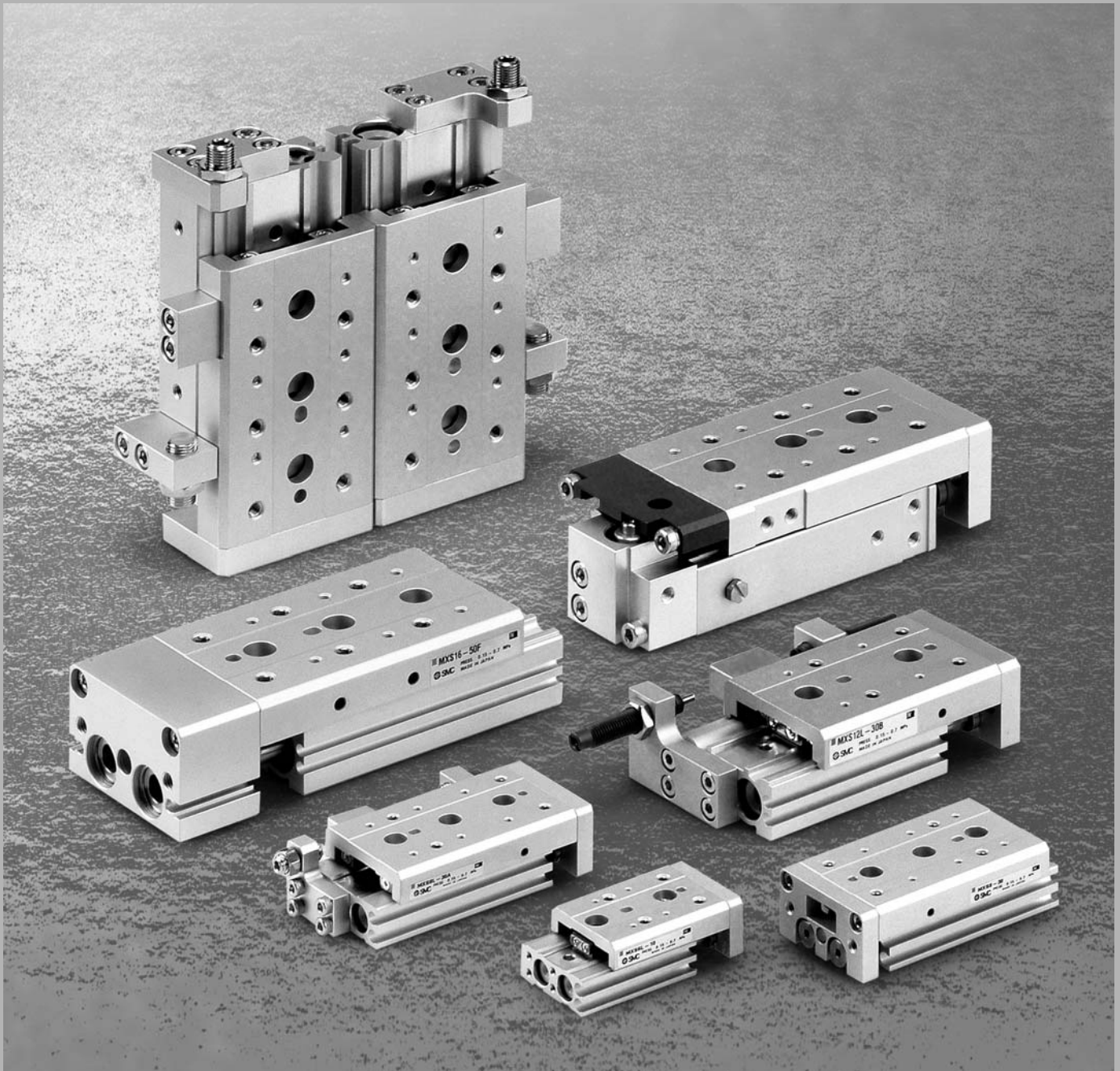


# Air Slide Table

## 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-□

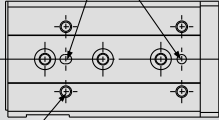
-X□

Individual  
-X□

# Air slide table is suited for precision assembly.

## Improved workpiece mounting repeatability

Machining of positioning hole



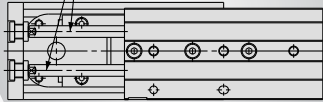
Thread for work mounting  
Helisert is used for improved strength.

## Flush mountable auto switches

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

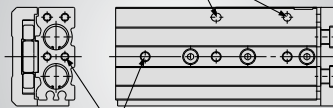
## Dual piston rod

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



## Body mounting

Machining of positioning hole



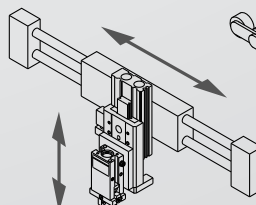
Threads for body mounting

Mounting is possible from 3 directions.

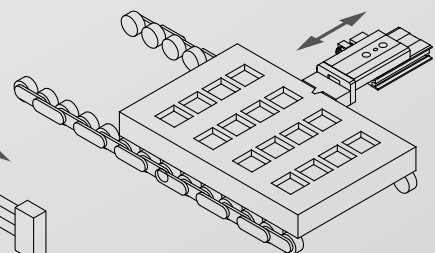
1. Lateral mounting (Body tapped)	2. Lateral mounting (Body through-hole)	3. Vertical mounting (Body tapped)

## Application examples

As Z-axis for picking and placing



For positioning pallets on a conveyor



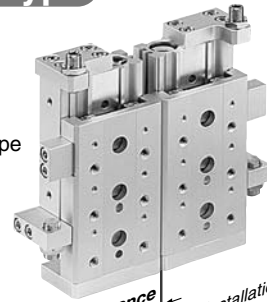
## Symmetric Type

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

Standard type



Symmetric type



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

## 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



## Series Variations

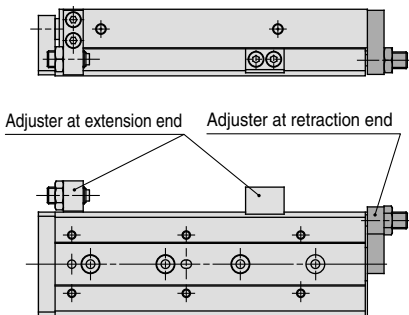
Model	Bore size (mm)	Standard stroke (mm)									Adjuster options		Functional options	Auto switch
		10	20	30	40	50	75	100	125	150	Stroke adjuster	With shock absorber (Except for ø6)		
MXS 6	6	●	●	●	●	●	●	●	●	●	Extension end Retraction end Both ends	With buffer With end lock (Except for ø6) Axial piping type	Reed auto switch • D-A9□ • D-A9□V Solid state auto switch • D-M9□ • D-M9□V 2-color indication solid state auto switch • D-M9□W • 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

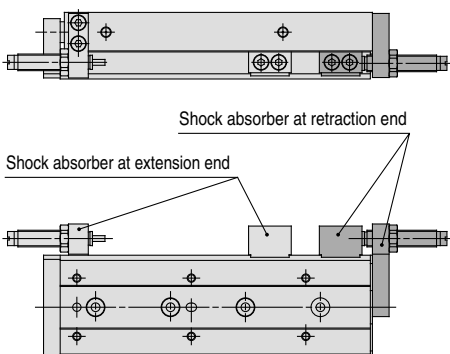
With adjuster at extension end (AS)  
With adjuster at retraction end (AT)  
With adjuster at both ends (A)



### With Shock Absorber

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

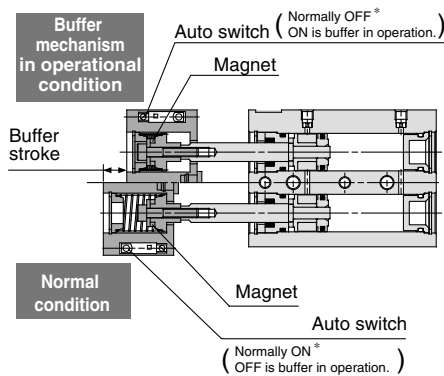
With shock absorber at extension end (BS)  
With shock absorber at retraction end (BT)  
With shock absorber at both ends (B)



## Functional Options

### With Buffer Mechanism

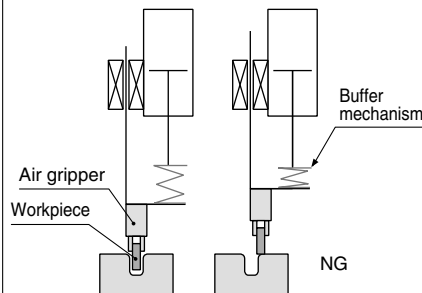
- Protects workpieces and tools, etc., by eliminating impact at the end of the stroke's extension.
- Buffer unit is auto switch capable.



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

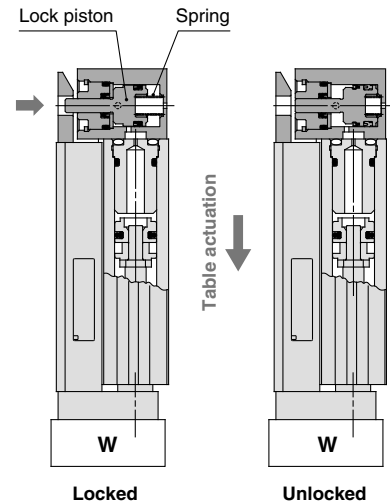
### Application Example

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



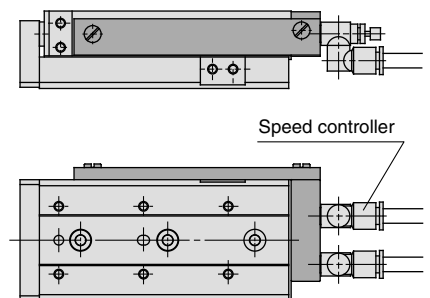
### With End Lock

- 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

MXY

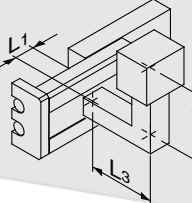
MTS

D-□

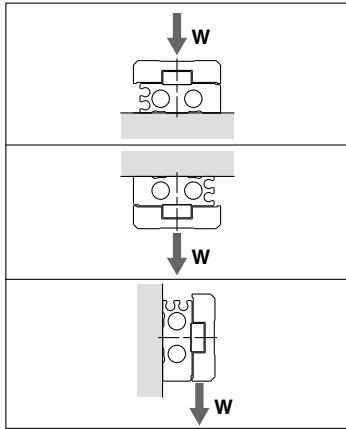
-X□

Individual  
-X□

# Series MXS Model Selection

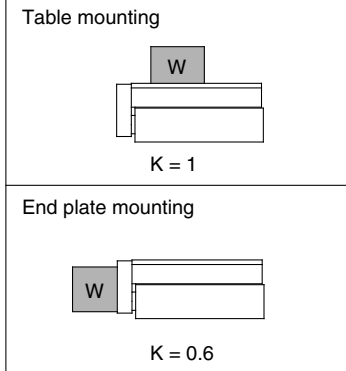
Model Selection Steps	Formula/Data	Selection Examples								
<p><b>1 Operating Conditions</b></p> <p>List the operating conditions considering the mounting position and workpiece configuration.</p>	<ul style="list-style-type: none"> <li>• Model to be used</li> <li>• Type of cushion</li> <li>• Workpiece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

**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
MXS6	0.6
MXS8	1
MXS12	2
MXS16	4
MXS20	6
MXS25	9

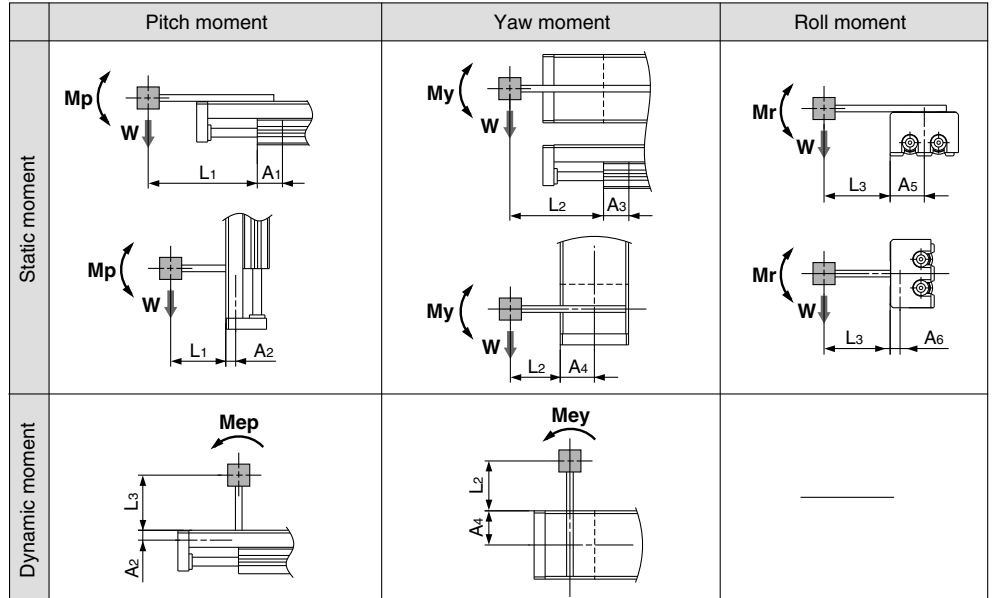
**Table (4) Maximum Allowable Moment: Mmax (N·m)**

Model	Stroke (mm)									
	10	20	30	40	50	75	100	125	150	
MXS6	0.7	1.0	1.2	1.2	1.2	—	—	—	—	
MXS8	2.0	2.0	2.8	3.6	4.2	4.2	—	—	—	
MXS12	4.2	4.2	4.2	5.8	7.0	10.0	10.0	—	—	
MXS16	11.3	11.3	11.3	11.3	15.9	25.0	34.1	34.1	—	
MXS20	19.4	19.4	19.4	19.4	27.2	35.0	50.5	50.5	50.5	
MXS25	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 (Mpmax, Mymax, 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)**



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

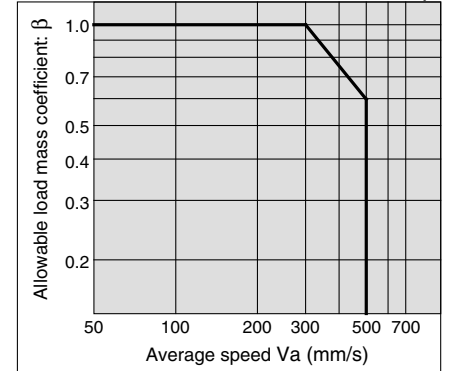
**Table (1) Maximum Allowable Kinetic Energy: Emax (J)**

Model	Allowable kinetic energy	
	Rubber bumper	Shock absorber
MXS6	0.018	—
MXS8	0.027	0.054
MXS12	0.055	0.11
MXS16	0.11	0.22
MXS20	0.16	0.32
MXS25	0.24	0.48

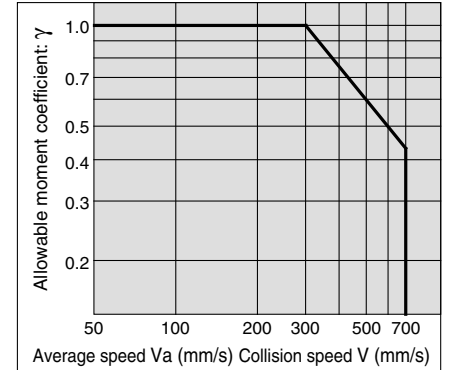
**Table (3) Correction Value of Moment Center Position Distance : An (mm)**

Model	Correction value of moment center position distance (Refer to Figure 2.)					
	A1	A2	A3	A4	A5	A6
MXS6	11	6	13	16	16	6
MXS8	11	7.5	13	20	20	7.5
MXS12	24	8.5	26	25	25	8.5
MXS16	27	10	30	31	31	10
MXS20	34	14.5	36	38	38	14.5
MXS25	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.

