | MY-S32A | MY-S40A |
| Side support B | MY-S25B | MY-S32B | MY-S40B |

For details about dimensions, etc., refer to page 14.
Side supports consist of a set of right and left support.

# 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.

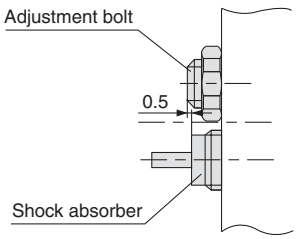
**<Stroke adjustment unit with shock absorber>**
Use this unit when operating with a load and speed exceeding the air cushion limit line, or when cushioning is required outside of the effective air cushion stroke range due to stroke adjustment.

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

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

## ⚠ Caution

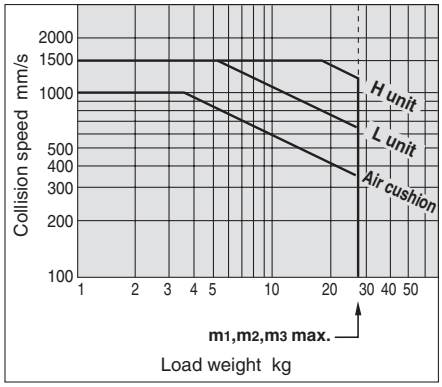
**1. Refer to the below figure when using the adjustment bolt to perform stroke adjustment.**
When the effective stroke of the shock absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically.
Secure the adjustment bolt at the position where it protrudes approximately 0.5 mm from the shock absorber.



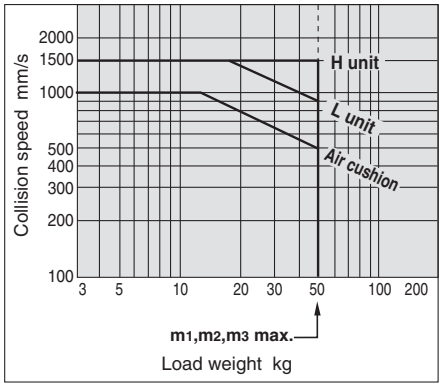

**2. Do not use a shock absorber together with air cushion.**

## Absorption Capacity of Air Cushion and Stroke Adjustment Units

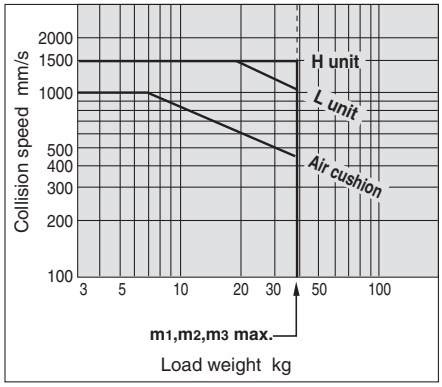
**MY1H25** Horizontal collision: P = 0.5 MPa




**MY1H40** Horizontal collision: P = 0.5 MPa




**MY1H32** Horizontal collision: P = 0.5 MPa



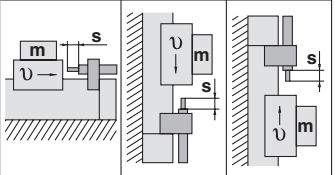

### Air Cushion Stroke

Unit: mm

| Bore size [mm] | Cushion stroke |
|---|---|
| **25** | 15 |
| **32** | 19 |
| **40** | 24 |

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

Unit: N·m

| | Horizontal collision | Vertical collision (Downward) | Vertical collision (Upward) |
|---|---|---|---|
| Type of impact |  | | |
| Kinetic energy **$E_1$** | $\frac{1}{2}m\cdot\upsilon^2$ | | |
| Thrust energy **$E_2$** | **F·s** | **F·s + m·g·s** | **F·s – m·g·s** |
| Absorbed energy **E** | **$E_1 + E_2$** | | |



Symbols
**υ**: Speed of impact object [m/s]
**F**: Cylinder thrust [N]
**s**: Shock absorber stroke [m]
**m**: Weight of impact object [kg]
**g**: Gravitational acceleration (9.8 m/s²)
Note) The speed of the impact object is measured at the time of impact with the shock absorber.

# Series MY1H
# Specific Product Precautions 1

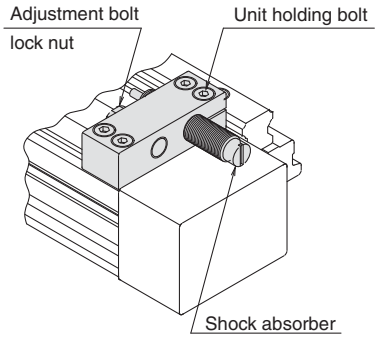
**Be sure to read the below before handling. Refer to back cover for Safety Instructions. For Actuator and Auto Switch Precautions, refer to "Handling Precautions for SMC Products" (M-E03-3) and Operation Manual. Please download it via our website http://www.smcworld.com**

## Operating Precautions

### ⚠Caution

**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.

**Tightening Torque for Stroke Adjustment Unit Holding Bolts** Unit: N·m

| Bore size [mm] | Tightening torque |
|---|---|
| **25** | 1.8 |
| **32** | 3.5 |
| **40** | 5.8 |

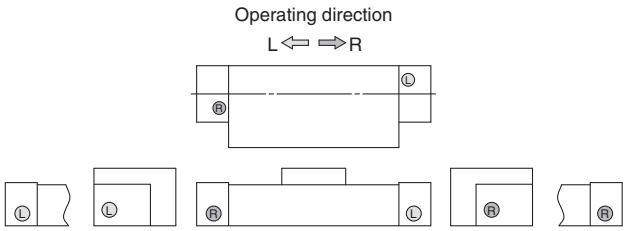
### ⚠Caution

**Do not operate with the stroke adjustment unit fixed in an intermediate position.**
When the stroke adjustment unit is fixed in an intermediate position, slippage can occur depending on the amount of energy released at the time of an impact. In that case, use a short spacer or a long spacer.
For other lengths, please consult with SMC. (Refer to "Tightening Torque for Stroke Adjustment Unit Holding Bolts.")

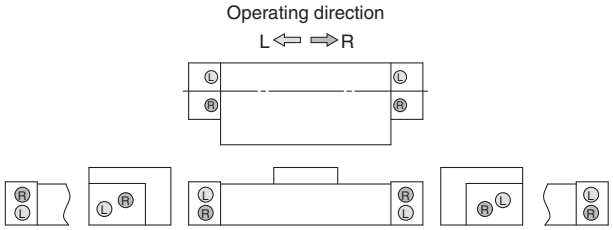
**<Adjustment bolt stroke adjustment>**
Loosen the adjustment bolt lock nut, and adjust the stroke from the lock cover side using a hexagon wrench. Then, retighten the lock nut.

**<Shock absorber stroke adjustment>**
Loosen the two unit holding bolts at the shock absorber side, turn the shock absorber and adjust the stroke. Then, uniformly retighten the unit holding bolts to secure the shock absorber.

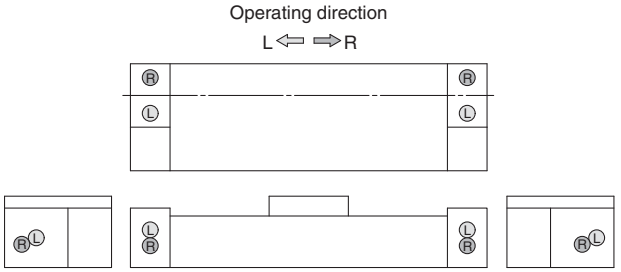
## Port Variation




**Port variation (Standard piping)**




**Port variation (Centralised piping)**




**Port variation (End lock)**

# Series MY1H
# Specific Product Precautions 2

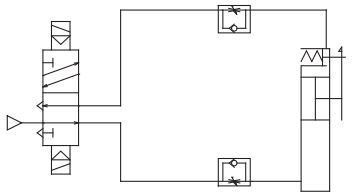
**Be sure to read the below before handling. Refer to back cover for Safety Instructions. For Actuator and Auto Switch Precautions, refer to "Handling Precautions for SMC Products" (M-E03-3) and Operation Manual. Please download it via our website http://www.smcworld.com**

## 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 centre 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 when releasing the lock.**

Before starting operation, be sure to control the system so that air is supplied to the side without the 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. Operate 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 synchronisation.**

Avoid applications in which two or more end lock cylinders are synchronised 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 side that has the lock mechanism, as it is necessary for disengaging 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.

