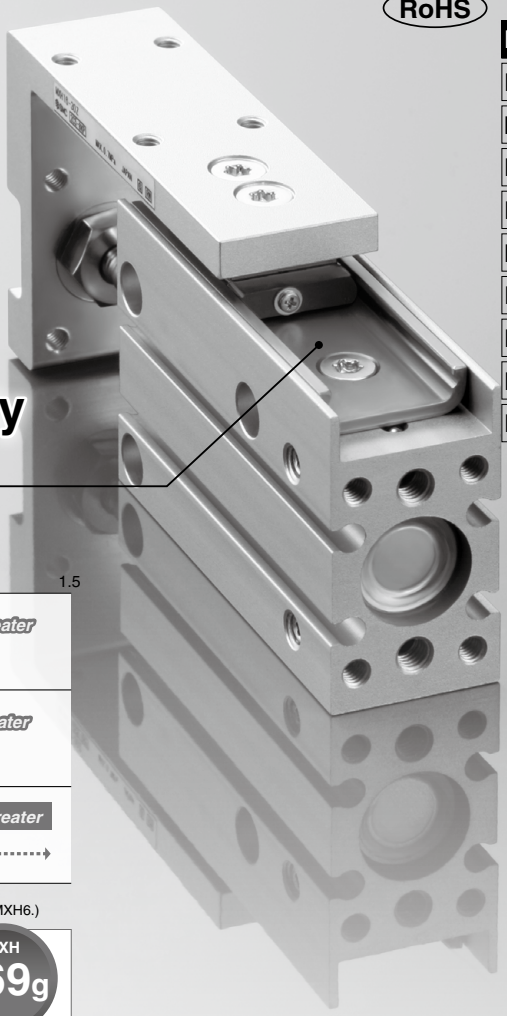
RoHS

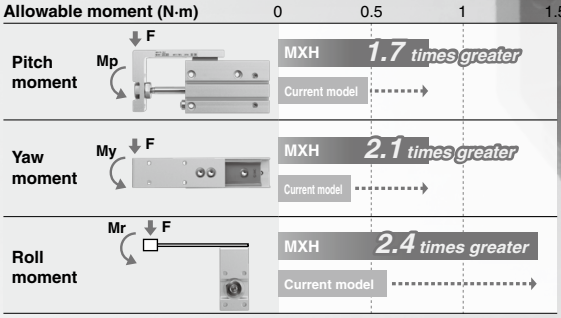


Allowable moment
**Improved by up to 240%**



## With new high rigidity linear guide

### Allowable moment improvement illustrated below*




* Allowable moment caused by static load
(The above graph is a comparison between the new MXH and the current MXH6.)


The weight has been reduced by incorporating a new high rigidity linear guide and piston.

# High rigidity achieved with new circulating type linear guide

## High allowable moment

Pitch Moment (N·m)

| Bore size (mm) | MXH | MXH existing model |
|---|---|---|
| 6 | **0.81** | 0.47 |
| 10 | **1.69** | 0.96 |
| 16 | **3.49** | 1.88 |
| 20 | **5.86** | 3.14 |

Yaw Moment (N·m)

| Bore size (mm) | MXH | MXH existing model |
|---|---|---|
| 6 | **0.81** | 0.39 |
| 10 | **1.69** | 0.82 |
| 16 | **3.49** | 1.59 |
| 20 | **5.86** | 2.75 |

Roll Moment (N·m)

| Bore size (mm) | MXH | MXH existing model |
|---|---|---|
| 6 | **1.4** | 0.59 |
| 10 | **3.19** | 1.37 |
| 16 | **6.47** | 2.75 |
| 20 | **11.66** | 5.49 |

∗ Selection of a bore size cannot be made only with above allowable moment. Select a bore size in accordance with "Model Selection" on pages 17 and 18.

## Traveling parallelism is the same as the existing model.

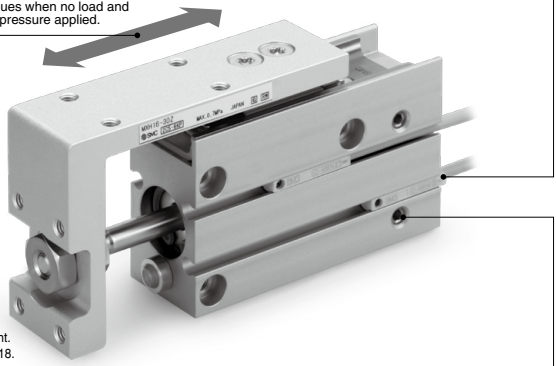
Deflection at the extended position of the table is the same as the existing model.

| Traveling parallelism | Stroke (mm) | |
|---|---|---|
| | 5 to 30 | 40 to 60 |
| | 0.05 mm or less | 0.1 mm or less |

∗ Values when no load and no pressure applied.

## Small auto switches capable

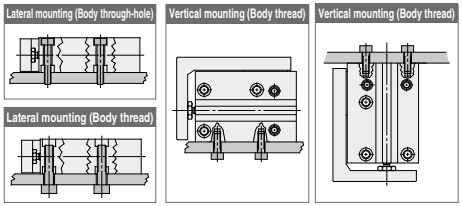
(D-M9□, D-A9□)



## Mounting is completely interchangeable with existing model.

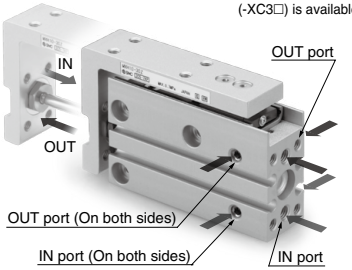
Dimensions including workpiece mounting dimensions and cylinder mounting dimensions are the same as the existing model.

Mounting is possible in 4 directions.

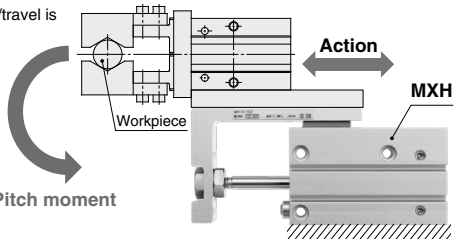



## Piping is possible in 3 directions.

If changing the port location, "Made to Order" model (-XC3□) is available.




