

# Air Slide Table

## MXS Series

ø6, ø8, ø12, ø16, ø20, ø25

RoHS

**Work table and air cylinder are compactly integrated.**  
**Air slide table is suited for precision assembly.**

### Improved mounting repeatability of the workpiece and body

Machining of positioning hole

### Auto switch mounting grooves designed for safety

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

### 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.

### Dual piston rod

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

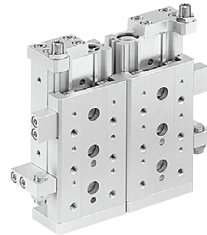
### Wide variety of options

Adjuster option and function option can be combined.

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

### Symmetric Type

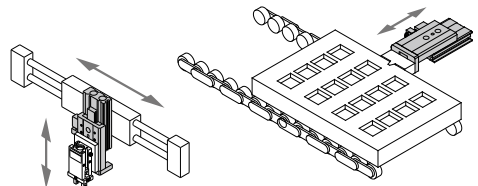
Port location and stroke adjuster position are in opposite places from the standard body.



### Application examples

As Z-axis for picking and placing

For positioning pallets on a conveyor



MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-

-X



# Air Slide Table *MXS Series*

## Series Variations

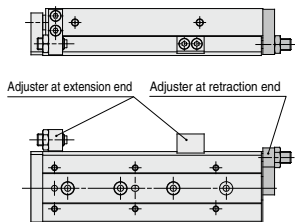
Model	Bore size (mm)	Standard stroke (mm)						Adjuster options		Functional options	Auto switch
		10	20	30	40	50	75	100	125		
MXS 6	6	•	•	•	•	•	•	•	•	With buffer  With end lock (Except for ø6)  Axial piping type	Reed auto switch • D-A9□ • D-A9□V Solid state auto switch • D-M9□ • D-M9□V 2-color indicator solid state auto switch • D-M9□W • D-M9□VW
MXS 8	8	•	•	•	•	•	•	•	•		
MXS12	12	•	•	•	•	•	•	•	•		
MXS16	16	•	•	•	•	•	•	•	•		
MXS20	20	•	•	•	•	•	•	•	•		
MXS25	25	•	•	•	•	•	•	•	•		

## Adjuster Options

### Stroke Adjuster

- Adjustable stroke range: 0 to 5 mm

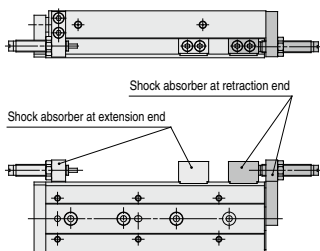
With adjuster at extension end (AS)  
 With adjuster at retraction end (AT)  
 With adjuster at both ends (A)



### With Shock Absorber

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

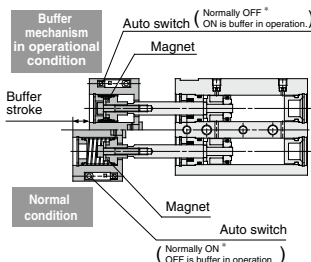
With shock absorber at extension end (BS)  
 With shock absorber at retraction end (BT)  
 With shock absorber at both ends (B)



## Functional Options

### With Buffer Mechanism

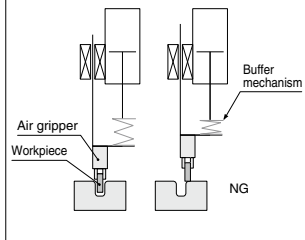
- Protects workpieces and tools, etc., by eliminating impact at the end of the stroke's extension.
- Buffer unit is auto switch capable.



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

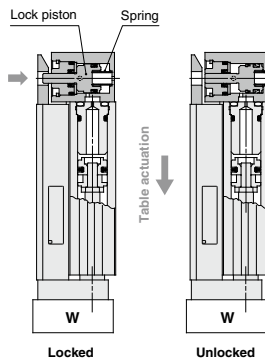
### Application Example

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.