- MXH
- MXU
- MXS**
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MXY
- MTS

- D-□
- X□
- Individual -X□

# 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	
TN	NPT	ø20, ø25
TF	G	

### Bore size (Stroke (mm))

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

### Adjuster option

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

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"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

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

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

### Option Combinations

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

○: 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)		IC circuit	Relay, PLC			
Solid state switch	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	●	○			○	IC circuit	Relay, PLC
				3-wire (PNP)				<b>M9PV</b>	<b>M9P</b>	●	●	●	○	○				
				2-wire				<b>M9BV</b>	<b>M9B</b>	●	●	●	○	○				
				3-wire (NPN)				<b>M9NVW</b>	<b>M9NW</b>	●	●	●	○	○				
				3-wire (PNP)				<b>M9PVW</b>	<b>M9PW</b>	●	●	●	○	○				
				2-wire				<b>M9BWW</b>	<b>M9BW</b>	●	●	●	○	○				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	<b>A96V</b>	<b>A96</b>	●	—	●	—	—	IC circuit	—		
				2-wire				100 V	<b>A93V</b>	<b>A93</b>	●	—	●	—			—	Relay, PLC
								100 V or less	<b>A90V</b>	<b>A90</b>	●	—	●	—			—	

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

## Option

Adjuster options	With stroke adjuster	Extension end (AS)	Stroke adjustment range 0 to 5 mm
		Retraction end (AT)	
		Adjuster on both ends (A)	
Adjuster options	With shock absorber	Extension end (BS)	W/ shock absorber is not available with the MXS6 series.
		Retraction end (BT)	
		Absorber on both ends (B)	
Functional options	With buffer (F)		W/ end lock is not available with the MXS6 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 (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)					
				0.2	0.3	0.4	0.5	0.6	0.7
6	3	OUT	57	11	17	23	29	34	40
		IN	42	8	13	17	21	25	29
8	4	OUT	101	20	30	40	51	61	71
		IN	75	15	23	30	38	45	53
12	6	OUT	226	45	68	90	113	136	158
		IN	170	34	51	68	85	102	119
16	8	OUT	402	80	121	161	201	241	281
		IN	302	60	91	121	151	181	211
20	10	OUT	628	126	188	251	314	377	440
		IN	471	94	141	188	236	283	330
25	12	OUT	982	196	295	393	491	589	687
		IN	756	151	227	302	378	454	529

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



### 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 (Adjustment range: 15 mm)
-X12	Adjusting bolt, long specification (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.

## 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		
	10	20	30	40	50	75	100	125	150	Rubber stopper		Shock absorber		With buffer	With end lock	Axial piping type S: Stroke (mm)
	Extension end	Retraction end	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

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□

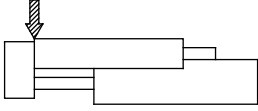
Individual

-X□

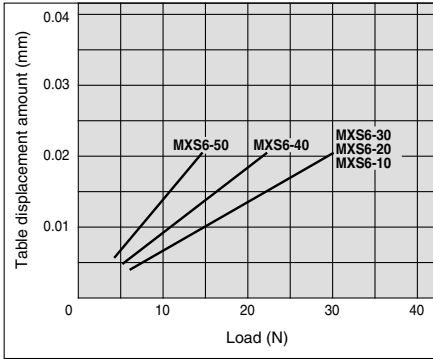
## Table Deflection (Reference Values)

### Table displacement due to pitch moment load

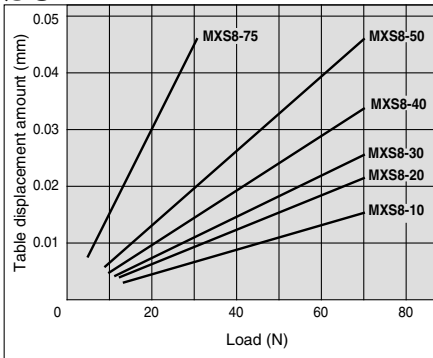
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



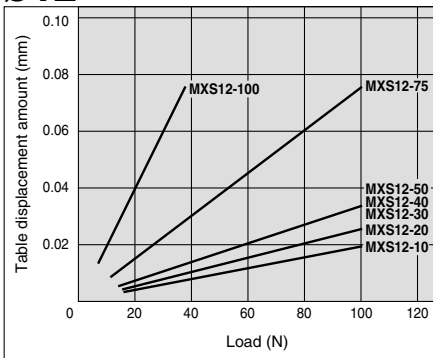
**ø6**



**ø8**

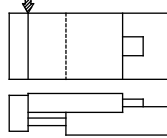


**ø12**

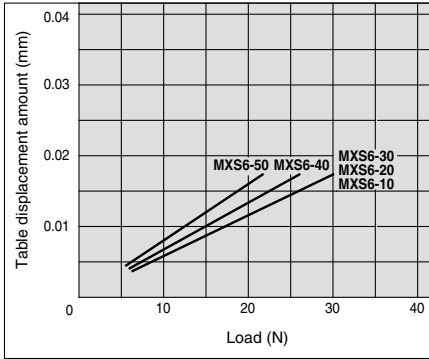


### Table displacement due to yaw moment load

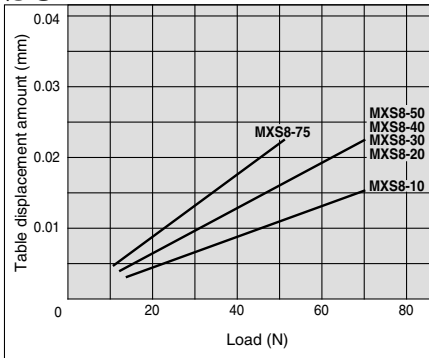
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



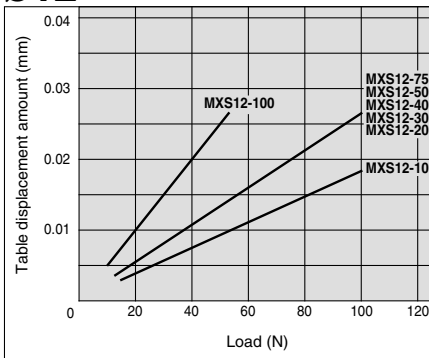
**ø6**



**ø8**

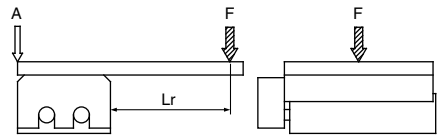


**ø12**

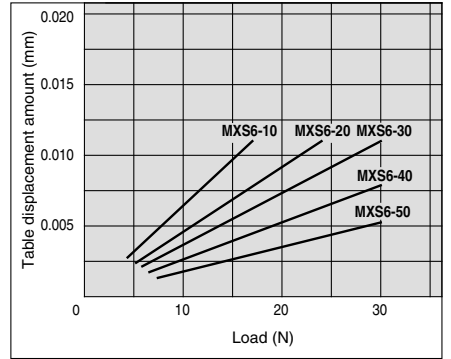


### Table displacement due to roll moment load

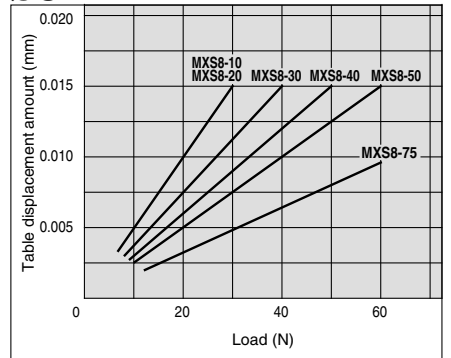
Table displacement of section A when loads are applied to the section F with the slide table retracted.



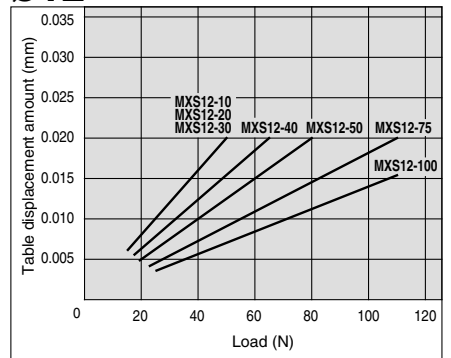
**ø6**



**ø8**



**ø12**

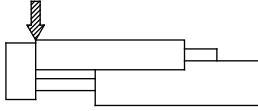




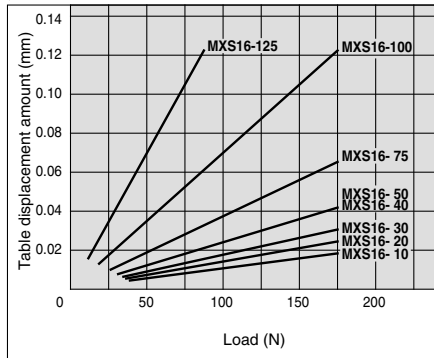
The graphs below show the table displacement when the static moment load is applied to the table. The graphs do not show the loadable mass. Refer to the Model Selection for the loadable mass.

## Table displacement due to pitch moment load

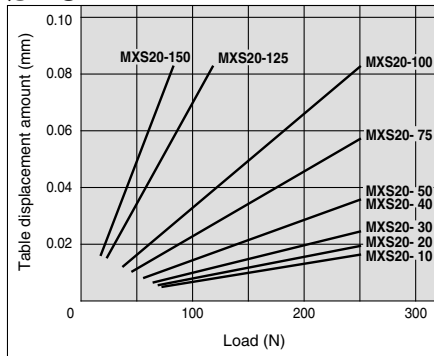
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



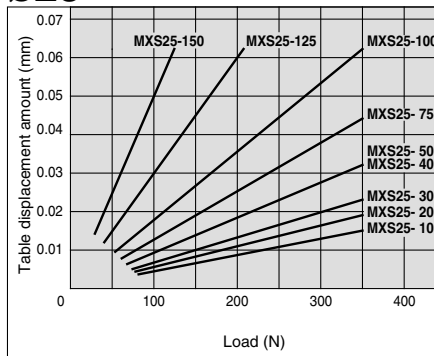
**ø16**



**ø20**

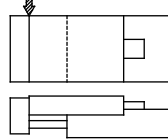


**ø25**

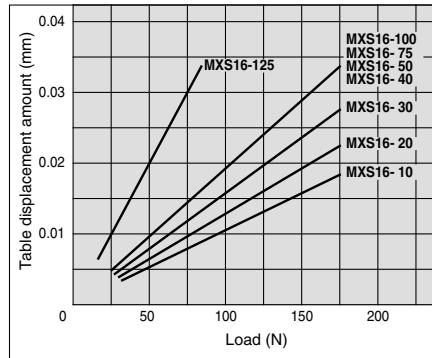


## Table displacement due to yaw moment load

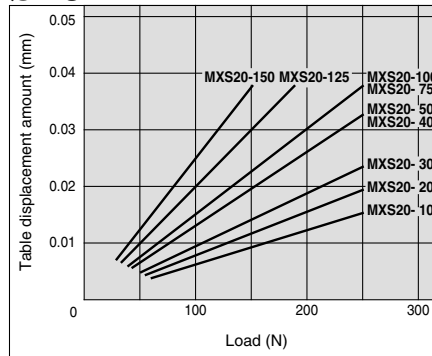
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



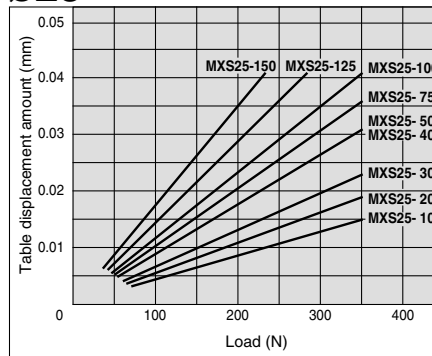
**ø16**



**ø20**

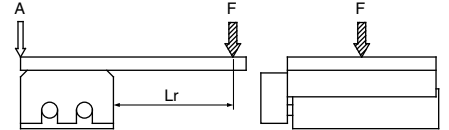


**ø25**

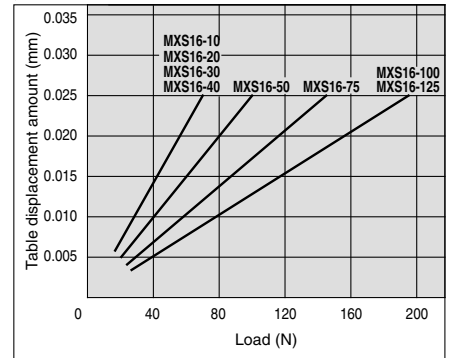


## Table displacement due to roll moment load

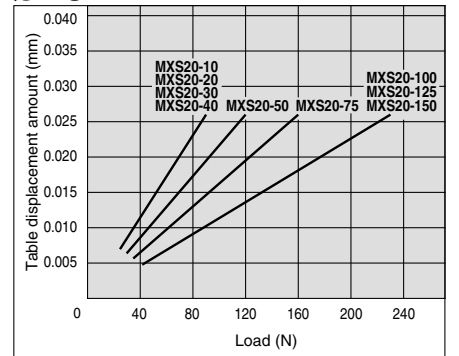
Table displacement of section A when loads are applied to the section F with the slide table retracted.



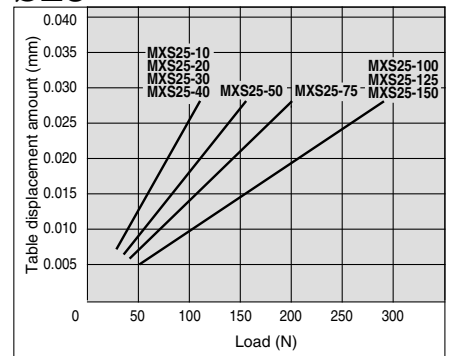
**ø16**



**ø20**



**ø25**



**MXH**

**MXU**

**MXS**

**MXQ**

**MXF**

**MXW**

**MXJ**

**MXP**

**MXY**

**MTS**

**D-□**

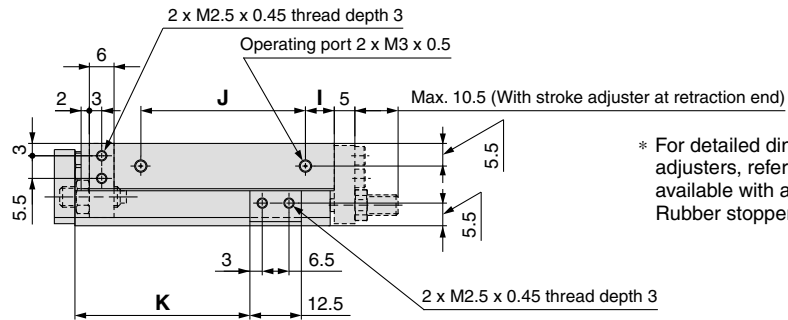
**-X□**

Individual  
**-X□**

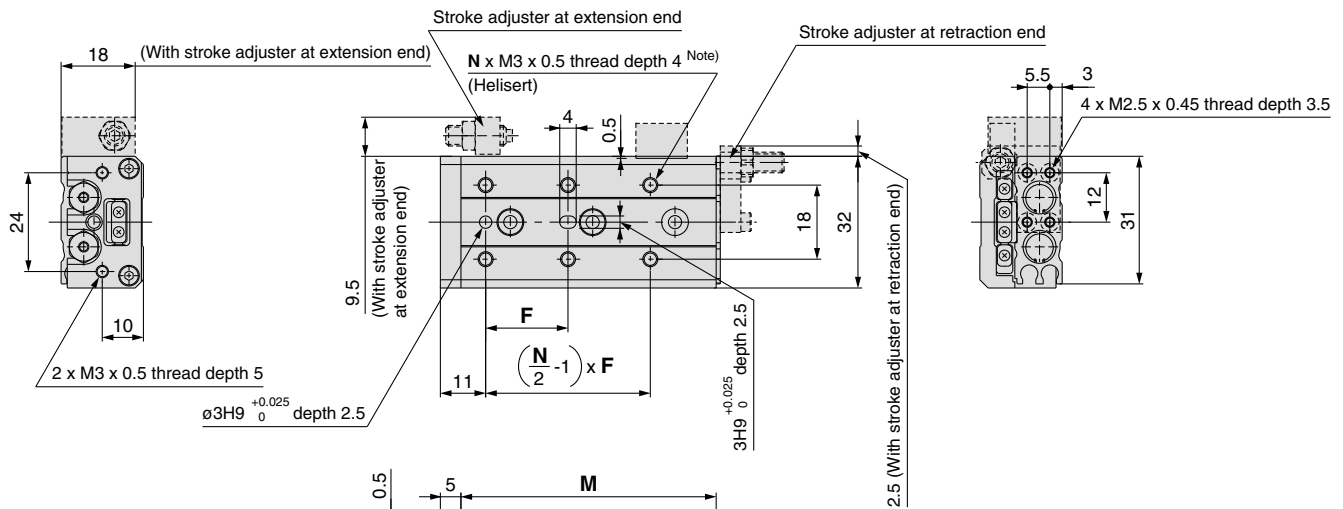
# Series MXS

## Dimensions: MXS6

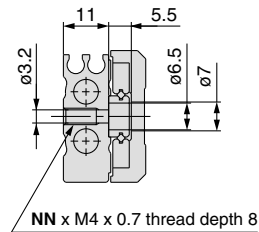
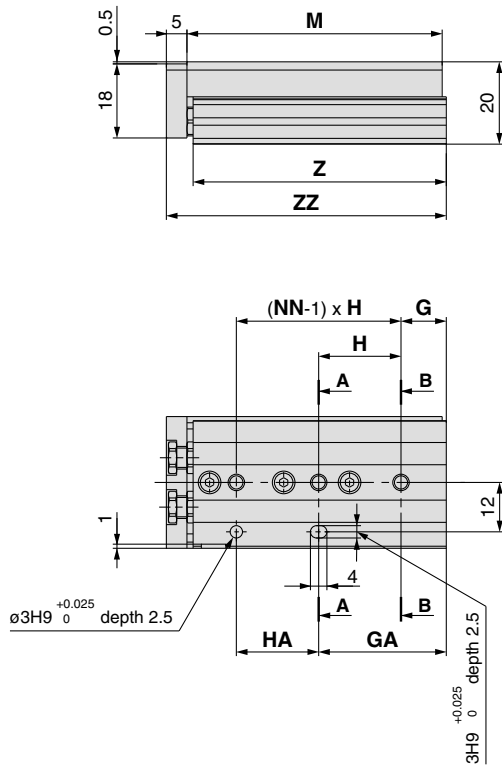
### Basic style



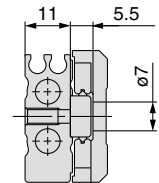
\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
Rubber stopper (Refer to page 70.)