**Application Example** Useful when long stroke/travel is required



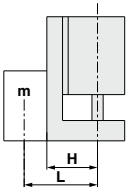
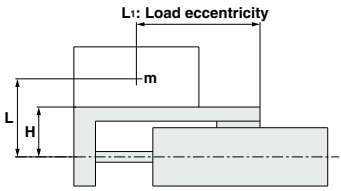

## Series Variations

| Model | Standard stroke (mm) | | | | | | | | | Made to Order |
|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | |
| **MXH6** | ● | ● | ● | ● | ● | ● | ● | ● | ● | **-XC79** : Machining tapped hole, drilled hole and pin hole additionally |
| **MXH10** | ● | ● | ● | ● | ● | ● | ● | ● | ● | **-XB13** : Low speed cylinder (5 to 50 mm/s) |
| **MXH16** | ● | ● | ● | ● | ● | ● | ● | ● | ● | **-XC3□**: Special port location |
| **MXH20** | ● | ● | ● | ● | ● | ● | ● | ● | ● | **-XC19** : Intermediate stroke (Spacer type) |
| | | | | | | | | | | **-XC22** : Fluororubber seal |

# *MXH Series*
# Model Selection

**⚠Caution** Confirmation of theoretical output is required separately. Refer to "Theoretical Output" on page 20.

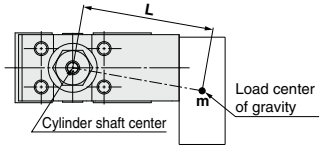
**Selection Conditions**: Follow the tables below in order to determine selection conditions and choose one selection graph.

| Mounting orientation | Vertical | | | Horizontal | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| |  | | |  | | | | | | | | |
| Maximum speed (mm/s) | Up to 100 | Up to 300 | Up to 500 | Up to 100 | | | Up to 300 | | | Up to 500 | | |
| Load eccentricity $L_1$ (mm) | — | | | 50 | 100 | 200 | 50 | 100 | 200 | 50 | 100 | 200 |
| Selection graph | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

∗ L: Overhang (the distance from the cylinder shaft center to the load center of gravity)
The direction of L can also be a diagonal direction. (Refer to the drawing at right.)

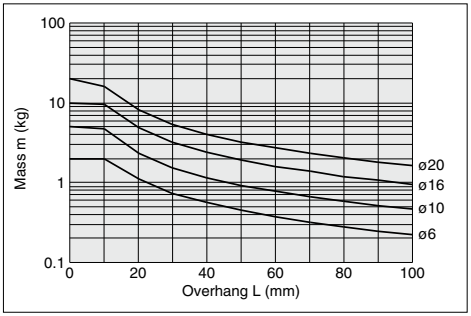
∗ H: Distance from the cylinder center axis to the mounting surface for the table

| | MXH6 | MXH10 | MXH16 | MXH20 |
|---|---|---|---|---|
| **H** dimension (mm) | 24.5 | 30.5 | 34.5 | 41.5 |

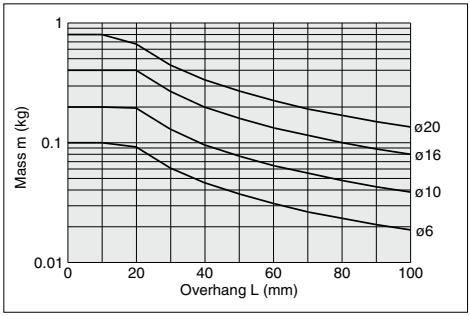



## Selection Graph 1 to 3 (Vertical Mounting)

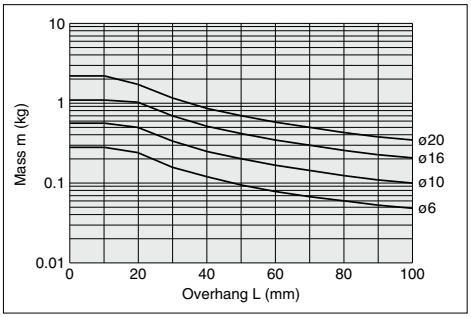
**Graph 1 Maximum Speed 100 mm/s or Less**




**Graph 3 Maximum Speed 500 mm/s or Less**




**Graph 2 Maximum Speed 300 mm/s or Less**




## Selection Example (Vertical Mounting)

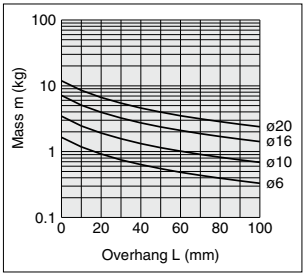
1. Selection conditions
   - Mounting: Vertical
   - Maximum speed: 500 mm/s
   - Overhang **L**: 40 mm
   - Load mass **m**: 0.1 kg

Refer to Graph 3 based on vertical mounting and a speed of 500 mm/s.
In Graph 3, find the intersection of a 40 mm overhang **L** and load mass **m** of 0.1 kg, which results in a determination of ø16.

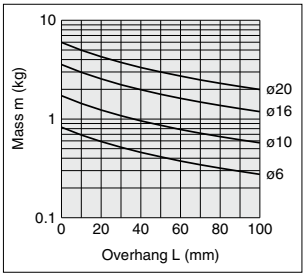
## Selection Graph 4 to 12 (Horizontal Mounting)

### Maximum Speed 100 mm/s or Less

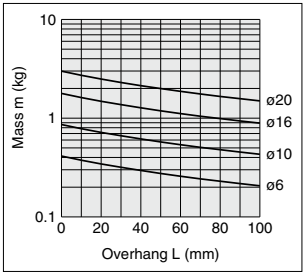
**Graph 4 Load Eccentricity 50 mm**




**Graph 5 Load Eccentricity 100 mm**

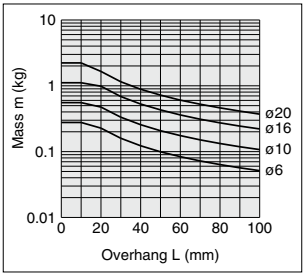



**Graph 6 Load Eccentricity 200 mm**

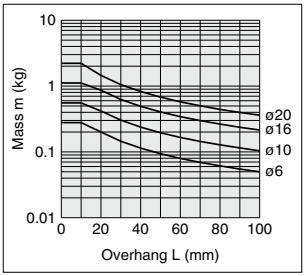



### Maximum Speed 300 mm/s or Less

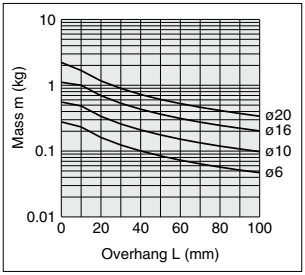
**Graph 7 Load Eccentricity 50 mm**




**Graph 8 Load Eccentricity 100 mm**

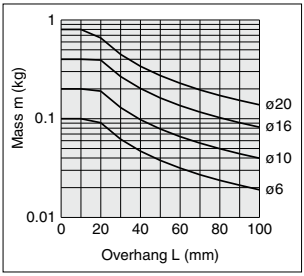



**Graph 9 Load Eccentricity 200 mm**

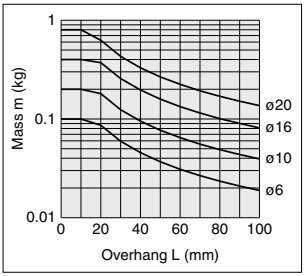



### Maximum Speed 500 mm/s or Less

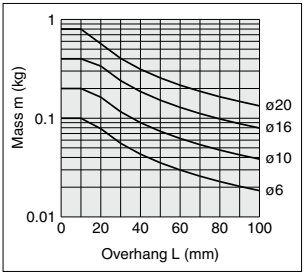
**Graph 10 Load Eccentricity 50 mm**




**Graph 11 Load Eccentricity 100 mm**




**Graph 12 Load Eccentricity 200 mm**




## Selection Example (Horizontal Mounting)

2. Selection conditions
- Mounting: Horizontal
- Maximum speed: 500 mm/s
- Load eccentricity **L1**: 50 mm
- Overhang **L**: 30 mm
- Load mass **m**: 0.1 kg

Refer to Graph 10 based on horizontal mounting, a speed of 500 mm/s and load eccentricity **L1** of 50 mm.
In Graph 10, find the intersection of a 30 mm overhang **L** and load mass **m** of 0.1 kg, which results in a determination of ø10.