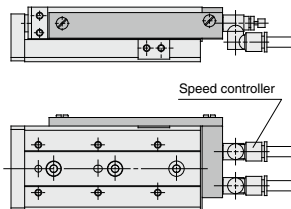


Locked

Unlocked

### Axial Piping Type

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



MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□

# MXS Series

## Model Selection

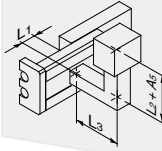
Model Selection Steps	Formula/Data	Selection Examples								
<p><b>1 Operating Conditions</b></p> <p>List the operating conditions considering the mounting position and workpiece configuration. Check that the load weight does not exceed the maximum allowable load weight and that the average operating speed does not exceed the operating speed range.</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 operating speed Va (mm/s)</li> <li>• Load mass W (kg): Fig. (1), Table (2)</li> <li>• Overhang Ln (mm): Fig. (2)</li> </ul>	 <p>Cylinder: MXS16-50 Cushion: Rubber bumper Workpiece table mounting Mounting: Horizontal wall mounting Average operating speed : Va = 300 [mm/s] Load mass: W = 1 [kg] L1 = 10 mm L2 = 30 mm L3 = 30 mm</p>								
<p><b>2 Kinetic Energy</b></p> <p>Find the kinetic energy E (J) of the load.</p> <p>Find the allowable kinetic energy Ea (J).</p> <p>Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.</p>	$E = \frac{1}{2} \cdot W \cdot \left( \frac{V}{1000} \right)^2$ <p>Collision speed V = 1.4 · Va *) Correction factor (Reference values)</p> <p>Ea = K · Emax Workpiece mounting coefficient K: Fig. (3) Max. allowable kinetic energy Emax: Table (1) Kinetic energy (E) ≤ Allowable kinetic energy (Ea)</p>	$E = \frac{1}{2} \cdot 1 \cdot \left( \frac{420}{1000} \right)^2 = 0.088$ <p>V = 1.4 × 300 = 420 Ea = 1 × 0.11 = 0.11 Can be used based on E = 0.088 ≤ Ea = 0.11</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 Wa (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>Wa = K · <math>\beta</math> · Wmax Workpiece mounting coefficient K: Fig. (3) Allowable load mass coefficient <math>\beta</math>: Graph (1) Max. allowable load mass Wmax: Table (2)</p> <p><math>\alpha_1 = W/Wa</math></p>	<p>Wa = 1 × 1 × 4 = 4 K = 1 <math>\beta = 1</math> Wmax = 4 <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 M (N·m).</p> <p>Find the allowable static moment Ma (N·m).</p> <p>Find the load factor <math>\alpha_2</math> of the static moment.</p>	<p>M = W × 9.8 (Ln + An)/1000 Correction value of moment center position distance An: Table (3)</p> <p>Ma = K · <math>\gamma</math> · Mmax Workpiece mounting coefficient K: Fig. (3) Allowable moment coefficient <math>\gamma</math>: Graph (2) Maximum allowable moment Mmax: Table (4)</p> <p><math>\alpha_2 = M/Ma</math></p>	<table border="1"> <thead> <tr> <th>Yawing</th> <th>Rolling</th> </tr> </thead> <tbody> <tr> <td>Examine My. My = 1 × 9.8 (10 + 30)/1000 = 0.39 A3 = 30</td> <td>Examine Mr. Mr = 1 × 9.8 (30 + 10)/1000 = 0.39 A6 = 10</td> </tr> <tr> <td>May = 1 × 1 × 15.9 = 15.9 Mymax = 15.9 K = 1 <math>\gamma = 1</math></td> <td>Mar = 15.9 (Same value as May)</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> </tbody> </table>	Yawing	Rolling	Examine My. My = 1 × 9.8 (10 + 30)/1000 = 0.39 A3 = 30	Examine Mr. Mr = 1 × 9.8 (30 + 10)/1000 = 0.39 A6 = 10	May = 1 × 1 × 15.9 = 15.9 Mymax = 15.9 K = 1 $\gamma = 1$	Mar = 15.9 (Same value as May)	$\alpha_2 = 0.39/15.9 = 0.025$	$\alpha_2 = 0.39/15.9 = 0.025$
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<p><b>3-3 Load Factor of Dynamic Moment</b></p> <p>Find the dynamic moment Me (N·m).</p> <p>Find the allowable dynamic moment Mea (N·m).</p> <p>Find the load factor <math>\alpha_3</math> of the dynamic moment.</p>	<p>Me = 1/3 · We × 9.8 <math>\frac{(Ln + An)}{1000}</math> Collision equivalent to impact We = <math>\delta</math> · W · V <math>\delta</math>: Bumper coefficient With urethane bumper (Standard) = 4/100 With shock absorber = 1/100 Correction value of moment center position distance An: Table (3)</p> <p>Mea = K · <math>\gamma</math> · Mmax Workpiece mounting coefficient K: Fig. (3) Allowable moment coefficient <math>\gamma</math>: Graph (2) Max. allowable moment Mmax: Table (4)</p> <p><math>\alpha_3 = Me/Mea</math></p>	<table border="1"> <thead> <tr> <th>Pitching</th> <th>Yawing</th> </tr> </thead> <tbody> <tr> <td>Examine Mep. Mep = 1/3 × 16.8 × 9.8 × <math>\frac{(30 + 10)}{1000} = 2.2</math> We = 4/100 × 1 × 420 = 16.8 A2 = 10 Meap = 1 × 0.7 × 15.9 = 11.1 K = 1 <math>\gamma = 0.7</math> Mpmmax = 15.9 <math>\alpha_3 = 2.2/11.1 = 0.20</math></td> <td>Examine Mey. Mey = 1/3 × 16.8 × 9.8 × <math>\frac{(30 + 31)}{1000} = 3.3</math> We = 16.8 A4 = 31 Meay = 11.1 (Same value as Meap) <math>\alpha_3 = 3.3/11.1 = 0.30</math></td> </tr> </tbody> </table>	Pitching	Yawing	Examine Mep. Mep = 1/3 × 16.8 × 9.8 × $\frac{(30 + 10)}{1000} = 2.2$ We = 4/100 × 1 × 420 = 16.8 A2 = 10 Meap = 1 × 0.7 × 15.9 = 11.1 K = 1 $\gamma = 0.7$ Mpmmax = 15.9 $\alpha_3 = 2.2/11.1 = 0.20$	Examine Mey. Mey = 1/3 × 16.8 × 9.8 × $\frac{(30 + 31)}{1000} = 3.3$ We = 16.8 A4 = 31 Meay = 11.1 (Same value as Meap) $\alpha_3 = 3.3/11.1 = 0.30$				
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<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' = 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)

