

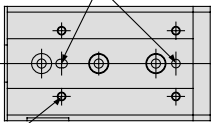
# Air Slide Table Series MXS

ø6, ø8, ø12, ø16, ø20, ø25

**Work table and air cylinder are integrated compactly.  
Air slide table is ideal for precise assembly.**

## Repeatability of work mounting

Pin holes for positioning



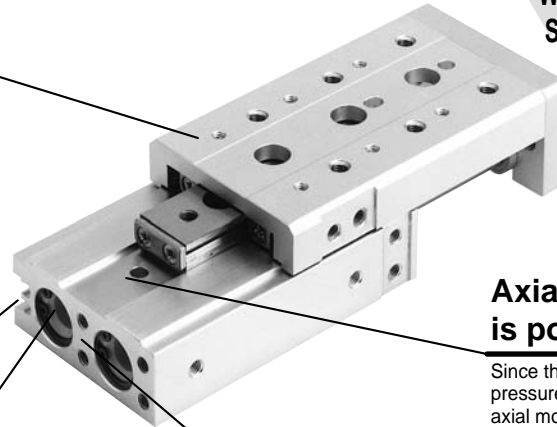
Thread for work mounting  
Helisert is used for improved strength.

## Flush mountable auto switches

An installed auto switch in the housing groove of the body is flush with the surface.

## Dual piston rod

The dual piston rod ensures twice the thrust of the current cylinder.



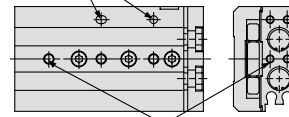
With shock absorber and Symmetric styles are released.

## Axial mounting is possible

Since there is suitable setting pre-pressure for the unused cross roller guide, axial mounting is possible.

## Body mounting

Pin holes for positioning

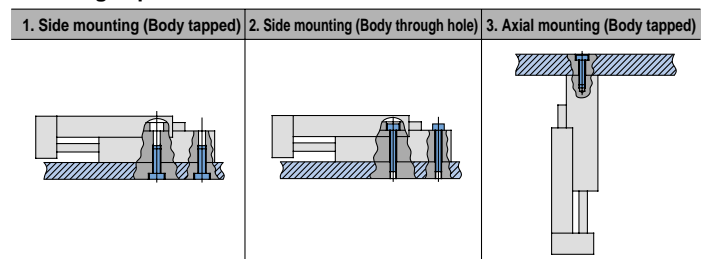


Threaded for body mounting

## Various options

- Adjuster options
  - With stroke adjuster, With shock absorber
- Functional options
  - With buffer mechanism, With end lock
  - Axial piping

## Mounting is possible in three directions.



## Variations

| Model | Bore (mm) | Standard stroke (mm) |    |    |    |    |    |     |     | Adjuster |                 | Functional option | Auto switch |                            |
|-------|-----------|----------------------|----|----|----|----|----|-----|-----|----------|-----------------|-------------------|-------------|----------------------------|
|       |           | 10                   | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150      | Stroke adjuster |                   |             | Shock absorber (Except ø6) |
| MXS 6 | 6         | •                    | •  | •  | •  | •  | •  | •   | •   | •        | •               | •                 | •           | •                          |
| MXS 8 | 8         | •                    | •  | •  | •  | •  | •  | •   | •   | •        | •               | •                 | •           | •                          |
| MXS12 | 12        | •                    | •  | •  | •  | •  | •  | •   | •   | •        | •               | •                 | •           | •                          |
| MXS16 | 16        | •                    | •  | •  | •  | •  | •  | •   | •   | •        | •               | •                 | •           | •                          |
| MXS20 | 20        | •                    | •  | •  | •  | •  | •  | •   | •   | •        | •               | •                 | •           | •                          |
| MXS25 | 25        | •                    | •  | •  | •  | •  | •  | •   | •   | •        | •               | •                 | •           | •                          |

| Adjuster        |                            | Functional option         | Auto switch   |
|-----------------|----------------------------|---------------------------|---|
| Stroke adjuster | Shock absorber (Except ø6) |                           |   |
| Extension end   |                            | With buffer               | Reed switch<br>• D-A9□<br>• D-A9□V                  |
| Retraction end  |                            | With end lock (Except ø6) | Solid state switch<br>• D-F9□<br>• D-F9□V           |
| Both ends       |                            | Axial piping              | 2 color solid state switch<br>• D-F9□W<br>• D-F9□VW |

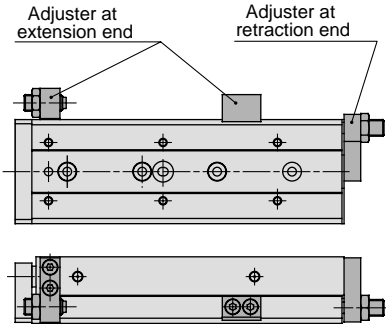
# Series MXS

## Adjuster Options

### Stroke adjuster

- Adjustable stroke range: 0 to 5mm

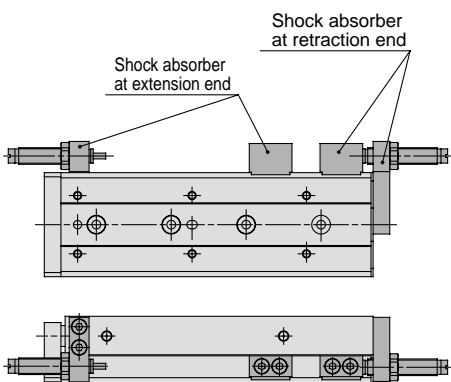
With adjuster at extension end (AS)  
 With adjuster at retraction end (AT)  
 With adjuster at both ends (A)



### With shock absorber

- Absorbs the collision at stroke end and stops smoothly.
- Enables adjustment of stroke

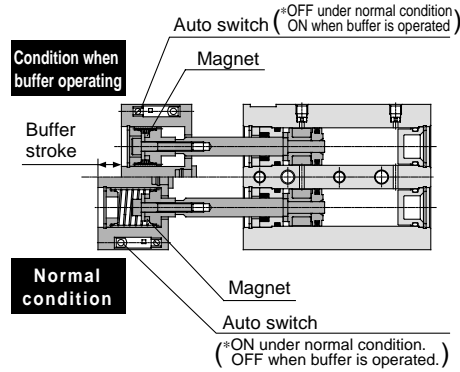
With shock absorber at extension end (BS)  
 With shock absorber at retraction end (BT)  
 With shock absorber at both ends (B)



## Functional Options

### With buffer

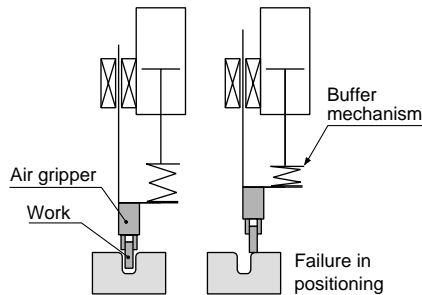
- Cushioning at the extending stroke end protects the work and tool.
- Auto switch is attachable at buffer section.



\*ON/OFF setting can be changed with auto switch mounting direction.

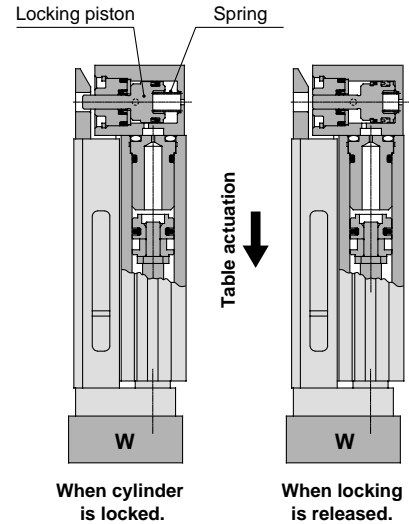
### Applicable example

Buffer mechanism absorbs shock and prevents damage to work in case the positioning is not accurate when load is inserted.



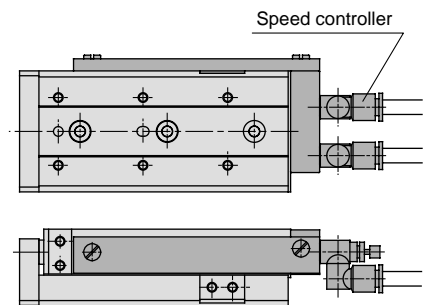
### With end lock

- Keeps cylinder at original position and prevents the load from dropping when air is cut off.



### Axial piping

- Centralized piping in axial direction saves space around the body.





# Series MXS/Precautions<sup>①</sup>

Be sure to read before handling.

Refer to p.0-39 to 0-43 for Safety Instructions and actuator precautions.

## Selection

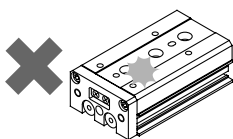
### ⚠ Caution

- ① **Do not apply a load over the operating limit range.**  
Select the model considering max. allowable load and allowable moment. Refer to p.3.16-10 and 3.16-11 for the details. When actuator is used outside of operating limits, eccentric loads on guide will be in excess this causing vibration on guide and inaccuracy, and shortens life.
- ② **If intermediate stops by external stopper is done, avoid ejection.**  
If ejection occurs, it may cause damage. In case the slid table is stopped at intermediate positions by an external stopper then forwarded to the front, return the slide table to the back for just a moment to retract the stopper, then supply pressure to the opposite port to operate slide table.
- ③ **Do not apply excessive forces and impacts.**  
This will cause problems and possible failure.

## Mounting

### ⚠ Caution

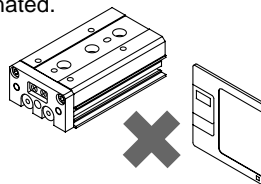
- ① **Do not scratch and dent mounting side of body, table and end plate.**  
The damage will result in a decrease in parallelism, vibration of guide and an increase in moving part resistance.
- ② **Do not scratch and dent forward side of rail and guide.**  
This causes vibration and increases moving part resistance.



## Mounting

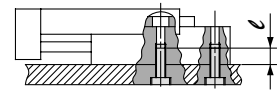
- ③ **Do not apply excessive power and load when work is mounted.**  
Vibrations on guide and moving part resistance will result when power over the allowable moment is applied.
- ④ **Flatness of mounting surface should be less than 0.02mm.**  
Insufficient flatness of workpiece or base to which Air Slide Table is mounted can cause generation of play at guide section or increase sliding resistance.
- ⑤ **Select the proper connection with the load which has external support and/or guide mechanism on the outside, and align it properly.**
- ⑥ **Avoid contact with the air slide table during operation.**  
Adjuster option creates additional pinch points which can cause injury to operator when table is moving. Preventative measures, e.g. installation of a cover, should be taken to avoid such accidents.
- ⑦ **Keep away from objects which are influenced by magnets.**

A magnet is built in the guide block for use with an auto switch, there for do not use magnetic disk, magnetic card, or magnetic tape, else data will be eliminated.



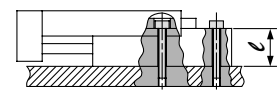
- ⑧ **When mounting an air slide table, use appropriate length of screws and do not exceed the maximum tightening torque.**  
If tightening the screw beyond the designated value, it may malfunction. If tightening it insufficiently, it may result in position sliding or falling off of air slide table.

### 1. Lateral mounting (Body tapped)



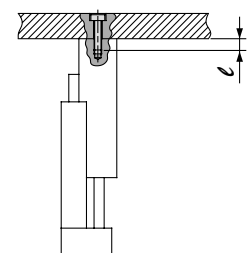
| Model        | Bolt      | Max. torque (Nm) | Max. screw-in depth ℓ (mm) |
|--------------|-----------|------------------|----------------------------|
| <b>MXS 6</b> | M4 X 0.7  | 2.1              | 8                          |
| <b>MXS 8</b> | M4 X 0.7  | 2.1              | 8                          |
| <b>MXS12</b> | M5 X 0.8  | 4.4              | 10                         |
| <b>MXS16</b> | M6 X 1    | 7.4              | 12                         |
| <b>MXS20</b> | M6 X 1    | 7.4              | 12                         |
| <b>MXS25</b> | M8 X 1.25 | 18               | 16                         |

### 2. Lateral mounting (Through hole)



| Model        | Bolt     | Max. torque (Nm) | Max. screw-in depth ℓ (mm) |
|--------------|----------|------------------|----------------------------|
| <b>MXS 6</b> | M3 X 0.5 | 1.2              | 11                         |
| <b>MXS 8</b> | M3 X 0.5 | 1.2              | 13                         |
| <b>MXS12</b> | M4 X 0.7 | 2.8              | 18.5                       |
| <b>MXS16</b> | M5 X 0.8 | 5.7              | 24                         |
| <b>MXS20</b> | M5 X 0.8 | 5.7              | 29                         |
| <b>MXS25</b> | M6 X 1   | 10               | 34                         |

### 3. Axial mounting (Body tapped)



| Model        | Bolt        | Max. torque (Nm) | Max. screw-in depth ℓ (mm) |
|--------------|-------------|------------------|----------------------------|
| <b>MXS 6</b> | M2.5 X 0.45 | 0.5              | 3.5                        |
| <b>MXS 8</b> | M3 X 0.5    | 0.9              | 4                          |
| <b>MXS12</b> | M4 X 0.7    | 2.1              | 6                          |
| <b>MXS16</b> | M5 X 0.8    | 4.4              | 7                          |
| <b>MXS20</b> | M5 X 0.8    | 4.4              | 8                          |
| <b>MXS25</b> | M6 X 1      | 7.4              | 10                         |

CL

MLG

CNA

CNG

MNB

CNS

CLS

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXH

**MXS**

MXQ

MXF

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MXP

MG

MGP

MGQ

MGG

MGC

MGF

MGZ

CY

MY



# Series MXS/Precautions<sup>②</sup>

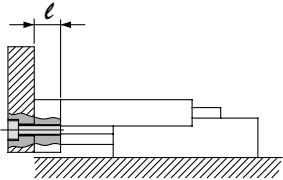
Be sure to read before handling.

Refer to p.0-39 to 0-43 for Safety Instructions and actuator precautions.

## Mounting

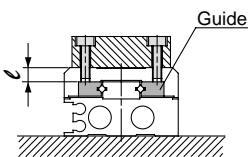
### ⚠ Caution

#### 1. Front face mounting



| Model | Bolt      | Max. torque (Nm) | Max. screw-in depth $l$ (mm) |
|-------|-----------|------------------|------------------------------|
| MXS 6 | M3 X 0.5  | 0.9              | 5                            |
| MXS 8 | M4 X 0.7  | 2.1              | 6                            |
| MXS12 | M5 X 0.8  | 4.4              | 8                            |
| MXS16 | M6 X 1    | 7.4              | 10                           |
| MXS20 | M6 X 1    | 7.4              | 13                           |
| MXS25 | M8 X 1.25 | 18               | 15                           |

#### 2. Top face mounting



### ⚠ Caution

When attaching work to guide, use a bolt which is at least 0.5mm shorter than the maximum thread depth. Longer bolts can cause malfunction due to contact with guide bearings.

| Model | Bolt     | Max. torque (Nm) | Max. screw-in depth $l$ (mm) |
|-------|----------|------------------|------------------------------|
| MXS 6 | M3 X 0.5 | 0.9              | 4                            |
| MXS 8 | M3 X 0.5 | 0.9              | 5                            |
| MXS12 | M4 X 0.7 | 2.1              | 5.5                          |
| MXS16 | M5 X 0.8 | 4.4              | 6                            |
| MXS20 | M5 X 0.8 | 4.4              | 10                           |
| MXS25 | M6 X 1   | 7.4              | 13                           |

- ① The positioning hole on the table and the positioning hole at the bottom of the body do not have the same center. Use these holes during reinstallation after the table has been removed for the maintenance of an identical product.

## Environment

### ⚠ Caution

- ① Do not use in atmosphere where the actuator contacts directly the liquid such as cutting oil.

Conditions where the cylinder piston rod and guide shafts are exposed directly to cutting oil, coolant and oil mist lead to vibration, increase of moving part resistance, air leakage, etc.

- ② Do not use in atmosphere where the actuator contacts directly the material such as powder dust, dust, spatter etc.

This causes vibration, increase of moving part and air leakage. Consult SMC when the use in such environment is required.

- ③ Do not use in direct sun light.

- ④ Do not use in environment where there is heat source.

Use a cover when there is a heat source around the actuator, or if temperature of product increases and exceeds operating temperature range by emissive heat.

- ⑤ Do not subject it to excessive vibration and/or impact.

This results in damage and/or malfunction. Contact SMC if the actuator is used in the above conditions.

## Precautions for Adjuster Option

### Stroke adjuster

### ⚠ Caution

- ① Never replace the original adjuster bolts.

Impact energy causes play, damage, etc.

- ② Refer to the below table for lock nut tightening torque.

If the lock nut is not tightened sufficiently, it leads to low positioning accuracy.

| Model | Tightening torque (Nm) |
|-------|------------------------|
| MXS 6 | 3.0                    |
| MXS 8 | 5.0                    |
| MXS12 | 12.5                   |
| MXS16 | 25.0                   |
| MXS20 | 43.0                   |
| MXS25 | 69.0                   |

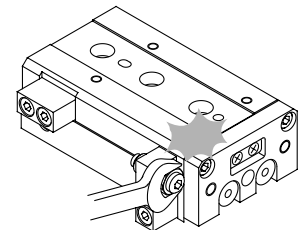
## Precautions for Adjuster Option

### Stroke adjuster

### ⚠ Caution

- ③ When stroke adjuster is adjusted, do not hit the table with the wrench.

This can cause excessive play.



### With shock absorber

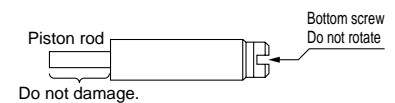
### ⚠ Caution

- ① Do not rotate the screw set on bottom of shock absorber.

This is not the screw for adjusting. If this screw is rotated, it may cause oil leakage.

- ② Do not scratch the exposed portion of the piston rod.

Decrease in life or malfunction may result.



- ③ Shock absorber is considered a consumable component. When energy absorption is decreased, replace it.

| Model | Part No. of shock absorber |
|-------|----------------------------|
| MXS 8 | RB0805                     |
| MXS12 | RB0806                     |
| MXS16 | RB1007                     |
| MXS20 | RB1411                     |
| MXS25 | RB1412                     |

- ④ Refer to the below table for tightening torque for lock nut of shock absorber.

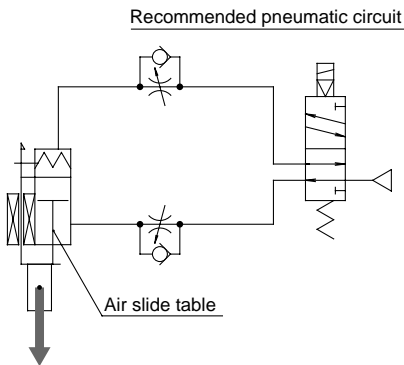
| Model          | Tightening torque (Nm) |
|----------------|------------------------|
| MXS 8<br>MXS12 | 1.67                   |
| MXS16          | 3.14                   |
| MXS20<br>MXS25 | 10.8                   |

## Precautions on Functional Option

### With end lock

#### ⚠ Caution

- ① 2 position, 4 or 5 port solenoid valves are recommended.

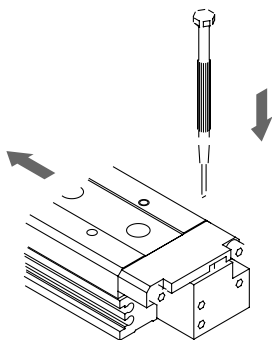


- ② Be sure to use meter-out speed control valves.
- ③ When releasing the end lock manually, be sure that air pressure is released.  
If the end lock is disengaged while air pressure remains in the cylinder, the piston could lurch suddenly, causing damage to the workpiece.

#### How to release end lock

\* Prior to work, be sure that air pressure is released.

- ① Push down the lock piston pin.  
② Slide the table forward.

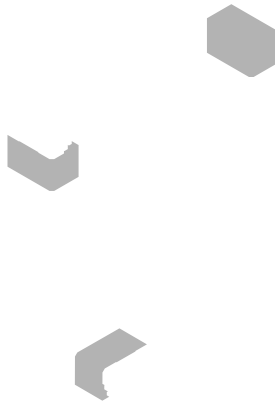


### With buffer mechanism

#### ⚠ Caution

- ① When mounting the air slide table with buffer it must be oriented as shown in the sketch below.

When mounting horizontally, operation of the buffer is dependent on the speed and the load. Auto switch should be set according to the buffer stroke used, subject to the speed and load.



- ② Auto switch for buffer/Correct mounting position for detection at the end of stroke.



\* Adjust the switch position according to load and speed.

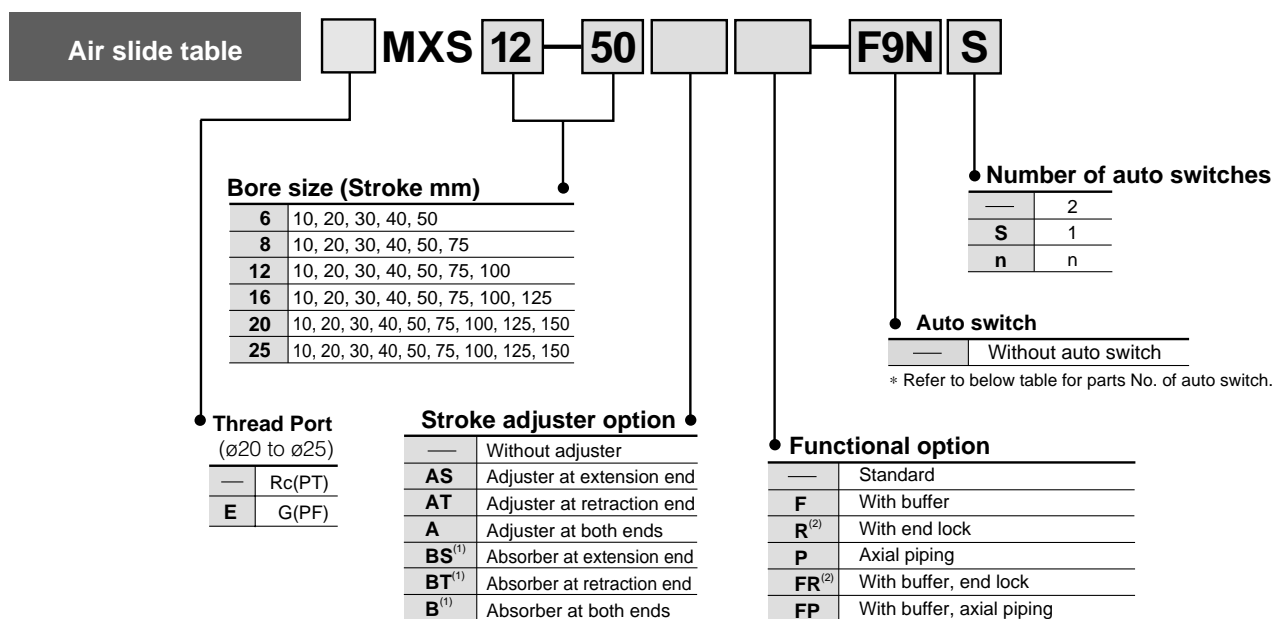
(Unit: mm)

| Model        | A   | B |
|--------------|-----|---|
| <b>MXS 6</b> | 2   | 3 |
| <b>MXS 8</b> | 2.5 |   |
| <b>MXS12</b> | 4   |   |
| <b>MXS16</b> | 5   |   |
| <b>MXS20</b> | 5.5 |   |
| <b>MXS25</b> | 10  |   |

# Air Slide Table

## Series *MXS*

### How to Order



Note 1) Shock absorber is not available for series MXS6.