# Compact Slide
# *MXH Series*
## ø6, ø10, ø16, ø20

RoHS



### How to Order

**MXH 10 – 60 Z – M9BW □ – □**

**Compact Slide**

**Bore size**

| | |
|---|---|
| **6** | 6 mm |
| **10** | 10 mm |
| **16** | 16 mm |
| **20** | 20 mm |

**Cylinder stroke (mm)**
Refer to "Standard Stroke" on the next page.

**Auto switch**

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

∗ For applicable auto switch model, refer to the table below.

**Number of auto switches**

| | |
|---|---|
| **Nil** | 2 pcs. |
| **S** | 1 pc. |

**Made to Order**
∗ Refer to page 20 for details.

**Applicable Auto Switches**/Refer to pages 1119 to 1245 for further information on auto switches.

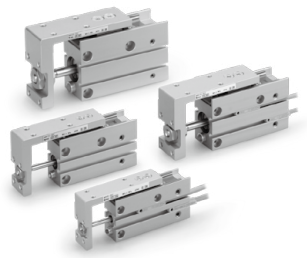
| Type | Special function | Electrical entry | Indicator light | Wiring (Output) | Load voltage DC | Load voltage AC | Auto switch model Perpendicular | Auto switch model In-line | Lead wire length (m) 0.5 (Nil) | 1 (M) | 3 (L) | 5 (Z) | Pre-wired connector | Applicable load | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Solid state auto switch | — | Grommet | Yes | 3-wire (NPN) | 5 V, 12 V | — | **M9NV** | **M9N** | ● | ● | ● | ○ | ○ | IC circuit | Relay, PLC |
| | | | | 3-wire (PNP) | | | **M9PV** | **M9P** | ● | ● | ● | ○ | ○ | | |
| | | | | 2-wire | 12 V | | **M9BV** | **M9B** | ● | ● | ● | ○ | ○ | — | |
| | Diagnostic indication (2-color indicator) | | | 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-color indicator) | | | 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** | ● | — | ● | — | — | IC circuit | — |
| | | | No | 2-wire | 24 V | 12 V | 100 V | **A93V**∗2 | **A93** | ● | ● | ● | ● | — | — | Relay, PLC |
| | | | | | | | 100 V or less | **A90V** | **A90** | ● | — | ● | — | — | IC circuit | |

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

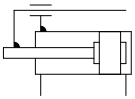
∗ Lead wire length symbols: 0.5 m ·····Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ·····L (Example) M9NWL
5 m ·····Z (Example) M9NWZ

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

∗ Refer to page 28 for applicable auto switches other than listed above.
∗ For details about auto switches with pre-wired connector, refer to pages 1192 and 1193.
∗ Auto switches are shipped together, (but not assembled).



**Symbol**
Rubber bumper



Made to Order

**Made to Order**
Click here for details

| Symbol | Specifications |
|---|---|
| **-XC79** | Machining tapped hole, drilled hole and pin hole additionally |
| **-XB13** | Low speed cylinder (5 to 50 mm/s) |
| **-XC3** | Special port location |
| **-XC19** | Intermediate stroke (Spacer type) |
| **-XC22** | Fluororubber seal |

## Specifications

| Bore size (mm) | 6 | 10 | 16 | 20 |
|---|---|---|---|---|
| **Fluid** | Air | | | |
| **Action** | Double acting | | | |
| **Piping port size** | M5 x 0.8 | | | |
| **Minimum operating pressure** | 0.15 MPa | 0.06 MPa | | 0.05 MPa |
| **Maximum operating pressure** | 0.7 MPa | | | |
| **Proof pressure** | 1.05 MPa | | | |
| **Ambient and fluid temperature** | Without auto switch: –10 to 70°C<br>With auto switch: –10 to 60°C (No freezing) | | | |
| **Piston speed** | 50 to 500 mm/s | | | |
| **Allowable kinetic energy (J)** | 0.0125 | 0.025 | 0.05 | 0.1 |
| **Lubrication** | Non-lube | | | |
| **Cushion** | Rubber bumper on both ends | | | |
| **Stroke length tolerance** | $^{+1.0}_{0}$ | | | |
| **Auto switch (Option)** | Solid state auto switch D-M9□, M9□W<br>Reed auto switch D-A9□ | | | |

## Standard Stroke

| Bore size (mm) | Standard stroke (mm) |
|---|---|
| **6, 10, 16, 20** | 5, 10, 15, 20, 25, 30, 40, 50, 60 |

Note) Intermediate strokes are available with "Made to Order" model (-XC19).
(For details, refer to page 1346.)

## Theoretical Output

(N)

| Bore size (mm) | Rod size (mm) | Operating direction | Piston area ($mm^2$) | Operating pressure (MPa) | | |
|---|---|---|---|---|---|---|
| | | | | 0.3 | 0.5 | 0.7 |
| **6** | 3 | OUT | 28 | 8 | 14 | 19 |
| | | IN | 21 | 6 | 10 | 14 |
| **10** | 4 | OUT | 78 | 23 | 39 | 55 |
| | | IN | 66 | 19 | 33 | 46 |
| **16** | 6 | OUT | 201 | 60 | 101 | 141 |
| | | IN | 172 | 51 | 86 | 121 |
| **20** | 8 | OUT | 314 | 94 | 157 | 220 |
| | | IN | 264 | 79 | 132 | 185 |

## Weight

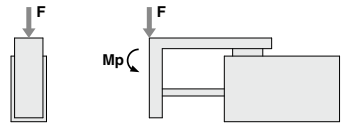
(g)

| Model | Stroke (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | **5** | **10** | **15** | **20** | **25** | **30** | **40** | **50** | **60** |
| **MXH6** | 61 | 66 | 75 | 80 | 88 | 93 | 107 | 120 | 134 |
| **MXH10** | 104 | 112 | 125 | 133 | 146 | 153 | 174 | 195 | 216 |
| **MXH16** | 194 | 204 | 222 | 232 | 250 | 260 | 288 | 316 | 343 |
| **MXH20** | 352 | 369 | 400 | 417 | 448 | 466 | 514 | 562 | 610 |

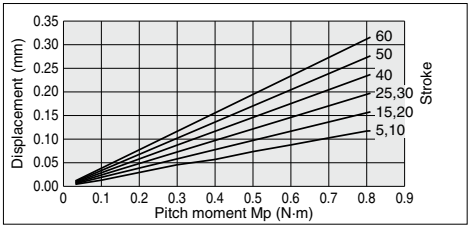
## Table Displacement

### Table Displacement due to Pitch Moment (Reference)

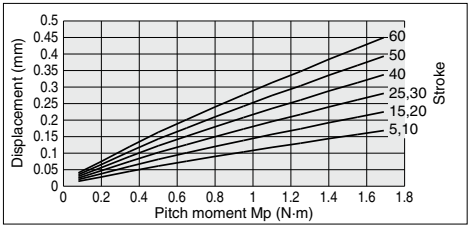
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the Compact Slide