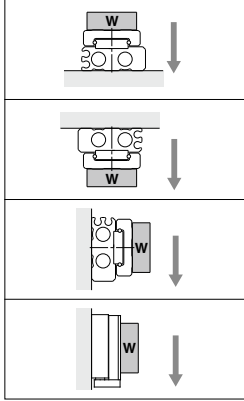


Fig. (3) Workpiece Mounting Coefficient: K

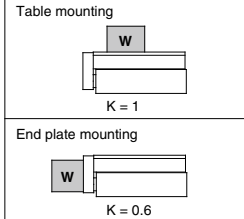


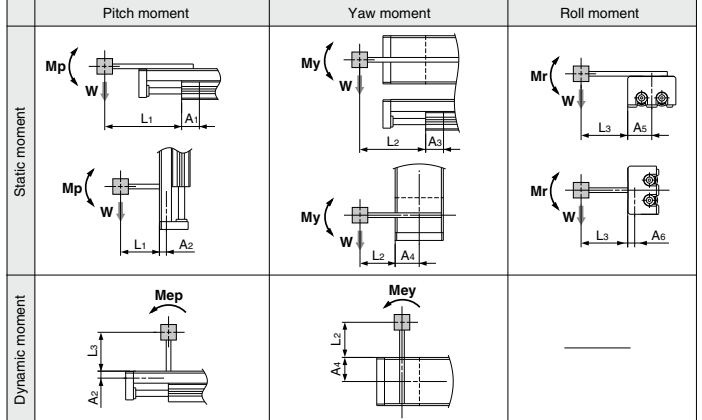
Table (2) Maximum Allowable Load Mass: Wmax (kg)

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	—	—	—	—	
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	

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

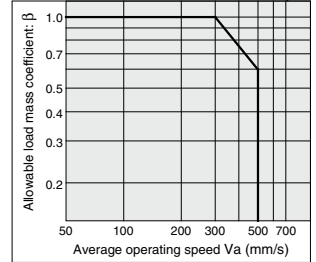
Table (1) Maximum Allowable Kinetic Energy: Emax (J)

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

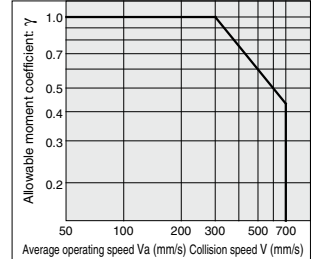
Table (3) Correction Value of Moment Center Position Distance: An (mm)

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 operating speed when calculating static moment.  
Use the collision speed when calculating dynamic moment.

