

# Air Slide Table

## Series MXS

ø6, ø8, ø12, ø16, ø20, ø25



Work table and air cylinder are compactly integrated.

MXH

MXU

**MXS**

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

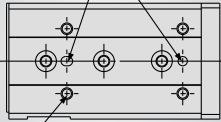
-X□

Individual  
-X□

# Air slide table is suited for precision assembly.

## Improved workpiece mounting repeatability

Machining of positioning hole



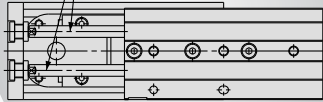
Thread for work mounting  
Helisert is used for improved strength.

## Flush mountable auto switches

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

## Dual piston rod

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



## Wide variety of options

Adjuster option and function option can be combined.

### Functional options

With buffer mechanism



### Adjuster options

With stroke adjuster



With end lock



With shock absorber



Axial piping type



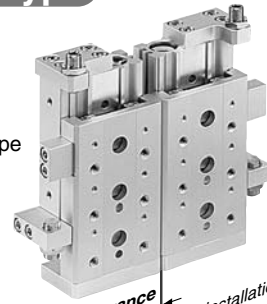
## Symmetric Type

Port location and stroke adjuster position are in opposite places from the standard body.

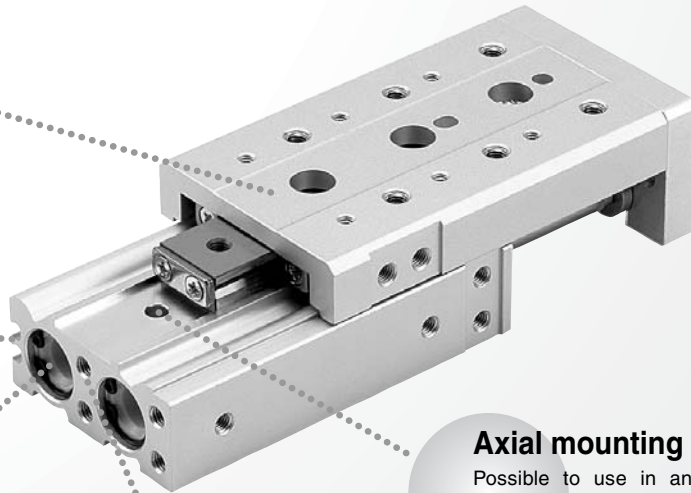
Standard type



Sym-metric type



Small clearance  
Proximity installation of up to 5 mm is available. (MXS6)

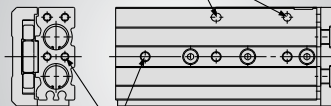


## Axial mounting is possible.

Possible to use in an axial mounting position since the cross roller guide in the guiding parts is not properly preloaded and does not use a holding device.

## Body mounting

Machining of positioning hole



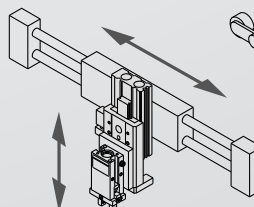
Threads for body mounting

## Mounting is possible from 3 directions.

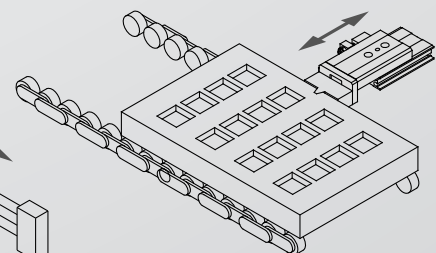
| 1. Lateral mounting<br>(Body tapped) | 2. Lateral mounting<br>(Body through-hole) | 3. Vertical mounting<br>(Body tapped) |
|--------------------------------------|--------------------------------------------|---------------------------------------|
|                                      |                                            |                                       |

## Application examples

As Z-axis for picking and placing



For positioning pallets on a conveyor



## Series Variations

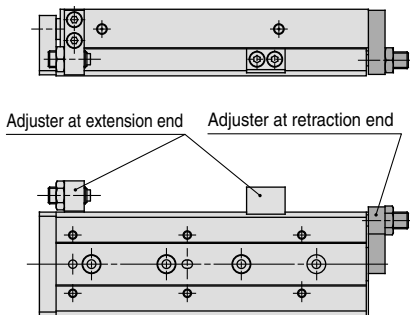
| Model | Bore size (mm) | Standard stroke (mm) |    |    |    |    |    |     |     |     |  | Adjuster options |                                     | Functional options | Auto switch                                                                                                                                                      |
|-------|----------------|----------------------|----|----|----|----|----|-----|-----|-----|--|------------------|-------------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                | 10                   | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 |  | Stroke adjuster  | With shock absorber (Except for ø6) |                    |                                                                                                                                                                  |
| MXS 6 | 6              | ●                    | ●  | ●  | ●  | ●  | ●  | ●   | ●   | ●   |  |                  |                                     |                    | Reed auto switch<br>• D-A9□<br>• D-A9□V<br>Solid state auto switch<br>• D-M9□<br>• D-M9□V<br>2-color indication solid state auto switch<br>• D-M9□W<br>• D-M9□WV |
| MXS 8 | 8              | ●                    | ●  | ●  | ●  | ●  | ●  | ●   | ●   | ●   |  |                  |                                     |                    |                                                                                                                                                                  |
| MXS12 | 12             | ●                    | ●  | ●  | ●  | ●  | ●  | ●   | ●   | ●   |  |                  |                                     |                    |                                                                                                                                                                  |
| MXS16 | 16             | ●                    | ●  | ●  | ●  | ●  | ●  | ●   | ●   | ●   |  |                  |                                     |                    |                                                                                                                                                                  |
| MXS20 | 20             | ●                    | ●  | ●  | ●  | ●  | ●  | ●   | ●   | ●   |  |                  |                                     |                    |                                                                                                                                                                  |
| MXS25 | 25             | ●                    | ●  | ●  | ●  | ●  | ●  | ●   | ●   | ●   |  |                  |                                     |                    |                                                                                                                                                                  |

## Adjuster Options

### Stroke Adjuster

- Adjustable stroke range: 0 to 5 mm

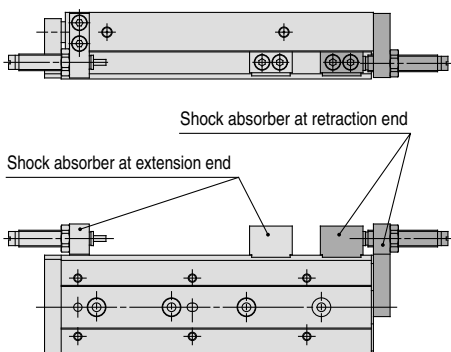
With adjuster at extension end (AS)  
 With adjuster at retraction end (AT)  
 With adjuster at both ends (A)



### With Shock Absorber

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

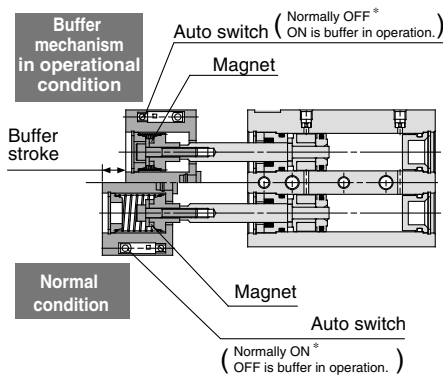
With shock absorber at extension end (BS)  
 With shock absorber at retraction end (BT)  
 With shock absorber at both ends (B)



## Functional Options

### With Buffer Mechanism

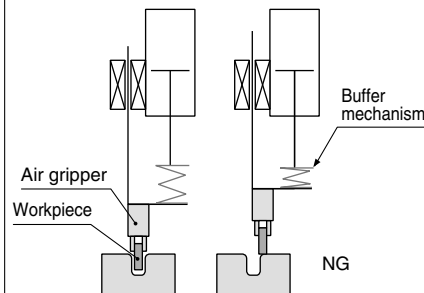
- Protects workpieces and tools, etc., by eliminating impact at the end of the stroke's extension.
- Buffer unit is auto switch capable.



\* The normally ON/OFF setting is changed by changing the mounting direction of the auto switch.

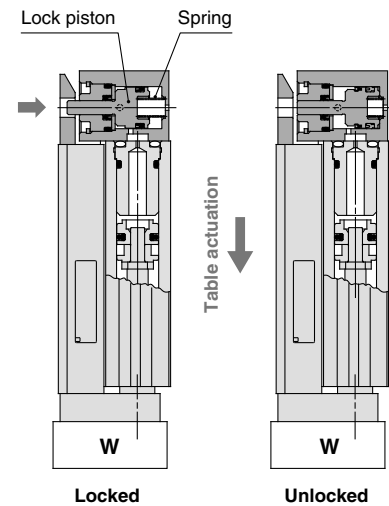
### Application Example

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



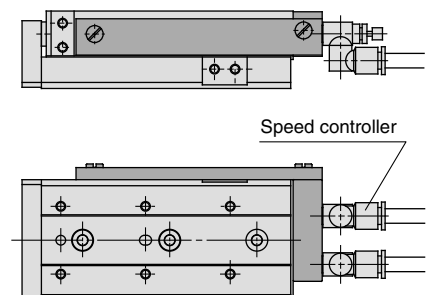
### With End Lock

- Holds the cylinder's home position to prevent the workpiece from dropping even if the air supply is cut off.



### Axial Piping Type

- Centralized piping in axial direction to maintain clear space around the body.



MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

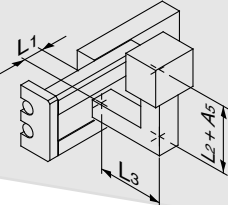
D-□

-X□

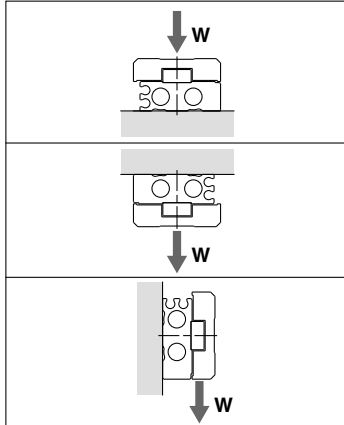
Individual

-X□

# Series MXS Model Selection

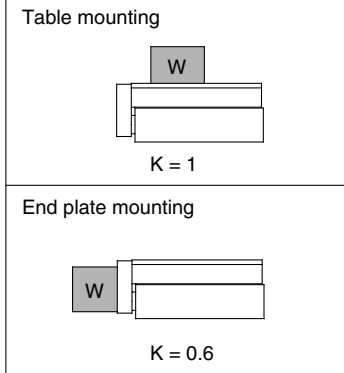
| Model Selection Steps                                                                                                                                                                                                                                                                                                                                  | Formula/Data                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Selection Examples                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>1</div> <div>Operating Conditions</div> <div>List the operating conditions considering the mounting position and workpiece configuration.</div>                                                                                                                                                                                                   | <div><ul style="list-style-type: none"><li>Model to be used</li><li>Type of cushion</li><li>Workpiece mounting position</li><li>Mounting orientation</li><li>Average speed <math>V_a</math> (mm/s)</li><li>Load mass <math>W</math> (kg): Fig. (1)</li><li>Overhang <math>L_n</math> (mm): Fig. (2)</li></ul></div>                                                                                                                                                                                                                                                                                                                                                                                          | <div></div> <div>Cylinder: MXS16-50<br/>Cushion: Rubber bumper<br/>Workpiece table mounting<br/>Mounting: Horizontal wall mounting<br/>Average speed: <math>V_a = 300</math> [mm/s]<br/>Load mass: <math>W = 1</math> [kg]<br/><math>L_1 = 10</math> mm<br/><math>L_2 = 30</math> mm<br/><math>L_3 = 30</math> mm</div>                                                                                                                                                                                                                                                                                                                                                             |
| <div>2</div> <div>Kinetic Energy</div> <div>Find the kinetic energy <math>E</math> (J) of the load.</div> <div>Find the allowable kinetic energy <math>E_a</math> (J).</div> <div>Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.</div>                                                                      | <div><math display="block">E = \frac{1}{2} \cdot W \cdot \left(\frac{V}{1000}\right)^2</math><p>Collision speed <math>V = 1.4 \cdot V_a</math><br/>*) Correction factor (Reference values)</p><math display="block">E_a = K \cdot E_{max}</math><p>Workpiece mounting coefficient <math>K</math>: Fig. (3)<br/>Max. allowable kinetic energy <math>E_{max}</math>: Table (1)<br/>Kinetic energy (<math>E</math>) <math>\leq</math> Allowable kinetic energy (<math>E_a</math>)</p></div>                                                                                                                                                                                                                     | <div><math display="block">E = \frac{1}{2} \cdot 1 \cdot \left(\frac{420}{1000}\right)^2 = 0.088</math><p><math>V = 1.4 \times 300 = 420</math><br/><math>E_a = 1 \times 0.11 = 0.11</math><br/>Can be used based on <math>E = 0.088 \leq E_a = 0.11</math></p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <div>3</div> <div>Load Factor</div>                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <div>3-1</div> <div>Load Factor of Load Mass</div> <div>Find the allowable load mass <math>W_a</math> (kg).<br/>Note) There is no need to consider this load factor in the case of using perpendicularly in a vertical position.<br/>(Define <math>\alpha_1 = 0</math>.)</div> <div>Find the load factor of the load mass <math>\alpha_1</math>.</div> | <div><math display="block">W_a = K \cdot \beta \cdot W_{max}</math><p>Workpiece mounting coefficient <math>K</math>: Fig. (3)<br/>Allowable load mass coefficient <math>\beta</math>: Graph (1)<br/>Max. allowable load mass <math>W_{max}</math>: Table (2)</p><math display="block">\alpha_1 = W/W_a</math></div>                                                                                                                                                                                                                                                                                                                                                                                          | <div><math display="block">W_a = 1 \times 1 \times 4 = 4</math><p><math>K = 1</math><br/><math>\beta = 1</math><br/><math>W_{max} = 4</math><br/><math>\alpha_1 = 1/4 = 0.25</math></p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <div>3-2</div> <div>Load Factor of Static Moment</div> <div>Find the static moment <math>M</math> (N·m).</div> <div>Find the allowable static moment <math>M_a</math> (N·m).</div> <div>Find the load factor <math>\alpha_2</math> of the static moment.</div>                                                                                         | <div><math display="block">M = W \times 9.8 \cdot (L_n + A_n)/1000</math><p>Correction value of moment center position distance <math>A_n</math>: Table (3)</p><math display="block">M_a = K \cdot \gamma \cdot M_{max}</math><p>Workpiece mounting coefficient <math>K</math>: Fig. (3)<br/>Allowable moment coefficient <math>\gamma</math>: Graph (2)<br/>Maximum allowable moment <math>M_{max}</math>: Table (4)</p><math display="block">\alpha_2 = M/M_a</math></div>                                                                                                                                                                                                                                 | <div><div>Yawing</div><div>Examine <math>M_y</math>.<br/><math>M_y = 1 \times 9.8 \cdot (10 + 30)/1000 = 0.39</math><br/><math>A_3 = 30</math><br/><br/><math>M_{ay} = 1 \times 1 \times 15.9 = 15.9</math><br/><math>M_{ymax} = 15.9</math><br/><math>K = 1</math><br/><math>\gamma = 1</math><br/><math>\alpha_2 = 0.39/15.9 = 0.025</math></div><div>Rolling</div><div>Examine <math>M_r</math>.<br/><math>M_r = 1 \times 9.8 \cdot (30 + 10)/1000 = 0.39</math><br/><math>A_6 = 10</math><br/><br/><math>M_{ar} = 15.9</math> (Same value as <math>M_{ay}</math>)<br/><br/><math>\alpha_2 = 0.39/15.9 = 0.025</math></div></div>                                                                                                                                  |
| <div>3-3</div> <div>Load Factor of Dynamic Moment</div> <div>Find the dynamic moment <math>M_e</math> (N·m).</div> <div>Find the allowable dynamic moment <math>M_{ea}</math> (N·m).</div> <div>Find the load factor <math>\alpha_3</math> of the dynamic moment.</div>                                                                                | <div><math display="block">M_e = 1/3 \cdot W_e \times 9.8 \cdot \frac{(L_n + A_n)}{1000}</math><p>Collision equivalent to impact <math>W_e = \delta \cdot W \cdot V</math><br/><math>\delta</math>: Bumper coefficient<br/>With urethane bumper (Standard) = 4/100<br/>With shock absorber = 1/100<br/>Correction value of moment center position distance <math>A_n</math>: Table (3)</p><math display="block">M_{ea} = K \cdot \gamma \cdot M_{max}</math><p>Workpiece mounting coefficient <math>K</math>: Fig. (3)<br/>Allowable moment coefficient <math>\gamma</math>: Graph (2)<br/>Max. allowable moment <math>M_{max}</math>: Table (4)</p><math display="block">\alpha_3 = M_e/M_{ea}</math></div> | <div><div>Pitching</div><div>Examine <math>M_{ep}</math>.<br/><math>M_{ep} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 10)}{1000} = 2.2</math><br/><math>W_e = 4/100 \times 1 \times 420 = 16.8</math><br/><math>A_2 = 10</math><br/><math>M_{eap} = 1 \times 0.7 \times 15.9 = 11.1</math><br/><math>K = 1</math><br/><math>\gamma = 0.7</math><br/><math>M_{pmax} = 15.9</math><br/><math>\alpha_3 = 2.2/11.1 = 0.20</math></div><div>Yawing</div><div>Examine <math>M_{ey}</math>.<br/><math>M_{ey} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 31)}{1000} = 3.3</math><br/><math>W_e = 16.8</math><br/><math>A_4 = 31</math><br/><math>M_{eay} = 11.1</math> (Same value as <math>M_{eap}</math>)<br/><math>\alpha_3 = 3.3/11.1 = 0.30</math></div></div> |
| <div>3-4</div> <div>Sum of Load Factors</div> <div>Possible to use if the sum of the load factors does not exceed 1.</div>                                                                                                                                                                                                                             | <div><math display="block">\sum \alpha_n = \alpha_1 + \alpha_2 + \alpha_3 \leq 1</math></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <div><math display="block">\sum \alpha_n = \alpha_1 + \alpha_2 + \alpha_2' + \alpha_3 + \alpha_3'</math><math display="block">= 0.25 + 0.025 + 0.025 + 0.20 + 0.30 = 0.80 \leq 1</math><p>And it is possible to use.</p></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

**Fig. (1) Load Mass: W (kg)**



Note) There is no need to consider this load factor in the case of using perpendicularly in a vertical position.

**Fig. (3) Workpiece Mounting Coefficient: K**



**Table (2) Maximum Allowable Load Mass: Wmax (kg)**

| Model        | Maximum allowable load mass |
|--------------|-----------------------------|
| <b>MXS6</b>  | 0.6                         |
| <b>MXS8</b>  | 1                           |
| <b>MXS12</b> | 2                           |
| <b>MXS16</b> | 4                           |
| <b>MXS20</b> | 6                           |
| <b>MXS25</b> | 9                           |

**Table (4) Maximum Allowable Moment: Mmax (N·m)**

| Model        | Stroke (mm) |      |      |      |      |      |      |      |      |
|--------------|-------------|------|------|------|------|------|------|------|------|
|              | 10          | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150  |
| <b>MXS6</b>  | 0.7         | 1.0  | 1.2  | 1.2  | 1.2  | —    | —    | —    | —    |
| <b>MXS8</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 |
|-------------------------------|-----------------------------------------------------|------|-------------|---------------------------------|------|
| <b>An (n = 1 to 6)</b>        | Correction value of moment center position distance | mm   | <b>Va</b>   | Average speed                   | mm/s |
| <b>E</b>                      | Kinetic energy                                      | J    | <b>W</b>    | Load mass                       | kg   |
| <b>Ea</b>                     | Allowable kinetic energy                            | J    | <b>Wa</b>   | Allowable load mass             | kg   |
| <b>Emax</b>                   | Max. allowable kinetic energy                       | J    | <b>We</b>   | Mass equivalent to impact       | kg   |
| <b>Ln (n = 1 to 3)</b>        | Overhang                                            | mm   | <b>Wmax</b> | Max. allowable load mass        | kg   |
| <b>M (Mp, My, Mr)</b>         | Static moment (Pitch, Yaw, Roll)                    | N·m  | <b>α</b>    | Load factor                     | —    |
| <b>Ma (Map, May, Mar)</b>     | Allowable static moment (Pitch, Yaw, Roll)          | N·m  | <b>β</b>    | Allowable load mass coefficient | —    |
| <b>Me (Mep, Mey)</b>          | Dynamic moment (Pitch, Yaw)                         | N·m  | <b>γ</b>    | Allowable moment coefficient    | —    |
| <b>Mea (Meap, Meay)</b>       | Allowable dynamic moment (Pitch, Yaw)               | N·m  | <b>δ</b>    | Damper coefficient              | —    |
| <b>Mmax (Mpm, Mym, Mrmax)</b> | Max. allowable moment (Pitch, Yaw, Roll)            | N·m  | <b>K</b>    | Workpiece mounting coefficient  | —    |
| <b>V</b>                      | Collision speed                                     | mm/s |             |                                 |      |

**Fig. (2) Overhang: Ln (mm), Correction Value of Moment Center Position Distance: An (mm)**

|                | Pitch moment | Yaw moment | Roll moment |
|----------------|--------------|------------|-------------|
| Static moment  |              |            |             |
| Dynamic moment |              |            |             |

Note) Static moment: Moment generated by gravity  
Dynamic moment: Moment generated by impact when colliding with stopper

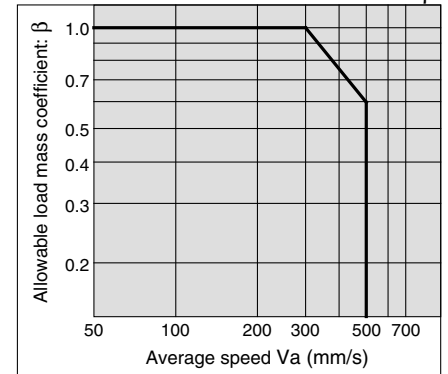
**Table (1) Maximum Allowable Kinetic Energy: Emax (J)**

| Model        | Allowable kinetic energy |                |
|--------------|--------------------------|----------------|
|              | Rubber bumper            | Shock absorber |
| <b>MXS6</b>  | 0.018                    | —              |
| <b>MXS8</b>  | 0.027                    | 0.054          |
| <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           |

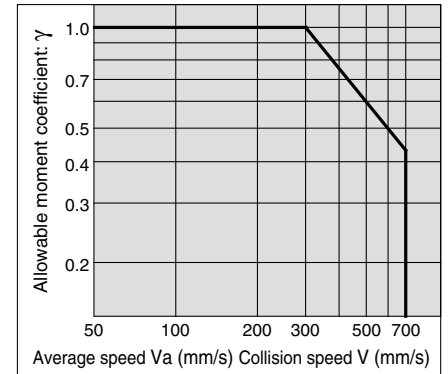
**Table (3) Correction Value of Moment Center Position Distance : An (mm)**

| Model        | Correction value of moment center position distance (Refer to Figure 2.) |      |    |    |    |      |
|--------------|--------------------------------------------------------------------------|------|----|----|----|------|
|              | A1                                                                       | A2   | A3 | A4 | A5 | A6   |
| <b>MXS6</b>  | 11                                                                       | 6    | 13 | 16 | 16 | 6    |
| <b>MXS8</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 (1) Allowable Load Mass Coefficient: β**



**Graph (2) Allowable Moment Coefficient: γ**



Note) Use the average speed when calculating static moment.  
Use the collision speed when calculating dynamic moment.