Note) If long bolts are used, they can touch the guide block and cause malfunction, etc.  
Refer to the Specific Product Precautions.



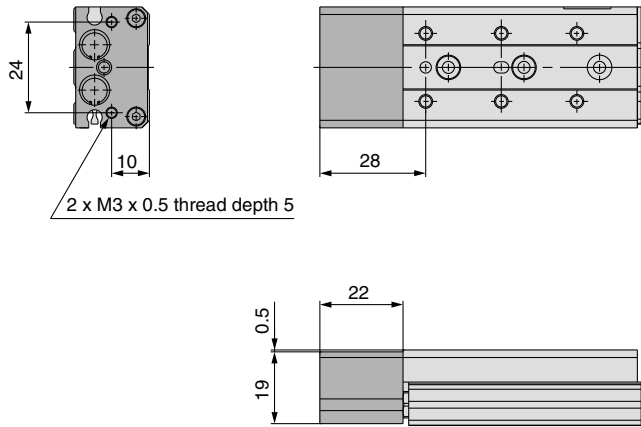
Section AA



Section BB

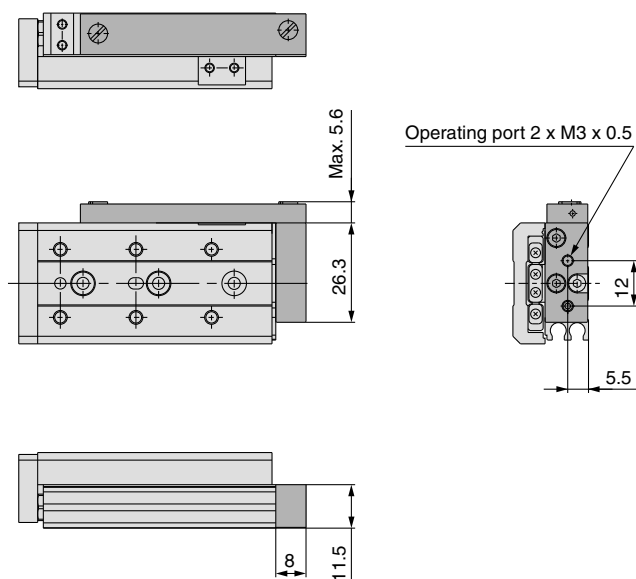
Model	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
MXS6-10	20	4	6	25	2	11	20	10	17	22.5	42	41.5	48
MXS6-20	30	4	6	35	2	21	20	10	27	32.5	52	51.5	58
MXS6-30	20	6	11	20	3	31	20	7	40	42.5	62	61.5	68
MXS6-40	28	6	13	30	3	43	30	19	50	52.5	84	83.5	90
MXS6-50	38	6	17	24	4	41	48	25	60	62.5	100	99.5	106

## 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-□

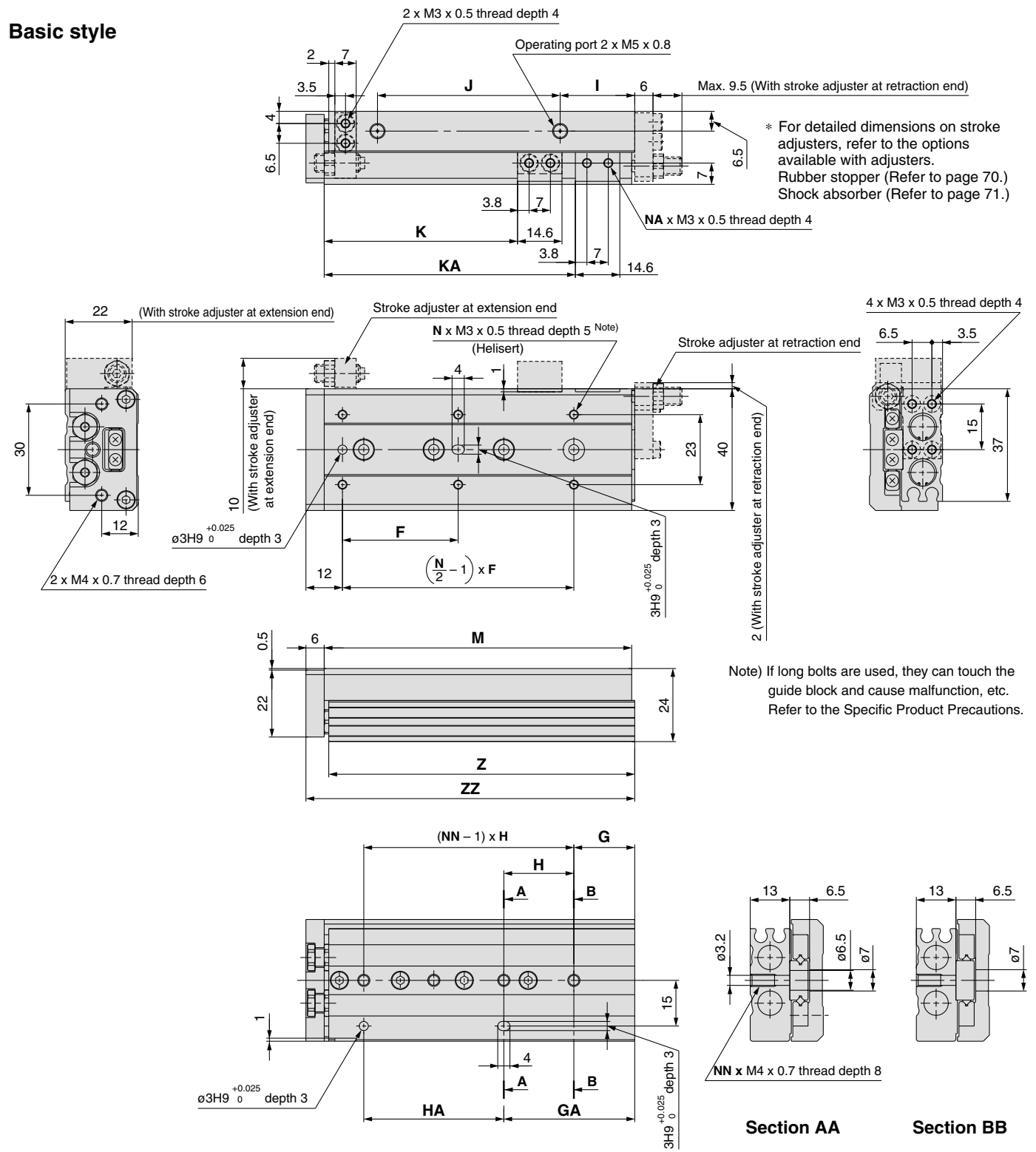
-X□

Individual  
-X□

# Series MXS

## Dimensions: MXS8

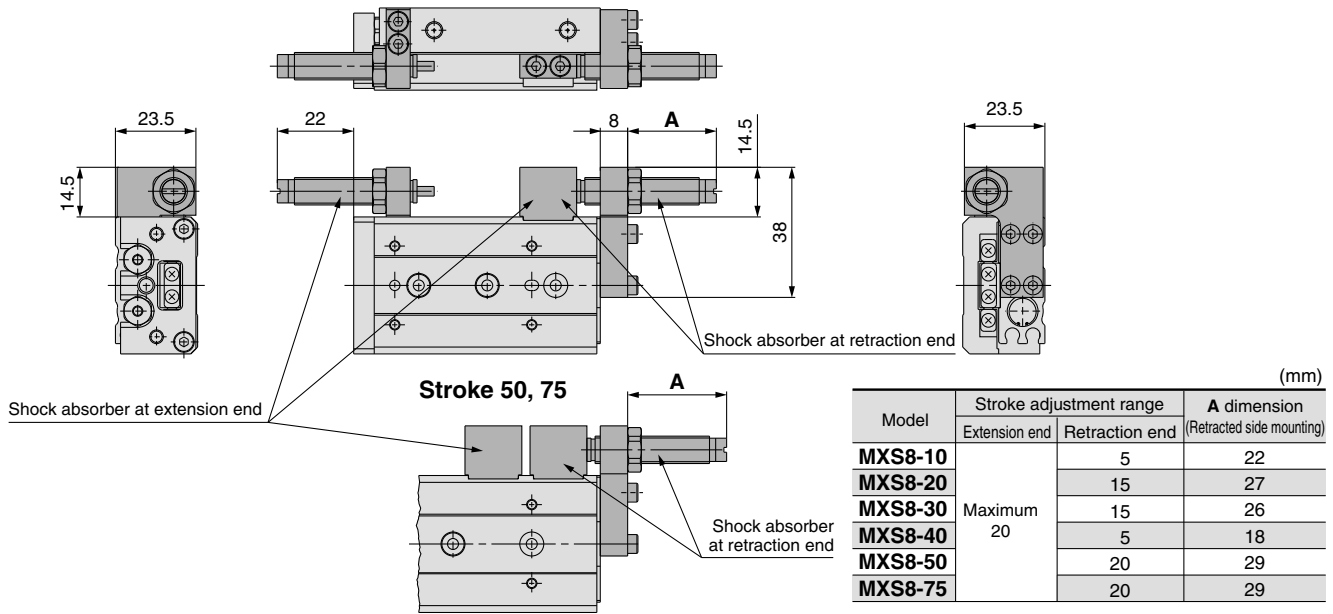
### Basic style



(mm)

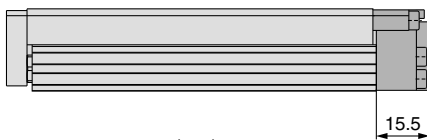
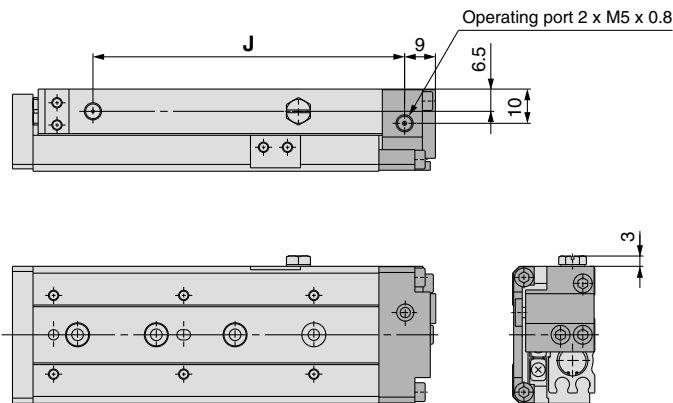
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS8-10	25	4	9	28	2	17	20	13	19.5	23.5	—	2	49	48.5	56
MXS8-20	25	4	12	30	2	12	30	8.5	29	33.5	—	2	54	53.5	61
MXS8-30	40	4	13	20	3	33	20	9.5	39	43.5	—	2	65	64.5	72
MXS8-40	50	4	15	28	3	43	28	10.5	56	53.5	—	2	83	82.5	90
MXS8-50	38	6	20	23	4	43	46	24.5	60	63.5	82.5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

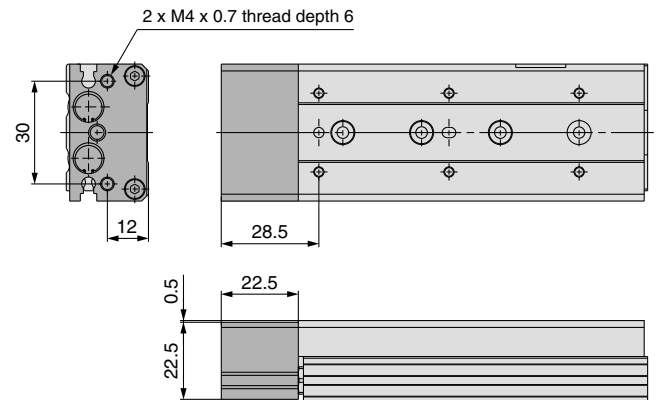
## With end lock (ø8) MXS8-□□R



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

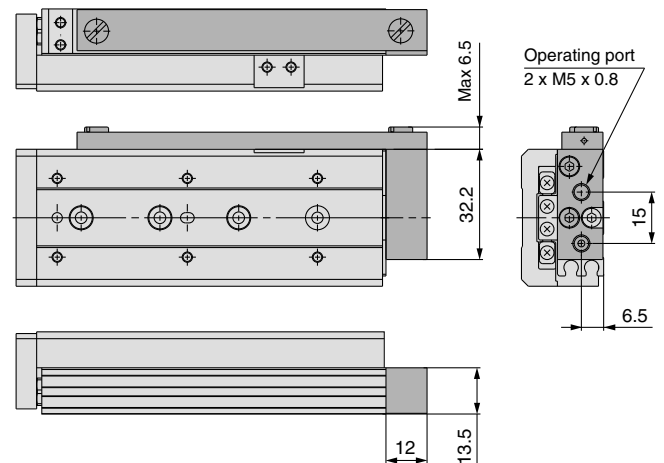
\* Other dimensions are the same as the basic style.