Note 2) End lock option is not available for series MXS6.

#### Combination of Options

○: Possible X: Not possible

| Functional option / Adjuster option | Functional option |                  |   |   |                  |                  |
|-------------------------------------|-------------------|------------------|---|---|------------------|------------------|
|                                     | —                 | F                | R | P | FR               | FP               |
| —                                   | ○                 | ○                | ○ | ○ | ○                | ○                |
| AS                                  | ○                 | ○ <sup>(3)</sup> | ○ | ○ | ○ <sup>(3)</sup> | ○ <sup>(3)</sup> |
| AT                                  | ○                 | ○                | X | X | X                | X                |
| A                                   | ○                 | ○ <sup>(3)</sup> | X | X | X                | X                |
| BS                                  | ○                 | X                | ○ | ○ | X                | X                |
| BT                                  | ○                 | ○                | X | X | X                | X                |
| B                                   | ○                 | X                | X | X | X                | X                |

Note 3) For combination of buffer mechanism style and stroke adjuster at extension end style, the buffer stroke is shortened by the adjusted length with the stroke adjuster at extension end.

#### Applicable Auto Switches / Refer to p.5.3-2 for further information on auto switch.

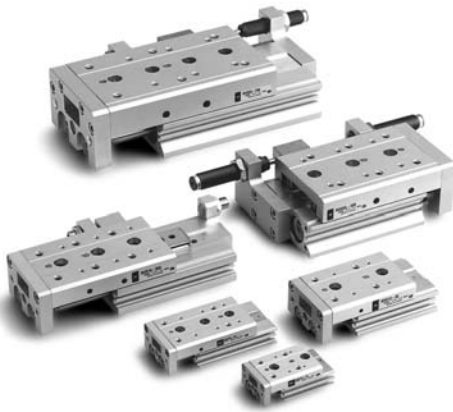
| Style              | Special function                 | Electrical entry | Indicator | Wiring (Output) | Load voltage |         |                  | Auto switch model |         | Lead wire (m) <sup>(1)</sup> |   | Load       |            | Specification details |
|--------------------|----------------------------------|------------------|-----------|-----------------|--------------|---------|------------------|-------------------|---------|------------------------------|---|------------|------------|-----------------------|
|                    |                                  |                  |           |                 | DC           | AC      | Electrical entry |                   | 0.5 (-) | 3 (L)                        |   |            |            |                       |
|                    |                                  |                  |           |                 |              |         | Perpendicular    | In-line           |         |                              |   |            |            |                       |
| Reed switch        | —                                | Grommet          | No        | 2 wire          | 24V          | 5V, 12V | ≤100V            | A90V              | A90     | ●                            | ● | IC circuit | Relay, PLC | P.5.3-19              |
|                    |                                  |                  | Yes       |                 |              | —       | 100V             | A93V              | A93     | ●                            | ● |            |            |                       |
| Solid state switch | Diagnostic indication (2 colour) | Grommet          | Yes       | 3 wire (NPN)    | 24V          | 12V     | —                | F96V              | F96     | ●                            | ● | —          | Relay, PLC | P.5.3-39              |
|                    |                                  |                  |           | 3 wire (PNP)    |              |         |                  | F9NV              | F9N     | ●                            | ● |            |            |                       |
|                    |                                  |                  |           | 2 wire          |              |         |                  | F9PV              | F9P     | ●                            | ● |            |            |                       |
|                    |                                  |                  |           | 3 wire (NPN)    |              |         |                  | F9BV              | F9B     | ●                            | ● |            |            |                       |
|                    |                                  |                  |           | 3 wire (PNP)    |              |         |                  | F9NWV             | F9NW    | ●                            | ● |            |            |                       |
|                    |                                  |                  |           | 2 wire          |              |         |                  | F9PWV             | F9PW    | ●                            | ● |            |            |                       |
|                    |                                  |                  |           | F9BWV           | F9BW         | ●       | ●                |                   |         |                              |   |            |            |                       |

Note 1) Lead wire length 0.5m..... — (Ex.) A93  
3m..... L A93L

PLC: Programmable Logic Controller

# Air Slide Table Series **MXS**

## Specifications



| Bore size (mm)                | 6   | 8        | 12 | 16 | 20        | 25 |
|-------------------------------|---|----------|----|----|-----------|----|
| Port size                     | M3 X 0.5  | M5 X 0.8 |    |    | Rc(PT)1/8 |    |
| Fluid                         | Air   |          |    |    |           |    |
| Action                        | Double acting   |          |    |    |           |    |
| Operating pressure            | 0.15 to 0.7MPa  |          |    |    |           |    |
| Proof pressure                | 1.05MPa   |          |    |    |           |    |
| Ambient and fluid temperature | -10 to 60°C   |          |    |    |           |    |
| Piston speed                  | 50 to 500mm/s   |          |    |    |           |    |
| Cushion                       | Rubber bumper (Standard, With stroke adjuster)<br>Shock absorber (Option)   |          |    |    |           |    |
| Lubrication                   | Not required  |          |    |    |           |    |
| Auto switch (Option)          | Reed switch (2 wire, 3 wire)<br>Solid state switch (2 wire, 3 wire)<br>2 colour solid state switch (2 wire, 3 wire) |          |    |    |           |    |
| Stroke length tolerance       | +1<br>0 mm  |          |    |    |           |    |

CL

MLG

CNA

CNG

MNB

CNS

CLS

## Option

|                        |                      |                                 |  |  |
|------------------------|----------------------|---------------------------------|--|--|
| Stroke adjuster option | With stroke adjuster | Adjuster at extension end (AS)  | Adjustable stroke range<br>0 to 5mm    |  |
|                        |                      | Adjuster at retraction end (AT) |  |  |
|                        |                      | Adjuster at both ends (A)       |  |  |
|                        | With shock absorber  | Absorber at extension end (BS)  |  | Shock absorber is not<br>available for MXS6. |
|                        |                      | Absorber at retraction end (BT) |  |  |
|                        |                      | Absorber at both ends (B)       |  |  |
| Functional option      | With buffer (F)      |                                 | End lock is not available<br>for MXS6. |  |
|                        | With end lock (R)    |                                 |  |  |
|                        | Axial piping (P)     |                                 |  |  |

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXH

MXS

MXQ

MXF

MXW

MXP

MG

MGP

MGQ

MGG

MGC

MGF

MGZ

CY

MY



## Made to Order Specifications

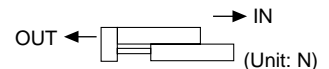
Refer to p.5.4-89 for "Made to Order Specifications" of series MXS.



\* For details of adjuster and functional options, please refer to "Optional specifications" on p.3.16-24 to 3.16-26.

## Theoretical Force

The dual rod ensures an output twice that of existing cylinders.



| Bore size (mm) | Rod diameter (mm) | Operating direction | Piston area (mm <sup>2</sup> ) | Operating pressure (MPa) |     |     |     |     |     |  |
|----------------|-------------------|---------------------|--------------------------------|--------------------------|-----|-----|-----|-----|-----|--|
|                |                   |                     |                                | 0.2                      | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |  |
| 6              | 3                 | OUT                 | 57                             | 11                       | 17  | 23  | 29  | 34  | 40  |  |
|                |                   | IN                  | 42                             | 8                        | 13  | 17  | 21  | 25  | 29  |  |
| 8              | 4                 | OUT                 | 101                            | 20                       | 30  | 40  | 51  | 61  | 71  |  |
|                |                   | IN                  | 75                             | 15                       | 23  | 30  | 38  | 45  | 53  |  |
| 12             | 6                 | OUT                 | 226                            | 45                       | 68  | 90  | 113 | 136 | 158 |  |
|                |                   | IN                  | 170                            | 34                       | 51  | 68  | 85  | 102 | 119 |  |
| 16             | 8                 | OUT                 | 402                            | 80                       | 121 | 161 | 201 | 241 | 281 |  |
|                |                   | IN                  | 302                            | 60                       | 91  | 121 | 151 | 181 | 211 |  |
| 20             | 10                | OUT                 | 628                            | 126                      | 188 | 251 | 314 | 377 | 440 |  |
|                |                   | IN                  | 471                            | 94                       | 141 | 188 | 236 | 283 | 330 |  |
| 25             | 12                | OUT                 | 982                            | 196                      | 295 | 393 | 491 | 589 | 687 |  |
|                |                   | IN                  | 756                            | 151                      | 227 | 302 | 378 | 454 | 529 |  |

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

## Standard Stroke

| Model | Standard stroke (mm)                  |
|-------|---------------------------------------|
| MXS 6 | 10, 20, 30, 40, 50                    |
| MXS 8 | 10, 20, 30, 40, 50, 75                |
| MXS12 | 10, 20, 30, 40, 50, 75, 100           |
| MXS16 | 10, 20, 30, 40, 50, 75, 100, 125      |
| MXS20 | 10, 20, 30, 40, 50, 75, 100, 125, 150 |
| MXS25 | 10, 20, 30, 40, 50, 75, 100, 125, 150 |

## Weight

(Unit: g)

| Model | Standard stroke (mm) |      |      |      |      |      |      |      |      | Extra for options  |                     |                          |                           |        |          |                             |
|-------|----------------------|------|------|------|------|------|------|------|------|--------------------|---------------------|--------------------------|---------------------------|--------|----------|-----------------------------|
|       | 10                   | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150  | Extension adjuster | Retraction adjuster | Extension shock absorber | Retraction shock absorber | Buffer | End lock | Axial piping S: Stroke (mm) |
| MXS 6 | 80                   | 100  | 115  | 155  | 180  | —    | —    | —    | —    | 10                 | 5                   | —                        | —                         | 30     | —        | 13+0.15S                    |
| MXS 8 | 150                  | 160  | 190  | 235  | 285  | 415  | —    | —    | —    | 15                 | 9                   | 35                       | 45                        | 40     | 40       | 26+0.17S                    |
| MXS12 | 340                  | 340  | 340  | 400  | 500  | 690  | 930  | —    | —    | 30                 | 20                  | 50                       | 60                        | 80     | 90       | 43+0.21S                    |
| MXS16 | 600                  | 600  | 610  | 670  | 800  | 1150 | 1450 | 1800 | —    | 50                 | 30                  | 80                       | 105                       | 120    | 160      | 55+0.21S                    |
| MXS20 | 1000                 | 1020 | 1050 | 1150 | 1300 | 1700 | 2250 | 2800 | 3350 | 100                | 71                  | 170                      | 205                       | 140    | 310      | 166+0.45S                   |
| MXS25 | 1720                 | 1740 | 1750 | 1900 | 2160 | 2750 | 3400 | 4300 | 4900 | 150                | 125                 | 215                      | 300                       | 240    | 540      | 240+0.45S                   |

# Table Deflection

## Table deflection by pitch moment

Table pitch deflection due to static pitch moment applied at arrow for fully extended stroke of slide table

## Table deflection by yaw moment

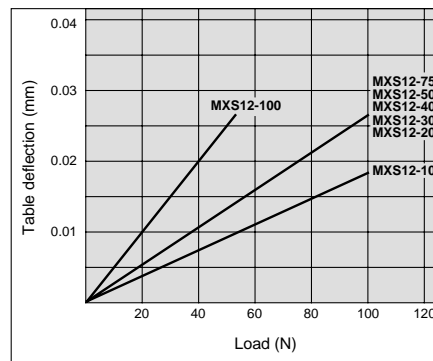
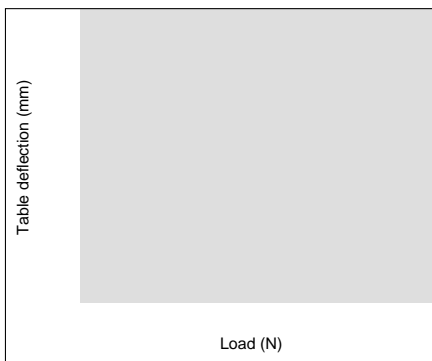
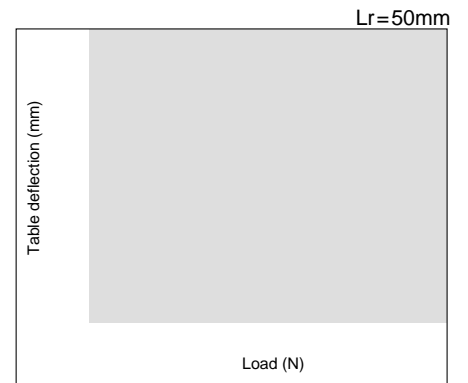
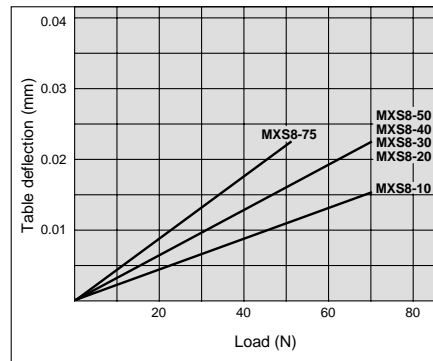
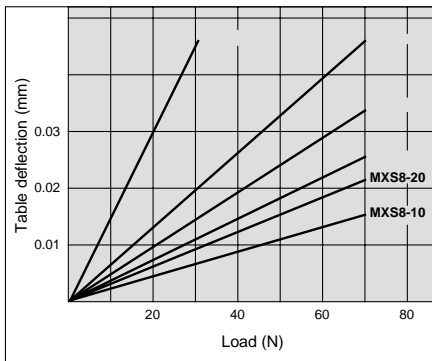
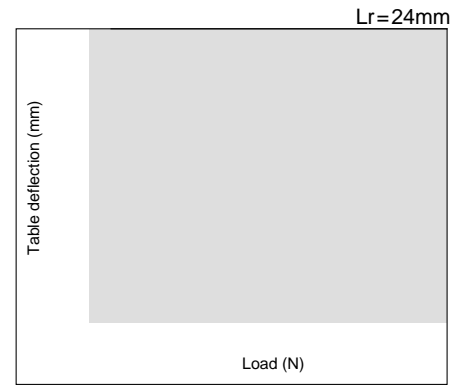
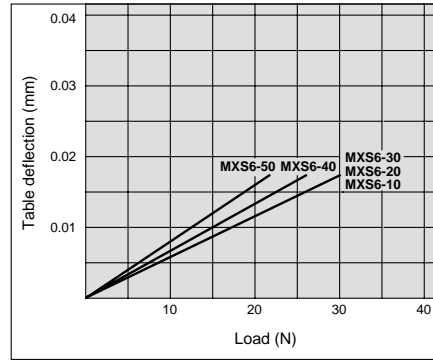
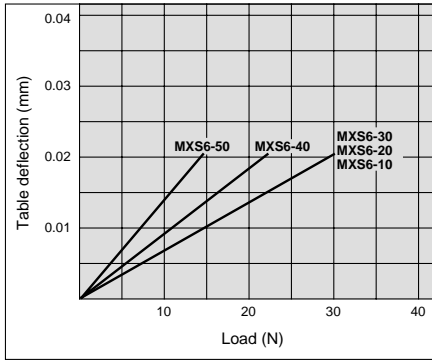
Table yaw deflection due to static yaw moment applied at arrow for fully extended stroke of slide table.

## Table deflection by roll moment

Table roll deflection arrow A due to static roll moment applied at arrow F when  $L_r =$  (see table) and table is retracted.

A F

←  $L_r$



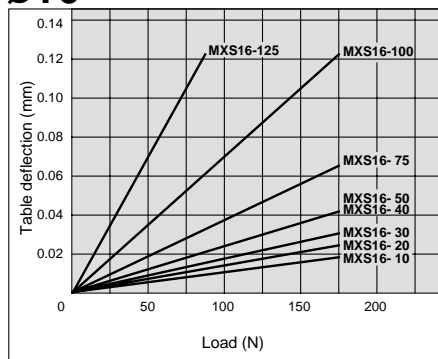


## Table deflection by pitch moment

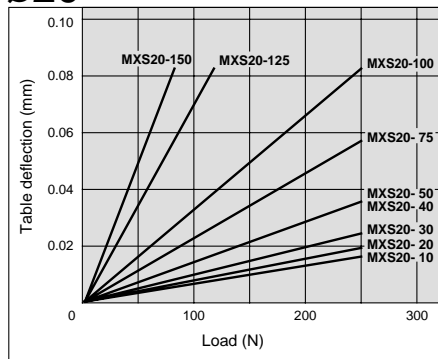
Table pitch deflection due to static pitch moment applied at arrow for fully extended stroke of slide table



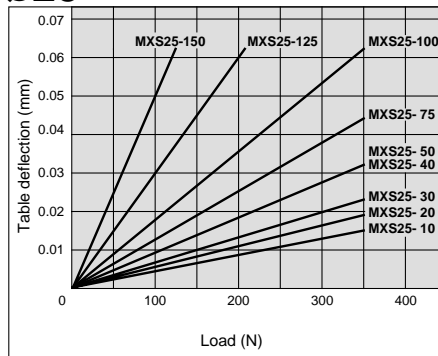
**ø16**



**ø20**

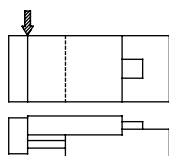


**ø25**

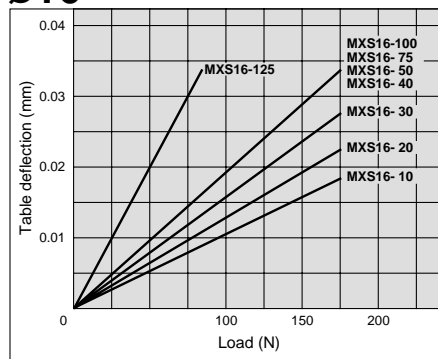


## Table deflection by yaw moment

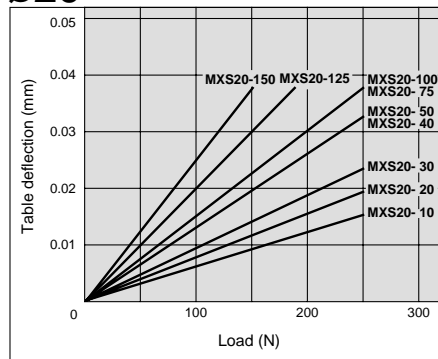
Table yaw deflection due to static yaw moment applied at arrow for fully extended stroke of slide table.



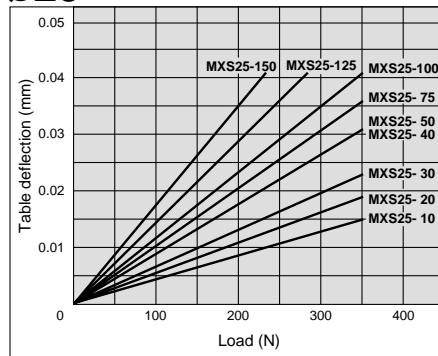
**ø16**



**ø20**

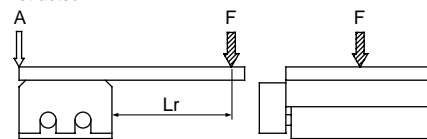


**ø25**

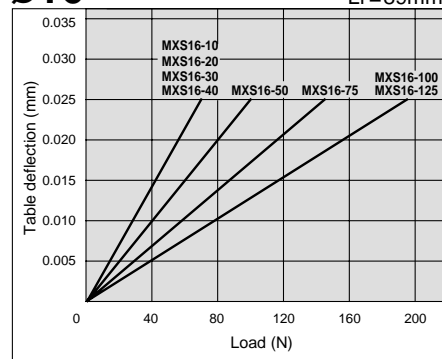


## Table deflection by roll moment

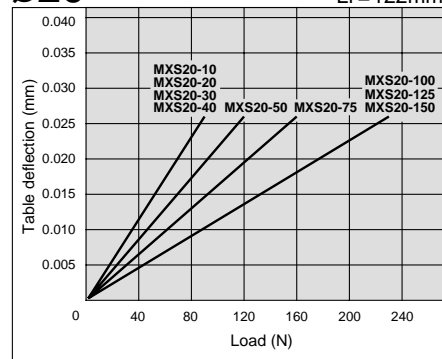
Table roll deflection arrow A due to static roll moment applied at arrow F when  $L_r =$  (see table) and table is retracted.



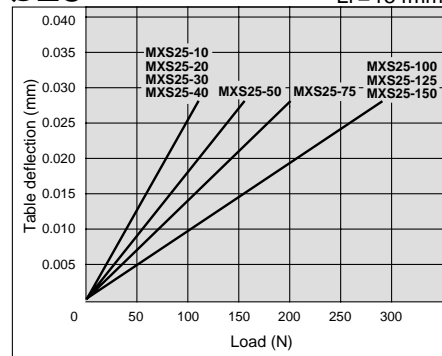
**ø16**



**ø20**



**ø25**



- CL
- MLG
- CNA
- CNG
- MNB
- CNS
- CLS
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXH
- MXS**
- MXQ
- MXF
- MXW
- MXP
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- MGP
- MGQ
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- MGF
- MGZ
- CY
- MY

# Series MXS

## How to Select

### Selection Flow Chart

### Formula and Data

### Selection Example

#### Operation conditions

Enumerate the operating conditions according to mounting position and work form.

Cylinder: MAX16-15  
Cushion: Rubber bumper  
Work table mounting  
Mounting: Lateral wall mounting  
Average speed:  $V_a=300$  [mm/s]  
Load  $W=10$  [N]  
 $L_1=10$ mm  
 $L_2=30$ mm  
 $L_3=30$ mm

#### Kinetic energy

Calculate kinetic energy  $E$  (J) of work.  
Calculate allowable kinetic energy  $E_a$  (J).  
Check that kinetic energy of work does not exceed allowable kinetic energy.

#### Load rate

#### 3-1 Load rate of work

Calculate static work  $W_a$  (N)

Calculate load rate  $\alpha_1$  of static work.

#### 3-2 Load rate of static moment

Calculate static moment  $M_e$  (Nm).

Calculate allowable static moment  $M_a$  (Nm)

Calculate load rate  $\alpha_2$  of static moment.

#### 3-3 Load rate of kinetic moment

Calculate kinetic moment  $M_e$  (Nm).

Calculate allowable kinetic moment  $M_{ea}$  (Nm).

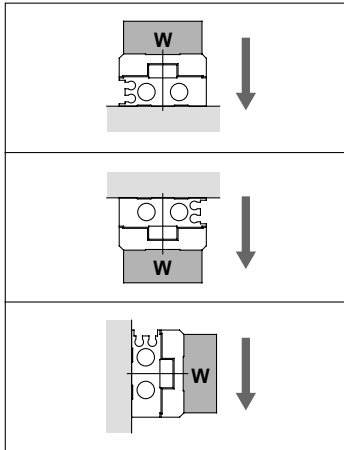
Calculate load rate  $\alpha_3$  of kinetic moment.