# Air Slide Table Series *MXS*

## How to Order

Air slide table

**MXS 12** **50** **AS** **FR** **M9BW**

### Port thread type

| Nii | M thread | ø6 to ø16 |
|-----|----------|-----------|
|     | Rc       |           |
|     | NPT      | ø20, ø25  |
|     | G        |           |

### Bore size (Stroke (mm))

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

### Adjuster option

| Nil                 | Without adjuster                                       |
|---------------------|--------------------------------------------------------|
| AS                  | Adjuster on extension end                              |
| AT                  | Adjuster on retraction end                             |
| A                   | Adjuster on both ends                                  |
| BS <sup>(1)</sup>   | Absorber on extension end                              |
| BT <sup>(1)</sup>   | Absorber on retraction end                             |
| B <sup>(1)</sup>    | Absorber on both ends                                  |
| ASBT <sup>(1)</sup> | Adjuster on extension end + Absorber on retraction end |
| BSAT <sup>(1)</sup> | Absorber on extension end + Adjuster on retraction end |

Note 1) Options BS, BT and B are not available with the MXS6 series.

### Number of auto switches

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

Made to order  
For details refer  
to page 55.

### Auto switch

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

\* For the applicable auto switch models, refer to the table below. For the applicable auto switches for buffer, refer to page 73.

### Functional option

| Nil               | Standard                       |
|-------------------|--------------------------------|
| F                 | With buffer                    |
| R <sup>(2)</sup>  | With end lock                  |
| P                 | Axial piping type              |
| FR <sup>(2)</sup> | With buffer and end lock       |
| FP                | With buffer, Axial piping type |

Note 2) Option R is not available with the MXS6 series.

### Option Combinations

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

○: Available ×: Not available

Note 3) When the buffer mechanism and the stroke adjuster on extension end are combined, the buffer stroke will be shorter by the length adjusted by the stroke adjuster on the extension end.

## Applicable Auto Switches/Refer to pages 1719 to 1827 for further information on auto switches.

| Type               | Special function                           | Electrical entry | Indicator light | Wiring (Output)         | Load voltage |           | Auto switch model |         | Lead wire length (m) |       |       |       | Pre-wired connector | Applicable load |            |
|--------------------|--------------------------------------------|------------------|-----------------|-------------------------|--------------|-----------|-------------------|---------|----------------------|-------|-------|-------|---------------------|-----------------|------------|
|                    |                                            |                  |                 |                         | DC           | AC        | Perpendicular     | In-line | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z) |                     |                 |            |
| Solid state switch | Diagnostic indication (2-color indication) | Grommet          | Yes             | 3-wire (NPN)            | 24 V         | 5 V, 12 V | M9NV              | M9N     | ●                    | ●     | ●     | ○     | ○                   | IC circuit      | Relay, PLC |
|                    |                                            |                  |                 | 3-wire (PNP)            |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 3-wire (NPN)            |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 3-wire (PNP)            |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
| Reed switch        |                                            | Grommet          | Yes             | 3-wire (NPN equivalent) | 24 V         | 5 V       | A96V              | A96     | ●                    | —     | ●     | —     | —                   | IC circuit      | —          |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  | No              | 2-wire                  | 24 V         | 12 V      | A93V              | A93     | ●                    | —     | ●     | —     | —                   | —               | Relay, PLC |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  | No              | 2-wire                  | 24 V         | 12 V      | A90V              | A90     | ●                    | —     | ●     | —     | —                   | IC circuit      | —          |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |
|                    |                                            |                  |                 | 2-wire                  |              |           |                   |         |                      |       |       |       |                     |                 |            |

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

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

\* Since there are additional applicable auto switches than are listed, refer to page 82 for details.

\* For details on auto switches with a pre-wired connector, refer to pages 1784 and 1785.

\* Auto switches are shipped together (not assembled).

## Specifications



| Bore size (mm)                | 6                                                                                                                                            | 8        | 12 | 16 | 20                     | 25 |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|----------|----|----|------------------------|----|
| Piping port size              | M3 x 0.5                                                                                                                                     | M5 x 0.8 |    |    | Rc 1/8, NPT 1/8, G 1/8 |    |
| Fluid                         | Air                                                                                                                                          |          |    |    |                        |    |
| Action                        | Double acting                                                                                                                                |          |    |    |                        |    |
| Operating pressure            | 0.15 to 0.7 MPa                                                                                                                              |          |    |    |                        |    |
| Proof pressure                | 1.05 MPa                                                                                                                                     |          |    |    |                        |    |
| Ambient and fluid temperature | −10 to 60°C                                                                                                                                  |          |    |    |                        |    |
| Piston speed                  | 50 to 500 mm/s                                                                                                                               |          |    |    |                        |    |
| Cushion                       | Rubber bumper (Standard, With stroke adjuster)<br>Shock absorber (Optional)                                                                  |          |    |    |                        |    |
| Lubrication                   | Non-lube                                                                                                                                     |          |    |    |                        |    |
| Auto switch (Optional)        | Reed auto switch (2-wire, 3-wire)<br>Solid state auto switch (2-wire, 3-wire)<br>2-color indication solid state auto switch (2-wire, 3-wire) |          |    |    |                        |    |
| Stroke length tolerance       | $\begin{smallmatrix} +1 \\ 0 \end{smallmatrix}$ mm                                                                                           |          |    |    |                        |    |

## Option



### Made to Order

(For details, refer to pages 1955 to 2021.)

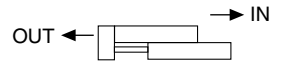
| Symbol | Specifications                                                  |
|--------|-----------------------------------------------------------------|
| -X7    | PTFE grease                                                     |
| -X9    | Grease for food                                                 |
| -X11   | Adjusting bolt, long specification<br>(Adjustment range: 15 mm) |
| -X12   | Adjusting bolt, long specification<br>(Adjustment range: 25 mm) |
| -X33   | Without built-in auto switch magnet                             |
| -X39   | Fluororubber seal                                               |
| -X42   | Anti-corrosive specifications for guide unit                    |
| -X45   | EPDM seal                                                       |

For clean room specifications, refer to "Pneumatic Clean Series" catalog.

|                    |                       |                           |                                                                |
|--------------------|-----------------------|---------------------------|----------------------------------------------------------------|
| Adjuster options   | With stroke adjuster  | Extension end (AS)        | Stroke adjustment range<br>0 to 5 mm                           |
|                    |                       | Retraction end (AT)       |                                                                |
|                    |                       | Adjuster on both ends (A) |                                                                |
|                    | With shock absorber   | Extension end (BS)        | W/ shock absorber is not<br>available with the MXS6<br>series. |
|                    |                       | Retraction end (BT)       |                                                                |
|                    |                       | Absorber on both ends (B) |                                                                |
| Functional options | With buffer (F)       |                           | W/ end lock is not<br>available with the MXS6<br>series.       |
|                    | With end lock (R)     |                           |                                                                |
|                    | Axial piping type (P) |                           |                                                                |

\* For details of adjuster and functional option, refer to "Optional Specifications" on pages 70 to 73.

## Theoretical Output



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

(N)

| Bore size<br>(mm) | Rod size<br>(mm) | Operating<br>direction | Piston area<br>(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 output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

## Standard Stroke

| Model | Standard stroke (mm)                  |
|-------|---------------------------------------|
| MXS6  | 10, 20, 30, 40, 50                    |
| MXS8  | 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 |

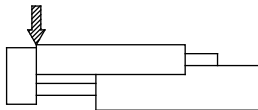
## Mass

| Model     | Standard stroke (mm) |      |      |      |      |      |      |      |      | Additional mass of adjuster option |                |                |                | Additional mass of functional option |               |                                     |
|-----------|----------------------|------|------|------|------|------|------|------|------|------------------------------------|----------------|----------------|----------------|--------------------------------------|---------------|-------------------------------------|
|           |                      |      |      |      |      |      |      |      |      | Rubber stopper                     |                | Shock absorber |                | With buffer                          | With end lock | Axial piping type<br>S: Stroke (mm) |
|           | 10                   | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150  | Extension end                      | Retraction end | Extension end  | Retraction end |                                      |               |                                     |
| MXS6 (L)  | 80                   | 100  | 115  | 155  | 180  | —    | —    | —    | —    | 10                                 | 5              | —              | —              | 30                                   | —             | 13+0.15S                            |
| MXS8 (L)  | 150                  | 160  | 190  | 235  | 285  | 410  | —    | —    | —    | 15                                 | 9              | 35             | 45             | 40                                   | 40            | 26+0.17S                            |
| MXS12 (L) | 325                  | 325  | 325  | 385  | 480  | 660  | 890  | —    | —    | 30                                 | 20             | 50             | 60             | 80                                   | 90            | 43+0.21S                            |
| MXS16 (L) | 570                  | 570  | 580  | 640  | 760  | 1090 | 1370 | 1700 | —    | 50                                 | 30             | 80             | 105            | 120                                  | 160           | 55+0.21S                            |
| MXS20 (L) | 960                  | 980  | 1010 | 1100 | 1250 | 1630 | 2150 | 2670 | 3190 | 100                                | 71             | 170            | 205            | 140                                  | 310           | 150+0.45S                           |
| MXS25 (L) | 1660                 | 1680 | 1690 | 1840 | 2090 | 2650 | 3270 | 4140 | 4710 | 150                                | 125            | 215            | 300            | 240                                  | 540           | 220+0.45S                           |

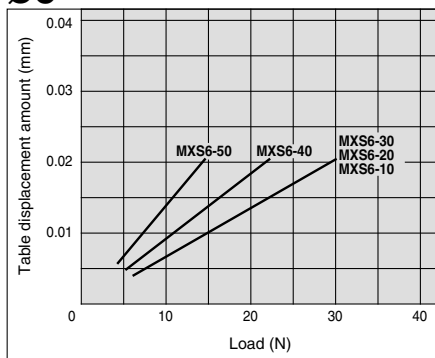
## Table Deflection (Reference Values)

### Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

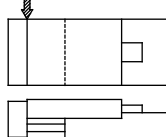


ø6

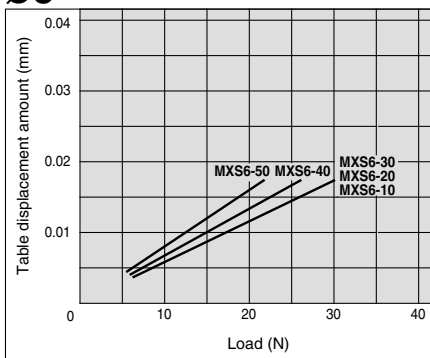


### Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

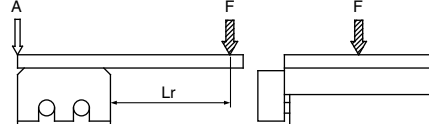


ø6

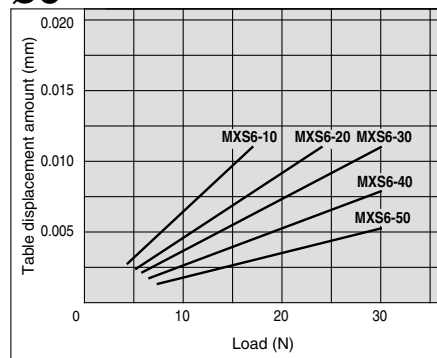


### Table displacement due to roll moment load

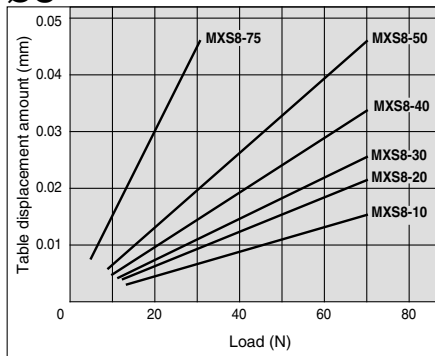
Table displacement of section A when loads are applied to the section F with the slide table retracted.



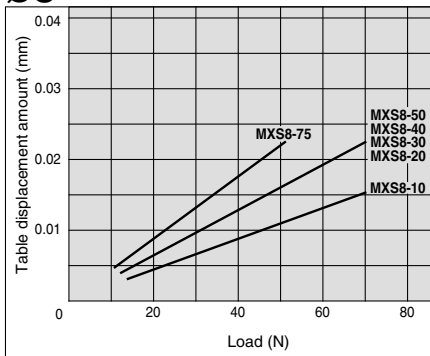
ø6



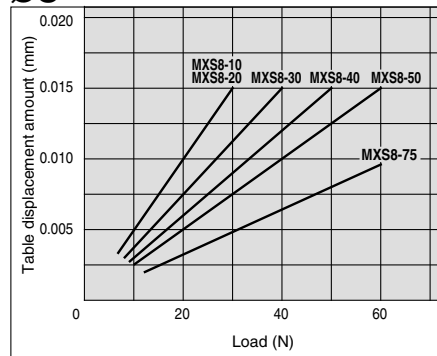
ø8



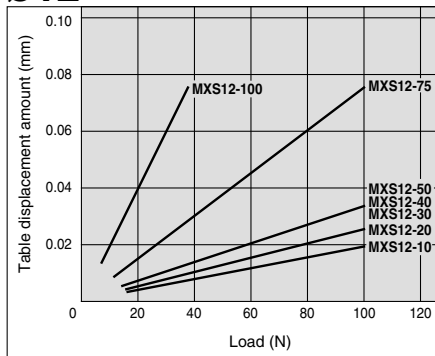
ø8



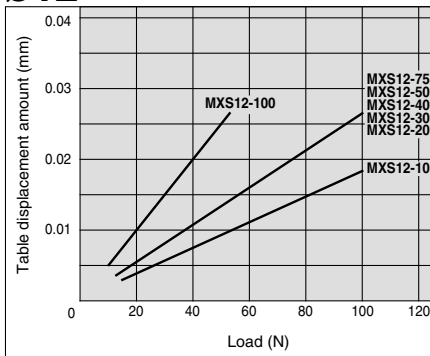
ø8



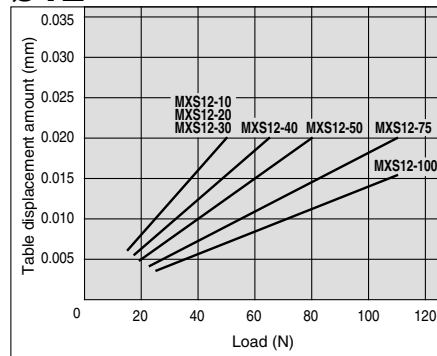
ø12



ø12



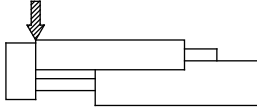
ø12



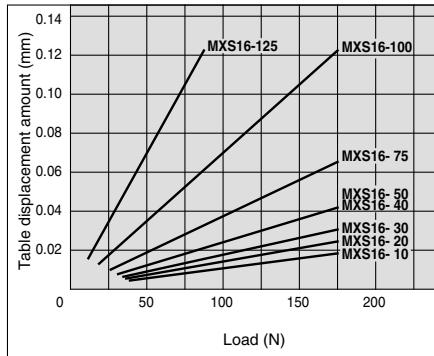
The graphs below show the table displacement when the static moment load is applied to the table. The graphs do not show the loadable mass. Refer to the Model Selection for the loadable mass.

## Table displacement due to pitch moment load

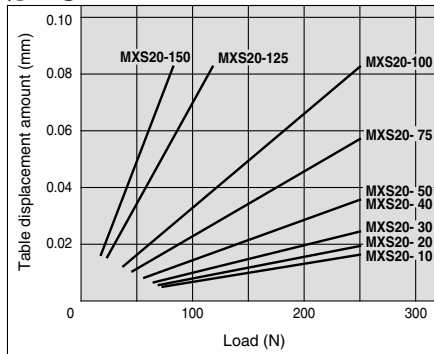
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



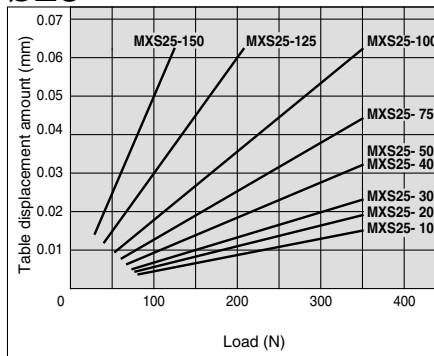
**ø16**



**ø20**

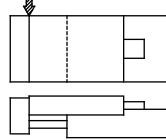


**ø25**

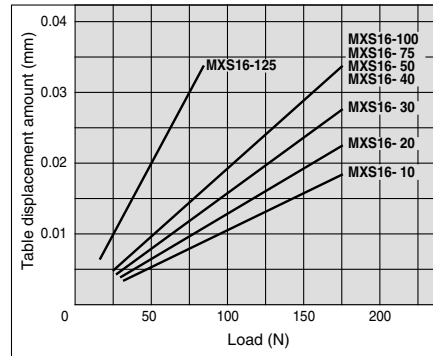


## Table displacement due to yaw moment load

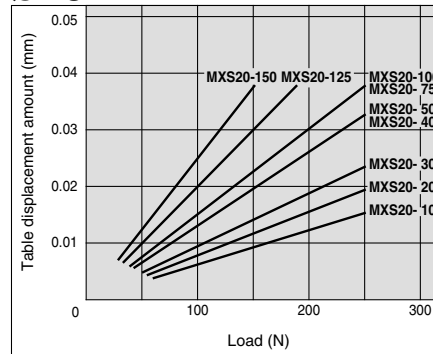
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



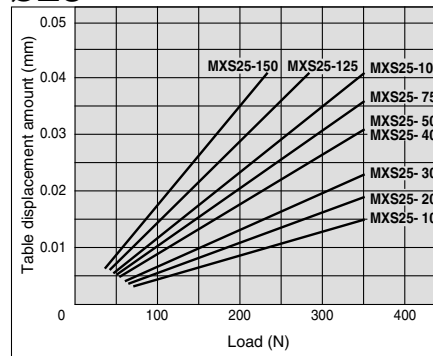
**ø16**



**ø20**

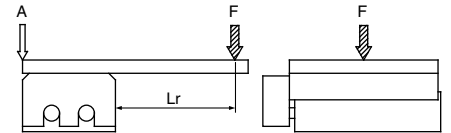


**ø25**

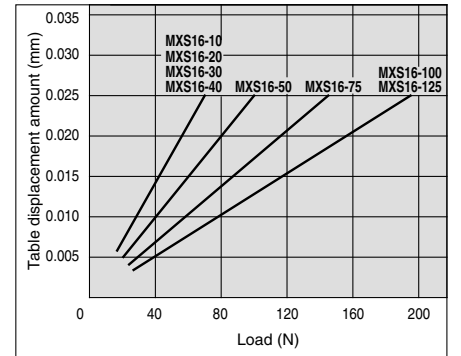


## Table displacement due to roll moment load

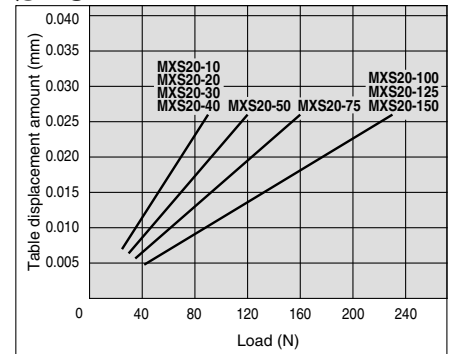
Table displacement of section A when loads are applied to the section F with the slide table retracted.