Symbol

Symbol	Definition	Unit	Symbol	Definition	Unit
An (n = 1 to 6)	Correction value of moment center position distance	mm	Va	Average operating speed	mm/s
E	Kinetic energy	J	W	Load mass	kg
Ea	Allowable kinetic energy	J	Wa	Allowable load mass	kg
Emax	Max. allowable kinetic energy	J	We	Mass equivalent to impact	kg
Ln (n = 1 to 3)	Overhang	mm	Wmax	Max. allowable load mass	kg
M (Mp, My, Mr)	Static moment (Pitch, Yaw, Roll)	N·m	α	Load factor	—
Ma (Map, May, Mar)	Allowable static moment (Pitch, Yaw, Roll)	N·m	β	Allowable load mass coefficient	—
Me (Mep, Mey)	Dynamic moment (Pitch, Yaw)	N·m	γ	Allowable moment coefficient	—
Mea (Meap, Meay)	Allowable dynamic moment (Pitch, Yaw)	N·m	δ	Damper coefficient	—
Mmax (Mpmax, Mymax, Mrmax)	Max. allowable moment (Pitch, Yaw, Roll)	N·m	K	Workpiece mounting coefficient	—
V	Collision speed	mm/s			

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

- D-□
- X□

# Air Slide Table MXS Series

RoHS

## 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))

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

Nii	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

Nii	2 pcs.
S	1 pc.
n	"n" pcs.

Made to order  
For details refer  
to page 39.

### Functional option

Nii	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

### Auto switch

Nii	Without auto switch (Built-in magnet)
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\* For the applicable auto switch models, refer to the table below. For the applicable auto switches for buffer, refer to page 57.

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

### Option Combinations

Adjuster option	Functional option	Nii	F	R	P	FR	FP
Nii		○	○	○	○	○	○
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 1119 to 1245 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 (Nii)	1 (M)	3 (L)		5 (Z)	IC circuit
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	○	○	—	
				3-wire (PNP)			M9PV	M9P	●	●	○	○		
				2-wire	M9BV		M9B	●	●	○	○	—		
				3-wire (NPN)	M9NV		M9NW	●	●	○	○			
	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (PNP)	5 V, 12 V		M9PW	M9PW	●	●	○	○	—	IC circuit
				2-wire			M9BWV	M9BW	●	●	○	○		
				3-wire (NPN)	M9NAV <sup>*1</sup>		M9NA <sup>*1</sup>	○	○	●	●	—		
				3-wire (PNP)	M9PAV <sup>*1</sup>		M9PA <sup>*1</sup>	○	○	●	●			
Water resistant (2-color indicator)	Grommet	No	2-wire	12 V	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	○	—	—		

\* 1 Water resistant type auto switches are mountable on the above models, but in such case SMC cannot guarantee water resistance.

\* 2 1 m lead wire is only applicable to the D-A93.

\* Lead wire length symbols: 0.5 m ..... Nii (Example) M9NV  
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 66 for details.

\* For details on auto switches with a pre-wired connector, refer to pages 1192 and 1193.

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

## Specifications



**Made to Order** Made to Order: Individual Specifications  
(For details, refer to pages 67 and 68.)

Symbol	Specifications
-X7	PTFE grease
-X9	Grease for food processing equipment
-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 (CAT.E02-23).

### Moisture Control Tube IDK Series



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions. Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the [IDK series in the Best Pneumatics No. 6](#).

## Standard Stroke

Model	Standard stroke (mm)									
<b>MXS6</b>	10, 20, 30, 40, 50									
<b>MXS8</b>	10, 20, 30, 40, 50, 75									
<b>MXS12</b>	10, 20, 30, 40, 50, 75, 100									
<b>MXS16</b>	10, 20, 30, 40, 50, 75, 100, 125									
<b>MXS20</b>	10, 20, 30, 40, 50, 75, 100, 125, 150									
<b>MXS25</b>	10, 20, 30, 40, 50, 75, 100, 125, 150									

## Weight

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

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>Operating speed range (Average operating speed) <sup>Note</sup></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 indicator solid state auto switch (2-wire, 3-wire)					
<b>Stroke length tolerance</b>	+ <sub>0</sub> <sup>1</sup> mm					

Note) Average operating speed: Speed that the stroke is divided by a period of time from starting the operation to reaching the end.

## Option

Adjuster options	With stroke adjuster	Extension end (AS)	Stroke adjustment range 0 to 5 mm
		Retraction end (AT)	
		Adjuster on both ends (A)	
With shock absorber	With shock absorber is not available with the MXS6 series.	Extension end (BS)	
		Retraction end (BT)	
		Absorber on both ends (B)	
Functional options	With buffer (F)		With 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 54 to 57.