#### 3-4 Sum of load rate

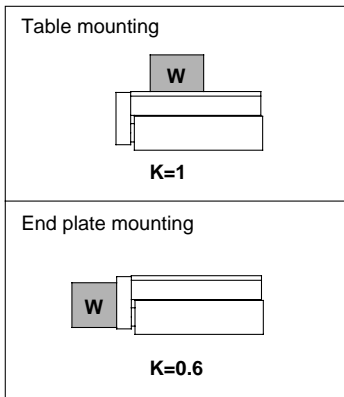
When sum of load rate does not exceed 1, it is possible to use.

$\sum \alpha_n = \alpha$  0 62.6875Ca1912626258o88a418.346me37.375 TD 52m (95936875Ca1911.249

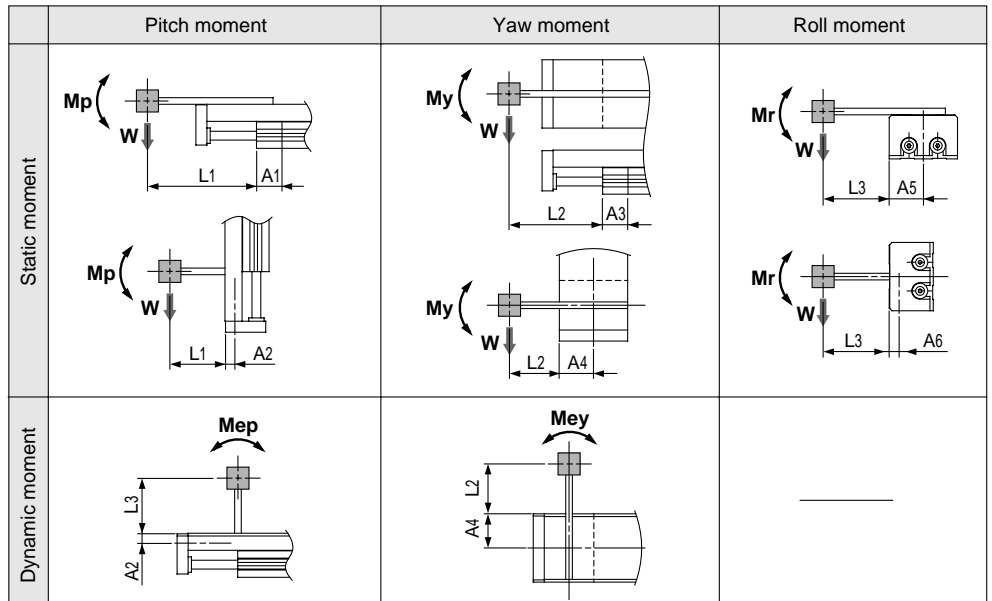
**Fig.1** Allowable load:  $W$  (N)



**Fig.3** Work mounting coefficient:  $K$



**Fig.2** Overhang:  $L_n$  (mm), Correction value for moment center distance  $A_n$  (mm)

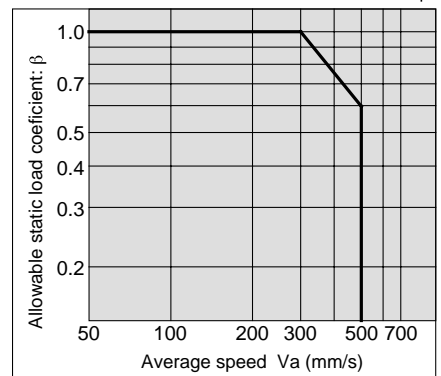


Note) Static moment: Moment by gravity  
Kinetic moment: Moment by stopper collision

**Table 1** Max. allowable kinetic energy:  $E_{max}$  (J)

| Model        | Allowable kinetic energy |                |
|--------------|--------------------------|----------------|
|              | Rubber bumper            | Shock absorber |
| <b>MXS 6</b> | 0.018                    | —              |
| <b>MXS 8</b> | 0.027                    | 0.045          |
| <b>MXS12</b> | 0.055                    | 0.11           |
| <b>MXS16</b> | 0.11                     | 0.22           |
| <b>MXS20</b> | 0.16                     | 0.32           |
| <b>MXS25</b> | 0.24                     | 0.48           |

**Graph 1** Allowable static load coefficient:  $\beta$



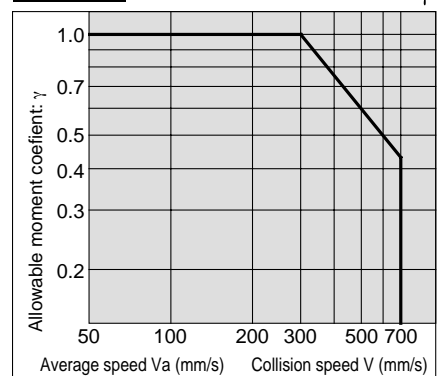
**Table 2** Max. allowable static load:  $W_{max}$  (N)

| Model        | Max. allowable static load |
|--------------|----------------------------|
| <b>MXS 6</b> | 0.6                        |
| <b>MXS 8</b> | 1                          |
| <b>MXS12</b> | 2                          |
| <b>MXS16</b> | 4                          |
| <b>MXS20</b> | 6                          |
| <b>MXS25</b> | 9                          |

**Table 3** Correction value for moment center distance  $A_n$  (mm)

| Model        | Correction value for moment center distance (Refer to Fig.2) |      |    |    |    |      |
|--------------|--|------|----|----|----|------|
|              | A1   | A2   | A3 | A4 | A5 | A6   |
| <b>MXS 6</b> | 11   | 6    | 13 | 16 | 16 | 6    |
| <b>MXS 8</b> | 11   | 7.5  | 13 | 20 | 20 | 7.5  |
| <b>MXS12</b> | 24   | 8.5  | 26 | 25 | 25 | 8.5  |
| <b>MXS16</b> | 27   | 10   | 30 | 31 | 31 | 10   |
| <b>MXS20</b> | 34   | 14.5 | 36 | 38 | 38 | 14.5 |
| <b>MXS25</b> | 42   | 19   | 44 | 46 | 46 | 19   |

**Graph 2** Allowable moment coefficient:  $\gamma$



Note) Average speed for static moment  
Collision speed for kinetic moment

**Table 4** Max. allowable moment:  $M_{max}$  (Nm)

| Model        | Stroke (mm) |      |      |      |      |      |      |      |      |  |
|--------------|-------------|------|------|------|------|------|------|------|------|--|
|              | 10          | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150  |  |
| <b>MXS 6</b> | 0.7         | 1.0  | 1.2  | 1.2  | 1.2  | —    | —    | —    | —    |  |
| <b>MXS 8</b> | 2.0         | 2.0  | 2.8  | 3.6  | 4.2  | 4.2  | —    | —    | —    |  |
| <b>MXS12</b> | 4.2         | 4.2  | 4.2  | 5.8  | 7.0  | 10.0 | 10.0 | —    | —    |  |
| <b>MXS16</b> | 11.3        | 11.3 | 11.3 | 11.3 | 15.9 | 25.0 | 34.1 | 34.1 | —    |  |
| <b>MXS20</b> | 19.4        | 19.4 | 19.4 | 19.4 | 27.2 | 35.0 | 50.5 | 50.5 | 50.5 |  |
| <b>MXS25</b> | 30.6        | 30.6 | 30.6 | 30.6 | 42.8 | 55.1 | 67.3 | 67.3 | 67.3 |  |

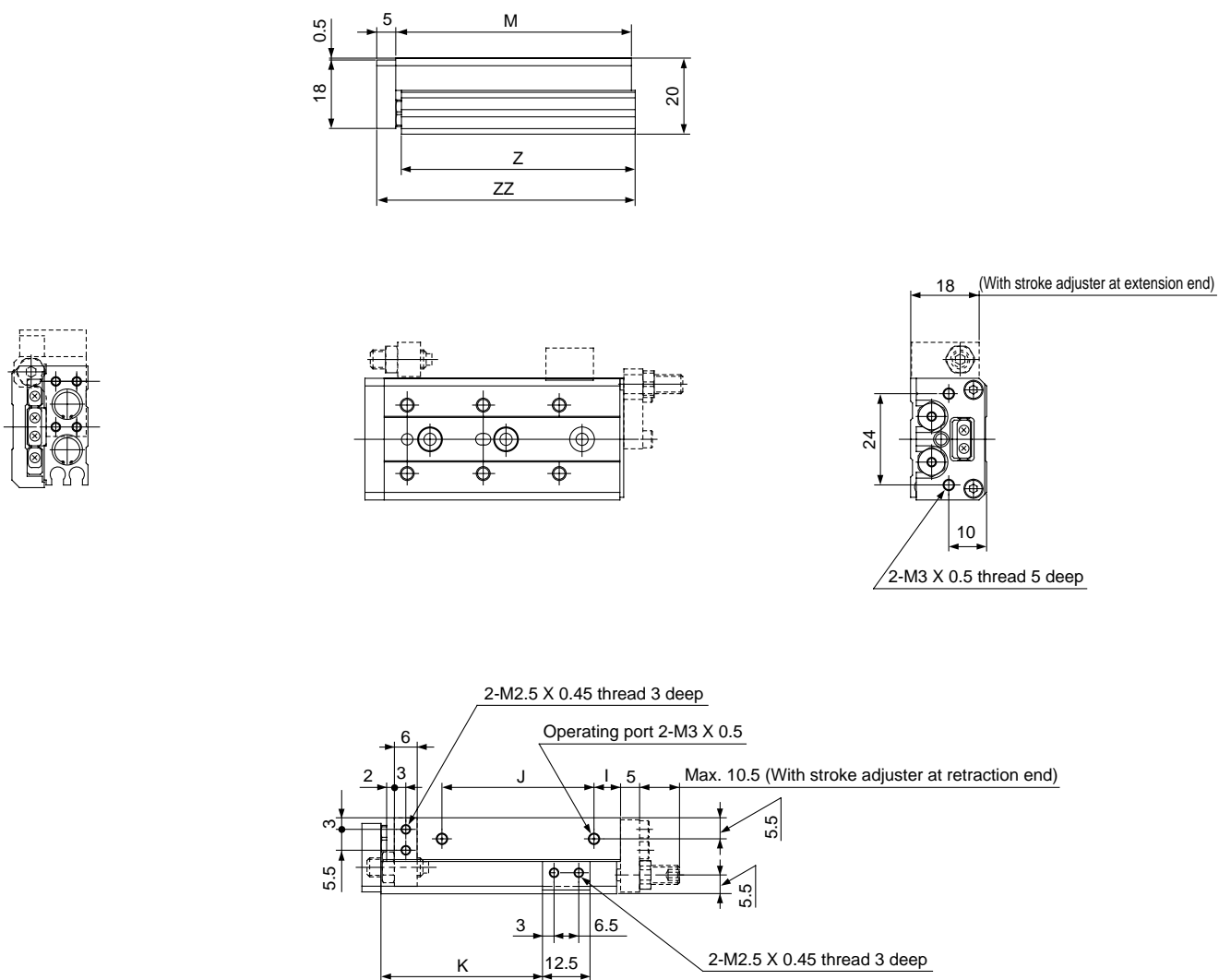
## Symbol

| Symbol                                       | Definition                                       | Unit | Symbol    | Definition                        | Unit |
|--|--|------|-----------|-----------------------------------|------|
| $A_n$ (n=1 to 6)                             | Correction value for moment centre distance      | mm   | $V_a$     | Average speed                     | mm/s |
| $E$  | kinetic energy                                   | J    | $W$       | Static load                       | kg   |
| $E_a$  | Allowable kinetic energy                         | J    | $W_a$     | Allowable static load             | kg   |
| $E_{max}$                                    | Max. allowable kinetic energy                    | J    | $W_e$     | Load equivalent to collision      | kg   |
| $L_n$ (n=1 to 3)                             | Over hung  | mm   | $W_{max}$ | Max. allowable static load        | kg   |
| $M$ ( $M_p, M_y, M_r$ )                      | Static moment (Pitch, Yaw, Roll)                 | Nm   | $\alpha$  | Load rate                         | —    |
| $M_a$ ( $M_{ap}, M_{ay}, M_{ar}$ )           | Allowable static moment (Pitch, Yaw, Roll)       | Nm   | $\beta$   | Allowable static load coefficient | —    |
| $M_e$ ( $M_{ep}, M_{ey}$ )                   | Kinetic moment (Pitch, Yaw)                      | Nm   | $\gamma$  | Allowable moment coefficient      | —    |
| $M_{ea}$ ( $M_{eap}, M_{eay}$ )              | Allowable kinetic moment (Pitch, Yaw)            | Nm   | $\delta$  | Damper coefficient                | —    |
| $M_{max}$ ( $M_{pmax}, M_{ymax}, M_{rmax}$ ) | Max. allowable kinetic moment (Pitch, Yaw, Roll) | Nm   | $K$       | Work mounting coefficient         | —    |
| $V$  | Collision speed                                  | mm/s |           |                                   |      |

- CL
- MLG
- CNA
- CNG
- MNB
- CNS
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- CB
- CV/MVG
- CXW
- CXS
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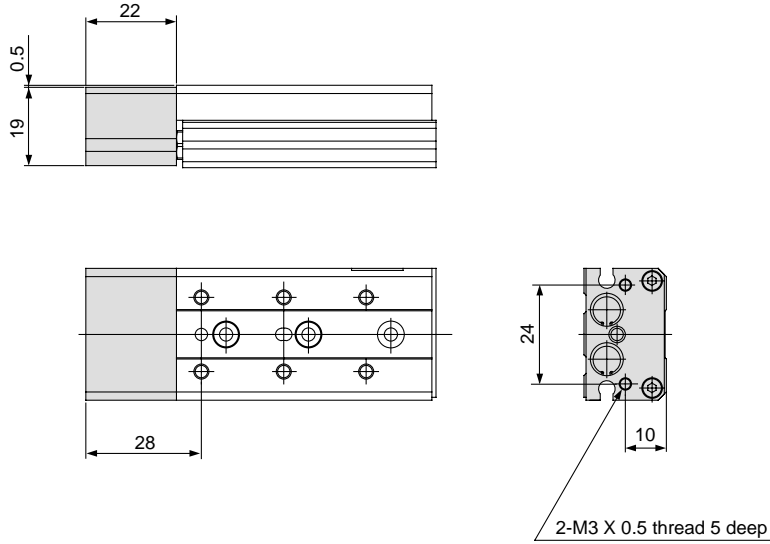
# Dimensions MXS 6

## Basic style



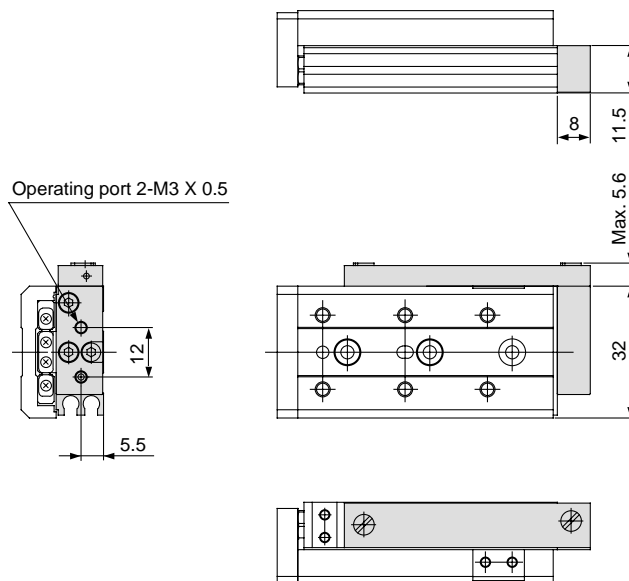
| Model          | F  | N | G  | H  | NN |  |  | I  | J  | K    | M   | Z    | ZZ  |
|----------------|----|---|----|----|----|--|--|----|----|------|-----|------|-----|
| <b>MXS6-10</b> | 20 | 4 | 6  | 25 | 2  |  |  | 10 | 17 | 22.5 | 42  | 41.5 | 48  |
| <b>MXS6-20</b> | 30 | 4 | 6  | 35 | 2  |  |  | 10 | 27 | 32.5 | 52  | 51.5 | 58  |
| <b>MXS6-30</b> | 20 | 6 | 11 | 20 | 3  |  |  | 7  | 40 | 42.5 | 62  | 61.5 | 68  |
| <b>MXS6-40</b> | 28 | 6 | 13 | 30 | 3  |  |  | 19 | 50 | 52.5 | 84  | 83.5 | 90  |
| <b>MXS6-50</b> | 38 | 6 | 17 | 24 | 4  |  |  | 25 | 60 | 62.5 | 100 | 99.5 | 106 |

## With buffer (ø6) MXS6-□□F



\* Dimensions not indicated are the same as the basic style.

## Axial piping (ø6) MXS6-□□P



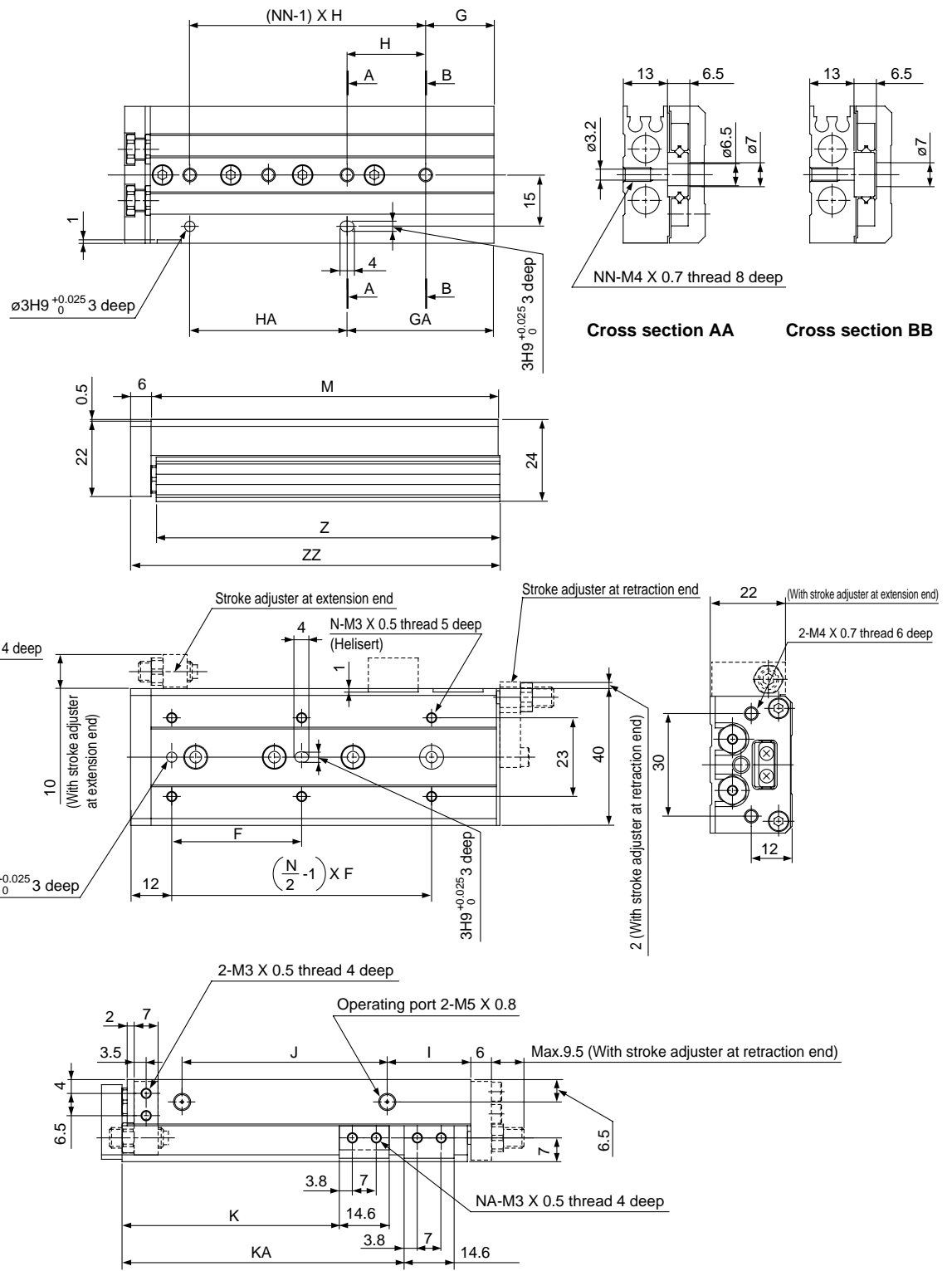
\* Dimensions not indicated are the same as the basic style.

|            |
|------------|
| CL         |
| MLG        |
| CNA        |
| CNG        |
| MNB        |
| CNS        |
| CLS        |
| CB         |
| CV/MVG     |
| CXW        |
| CXS        |
| CXT        |
| MX         |
| MXU        |
| MXH        |
| <b>MXS</b> |
| MXQ        |
| MXF        |
| MXW        |
| MXP        |
| MG         |
| MGP        |
| MGQ        |
| MGG        |
| MGC        |
| MGF        |
| MGZ        |
| CY         |
| MY         |

# Series MXS

## Dimensions MXS 8

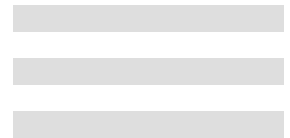
### Basic style



(mm)

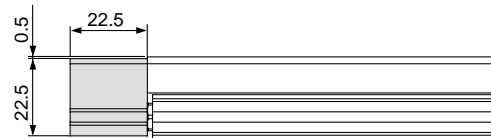
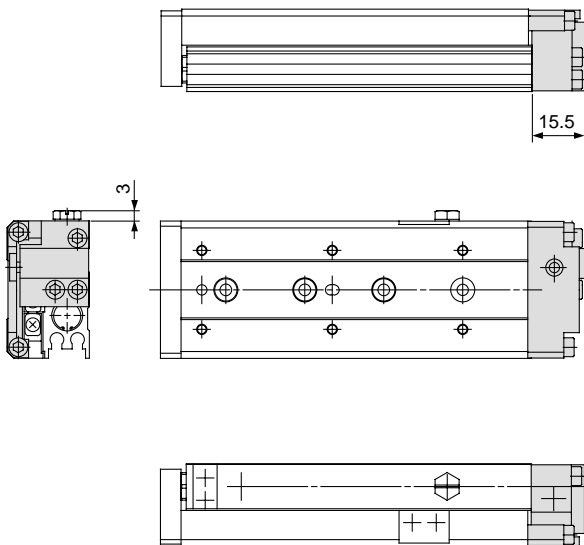
| Model          | F  | N | G  | H  | NN | GA | HA | I    | J    | K    | KA    | NA | M   | Z     | ZZ  |
|----------------|----|---|----|----|----|----|----|------|------|------|-------|----|-----|-------|-----|
| <b>MXS8-10</b> | 25 | 4 | 9  | 28 | 2  | 17 | 20 | 13   | 19.5 | 23.5 | —     | 2  | 49  | 48.5  | 56  |
| <b>MXS8-20</b> | 25 | 4 | 12 | 30 | 2  | 12 | 30 | 8.5  | 29   | 33.5 | —     | 2  | 54  | 53.5  | 61  |
| <b>MXS8-30</b> | 40 | 4 | 13 | 20 | 3  | 33 | 20 | 9.5  | 39   | 43.5 | —     | 2  | 65  | 64.5  | 72  |
| <b>MXS8-40</b> | 50 | 4 | 15 | 28 | 3  | 43 | 28 | 10.5 | 56   | 53.5 | —     | 2  | 83  | 82.5  | 90  |
| <b>MXS8-50</b> | 38 | 6 | 20 | 23 | 4  | 43 | 46 | 24.5 | 60   | 63.5 | 82.5  | 4  | 101 | 100.5 | 108 |
| <b>MXS8-75</b> | 50 | 6 | 27 | 28 | 5  | 83 | 56 | 38.5 | 96   | 88.5 | 132.5 | 4  | 151 | 150.5 | 158 |

**With shock absorber (ø6) MXS8-□□BS, BT, B**



**With end lock (ø8) MXS8-□□R**

**With buffer (ø8) MXS8-□□F**

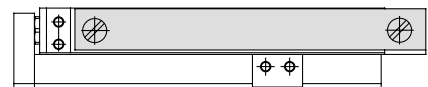


\* Dimensions not indicated are the same as the basic style.