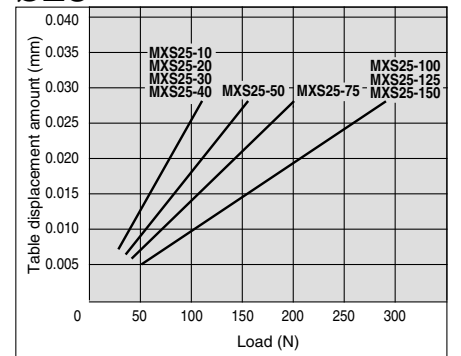
**ø16**



**ø20**



**ø25**



MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

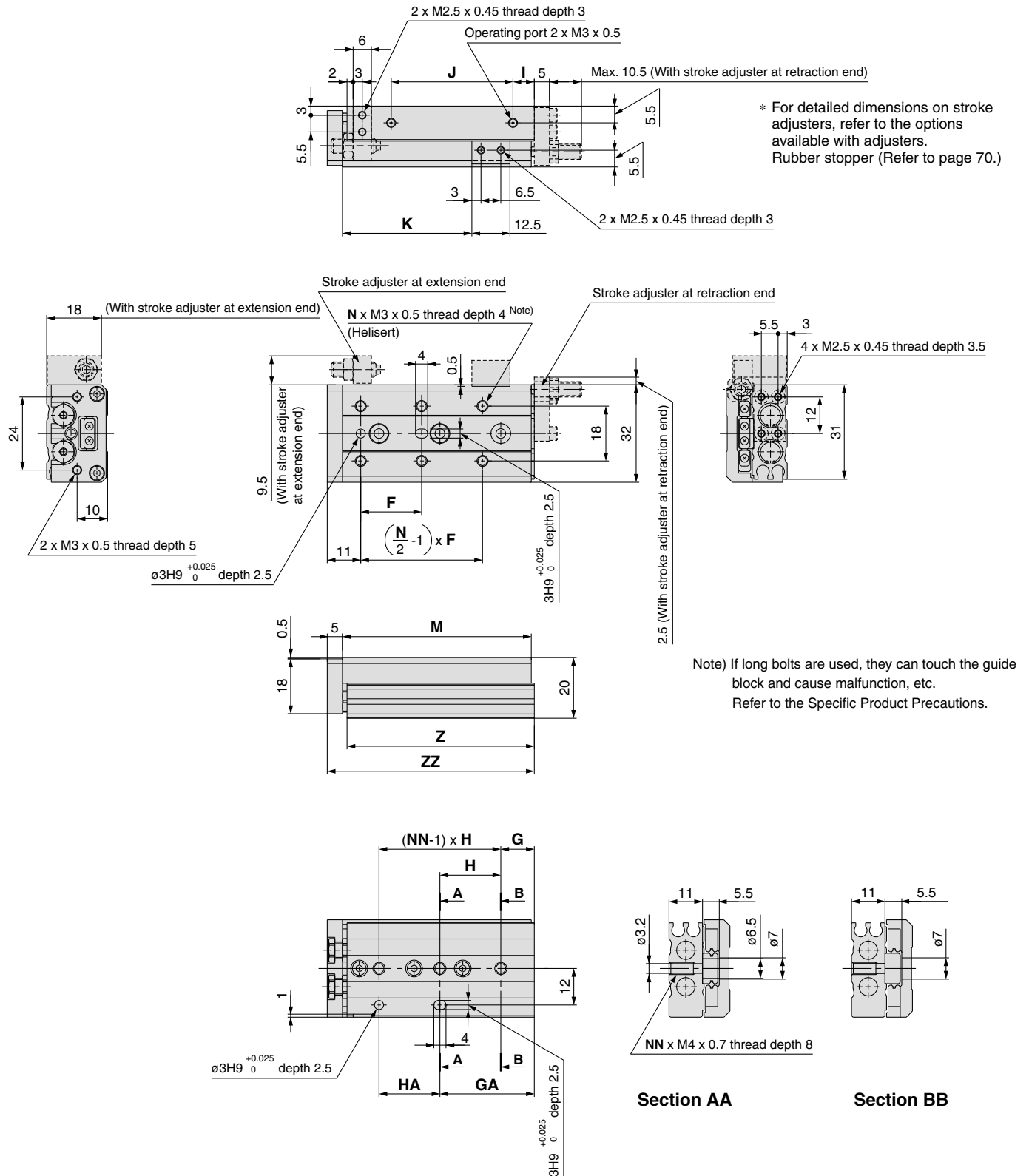
-X□

Individual  
-X□

# Series MXS

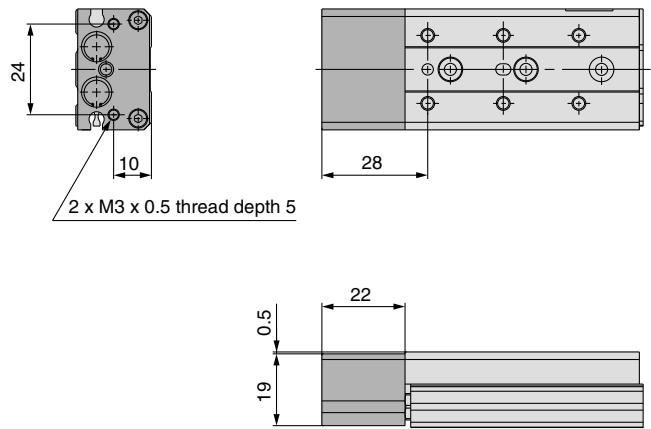
## Dimensions: MXS6

### Basic style



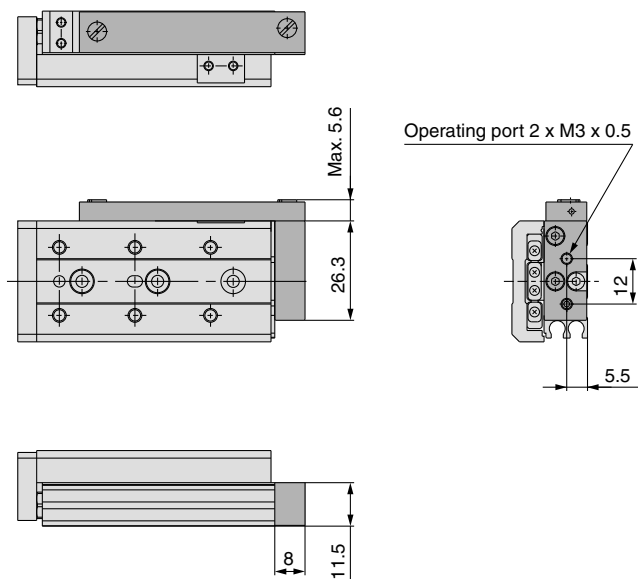
| Model   | F  | N | G  | H  | NN | GA | HA | I  | J  | K    | M   | Z    | ZZ  |
|---------|----|---|----|----|----|----|----|----|----|------|-----|------|-----|
| MXS6-10 | 20 | 4 | 6  | 25 | 2  | 11 | 20 | 10 | 17 | 22.5 | 42  | 41.5 | 48  |
| MXS6-20 | 30 | 4 | 6  | 35 | 2  | 21 | 20 | 10 | 27 | 32.5 | 52  | 51.5 | 58  |
| MXS6-30 | 20 | 6 | 11 | 20 | 3  | 31 | 20 | 7  | 40 | 42.5 | 62  | 61.5 | 68  |
| MXS6-40 | 28 | 6 | 13 | 30 | 3  | 43 | 30 | 19 | 50 | 52.5 | 84  | 83.5 | 90  |
| MXS6-50 | 38 | 6 | 17 | 24 | 4  | 41 | 48 | 25 | 60 | 62.5 | 100 | 99.5 | 106 |

With buffer (ø6) MXS6-□□F



\* Other dimensions are the same as the basic style.

Axial piping type (ø6) MXS6-□□P



\* Other dimensions are the same as the basic style.

MXH

MXU

**MXS**

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

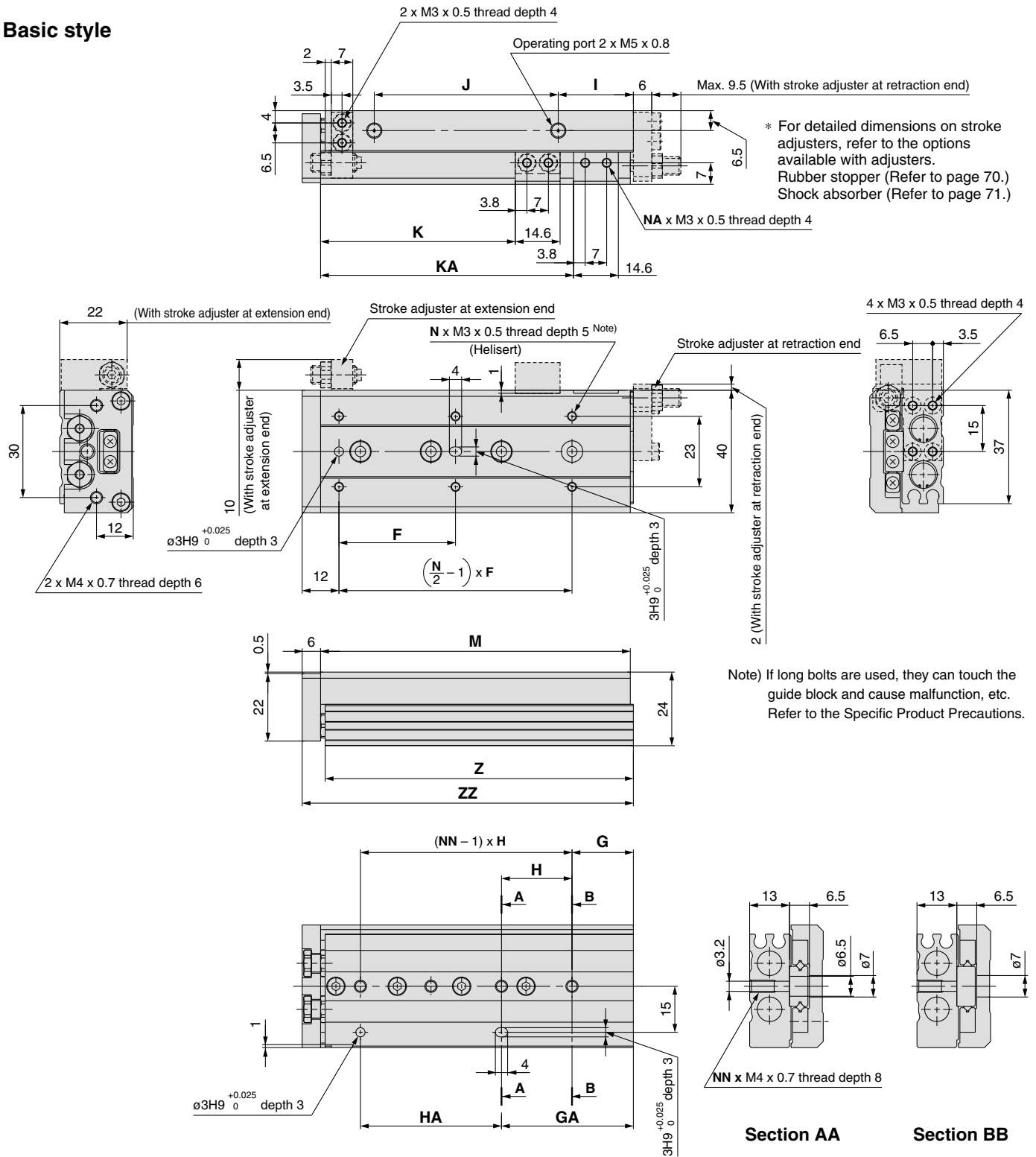
D-□

-X□

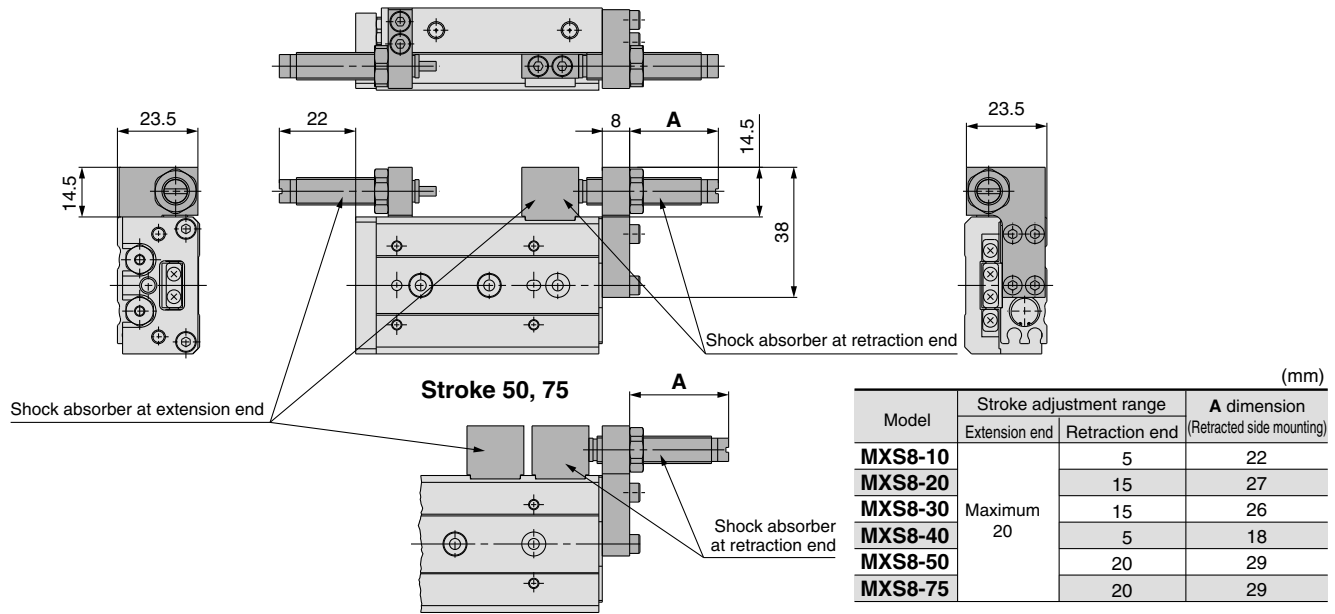
Individual  
-X□

## Dimensions: MXS8

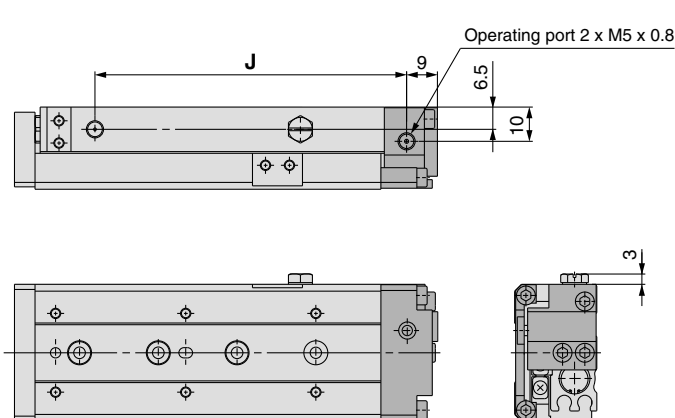
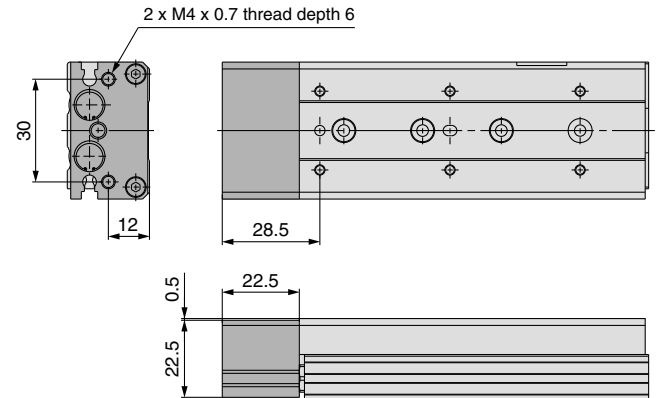
### Basic style



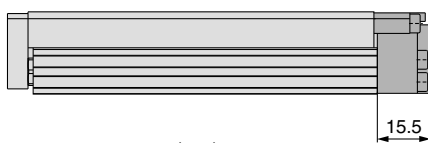
| Model   | F  | N | G  | H  | NN | GA | HA | I    | J    | K    | KA    | NA | M   | Z     | ZZ  |
|---------|----|---|----|----|----|----|----|------|------|------|-------|----|-----|-------|-----|
| MXS8-10 | 25 | 4 | 9  | 28 | 2  | 17 | 20 | 13   | 19.5 | 23.5 | —     | 2  | 49  | 48.5  | 56  |
|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

**With shock absorber (ø8) MXS8-□□BS/BT/B**


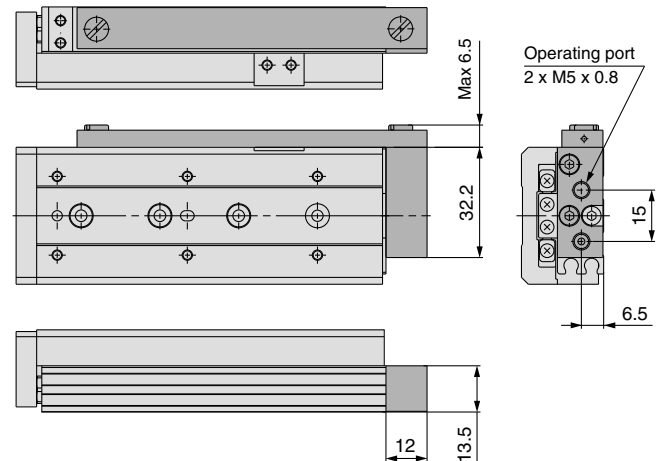
\* Other dimensions are the same as the basic style.

**With end lock (ø8) MXS8-□□R**

**With buffer (ø8) MXS8-□□F**


\* Other dimensions are the same as the basic style.

**Axial piping type (ø8) MXS8-□□P**


| Model    | J (mm) |
|----------|--------|
| MXS8-10R | 39     |
| MXS8-20R | 44     |
| MXS8-30R | 55     |
| MXS8-40R | 73     |
| MXS8-50R | 91     |
| MXS8-75R | 141    |



\* Other dimensions are the same as the basic style.

\* Other dimensions are the same as the basic style.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

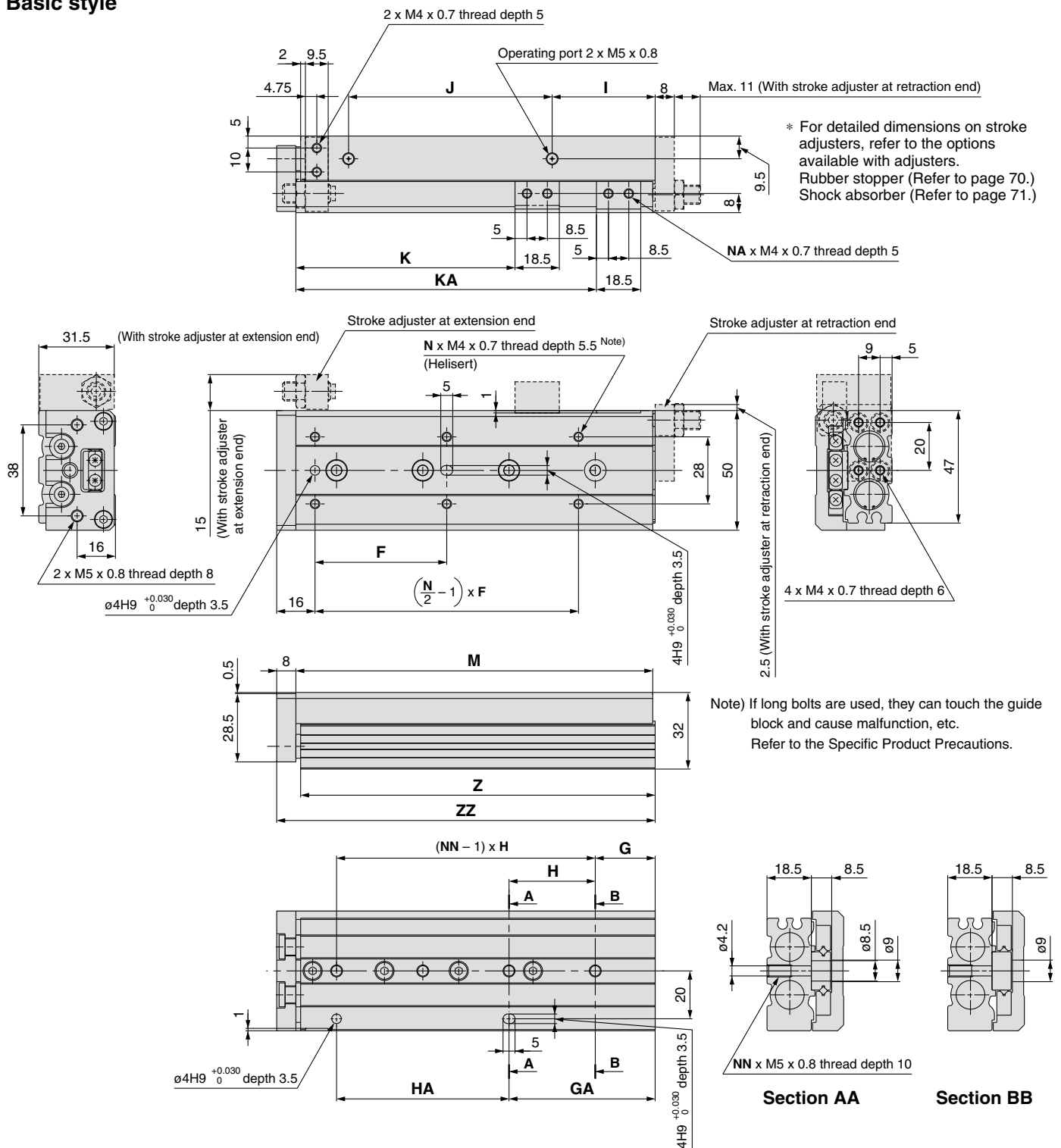
-X□

Individual

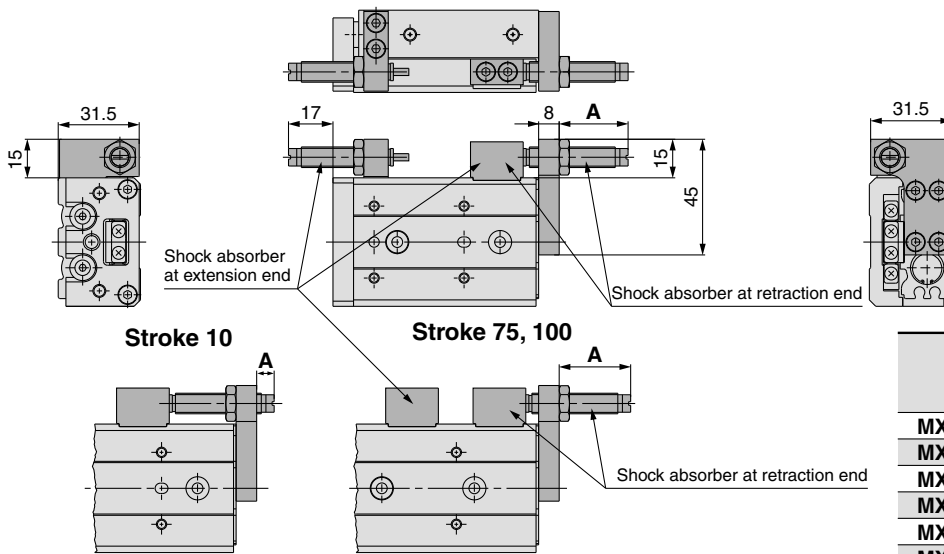
-X□

## Dimensions: MXS12

### Basic style

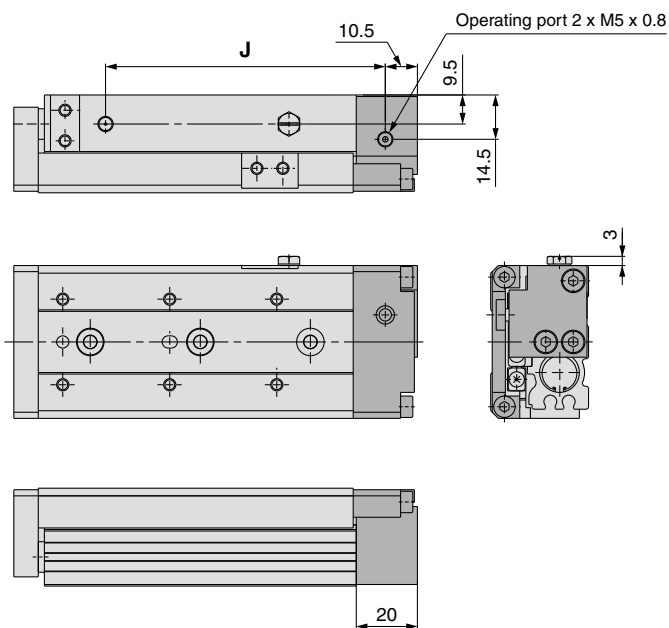


| Model     | F  | N | G  | H  | NN | GA  | HA | I  | J   | K     | KA    | NA | M   | Z   | ZZ  |
|-----------|----|---|----|----|----|-----|----|----|-----|-------|-------|----|-----|-----|-----|
| MXS12-10  | 35 | 4 | 15 | 40 | 2  | 15  | 40 | 10 | 40  | 26.5  | —     | 2  | 71  | 70  | 80  |
| MXS12-20  | 35 | 4 | 15 | 40 | 2  | 15  | 40 | 10 | 40  | 36.5  | —     | 2  | 71  | 70  | 80  |
| MXS12-30  | 35 | 4 | 15 | 40 | 2  | 15  | 40 | 10 | 40  | 46.5  | —     | 2  | 71  | 70  | 80  |
| MXS12-40  | 50 | 4 | 17 | 25 | 3  | 42  | 25 | 10 | 52  | 56.5  | —     | 2  | 83  | 82  | 92  |
| MXS12-50  | 35 | 6 | 15 | 36 | 3  | 51  | 36 | 22 | 60  | 66.5  | —     | 2  | 103 | 102 | 112 |
| MXS12-75  | 55 | 6 | 25 | 36 | 4  | 61  | 72 | 43 | 85  | 91.5  | 125.5 | 4  | 149 | 148 | 158 |
| MXS12-100 | 65 | 6 | 35 | 38 | 5  | 111 | 76 | 52 | 130 | 116.5 | 179.5 | 4  | 203 | 202 | 212 |