## Theoretical Output

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



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>)

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

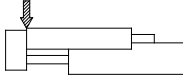
D-□

X-□

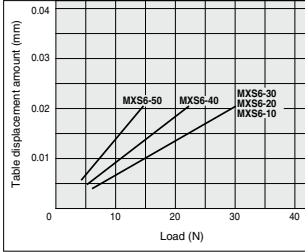
## Table Deflection (Reference Values)

### Table displacement due to pitch moment load

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

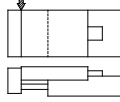


Ø6

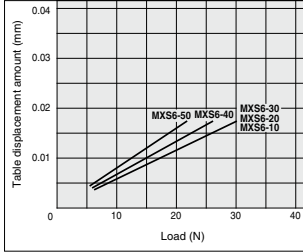


### Table displacement due to yaw moment load

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

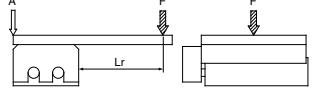


Ø6

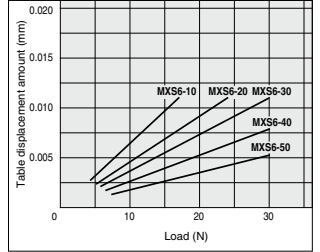


### Table displacement due to roll moment load

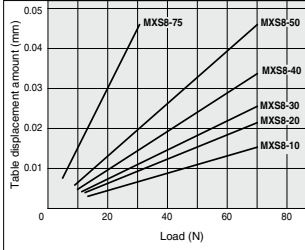
Table displacement of section A when loads are applied to the section F with the slide table retracted.



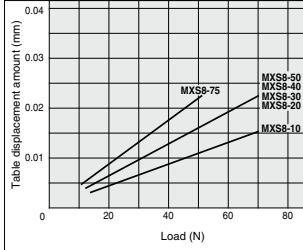
Ø6



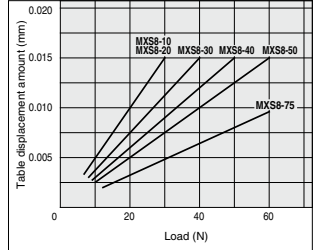
Ø8



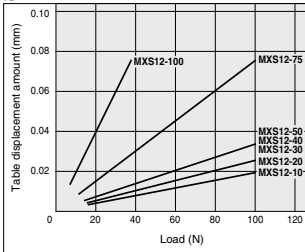
Ø8



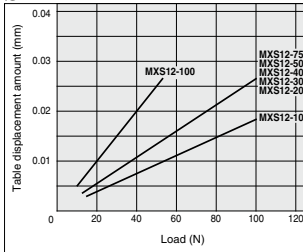
Ø8



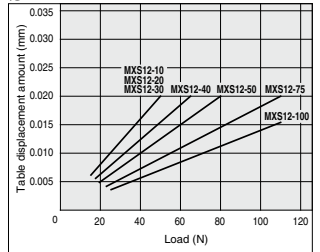
Ø12



Ø12



Ø12

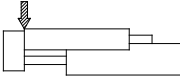




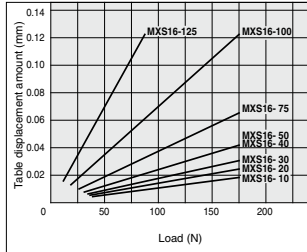
The graphs below show the table displacement when the static moment load is applied to the table. The graphs do not show the loadable mass. Refer to the Model Selection for the loadable mass.

## Table displacement due to pitch moment load

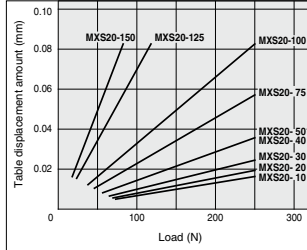
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



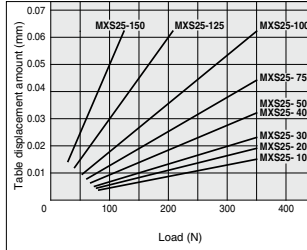
**ø16**



**ø20**

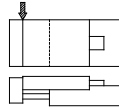


**ø25**

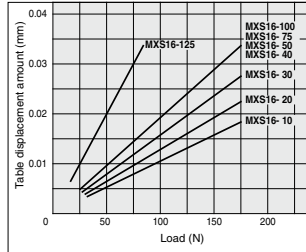


## Table displacement due to yaw moment load

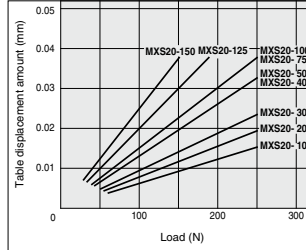
Table displacement when loads are applied to the section marked with the arrow at the full stroke.