## With buffer (ø8) MXS8-□□F



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

## Axial piping type (ø8) MXS8-□□P



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

MXH

MXU

**MXS**

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

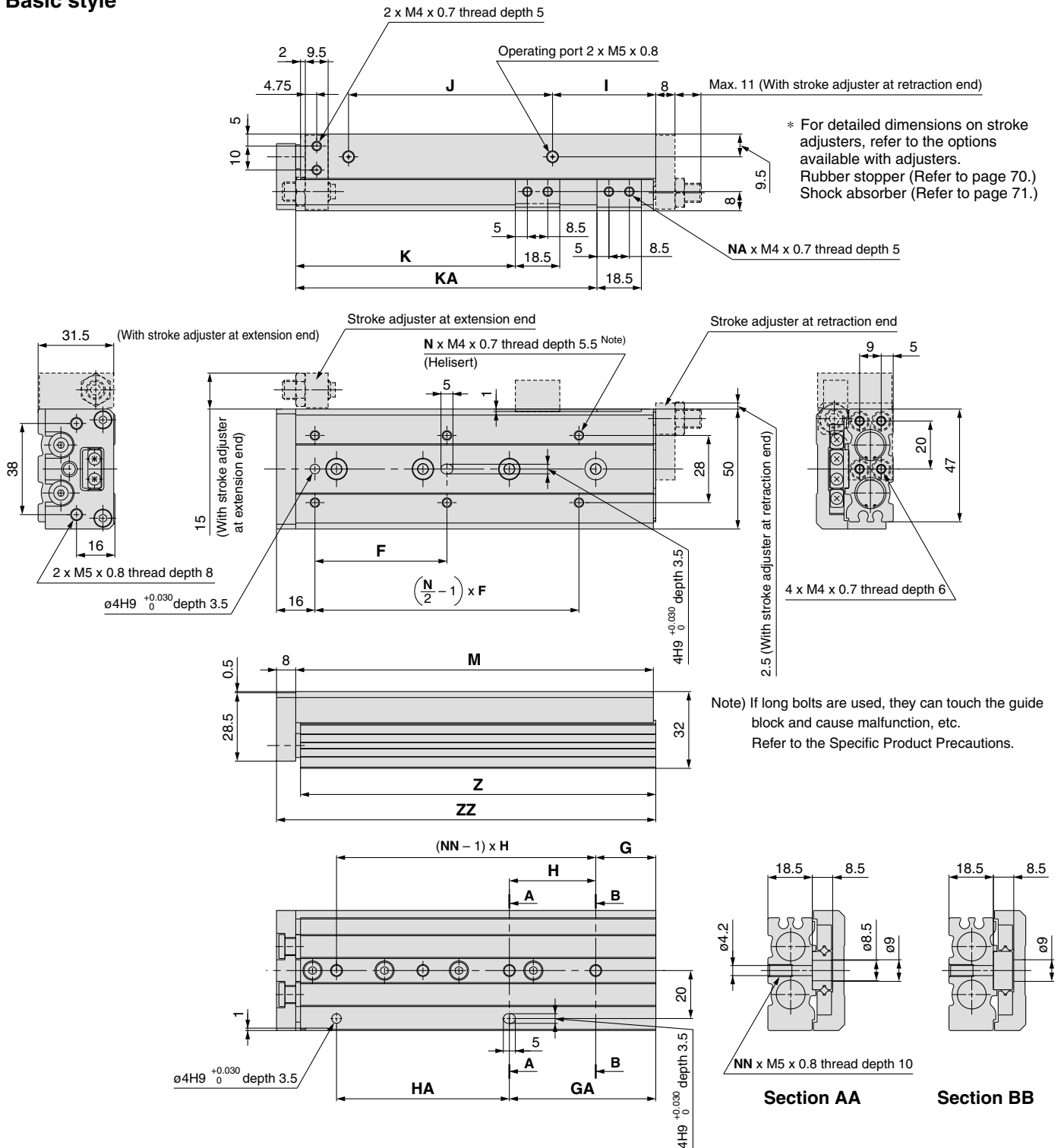
-X□

Individual  
-X□

# Series MXS

## Dimensions: MXS12

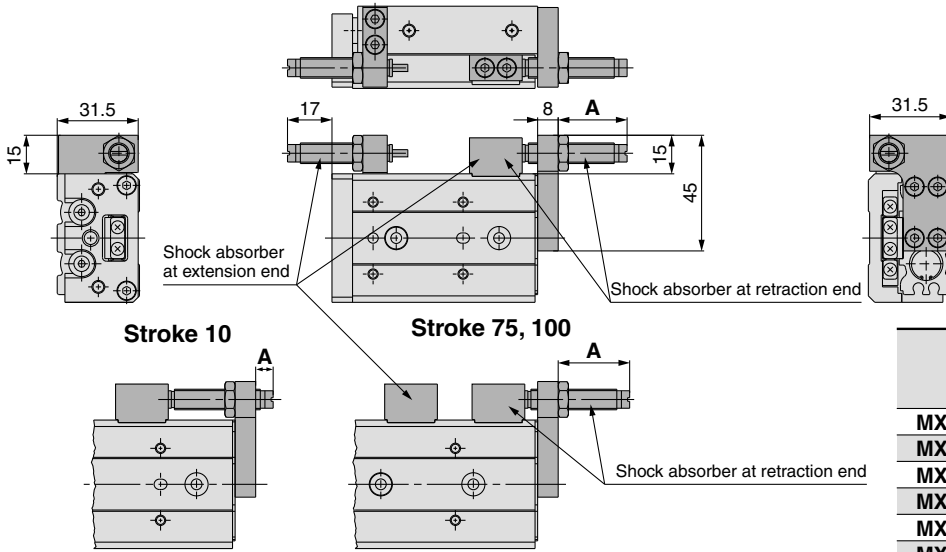
### Basic style



(mm)

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

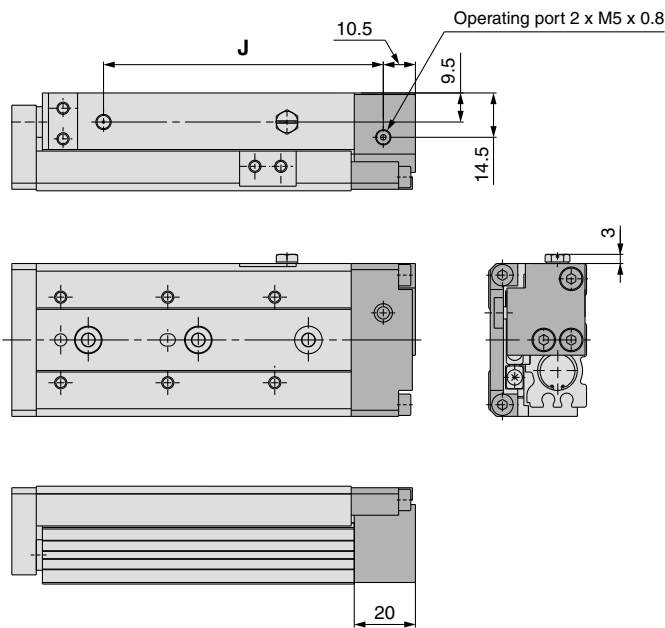
**With shock absorber (ø12) MXS12-□□BS/BT/B**



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

Model	Stroke adjustment range		A dimension (Retracted side mounting)
	Extension end	Retraction end	
MXS12-10	Maximum 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	

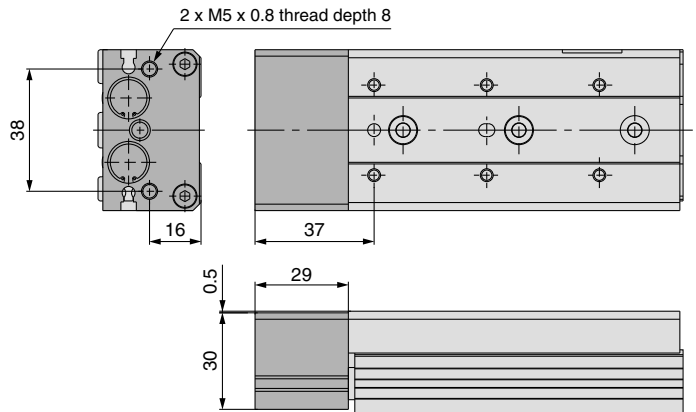
**With end lock (ø12) MXS12-□□R**



Model	J
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

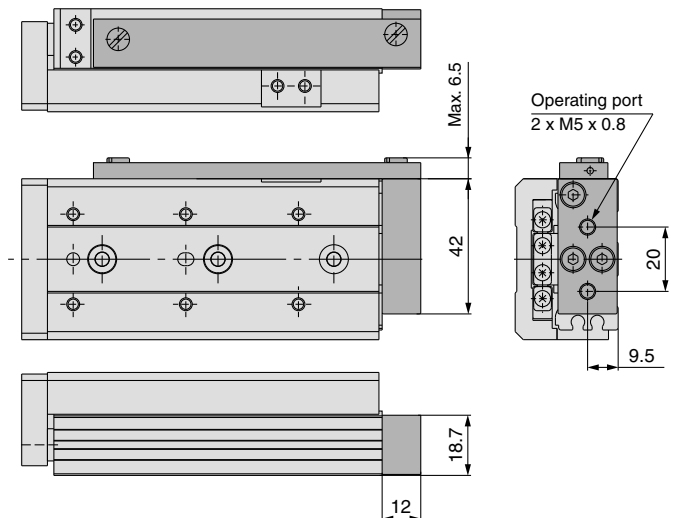
\* Other dimensions are the same as the basic style.

**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

MXY

MTS

D-□

-X□

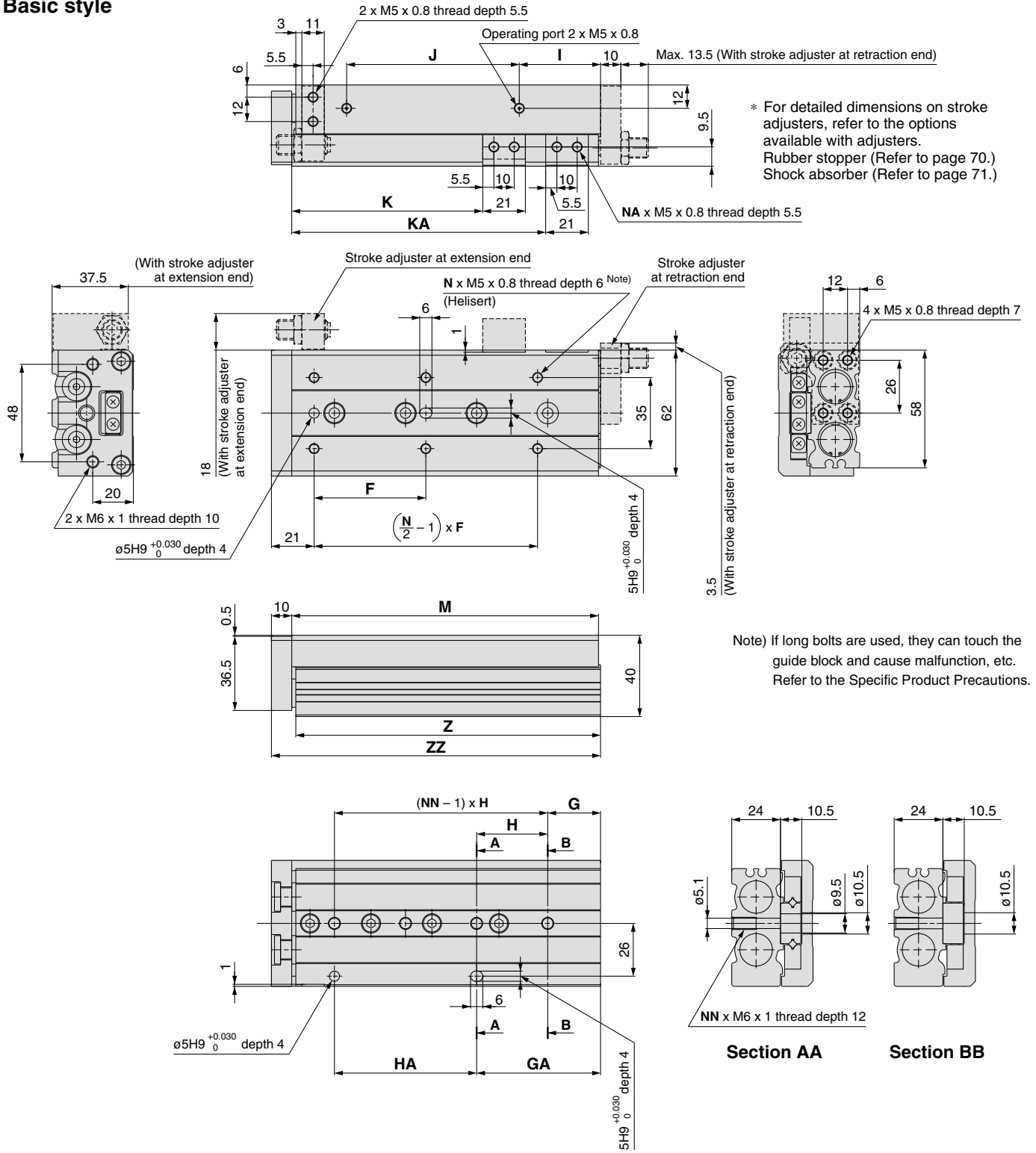
Individual  
-X□



# Series MXS

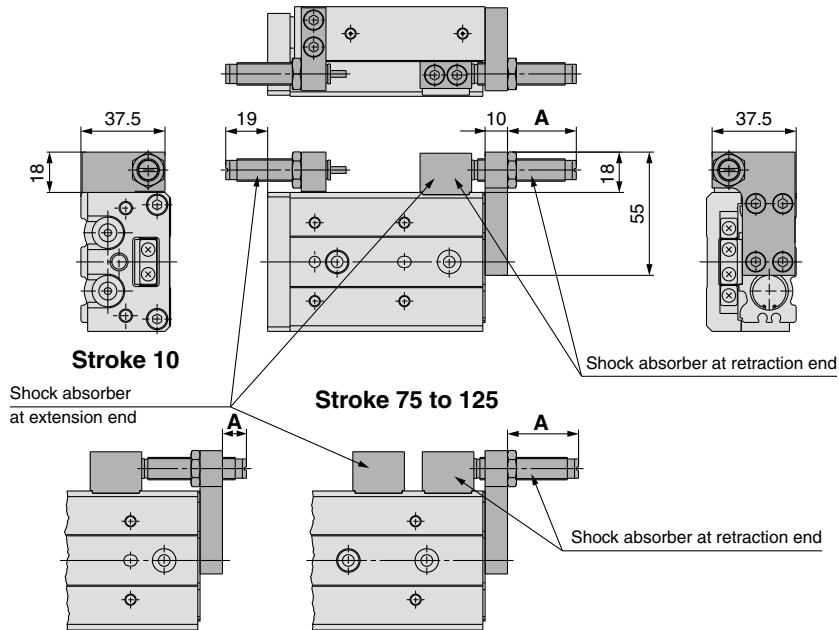
## Dimensions: MXS16

### 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

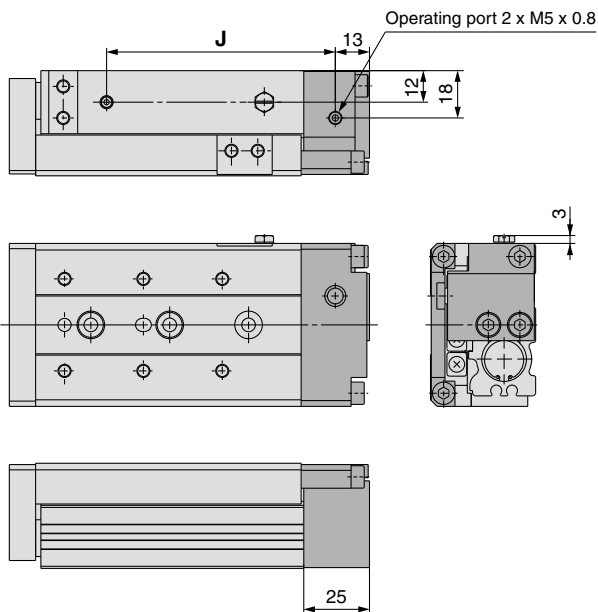
## With shock absorber (ø16) MXS16-□□BS/BT/B



Model	Stroke adjustment range		A dimension (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

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

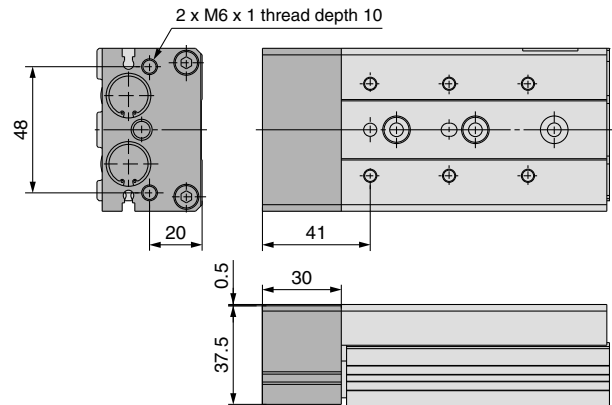
## With end lock (ø16) MXS16-□□R



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

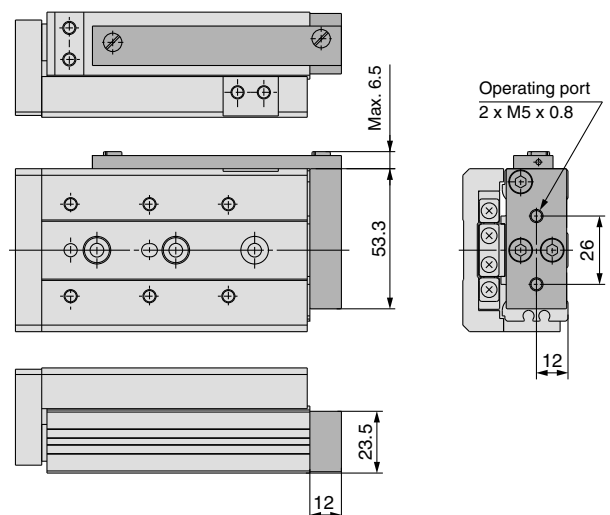
\* Other dimensions are the same as the basic style.