**With shock absorber (ø12) MXS12-□□BS/BT/B**


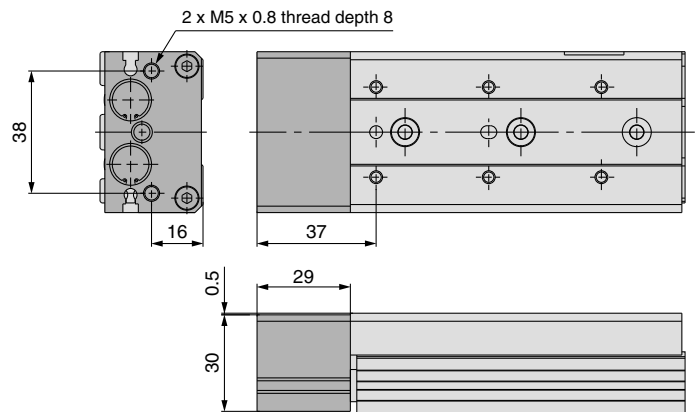
\* Other dimensions are the same as the basic style.

| Model     | Stroke adjustment range |                   | A dimension<br>(Retracted side<br>mounting) |
|-----------|-------------------------|-------------------|---------------------------------------------|
|           | Extension<br>end        | Retraction<br>end |                                             |
| MXS12-10  | Maximum<br>20           | 2                 | 7                                           |
| MXS12-20  |                         | 5                 | 17                                          |
| MXS12-30  |                         | 15                | 27                                          |
| MXS12-40  |                         | 15                | 25                                          |
| MXS12-50  |                         | 5                 | 15                                          |
| MXS12-75  |                         | 15                | 28                                          |
| MXS12-100 |                         | 15                | 28                                          |

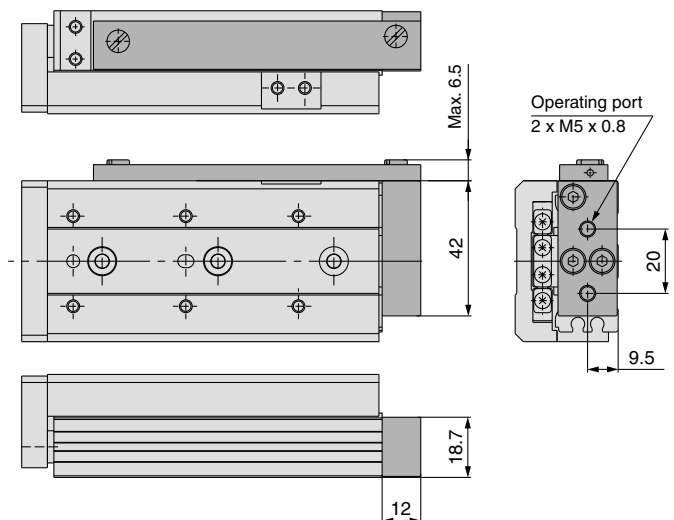
**With end lock (ø12) MXS12-□□R**


| Model      | J (mm) |
|------------|--------|
| MXS12-10R  | 59.5   |
| MXS12-20R  | 59.5   |
| MXS12-30R  | 59.5   |
| MXS12-40R  | 71.5   |
| MXS12-50R  | 91.5   |
| MXS12-75R  | 137.5  |
| MXS12-100R | 191.5  |

\* Other dimensions are the same as the basic style.

**With buffer (ø12) MXS12-□□F**


\* Other dimensions are the same as the basic style.

**Axial piping type (ø12) MXS12-□□P**


\* Other dimensions are the same as the basic style.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

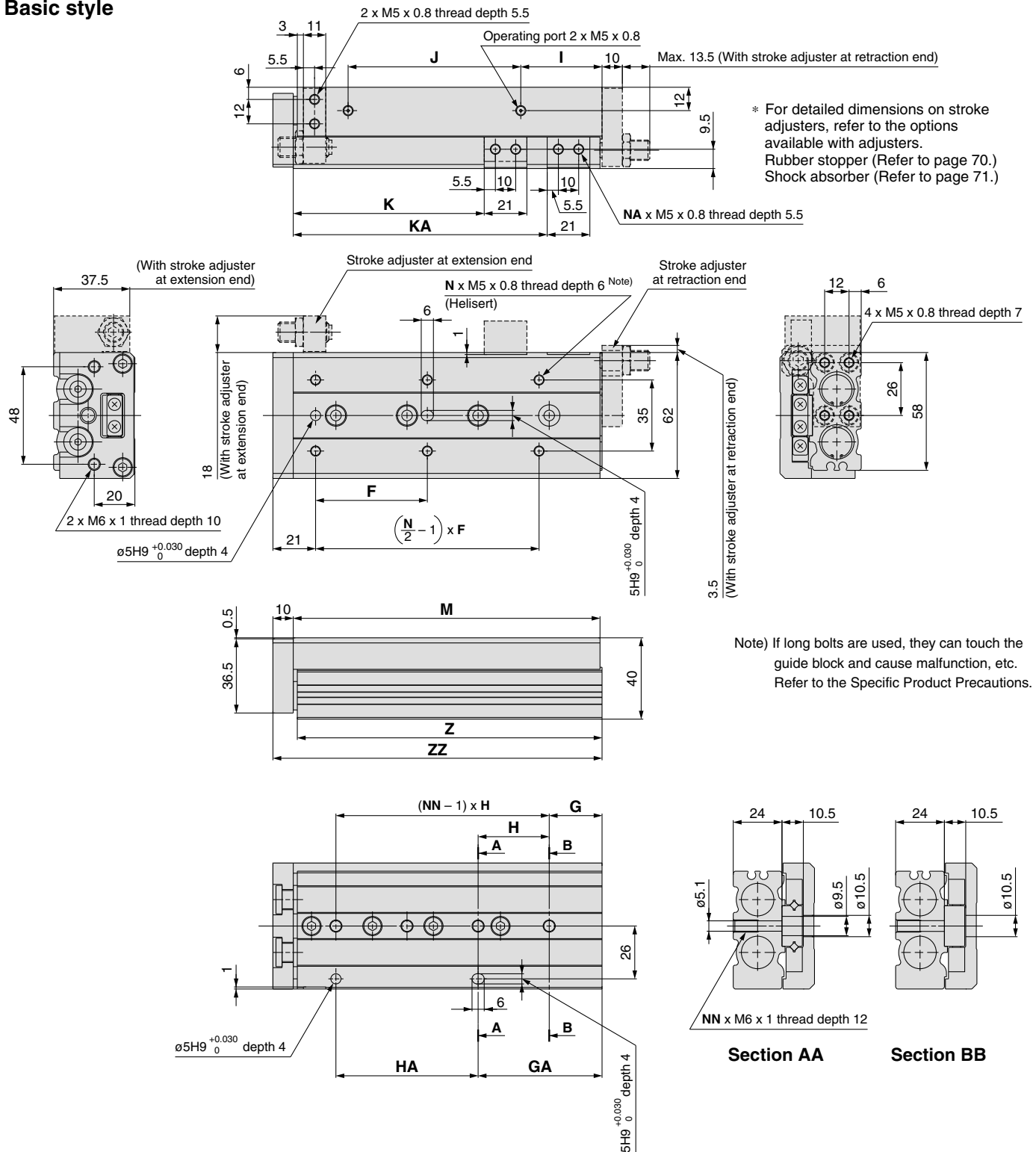
-X□

Individual

-X□

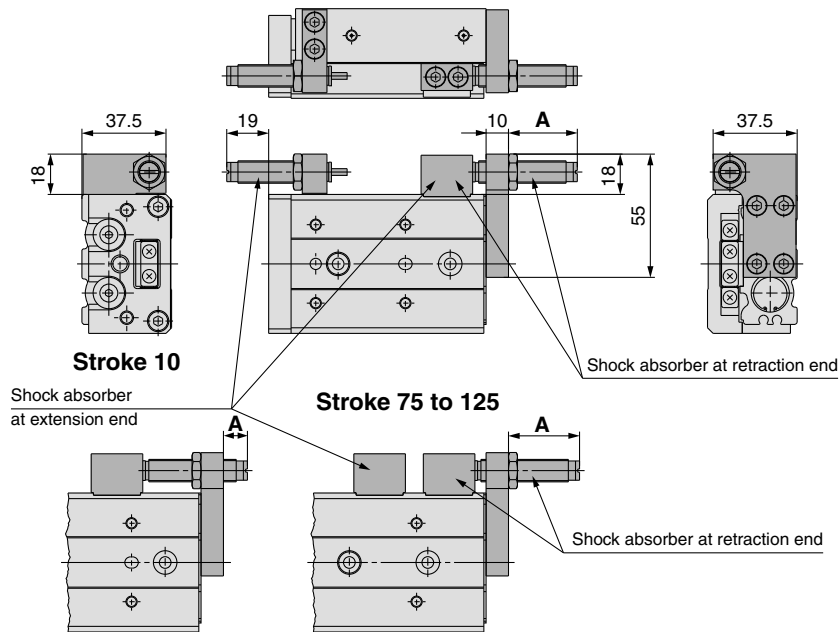
## Dimensions: MXS16

### Basic style



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

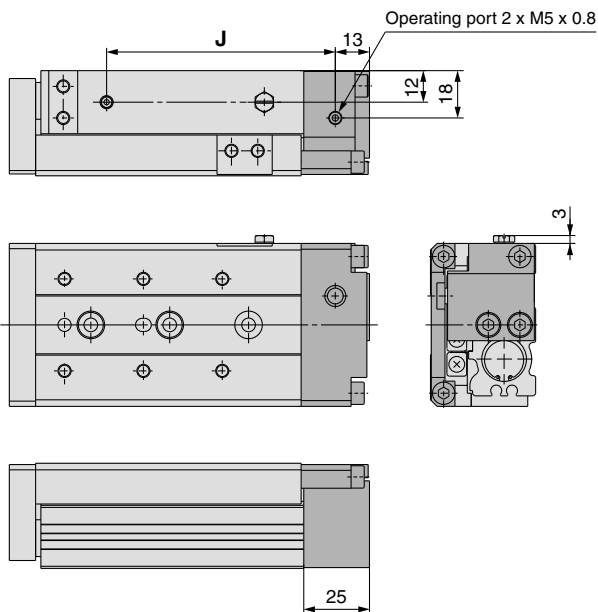
## With shock absorber (ø16) MXS16-□□BS/BT/B



\* Other dimensions are the same as the basic style.

| Model     | Stroke adjustment range |                | A dimension<br>(Retracted side mounting) |
|-----------|-------------------------|----------------|------------------------------------------|
|           | Extension end           | Retraction end |                                          |
| MXS16-10  | Maximum 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                                       |

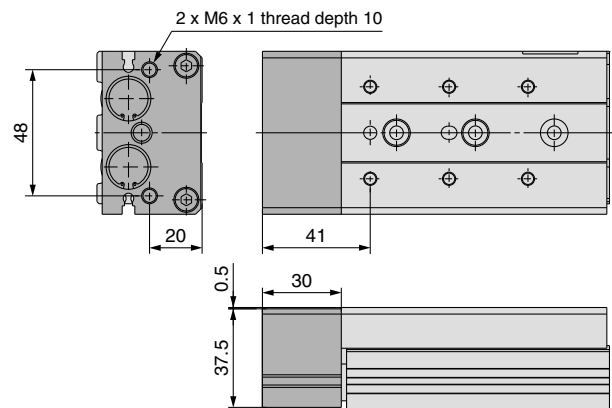
## With end lock (ø16) MXS16-□□R



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

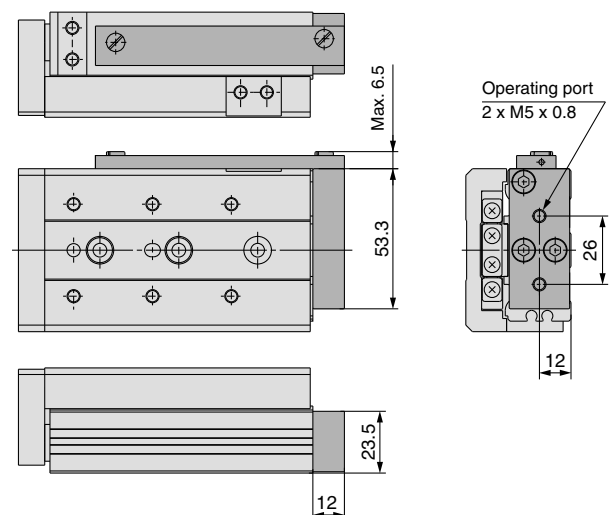
\* Other dimensions are the same as the basic style.

## With buffer (ø16) MXS16-□□F



\* Other dimensions are the same as the basic style.

## Axial piping type (ø16) MXS16-□□P



\* Other dimensions are the same as the basic style.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

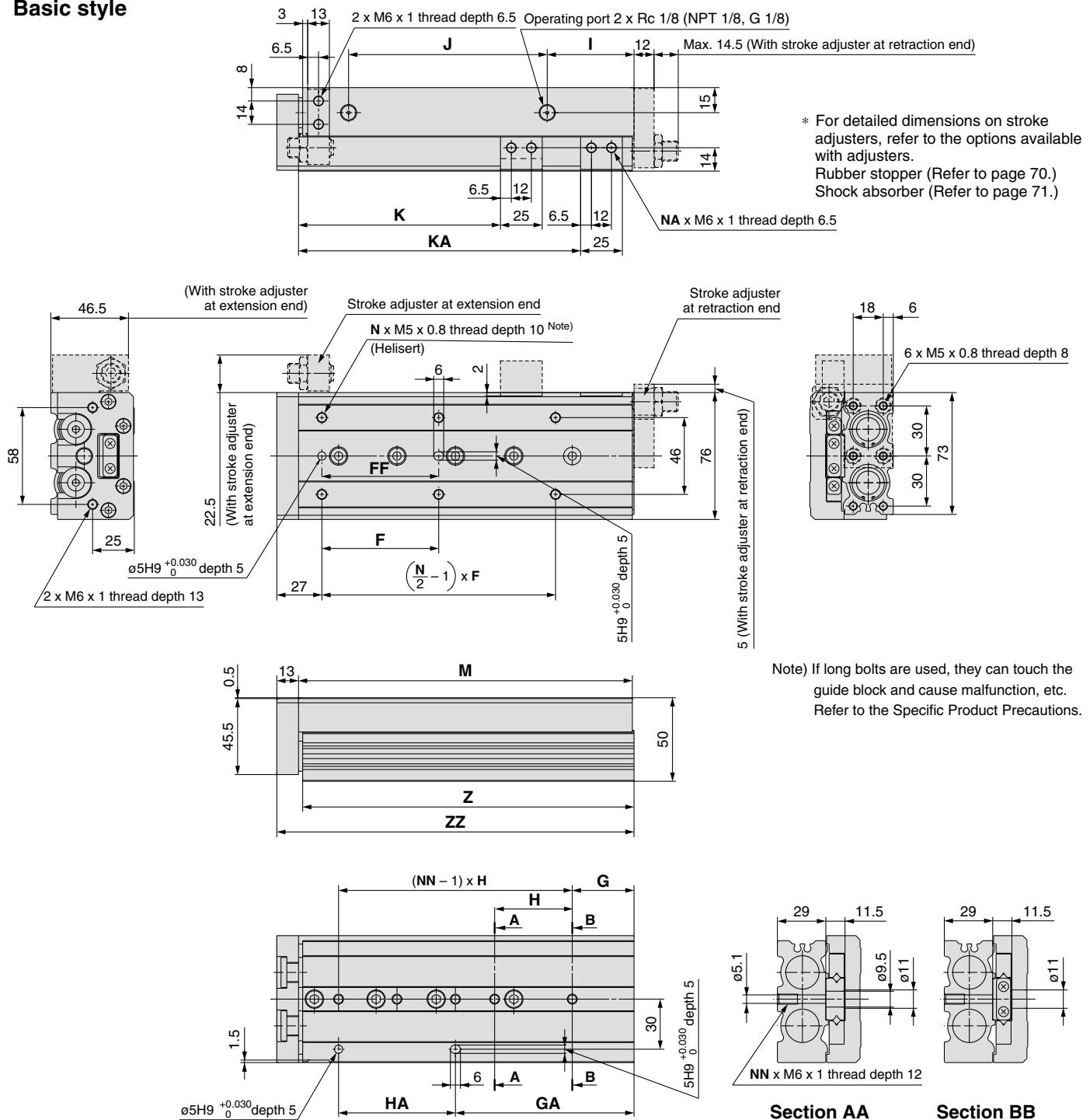
-X□

Individual  
-X□

# Series MXS

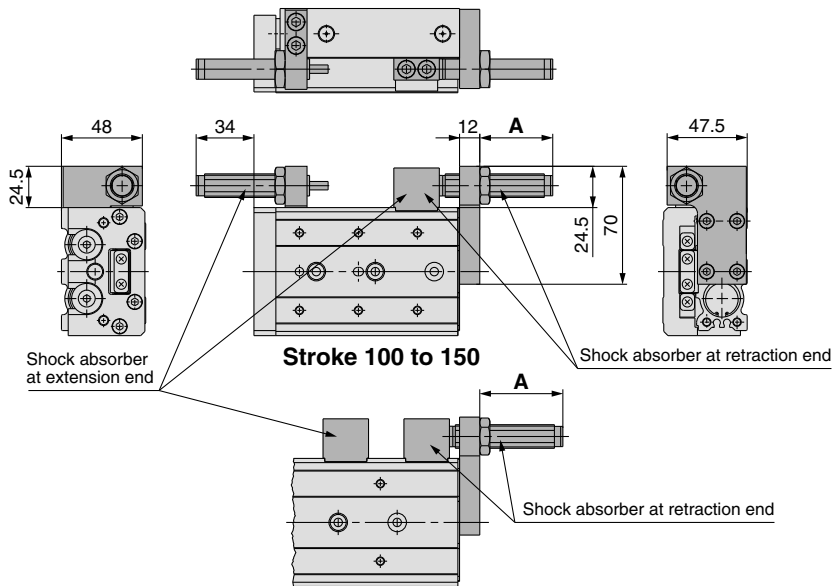
## Dimensions: MXS20

### Basic style



| 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 |

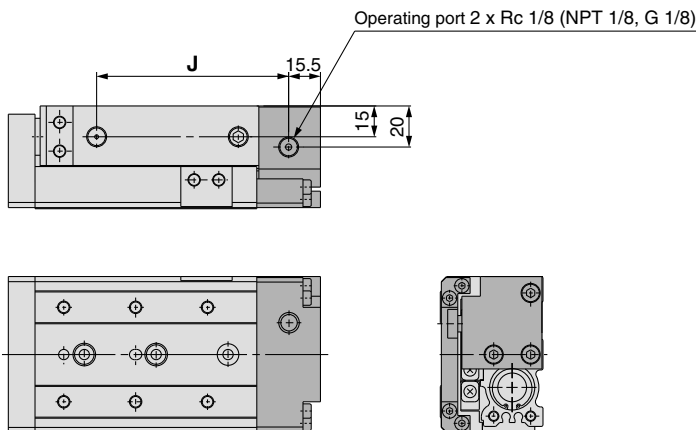
## With shock absorber (ø20) MXS20-□□BS/BT/B



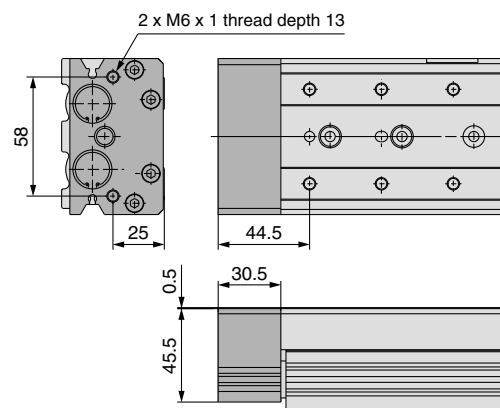
| Model     | Stroke adjustment range |                | A dimension<br>(Retracted side mounting) |
|-----------|-------------------------|----------------|------------------------------------------|
|           | Extension end           | Retraction end |                                          |
| MXS20-10  | Maximum<br>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                                       |

\* Other dimensions are the same as the basic style.