**▲ Axial piping (ø8) MXS8-□□P**

| Model           | J   |
|-----------------|-----|
| <b>MXS8-10R</b> | 39  |
| <b>MXS8-20R</b> | 44  |
| <b>MXS8-30R</b> | 55  |
| <b>MXS8-40R</b> | 73  |
| <b>MXS8-50R</b> | 91  |
| <b>MXS8-75R</b> | 141 |

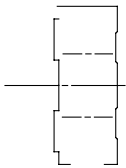
\* Dimensions not indicated are the same as the basic style.



\* Dimensions not indicated are the same as the basic style.

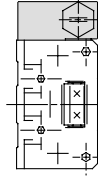
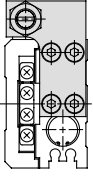
# Dimensions MXS 12

## Basic style



| Model            | F  | N | G  | H  | NN | I  | J   | K     | M   | Z   | ZZ  |
|------------------|----|---|----|----|----|----|-----|-------|-----|-----|-----|
| <b>MXS12-10</b>  | 35 | 4 | 15 | 40 | 2  | 10 | 40  | 26.5  | 71  | 70  | 80  |
| <b>MXS12-20</b>  | 35 | 4 | 15 | 40 | 2  | 10 | 40  | 36.5  | 71  | 70  | 80  |
| <b>MXS12-30</b>  | 35 | 4 | 15 | 40 | 2  | 10 | 40  | 46.5  | 71  | 70  | 80  |
| <b>MXS12-40</b>  | 50 | 4 | 17 | 25 | 3  | 10 | 52  | 56.5  | 83  | 82  | 92  |
| <b>MXS12-50</b>  | 35 | 6 | 15 | 36 | 3  | 22 | 60  | 66.5  | 103 | 102 | 112 |
| <b>MXS12-75</b>  | 55 | 6 | 25 | 36 | 4  | 43 | 85  | 91.5  | 149 | 148 | 158 |
| <b>MXS12-100</b> | 65 | 6 | 35 | 38 | 5  | 52 | 130 | 116.5 | 203 | 202 | 212 |

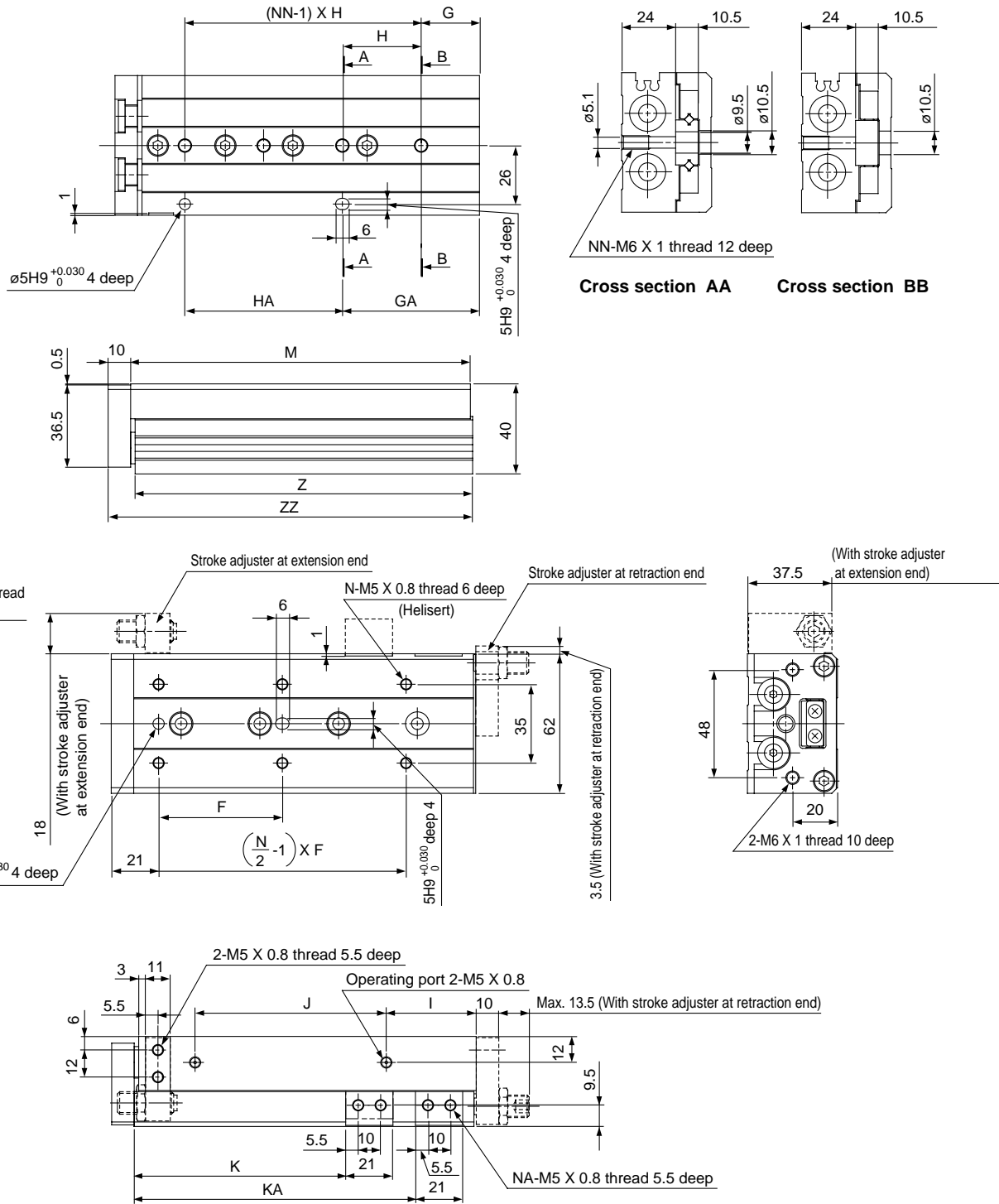




# Series MXS

## Dimensions MXS 16

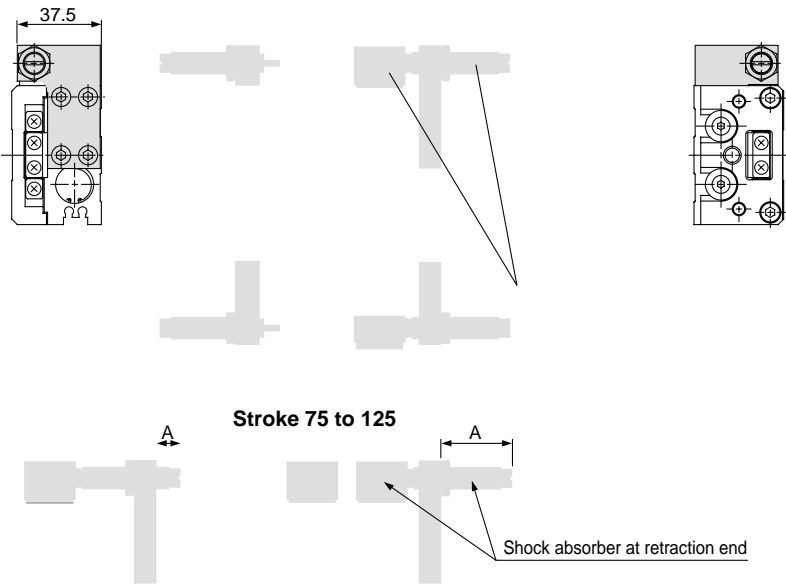
### Basic style



(mm)

| Model            | F  | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z   | ZZ  |
|------------------|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-----|-----|
| <b>MXS16-10</b>  | 35 | 4 | 16 | 40 | 2  | 16  | 40 | 10 | 40  | 29  | —   | 2  | 76  | 75  | 87  |
| <b>MXS16-20</b>  | 35 | 4 | 16 | 40 | 2  | 16  | 40 | 10 | 40  | 39  | —   | 2  | 76  | 75  | 87  |
| <b>MXS16-30</b>  | 35 | 4 | 16 | 40 | 2  | 16  | 40 | 10 | 40  | 49  | —   | 2  | 76  | 75  | 87  |
| <b>MXS16-40</b>  | 40 | 4 | 16 | 50 | 2  | 16  | 50 | 10 | 50  | 59  | —   | 2  | 86  | 85  | 97  |
| <b>MXS16-50</b>  | 30 | 6 | 21 | 30 | 3  | 51  | 30 | 15 | 60  | 69  | —   | 2  | 101 | 100 | 112 |
| <b>MXS16-75</b>  | 55 | 6 | 26 | 35 | 4  | 61  | 70 | 40 | 85  | 94  | 125 | 4  | 151 | 150 | 162 |
| <b>MXS16-100</b> | 65 | 6 | 39 | 35 | 5  | 109 | 70 | 55 | 118 | 119 | 173 | 4  | 199 | 198 | 210 |
| <b>MXS16-125</b> | 70 | 8 | 19 | 35 | 7  | 159 | 70 | 68 | 155 | 144 | 223 | 4  | 249 | 248 | 260 |

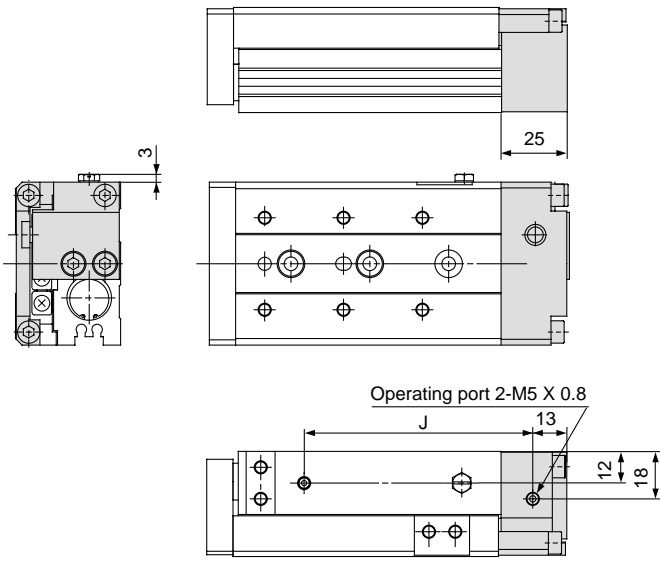
**With shock absorber(ø16) MXS16-□□BS, BT, B**



| Model     | Stroke adjustment range |            | A dimension<br>(Retracted side mounting) |
|-----------|-------------------------|------------|--|
|           | Extending               | Retracting |  |
| MXS16-10  | Max. 25                 | 5          | 11                                       |
| MXS16-20  |                         | 10         | 21                                       |
| MXS16-30  |                         | 20         | 31                                       |
| MXS16-40  |                         | 20         | 31                                       |
| MXS16-50  |                         | 15         | 26                                       |
| MXS16-75  |                         | 20         | 32                                       |
| MXS16-100 |                         | 20         | 32                                       |
| MXS16-125 |                         | 20         | 32                                       |

\* Other dimensions not indicated are the same as the basic style.

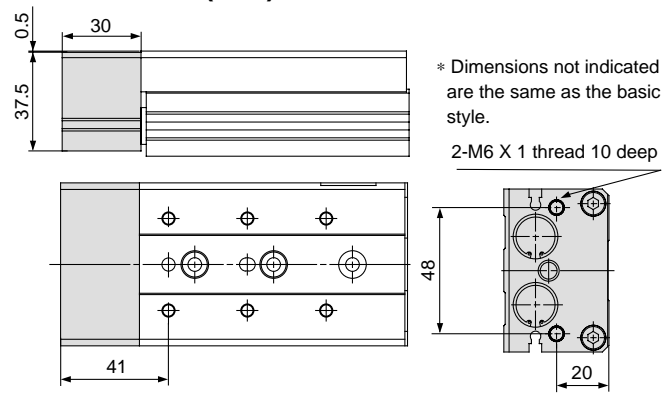
**With end lock(ø16) MXS16-□□R**



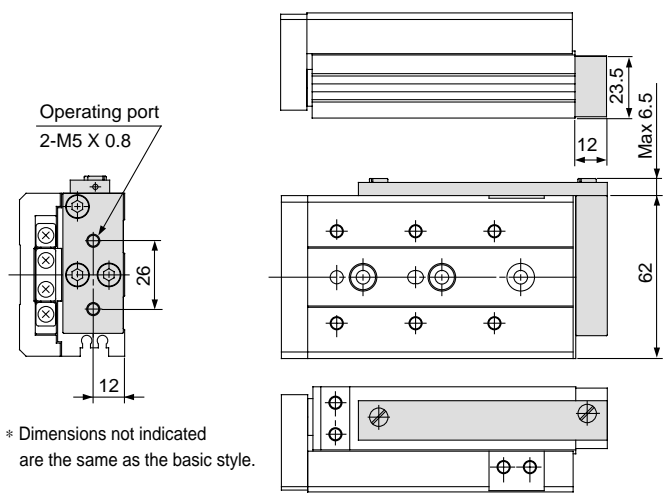
| Model      | J   |
|------------|-----|
| MXS16-10R  | 62  |
| MXS16-20R  | 62  |
| MXS16-30R  | 62  |
| MXS16-40R  | 72  |
| MXS16-50R  | 87  |
| MXS16-75R  | 137 |
| MXS16-100R | 185 |
| MXS16-125R | 235 |

\* Dimensions not indicated are the same as the basic style.

**With buffer(ø16) MXS16-□□F**



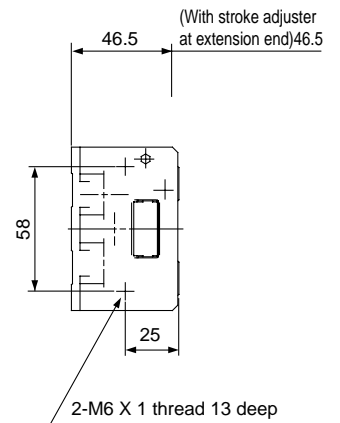
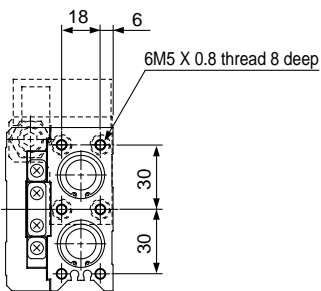
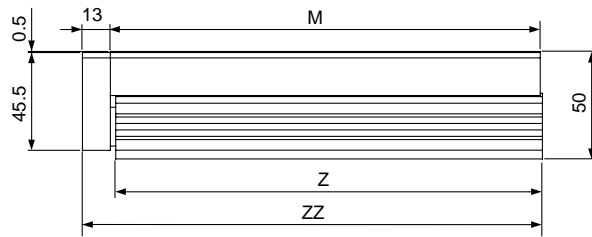
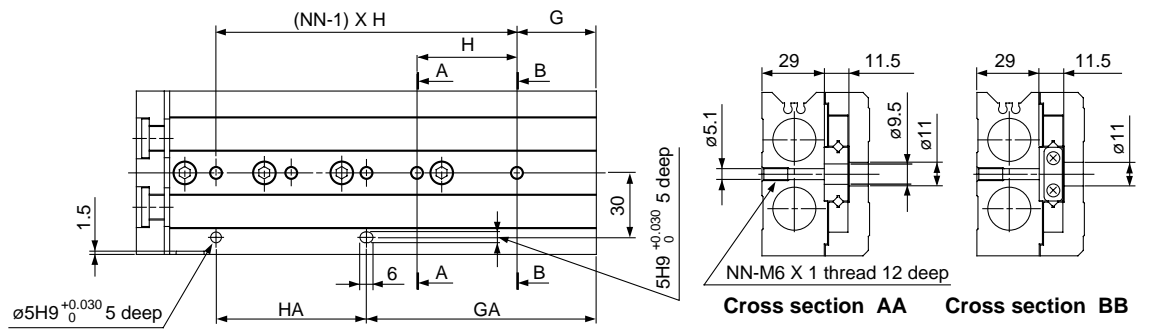
**Axial piping(ø16) MXS16-□□P**



\* Dimensions not indicated are the same as the basic style.

# Dimensions MXS 20

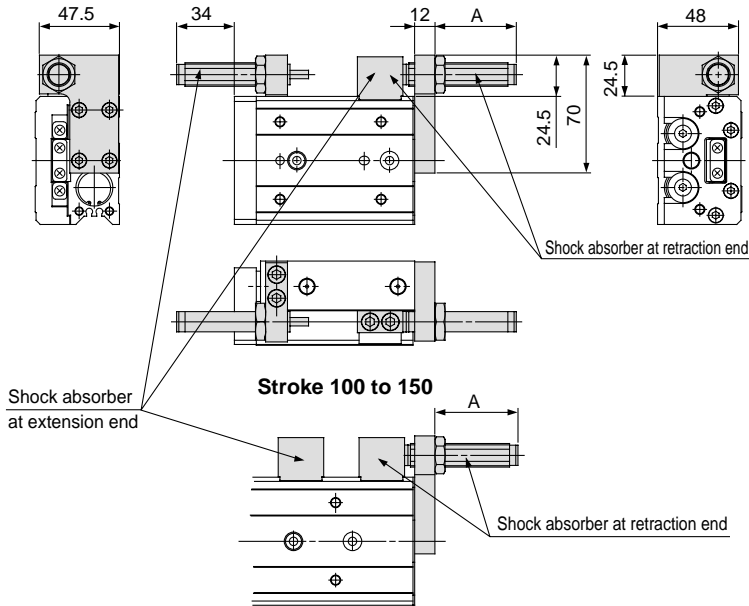
## Basic style



(mm)

| Model     | F  | FF | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z     | ZZ  |
|-----------|----|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-------|-----|
| MXS20-10  | 50 | 40 | 4 | 15 | 45 | 2  | 25  | 35 | 10 | 44  | 31  |     | 2  | 83  | 81.5  | 97  |
| MXS20-20  | 50 | 40 | 4 | 15 | 45 | 2  | 25  | 35 | 10 | 44  | 41  |     | 2  | 83  | 81.5  | 97  |
| MXS20-30  | 50 | 40 | 4 | 15 | 45 | 2  | 25  | 35 | 10 | 44  | 51  |     | 2  | 83  | 81.5  | 97  |
| MXS20-40  | 60 | 50 | 4 | 15 | 55 | 2  | 35  | 35 | 10 | 54  | 61  |     | 2  | 93  | 91.5  | 107 |
| MXS20-50  | 35 | 35 | 6 | 15 | 35 | 3  | 50  | 35 | 10 | 69  | 71  |     | 2  | 108 | 106.5 | 122 |
| MXS20-75  | 60 | 60 | 6 | 19 | 35 | 4  | 54  | 70 | 10 | 108 | 96  |     | 2  | 147 | 145.5 | 161 |
| MXS20-100 | 70 | 70 | 6 | 37 | 35 | 5  | 107 | 70 | 58 | 113 | 121 | 169 | 4  | 200 | 198.5 | 214 |
| MXS20-125 | 70 | 70 | 8 | 41 | 38 | 6  | 155 | 76 | 70 | 155 | 146 | 223 | 4  | 254 | 252.5 | 268 |
| MXS20-150 | 80 | 80 | 8 | 19 | 44 | 7  | 195 | 88 | 87 | 190 | 171 | 275 | 4  | 306 | 304.5 | 320 |

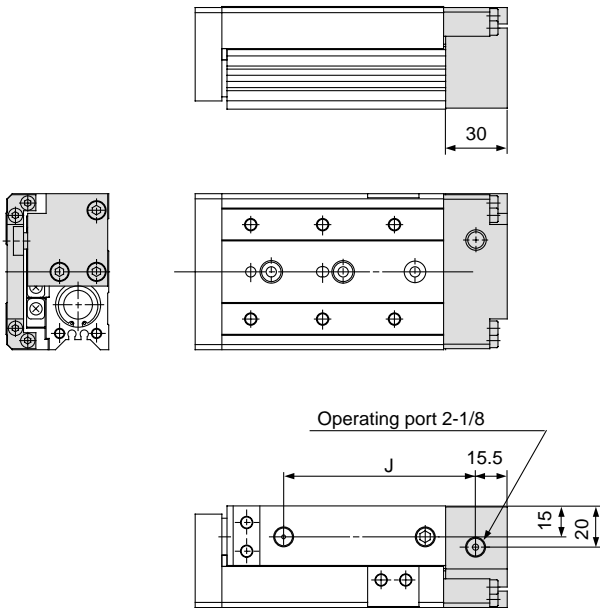
## With shock absorber(ø20) MXS20-□□BS, BT, B



| Model     | Stroke adjustable range |            | A dimension<br>(Retracted side mounting) |
|-----------|-------------------------|------------|--|
|           | Extending               | Retracting |  |
| MXS20-10  | Max. 40                 | 5          | 28                                       |
| MXS20-20  |                         | 15         | 38                                       |
| MXS20-30  |                         | 25         | 48                                       |
| MXS20-40  |                         | 35         | 48                                       |
| MXS20-50  |                         | 30         | 43                                       |
| MXS20-75  |                         | 15         | 29                                       |
| MXS20-100 |                         | 35         | 49                                       |
| MXS20-125 |                         | 35         | 49                                       |
| MXS20-150 |                         | 35         | 49                                       |

\* Dimensions not indicated are the same as the basic style.