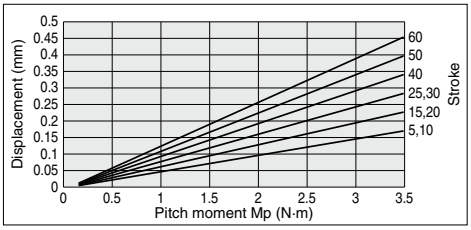

**MXH6**



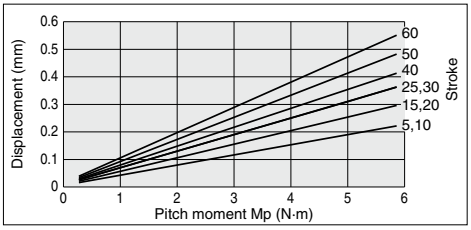

**MXH10**




**MXH16**

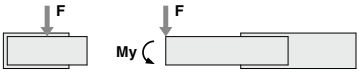



**MXH20**

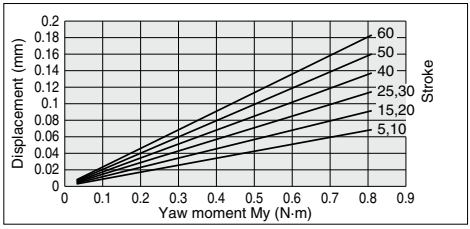



### Table Displacement due to Yaw Moment (Reference)

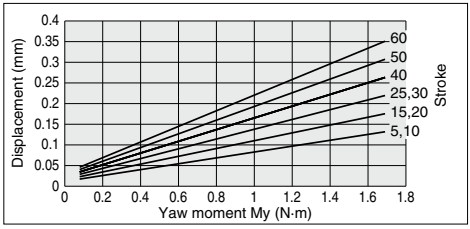
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the Compact Slide



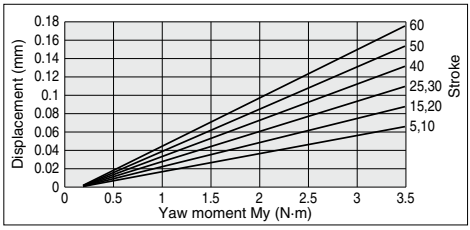

**MXH6**



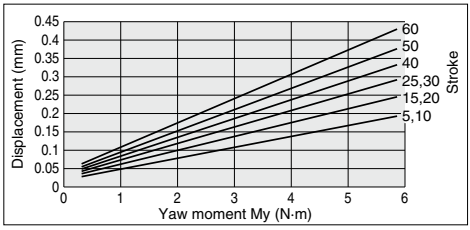

**MXH10**




**MXH16**




**MXH20**



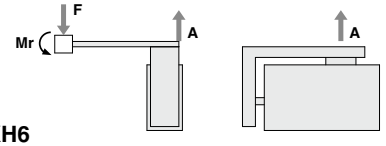

## ⚠Caution Design

1. Selection of a bore size cannot be made only with above graphs. Select a bore size in accordance with “Model Selection” on pages 17 and 18.
2. Displacement may increase after an impact load has been applied. When the table is subjected to an impact load, there may be permanent distortion of the guide unit and increased displacement.

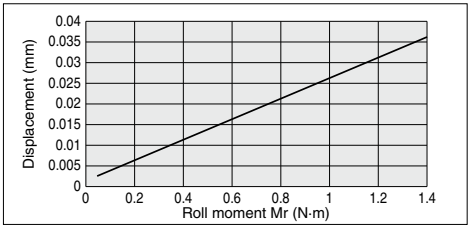
## Table Displacement

### Table Displacement due to Roll Moment (Reference)

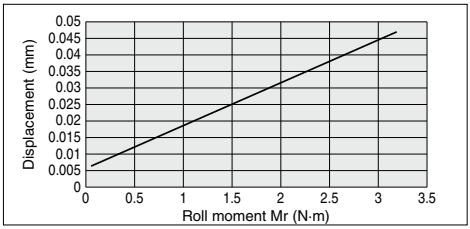
Table displacement (at A) when a load acts upon section F at the full stroke of the Compact Slide



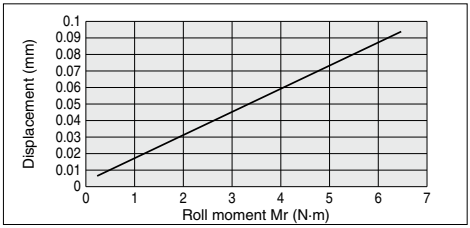

**MXH6**



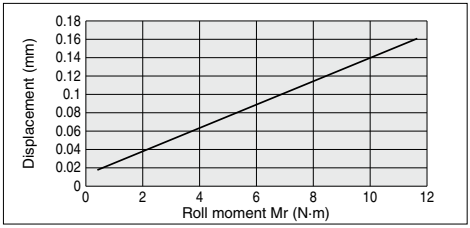

**MXH10**




**MXH16**




**MXH20**




## Table Accuracy

| Traveling parallelism | Stroke (mm) | |
|---|---|---|
| | 5 to 30 | 40 to 60 |
| | 0.05 mm or less | 0.1 mm or less |

∗ Values when no load and no pressure applied.

## Allowable Moment

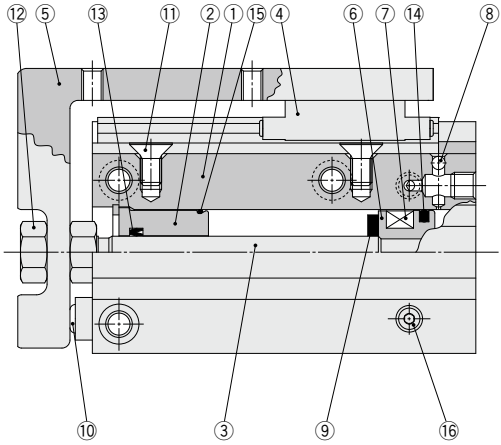
| Model | Allowable moment (N·m) | | |
|---|---|---|---|
| | Pitch moment | Yaw moment | Roll moment |
| | Mp | My | Mr |
| **MXH6** | 0.81 | 0.81 | 1.40 |
| **MXH10** | 1.69 | 1.69 | 3.19 |
| **MXH16** | 3.49 | 3.49 | 6.47 |
| **MXH20** | 5.86 | 5.86 | 11.66 |

**Design**

## ⚠ Caution

**Selection of a bore size cannot be made only with above allowable moment. Select a bore size in accordance with "Model Selection" on pages 17 and 18.**