## With end lock (ø20) MXS20-□□R

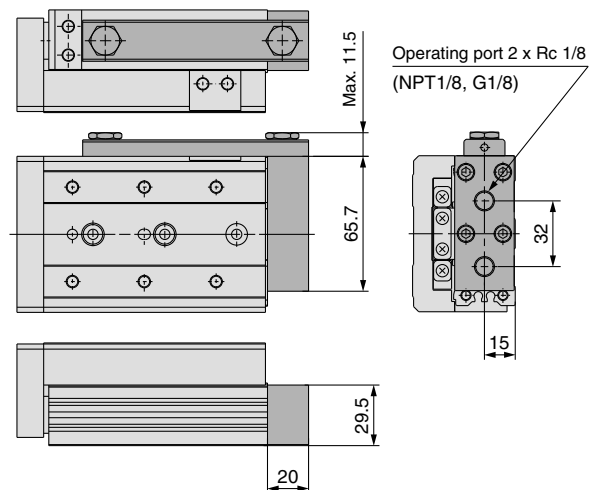


## With buffer (ø20) MXS20-□□F



\* Other dimensions are the same as the basic style.

## Axial piping type (ø20) MXS20-□□P



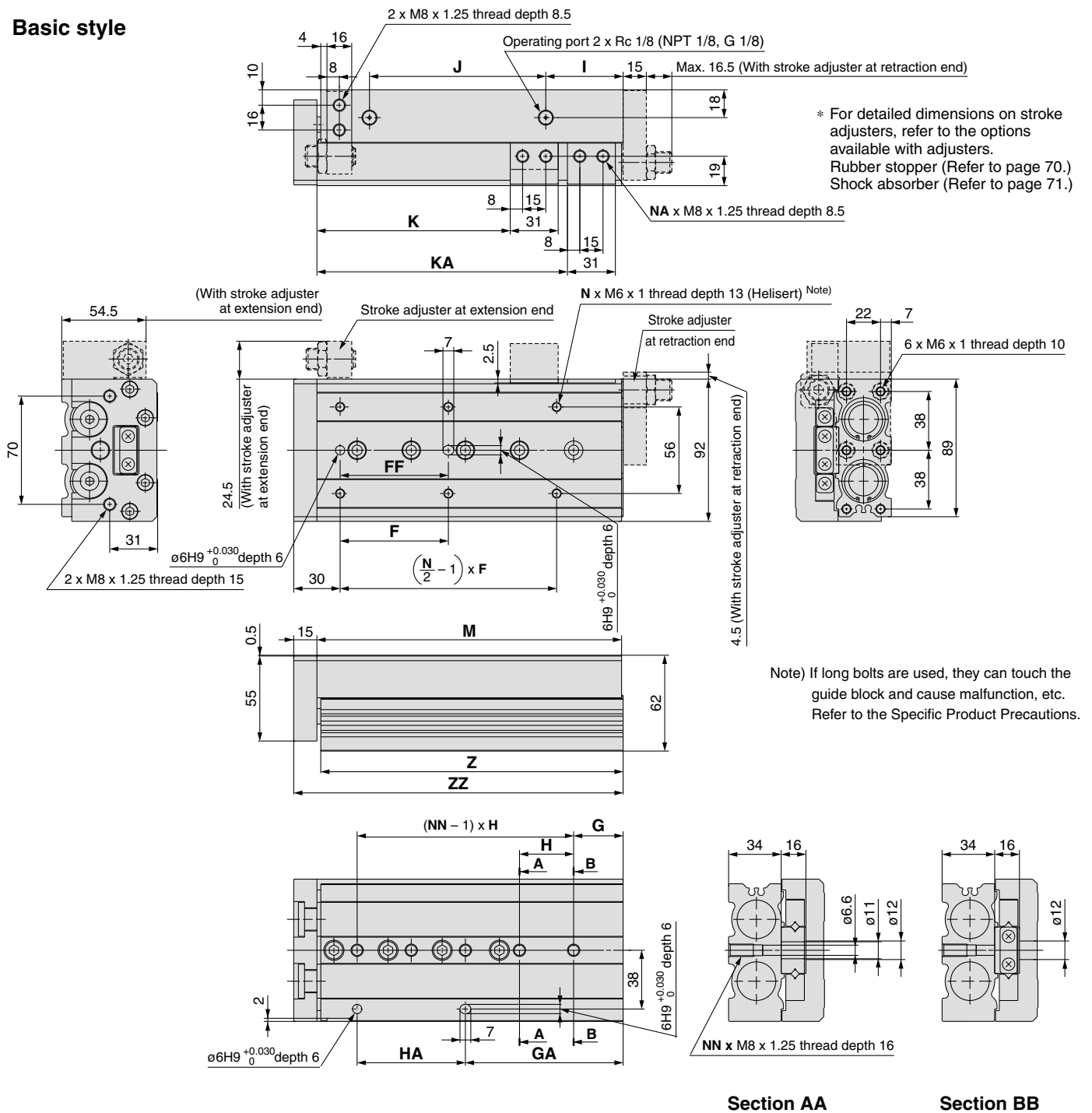
| Model      | J (mm) |
|------------|--------|
| MXS20-10R  | 68.5   |
| MXS20-20R  | 68.5   |
| MXS20-30R  | 68.5   |
| MXS20-40R  | 78.5   |
| MXS20-50R  | 93.5   |
| MXS20-75R  | 132.5  |
| MXS20-100R | 185.5  |
| MXS20-125R | 239.5  |
| MXS20-150R | 291.5  |

\* Other dimensions are the same as the basic style.

\* Other dimensions are the same as the basic style.

## Dimensions: MXS25

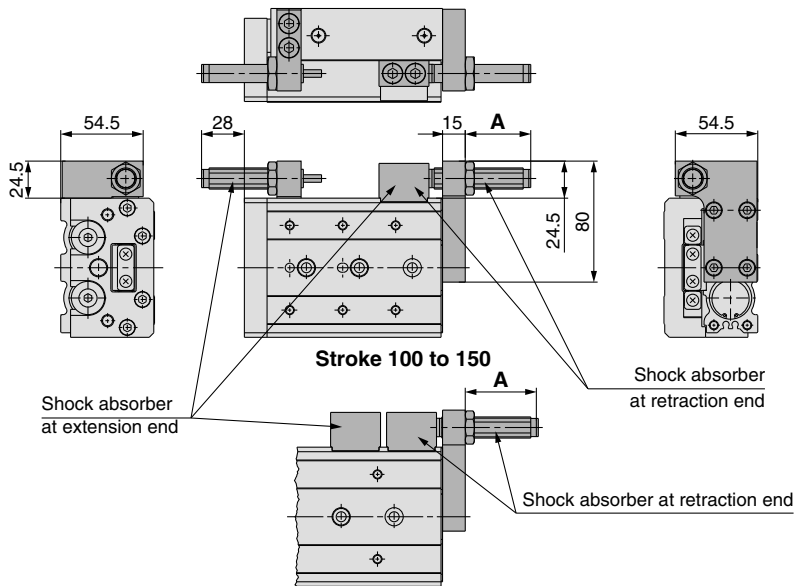
## Basic style



Section AA

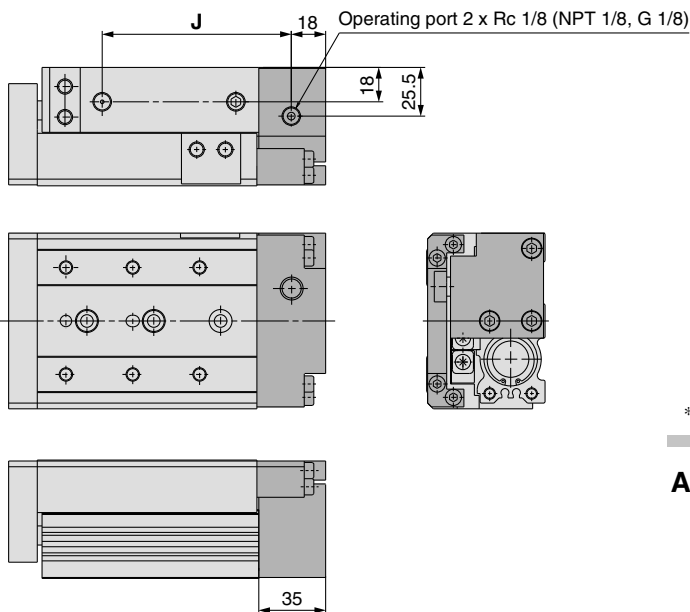
Section BB

| (mm)             |    |    |   |    |    |    |     |    |    |     |     |     |    |     |       |     |
|------------------|----|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-------|-----|
| Model            | 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 |

**With shock absorber (ø25) MXS25-□□BS/BT/B**


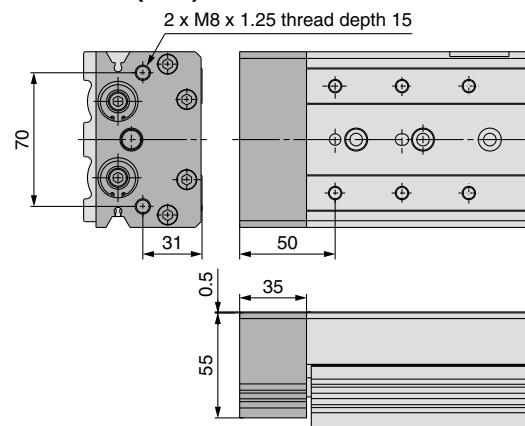
\* Other dimensions are the same as the basic style.

| Model     | Stroke adjustment range |                | A dimension<br>(Retracted side mounting) |
|-----------|-------------------------|----------------|------------------------------------------|
|           | Extension end           | Retraction end |                                          |
| MXS25-10  | Maximum 35              | 5              | 26                                       |
| MXS25-20  |                         | 15             | 36                                       |
| MXS25-30  |                         | 25             | 46                                       |
| MXS25-40  |                         | 35             | 46                                       |
| MXS25-50  |                         | 30             | 43                                       |
| MXS25-75  |                         | 15             | 27                                       |
| MXS25-100 |                         | 35             | 48                                       |
| MXS25-125 |                         | 35             | 46                                       |
| MXS25-150 |                         | 35             | 46                                       |

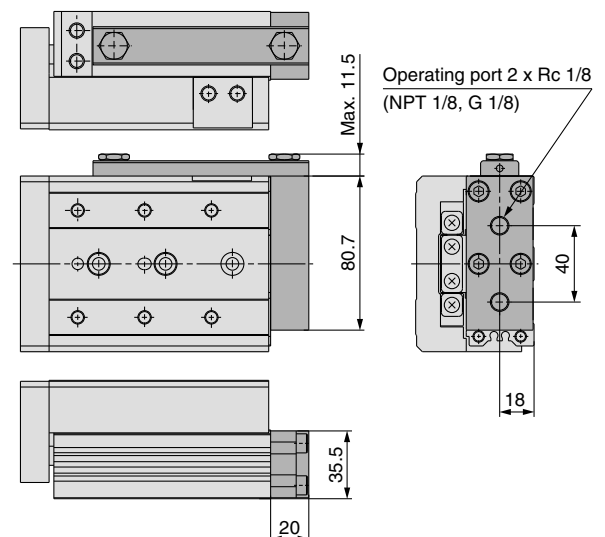
**With end lock (ø25) MXS25-□□R**


| Model      | J (mm) |
|------------|--------|
| MXS25-10R  | 76     |
| MXS25-20R  | 76     |
| MXS25-30R  | 76     |
| MXS25-40R  | 86     |
| MXS25-50R  | 99     |
| MXS25-75R  | 140    |
| MXS25-100R | 181    |
| MXS25-125R | 239    |
| MXS25-150R | 279    |

\* Other dimensions are the same as the basic style.

**With buffer (ø25) MXS25-□□F**


\* Other dimensions are the same as the basic style.

**Axial piping type (ø25) MXS25-□□P**


\* Other dimensions are the same as the basic style.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

-X□

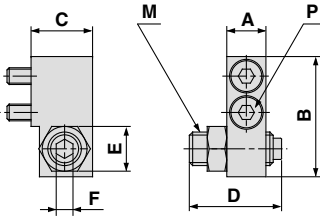
Individual  
-X□

# Series MXS

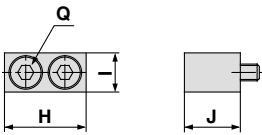
## Optional Specifications 1

### Dimensions of Adjuster Option at Extension End/ Rubber Stopper (AS/AT)

#### Body mounting section



#### Table mounting section

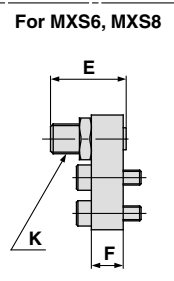
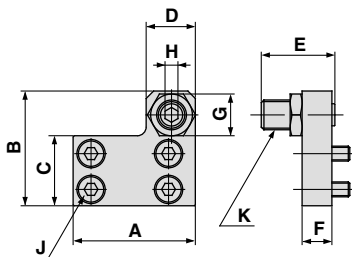


| Applicable size | Model            | Stroke adjustment range (mm) | Body mounting section |      |      |      |    |     |            |           | Table mounting section |    |      |          |
|-----------------|------------------|------------------------------|-----------------------|------|------|------|----|-----|------------|-----------|------------------------|----|------|----------|
|                 |                  |                              | A                     | B    | C    | D    | E  | F   | M          | P *       | H                      | I  | J    | Q *      |
| MXS6 (L)        | MXS-AS6 (L)      | 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 (L)-X11  | 15                           |                       |      |      | 26.5 |    |     |            |           |                        |    |      |          |
| MXS8 (L)        | MXS-AS8 (L)      | 5                            | 7                     | 21.5 | 11   | 16.5 | 8  | 3   | M6 x 1     | M3 x 12   | 14.6                   | 7  | 10   | M3 x 10  |
|                 | MXS-AS8 (L)-X11  | 15                           |                       |      |      | 26.5 |    |     |            |           |                        |    |      |          |
|                 | MXS-AS8 (L)-X12  | 25                           |                       |      |      | 36.5 |    |     |            |           |                        |    |      |          |
| MXS12 (L)       | MXS-AS12 (L)     | 5                            | 9.5                   | 31   | 16   | 20   | 12 | 4   | M8 x 1     | M4 x 15   | 18.5                   | 10 | 13   | M4 x 12  |
|                 | MXS-AS12 (L)-X11 | 15                           |                       |      |      | 30   |    |     |            |           |                        |    |      |          |
|                 | MXS-AS12 (L)-X12 | 25                           |                       |      |      | 40   |    |     |            |           |                        |    |      |          |
| MXS16 (L)       | MXS-AS16 (L)     | 5                            | 11                    | 37   | 19   | 24.5 | 14 | 5   | M10 x 1    | M5 x 18   | 21                     | 12 | 16.5 | M5 x 18  |
|                 | MXS-AS16 (L)-X11 | 15                           |                       |      |      | 34.5 |    |     |            |           |                        |    |      |          |
|                 | MXS-AS16 (L)-X12 | 25                           |                       |      |      | 44.5 |    |     |            |           |                        |    |      |          |
| MXS20 (L)       | MXS-AS20 (L)     | 5                            | 13                    | 45.5 | 24   | 27.5 | 17 | 6   | M12 x 1.25 | M6 x 20   | 25                     | 13 | 21   | M6 x 20  |
|                 | MXS-AS20 (L)-X11 | 15                           |                       |      |      | 37.5 |    |     |            |           |                        |    |      |          |
|                 | MXS-AS20 (L)-X12 | 25                           |                       |      |      | 47.5 |    |     |            |           |                        |    |      |          |
| MXS25 (L)       | MXS-AS25 (L)     | 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 (L)-X11 | 15                           |                       |      |      | 42.5 |    |     |            |           |                        |    |      |          |
|                 | MXS-AS25 (L)-X12 | 25                           |                       |      |      | 52.5 |    |     |            |           |                        |    |      |          |

\* Size of hexagon socket head cap screw

It is also available with the symmetric type. For ordering part numbers, refer to "How to Order Stroke Adjuster" below. Dimensions are identical with the standard type.

### Retraction End



| Applicable size | Model            | Stroke adjustment range (mm) | A  | B    | C    | D  | E    | F  | G  | H   | J *      | K          |
|-----------------|------------------|------------------------------|----|------|------|----|------|----|----|-----|----------|------------|
| MXS6 (L)        | MXS-AT6 (L)      | 5                            | 21 | 19   | 10.5 | 8  | 16.5 | 5  | 7  | 2.5 | M2.5 x 8 | M5 x 0.8   |
|                 | MXS-AT6 (L)-X11  | 15                           |    |      |      |    | 26.5 |    |    |     |          |            |
| MXS8 (L)        | MXS-AT8 (L)      | 5                            | 25 | 22.5 | 12.5 | 9  | 16.5 | 6  | 8  | 3   | M3 x 10  | M6 x 1     |
|                 | MXS-AT8 (L)-X11  | 15                           |    |      |      |    | 26.5 |    |    |     |          |            |
|                 | MXS-AT8 (L)-X12  | 25                           |    |      |      |    | 36.5 |    |    |     |          |            |
| MXS12 (L)       | MXS-AT12 (L)     | 5                            | 32 | 31   | 18.5 | 13 | 20   | 8  | 12 | 4   | M4 x 8   | M8 x 1     |
|                 | MXS-AT12 (L)-X11 | 15                           |    |      |      |    | 30   |    |    |     |          |            |
|                 | MXS-AT12 (L)-X12 | 25                           |    |      |      |    | 40   |    |    |     |          |            |
| MXS16 (L)       | MXS-AT16 (L)     | 5                            | 40 | 38.5 | 23   | 15 | 24.5 | 10 | 14 | 5   | M5 x 10  | M10 x 1    |
|                 | MXS-AT16 (L)-X11 | 15                           |    |      |      |    | 34.5 |    |    |     |          |            |
|                 | MXS-AT16 (L)-X12 | 25                           |    |      |      |    | 44.5 |    |    |     |          |            |
| MXS20 (L)       | MXS-AT20 (L)     | 5                            | 50 | 48   | 29   | 21 | 27.5 | 12 | 17 | 6   | M5 x 12  | M12 x 1.25 |
|                 | MXS-AT20 (L)-X11 | 15                           |    |      |      |    | 37.5 |    |    |     |          |            |
|                 | MXS-AT20 (L)-X12 | 25                           |    |      |      |    | 47.5 |    |    |     |          |            |
| MXS25 (L)       | MXS-AT25 (L)     | 5                            | 60 | 58   | 35   | 23 | 32.5 | 15 | 19 | 6   | M6 x 16  | M14 x 1.5  |
|                 | MXS-AT25 (L)-X11 | 15                           |    |      |      |    | 42.5 |    |    |     |          |            |
|                 | MXS-AT25 (L)-X12 | 25                           |    |      |      |    | 52.5 |    |    |     |          |            |

\* Size of hexagon socket head cap screw

It is also available with the symmetric type. For ordering part numbers, refer to "How to Order Stroke Adjuster" below. Dimensions are identical with the standard type.

### How to Order Stroke Adjuster (Accessory)

MXS — AS 12 L — X11

#### Stroke adjuster

|    |                 |                |
|----|-----------------|----------------|
| AS | Stroke adjuster | Extension end  |
| AT | Stroke adjuster | Retraction end |
| BS | Shock absorber  | Extension end  |
| BT | Shock absorber  | Retraction end |

#### Symmetric type

|     |                |
|-----|----------------|
| Nil | Standard type  |
| L   | Symmetric type |

#### Applicable bore size

|    |     |
|----|-----|
| 6  | ø6  |
| 8  | ø8  |
| 12 | ø12 |
| 16 | ø16 |
| 20 | ø20 |
| 25 | ø25 |

#### Adjustable range (Stroke adjuster only)

|      |       |          |
|------|-------|----------|
| Nil  | 5 mm  | Standard |
| -X11 | 15 mm | Option   |
| -X12 | 25 mm |          |

\* -X12 (adjustable range: 25 mm) is not available with the MXS6 series.

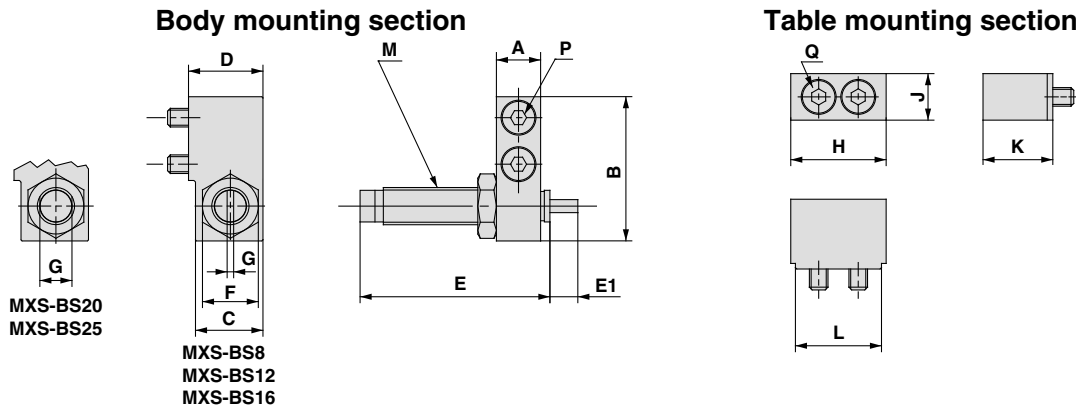
\* -X11 and -X12 are not available with shock absorber type.

\* W/ shock absorber is not available with the MXS6 series.

\* For dimensions, refer to the figure above. As for symmetric type, view the external dimensions symmetrically. (Adjusting bolt in symmetric type is equipped in reverse direction.)