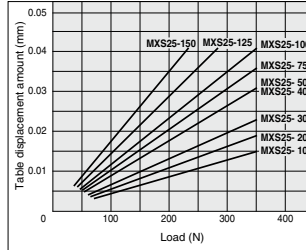
**ø16**



**ø20**

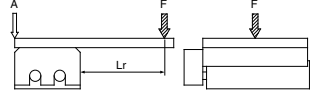


**ø25**



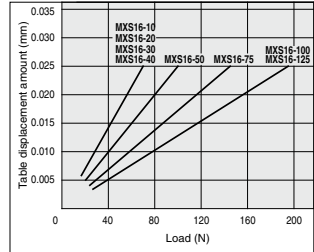
## Table displacement due to roll moment load

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



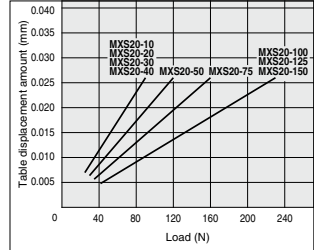
**ø16**

Lr = 89 mm



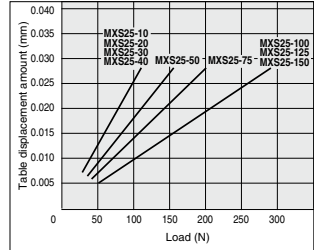
**ø20**

Lr = 122 mm



**ø25**

Lr = 154 mm



MXH

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

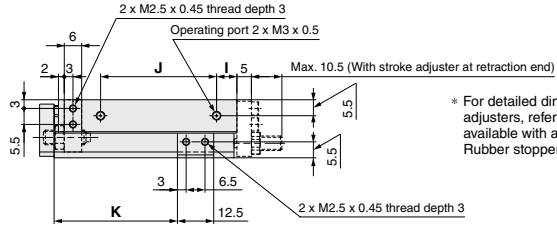
D-□

-X□

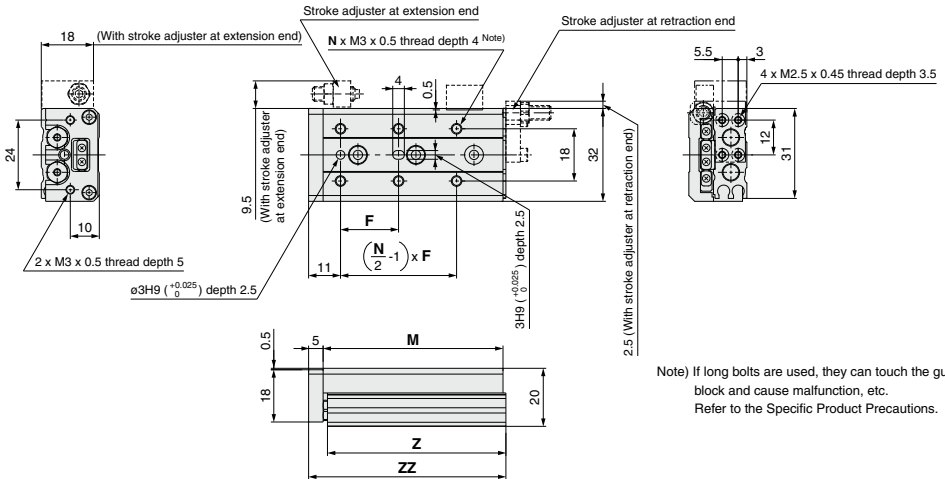
# MXS Series

## Dimensions: MXS6

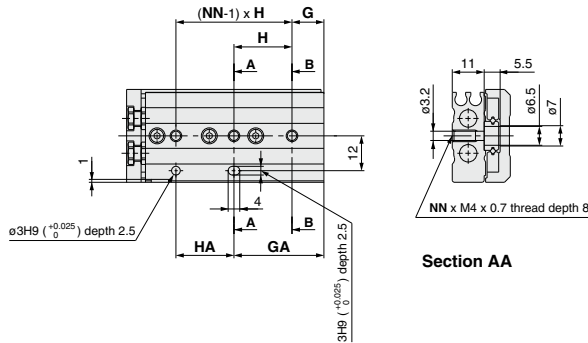
### Basic type



\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
Rubber stopper (Refer to page 54.)