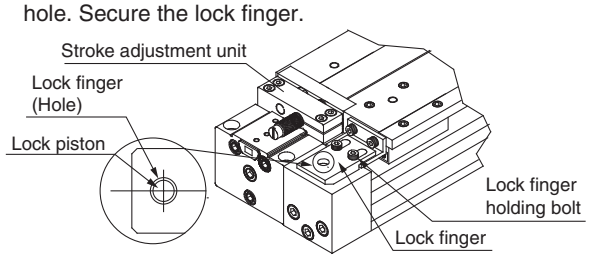
### End Lock Mechanism Adjustment

## ⚠ 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 centre of the lock piston with the centre 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 the 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

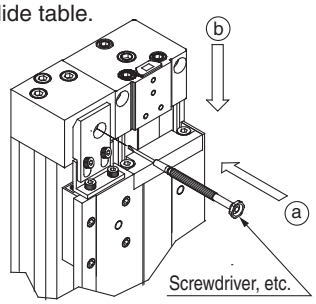
## ⚠ Caution

**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.**

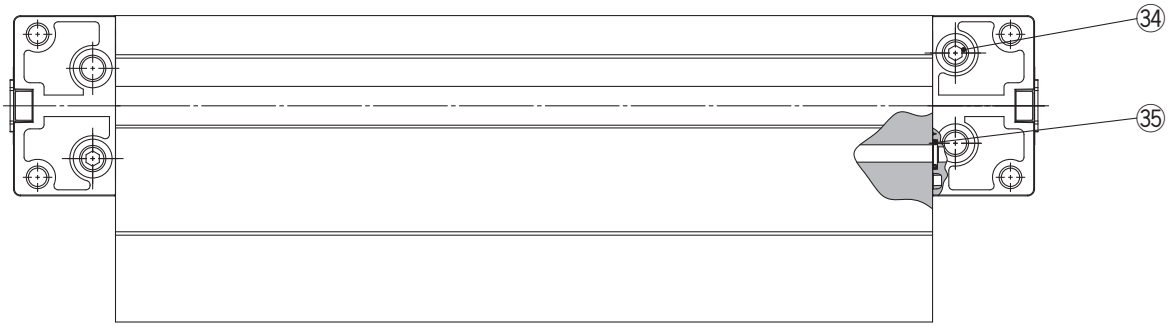
Push the lock piston down with a screwdriver, etc., and move the slide table.

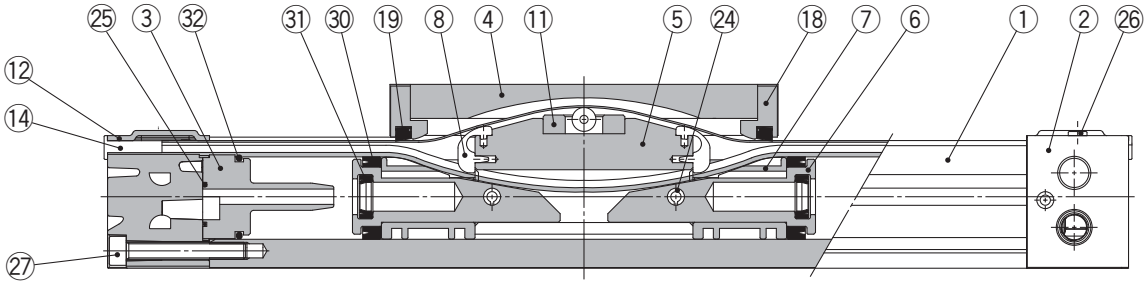


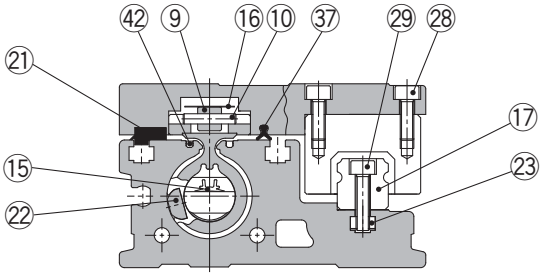

**Other handling precautions regarding mounting, piping and environment are the same as the standard series.**

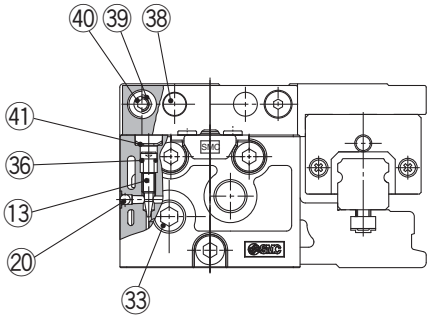
## Construction

### Standard type



## Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Cylinder tube** | Aluminium alloy | Hard anodised |
| 2 | **Head cover** | Aluminium alloy | Painted |
| 3 | **Cushion boss** | Special resin | |
| 4 | **Slide table** | Aluminium alloy | Hard anodised |
| 5 | **Piston yoke** | Aluminium alloy | Chromated |
| 6 | **Piston** | Aluminium 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 plated |
| 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 | Black zinc chromated |
| 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 (Centralised piping: 10 pcs.) |
| 34 | **Hexagon socket head taper plug** | Carbon steel | Chromated (Centralised piping: 4 pcs.) |
| 38 | **Stopper** | Carbon steel | |
| 39 | **Spacer** | Stainless steel | |
| 40 | **Hexagon socket button head screw** | Chromium molybdenum steel | Chromated |
| 41 | **CR retaining ring** | Spring steel | |
| 42 | **Seal magnet** | Rubber magnet | |