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

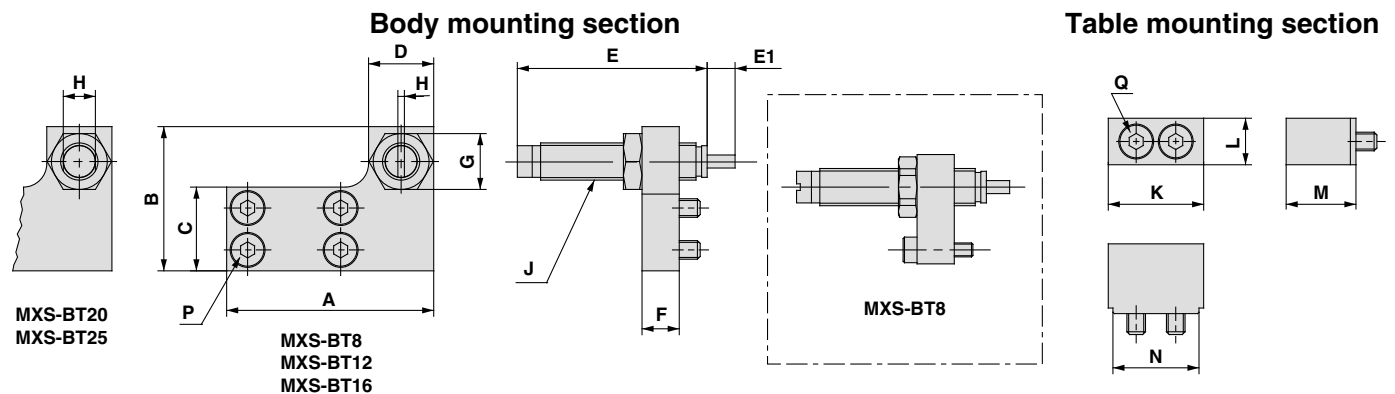
### Extension End



| Applicable size  | Model        | Body mounting section |      |      |      |      |    |    |     |           |         | Table mounting section |    |      |      |         |  |
|------------------|--------------|-----------------------|------|------|------|------|----|----|-----|-----------|---------|------------------------|----|------|------|---------|--|
|                  |              | A                     | B    | C    | D    | E    | E1 | F  | G   | M         | P *     | H                      | J  | K    | L    | Q *     |  |
| <b>MXS8 (L)</b>  | MXS-BS8 (L)  | 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 (L)</b> | MXS-BS12 (L) | 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 (L)</b> | MXS-BS16 (L) | 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 (L)</b> | MXS-BS20 (L) | 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 (L)</b> | MXS-BS25 (L) | 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  
It is also available with the symmetric type. For ordering part numbers, refer to "How to Order Stroke Adjuster" on page 70. Dimensions are identical with the standard type.

### Retraction End



| Applicable size  | Model        | Body mounting section |    |      |    |      |    |    |    |     |           |         | Table mounting section |    |      |      |         |  |
|------------------|--------------|-----------------------|----|------|----|------|----|----|----|-----|-----------|---------|------------------------|----|------|------|---------|--|
|                  |              | A                     | B  | C    | D  | E    | E1 | F  | G  | H   | J         | P *     | K                      | L  | M    | N    | Q *     |  |
| <b>MXS8 (L)</b>  | MXS-BT8 (L)  | 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 (L)</b> | MXS-BT12 (L) | 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 (L)</b> | MXS-BT16 (L) | 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 (L)</b> | MXS-BT20 (L) | 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 (L)</b> | MXS-BT25 (L) | 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  
It is also available with the symmetric type. For ordering part numbers, refer to "How to Order Stroke Adjuster" on page 70. Dimensions are identical with the standard type.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

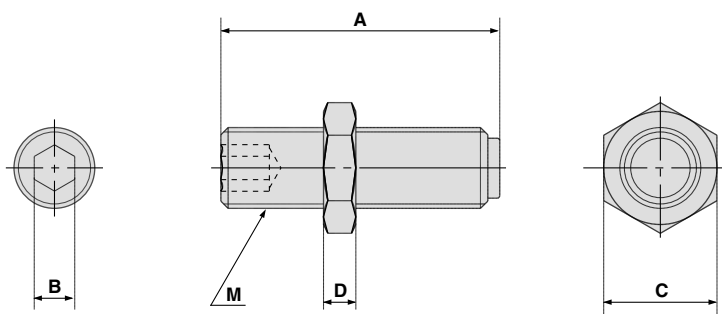
-X□

Individual  
-X□

# Series MXS

## Optional Specifications 2

### Dimensions of Adjusting Bolt



| Applicable size | Model         | Stroke adjustment range (mm) | A    | B   | C  | D   | M          |
|-----------------|---------------|------------------------------|------|-----|----|-----|------------|
| MXS6 (L)        | MXS-A627      | 5                            | 16.5 | 2.5 | 7  | 3   | M5 x 0.8   |
|                 | MXS-A627-X11  | 15                           | 26.5 |     |    |     |            |
| MXS8 (L)        | MXS-A827      | 5                            | 16.5 | 3   | 8  | 3.5 | M6 x 1     |
|                 | MXS-A827-X11  | 15                           | 26.5 |     |    |     |            |
|                 | MXS-A827-X12  | 25                           | 36.5 |     |    |     |            |
| MXS12 (L)       | MXS-A1227     | 5                            | 20   | 4   | 12 | 4   | M8 x 1     |
|                 | MXS-A1227-X11 | 15                           | 30   |     |    |     |            |
|                 | MXS-A1227-X12 | 25                           | 40   |     |    |     |            |
| MXS16 (L)       | MXS-A1627     | 5                            | 24.5 | 5   | 14 | 4   | M10 x 1    |
|                 | MXS-A1627-X11 | 15                           | 34.5 |     |    |     |            |
|                 | MXS-A1627-X12 | 25                           | 44.5 |     |    |     |            |
| MXS20 (L)       | MXS-A2027     | 5                            | 27.5 | 6   | 17 | 5   | M12 x 1.25 |
|                 | MXS-A2027-X11 | 15                           | 37.5 |     |    |     |            |
|                 | MXS-A2027-X12 | 25                           | 47.5 |     |    |     |            |
| MXS25 (L)       | MXS-A2527     | 5                            | 32.5 | 6   | 19 | 6   | M14 x 1.5  |
|                 | MXS-A2527-X11 | 15                           | 42.5 |     |    |     |            |
|                 | MXS-A2527-X12 | 25                           | 52.5 |     |    |     |            |

### How to Order Adjusting Bolt

MXS — A **12** 27 — **X11**

Applicable bore size ●

|    |     |
|----|-----|
| 6  | ø6  |
| 8  | ø8  |
| 12 | ø12 |
| 16 | ø16 |
| 20 | ø20 |
| 25 | ø25 |

● Adjustment range

|     |       |
|-----|-------|
| Nil | 5 mm  |
| X11 | 15 mm |
| X12 | 25 mm |

- \* -X12 (adjustable range: 25 mm) is not available with the MXS6 series.
- \* For dimensions, refer to the figure above.
- \* Symmetric type is also the same.

## Shock Absorber Specifications

| Shock absorber model                    |                | RB0805    | RB0806 | RB1007 | RB1411 | RB1412 |
|-----------------------------------------|----------------|-----------|--------|--------|--------|--------|
| Applicable slide table                  |                | MXS8      | MXS12  | MXS16  | MXS20  | MXS25  |
| Maximum energy absorption (J)           |                | 0.98      | 2.94   | 5.88   | 14.7   | 19.6   |
| Stroke absorption (mm)                  |                | 5         | 6      | 7      | 11     | 12     |
| Maximum collision speed (mm/s)          |                | 50 to 500 |        |        |        |        |
| Maximum operating frequency (cycle/min) |                | 80        | 80     | 70     | 45     | 45     |
| Maximum allowable thrust (N)            |                | 245       | 245    | 422    | 814    | 814    |
| Ambient temperature range (°C)          |                | -10 to 60 |        |        |        |        |
| Spring force (N)                        | When extended  | 1.96      | 1.96   | 4.22   | 6.86   | 6.86   |
|                                         | When retracted | 3.83      | 4.22   | 6.86   | 15.30  | 15.98  |
| Mass (g)                                |                | 15        | 15     | 25     | 65     | 65     |

Note) The shock absorber service life is different from that of the MXS cylinder depending on the operating conditions. Refer to the Specific Product Precautions for the replacement period.

## With End Lock Specifications

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

Note) For caution on end lock, refer to page 86.



## With Buffer Mechanism Specifications

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

Note) For cautions on handling the buffer, refer to page 86.  
 Note) If stroke is adjusted with the stroke adjuster at extension end, the buffer stroke is shortened by the adjusted length.



## Applicable Auto Switch for Buffer

| Type               | Model  | Specifications                            | Electrical entry direction |
|--------------------|--------|-------------------------------------------|----------------------------|
| Solid state switch | D-M9BV | With indicator light, 2-wire              | Vertical                   |
|                    | D-M9NV | With indicator light, 3-wire, Output: NPN |                            |
|                    | D-M9PV | With indicator light, 3-wire, Output: PNP |                            |

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

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

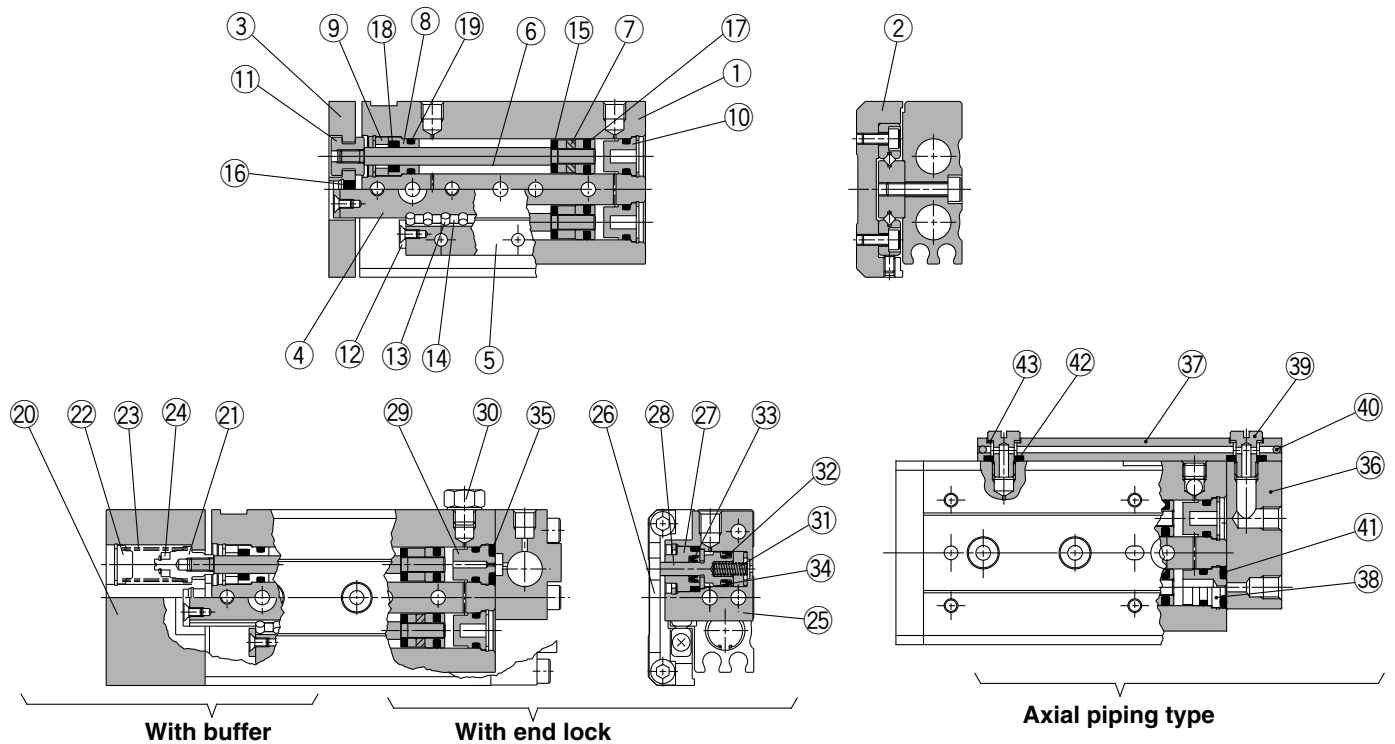
MTS

D-□

-X□

Individual  
-X□

## 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 treated              |
| 5   | Guide              | Carbon tool steel                | Heat treated              |
| 6   | Rod                | Stainless steel                  |                           |
| 7   | Piston assembly    | —                                | With magnet on one side   |
| 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 chrome 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        | —               |               |

### Replacement Parts/ Seal Kit

| Bore size (mm) | Kit no.  | Contents                       |
|----------------|----------|--------------------------------|
| 6              | MXS6-PS  | Set of nos. above<br>①7 to ①9. |
| 8              | MXS8-PS  |                                |
| 12             | MXS12-PS |                                |
| 16             | MXS16-PS |                                |
| 20             | MXS20-PS |                                |
| 25             | MXS25-PS |                                |

### Replacement Parts/ Seal Kit for With End Lock

| Bore size (mm) | Kit no.   | Contents                                   |
|----------------|-----------|--------------------------------------------|
| 8              | MXS8R-PS  | Set of nos. above<br>①7 to ①9<br>③2 to ③5. |
| 12             | MXS12R-PS |                                            |
| 16             | MXS16R-PS |                                            |
| 20             | MXS20R-PS |                                            |
| 25             | MXS25R-PS |                                            |

### Component Parts: With End Lock

| No. | Description   | Material        | Note                      |
|-----|---------------|-----------------|---------------------------|
| 25  | Locking body  | Aluminum alloy  | Hard anodized             |
| 26  | Table support | Carbon steel    | Anti-corrosive treated    |
| 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 Type

| No. | Description        | Material        | Note                      |
|-----|--------------------|-----------------|---------------------------|
| 36  | Axial piping plate | Aluminum alloy  | Hard anodized             |
| 37  | Pipe               | Aluminum alloy  | Hard anodized             |
| 38  | Bushing            | Aluminum alloy  | Chromated                 |
| 39  | Stud               | Brass           | Electroless nickel plated |
| 40  | Steel balls        | Stainless steel |                           |
| 41  | O-ring             | NBR             |                           |
| 42  | O-ring             | NBR             |                           |
| 43  | Gasket             |                 |                           |

\* Seal kit includes 1 set of numbered seals in the table below. Order the appropriate seal kit depending on the cylinder bore size.

### Replacement Parts/ Seal Kit for Axial Piping Type

| Bore size (mm) | Kit no.   | Contents                                   |
|----------------|-----------|--------------------------------------------|
| 6              | MXS6P-PS  | Set of nos. above<br>①7 to ①9<br>④1 to ④3. |
| 8              | MXS8P-PS  |                                            |
| 12             | MXS12P-PS |                                            |
| 16             | MXS16P-PS |                                            |
| 20             | MXS20P-PS |                                            |
| 25             | MXS25P-PS |                                            |

### Replacement Parts/ Grease Pack

| Applied unit  | Grease pack part no.                                                |
|---------------|---------------------------------------------------------------------|
| Guide unit    | GR-S-005 (5g)<br>GR-S-010 (10g)<br>GR-S-020 (20g)<br>GR-S-050 (50g) |
| Cylinder unit | GR-L-005 (5g)<br>GR-L-010 (10g)<br>GR-L-020 (20g)<br>GR-L-050 (50g) |

# Air Slide Table (Symmetric Type)

## Series **MXS□L**

### How to Order

Air slide table

**MXS 12 □ L - 50 AS - M9BW □**

#### Port thread type

|     |          |           |
|-----|----------|-----------|
| Nil | M thread | ø6 to ø16 |
|     | Rc       |           |
| TN  | NPT      | ø20, ø25  |
| TF  | G        |           |

#### Symmetric type

#### Bore size (Stroke (mm))

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

#### Adjuster option

|                     |                                                        |
|---------------------|--------------------------------------------------------|
| Nil                 | Without adjuster                                       |
| AS                  | Adjuster on extension end                              |
| AT                  | Adjuster on retraction end                             |
| A                   | Adjuster on both ends                                  |
| BS <sup>(1)</sup>   | Absorber on extension end                              |
| BT <sup>(1)</sup>   | Absorber on retraction end                             |
| B <sup>(1)</sup>    | Absorber on both ends                                  |
| ASBT <sup>(1)</sup> | Adjuster on extension end + Absorber on retraction end |
| BSAT <sup>(1)</sup> | Absorber on extension end + Adjuster on retraction end |



Note 1) Options BS, BT and B are not available with the MXS6L series.

Note 2) Functional option is not available with the MXS□□L series.

#### Number of auto switches

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

#### Auto switch

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

\* For the applicable auto switch models, refer to the table below.

### Specifications

Specifications are the same as the standard type. Refer to page 55.

### Applicable Auto Switches/Refer to pages 1719 to 1827 for further information on auto switches.

| Type               | Special function | Electrical entry | Indicator light | Wiring (Output)         | Load voltage |           |       | Auto switch model |         | Lead wire length (m) |       |       |       | Pre-wired connector | Applicable load |            |            |
|--------------------|------------------|------------------|-----------------|-------------------------|--------------|-----------|-------|-------------------|---------|----------------------|-------|-------|-------|---------------------|-----------------|------------|------------|
|                    |                  |                  |                 |                         | DC           |           | AC    | Perpendicular     | In-line | 0.5 (Nil)            | 1 (M) | 3 (L) | 5 (Z) |                     |                 |            |            |
| Solid state switch | —                | Grommet          | Yes             | 3-wire (NPN)            | 24 V         | 5 V, 12 V | —     | M9NV              | M9N     | ●                    | ●     | ●     | ○     | ○                   | IC circuit      | Relay, PLC |            |
|                    | 3-wire (PNP)     |                  |                 | M9PV                    |              |           |       | M9P               | ●       | ●                    | ●     | ○     | ○     |                     |                 |            |            |
|                    | 2-wire           |                  |                 | M9BV                    |              |           |       | M9B               | ●       | ●                    | ●     | ○     | ○     |                     |                 |            |            |
|                    | 3-wire (NPN)     |                  |                 | M9NWV                   |              |           |       | M9NW              | ●       | ●                    | ●     | ○     | ○     |                     |                 |            |            |
|                    | 3-wire (PNP)     |                  |                 | M9PWV                   |              |           |       | M9PW              | ●       | ●                    | ●     | ○     | ○     |                     |                 |            |            |
|                    | 2-wire           |                  |                 | M9BWV                   |              |           |       | M9BW              | ●       | ●                    | ●     | ○     | ○     |                     |                 |            |            |
| Reed switch        | —                | Grommet          | Yes             | 3-wire (NPN equivalent) | —            | 5 V       | —     | A96V              | A96     | ●                    | —     | ●     | —     | —                   | IC circuit      | —          |            |
|                    | No               |                  |                 | 2-wire                  | 24 V         | 12 V      | 100 V | A93V              | A93     | ●                    | —     | ●     | —     | —                   | —               | —          | IC circuit |
|                    |                  |                  | 100 V or less   |                         |              |           | A90V  | A90               | ●       | —                    | ●     | —     | —     | —                   |                 |            |            |

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

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

\* Since there are additional applicable auto switches than are listed, refer to page 82 for details.

\* For details on auto switches with a pre-wired connector, refer to pages 1784 and 1785.

\* Auto switches are shipped together (not assembled).