## Construction

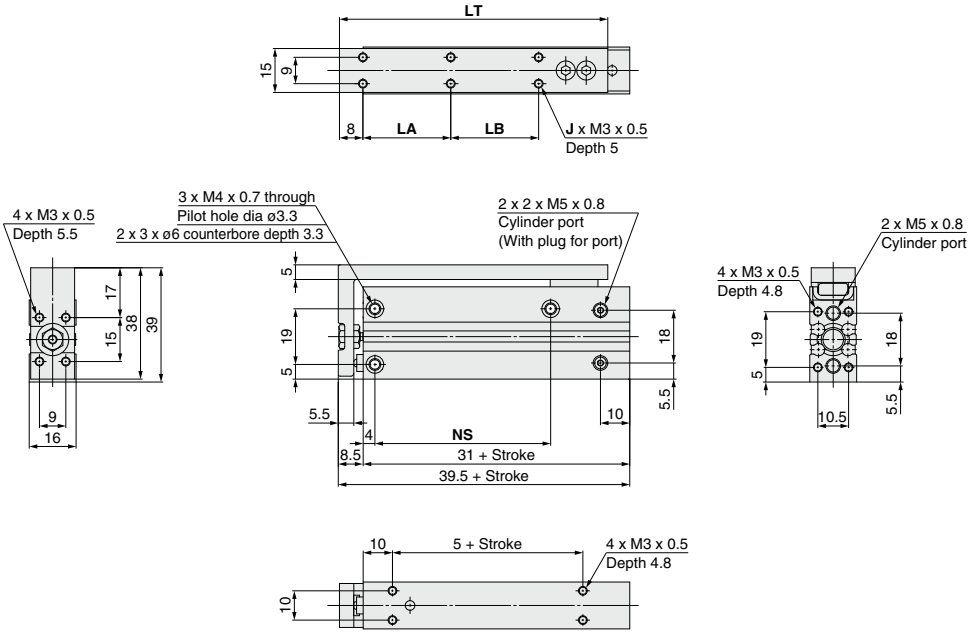



### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| 1 | **Cylinder tube** | Aluminum alloy | Hard anodized |
| 2 | **Rod cover** | Aluminum alloy | Hard anodized |
| 3 | **Piston rod** | Stainless steel | |
| 4 | **Guide** | The main parts are made of stainless steel. | |
| 5 | **Table** | Aluminum alloy | Hard anodized |
| 6 | **Piston** | Aluminum alloy | Chromated |
| 7 | **Magnet** | Magnetic material | |
| 8 | **Steel ball** | Carbon steel | |
| 9 | **Bumper** | Urethane | |
| 10 | **Bumper** | Urethane | |
| 11 | Countersunk head screw | Carbon steel | Nickel plating |
| 12 | **Nut** | Brass | Nickel plating |
| 13 | **Rod seal** | NBR | |
| 14 | **Piston seal** | NBR | |
| 15 | **Gasket** | NBR | |
| 16 | **Plug** | Carbon steel | Zinc chromated |

Note) The MXH series cannot be disassembled.

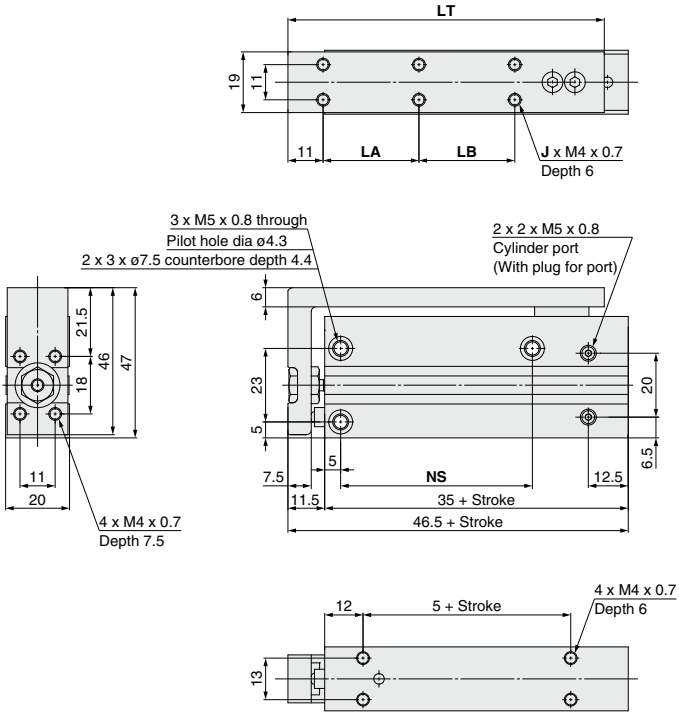
## Dimensions: Ø6




Note 1) Refer to “Specific Product Precautions” for mounting of the Compact Slide and a workpiece.
Note 2) When changing the port location, please order a new port plug: MXH-P (2 pcs.)

| Stroke (mm) | J | LA | LB | LT | NS |
|---|---|---|---|---|---|
| **5** | 4 | 10 | — | 42 | 14 |
| **10** | 4 | 10 | — | 42 | 14 |
| **15** | 4 | 20 | — | 52 | 24 |
| **20** | 4 | 20 | — | 52 | 24 |
| **25** | 4 | 30 | — | 62 | 30 |
| **30** | 4 | 30 | — | 62 | 30 |
| **40** | 6 | 20 | 20 | 72 | 45 |
| **50** | 6 | 25 | 25 | 82 | 55 |
| **60** | 6 | 30 | 30 | 92 | 60 |

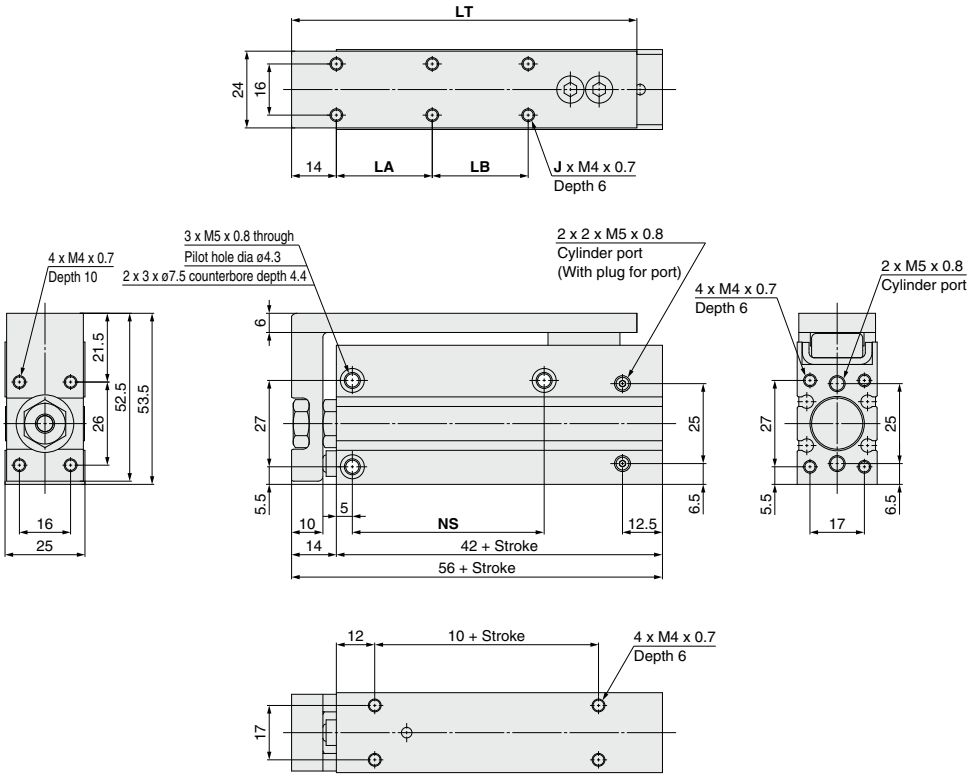
## Dimensions: Ø10




Note 1) Refer to “Specific Product Precautions” for mounting of the Compact Slide and a workpiece.
Note 2) When changing the port location, please order a new port plug: MXH-P (2 pcs.)