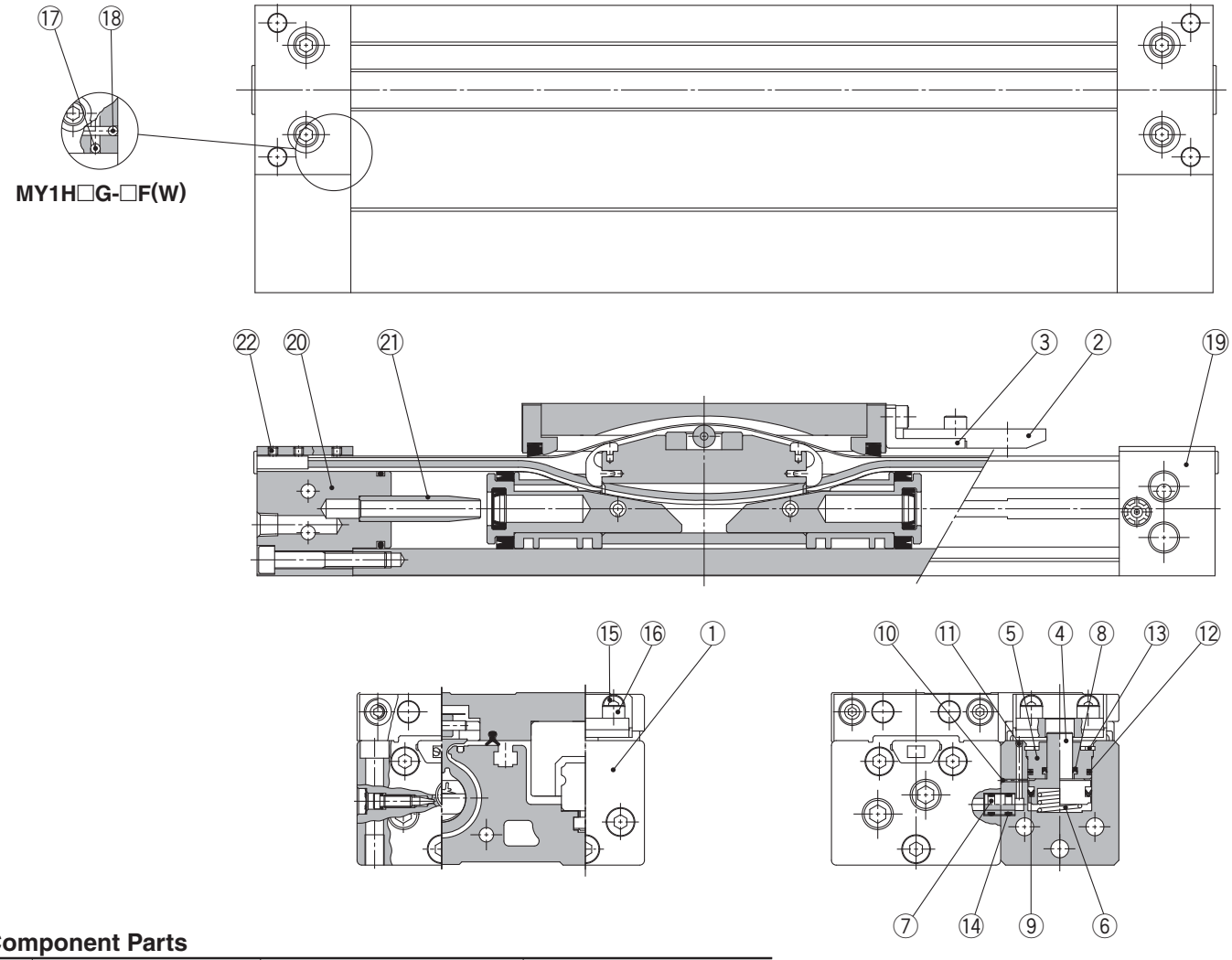
## Replacement Parts: Seal Kit

| No. | Description | Material | Qty. | MY1H25 | MY1H32 | MY1B40 |
|---|---|---|---|---|---|---|
| 15 | **Seal belt** | Special resin | 1 | MY25-16C-Stroke | MY32-16C-Stroke | MY40-16A-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 | ø5.1 x ø3 x ø1.05 | ø7.15 x ø3.75 x ø1.7 | ø7.15 x ø3.75 x ø1.7 |
| 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 | 2 | | | |

∗ 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)

## Construction

### End lock




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Locking body** | Aluminium alloy | Painted |
| 2 | **Lock finger** | Carbon steel | After quenching, nickel plated |
| 3 | **Lock finger bracket** | Rolled steel | Nickel plated |
| 4 | **Lock piston** | Carbon tool steel | After quenching, electroless nickel plated |
| 5 | **Rod cover** | Aluminium alloy | Hard anodised |
| 6 | **Return spring** | Spring steel | Zinc chromated |
| 7 | **Bypass pipe** | Aluminium alloy | Hard anodised |
| 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 plated |
| 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** | Aluminium alloy | Painted |
| 20 | **Head cover WL** | Aluminium alloy | Painted |
| 21 | **Cushion ring** | Aluminium alloy | |
| 22 | **Hexagon socket head set screw** | Chromium molybdenum steel | Chromated |

### Replacement Parts: Seal Kit

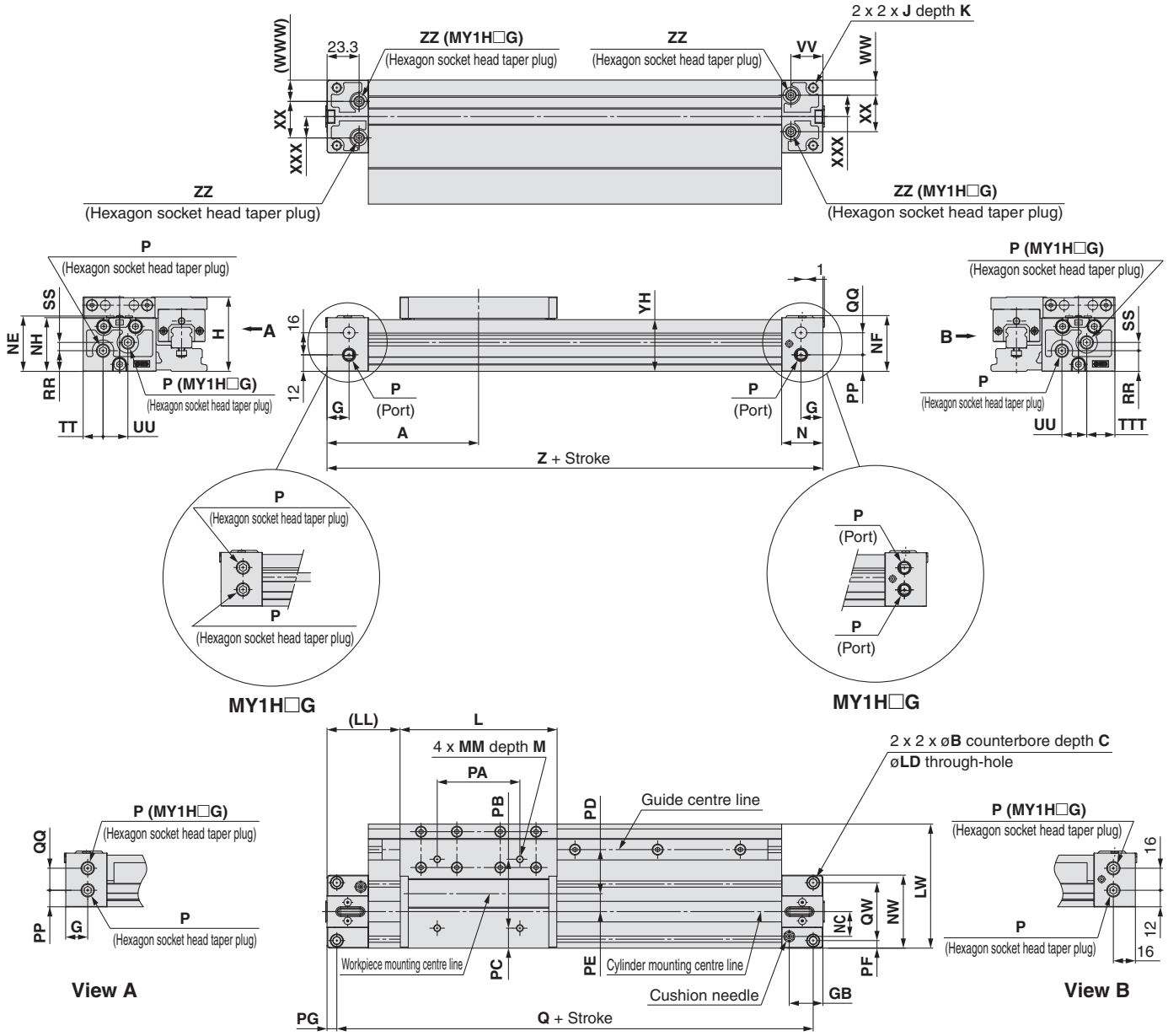
| No. | Description | Material | Qty. | MY1H25 | MY1H32 | MY1H40 |
|---|---|---|---|---|---|---|
| 8 | **Rod seal** | NBR | 1 | DYR8K | DYR8K | DYR8K |
| 9 | **Piston seal** | NBR | 1 | DYP-20 | DYP-20 | DYP-20 |
| 12 | **O-ring** | NBR | 1 | C-18 | C-18 | C-18 |
| 14 | **O-ring** | NBR | 2 | C-5 | C-5 | C-5 |

∗ Since the seal kit does not include a grease pack, order it separately.
**Grease pack part no.: GR-S-010** (10 g)

## Standard Type/Centralised Piping Type

Regarding centralised piping port variations, refer to page 5.