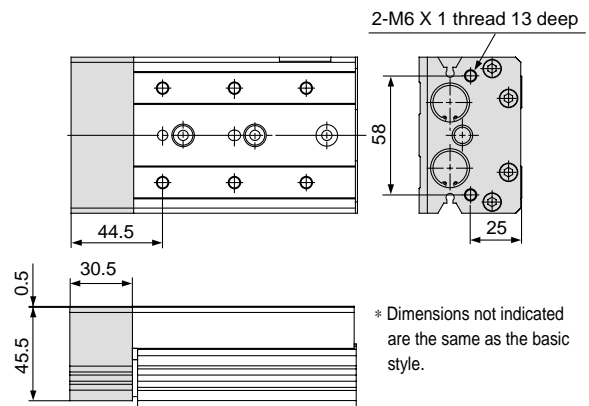
## With end lock(ø20) MXS20-□□R



| Model      | J     |
|------------|-------|
| MXS20-10R  | 68.5  |
| MXS20-20R  | 68.5  |
| MXS20-30R  | 68.5  |
| MXS20-40R  | 78.5  |
| MXS20-50R  | 93.5  |
| MXS20-75R  | 132.5 |
| MXS20-100R | 185.5 |
| MXS20-125R | 239.5 |
| MXS20-150R | 291.5 |

\* Dimensions not indicated are the same as the basic style.

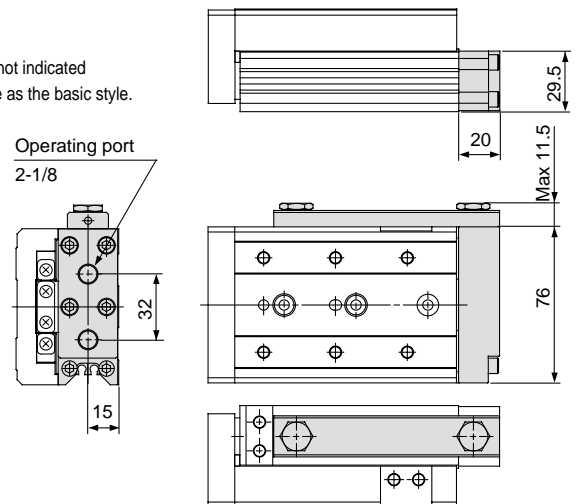
## With buffer(ø20) MXS20-□□F



\* Dimensions not indicated are the same as the basic style.

## Axial piping(ø20) MXS20-□□P

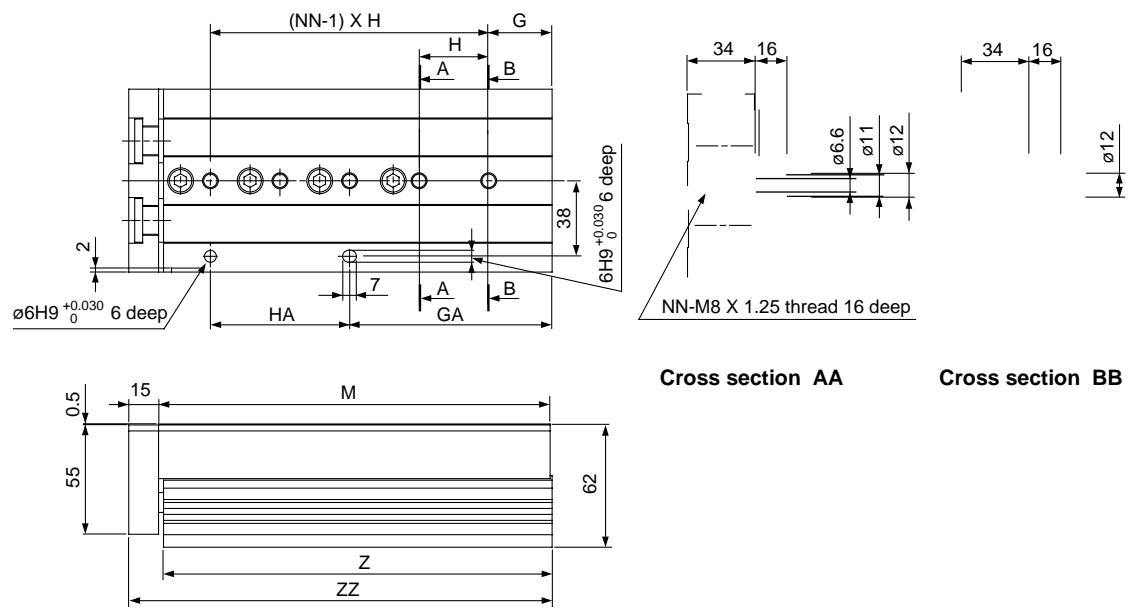
\* Dimensions not indicated are the same as the basic style.



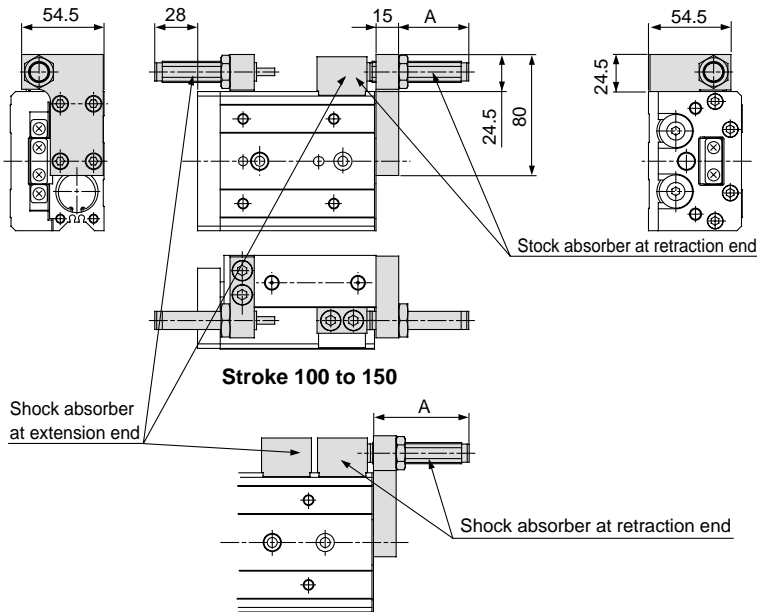
- CL
- MLG
- CNA
- CNG
- MNB
- CNS
- CLS
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXH
- MXS**
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP
- MGQ
- MGG
- MGC
- MGF
- MGZ
- CY
- MY

# Dimensions MXS 25

## Basic style



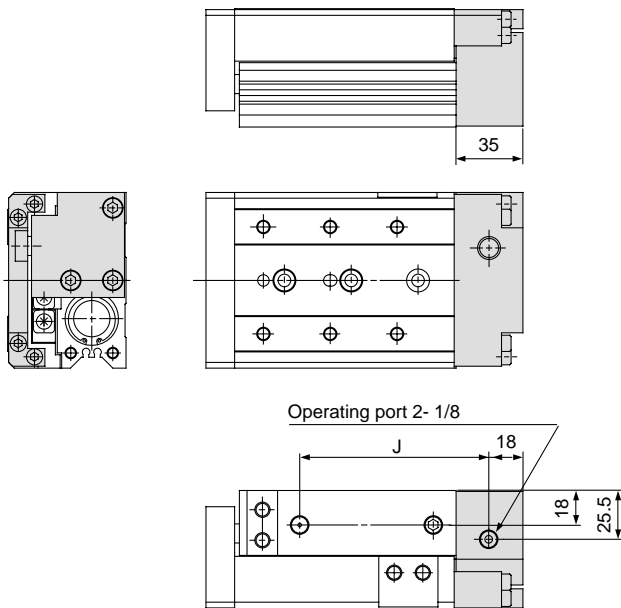
|                  | F  | FF | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z     | ZZ  |
|------------------|----|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-------|-----|
| <b>MXS25-10</b>  | 50 | 40 | 4 | 22 | 45 | 2  | 22  | 45 | 12 | 47  | 35  |     | 2  | 92  | 90.5  | 108 |
| <b>MXS25-20</b>  | 50 | 40 | 4 | 22 | 45 | 2  | 22  | 45 | 12 | 47  | 45  |     | 2  | 92  | 90.5  | 108 |
| <b>MXS25-30</b>  | 50 | 40 | 4 | 22 | 45 | 2  | 22  | 45 | 12 | 47  | 55  |     | 2  | 92  | 90.5  | 108 |
| <b>MXS25-40</b>  | 60 | 50 | 4 | 22 | 55 | 2  | 22  | 55 | 12 | 57  | 65  |     | 2  | 102 | 100.5 | 118 |
| <b>MXS25-50</b>  | 35 | 35 | 6 | 20 | 35 | 3  | 55  | 35 | 12 | 70  | 75  |     | 2  | 115 | 113.5 | 131 |
| <b>MXS25-75</b>  | 60 | 60 | 6 | 26 | 35 | 4  | 61  | 70 | 33 | 90  | 100 |     | 2  | 156 | 154.5 | 172 |
| <b>MXS25-100</b> | 70 | 70 | 6 | 32 | 35 | 5  | 102 | 70 | 50 | 114 | 125 | 162 | 4  | 197 | 195.5 | 213 |
| <b>MXS25-125</b> | 75 | 75 | 8 | 40 | 38 | 6  | 154 | 76 | 67 | 155 | 150 | 218 | 4  | 255 | 253.5 | 271 |
| <b>MXS25-150</b> | 80 | 80 | 8 | 30 | 40 | 7  | 190 | 80 | 82 | 180 | 175 | 258 | 4  | 295 | 293.5 | 311 |



| Model            | Stroke adjustable range |            | A dimension<br>(Retracted side mounting) |
|------------------|-------------------------|------------|--|
|                  | Extending               | Retracting |  |
| <b>MXS25-10</b>  | Max. 35                 | 5          | 26                                       |
| <b>MXS25-20</b>  |                         | 15         | 36                                       |
| <b>MXS25-30</b>  |                         | 25         | 46                                       |
| <b>MXS25-40</b>  |                         | 35         | 46                                       |
| <b>MXS25-50</b>  |                         | 30         | 43                                       |
| <b>MXS25-75</b>  |                         | 15         | 27                                       |
| <b>MXS25-100</b> |                         | 35         | 48                                       |
| <b>MXS25-125</b> |                         | 35         | 46                                       |
| <b>MXS25-150</b> |                         | 35         | 46                                       |

\* Dimensions not indicated are the same as the basic style.

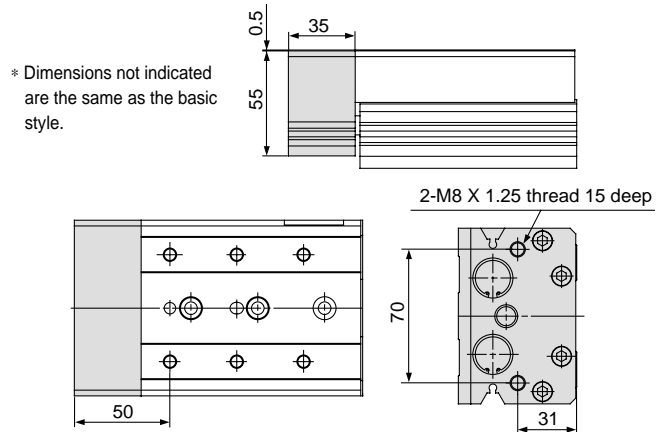
### With end lock(ø25) MXS25-□□R



| Model             | J   |
|-------------------|-----|
| <b>MXS25-10R</b>  | 76  |
| <b>MXS25-20R</b>  | 76  |
| <b>MXS25-30R</b>  | 76  |
| <b>MXS25-40R</b>  | 86  |
| <b>MXS25-50R</b>  | 99  |
| <b>MXS25-75R</b>  | 140 |
| <b>MXS25-100R</b> | 181 |
| <b>MXS25-125R</b> | 239 |
| <b>MXS25-150R</b> | 279 |

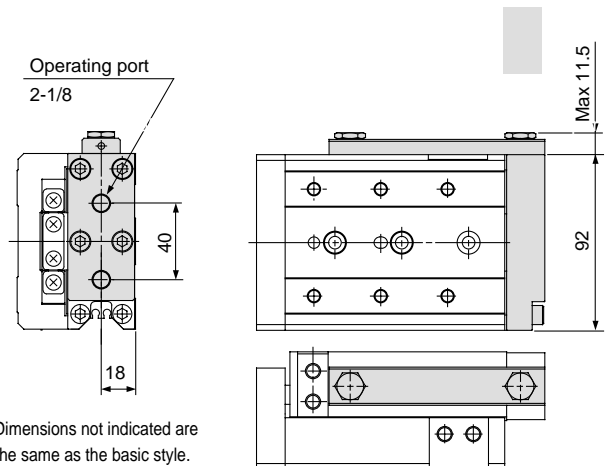
\* Dimensions not indicated are the same as the basic style.

### With buffer(ø25) MXS25-□□F



\* Dimensions not indicated are the same as the basic style.

### Axial piping(ø25) MXS25-□□P



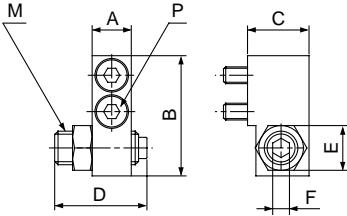
\* Dimensions not indicated are the same as the basic style.

# Series MXS

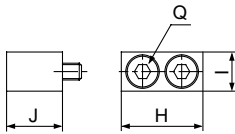
## Option Specifications

### Dimensions of Stroke Adjuster at Extension End

Mounted to body



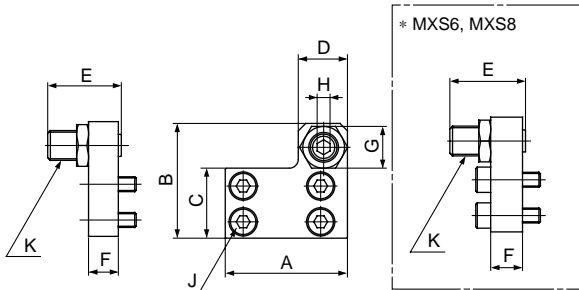
Mounted to table



| Model        | Adjuster Part No. | Adjustable stroke range (mm) | Body mounted |      |      |      |    |     |            |           | Table mounted |    |      |          |
|--------------|-------------------|------------------------------|--------------|------|------|------|----|-----|------------|-----------|---------------|----|------|----------|
|              |                   |                              | A            | B    | C    | D    | E  | F   | M          | P*        | H             | I  | J    | Q*       |
| <b>MXS 6</b> | MXS-AS6           | 5                            | 6            | 17.8 | 10.5 | 16.5 | 7  | 2.5 | M5 X 0.8   | M2.5 X 10 | 12.5          | 6  | 8.5  | M2.5 X 8 |
|              | MXS-AS6-X11       | 15                           |              |      |      | 26.5 |    |     |            |           |               |    |      |          |
| <b>MXS 8</b> | MXS-AS8           | 5                            | 7            | 21.5 | 11   | 16.5 | 8  | 3   | M6 X 1     | M3 X 12   | 14.6          | 7  | 10   | M3 X 10  |
|              | MXS-AS8-X11       | 15                           |              |      |      | 26.5 |    |     |            |           |               |    |      |          |
|              | MXS-AS8-X12       | 25                           |              |      |      | 36.5 |    |     |            |           |               |    |      |          |
| <b>MXS12</b> | MXS-AS12          | 5                            | 9.5          | 31   | 16   | 20   | 12 | 4   | M8 X 1     | M4 X 15   | 18.5          | 10 | 13   | M4 X 12  |
|              | MXS-AS12-X11      | 15                           |              |      |      | 30   |    |     |            |           |               |    |      |          |
|              | MXS-AS12-X12      | 25                           |              |      |      | 40   |    |     |            |           |               |    |      |          |
| <b>MXS16</b> | MXS-AS16          | 5                            | 11           | 37   | 19   | 24.5 | 14 | 5   | M10 X 1    | M5 X 18   | 21            | 12 | 16.5 | M5 X 18  |
|              | MXS-AS16-X11      | 15                           |              |      |      | 34.5 |    |     |            |           |               |    |      |          |
|              | MXS-AS16-X12      | 25                           |              |      |      | 44.5 |    |     |            |           |               |    |      |          |
| <b>MXS20</b> | MXS-AS20          | 5                            | 13           | 45.5 | 24   | 27.5 | 17 | 6   | M12 X 1.25 | M6 X 20   | 25            | 13 | 21   | M6 X 20  |
|              | MXS-AS20-X11      | 15                           |              |      |      | 37.5 |    |     |            |           |               |    |      |          |
|              | MXS-AS20-X12      | 25                           |              |      |      | 47.5 |    |     |            |           |               |    |      |          |
| <b>MXS25</b> | MXS-AS25          | 5                            | 16           | 53.5 | 26.5 | 32.5 | 19 | 6   | M14 X 1.5  | M8 X 25   | 31            | 17 | 25.5 | M8 X 25  |
|              | MXS-AS25-X11      | 15                           |              |      |      | 42.5 |    |     |            |           |               |    |      |          |
|              | MXS-AS25-X12      | 25                           |              |      |      | 52.5 |    |     |            |           |               |    |      |          |

\* Size of hexagon socket head cap screws

### Dimensions of Stroke Adjuster at Retraction End



| Model        | Adjuster Part No. | Adjustable stroke range (mm) | A  | B    | C    | D  | E    | F  | G  | H   | J*       | K          |
|--------------|-------------------|------------------------------|----|------|------|----|------|----|----|-----|----------|------------|
| <b>MXS 6</b> | MXS-AT6           | 5                            | 21 | 19   | 10.5 | 8  | 16.5 | 5  | 7  | 2.5 | M2.5 X 8 | M5 X 0.8   |
|              | MXS-AT6-X11       | 15                           |    |      |      |    | 26.5 |    |    |     |          |            |
| <b>MXS 8</b> | MXS-AT8           | 5                            | 25 | 22.5 | 12.5 | 9  | 16.5 | 6  | 8  | 3   | M3 X 10  | M6 X 1     |
|              | MXS-AT8-X11       | 15                           |    |      |      |    | 26.5 |    |    |     |          |            |
|              | MXS-AT8-X12       | 25                           |    |      |      |    | 36.5 |    |    |     |          |            |
| <b>MXS12</b> | MXS-AT12          | 5                            | 32 | 31   | 18.5 | 13 | 20   | 8  | 12 | 4   | M4 X 8   | M8 X 1     |
|              | MXS-AT12-X11      | 15                           |    |      |      |    | 30   |    |    |     |          |            |
|              | MXS-AT12-X12      | 25                           |    |      |      |    | 40   |    |    |     |          |            |
| <b>MXS16</b> | MXS-AT16          | 5                            | 40 | 38.5 | 23   | 15 | 24.5 | 10 | 14 | 5   | M5 X 10  | M10 X 1    |
|              | MXS-AT16-X11      | 15                           |    |      |      |    | 34.5 |    |    |     |          |            |
|              | MXS-AT16-X12      | 25                           |    |      |      |    | 44.5 |    |    |     |          |            |
| <b>MXS20</b> | MXS-AT20          | 5                            | 50 | 48   | 29   | 21 | 27.5 | 12 | 17 | 6   | M5 X 12  | M12 X 1.25 |
|              | MXS-AT20-X11      | 15                           |    |      |      |    | 37.5 |    |    |     |          |            |
|              | MXS-AT20-X12      | 25                           |    |      |      |    | 47.5 |    |    |     |          |            |
| <b>MXS25</b> | MXS-AT25          | 5                            | 60 | 58   | 35   | 23 | 32.5 | 15 | 19 | 6   | M6 X 16  | M14 X 1.5  |
|              | MXS-AT25-X11      | 15                           |    |      |      |    | 42.5 |    |    |     |          |            |
|              | MXS-AT25-X12      | 25                           |    |      |      |    | 52.5 |    |    |     |          |            |

\* Size of hexagon socket head cap screws

### How to Order Stroke Adjuster (Options)

MXS — AS 12 L — X11

**Stroke adjuster**

|           |                 |                |
|-----------|-----------------|----------------|
| <b>AS</b> | Stroke adjuster | Extension end  |
| <b>AT</b> | Stroke adjuster | Retraction end |
| <b>BS</b> | Shock absorber  | Extension end  |
| <b>BT</b> | Shock absorber  | Retraction end |

**Bore**

|           |     |
|-----------|-----|
| <b>6</b>  | ø6  |
| <b>8</b>  | ø8  |
| <b>12</b> | ø12 |
| <b>16</b> | ø16 |
| <b>20</b> | ø20 |
| <b>25</b> | ø25 |

**Symmetric style**

|          |           |
|----------|-----------|
| —        | Standard  |
| <b>L</b> | Symmetric |

**Adjustable range (Stroke adjuster only)**

|             |      |          |
|-------------|------|----------|
| —           | 5mm  | Standard |
| <b>-X11</b> | 15mm | Option   |
| <b>-X12</b> | 25mm |          |

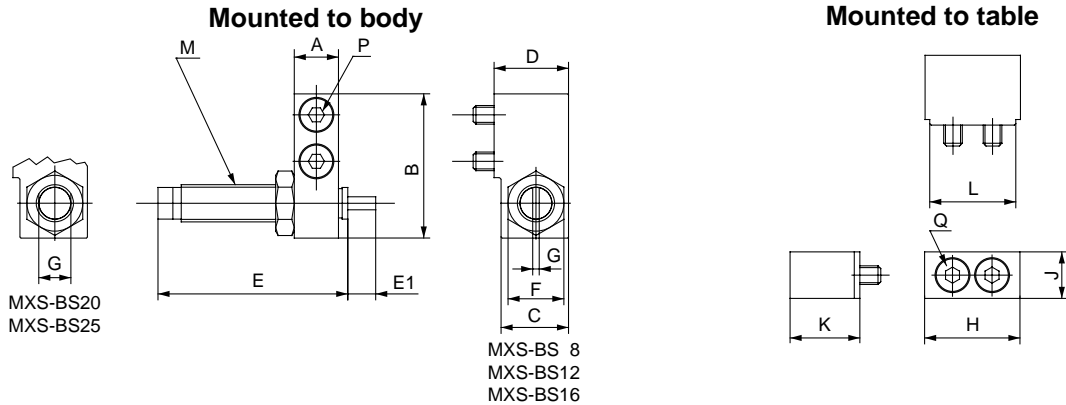
- \* -X12 (adjustable range: 25mm) is not available for MXS6.
- \* -X11 and -X12 are not available for shock absorber type.
- \* Shock absorber is not available on series MXS6.
- \* -X11 and -X12 adjusters cannot be ordered assembled with MXS.
- \* Refer to the above figures for the dimensions.