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

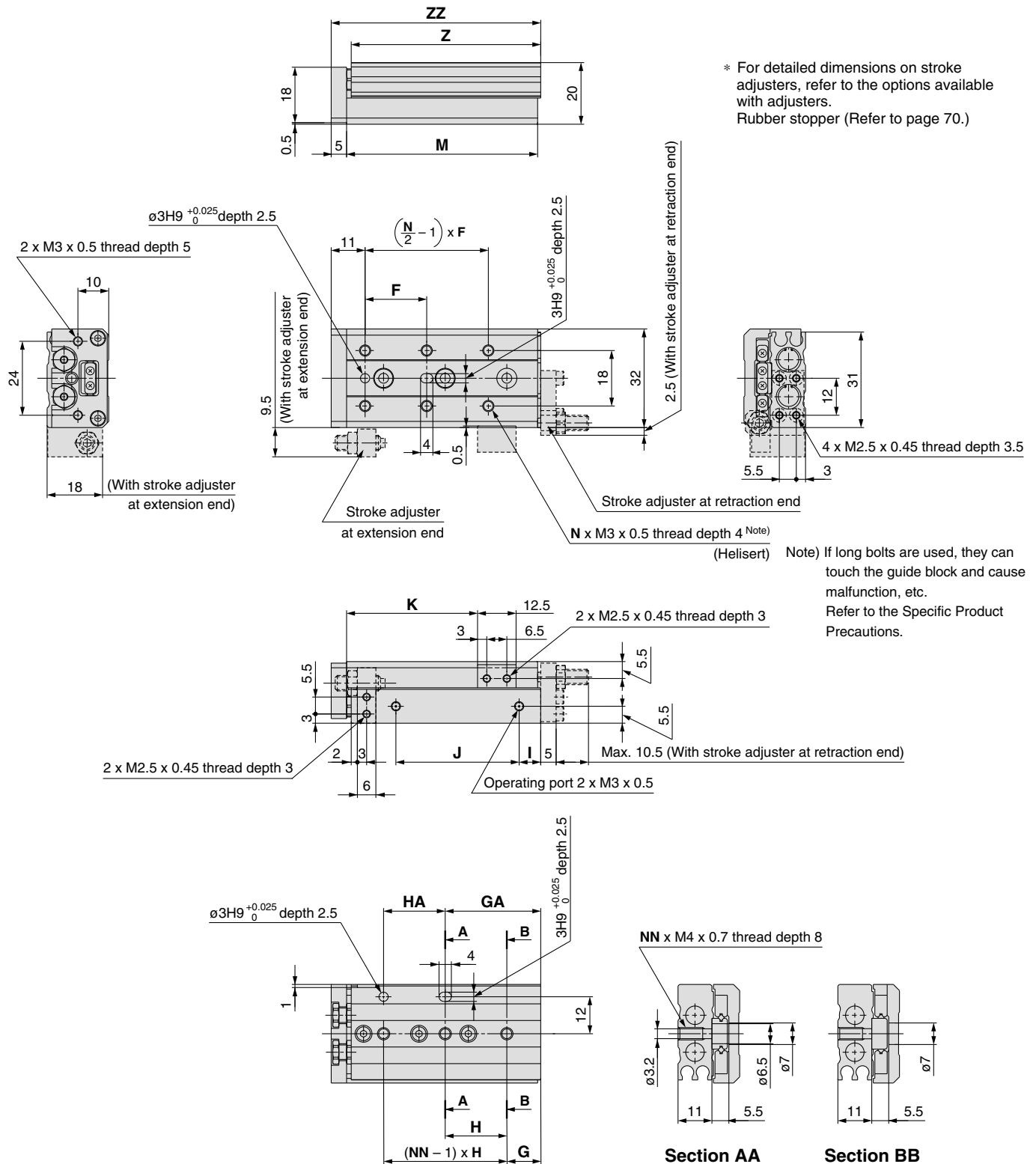
D-□

-X□

Individual  
-X□

## Dimensions: MXS6L/Symmetric Type

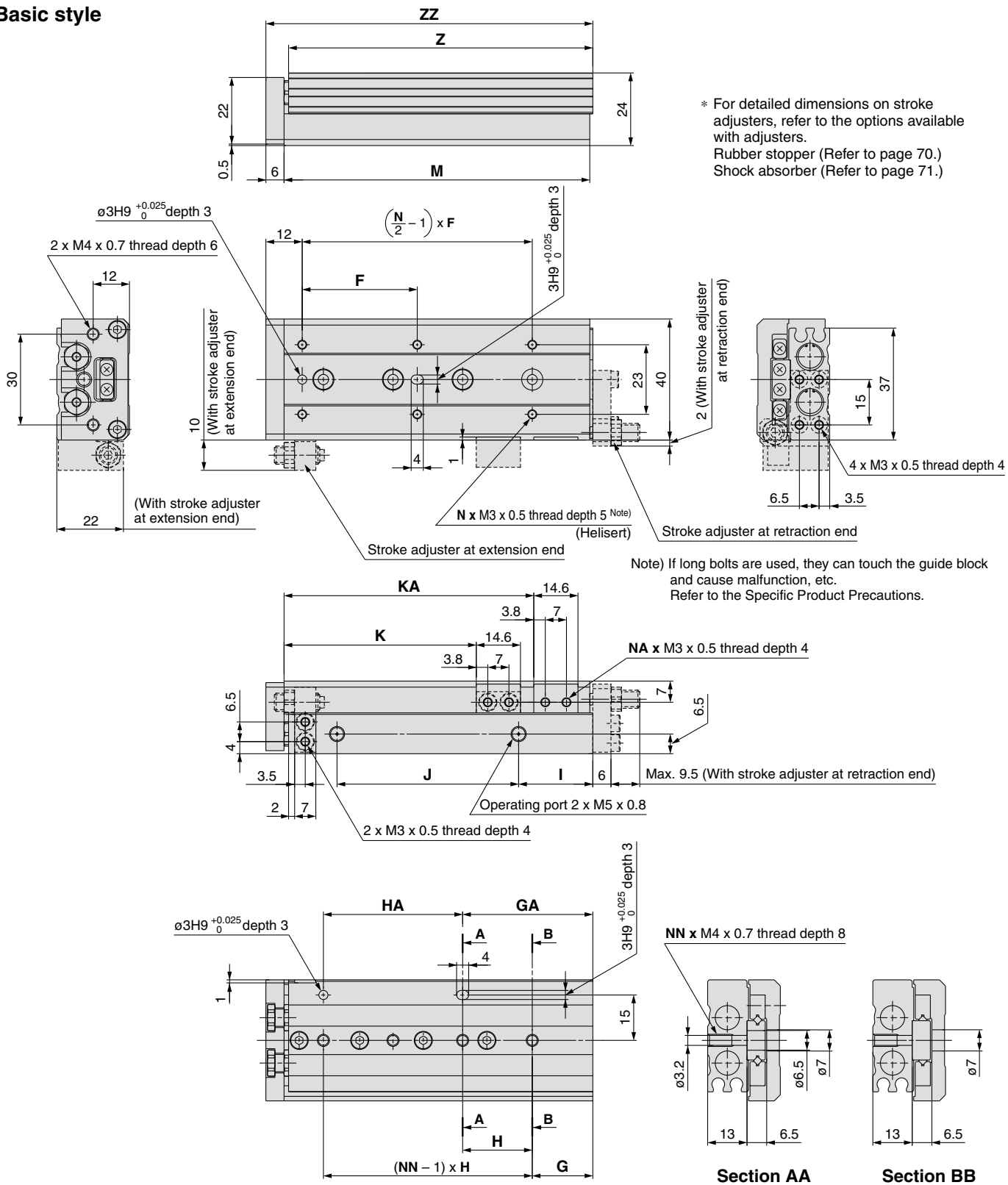
### Basic style



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

### Dimensions: MXS8L/Symmetric Type

## Basic style

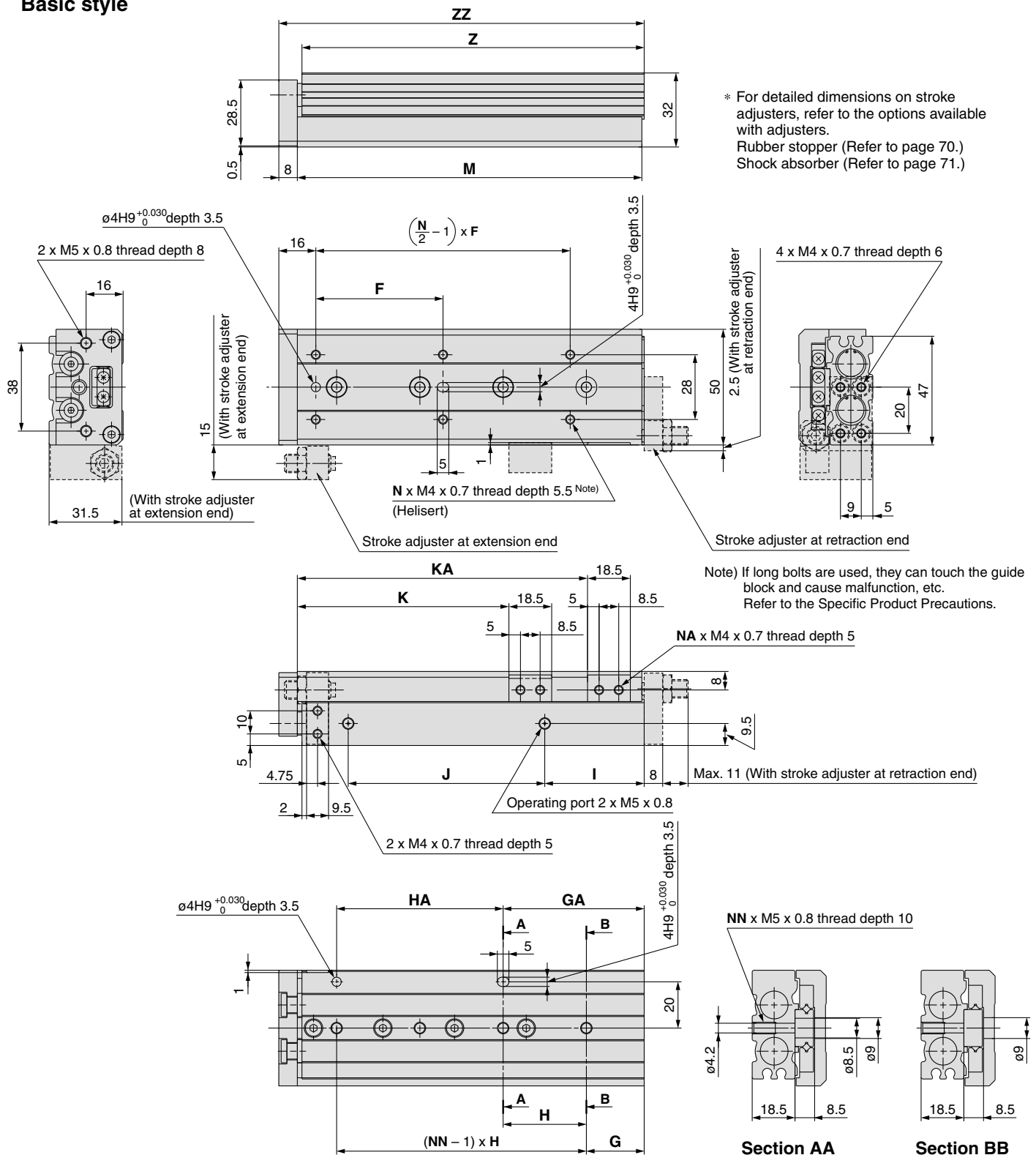


|                 |    |   |    |    |    |    |    |      |      |      |       |    |     |       | (mm) |
|-----------------|----|---|----|----|----|----|----|------|------|------|-------|----|-----|-------|------|
| Model           | F  | N | G  | H  | NN | GA | HA | I    | J    | K    | KA    | 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  |

 Regarding the external dimensions with a shock absorber, view the external dimensions of MXS8 symmetrically on page 61.

### Dimensions: MXS12L/Symmetric Type

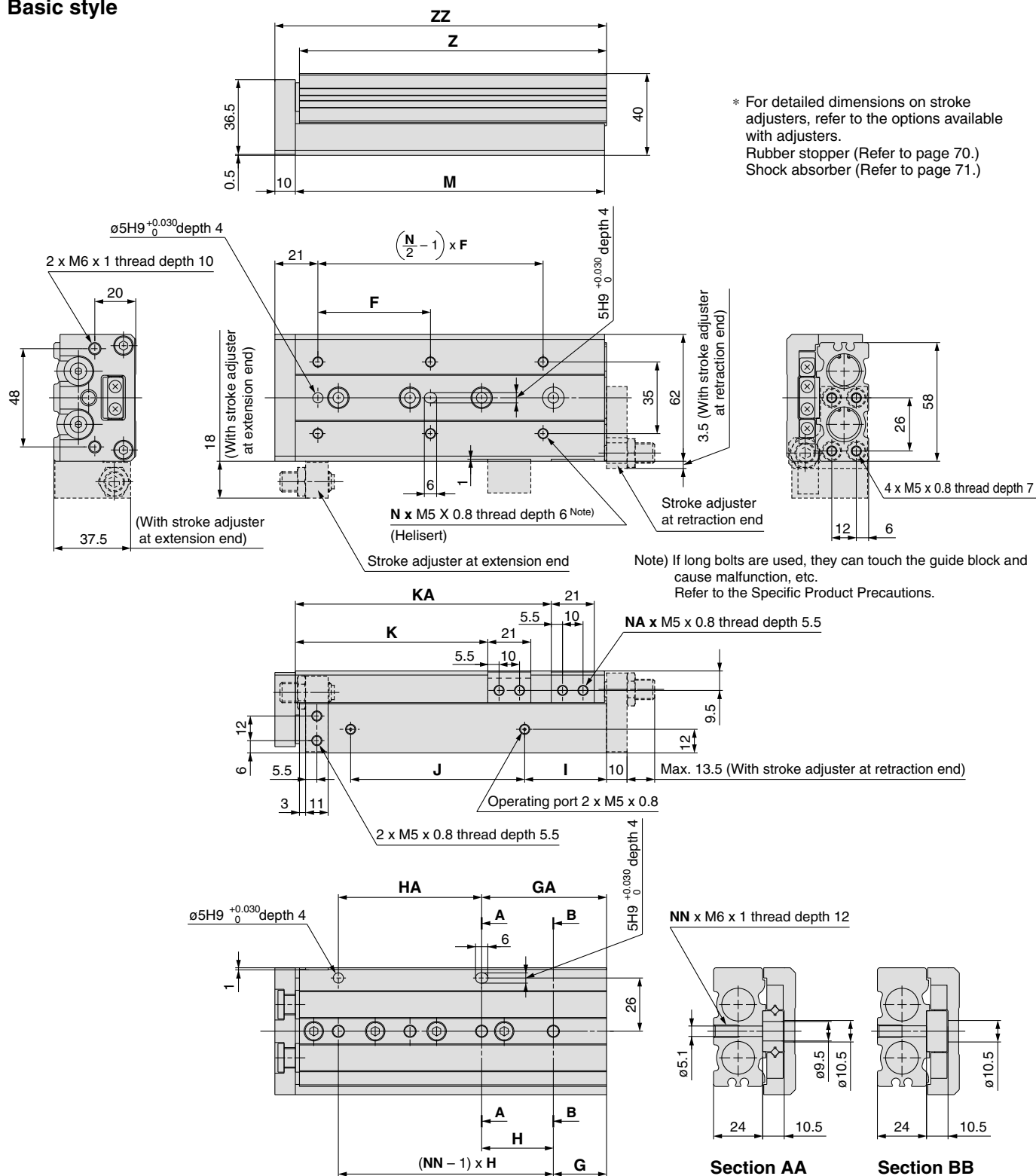
## Basic style



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

### Dimensions: MXS16L/Symmetric Type

## Basic style

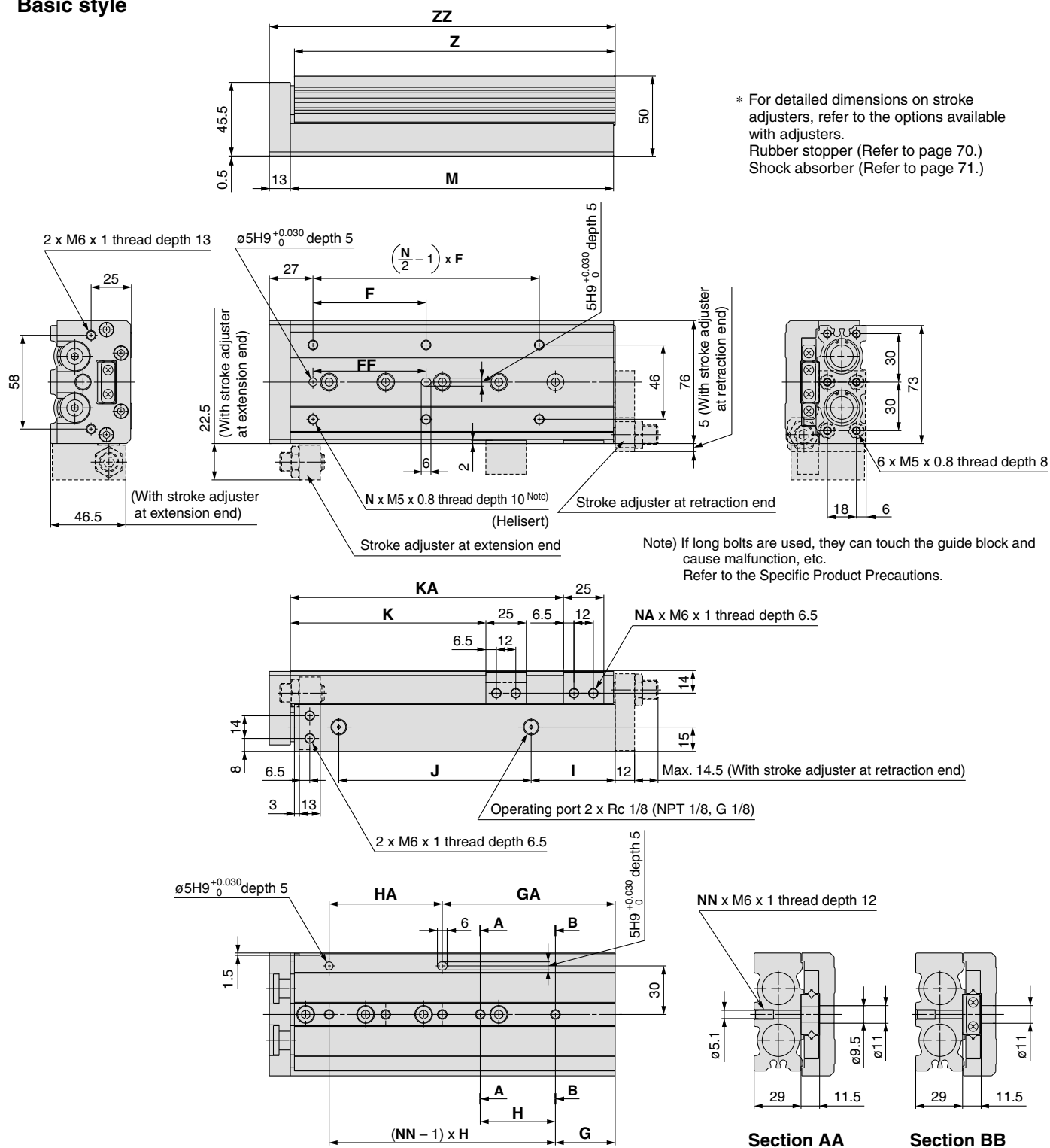


|                   |    |   |    |    |    |     |    |    |     |     |     |    |     |     | (mm) |
|-------------------|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-----|------|
| Model             | F  | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z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

 Regarding the external dimensions with a shock absorber, view the external dimensions of MXS16 symmetrically on page 65.

### Dimensions: MXS20L/Symmetric Type

## Basic style



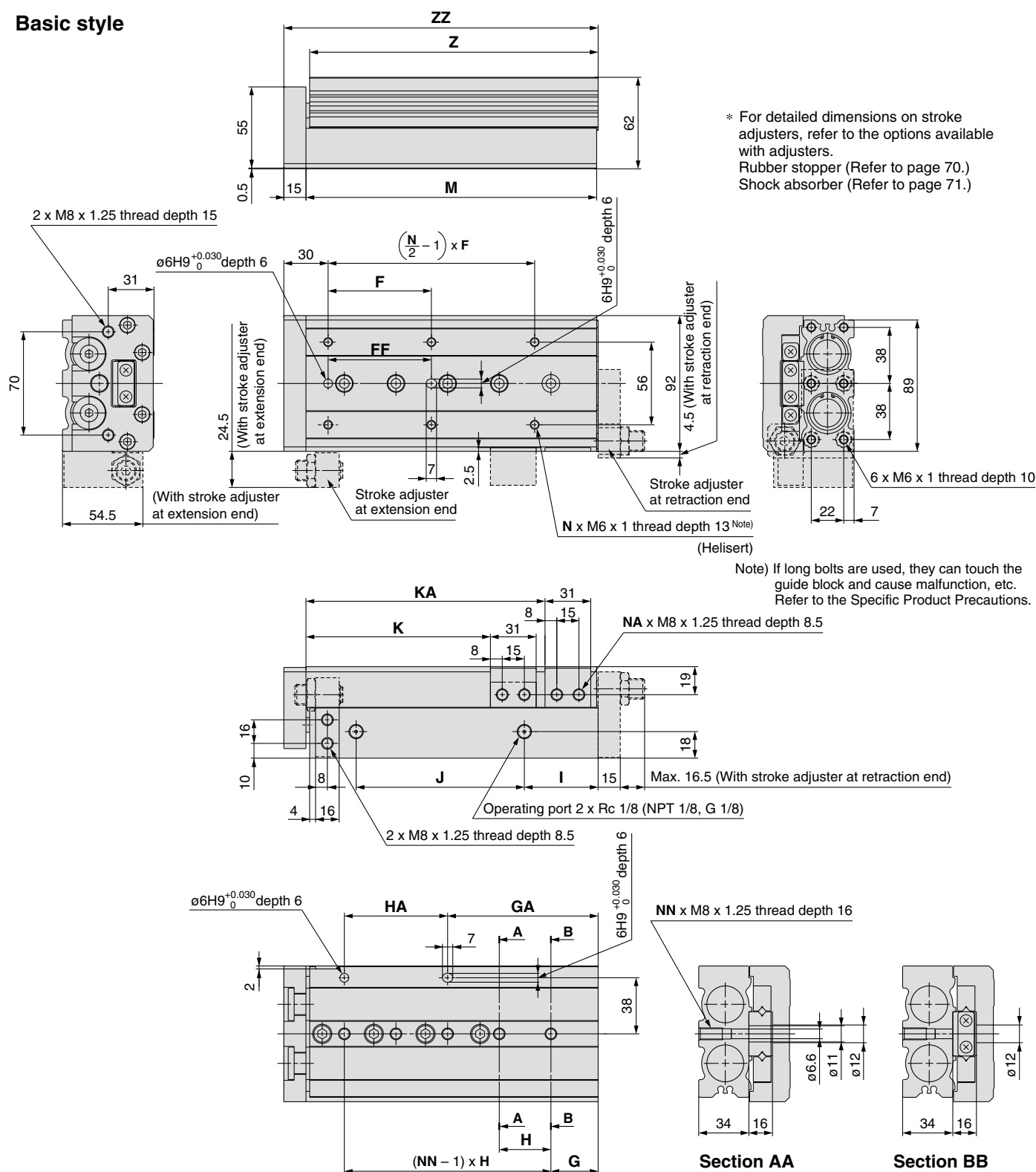
(mm)

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

 Regarding the external dimensions with a shock absorber, view the external dimensions of MXS20 symmetrically on page 67.

## Dimensions: MXS25L/Symmetric Type

### Basic style



| Model      | F  | FF | N | G  | H  | NN | GA  | HA | I  | J   | K   | KA  | NA | M   | Z     | ZZ  |
|------------|----|----|---|----|----|----|-----|----|----|-----|-----|-----|----|-----|-------|-----|
| MXS25L-10  | 50 | 40 | 4 | 22 | 45 | 2  | 22  | 45 | 12 | 47  | 35  | —   | 2  | 92  | 90.5  | 108 |
| MXS25L-20  | 50 | 40 | 4 | 22 | 45 | 2  | 22  | 45 | 12 | 47  | 45  | —   | 2  | 92  | 90.5  | 108 |
| MXS25L-30  | 50 | 40 | 4 | 22 | 45 | 2  | 22  | 45 | 12 | 47  | 55  | —   | 2  | 92  | 90.5  | 108 |
| MXS25L-40  | 60 | 50 | 4 | 22 | 55 | 2  | 22  | 55 | 12 | 57  | 65  | —   | 2  | 102 | 100.5 | 118 |
| MXS25L-50  | 35 | 35 | 6 | 20 | 35 | 3  | 55  | 35 | 12 | 70  | 75  | —   | 2  | 115 | 113.5 | 131 |
| MXS25L-75  | 60 | 60 | 6 | 26 | 35 | 4  | 61  | 70 | 33 | 90  | 100 | —   | 2  | 156 | 154.5 | 172 |
| MXS25L-100 | 70 | 70 | 6 | 32 | 35 | 5  | 102 | 70 | 50 | 114 | 125 | 162 | 4  | 197 | 195.5 | 213 |
| MXS25L-125 | 75 | 75 | 8 | 40 | 38 | 6  | 154 | 76 | 67 | 155 | 150 | 218 | 4  | 255 | 253.5 | 271 |
| MXS25L-150 | 80 | 80 | 8 | 30 | 40 | 7  | 190 | 80 | 82 | 180 | 175 | 258 | 4  | 295 | 293.5 | 311 |

Regarding the external dimensions with a shock absorber, view the external dimensions of MXS25 symmetrically on page 69.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

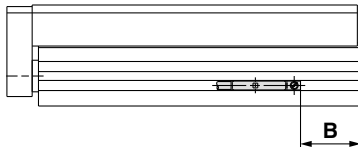
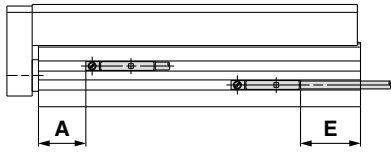
-X□

Individual

-X□

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

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



| Model | A    | B      |      |      |      |      |      |      |      |       |                | E              |               |                |                |                |                |                |                  |     |   |
|-------|------|--------|------|------|------|------|------|------|------|-------|----------------|----------------|---------------|----------------|----------------|----------------|----------------|----------------|------------------|-----|---|
|       |      | Stroke |      |      |      |      |      |      |      |       |                | Stroke         |               |                |                |                |                |                |                  |     |   |
|       |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150   |                | 10             | 20            | 30             | 40             | 50             | 75             | 100            | 125              | 150 |   |
| MXS6  | 5.9  | 5.6    | 5.6  | 5.6  | 17.6 | 23.6 | —    | —    | —    | —     | 3.6<br>(1.1)   | 3.6<br>(1.1)   | 3.6<br>(1.1)  | 15.6<br>(13.1) | 21.6<br>(19.1) | —              | —              | —              | —                | —   | — |
| MXS8  | 7.6  | 10.9   | 5.9  | 6.9  | 14.9 | 22.9 | 47.9 | —    | —    | —     | 8.9<br>(6.4)   | 3.9<br>(1.4)   | 4.9<br>(2.4)  | 12.9<br>(10.4) | 20.9<br>(18.4) | 45.9<br>(43.4) | —              | —              | —                | —   | — |
| MXS12 | 11.6 | 28.4   | 18.4 | 8.4  | 10.4 | 20.4 | 41.4 | 70.4 | —    | —     | 26.4<br>(23.9) | 16.4<br>(13.9) | 6.4<br>(3.9)  | 8.4<br>(5.9)   | 18.4<br>(15.9) | 39.4<br>(36.9) | 68.4<br>(65.9) | —              | —                | —   | — |
| MXS16 | 16.3 | 28.7   | 18.7 | 8.7  | 8.7  | 13.7 | 38.7 | 61.7 | 86.7 | —     | 26.7<br>(24.2) | 16.7<br>(14.2) | 6.7<br>(4.2)  | 6.7<br>(4.2)   | 11.7<br>(9.2)  | 36.7<br>(34.2) | 59.7<br>(57.2) | 84.7<br>(82.2) | —                | —   | — |
| MXS20 | 18.9 | 32.6   | 22.6 | 12.6 | 12.6 | 17.6 | 31.6 | 59.6 | 88.6 | 115.6 | 30.6<br>(28.1) | 20.6<br>(18.1) | 10.6<br>(8.1) | 10.6<br>(8.1)  | 15.6<br>(13.1) | 29.6<br>(27.1) | 57.6<br>(55.1) | 86.6<br>(84.1) | 113.6<br>(111.1) | —   | — |
| MXS25 | 23   | 37.5   | 27.5 | 17.5 | 17.5 | 20.5 | 36.5 | 52.5 | 85.5 | 100.5 | 35.5<br>(33)   | 25.5<br>(23)   | 15.5<br>(13)  | 15.5<br>(13)   | 18.5<br>(16)   | 34.5<br>(32)   | 50.5<br>(48)   | 83.5<br>(81)   | 98.5<br>(96)     | —   | — |

\* ( ): Denotes D-A93.