**MY1H25□/32□/40□ – Stroke Z**







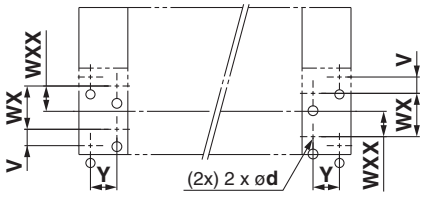
### Standard piping/Centralised piping

| 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 | Rc1/8 | 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 | Rc1/8 | 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 | Rc1/4 | 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 | Rc1/16 |
| **MY1H32** | 42 | 13 | 6.5 | 8 | 16 | 264 | 51 | 16 | 16 | 16 | 28.5 | 12 | 12 | 20 | 47 | 280 | Rc1/16 |
| **MY1H40** | 37.5 | 23 | 8 | 9 | 18.5 | 322 | 59 | 23.5 | 20 | 20 | 35 | 14 | 14 | 23.5 | 59.5 | 340 | Rc1/8 |

### Centralised piping [mm]

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







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

∗ 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**.

### Hole Size for Centralised Piping on the Bottom (Machine the mounting side to the dimensions below.)

**Standard piping/Centralised piping** [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 | C11.2 |

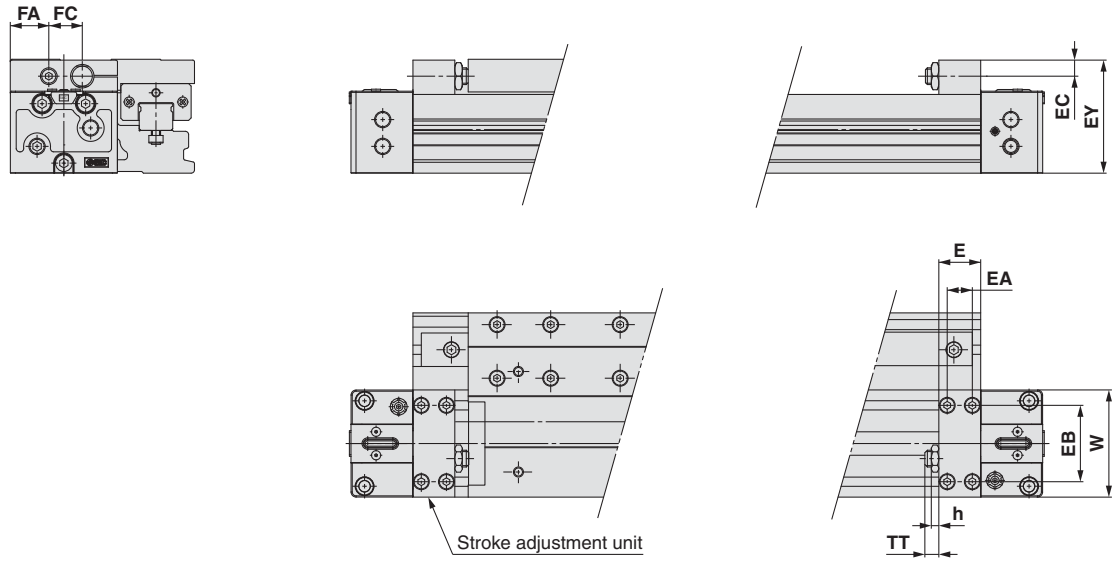
**Centralised piping** [mm]

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

## Stroke Adjustment Unit

### With adjustment bolt

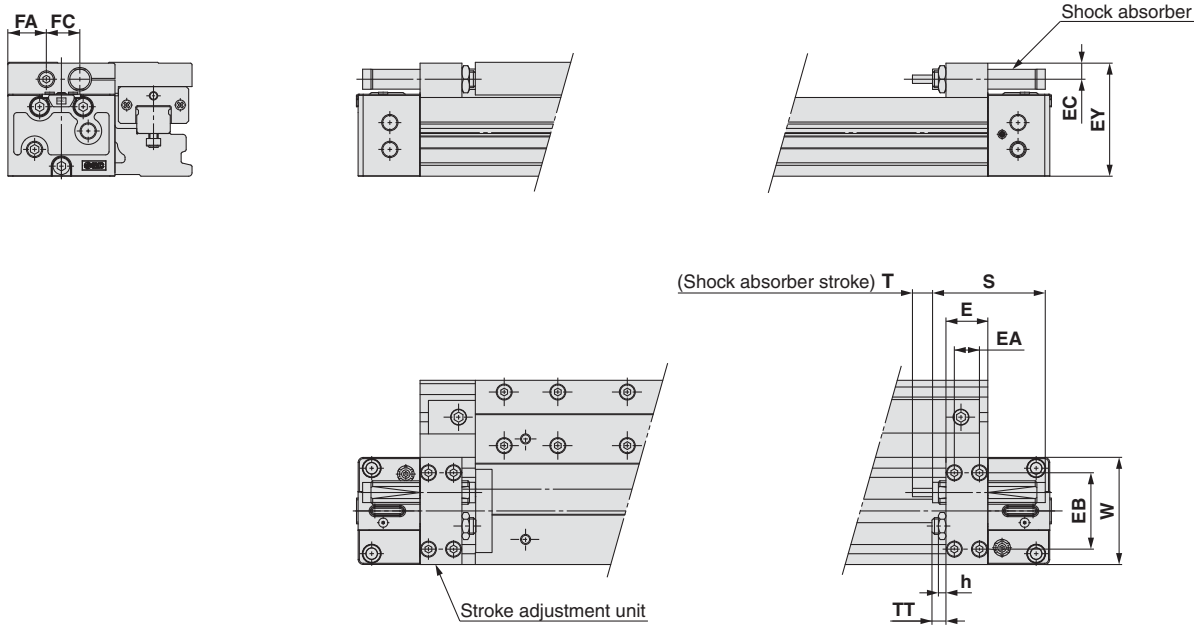
**MY1H Bore size □ – Stroke AZ**




| Applicable cylinder | E | EA | EB | EC | EY | FA | FC | h | TT | W |
|---|---|---|---|---|---|---|---|---|---|---|
| **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 LZ**