## Option Specifications

### Dimensions of Adjuster Option/With Shock Absorber (BS, BT)

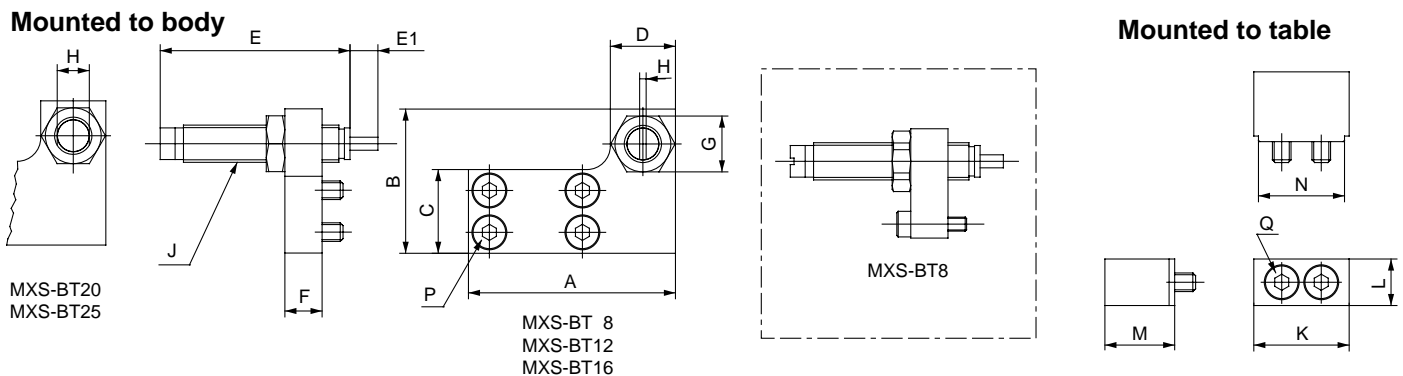
#### Extension End



| Model        | Adjuster Part No. | Mounted to body |      |      |      |      |    |    |     |           |         | Mounted to table |    |      |      |         |
|--------------|-------------------|-----------------|------|------|------|------|----|----|-----|-----------|---------|------------------|----|------|------|---------|
|              |                   | A               | B    | C    | D    | E    | E1 | F  | G   | M         | P*      | H                | J  | K    | L    | Q*      |
| <b>MXS 8</b> | MXS-BS 8          | 7               | 23   | 14   | 15.5 | 40.8 | 5  | 12 | 1.4 | M8 X 1    | M3 X 16 | 16.6             | 7  | 15.5 | 14.6 | M3 X 16 |
| <b>MXS12</b> | MXS-BS12          | 9.5             | 31   | 14.5 | 16   | 40.8 | 6  | 12 | 1.4 | M8 X 1    | M4 X 15 | 20.5             | 10 | 15   | 18.5 | M4 X 15 |
| <b>MXS16</b> | MXS-BS16          | 11              | 37   | 17.5 | 19   | 46.7 | 7  | 14 | 1.4 | M10 X 1   | M5 X 18 | 23               | 12 | 18.5 | 21   | M5 X 18 |
| <b>MXS20</b> | MXS-BS20          | 13              | 47   | 23.5 | 26   | 67.3 | 11 | 19 | 12  | M14 X 1.5 | M6 X 25 | 27               | 13 | 25.5 | 25   | M6 X 25 |
| <b>MXS25</b> | MXS-BS25          | 16              | 53.5 | 23.5 | 26.5 | 67.3 | 12 | 19 | 12  | M14 X 1.5 | M8 X 25 | 33               | 17 | 25.5 | 31   | M8 X 25 |

\* Size of hexagon socket head cap screw

#### Retraction End



| Model        | Adjuster Part No. | Mounted to body |    |      |    |      |    |    |    |     |           |                  | Mounted to table |    |      |      |         |
|--------------|-------------------|-----------------|----|------|----|------|----|----|----|-----|-----------|------------------|------------------|----|------|------|---------|
|              |                   | A               | B  | C    | D  | E    | E1 | F  | G  | H   | J         | P <sup>*1)</sup> | K                | L  | M    | N    | Q*      |
| <b>MXS 8</b> | MXS-BT 8          | 38              | 23 | 12.5 | 14 | 40.8 | 5  | 8  | 12 | 1.4 | M8 X 1    | M3 X 12          | 16.6             | 7  | 15.5 | 14.6 | M3 X 16 |
| <b>MXS12</b> | MXS-BT12          | 45              | 31 | 18   | 14 | 40.8 | 6  | 8  | 12 | 1.4 | M8 X 1    | M4 X 8           | 20.5             | 10 | 15   | 18.5 | M4 X 15 |
| <b>MXS16</b> | MXS-BT16          | 55              | 37 | 23.5 | 16 | 46.7 | 7  | 10 | 14 | 1.4 | M10 X 1   | M5 X 10          | 23               | 12 | 18.5 | 21   | M5 X 18 |
| <b>MXS20</b> | MXS-BT20          | 70              | 47 | 29   | 23 | 67.3 | 11 | 12 | 19 | 12  | M14 X 1.5 | M5 X 12          | 27               | 13 | 25.5 | 25   | M6 X 25 |
| <b>MXS25</b> | MXS-BT25          | 80              | 54 | 35   | 23 | 67.3 | 12 | 15 | 19 | 12  | M14 X 1.5 | M6 X 16          | 33               | 17 | 25.5 | 31   | M8 X 25 |

\* Size of hexagon socket head cap screw

- CL
- MLG
- CNA
- CNG
- MNB
- CNS
- CLS
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXH
- MXS**
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP
- MGQ
- MGG
- MGC
- MGF
- MGZ
- CY
- MY

# Series MXS

## Shock Absorber Specifications

| Shock absorber part No.              | RB0805    | RB0806 | RB1007 | RB1411 | RB1412 |       |
|--------------------------------------|-----------|--------|--------|--------|--------|-------|
| Applicable slide table               | MXS8      | MXS12  | MXS16  | MXS20  | MXS25  |       |
| Max. absorbing energy (J)            | 0.98      | 2.94   | 5.88   | 14.7   | 19.6   |       |
| Absorbing stroke (mm)                | 5         | 6      | 7      | 11     | 12     |       |
| Max. collision speed (mm/s)          | 50 to 500 |        |        |        |        |       |
| Max. operating frequency (cycle/min) | 80        | 80     | 70     | 45     | 45     |       |
| Max. allowable thrust (N)            | 245       | 245    | 422    | 814    | 814    |       |
| Ambient and fluid temperature (°C)   | -10 to 60 |        |        |        |        |       |
| Spring force (N)                     | Extended  | 1.96   | 1.96   | 4.22   | 6.86   | 6.86  |
|                                      | Retracted | 3.83   | 4.22   | 6.86   | 15.30  | 15.98 |
| Weight (g)                           | 15        | 15     | 25     | 65     | 65     |       |

## End Lock Specifications

| Model                 | MXS8          | MXS12 | MXS16 | MXS20 | MXS25 |
|-----------------------|---------------|-------|-------|-------|-------|
| Bore size (mm)        | 8             | 12    | 16    | 20    | 25    |
| Operating speed range | 50 to 500mm/s |       |       |       |       |
| Holding force (N)     | 25            | 60    | 110   | 160   | 250   |

Note) Refer to p.3.16-5 for cautions on end lock.

## Buffer Specifications

| Model                  | MXS6  | MXS8 | MXS12 | MXS16 | MXS20 | MXS25 |    |
|------------------------|---|------|-------|-------|-------|-------|----|
| Bore size (mm)         | 6   | 8    | 12    | 16    | 20    | 25    |    |
| Piston speed           | 50 to 500mm/s (Horizontal mounting 50 to 300mm/s) |      |       |       |       |       |    |
| Buffer stroke (mm)     | 5   |      |       | 10    |       |       |    |
| Buffer stroke load (N) | At 0mm stroke                                     | 3    | 5     | 10    | 13    | 17    | 21 |
|                        | At max. stroke                                    | 6    | 8     | 13    | 17    | 25    | 29 |



Note) Refer to p.3.16-5 for cautions on buffer.

Note) If stroke is adjusted with the stroke adjuster at extension end, the buffer stroke is shortened by the adjusted length.

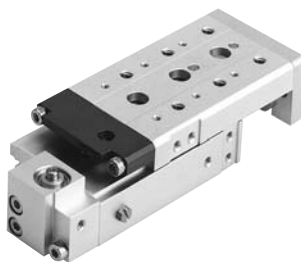
## Applicable Auto Switches to Buffer

| Style              | Part No. | Specifications                  | Electrical entry |
|--------------------|----------|---------------------------------|------------------|
| Solid state switch | D-F9BV   | With light, 2 wire              | Perpendicular    |
|                    | D-F9NV   | With light, 3 wire, Output: NPN |                  |
|                    | D-F9PV   | With light, 3 wire, Output: PNP |                  |

\* The auto switch for buffer must be ordered separately.

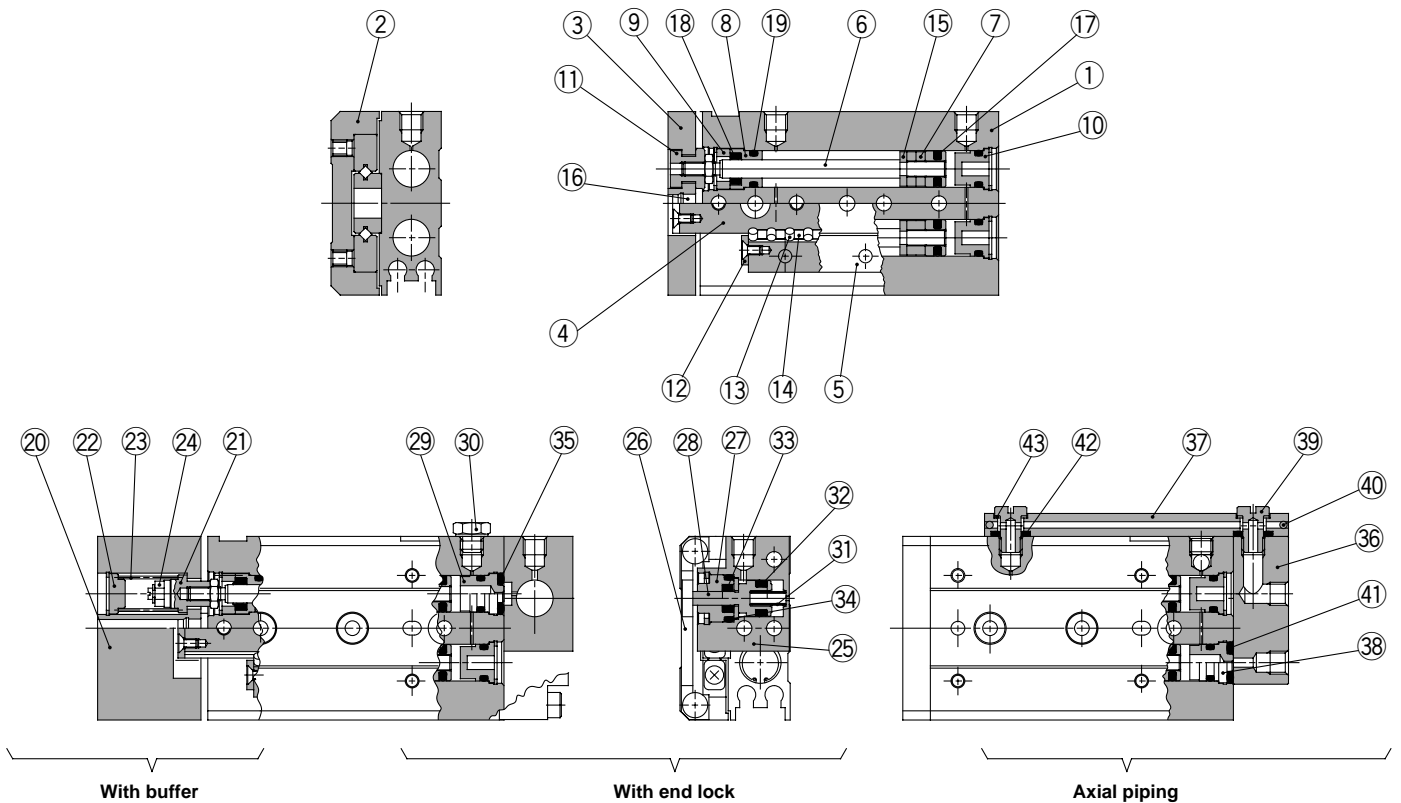


With buffer



With end lock

## Construction



### Component Parts

| No. | Description        | Material                           | Note                      |
|-----|--------------------|------------------------------------|---------------------------|
| ①   | Body               | Aluminum alloy                     | Hard anodized             |
| ②   | Table              | Aluminum alloy                     | Hard anodized             |
| ③   | End plate          | Aluminum alloy                     | Hard anodized             |
| ④   | Rail               | Carbon tool steel                  | Heat treatment            |
| ⑤   | Guide              | Carbon tool steel                  | Heat treatment            |
| ⑥   | Rod                | Stainless steel                    |                           |
| ⑦   | Piston assembly    |                                    | With one side magnet      |
| ⑧   | Rod cover          | Aluminum alloy                     | Anodized                  |
| ⑨   | Seal support       | Brass                              | Electroless nickel plated |
| ⑩   | Head cap           | Resin                              |                           |
| ⑪   | Floating bushing   | Stainless steel                    |                           |
| ⑫   | Roller stopper     | Stainless steel                    |                           |
| ⑬   | Cylindrical roller | High carbon chromium bearing steel |                           |
| ⑭   | Roller spacer      | Resin                              |                           |
| ⑮   | Rod bumper         | Polyurethane                       |                           |
| ⑯   | End bumper         | Polyurethane                       |                           |
| ⑰   | Piston seal        | NBR                                |                           |
| ⑱   | Rod seal           | NBR                                |                           |
| ⑲   | O ring             | NBR                                |                           |

### Component Parts/With buffer

| No. | Description   | Material        | Note          |
|-----|---------------|-----------------|---------------|
| ⑳   | End plate     | Aluminum alloy  | Hard anodized |
| ㉑   | Spring collar | Stainless steel |               |
| ㉒   | Head cap      | Stainless steel |               |
| ㉓   | Spring        | Stainless steel |               |
| ㉔   | Magnet        | Rare earth      |               |

### Replacement Parts: Seal Kits

| Bore (mm) | Kit No.  | Contents                  |
|-----------|----------|---------------------------|
| 6         | MXS6-PS  | 1 set including<br>⑰ to ⑲ |
| 8         | MXS8-PS  |                           |
| 12        | MXS12-PS |                           |
| 16        | MXS16-PS |                           |
| 20        | MXS20-PS |                           |
| 25        | MXS25-PS |                           |

### Replacement Parts: Seal Kits for End Lock Model

| Bore (mm) | Kit No.   | Contents                                 |
|-----------|-----------|--|
| 8         | MXS8R-PS  | 1 set including<br>⑰ to ⑲<br>&<br>⑳ to ㉓ |
| 12        | MXS12R-PS |  |
| 16        | MXS16R-PS |  |
| 20        | MXS20R-PS |  |
| 25        | MXS25R-PS |  |

### Replacement Parts: Seal kits for Axial Piping Model

| Bore (mm) | Kit No.   | Contents                                 |
|-----------|-----------|--|
| 6         | MXS6P-PS  | 1 set including<br>⑰ to ⑲<br>&<br>㉔ to ㉗ |
| 8         | MXS8P-PS  |  |
| 12        | MXS12P-PS |  |
| 16        | MXS16P-PS |  |
| 20        | MXS20P-PS |  |
| 25        | MXS25P-PS |  |

### Component Parts/With end lock

| No. | Description   | Material        | Note                      |
|-----|---------------|-----------------|---------------------------|
| ㉕   | Body for lock | Aluminum alloy  | Hard anodized             |
| ㉖   | Table support | Carbon steel    | Anticorrosive treatment   |
| ㉗   | Rod cover     | Aluminum alloy  |                           |
| ㉘   | Piston rod    | Stainless steel |                           |
| ㉙   | Bushing       | Aluminum alloy  | Chromated                 |
| ㉚   | Blanking plug | Brass           | Electroless nickel plated |
| ㉛   | Return spring | Stainless steel |                           |
| ㉜   | Piston seal   | NBR             |                           |
| ㉝   | Rod seal      | NBR             |                           |
| ㉞   | O ring        | NBR             |                           |
| ㉟   | O ring        | NBR             |                           |

### Component Parts/Axial piping

| No. | Description             | Material        | Note                      |
|-----|-------------------------|-----------------|---------------------------|
| ㉞   | Axial side piping plate | Aluminum alloy  | Hard anodized             |
| ㉟   | Pipe                    | Aluminum alloy  | Hard anodized             |
| ㊱   | Bushing                 | Aluminum alloy  | Chromated                 |
| ㊲   | Stud                    | Brass           | Electroless nickel plated |
| ㊳   | Steel ball              | Stainless steel |                           |
| ㊴   | O ring                  | NBR             |                           |
| ㊵   | O ring                  | NBR             |                           |
| ㊶   | Gasket                  |                 |                           |

\* The parts indicated with the numbers in the list below are included in a seal kit. Specify the order numbers in compliance with respective cylinder bore size.

CL  
MLG  
CNA  
CNG  
MNB  
CNS  
CLS  
CB  
CV/MVG  
CXW  
CXS  
CXT  
MX  
MXU  
MXH  
MXS  
MXQ  
MXF  
MXW  
MXP  
MG  
MGP  
MGQ  
MGG  
MGC  
MGF  
MGZ  
CY  
MY

# Air Slide Table (Symmetric Style) Series **MXS□L**

## How to Order

Air slide table

**MXS 12 L — 50 AS — F9N S**

• Symmetric style

• Number of auto switches

|          |   |
|----------|---|
| —        | 2 |
| <b>S</b> | 1 |
| <b>n</b> | n |

• Bore size (Stroke: mm)

|           |                                       |
|-----------|---------------------------------------|
| <b>6</b>  | 10, 20, 30, 40, 50                    |
| <b>8</b>  | 10, 20, 30, 40, 50, 75                |
| <b>12</b> | 10, 20, 30, 40, 50, 75, 100           |
| <b>16</b> | 10, 20, 30, 40, 50, 75, 100, 125      |
| <b>20</b> | 10, 20, 30, 40, 50, 75, 100, 125, 150 |
| <b>25</b> | 10, 20, 30, 40, 50, 75, 100, 125, 150 |

• Auto switch

|   |                     |
|---|---------------------|
| — | Without auto switch |
|---|---------------------|

\*Refer to below table for parts No. of auto switch.

• Stroke adjuster option

|                         |                            |
|-------------------------|----------------------------|
| —                       | Without adjuster           |
| <b>AS</b>               | Adjuster at extension end  |
| <b>AT</b>               | Adjuster at retraction end |
| <b>A</b>                | Adjuster at both ends      |
| <b>BS<sup>(1)</sup></b> | Absorber at extension end  |
| <b>BT<sup>(1)</sup></b> | Absorber at retraction end |
| <b>B<sup>(1)</sup></b>  | Absorber at both ends      |

Note 1) Shock absorber is not available for MXS6L.  
Note 2) Functional option is not available for MXS□□L.

**Applicable Auto Switches**/Refer to p.5.3-2 for further information on auto switch.

| Style              | Special function                 | Electrical entry | Indicator | Wiring (Output)    | Load voltage |         |              | Auto switch model |            | Lead wire (m) |       | Load       | Specification details |            |
|--------------------|----------------------------------|------------------|-----------|--------------------|--------------|---------|--------------|-------------------|------------|---------------|-------|------------|-----------------------|------------|
|                    |                                  |                  |           |                    | DC           |         | AC           | Electrical entry  |            | 0.5 (—)       | 3 (L) |            |                       |            |
|                    |                                  |                  |           |                    | 24V          | 5V, 12V | 100V or less | Perpendicular     | In-line    |               |       |            |                       |            |
| Reed switch        | —                                | Grommet          | No        | 2 wire             | 24V          | 5V, 12V | 100V or less | <b>A90V</b>       | <b>A90</b> | ●             | ●     | IC circuit | P.5.3-19              |            |
|                    |                                  |                  | Yes       | 3 wire(Equiv. NPN) | —            | 5V      | —            | <b>A93V</b>       | <b>A93</b> | ●             | ●     | —          |                       | Relay, PLC |
|                    |                                  |                  |           | 3 wire(NPN)        | —            | —       | —            | <b>A96V</b>       | <b>A96</b> | ●             | ●     | IC circuit |                       | —          |
| Solid state switch | Diagnostic indication (2 colour) | Grommet          | Yes       | 3 wire(NPN)        | 24V          | 12V     | —            | <b>F9NV</b>       | <b>F9N</b> | ●             | ●     | —          | Relay, PLC            | P.5.3-39   |
|                    |                                  |                  |           | 3 wire(PNP)        |              |         |              | <b>F9PV</b>       | <b>F9P</b> | ●             | ●     |            |                       |            |
|                    |                                  |                  |           | 2 wire             |              |         |              | <b>F9BV</b>       | <b>F9B</b> | ●             | ●     |            |                       |            |
|                    | 3 wire(NPN)                      |                  |           | <b>F9NWV</b>       |              |         |              | <b>F9NW</b>       | ●          | ●             |       |            |                       |            |
|                    | 3 wire(PNP)                      |                  |           | <b>F9PWV</b>       |              |         |              | <b>F9PW</b>       | ●          | ●             |       |            |                       |            |
|                    | 2 wire                           |                  |           | <b>F9BWV</b>       |              |         |              | <b>F9BW</b>       | ●          | ●             |       |            |                       |            |
| —                  | —                                | Grommet          | Yes       | 3 wire(NPN)        | 24V          | 12V     | —            | <b>F9NV</b>       | <b>F9N</b> | ●             | ●     | —          | Relay, PLC            | P.5.3-66   |
| 3 wire(PNP)        |                                  |                  |           | <b>F9PV</b>        |              |         |              | <b>F9P</b>        | ●          | ●             |       |            |                       |            |
| 2 wire             |                                  |                  |           | <b>F9BV</b>        |              |         |              | <b>F9B</b>        | ●          | ●             |       |            |                       |            |