## 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

MXY

MTS

D-□

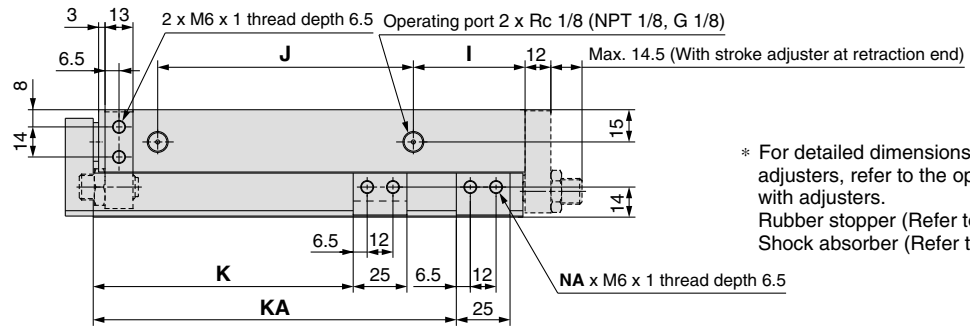
-X□

Individual  
-X□

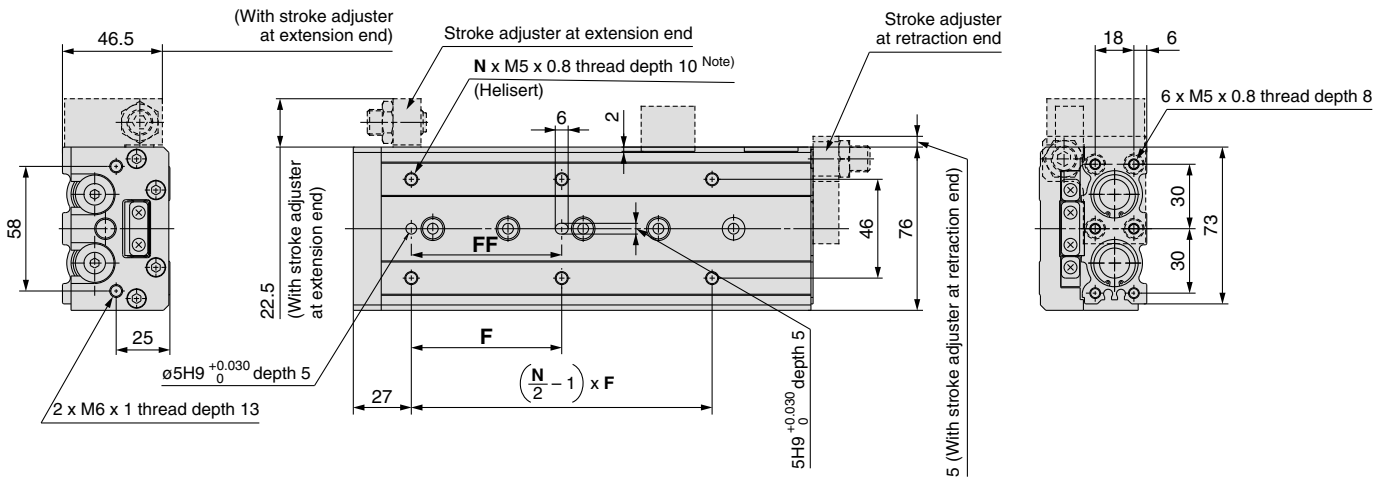
# Series MXS

## Dimensions: MXS20

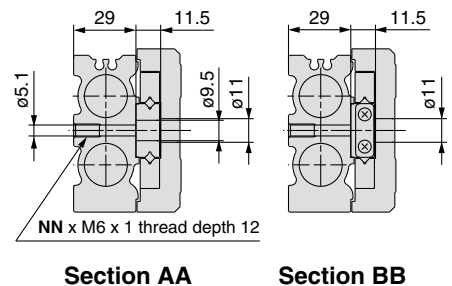
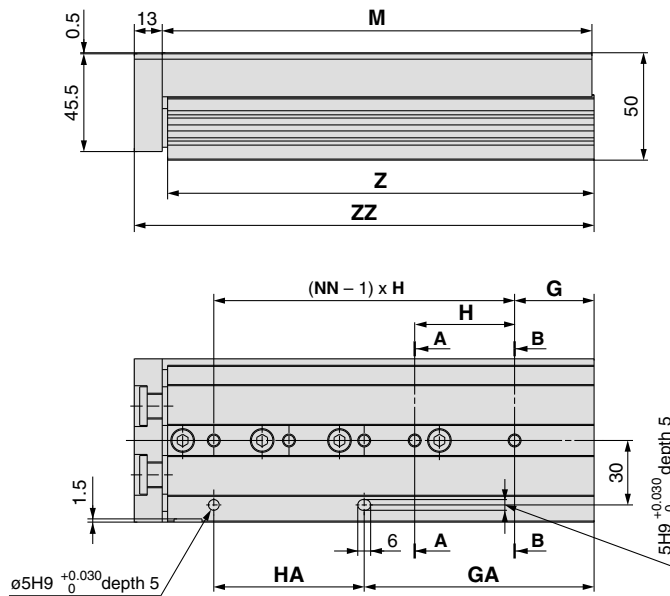
### Basic style



\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
Rubber stopper (Refer to page 70.)  
Shock absorber (Refer to page 71.)

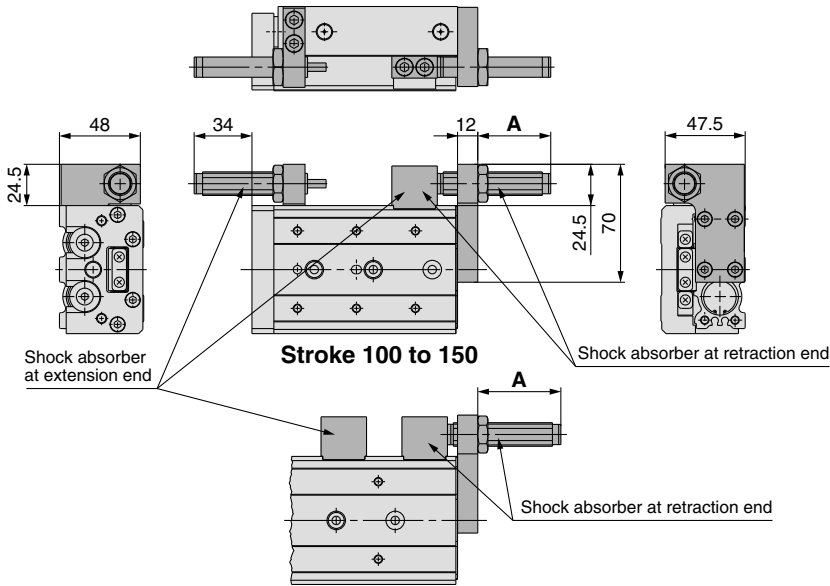


Note) If long bolts are used, they can touch the guide block and cause malfunction, etc. Refer to the Specific Product Precautions.



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

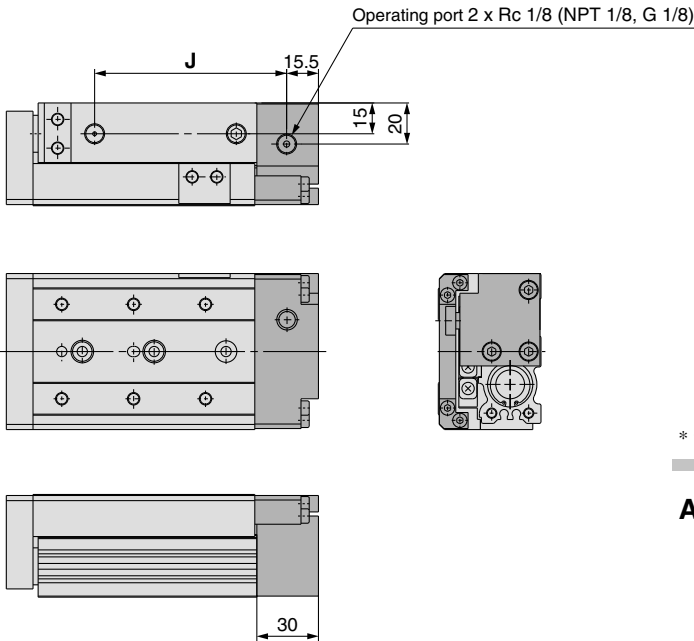
## With shock absorber (ø20) MXS20-□□BS/BT/B



Model	Stroke adjustment range		A dimension (Retracted side mounting)
	Extension end	Retraction end	
MXS20-10	Maximum 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.

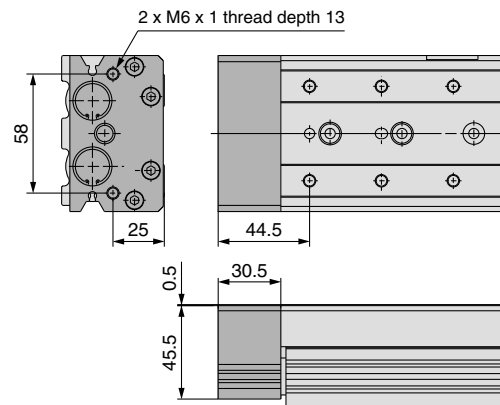
## With end lock (ø20) MXS20-□□R



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

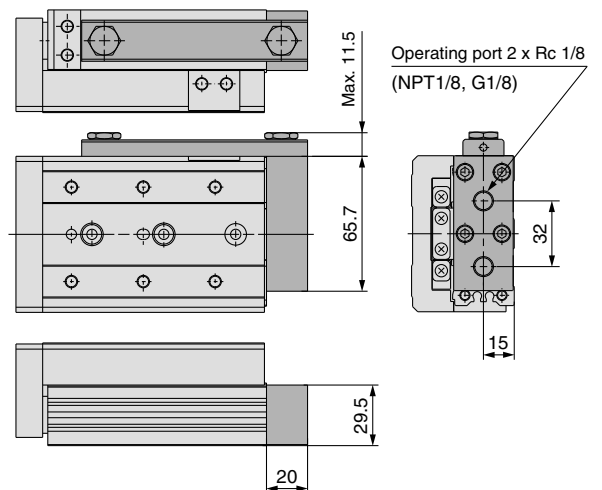
\* Other dimensions are the same as the basic style.

## With buffer (ø20) MXS20-□□F



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

## Axial piping type (ø20) MXS20-□□P



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

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

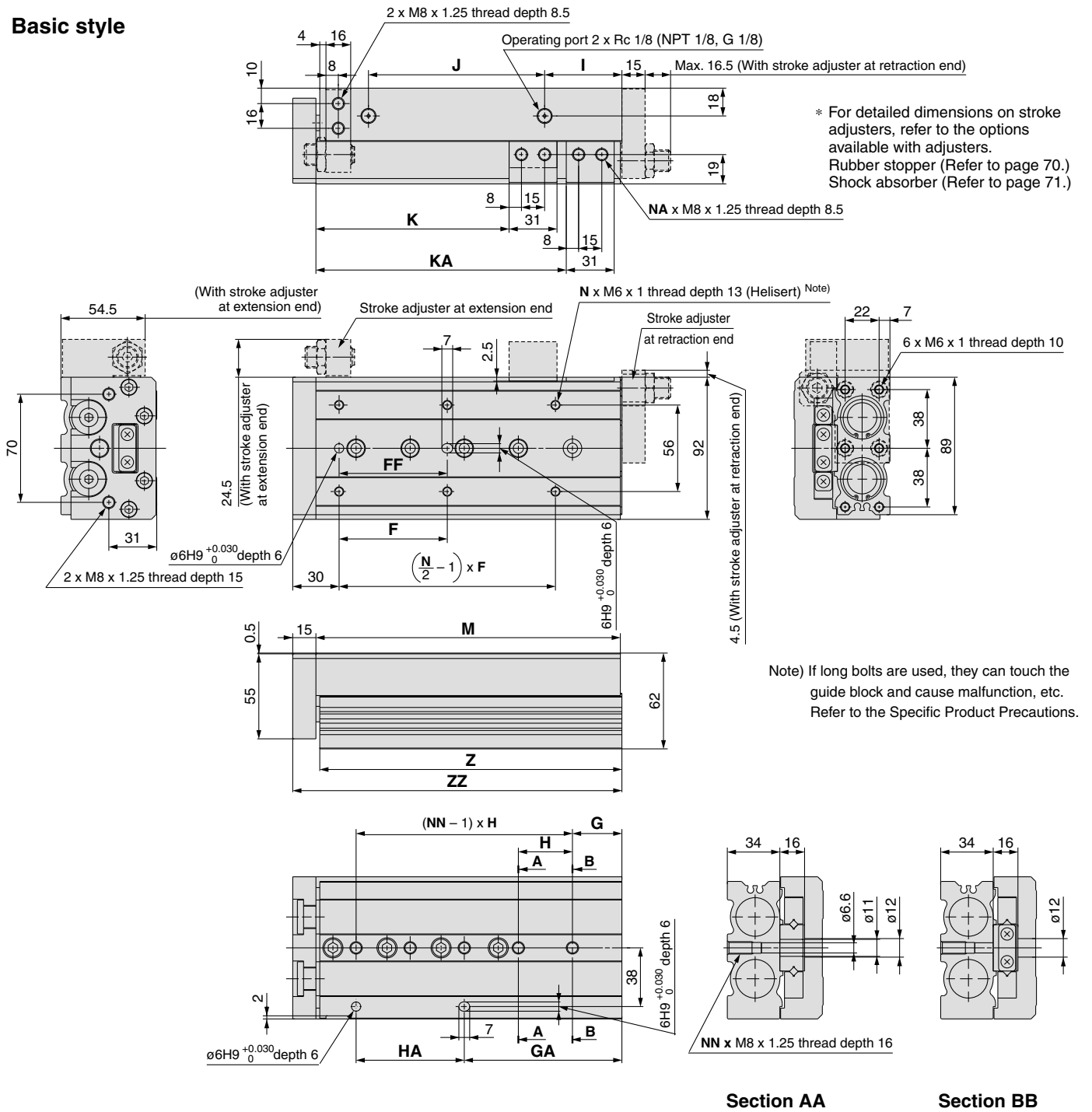
-X□

Individual  
-X□

# Series MXS

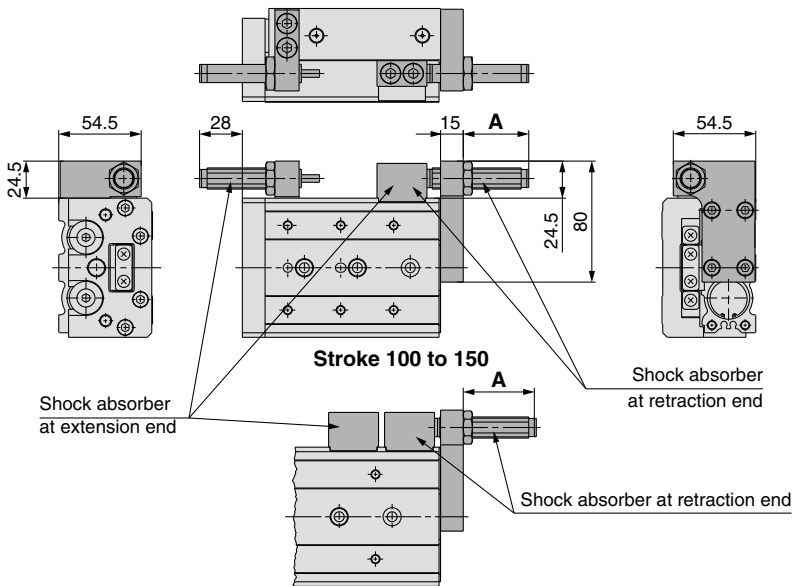
## Dimensions: MXS25

### Basic style



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

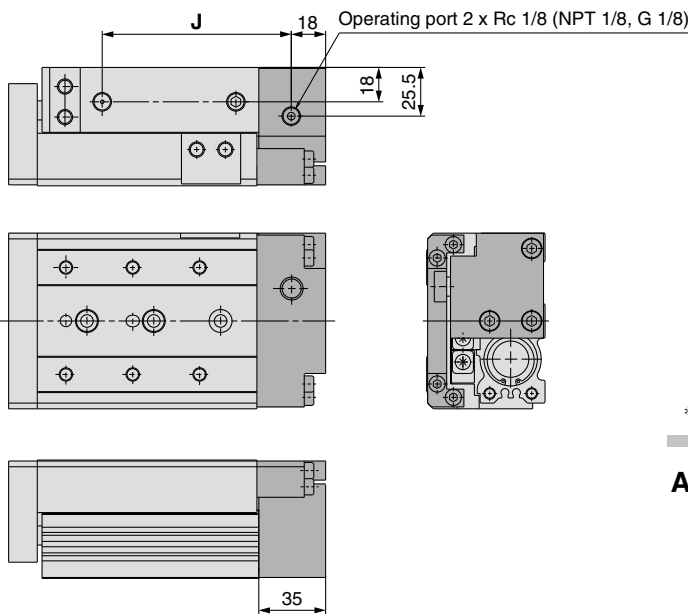
## With shock absorber (ø25) MXS25-□□BS/BT/B



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

Model	Stroke adjustment range		A dimension (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

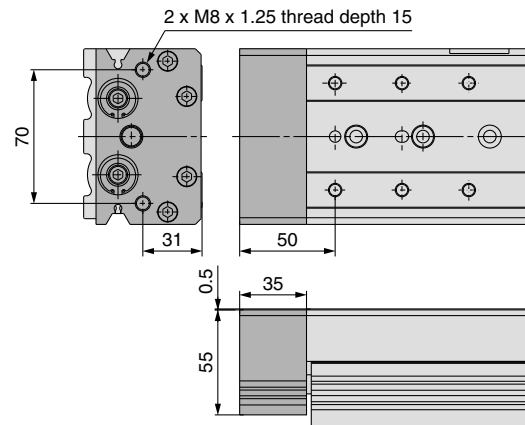
## With end lock (ø25) MXS25-□□R



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

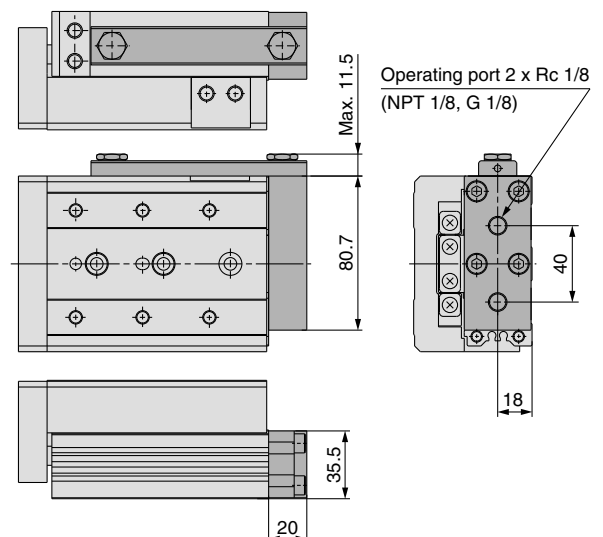
\* Other dimensions are the same as the basic style.