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



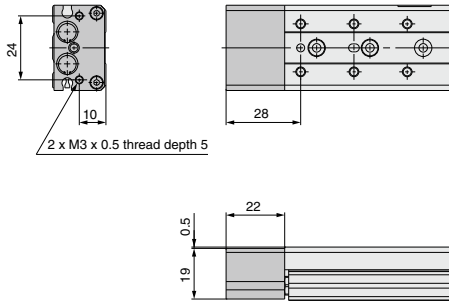
Section AA

Section BB

(mm)

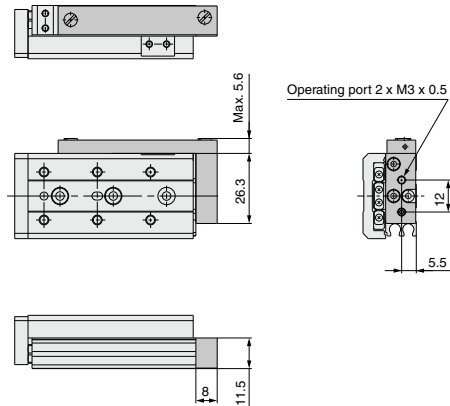
Model	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
MXS6-10	20	4	6	25	2	11	20	10	17	22.5	42	41.5	48
MXS6-20	30	4	6	35	2	21	20	10	27	32.5	52	51.5	58
MXS6-30	20	6	11	20	3	31	20	7	40	42.5	62	61.5	68
MXS6-40	28	6	13	30	3	43	30	19	50	52.5	84	83.5	90
MXS6-50	38	6	17	24	4	41	48	25	60	62.5	100	99.5	106

**With buffer (ø6) MXS6-□□F**



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

**Axial piping type (ø6) MXS6-□□P**



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

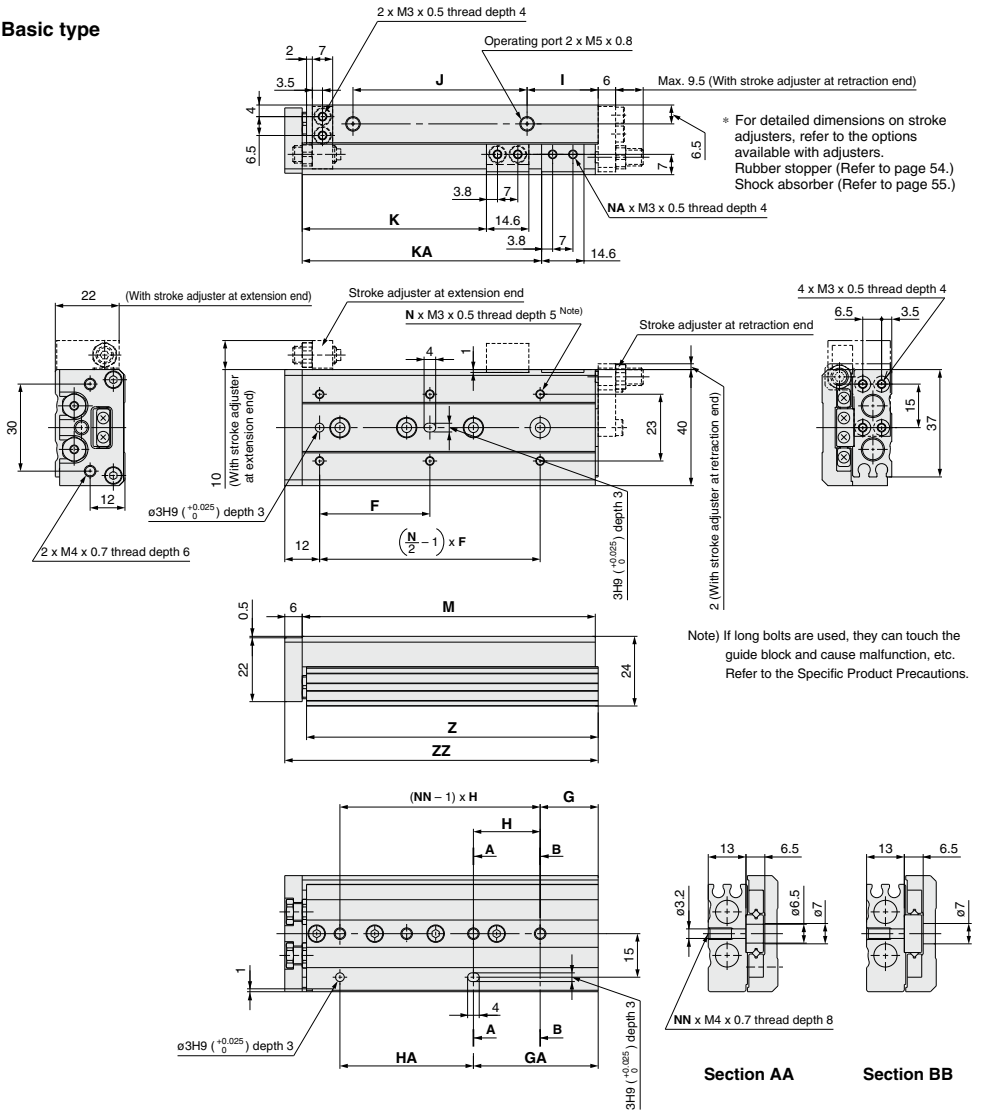
MXH
<b>MXS</b>
MXQ□
MXQ
MXF
MXW
MXJ
MXP
MXY
MTS