| Stroke (mm) | J | LA | LB | LT | NS |
|---|---|---|---|---|---|
| **5** | 4 | 10 | — | 49 | 14 |
| **10** | 4 | 10 | — | 49 | 14 |
| **15** | 4 | 20 | — | 59 | 24 |
| **20** | 4 | 20 | — | 59 | 24 |
| **25** | 4 | 30 | — | 69 | 30 |
| **30** | 4 | 30 | — | 69 | 30 |
| **40** | 6 | 20 | 20 | 79 | 45 |
| **50** | 6 | 25 | 25 | 89 | 55 |
| **60** | 6 | 30 | 30 | 99 | 60 |

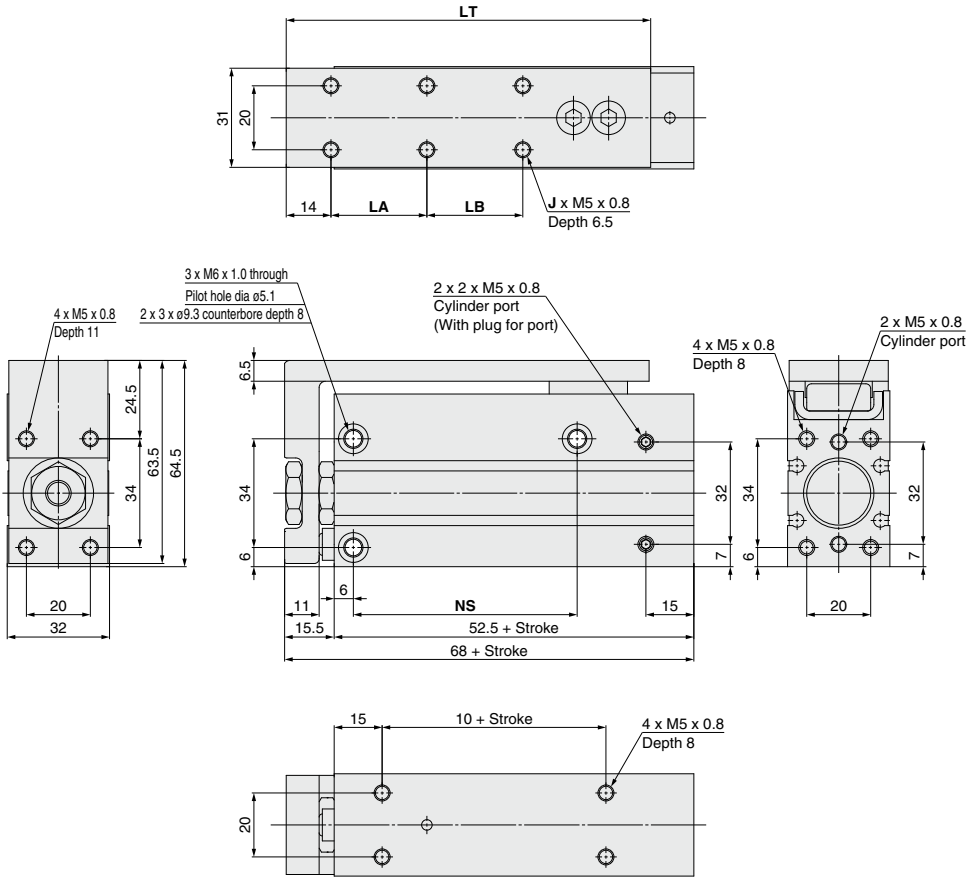
## Dimensions: Ø16




Note 1) Refer to “Specific Product Precautions” for mounting of the Compact Slide and a workpiece.
Note 2) When changing the port location, please order a new port plug: MXH-P (2 pcs.)

| Stroke (mm) | J | LA | LB | LT | NS |
|---|---|---|---|---|---|
| **5** | 4 | 10 | — | 58 | 20 |
| **10** | 4 | 10 | — | 58 | 20 |
| **15** | 4 | 20 | — | 68 | 30 |
| **20** | 4 | 20 | — | 68 | 30 |
| **25** | 4 | 30 | — | 78 | 40 |
| **30** | 4 | 30 | — | 78 | 40 |
| **40** | 6 | 20 | 20 | 88 | 50 |
| **50** | 6 | 25 | 25 | 98 | 60 |
| **60** | 6 | 30 | 30 | 108 | 60 |

## Dimensions: Ø20




Note 1) Refer to “Specific Product Precautions” for mounting of the Compact Slide and a workpiece.
Note 2) When changing the port location, please order a new port plug: MXH-P (2 pcs.)

| Stroke (mm) | J | LA | LB | LT | NS |
|---|---|---|---|---|---|
| **5** | 4 | 10 | — | 64 | 20 |
| **10** | 4 | 10 | — | 64 | 20 |
| **15** | 4 | 20 | — | 74 | 25 |
| **20** | 4 | 20 | — | 74 | 25 |
| **25** | 4 | 30 | — | 84 | 40 |
| **30** | 4 | 30 | — | 84 | 40 |
| **40** | 6 | 20 | 20 | 94 | 50 |
| **50** | 6 | 25 | 25 | 104 | 70 |
| **60** | 6 | 30 | 30 | 114 | 70 |

# *MXH Series*
# Auto Switch Mounting

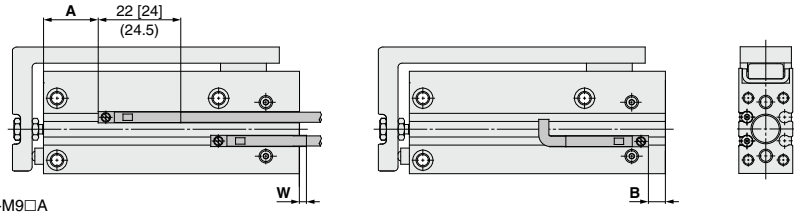
## Minimum Stroke for Auto Switch Mounting

(mm)

| Number of auto switches mounted | Applicable auto switch model | | |
|---|---|---|---|
| | **D-M9□, M9□V** | **D-M9□W, M9□WV<br>D-M9□A, M9□AV** | **D-A9□, A9□V** |
| 1 pc. | 5 | 5 | 5 |
| 2 pcs. | 5 | 10 | 10 |

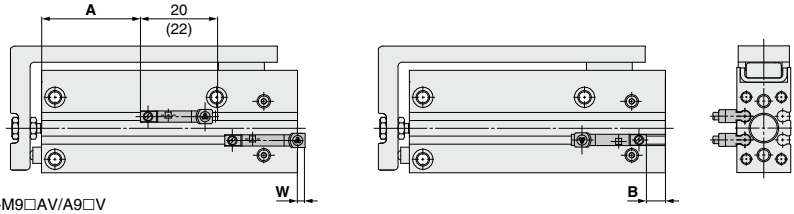
## Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