## 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

MXY

MTS

D-□

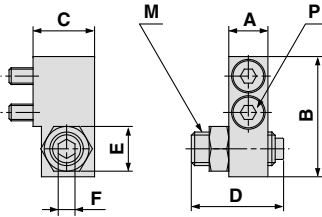
-X□

Individual  
-X□

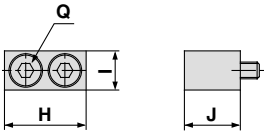
# Series MXS Optional Specifications 1

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

### Body mounting section



### Table mounting section

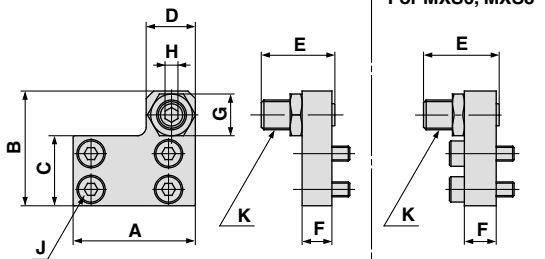


Applicable size	Model	Stroke adjustment range (mm)	Body mounting section								Table mounting section			
			A	B	C	D	E	F	M	P*	H	I	J	Q*
MXS6 (L)	MXS-AS6 (L)	5	6	17.8	10.5	16.5	7	2.5	M5 x 0.8	M2.5 x 10	12.5	6	8.5	M2.5 x 8
	MXS-AS6 (L)-X11	26.5												
MXS8 (L)	MXS-AS8 (L)	5	7	21.5	11	16.5	8	3	M6 x 1	M3 x 12	14.6	7	10	M3 x 10
	MXS-AS8 (L)-X11	26.5												
	MXS-AS8 (L)-X12	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	30												
	MXS-AS12 (L)-X12	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	34.5												
	MXS-AS16 (L)-X12	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	37.5												
	MXS-AS20 (L)-X12	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	42.5												
	MXS-AS25 (L)-X12	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	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	26.5										
	MXS-AT8 (L)-X12	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	30										
	MXS-AT12 (L)-X12	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	34.5										
	MXS-AT16 (L)-X12	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	37.5										
	MXS-AT20 (L)-X12	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	42.5										
	MXS-AT25 (L)-X12	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	Retraction end	
BS	Shock absorber	Extension end
BT	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.

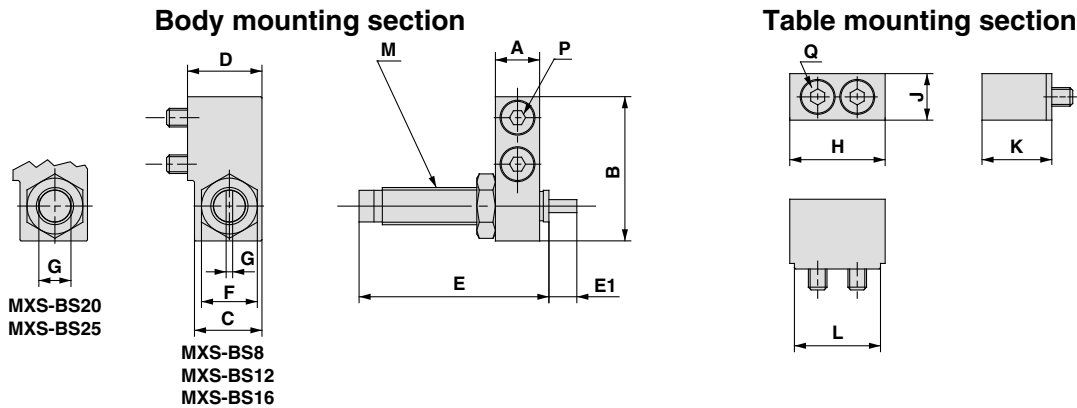
\* W/ shock absorber is not available with the MXS6 series.

\* 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)**

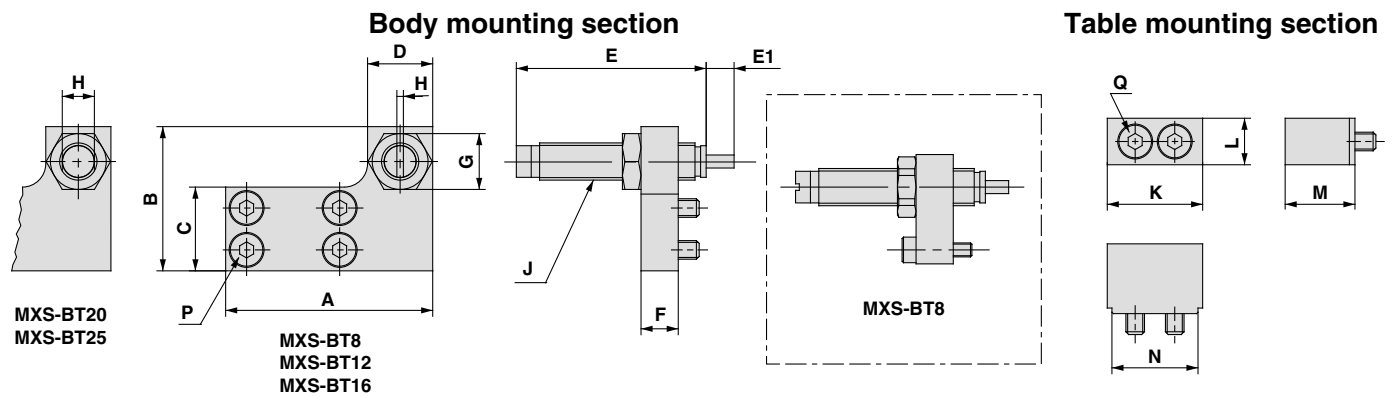
**Extension End**



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

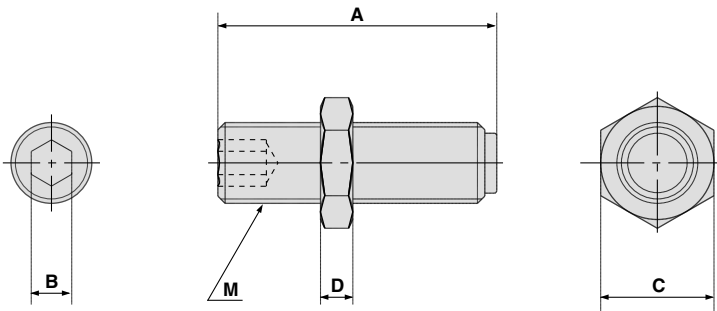
\* Size of hexagon socket head cap screw  
It is also available with the symmetric type. For ordering part numbers, refer to "How to Order Stroke Adjuster" on page 70. Dimensions are identical with the standard type.

- 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				
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	

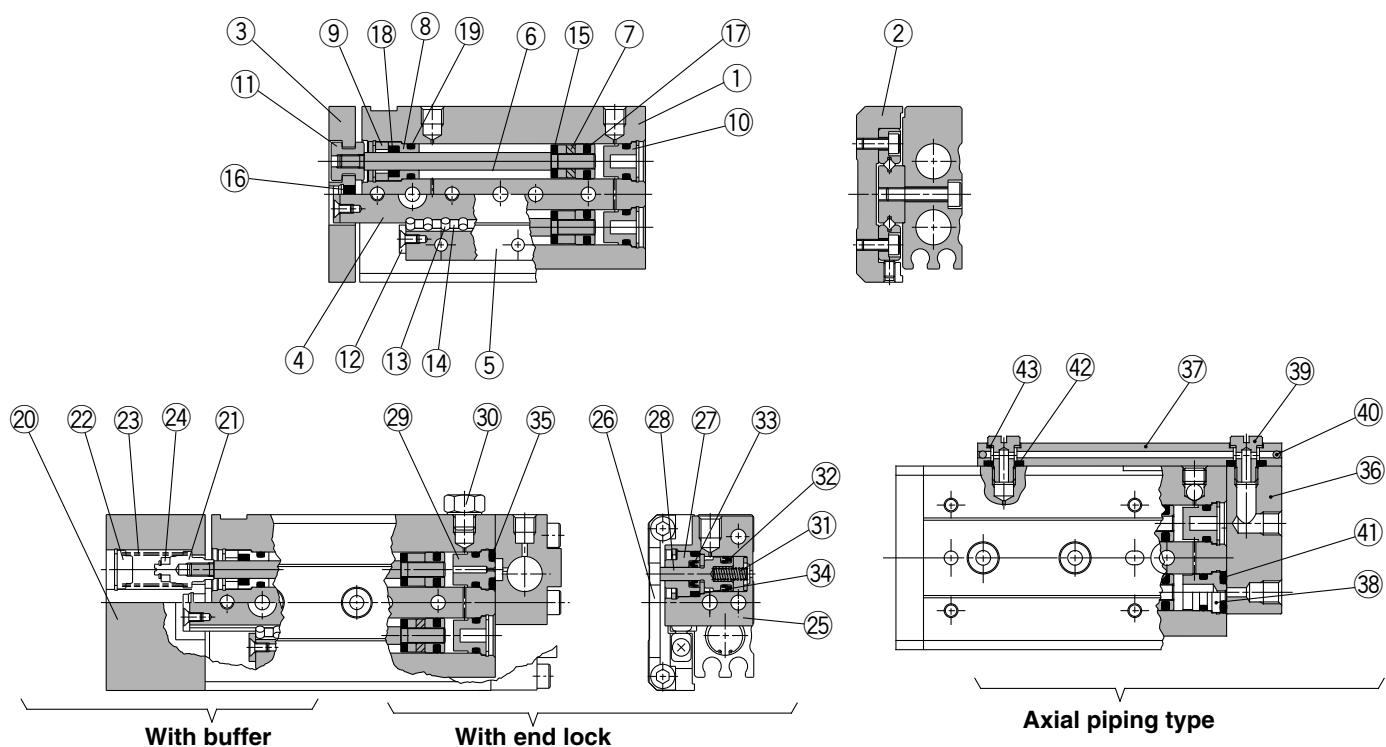
\* The auto switch for the buffer must be ordered separately.

MXH  
 MXU  
**MXS**  
 MXQ  
 MXF  
 MXW  
 MXJ  
 MXP  
 MXY  
 MTS

D-□  
 -X□  
 Individual  
 -X□

# Series MXS

## 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 (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 (17) to (19) (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 above. 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 (17) to (19) (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)
	GR-S-010 (10g)
	GR-S-020 (20g)
	GR-S-050 (50g)
Cylinder unit	GR-L-005 (5g)
	GR-L-010 (10g)
	GR-L-020 (20g)
	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

**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.

**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.

## 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)		IC circuit	Relay, PLC		
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)				M9PV	M9P	●	●	●	○	○			
				2-wire	24 V	12 V	—	M9BV	M9B	●	●	●	○	○	○		—
				3-wire (NPN)				M9NWV	M9NW	●	●	●	○	○	○		IC circuit
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	○	○		IC circuit
				2-wire				M9B WV	M9B W	●	●	●	○	○	○		—
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—	
				2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	—	—	—	—	Relay, PLC
								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).

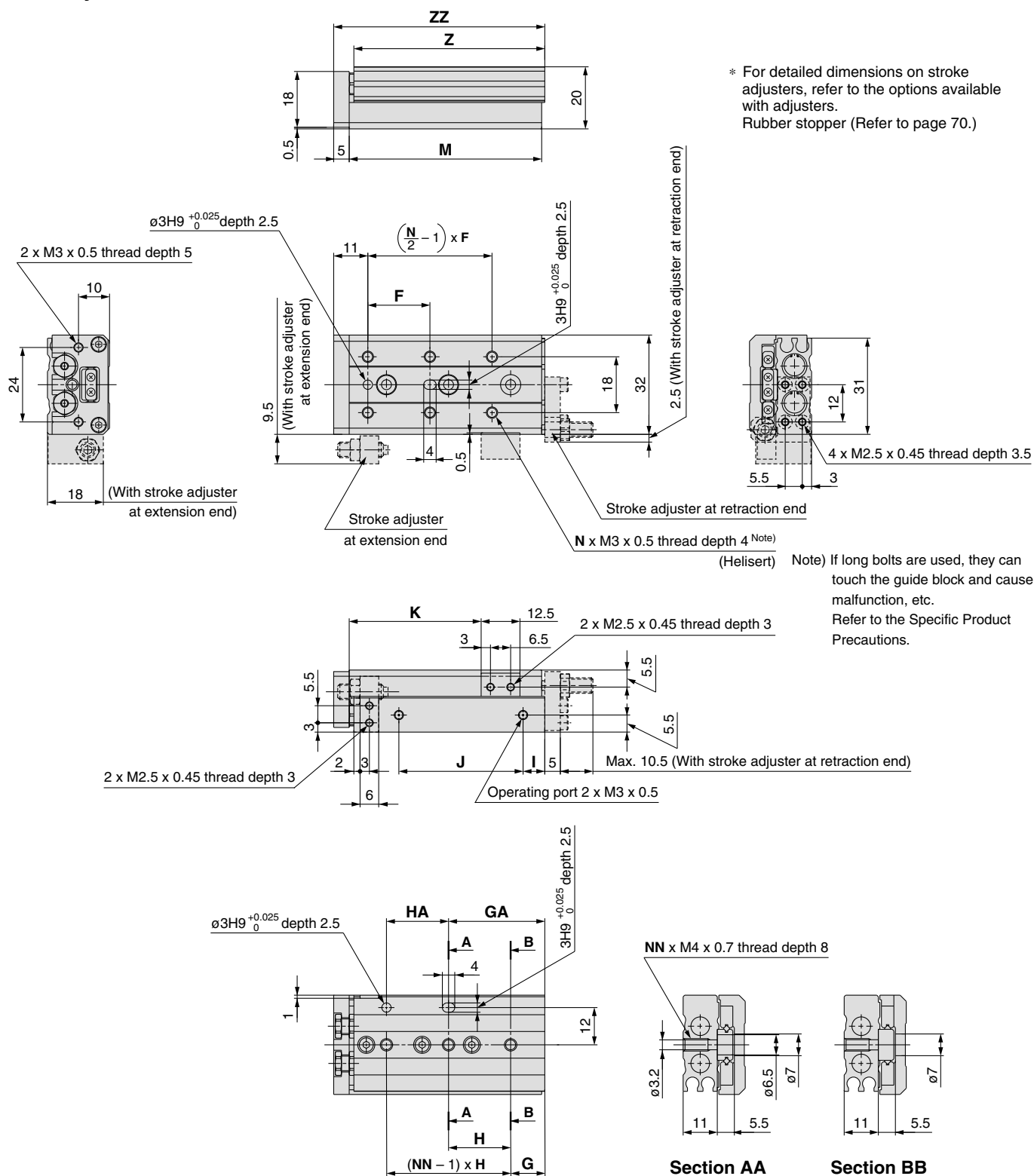
- MXH
- MXU
- MXS**
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MXY
- MTS