\*Lead wire length 0.5m..... — (Ex.) A93  
3m..... L A93L

PLC: Programmable Logic Controller

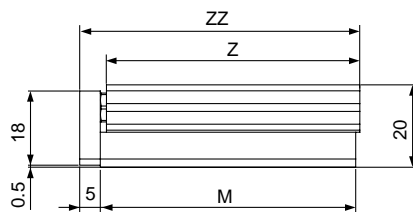
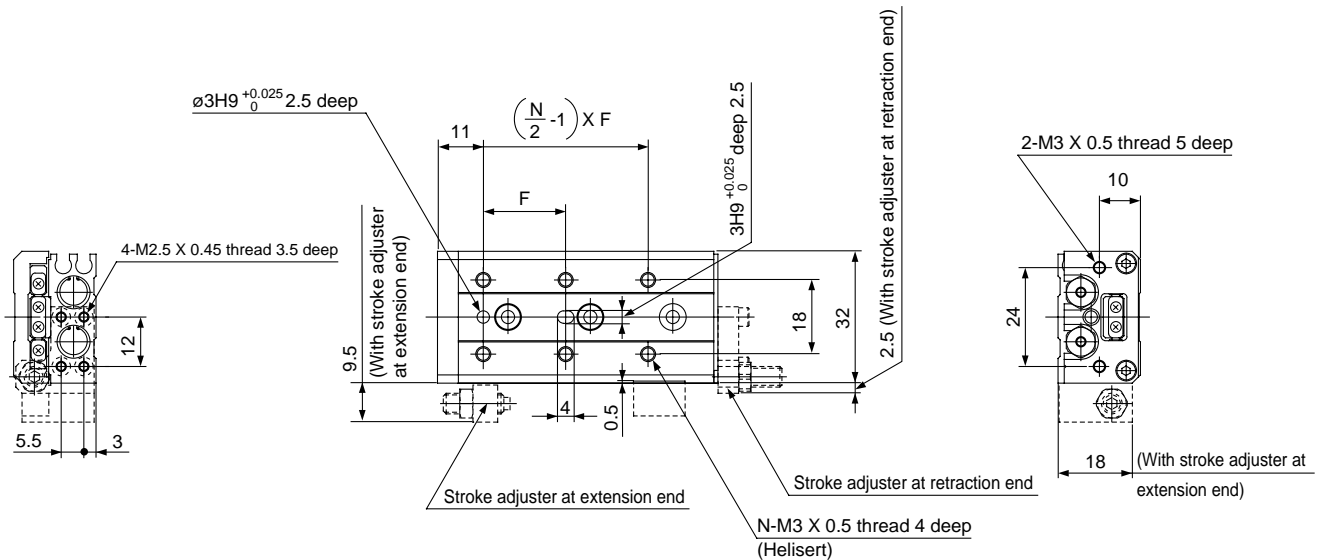
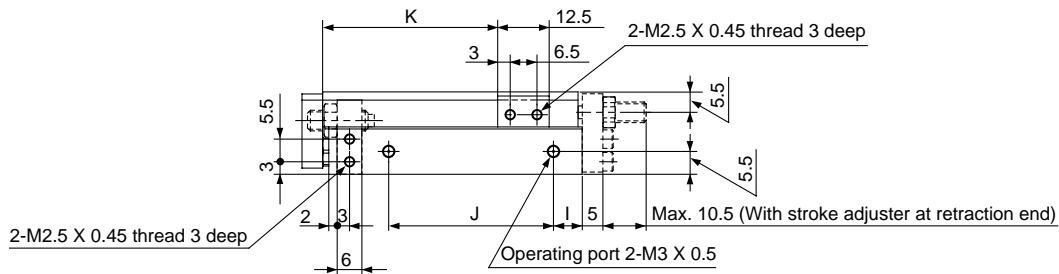
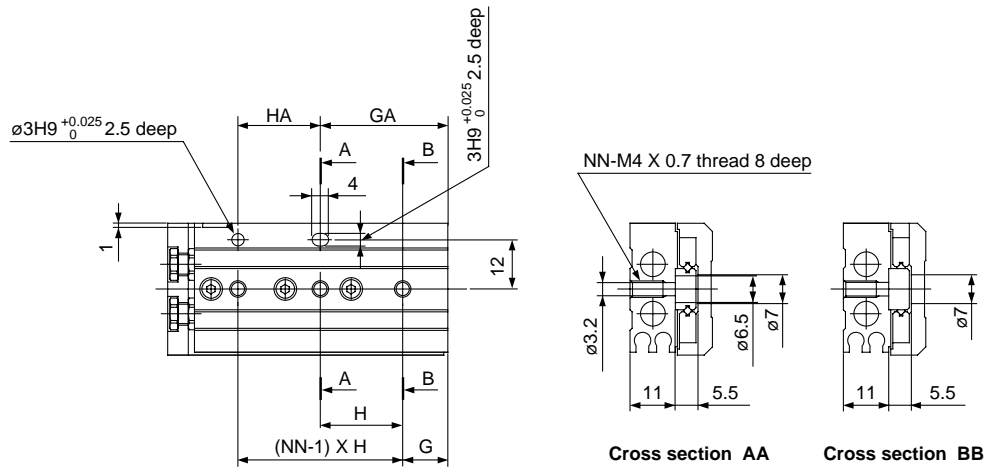
## Specifications

Specifications are same as the standard style. Refer to p.3.16-7



## Dimensions **MXS 6L**/Symmetric style

### Basic style



(mm)

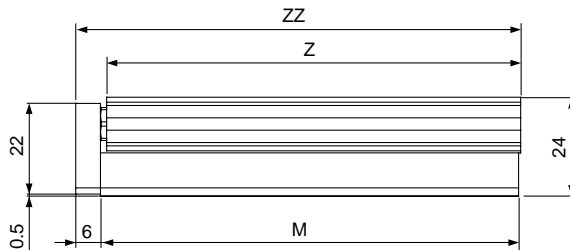
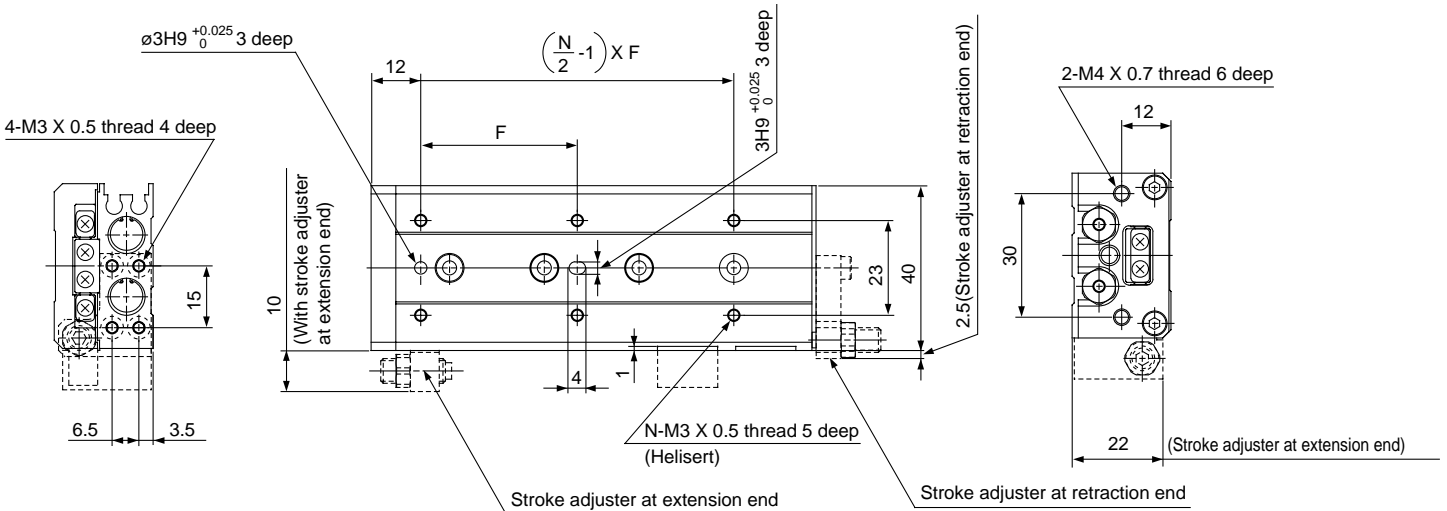
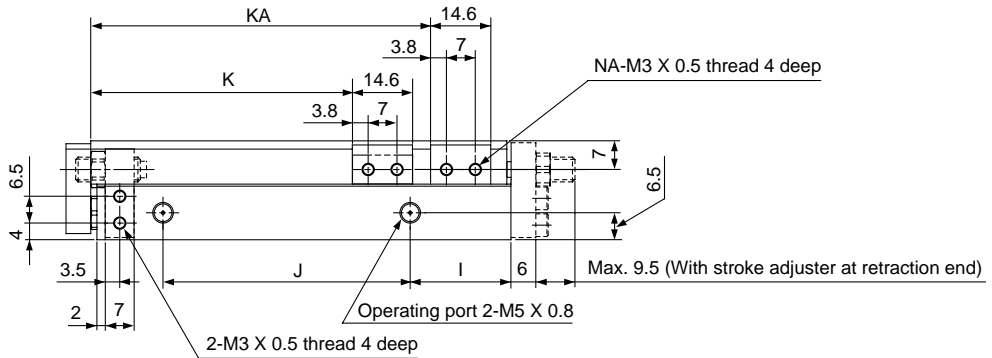
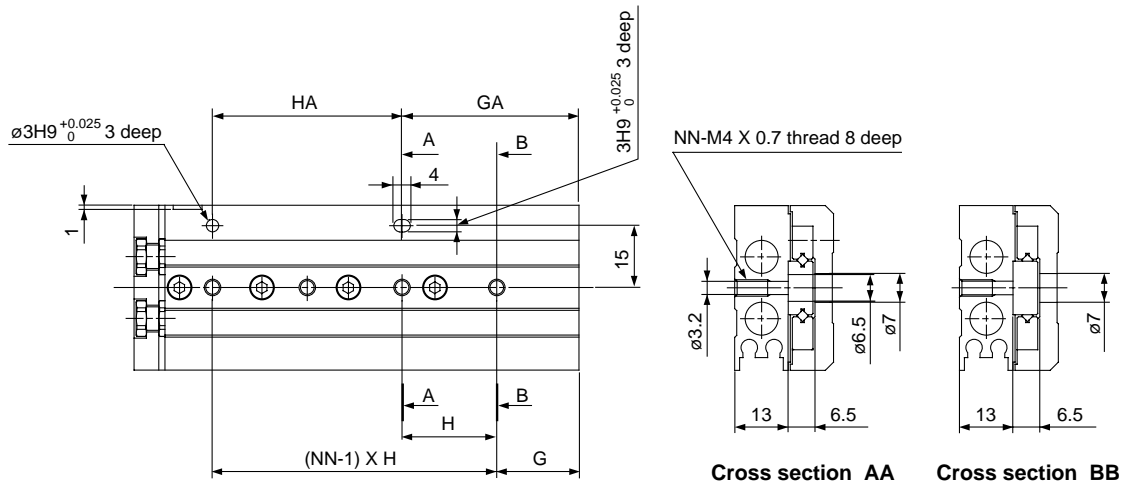
| Model           | F  | N | G  | H  | NN | GA | HA | I  | J  | K    | M   | Z    | ZZ  |
|-----------------|----|---|----|----|----|----|----|----|----|------|-----|------|-----|
| <b>MXS6L-10</b> | 20 | 4 | 6  | 25 | 2  | 11 | 20 | 10 | 17 | 22.5 | 42  | 41.5 | 48  |
| <b>MXS6L-20</b> | 30 | 4 | 6  | 35 | 2  | 21 | 20 | 10 | 27 | 32.5 | 52  | 51.5 | 58  |
| <b>MXS6L-30</b> | 20 | 6 | 11 | 20 | 3  | 31 | 20 | 7  | 40 | 42.5 | 62  | 61.5 | 68  |
| <b>MXS6L-40</b> | 28 | 6 | 13 | 30 | 3  | 43 | 30 | 19 | 50 | 52.5 | 84  | 83.5 | 90  |
| <b>MXS6L-50</b> | 38 | 6 | 17 | 24 | 4  | 41 | 48 | 25 | 60 | 62.5 | 100 | 99.5 | 106 |

- CL
- MLG
- CNA
- CNG
- MNB
- CNS
- CLS
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXH
- MXS**
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP
- MGQ
- MGG
- MGC
- MGF
- MGZ
- CY
- MY

# Series MXS

## Dimensions MXS 8L/Symmetric style

### Basic style



(mm)

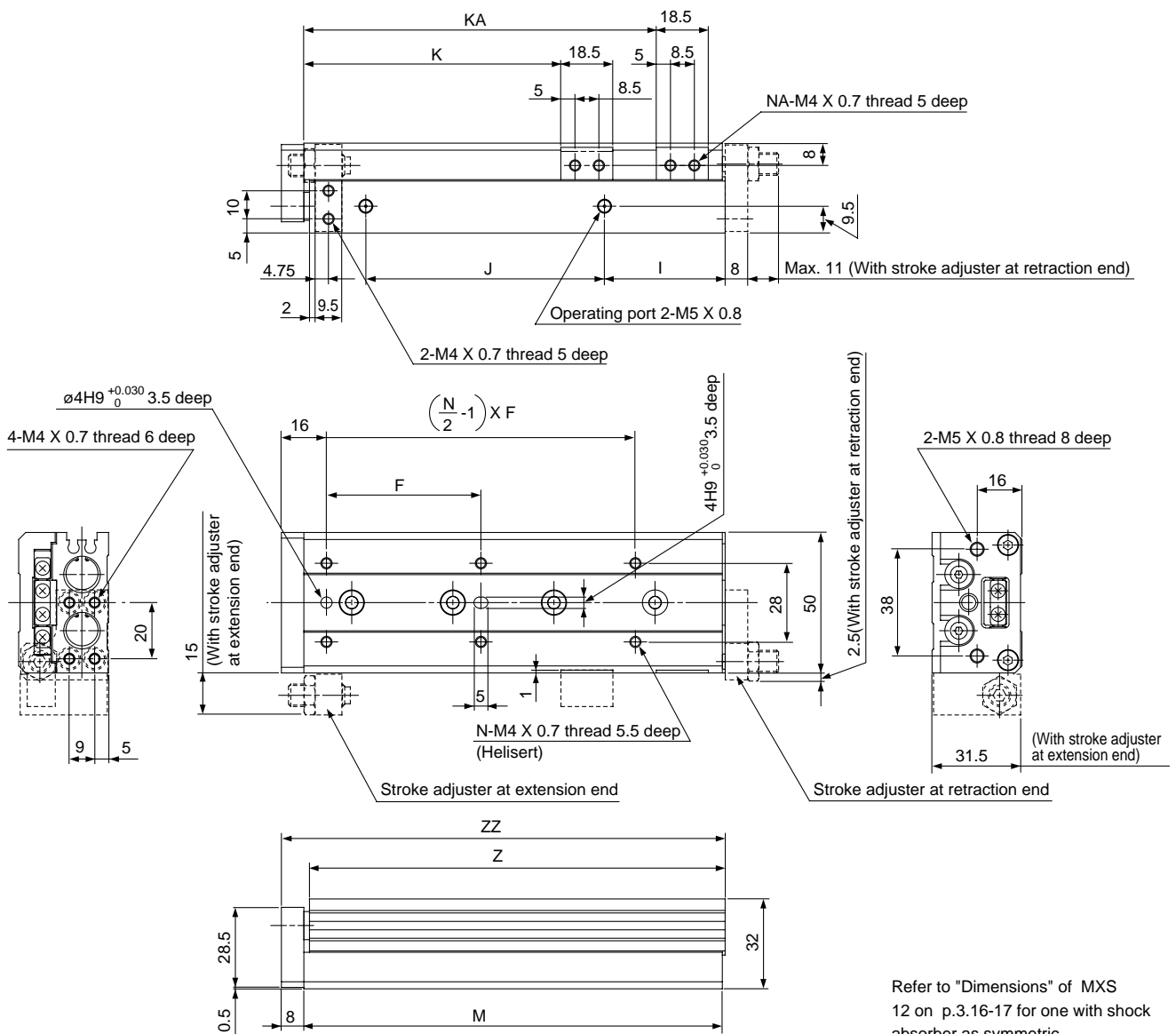
| Model           | F  | N | G  | H  | NN | GA | HA | I    | J    | K    | KA    | NA | M   | Z     | ZZ  |
|-----------------|----|---|----|----|----|----|----|------|------|------|-------|----|-----|-------|-----|
| <b>MXS8L-10</b> | 25 | 4 | 9  | 28 | 2  | 17 | 20 | 13   | 19.5 | 23.5 | —     | 2  | 49  | 48.5  | 56  |
| <b>MXS8L-20</b> | 25 | 4 | 12 | 30 | 2  | 12 | 30 | 8.5  | 29   | 33.5 | —     | 2  | 54  | 53.5  | 61  |
| <b>MXS8L-30</b> | 40 | 4 | 13 | 20 | 3  | 33 | 20 | 9.5  | 39   | 43.5 | —     | 2  | 65  | 64.5  | 72  |
| <b>MXS8L-40</b> | 50 | 4 | 15 | 28 | 3  | 43 | 28 | 10.5 | 56   | 53.5 | —     | 2  | 83  | 82.5  | 90  |
| <b>MXS8L-50</b> | 38 | 6 | 20 | 23 | 4  | 43 | 46 | 24.5 | 60   | 63.5 | 82.5  | 4  | 101 | 100.5 | 108 |
| <b>MXS8L-75</b> | 50 | 6 | 27 | 28 | 5  | 83 | 56 | 38.5 | 96   | 88.5 | 132.5 | 4  | 151 | 150.5 | 158 |



Refer to "Dimensions" of MXS8 on p.3.11-15 for one with shock absorber as symmetric.

# MXS 12L/Symmetric style

## Basic style

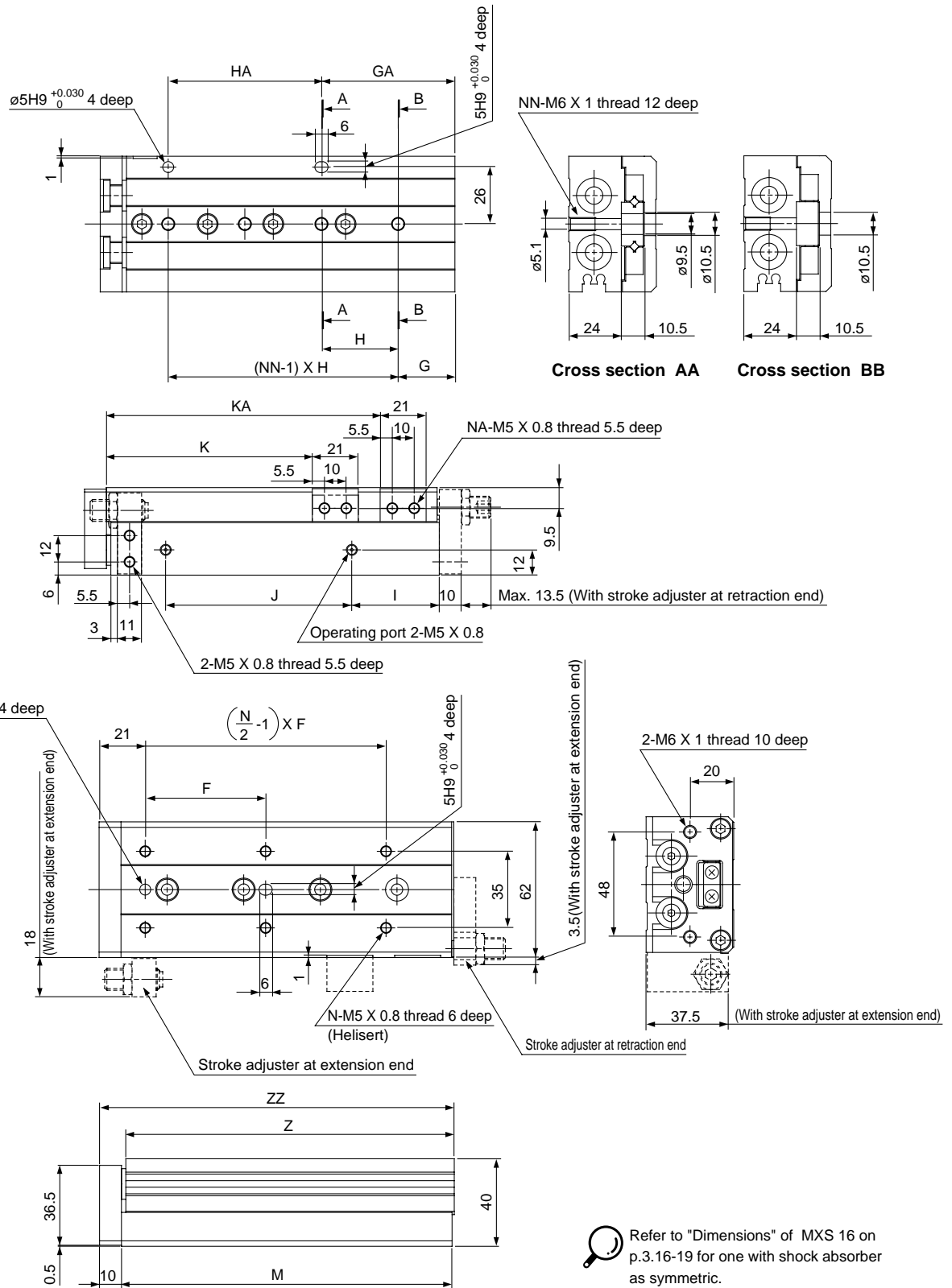


Refer to "Dimensions" of MXS 12 on p.3.16-17 for one with shock absorber as symmetric.