**D-M9□**
**D-M9□W**
**D-M9□A**
**D-A9□**




[ ]: Value of the D-M9□A
( ): Value of the D-A90/A93

**D-M9□V**
**D-M9□WV**
**D-M9□AV**
**D-A9□V**




( ): Value of the D-M9□AV/A9□V

(mm)

| Bore size (mm) | D-M9□W, D-M9□ | | | D-M9□WV, D-M9□V | | | D-M9□A | | | D-M9□AV | | | D-A9□, D-A9□V | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **A** | **W** | **B** | **A** | **W** | **B** | **A** | **W** | **B** | **A** | **W** | **B** | **A** | **W** | **B** |
| **6** | 16.5 | 7.5 | 2.5 | 16.5 | 5.5 | 2.5 | 16.5 | 9.5 | 2.5 | 16.5 | 7.5 | 2.5 | 12.5 | 3.5 (6) | — |
| **10** | 15.0 | 2.0 | 7.5 | 15.0 | 0 | 7.5 | 15.0 | 4.0 | 7.5 | 15.0 | 2.0 | 7.5 | 11.0 | –2.0 (0.5) | 3.5 |
| **16** | 22.0 | 2.0 | 8.0 | 22.0 | 0 | 8.0 | 22.0 | 4.0 | 8.0 | 22.0 | 2.0 | 8.0 | 18.0 | –2.0 (0.5) | 4.0 |
| **20** | 30.0 | –0.5 | 10.5 | 30.0 | –2.5 | 10.5 | 30.0 | 1.5 | 10.5 | 30.0 | –0.5 | 10.5 | 26.0 | –4.5 (–2) | 6.5 |

Note 1) Negative figures in the table W indicate that an auto switch is mounted inward from the edge of the cylinder body.
Note 2) In the case of models with 5 and 10 strokes, the auto switch may not turn off due to operating range or two auto switches may turn on simultaneously. Fix auto switches outside 1 to 4 mm further than the values in the table above. (If one auto switch is used, make sure that it turns ON and OFF properly; If two auto switches are used, make sure that both auto switches turn ON.)
Note 3) ( ) in column W denotes the D-A90/A93 dimensions.

### Operating Range

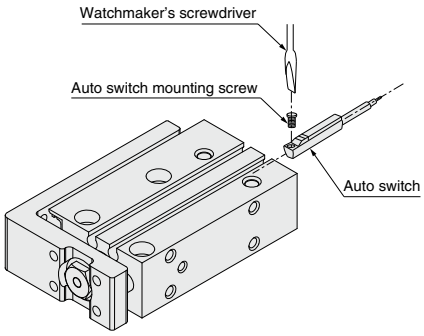
(mm)

| Auto switch model | Bore size | | | |
|---|---|---|---|---|
| | **6** | **10** | **16** | **20** |
| **D-M9□, M9□V<br>D-M9□W, M9□WV<br>D-M9□A, M9□AV** | 3 | 3.5 | 5 | 6 |
| **D-A9□, A9□V** | 5 | 6 | 9 | 11 |

∗ 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.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.
∗ Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available. Refer to page 1592-1 for details.

## Auto Switch Mounting




• When tightening the auto switch mounting screw, use a watchmaker's screwdriver with a handle 5 to 6 mm in diameter.

**Tightening Torque of Auto Switch Mounting Screw** (N·m)

| Auto switch model | Tightening torque |
|---|---|
| **D-M9□(V)**<br>**D-M9□W(V)**<br>**D-A93** | 0.05 to 0.15 |
| **D-M9□A(V)** | 0.05 to 0.10 |
| **D-A9□(V) (Excludes the D-A93)** | 0.10 to 0.20 |

Note) When used with side ported type, it is not possible to mount the D-A9□V/M9□V type on the side to which the piping is connected.

# Specific Product Precautions 1

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

## Auto Switch Mounting

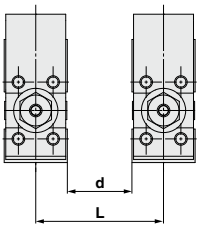
### When installing in close proximity to each other

## ⚠ Caution

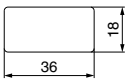
1. When the Compact Slide with the D-A9□ or D-M9□ auto switch is used, the auto switches could activate unintentionally if the installed distance is less than the dimension shown in Table (1). Therefore, make sure to provide at least this much clearance. Due to unavoidable circumstances, if they must be used with less distance than the dimensions given in the table below, the cylinders must be shielded. Therefore, affix a steel plate or a magnetic shielding plate (MU-S025) to the area on the cylinder that corresponds to the adjacent auto switch. (Please contact SMC for details.) The auto switch could activate unintentionally if a shielding plate is not used.

**Table (1)** (mm)

| Bore size (mm) | d | L |
|---|---|---|
| **MXH6** | 5 | 21 |
| **MXH10** | 5 | 25 |
| **MXH16** | 10 | 35 |
| **MXH20** | 15 | 47 |




Dimensions of a shielding plate (MU-S025) that is sold separately are indicated as reference.




Material: Ferrite stainless steel, Thickness: 0.3 mm
Since the back side is treated with adhesive, it is possible to attach to the cylinder.

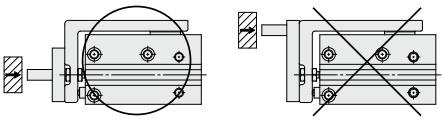
## Operating Precautions

## ⚠ Warning

Be aware that smoking cigarettes etc., after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

## ⚠ Caution

1. Do not place your fingers in the clearance between the non-rotating plate and the cylinder tube. Your fingers could get caught between the table and the cylinder tube when the piston rod retracts.
   If fingers are caught in a cylinder, there is a danger of injury due to the strong cylinder output, and therefore, caution must be exercised.
2. In terms of the work load and moment, operate the cylinder below the maximum work load and allowable moment.
3. If the output of the Compact Slide is applied directly to the table, make sure it is applied along the rod axial line. (Refer to the figure below.)



## Operating Precautions

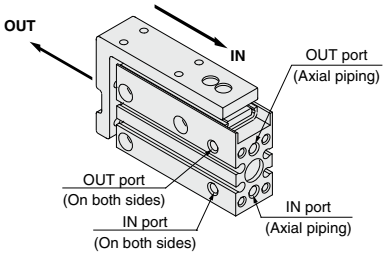
4. Make sure to connect a speed controller and adjust it to a speed of 500 mm/s or less to operate the cylinder.

5. If the vibration of the workpiece due to cylinder operation is clearly noticeable, recheck the operating conditions. Even when the moment applied to the product is under the allowable moment, the vibration width may be increased if a large amount of eccentric load is applied.