- D-□
- X□
- Individual -X□

# Series MXS□L

## Dimensions: MXS6L/Symmetric Type

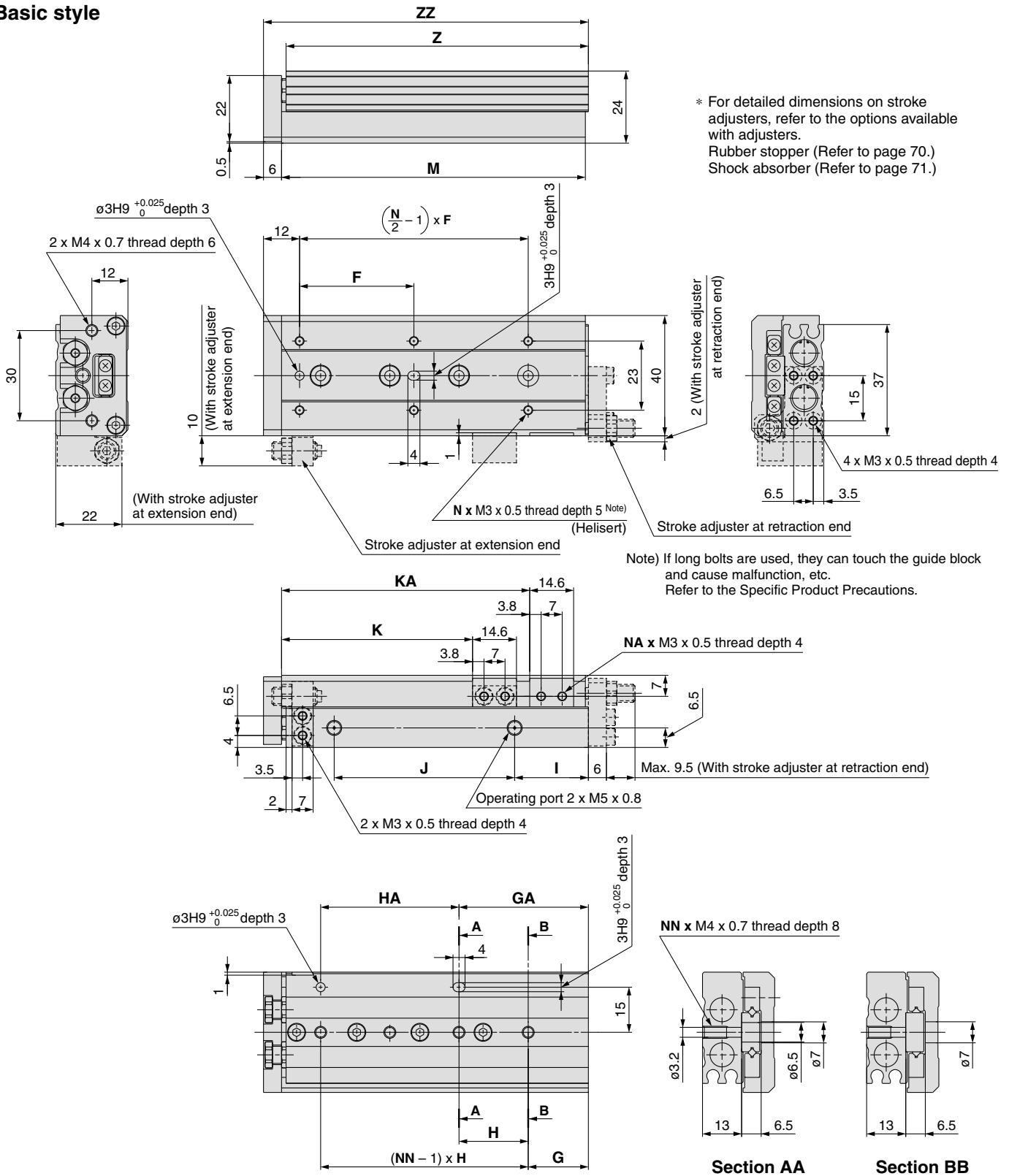
### Basic style



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



- MXH
- MXU
- MXS
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MXY
- MTS

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

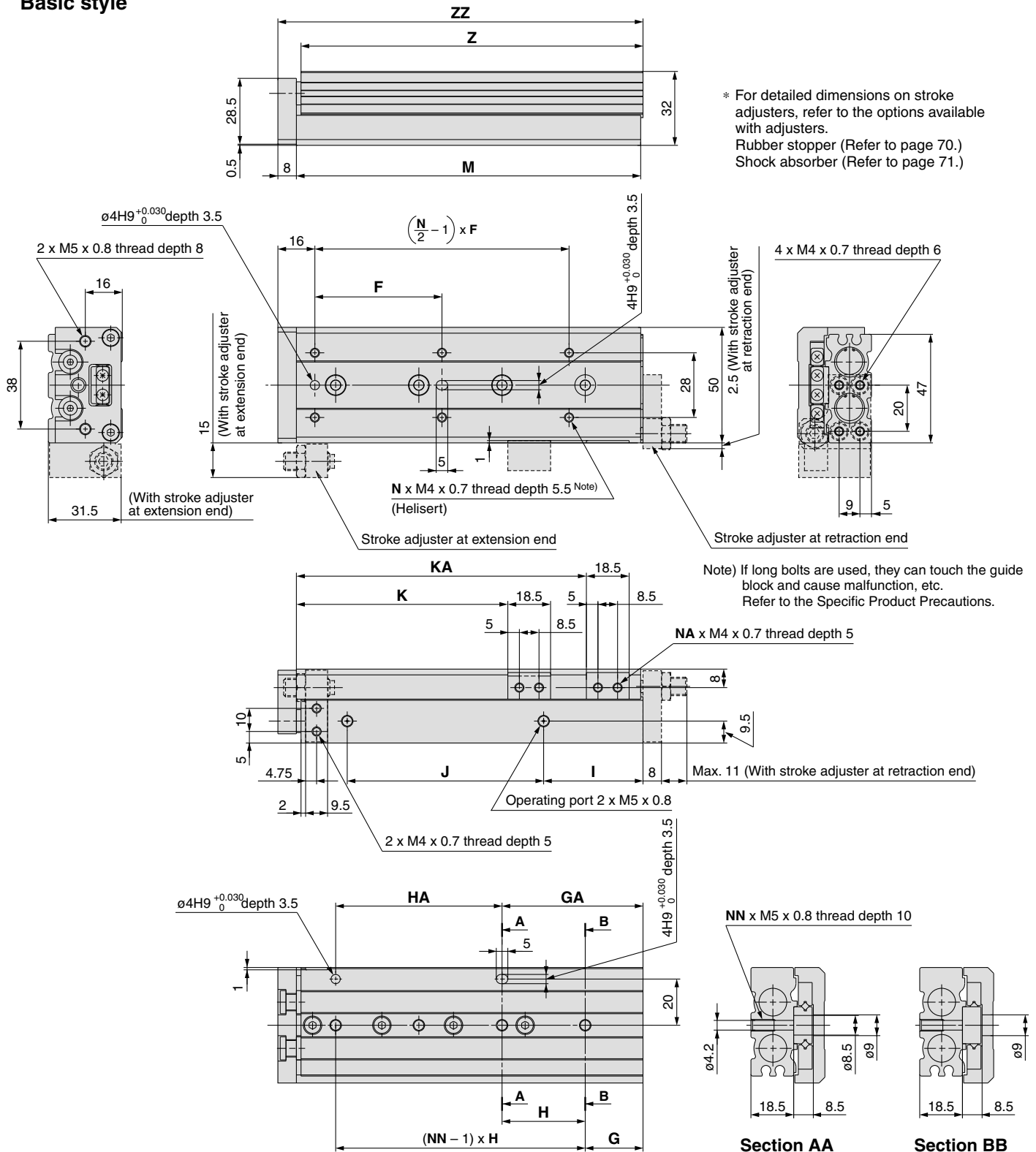
- D-□
- X□
- Individual
- X□



# Series MXS□L

## Dimensions: MXS12L/Symmetric Type

### Basic style

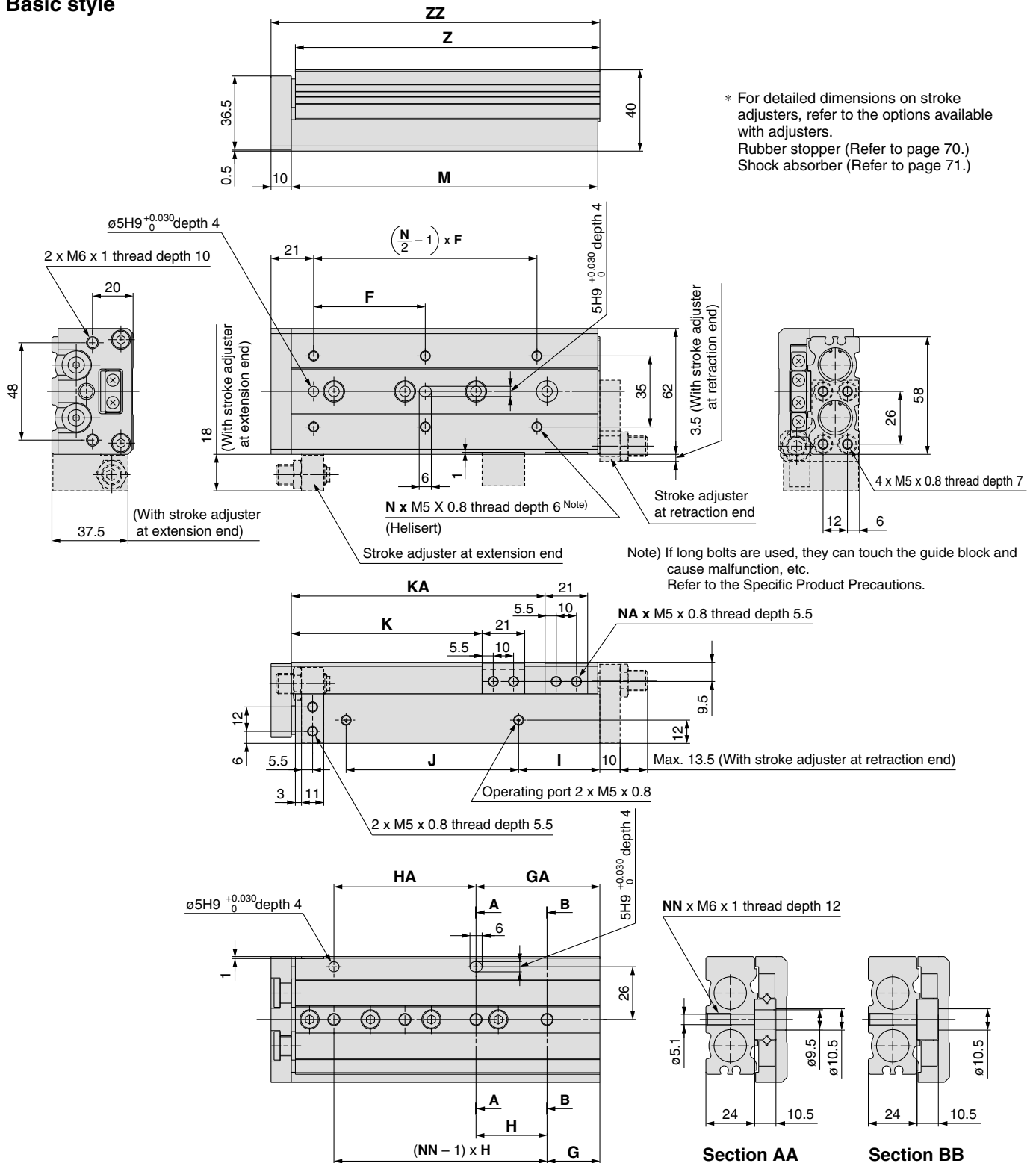


Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS12L-10	35	4	15	40	2	15	40	10	40	26.5	—	2	71	70	80
MXS12L-20	35	4	15	40	2	15	40	10	40	36.5	—	2	71	70	80
MXS12L-30	35	4	15	40	2	15	40	10	40	46.5	—	2	71	70	80
MXS12L-40	50	4	17	25	3	42	25	10	52	56.5	—	2	83	82	92
MXS12L-50	35	6	15	36	3	51	36	22	60	66.5	—	2	103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

Regarding the external dimensions with a shock absorber, view the external dimensions of MXS12 symmetrically on page 63.

## Dimensions: MXS16L/Symmetric Type

### Basic style



- MXH
- MXU
- MXS**
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MXY
- MTS

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

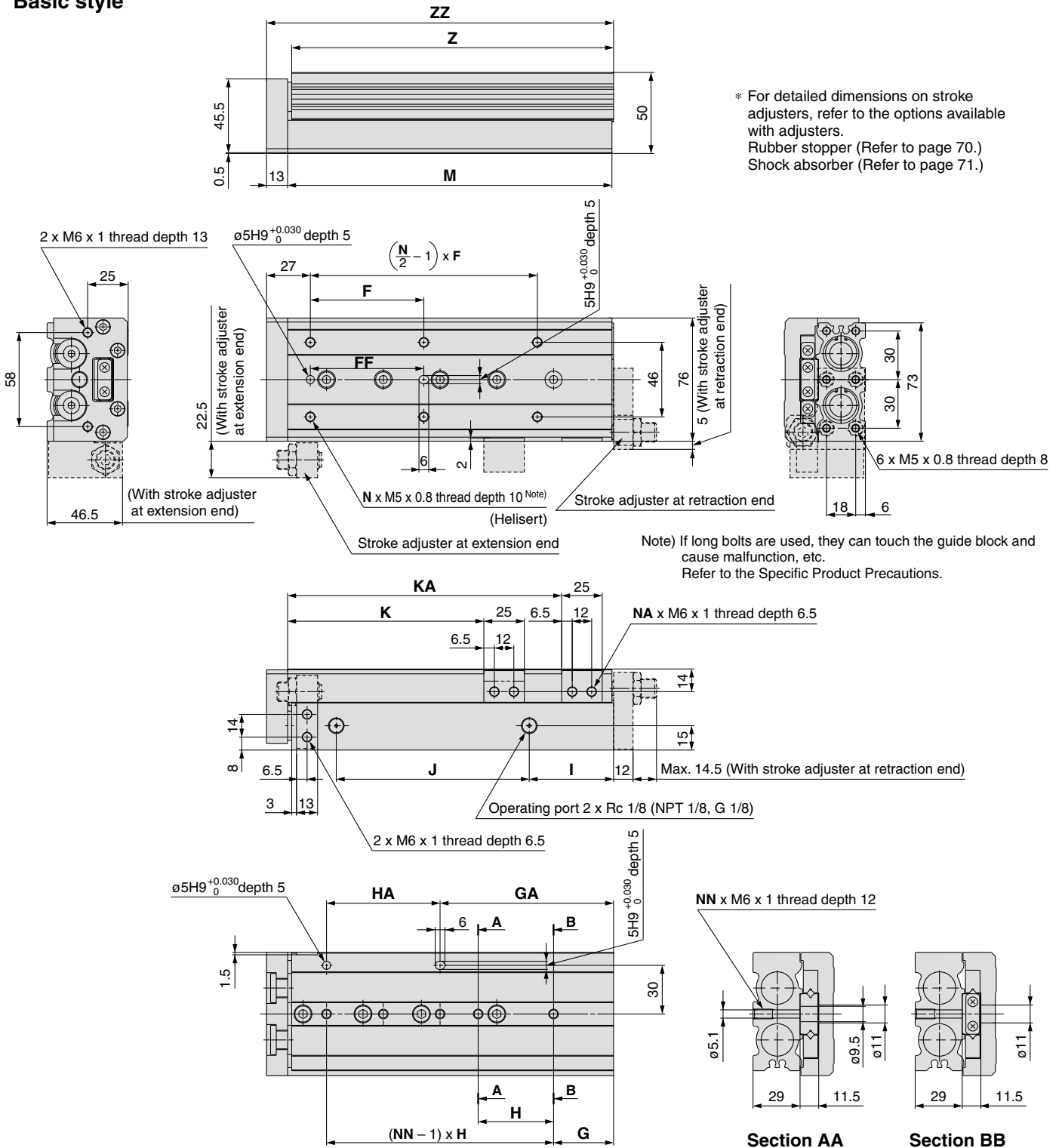
Regarding the external dimensions with a shock absorber, view the external dimensions of MXS16 symmetrically on page 65.

- D-□
- X□
- Individual
- X□

# Series MXS□L

## Dimensions: MXS20L/Symmetric Type

### Basic style



\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
 Rubber stopper (Refer to page 70.)  
 Shock absorber (Refer to page 71.)

Note) If long bolts are used, they can touch the guide block and cause malfunction, etc.  
 Refer to the Specific Product Precautions.