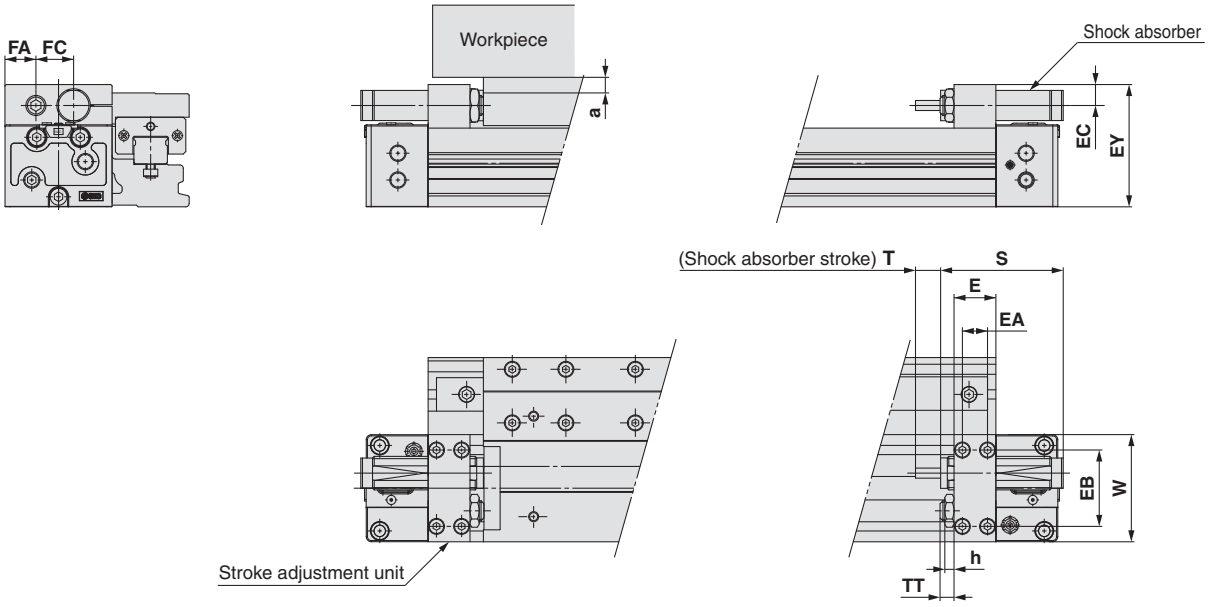

[mm]

| Applicable cylinder | E | EA | EB | EC | EY | F | FA | FC | h | S | T | TT | W | Shock absorber model |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **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 |

## Stroke Adjustment Unit

### With high load shock absorber + adjustment bolt

**MY1H Bore size □ – Stroke HZ**



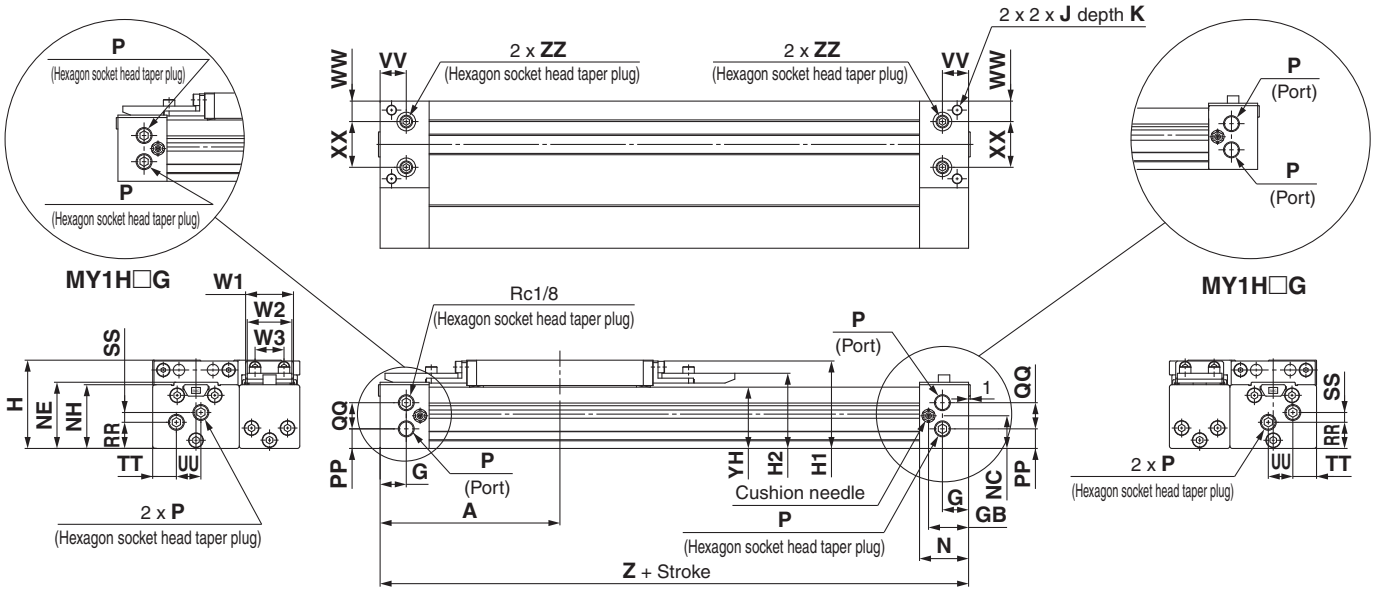

∗ Since the EY dimension of H unit is greater than the table top height (H dimension), when a workpiece exceeding the overall length (L dimension) of the slide table is mounted, allow a clearance of size "**a**" or larger at the workpiece side.

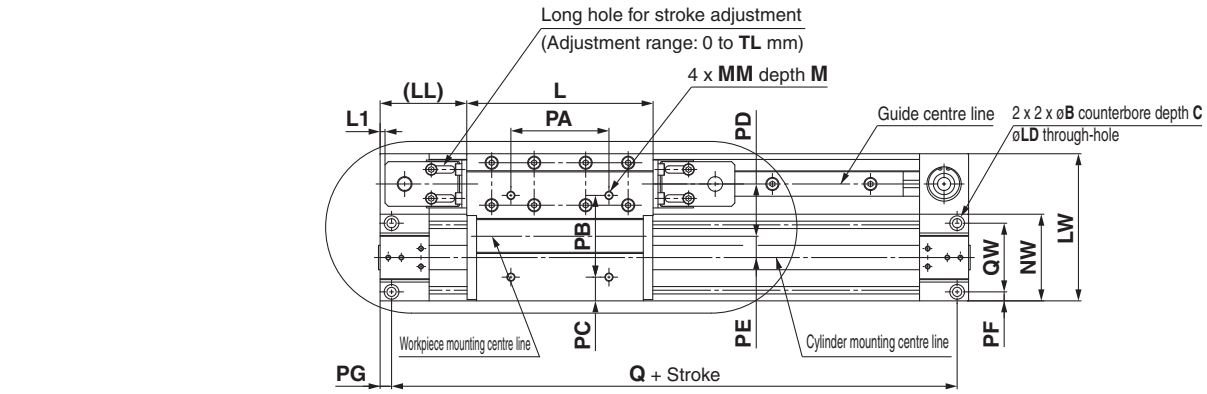
| Applicable cylinder | E | EA | EB | EC | EY | F | FA | FC | h | S | T | TT | W | Shock absorber model | a |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MY1H25** | 18 | 9 | 40 | 9 | 57 | — | 18 | 17.5 | 4.5 | 67.3 | 12 | 5 (Max.16.5) | 53 | RB1412 | 3.5 |
| **MY1H32** | 25 | 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 |

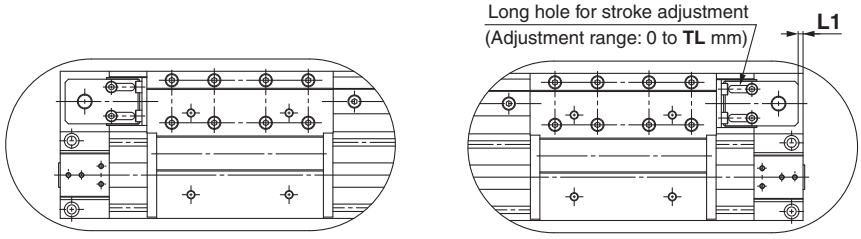
## With End Lock

Dimensions for types other than end lock are identical to the standard type dimensions. For details about dimensions, etc., refer to page 10.