## Operating Direction with Different Pressure Ports

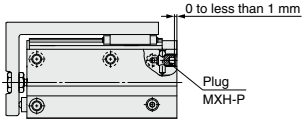
## ⚠ Caution

1. The compact slide can be piped from 3 directions. Refer to the figure below for the operating directions of the different pressure ports.
   Change the plug position according to the usage conditions. When changing the port position, use the removed plug or a replacement plug (below). If reusing the removed plug, apply sealant, etc., before reassembly. If using a replacement plug, apply a thin layer of grease all the way around the male thread before use. In addition, clear any foreign matter adhered to the port the plug was removed from before piping.
   After reassembly, be sure to check for air leakage before operating the product.




Replacement plug order number: MXH-P (2 pcs.)

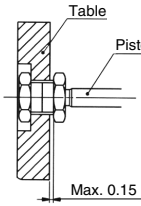
2. If the plug is tightened excessively when attaching it to the axial piping of MXH6, it may be in contact with the internal steel ball, causing air leakage. As for the plug tightening guide, make the adjustment so that the plug sunk dimension from the cylinder tube surface is 0 to less than 1 mm.




## Backlash in the Stroke Direction

## ⚠ Caution

- Since the connection between the piston rod and table is a floating mechanism, the table has backlash of 0.15 mm or less in the stroke direction. (Refer to the figure on the right.)




**Connecting part of piston rod and table**

# Specific Product Precautions 2

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

## Mounting

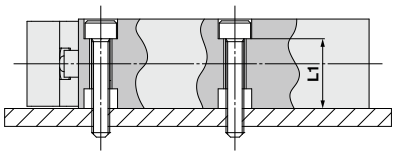
### ⚠ Caution

1. When tightening threads for the Compact Slide, properly tighten within the specified torque.

**How to Mount the Compact Slide**

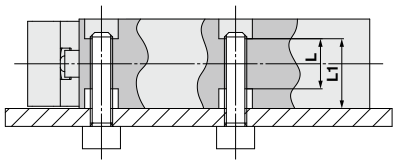
The Compact Slide can be mounted in 4 directions. Make a selection suitable for the applicable machinery and work pieces, etc.

**Lateral Mounting (Body through-hole)**



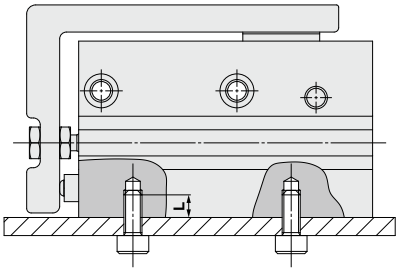

| Model | Bolt | Maximum tightening torque (N·m) | **L1** |
|---|---|---|---|
| **MXH6** | M3 x 0.5 | 1.1 | 12.7 |
| **MXH10** | M4 x 0.7 | 2.5 | 15.6 |
| **MXH16** | M4 x 0.7 | 2.5 | 20.6 |
| **MXH20** | M5 x 0.8 | 5.1 | 24.0 |

**Lateral Mounting (Body thread)**



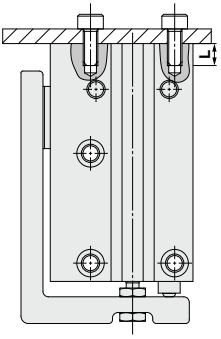

| Model | Bolt | Maximum tightening torque (N·m) | **L1** | **L** |
|---|---|---|---|---|
| **MXH6** | M4 x 0.7 | 2.5 | 12.7 | 9.4 |
| **MXH10** | M5 x 0.8 | 5.1 | 15.6 | 11.2 |
| **MXH16** | M5 x 0.8 | 5.1 | 20.6 | 16.2 |
| **MXH20** | M6 x 1 | 8.1 | 24.0 | 16.0 |

**Vertical Mounting (Body thread)**




| Model | Bolt | Maximum tightening torque (N·m) | **L** |
|---|---|---|---|
| **MXH6** | M3 x 0.5 | 1.1 | 4.8 |
| **MXH10** | M4 x 0.7 | 2.5 | 6 |
| **MXH16** | M4 x 0.7 | 2.5 | 6 |
| **MXH20** | M5 x 0.8 | 5.1 | 8 |

**Axial Mounting (Body thread)**




| Model | Bolt | Maximum tightening torque (N·m) | **L** |
|---|---|---|---|
| **MXH6** | M3 x 0.5 | 1.1 | 4.8 |
| **MXH10** | M4 x 0.7 | 2.5 | 6 |
| **MXH16** | M4 x 0.7 | 2.5 | 6 |
| **MXH20** | M5 x 0.8 | 5.1 | 8 |

# Specific Product Precautions 3

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

## Mounting

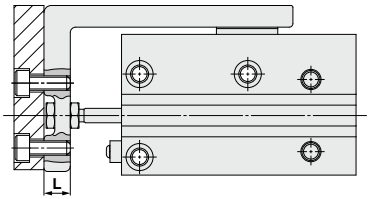
## ⚠ Caution

1. When tightening threads for the Compact Slide, properly tighten within the specified torque.
2. When mounting a workpiece on the top of the table, do not screw a bolt in more deeper than the below table L dimension.
   If screwing a bolt in more deeper than the L dimension, the edge of the bolt could reach the linear guide and might damage the linear guide.

### How to Mount a Workpiece

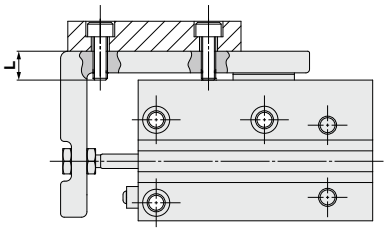
Work pieces can be mounted on 2 surfaces of the Compact Slide.

**Front Mounting**




| Model | Bolt | Maximum tightening torque (N·m) | L |
|---|---|---|---|
| **MXH6** | M3 x 0.5 | 1.1 | 5.5 |
| **MXH10** | M4 x 0.7 | 2.5 | 7.5 |
| **MXH16** | M4 x 0.7 | 2.5 | 10 |
| **MXH20** | M5 x 0.8 | 5.1 | 11 |

**Top Mounting**

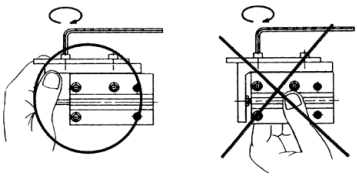



| Model | Bolt | Maximum tightening torque (N·m) | L |
|---|---|---|---|
| **MXH6** | M3 x 0.5 | 1.1 | 6.5 |
| **MXH10** | M4 x 0.7 | 2.5 | 8 |
| **MXH16** | M4 x 0.7 | 2.5 | 9 |
| **MXH20** | M5 x 0.8 | 5.1 | 9.5 |

### How to Mount a Workpiece

Work pieces can be mounted on 2 surfaces of the Compact Slide.

- Since the table is supported by the linear guide, take care not to apply strong impact or large moment, etc., when mounting work pieces.
- Hold the table when fastening work pieces to it with bolts etc. If the body is held while tightening bolts etc., the guide section will be subjected to a large moment, and there may be a loss of precision.



- For connection with a load having an external support/guide mechanism, select an appropriate connection method and perform careful alignment.
- Use caution, as scratches or nicks, etc., on the sliding parts of the piston rod can cause a malfunction and air leakage.