Section AA

Section BB

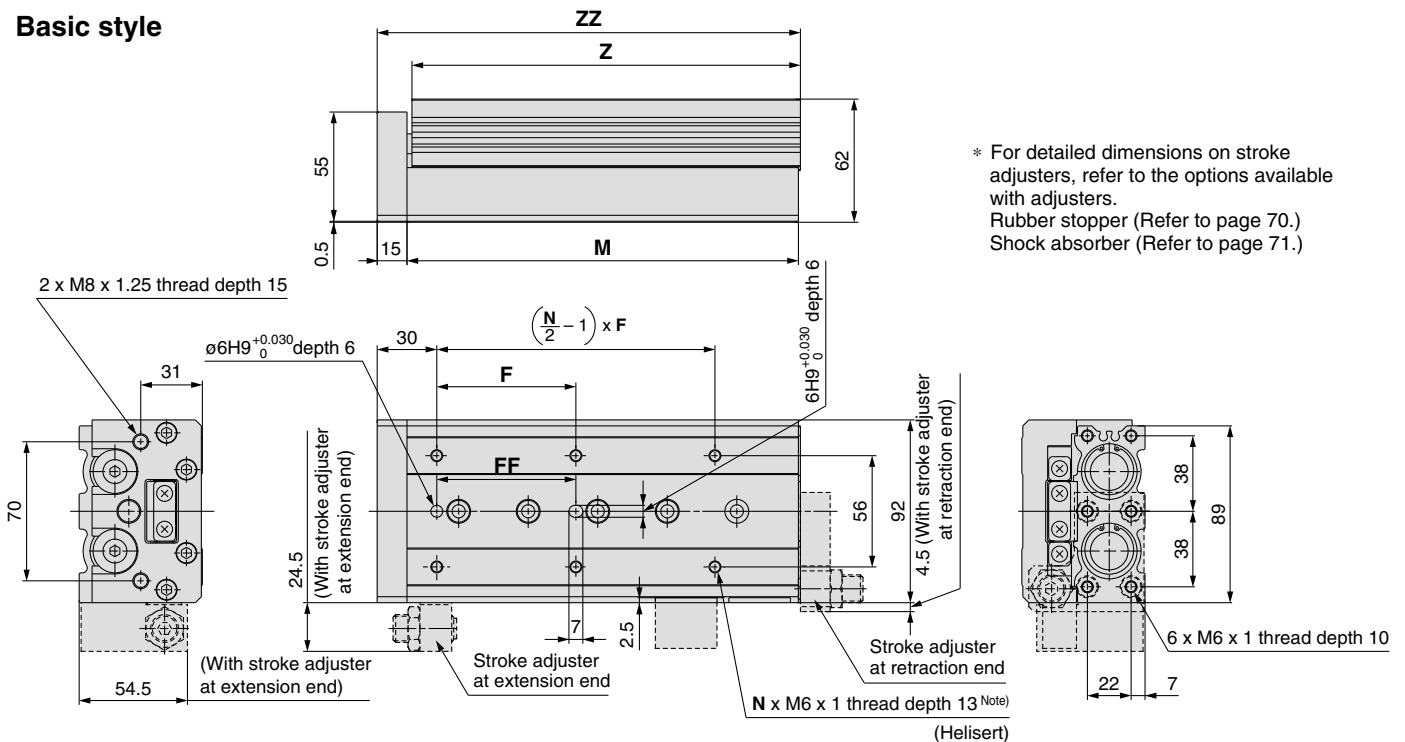
(mm)

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

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

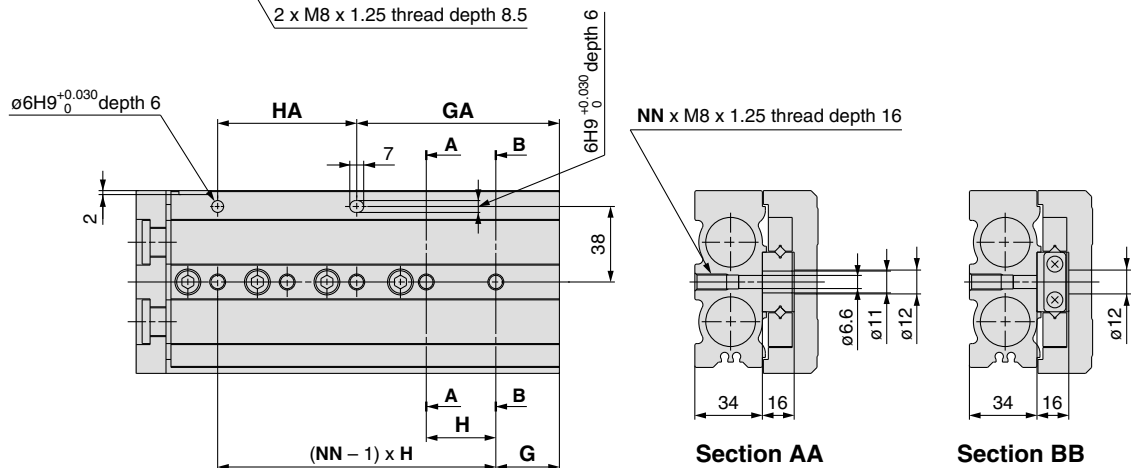
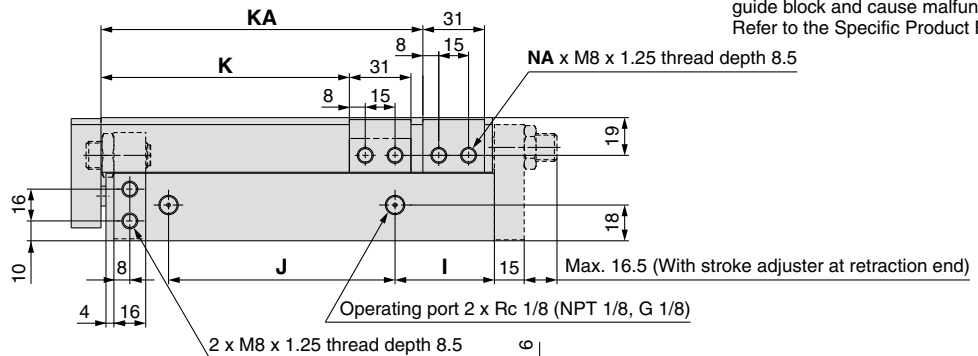
## Dimensions: MXS25L/Symmetric Type

### Basic style



\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
 Rubber stopper (Refer to page 70.)  
 Shock absorber (Refer to page 71.)

Note) If long bolts are used, they can touch the guide block and cause malfunction, etc. Refer to the Specific Product Precautions.



(mm)

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

MXY

MTS

D-□

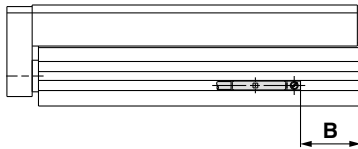
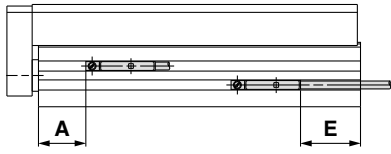
-X□

Individual

-X□

# Series MXS

## 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		
<b>MXS6</b>	5.9	5.6	5.6	5.6	17.6	23.6	—	—	—	—	3.6 (1.1)	3.6 (1.1)	3.6 (1.1)	15.6 (13.1)	21.6 (19.1)	—	—	—	—		
<b>MXS8</b>	7.6	10.9	5.9	6.9	14.9	22.9	47.9	—	—	—	8.9 (6.4)	3.9 (1.4)	4.9 (2.4)	12.9 (10.4)	20.9 (18.4)	45.9 (43.4)	—	—	—		
<b>MXS12</b>	11.6	28.4	18.4	8.4	10.4	20.4	41.4	70.4	—	—	26.4 (23.9)	16.4 (13.9)	6.4 (3.9)	8.4 (5.9)	18.4 (15.9)	39.4 (36.9)	68.4 (65.9)	—	—		
<b>MXS16</b>	16.3	28.7	18.7	8.7	8.7	13.7	38.7	61.7	86.7	—	26.7 (24.2)	16.7 (14.2)	6.7 (4.2)	6.7 (4.2)	11.7 (9.2)	36.7 (34.2)	59.7 (57.2)	84.7 (82.2)	—		
<b>MXS20</b>	18.9	32.6	22.6	12.6	12.6	17.6	31.6	59.6	88.6	115.6	30.6 (28.1)	20.6 (18.1)	10.6 (8.1)	10.6 (8.1)	15.6 (13.1)	29.6 (27.1)	57.6 (55.1)	86.6 (84.1)	113.6 (111.1)		
<b>MXS25</b>	23	37.5	27.5	17.5	17.5	20.5	36.5	52.5	85.5	100.5	35.5 (33)	25.5 (23)	15.5 (13)	15.5 (13)	18.5 (16)	34.5 (32)	50.5 (48)	83.5 (81)	98.5 (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		
<b>MXS6</b>	10	9.6	9.6	9.6	21.6	27.6	—	—	—	—	-0.4	-0.4	-0.4	11.6	17.5	—	—	—	—		
<b>MXS8</b>	11.6	14.9	9.9	10.9	18.9	26.9	51.9	—	—	—	4.9	-0.1	0.9	8.9	16.9	41.9	—	—	—		
<b>MXS12</b>	15.6	32.4	22.4	12.4	14.4	24.4	45.4	74.4	—	—	22.4	12.4	2.4	4.4	14.4	35.4	64.4	—	—		
<b>MXS16</b>	20.3	32.7	22.7	12.7	12.7	17.7	42.7	65.7	90.7	—	22.7	12.7	2.7	2.7	7.7	32.7	55.7	80.7	—		
<b>MXS20</b>	22.9	36.6	26.6	16.6	16.6	21.6	35.6	63.6	92.6	119.6	26.6	16.6	6.6	6.6	11.6	25.6	53.6	82.6	109.6		
<b>MXS25</b>	27	41.5	31.5	21.5	21.5	24.5	40.5	56.5	89.5	104.5	31.5	21.5	11.5	11.5	14.5	30.5	46.5	79.5	94.5		

### 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		
<b>MXS6</b>	10	9.6	9.6	9.6	21.6	27.6	—	—	—	—	1.6	1.6	1.6	13.6	19.6	—	—	—	—		
<b>MXS8</b>	11.6	14.9	9.9	10.9	18.9	26.9	51.9	—	—	—	6.9	1.9	2.9	10.9	18.9	43.9	—	—	—		
<b>MXS12</b>	15.6	32.4	22.4	12.4	14.4	24.4	45.4	74.4	—	—	24.4	14.4	4.4	6.4	16.4	37.4	66.4	—	—		
<b>MXS16</b>	20.3	32.7	22.7	12.7	12.7	17.7	42.7	65.7	90.7	—	24.7	14.7	4.7	4.7	9.7	34.7	57.7	82.7	—		
<b>MXS20</b>	22.9	36.6	26.6	16.6	16.6	21.6	35.6	63.6	92.6	119.6	28.6	18.6	8.6	8.6	13.6	27.6	55.6	84.6	111.6		
<b>MXS25</b>	27	41.5	31.5	21.5	21.5	24.5	40.5	56.5	89.5	104.5	33.5	23.5	13.5	13.5	16.5	32.5	48.5	81.5	96.5		

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

## Auto Switch Mounting



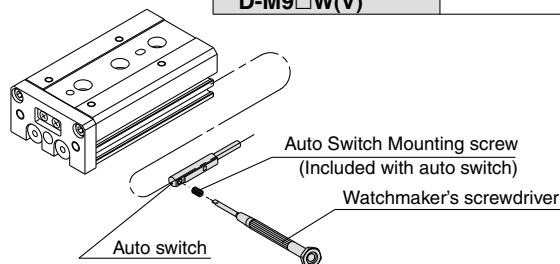
### Auto Switch Mounting Tool

- 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
<b>D-A9□(V)</b>	0.10 to 0.20
<b>D-M9□(V)</b> <b>D-M9□W(V)</b>	0.05 to 0.15



## Operating Range

(mm)

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

\* 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

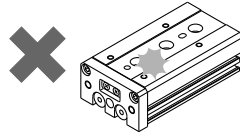
### ⚠ Caution

#### 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.

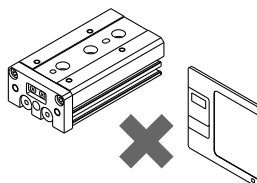
#### 5. Select the proper connection with the load which has external support and/or guide mechanism on the outside, and align it properly.

#### 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.

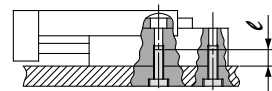
Since an body has magnets built-in, do not allow close contact with magnetic disks, magnetic cards or magnetic tapes. Data may be erased.



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

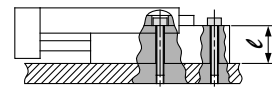
Tightening with a torque above the limit could cause malfunction. Whereas tightening insufficiently could result in misalignment or dropping.

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



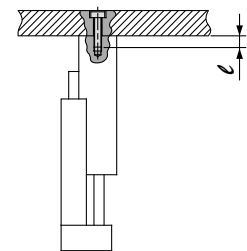
Model	Bolt	Maximum tightening torque (N·m)	Maximum screw-in depth (ℓ mm)
MXS6	M4 x 0.7	2.1	8
MXS8	M4 x 0.7	2.1	8
MXS12	M5 x 0.8	4.4	10
MXS16	M6 x 1	7.4	12
MXS20	M6 x 1	7.4	12
MXS25	M8 x 1.25	18	16

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



Model	Bolt	Maximum tightening torque (N·m)	Maximum screw-in depth (ℓ 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 (ℓ 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

MXY

MTS

D-□

-X□

Individual

-X□



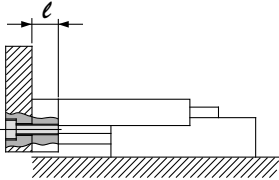
# Series MXS Specific Product Precautions 2

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

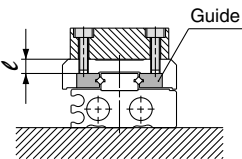
### ⚠ Caution

#### 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.

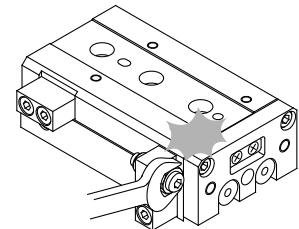
Model	Tightening torque (N·m)
MXS6	3.0
MXS8	5.0
MXS12	12.5
MXS16	25.0
MXS20	43.0
MXS25	69.0

## 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

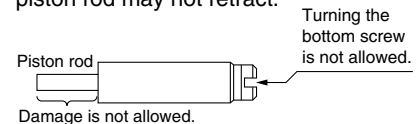
### ⚠ Caution

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
MXS20	10.8
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.

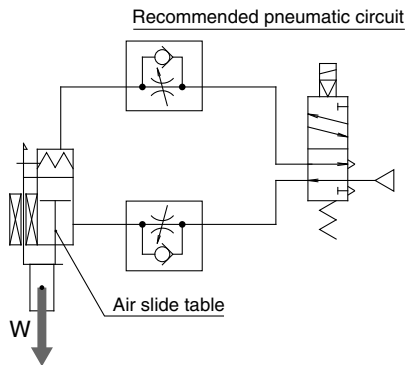
## Caution on Handling Functional Option

### 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.



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.

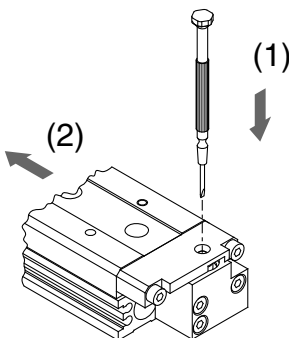
3. When releasing the end lock manually, be sure that air pressure is released.

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.

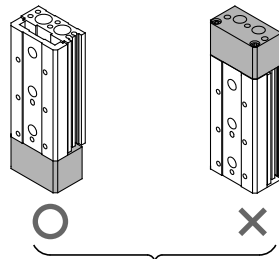


### With Buffer Mechanism

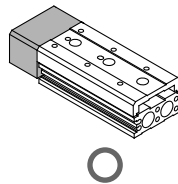
#### ⚠ Caution

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.

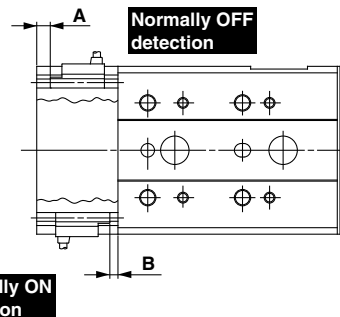


Vertical use



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.

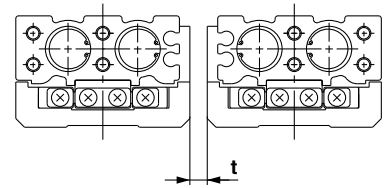
(mm)		
Model	A	B
MXS6	2	3
MXS8	2.5	
MXS12	4	
MXS16	5	
MXS20	5.5	
MXS25	10	

## 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