### MY1H□–□WZ (Both ends)




**MY1H□-□FZ**
**(Left end)**

**MY1H□-□EZ**
**(Right end)**

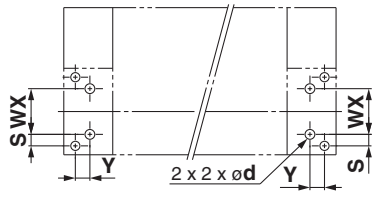
### Standard piping/Centralised piping

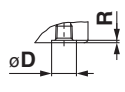
| Model | A | B | C | G | GB | H | J | K | L | LD | LL | LW | M | MM | N | NC | NE | NH | NW | P | PA | PB | PC | PD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MY1H25** | 110 | 9 | 5.5 | 16 | 24.5 | 54 | M6 x 1 | 9.5 | 114 | 5.6 | 53 | 90 | 9 | M5 x 0.8 | 30 | 20 | 40.5 | 39 | 53 | Rc1/8 | 60 | 50 | 14.5 | 32 |
| **MY1H32** | 140 | 11 | 6.6 | 19 | 28.5 | 68 | M8 x 1.25 | 16 | 140 | 6.8 | 70 | 110 | 13 | M6 x 1 | 37 | 25 | 50 | 49 | 64 | Rc1/8 | 80 | 60 | 15 | 42 |
| **MY1H40** | 170 | 14 | 8.5 | 23 | 35 | 84 | M10 x 1.5 | 15 | 170 | 8.6 | 85 | 121 | 13 | M6 x 1 | 45 | 30.5 | 63 | 61.5 | 75 | Rc1/4 | 100 | 80 | 20.5 | 37.5 |

| Model | PE | PF | PG | PP | Q | QW | RR | SS | TT | UU | VV | WW | XX | YH | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MY1H25** | 13 | 5.5 | 7 | 12 | 206 | 42 | 16 | 6 | 14.5 | 15 | 16 | 12.5 | 28 | 37.5 | 220 | Rc1/16 |
| **MY1H32** | 13 | 6.5 | 8 | 17 | 264 | 51 | 23 | 4 | 16 | 16 | 19 | 16 | 32 | 47 | 280 | Rc1/16 |
| **MY1H40** | 23 | 8 | 9 | 8.5 | 322 | 59 | 27 | 10.5 | 20 | 22 | 23 | 19.5 | 36 | 59.5 | 340 | Rc1/8 |

**End lock mechanism (Standard piping/Centralised 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 |




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

∗ This figure shows the recommended machining dimensions of the mounting surface when viewed from the cylinder side.

### Hole Size for Centralised Piping on the Bottom

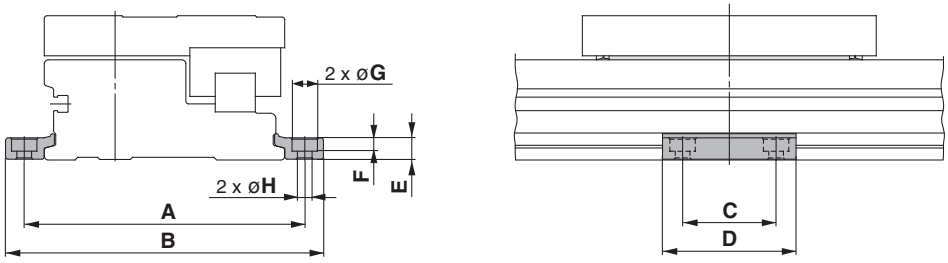
(Machine the mounting side to the dimensions below.)

### Standard piping/Centralised piping

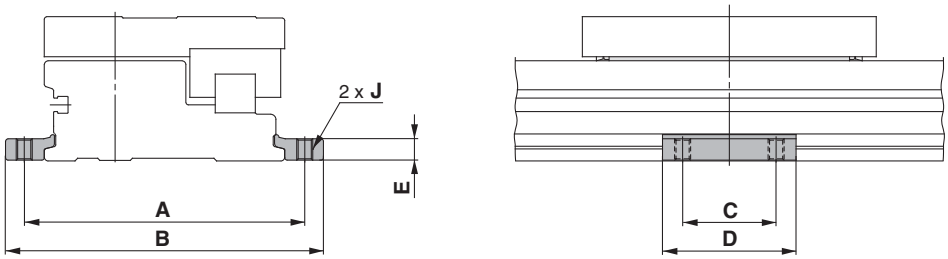
| Model | WX | Y | S | d | D | R | Applicable O-ring |
|---|---|---|---|---|---|---|---|
| **MY1H25** | 28 | 9 | 7 | 6 | 11.4 | 1.1 | C9 |
| **MY1H32** | 32 | 11 | 9.5 | 6 | 11.4 | 1.1 | |
| **MY1H40** | 36 | 14 | 11.5 | 8 | 13.4 | 1.1 | C11.2 |

## Side Support

### Side support A
### MY-S□A




### Side support B
### MY-S□B



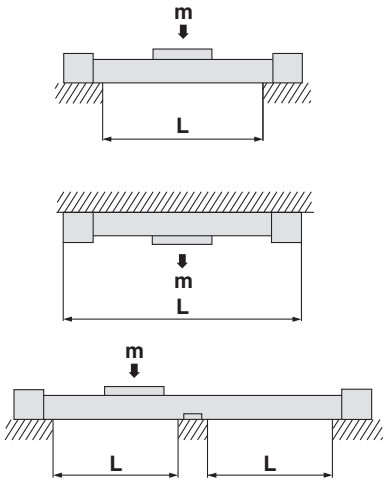

[mm]

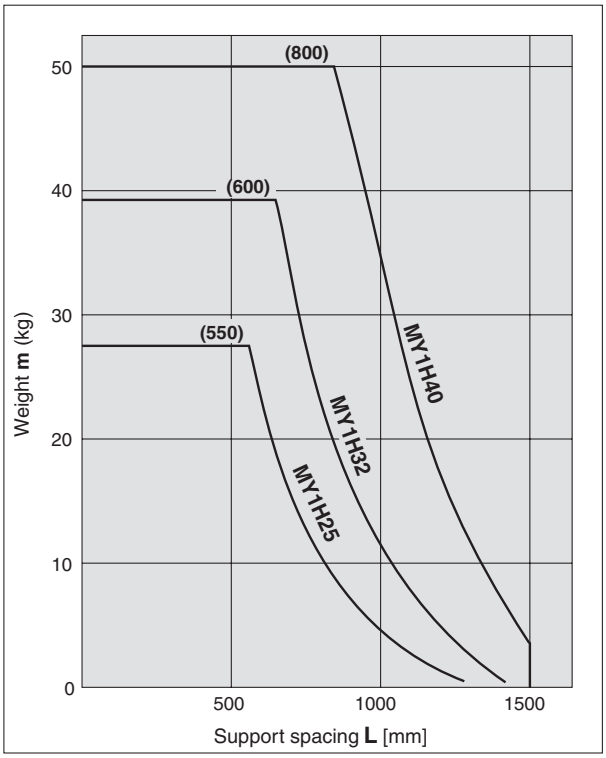
| Part no. | Applicable cylinder | A | B | C | D | E | F | G | H | J |
|---|---|---|---|---|---|---|---|---|---|---|
| MY-S25$^{A}_{B}$ | MY1H25 | 105 | 119 | 35 | 50 | 8 | 5 | 9.5 | 5.5 | M6 x 1 |
| MY-S32$^{A}_{B}$ | MY1H32 | 130 | 148 | 45 | 64 | 11.7 | 6 | 11 | 6.6 | M8 x 1.25 |
| MY-S40$^{A}_{B}$ | 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 supports.

## Guide to 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 below graph.



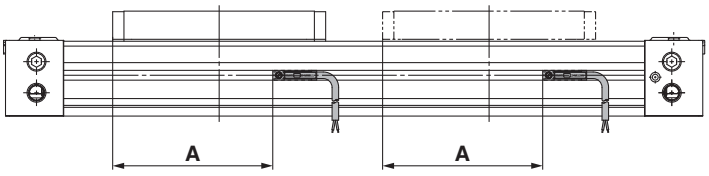




## ⚠Caution

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, use of a side support is recommended.
2. Support brackets are not for mounting; use them solely for providing support.