913th shock  
(mm) 79 341.9Tm 1j 7 4

| Model      | F  | N | G  | H  | NN | GA  | HA | I  | J   | K     | KA    | NA | M   | Z   | ZZ  |
|------------|----|---|----|----|----|-----|----|----|-----|-------|-------|----|-----|-----|-----|
| MXS12L-10  | 35 | 4 | 15 | 40 | 2  | 15  | 40 | 10 | 40  | 26.5  |       | 2  | 71  | 70  | 80  |
| MXS12L-20  | 35 | 4 | 15 | 40 | 2  | 15  | 40 | 10 | 40  | 36.5  |       | 2  | 71  | 70  | 80  |
| MXS12L-30  | 35 | 4 | 15 | 40 | 2  | 15  | 40 | 10 | 40  | 46.5  |       | 2  | 71  | 70  | 80  |
| MXS12L-40  | 50 | 4 | 17 | 25 | 3  | 42  | 25 | 10 | 52  | 56.5  |       | 2  | 83  | 82  | 92  |
| MXS12L-50  | 35 | 6 | 15 | 36 | 3  | 51  | 36 | 22 | 60  | 66.5  |       | 2  | 103 | 102 | 112 |
| MXS12L-75  | 55 | 6 | 25 | 36 | 4  | 61  | 72 | 43 | 85  | 91.5  | 125.5 | 4  | 149 | 148 | 158 |
| MXS12L-100 | 65 | 6 | 35 | 38 | 5  | 111 | 76 | 52 | 130 | 116.5 | 179.5 | 4  | 203 | 202 | 212 |

### Basic style



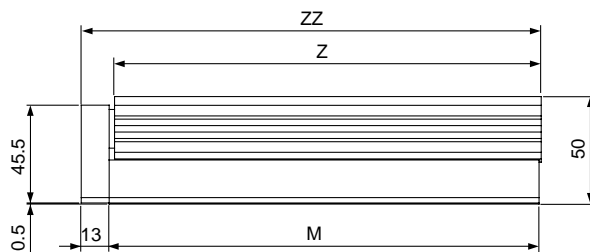
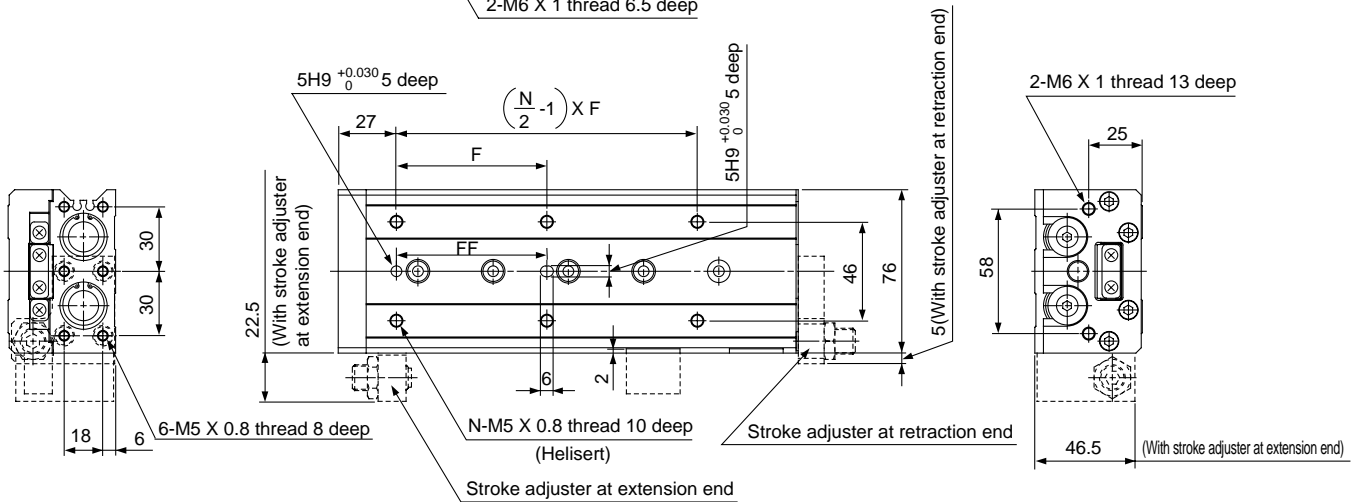
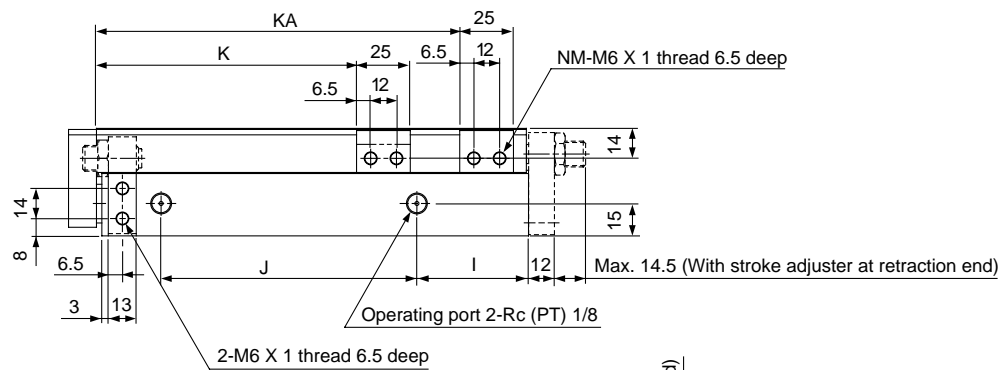
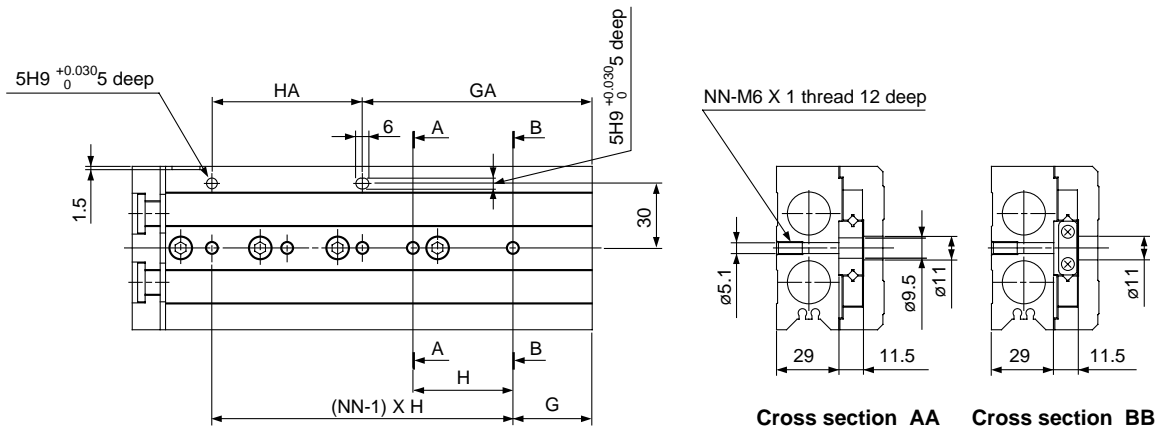
Refer to "Dimensions" of MXS 16 on p.3.16-19 for one with shock absorber as symmetric.

| Model      | F  | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z   | ZZ  |
|------------|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-----|-----|
| MXS16L-10  | 35 | 4 | 16 | 40 | 2  | 16  | 40 | 10 | 40  | 29  | —   | 2  | 76  | 75  | 87  |
| MXS16L-20  | 35 | 4 | 16 | 40 | 2  | 16  | 40 | 10 | 40  | 39  | —   | 2  | 76  | 75  | 87  |
| MXS16L-30  | 35 | 4 | 16 | 40 | 2  | 16  | 40 | 10 | 40  | 49  | —   | 2  | 76  | 75  | 87  |
| MXS16L-40  | 40 | 4 | 16 | 50 | 2  | 16  | 50 | 10 | 50  | 59  | —   | 2  | 86  | 85  | 97  |
| MXS16L-50  | 30 | 6 | 21 | 30 | 3  | 51  | 30 | 15 | 60  | 69  | —   | 2  | 101 | 100 | 112 |
| MXS16L-75  | 55 | 6 | 26 | 35 | 4  | 61  | 70 | 40 | 85  | 94  | 125 | 4  | 151 | 150 | 162 |
| MXS16L-100 | 65 | 6 | 39 | 35 | 5  | 109 | 70 | 55 | 118 | 119 | 173 | 4  | 199 | 198 | 210 |
| MXS16L-125 | 70 | 8 | 19 | 35 | 7  | 159 | 70 | 68 | 155 | 144 | 223 | 4  | 249 | 248 | 260 |



## MXS 20L/Symmetric style

### Basic style

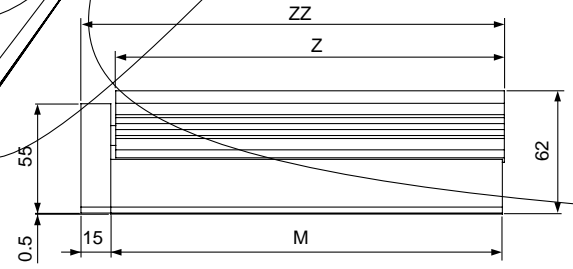
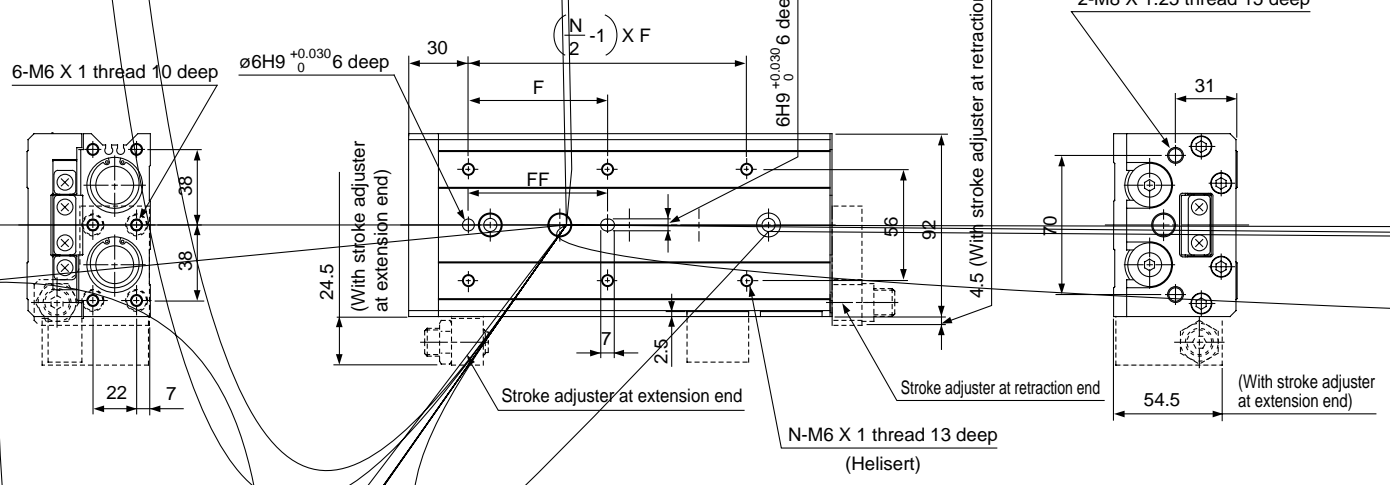
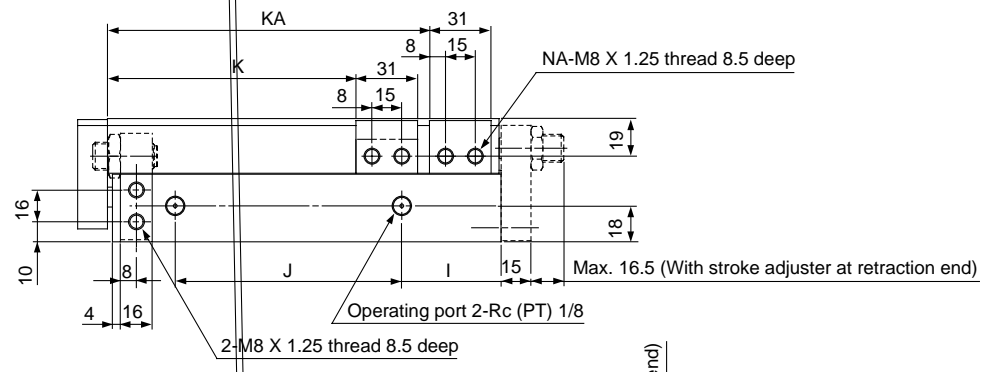
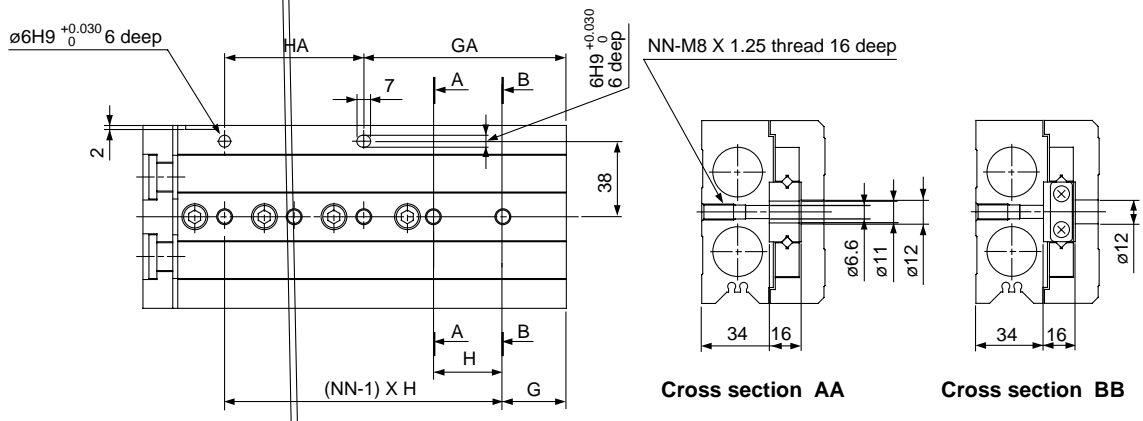


Refer to "Dimensions" of MXS20 on p.3.16-21 for one with shock absorber as symmetric.

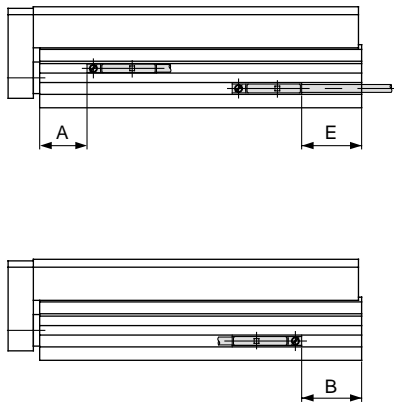
| Model      | F  | FF | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z     | ZZ  |
|------------|----|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-------|-----|
| MXS20L-10  | 50 | 40 | 4 | 15 | 45 | 2  | 25  | 35 | 10 | 44  | 31  | —   | 2  | 83  | 81.5  | 97  |
| MXS20L-20  | 50 | 40 | 4 | 15 | 45 | 2  | 25  | 35 | 10 | 44  | 41  | —   | 2  | 83  | 81.5  | 97  |
| MXS20L-30  | 50 | 40 | 4 | 15 | 45 | 2  | 25  | 35 | 10 | 44  | 51  | —   | 2  | 83  | 81.5  | 97  |
| MXS20L-40  | 60 | 50 | 4 | 15 | 55 | 2  | 35  | 35 | 10 | 54  | 61  | —   | 2  | 93  | 91.5  | 107 |
| MXS20L-50  | 35 | 35 | 6 | 15 | 35 | 3  | 50  | 35 | 10 | 69  | 71  | —   | 2  | 108 | 106.5 | 122 |
| MXS20L-75  | 60 | 60 | 6 | 19 | 35 | 4  | 54  | 70 | 10 | 108 | 96  | —   | 2  | 147 | 145.5 | 161 |
| MXS20L-100 | 70 | 70 | 6 | 37 | 35 | 5  | 107 | 70 | 58 | 113 | 121 | 169 | 4  | 200 | 198.5 | 214 |
| MXS20L-125 | 70 | 70 | 8 | 41 | 38 | 6  | 155 | 76 | 70 | 155 | 146 | 223 | 4  | 254 | 252.5 | 268 |
| MXS20L-150 | 80 | 80 | 8 | 19 | 44 | 7  | 195 | 88 | 87 | 190 | 171 | 275 | 4  | 306 | 304.5 | 320 |

(mm)

- CL
- MLG
- CNA
- CNG
- MNB
- CNS
- CLS
- CB
- CV/MVG
- CXW
- CXS
- CXT
- MX
- MXU
- MXH
- MXS**
- MXQ
- MXF
- MXW
- MXP
- MG
- MGP
- MGQ
- MGG
- MGC
- MGF
- MGZ
- CY
- MY



## Auto Switch Mounting Position for Stroke End Detection



### Reed switch: D-A90, D-A93, D-A96, D-A90V, D-A93V, D-A96V

| Model        | A    | B      |      |      |      |      |      |      |      |       |             | E           |            |             |             |             |             |             |               |     |  | Operating range |
|--------------|------|--------|------|------|------|------|------|------|------|-------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|---------------|-----|--|-----------------|
|              |      | Stroke |      |      |      |      |      |      |      |       |             | Stroke      |            |             |             |             |             |             |               |     |  |                 |
|              |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150   | 10          | 20          | 30         | 40          | 50          | 75          | 100         | 125         | 150           |     |  |                 |
| <b>MXS6</b>  | 5.9  | 5.6    | 5.6  | 5.6  | 17.6 | 23.6 | —    | —    | —    | —     | 3.6 (1.1)   | 3.6 (1.1)   | 3.6 (1.1)  | 15.6 (13.1) | 21.6 (19.1) | —           | —           | —           | —             | 4.5 |  |                 |
| <b>MXS8</b>  | 7.6  | 10.9   | 5.9  | 6.9  | 14.9 | 22.9 | 47.9 | —    | —    | —     | 8.9 (6.4)   | 3.9 (1.4)   | 4.9 (2.4)  | 12.9 (10.4) | 20.9 (18.4) | 45.9 (43.4) | —           | —           | —             | 5   |  |                 |
| <b>MXS12</b> | 11.6 | 28.4   | 18.4 | 8.4  | 10.4 | 20.4 | 41.4 | 70.4 | —    | —     | 26.4 (23.9) | 16.4 (13.9) | 6.4 (3.9)  | 8.4 (5.9)   | 18.4 (15.9) | 39.4 (36.9) | 68.4 (65.9) | —           | —             | 6   |  |                 |
| <b>MXS16</b> | 16.3 | 28.7   | 18.7 | 8.7  | 8.7  | 13.7 | 38.7 | 61.7 | 86.7 | —     | 26.7 (24.2) | 16.7 (14.2) | 6.7 (4.2)  | 6.7 (4.2)   | 11.7 (9.2)  | 36.7 (34.2) | 59.7 (57.2) | 84.7 (82.2) | —             | 7   |  |                 |
| <b>MXS20</b> | 18.9 | 32.6   | 22.6 | 12.6 | 12.6 | 17.6 | 31.6 | 59.6 | 88.6 | 115.6 | 30.6 (28.1) | 20.6 (18.1) | 10.6 (8.1) | 10.6 (8.1)  | 15.6 (13.1) | 29.6 (27.1) | 57.6 (55.1) | 86.6 (84.1) | 113.6 (111.1) | 8   |  |                 |
| <b>MXS25</b> | 23   | 37.5   | 27.5 | 17.5 | 17.5 | 20.5 | 36.5 | 52.5 | 85.5 | 100.5 | 35.5 (33)   | 25.5 (23)   | 15.5 (13)  | 15.5 (13)   | 18.5 (16)   | 24.5 (22)   | 50.5 (48)   | 83.5 (81)   | 98.5 (96)     | 8   |  |                 |

( ) : D-F9N

### Solid state switch: D-F9B, D-F9N, D-F9P, D-F9BW, D-F9NW, D-F9PW

| Model        | A    | B      |      |      |      |      |      |      |      |       |      | E      |      |      |      |      |      |      |       |     |  | Operating range |
|--------------|------|--------|------|------|------|------|------|------|------|-------|------|--------|------|------|------|------|------|------|-------|-----|--|-----------------|
|              |      | Stroke |      |      |      |      |      |      |      |       |      | Stroke |      |      |      |      |      |      |       |     |  |                 |
|              |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150   | 10   | 20     | 30   | 40   | 50   | 75   | 100  | 125  | 150   |     |  |                 |
| <b>MXS6</b>  | 10   | 9.6    | 9.6  | 9.6  | 21.6 | 27.6 | —    | —    | —    | —     | -0.4 | -0.4   | -0.4 | 11.6 | 17.5 | —    | —    | —    | —     | 2   |  |                 |
| <b>MXS8</b>  | 11.6 | 14.9   | 9.9  | 10.9 | 18.9 | 26.9 | 51.9 | —    | —    | —     | 4.9  | -0.1   | 0.9  | 8.9  | 16.9 | 41.9 | —    | —    | —     | 2.5 |  |                 |
| <b>MXS12</b> | 15.6 | 32.4   | 22.4 | 12.4 | 14.4 | 24.4 | 45.4 | 74.4 | —    | —     | 22.4 | 12.4   | 2.4  | 4.4  | 14.4 | 35.4 | 64.4 | —    | —     | 3   |  |                 |
| <b>MXS16</b> | 20.3 | 32.7   | 22.7 | 12.7 | 12.7 | 17.7 | 42.7 | 65.7 | 90.7 | —     | 22.7 | 12.7   | 2.7  | 2.7  | 7.7  | 32.7 | 55.7 | 80.7 | —     | 4   |  |                 |
| <b>MXS20</b> | 22.9 | 36.6   | 26.6 | 16.6 | 16.6 | 21.6 | 35.6 | 63.6 | 92.6 | 119.6 | 26.6 | 16.6   | 6.6  | 6.6  | 11.6 | 25.6 | 53.6 | 82.6 | 109.6 | 6   |  |                 |
| <b>MXS25</b> | 27   | 41.5   | 31.5 | 21.5 | 21.5 | 24.5 | 40.5 | 56.5 | 89.5 | 104.5 | 31.5 | 21.5   | 11.5 | 11.5 | 14.5 | 30.5 | 46.5 | 79.5 | 94.5  | 6   |  |                 |

### Solid state switch: D-F9BV, D-F9NV, D-F9PV, D-F9BWW, D-F9NWW, D-F9PWW

| Model        | A    | B      |      |      |      |      |      |      |      |       |      | E      |      |      |      |      |      |      |       |     |  | Operating range |
|--------------|------|--------|------|------|------|------|------|------|------|-------|------|--------|------|------|------|------|------|------|-------|-----|--|-----------------|
|              |      | Stroke |      |      |      |      |      |      |      |       |      | Stroke |      |      |      |      |      |      |       |     |  |                 |
|              |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150   | 10   | 20     | 30   | 40   | 50   | 75   | 100  | 125  | 150   |     |  |                 |
| <b>MXS6</b>  | 10   | 9.6    | 9.6  | 9.6  | 21.6 | 27.6 | —    | —    | —    | —     | 1.6  | 1.6    | 1.6  | 13.6 | 19.6 | —    | —    | —    | —     | 2   |  |                 |
| <b>MXS8</b>  | 11.6 | 14.9   | 9.9  | 10.9 | 18.9 | 26.9 | 51.9 | —    | —    | —     | 6.9  | 1.9    | 2.9  | 10.9 | 18.9 | 43.9 | —    | —    | —     | 2.5 |  |                 |
| <b>MXS12</b> | 15.6 | 32.4   | 22.4 | 12.4 | 14.4 | 24.4 | 45.4 | 74.4 | —    | —     | 24.4 | 14.4   | 4.4  | 6.4  | 16.4 | 37.4 | 66.4 | —    | —     | 3   |  |                 |
| <b>MXS16</b> | 20.3 | 32.7   | 22.7 | 12.7 | 12.7 | 17.7 | 42.7 | 65.7 | 90.7 | —     | 24.7 | 14.7   | 4.7  | 4.7  | 9.7  | 34.7 | 57.7 | 82.7 | —     | 4   |  |                 |
| <b>MXS20</b> | 22.9 | 36.6   | 26.6 | 16.6 | 16.6 | 21.6 | 35.6 | 63.6 | 92.6 | 119.6 | 28.6 | 18.6   | 8.6  | 8.6  | 13.6 | 27.6 | 55.6 | 84.6 | 111.6 | 6   |  |                 |
| <b>MXS25</b> | 27   | 41.5   | 31.5 | 21.5 | 21.5 | 24.5 | 40.5 | 56.5 | 89.5 | 104.5 | 33.5 | 23.5   | 13.5 | 13.5 | 16.5 | 32.5 | 48.5 | 81.5 | 96.5  | 6   |  |                 |

## How to Install an Auto Switch

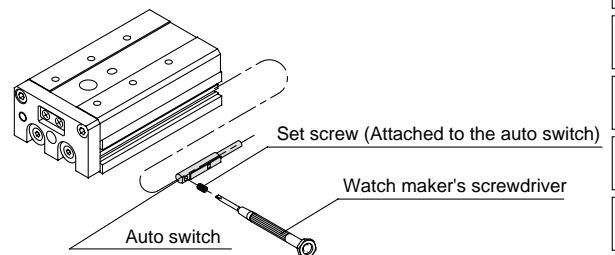
### ⚠ Caution

#### Auto switch mounting tool

- To tighten the set screw (attached to the auto switch), use a watch maker's screwdriver with a grip diameter of 5 to 6mm.

#### Clamping torque

- Clamping torque is approx. 0.05 to 0.1Nm. Rotate about 90° from when you feel the fitting tightness.



CL

MLG

CNA

CNG

MNB

CNS

CLS

CB

CV/MVG

CXW

CXS

CXT

MX

MXU

MXH

**MXS**

MXQ

MXF

MXW

MXP

MG

MGP

MGQ

MGG

MGC

MGF

MGZ

CY

MY