### Solid State Auto Switch: D-M9B, D-M9N, D-M9P, D-M9BW, D-M9NW, D-M9PW

| Model | A    | B      |      |      |      |      |      |      |      |       |      | E      |      |      |      |      |      |      |       |     |   |
|-------|------|--------|------|------|------|------|------|------|------|-------|------|--------|------|------|------|------|------|------|-------|-----|---|
|       |      | Stroke |      |      |      |      |      |      |      |       |      | Stroke |      |      |      |      |      |      |       |     |   |
|       |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150   |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125   | 150 |   |
| MXS6  | 10   | 9.6    | 9.6  | 9.6  | 21.6 | 27.6 | —    | —    | —    | —     | -0.4 | -0.4   | -0.4 | 11.6 | 17.5 | —    | —    | —    | —     | —   | — |
| MXS8  | 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 | —    | —    | —     | —   | — |
| MXS12 | 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 | —    | —     | —   | — |
| MXS16 | 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 | —     | —   | — |
| MXS20 | 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 | —   | — |
| MXS25 | 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  | —   | — |

### Solid State Auto Switch: D-M9BV, D-M9NV, D-M9PV, D-M9BWV, D-M9NWV, D-M9PWV

| Model | A    | B      |      |      |      |      |      |      |      |       |      | E      |      |      |      |      |      |      |       |     |   |
|-------|------|--------|------|------|------|------|------|------|------|-------|------|--------|------|------|------|------|------|------|-------|-----|---|
|       |      | Stroke |      |      |      |      |      |      |      |       |      | Stroke |      |      |      |      |      |      |       |     |   |
|       |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125  | 150   |      | 10     | 20   | 30   | 40   | 50   | 75   | 100  | 125   | 150 |   |
| MXS6  | 10   | 9.6    | 9.6  | 9.6  | 21.6 | 27.6 | —    | —    | —    | —     | 1.6  | 1.6    | 1.6  | 13.6 | 19.6 | —    | —    | —    | —     | —   | — |
| MXS8  | 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 | —    | —    | —     | —   | — |
| MXS12 | 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 | —    | —     | —   | — |
| MXS16 | 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 | —     | —   | — |
| MXS20 | 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 | —   | — |
| MXS25 | 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  | —   | — |

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

## Auto Switch Mounting



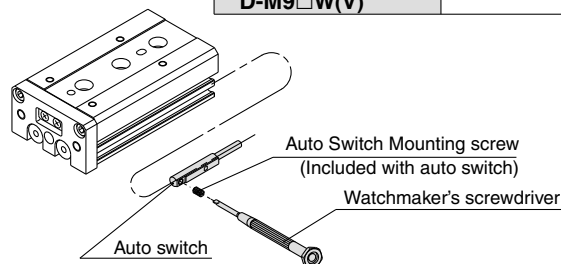
### Auto Switch Mounting Tool

- When tightening the auto switch mounting screw (included with auto switch), use a watchmaker's screwdriver with an approximately 5 to 6 mm diameter handle.

### Tightening Torque

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

| Auto switch model | Tightening torque |
|-------------------|-------------------|
| D-A9□(V)          | 0.10 to 0.20      |
| D-M9□(V)          | 0.05 to 0.15      |
| D-M9□W(V)         | 0.05 to 0.15      |



## Operating Range

(mm)

| Auto switch model | Applicable bore size (mm) |     |    |    |     |    |
|-------------------|---------------------------|-----|----|----|-----|----|
|                   | 6                         | 8   | 12 | 16 | 20  | 25 |
| D-A9□/A9□V        | 4.5                       | 5   | 6  | 7  | 8   | 8  |
| D-M9□/M9□V        | 2.5                       | 2.5 | 3  | 4  | 4.5 | 5  |
| D-M9□W/M9□WV      |                           |     |    |    |     |    |

\* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approximately ±30% dispersion). It may vary substantially depending on an ambient environment.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) and solid state auto switch D-F8 are also available. Refer to pages 1745 and 1746 for details.



# Series MXS Specific Product Precautions 1

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

## Selection

### ⚠ Caution

#### 1. Operate a load within the range of the operating limits.

Select the model considering maximum loading mass and allowable moment. For details, refer to "Model Selection" on pages 52 and 53. When actuator is used outside of operating limits, eccentric loads on guide will be in excess of this causing vibration on guide, inaccuracy, and shortened life.

#### 2. If intermediate stops by external stopper is done, avoid ejection.

If lurching occurs, damage can result. When making an intermediate stop with an external stopper to be followed by continued forward movement, first supply pressure to momentarily reverse the table, then retract the intermediate stopper, and finally apply pressure to the opposite port to operate the table again.

#### 3. Do not use it in such a way that excessive external force or impact force could work on it.

This could result in damage.

## Mounting

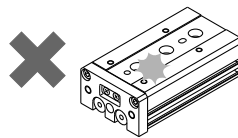
### ⚠ Caution

#### 1. Do not scratch or dent the mounting side of the body, table or end plate.

The damage will result in a decrease in parallelism, vibration of the guide or an increase in moving part resistance.

#### 2. Do not scratch or dent on the forward side of the rail or guide.

This could result in looseness, increased operating resistance, etc.



#### 3. Do not apply excessive power and load when work is mounted.

If the external force more than the allowable moment were applied, looseness of the guide unit or increased operating resistance could take place.

#### 4. Flatness of mounting surface should be 0.02 mm or less.

Poor parallelism of the workpiece mounted on the body, the base, and other parts can cause vibration in the guide unit and increased operating resistance, etc.

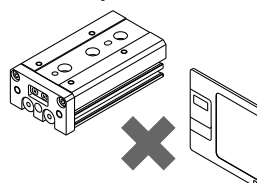
#### 5. Select the proper connection with the load which has external support and/or guide mechanism on the outside, and align it properly.

#### 6. Avoid contact with the body during operation.

Hands, etc. may get caught in the stroke adjuster. Install a cover as a safety measure if there are instances to be near the slide table during operation.

#### 7. Keep away from objects which are influenced by magnets.

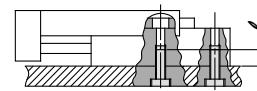
Since an body has magnets built-in, do not allow close contact with magnetic disks, magnetic cards or magnetic tapes. Data may be erased.



#### 8. When mounting the body, use screws of an appropriate length and do not exceed the maximum tightening torque.

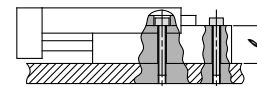
Tightening with a torque above the limit could cause malfunction. Whereas tightening insufficiently could result in misalignment or dropping.

##### 1. Lateral mounting (Body tapped)



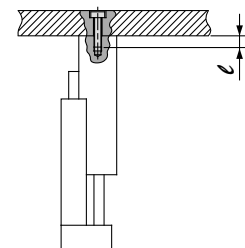
| Model | Bolt      | Maximum tightening torque (N·m) | Maximum screw-in depth (mm) |
|-------|-----------|---------------------------------|-----------------------------|
| MXS6  | M4 x 0.7  | 2.1                             | 8                           |
| MXS8  | M4 x 0.7  | 2.1                             | 8                           |
| MXS12 | M5 x 0.8  | 4.4                             | 10                          |
| MXS16 | M6 x 1    | 7.4                             | 12                          |
| MXS20 | M6 x 1    | 7.4                             | 12                          |
| MXS25 | M8 x 1.25 | 18                              | 16                          |

##### 2. Lateral mounting (Through-hole)



| Model | Bolt     | Maximum tightening torque (N·m) | Maximum screw-in depth (mm) |
|-------|----------|---------------------------------|-----------------------------|
| MXS6  | M3 x 0.5 | 1.2                             | 11                          |
| MXS8  | M3 x 0.5 | 1.2                             | 13                          |
| MXS12 | M4 x 0.7 | 2.8                             | 18.5                        |
| MXS16 | M5 x 0.8 | 5.7                             | 24                          |
| MXS20 | M5 x 0.8 | 5.7                             | 29                          |
| MXS25 | M6 x 1   | 10                              | 34                          |

##### 3. Vertical mounting (Body tapped)



| Model | Bolt        | Maximum tightening torque (N·m) | Maximum screw-in depth (mm) |
|-------|-------------|---------------------------------|-----------------------------|
| MXS6  | M2.5 x 0.45 | 0.5                             | 3.5                         |
| MXS8  | M3 x 0.5    | 0.9                             | 4                           |
| MXS12 | M4 x 0.7    | 2.1                             | 6                           |
| MXS16 | M5 x 0.8    | 4.4                             | 7                           |
| MXS20 | M5 x 0.8    | 4.4                             | 8                           |
| MXS25 | M6 x 1      | 7.4                             | 10                          |

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXV

MTS

D-□

-X□

Individual  
-X□



# Series MXS

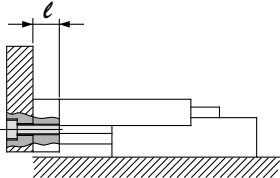
## Specific Product Precautions 2

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

### Mounting

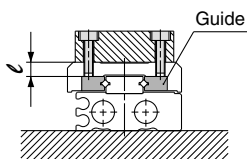
#### ⚠ Caution

##### 1. Front mounting



| Model | Bolt      | Maximum tightening torque (N·m) | Maximum screw-in depth (ℓ mm) |
|-------|-----------|---------------------------------|-------------------------------|
| MXS6  | M3 x 0.5  | 0.9                             | 5                             |
| MXS8  | 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 mounting



**⚠ Caution** To prevent the workpiece holding bolts from touching the guide block, use bolts that are at least 0.5 mm shorter than the maximum screw-in depth. If longer bolts are used, they can touch the guide and cause a malfunction.

| Model | Bolt     | Maximum tightening torque (N·m) | Maximum screw-in depth (ℓ mm) |
|-------|----------|---------------------------------|-------------------------------|
| MXS6  | M3 x 0.5 | 0.9                             | 4                             |
| MXS8  | 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.

### Operating Environment

#### ⚠ Caution

1. Do not use in an environment, where the product could be exposed to liquids such as cutting oil, etc.

Using in an environment where the product could be exposed to cutting oil, coolant, oil, etc. could result in looseness, increased operating resistance, air leakage, etc.

2. Do not use in an environment, where the product could be exposed directly to foreign materials such as powder dust, blown dust, cutting chips, spatter, etc.

This could result in looseness and increased operating resistance, and air leakage, etc. Contact us regarding use in this kind of environment.

3. Do not use in direct sunlight.
4. When there are heat sources in the surrounding area, block them off.

When there are heat sources in the surrounding area, radiated heat may cause the product's temperature to rise and exceed the operating temperature range. Block off the heat with a cover, etc.

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

Contact us regarding use in this kind of environment, since this can cause damage or a malfunction.

### Caution on Handling Adjuster Option

#### Stroke Adjuster

#### ⚠ Caution

1. Do not replace with the bolt other than the original adjusting bolt.

This could result in looseness and damage due to impact forces, etc.

### Caution on Handling Adjuster Option

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

Insufficient torque will cause a decrease in the positioning accuracy.

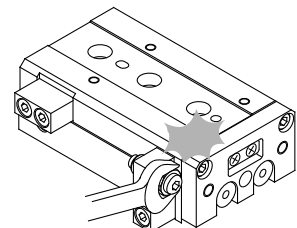
| Model | Tightening torque (N·m) |
|-------|-------------------------|
| MXS6  | 3.0                     |
| MXS8  | 5.0                     |
| MXS12 | 12.5                    |
| MXS16 | 25.0                    |
| MXS20 | 43.0                    |
| MXS25 | 69.0                    |

### Stroke Adjuster

#### ⚠ Caution

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

This could result in looseness.



### With Shock Absorber

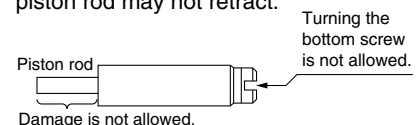
#### ⚠ Caution

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

This is not an adjusting screw. Turning it could cause oil leakage.

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

Durability could be degraded and the piston rod may not retract.



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

| Model | Tightening torque (N·m) |
|-------|-------------------------|
| MXS8  | 1.67                    |
| MXS12 | 3.14                    |
| MXS16 | 10.8                    |
| MXS20 |                         |
| MXS25 |                         |



# Series MXS

## Specific Product Precautions 3

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

### Service Life and Replacement Period of Shock Absorber

#### ⚠ Caution

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

1.2 million cycles RB08□□

2 million cycles RB10□□ to RB14□□

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

| Applicable size | Shock absorber model |
|-----------------|----------------------|
| MXS8            | RB0805               |
| MXS12           | RB0806               |
| MXS16           | RB1007               |
| MXS20           | RB1411               |
| MXS25           | RB1412               |

### Caution on Mounting Adjuster Option

#### Rubber Stopper

#### ⚠ Caution

1. Use caution because the length of the bolts for mounting on the body and for the table are different from each other for some models.

The shock absorber at the extension end (AS) of the MXS6, 8 and 12 has a different length hexagon socket head cap screw on the body mounting section and on the table mounting section. Use sufficient care when mounting.

If assembled by making an error in length, it could cause looseness or lead to malfunction.

2. Follow the table below for tightening torque of mounting bolts.

Insufficient torque will cause a decrease in the positioning accuracy and lead to malfunction.

| Model | Stroke adjuster at extension end (AS) |                         |                        |                         | Stroke adjuster at retraction end (AT) |                         |
|-------|---------------------------------------|-------------------------|------------------------|-------------------------|----------------------------------------|-------------------------|
|       | Body mounting section                 |                         | Table mounting section |                         |                                        |                         |
|       | Thread size                           | Tightening torque (N·m) | Thread size            | Tightening torque (N·m) | Thread size                            | Tightening torque (N·m) |
| MXS6  | M2.5 x 10                             | 0.5                     | M2.5 x 8               | 0.5                     | M2.5 x 8                               | 0.5                     |
| MXS8  | M3 x 12                               | 0.9                     | M3 x 10                | 0.9                     | M3 x 10                                | 0.9                     |
| MXS12 | M4 x 15                               | 2.1                     | M4 x 12                | 2.1                     | M4 x 8                                 | 2.1                     |
| MXS16 | M5 x 18                               | 4.4                     | M5 x 18                | 4.4                     | M5 x 10                                | 4.4                     |
| MXS20 | M6 x 20                               | 7.0                     | M6 x 20                | 7.0                     | M5 x 12                                | 4.4                     |
| MXS25 | M8 x 25                               | 18.0                    | M8 x 25                | 18.0                    | M6 x 16                                | 7.0                     |

### Shock Absorber

#### ⚠ Caution

1. Use caution because the length of the bolts for mounting on the body and for the table are different from each other for some models.

The shock absorber at the retraction end (BT) has a different length hexagon socket head cap screw on the body mounting section and on the table mounting section. Use sufficient care when mounting.

If assembled by making an error in length, it could cause looseness or lead to malfunction.

2. Follow the table below for tightening torque of mounting bolts.

Insufficient torque will cause a decrease in the positioning accuracy and lead to malfunction.

| Model | Shock absorber at extension end (BS) |                         |                        |                         | Shock absorber at retraction end (BT) |                         |                        |                         |
|-------|--------------------------------------|-------------------------|------------------------|-------------------------|---------------------------------------|-------------------------|------------------------|-------------------------|
|       | Body mounting section                |                         | Table mounting section |                         | Body mounting section                 |                         | Table mounting section |                         |
|       | Thread size                          | Tightening torque (N·m) | Thread size            | Tightening torque (N·m) | Thread size                           | Tightening torque (N·m) | Thread size            | Tightening torque (N·m) |
| MXS8  | M3 x 16                              | 0.9                     | M3 x 16                | 0.9                     | M3 x 12                               | 0.9                     | M3 x 16                | 0.9                     |
| MXS12 | M4 x 15                              | 2.1                     | M4 x 15                | 2.1                     | M4 x 8                                | 2.1                     | M4 x 15                | 2.1                     |
| MXS16 | M5 x 18                              | 4.4                     | M5 x 18                | 4.4                     | M5 x 10                               | 4.4                     | M5 x 18                | 4.4                     |
| MXS20 | M6 x 25                              | 7.0                     | M6 x 25                | 7.0                     | M5 x 12                               | 4.4                     | M6 x 25                | 7.0                     |
| MXS25 | M8 x 25                              | 18.0                    | M8 x 25                | 18.0                    | M6 x 16                               | 7.0                     | M8 x 25                | 18.0                    |

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□

Individual  
-X□



# Series MXS Specific Product Precautions 4

Be sure to read before handling. Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

## Caution on Handling Functional Option

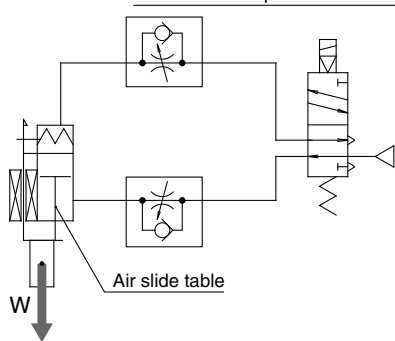
### With End Lock

#### ⚠ Caution

1. Use 2 position, 4 or 5 port solenoid valves.

A malfunction may occur with a control circuit that exhausts from both ports, such as exhaust center 3 position valves.

Recommended pneumatic circuit



2. Be sure to use meter-out speed control valves.

If it is used in meter-in speed control or without a speed controller, it may result in malfunction.

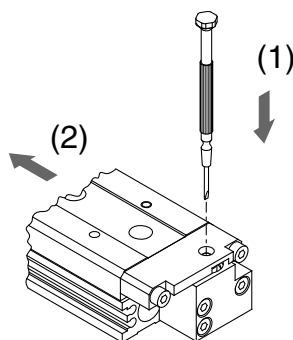
3. When releasing the end lock manually, be sure that air pressure is released.

If the end lock is unlocked while the air pressure still remains, it will lead to damage a workpiece, etc. due to unexpected lurching.

#### How to Unlock the End Lock

\* Before proceeding, make sure that there is no residual air pressure.

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

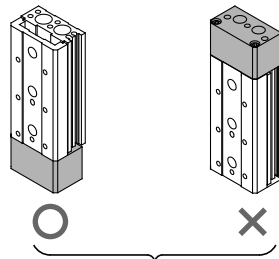


### With Buffer Mechanism

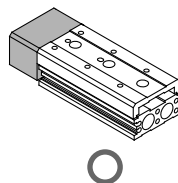
#### ⚠ Caution

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

In horizontal operation, the buffer may travel the stroke length and activate the auto switch depending on the load and the speed. Therefore, adjust the speed according to the load.

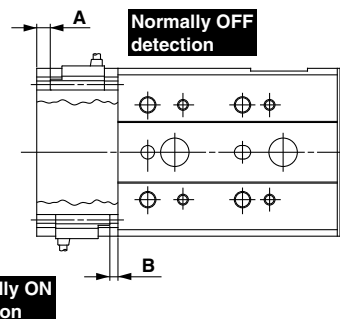


Vertical use



Horizontal use

2. Auto switch with buffer function: For the proper mounting positions for detection at stroke end, refer to the following table.



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

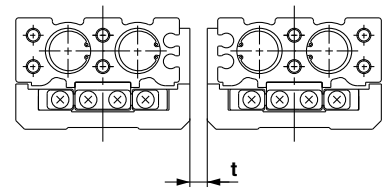
| (mm)  |     |   |
|-------|-----|---|
| Model | A   | B |
| MXS6  | 2   | 3 |
| MXS8  | 2.5 |   |
| MXS12 | 4   |   |
| MXS16 | 5   |   |
| MXS20 | 5.5 |   |
| MXS25 | 10  |   |

## Caution on Handling Symmetric Type

#### ⚠ Caution

1. Maintain a longer distance than prescribed below if standard style and symmetric style are used side by side.

If the space is insufficient, it may cause auto switches to malfunction.



| (mm)  |                   |
|-------|-------------------|
| Model | Mounting pitch: t |
| MXS6  | 5                 |
| MXS8  | 10                |
| MXS12 | 10                |
| MXS16 | 10                |
| MXS20 | 15                |
| MXS25 | 15                |