# *Series MY1H*
# Auto Switch Mounting

## Auto Switch Proper Mounting Position




**Auto Switch Proper Mounting Position** [mm]

| Auto switch model / Bore size | D-M9□<br>D-M9□V<br>D-M9□W<br>D-M9□WV<br>D-M9□AL<br>D-M9□AVL | D-A9□<br>D-A9□V |
|---|---|---|
| | A | A |
| 25 | 85 | 81 |
| 32 | 116.5 | 112.5 |
| 40 | 137.5 | 133.5 |

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

## Operating Range

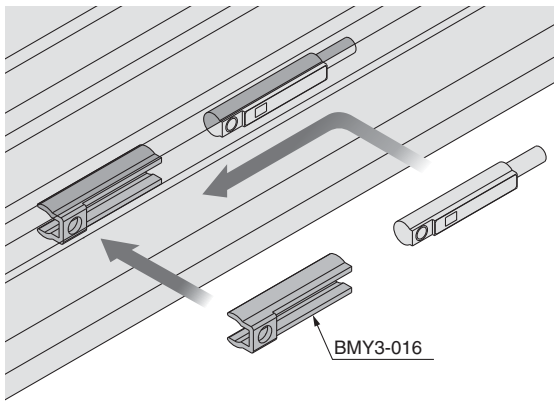
[mm]

| Auto switch model | Bore size | | |
|---|---|---|---|
| | 25 | 32 | 40 |
| D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□AL/M9□AVL | 5.0 | 5.5 | 5.5 |
| D-A9□/A9□V | 7.0 | 10.0 | 9.0 |

Note) Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

## Auto Switch Mounting Bracket/Part No.

| Auto switch model | Bore size [mm] |
|---|---|
| | ø25 to ø40 |
| D-M9□/M9□V<br>D-M9□W/M9□WV<br>D-M9□AL/M9□AVL<br>D-A9□/A9□V | BMY3-016 |



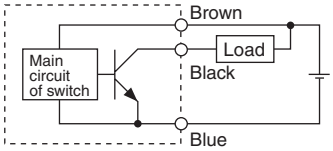

**Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable.**

* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, consult with SMC.
* With pre-wired connector is also available for solid state auto switches. For details, consult with SMC.

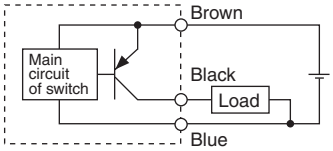
# Series MY1H
# Auto Switches Connection and Example

## Basic Wiring

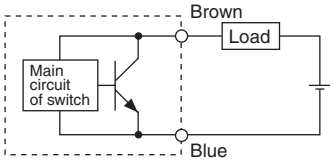
**Solid state 3-wire, NPN**



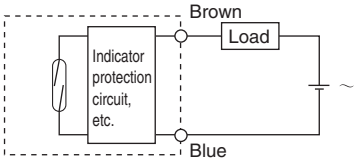

**Solid state 3-wire, PNP**



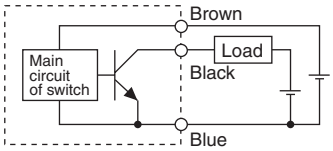

**2-wire (Solid state)**

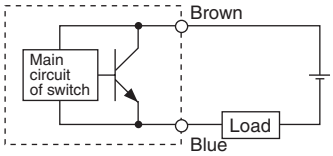


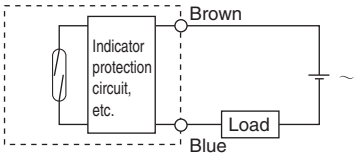

**2-wire (Reed)**




(Power supply for switch and load are separate.)

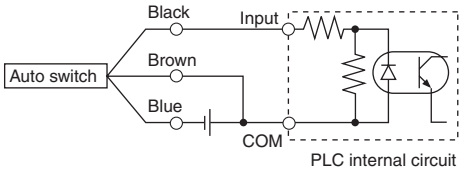


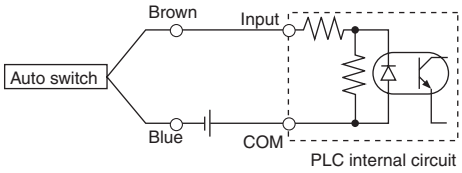




## Example of Connection with PLC (Programmable Logic Controller)

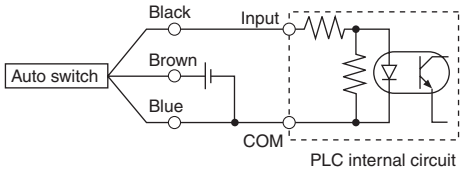
**• Sink input specifications**
**3-wire, NPN**



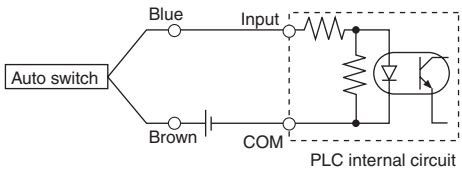

**2-wire**




**• Source input specifications**
**3-wire, PNP**




**2-wire**

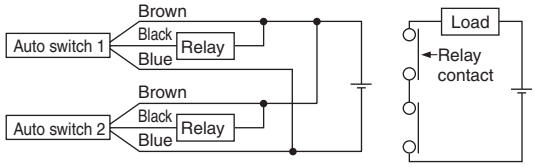



Connect according to the applicable PLC input specifications, as the connection method will vary depending on the PLC input specifications.

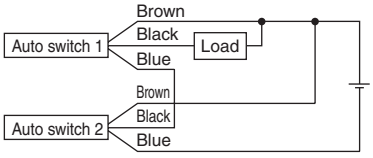
## Example of AND (Series) and OR (Parallel) Connection

**• 3-wire**

**AND connection for NPN output (Using relays)**

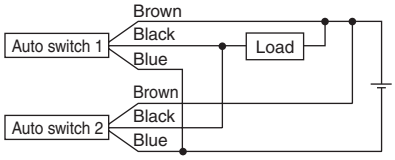



**AND connection for NPN output (Performed with auto switches only)**



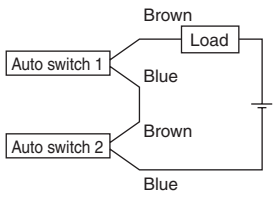

The indicator lights will light up when both of the auto switches are in the ON state.

**OR connection for NPN output**




**• 2-wire**

**2-wire with 2-switch AND connection**

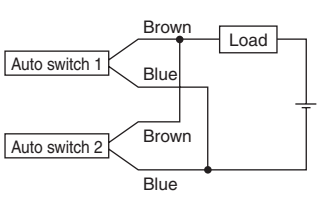



When two auto switches are connected in series, malfunction may occur because the load voltage will decrease in the ON state.
The indicator lights will light up when both of the auto switches are in the ON state.

Load voltage at ON = Power supply voltage – Residual voltage x 2 pcs.
= 24 V – 4 V x 2 pcs.
= 16 V

Example: Power supply voltage 24 VDC
Auto switch internal voltage drop 4 V

**2-wire with 2-switch OR connection**




(Solid state)
When two auto switches are connected in parallel, malfunction may occur because the load voltage will increase in the OFF state.

(Reed)
Because there is no leakage current, the load voltage will not increase in the OFF state. 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.

Load voltage at OFF = Leakage current x 2 pcs. x Load impedance
= 1 mA x 2 pcs. x 3 kΩ
= 6 V

Example: Load impedance 3 kΩ
Auto switch leakage current 1 mA

# Made to Order

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

## Made-to-Order List

| Series | Type | Intermediate stroke | Long stroke | Shock absorber/ soft type mounted | With knock pin holes | Helical insert thread | Copper free |
|---|---|---|---|---|---|---|---|
| | | -XB10 | -XB11 | -XB22 | -XC56 | -X168 | 20- |
| MY1H | Basic type | ● | ● | ● | ● | ● | ● |

Symbol **-XB10**

## 1 Intermediate Stroke (Using exclusive body)

**Cylinder which can reduce the mounting space by using an exclusive body which does not use a spacer to achieve that the overall length dimension could be shortened when an intermediate stroke other than the standard stroke is required.**

■ **Stroke range: 51 to 599 mm**

**MY1H** [Bore size] **–** [Stroke] [ ] **Z –** [Auto switch] [Suffix] **– XB10**

- [ ]: Stroke adjustment unit
- Bore size: Type/Bore size

| | | 25 | 32 | 40 |
|---|---|---|---|---|
| H | Linear guide type | | | |

**Example) MY1H40G-599LZ-M9BW-XB10**

**Specifications: Same as standard type** **Dimensions: Same as standard type**

Symbol **-XB11**

## 2 Long Stroke

**Applicable to long strokes exceeding the standard stroke. The stroke can be set in units of 1 mm.**

■ **Stroke range: 601 to 1500 mm**

**MY1H** [Bore size] **–** [Stroke] [ ] **Z –** [Auto switch] [Suffix] **– XB11**

- [ ]: Stroke adjustment unit
- Bore size: Type/Bore size

| | | 25 | 32 | 40 |
|---|---|---|---|---|
| H | Linear guide type | | | |

**Example) MY1H40G-1499LZ-M9BW-XB11**

**Specifications: Same as standard type** **Dimensions: Same as standard type**

Symbol **-XB22**

## 3 Shock Absorber/Soft Type RJ Series Mounted

**The shock absorber/soft type RJ series is mounted onto the standard cylinder, making a soft stop at the stroke end possible.**

**MY1H** [25] **– 200** [L] **Z – XB22**

- **Shock absorber/soft type RJ series mounted**
- [L]: Stroke adjustment unit symbol
- [25]: Type/Bore size

| Stroke adjustment unit | Bore size | | |
|---|---|---|---|
| | ø25 | ø32 | ø40 |
| L, LS, SL | RJ1007H | RJ1412H | RJ1412H |
| H, HS, SH, LH, HL | RJ1412H | | |

| | | 25 | 32 | 40 |
|---|---|---|---|---|
| H | Linear guide type | | | |

∗ Refer to the RJ catalogue for details about the shock absorber/soft type RJ series.

### Example

● **How to order stroke adjustment unit**

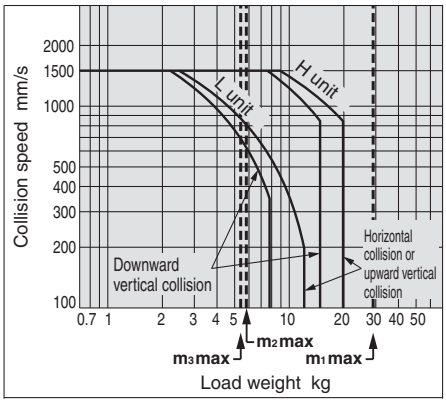
**MYH-A25L2 – XB22**

- **Shock absorber/ soft type RJ series mounted**
- **Stroke adjustment unit model**

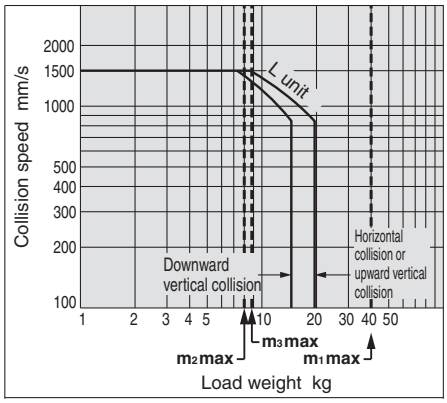
Refer to "How to Order" on page 3.

## Absorption Capacity of Stroke Adjustment Units

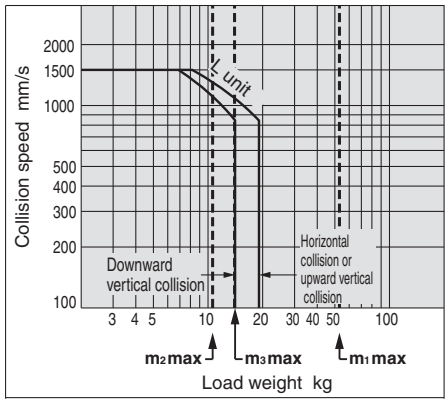
**MY1H25**




**MY1H32**




**MY1H40**



Symbol

## 4 With Knock Pin Holes — -XC56

**Cylinder with knock positioning pin hole**

■ **Stroke range: 601 to 1500 mm**

**MY1H** | **Bore size** | − | **Stroke** | | **Z** − | **Auto switch** | **Suffix** | − **XC56**

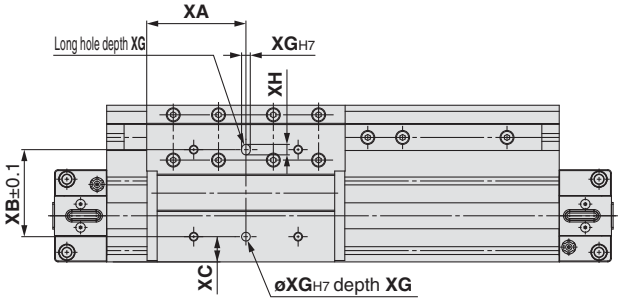
- **Stroke adjustment unit**
- **Type/Bore size**

| | | 25 | 32 | 40 |
|---|---|---|---|---|
| **H** | Linear guide type | | | |

**Example) MY1H40G-200LZ-M9BW-XC56**

### Specifications: Same as standard type

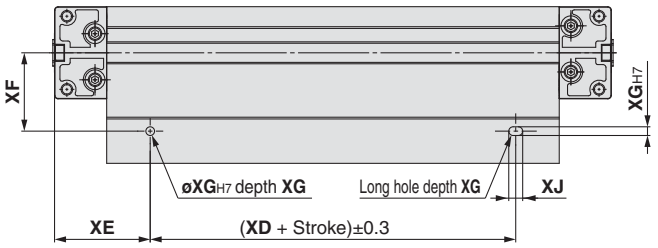
### Dimensions Dimensions other than below are the same as standard type.




**Mounting surface of a workpiece for the slide table**

[mm]

| Bore size [mm] | XA | XB | XC | XD | XE |
|---|---|---|---|---|---|
| **25** | 57 | 50 | 14.5 | 110 | 55 |
| **32** | 70 | 60 | 15 | 140 | 70 |
| **40** | 85 | 80 | 20.5 | 180 | 80 |




**Mounting surface of cylinder tube**

| Bore size [mm] | XF | XG | XH | XJ |
|---|---|---|---|---|
| **25** | 45 | 5 | 6 | 8 |
| **32** | 60 | 6 | 7 | 9 |
| **40** | 60.5 | 6 | 7 | 9 |

Symbol

## 5 Helical Insert Thread — -X168

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

**MY1H** | **Bore size** | − | **Stroke** | | **Z** − | **Auto switch** | **Suffix** | − **X168**

- **Stroke adjustment unit**
- **Type/Bore size**

| | | 25 | 32 | 40 |
|---|---|---|---|---|
| **H** | Linear guide type | | | |

**Example) MY1H40G-200LZ-M9BW-X168**

### Specifications: Same as standard type

# ⚠ 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 catalogue 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 catalogue.
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.*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 catalogue 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.

**⚠ Safety Instructions** | Be sure to read "Handling Precautions for SMC Products" (M-E03-3) before using.


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Specifications are subject to change without prior notice and any obligation on the part of the manufacturer.