D-□
-X□

# MXS Series

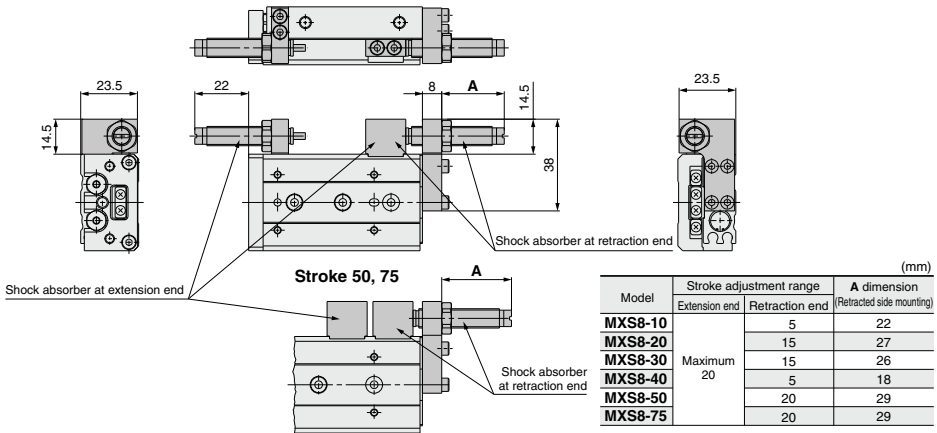
## Dimensions: MXS8

### Basic type



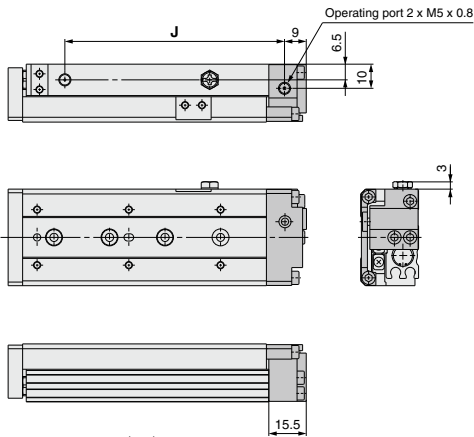
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS8-10	25	4	9	28	2	17	20	13	19.5	23.5	—	2	49	48.5	56
MXS8-20	25	4	12	30	2	12	30	8.5	29	33.5	—	2	54	53.5	61
MXS8-30	40	4	13	20	3	33	20	9.5	39	43.5	—	2	65	64.5	72
MXS8-40	50	4	15	28	3	43	28	10.5	56	53.5	—	2	83	82.5	90
MXS8-50	38	6	20	23	4	43	46	24.5	60	63.5	82.5	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 (∅8) MXS8-□□BS/BT/B



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

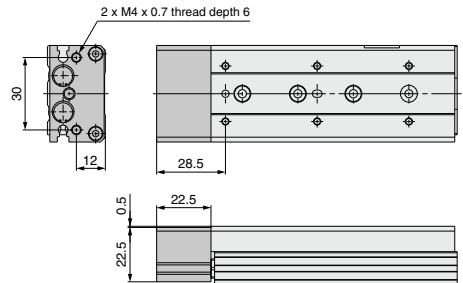
## With end lock (∅8) MXS8-□□R



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

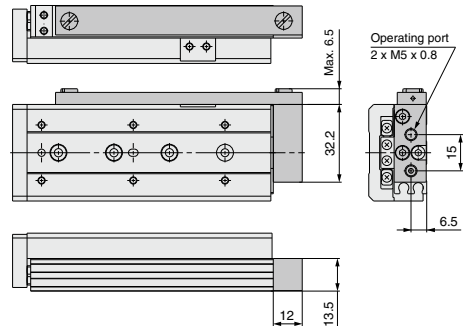
\* Other dimensions are the same as the basic type.

## With buffer (∅8) MXS8-□□F



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

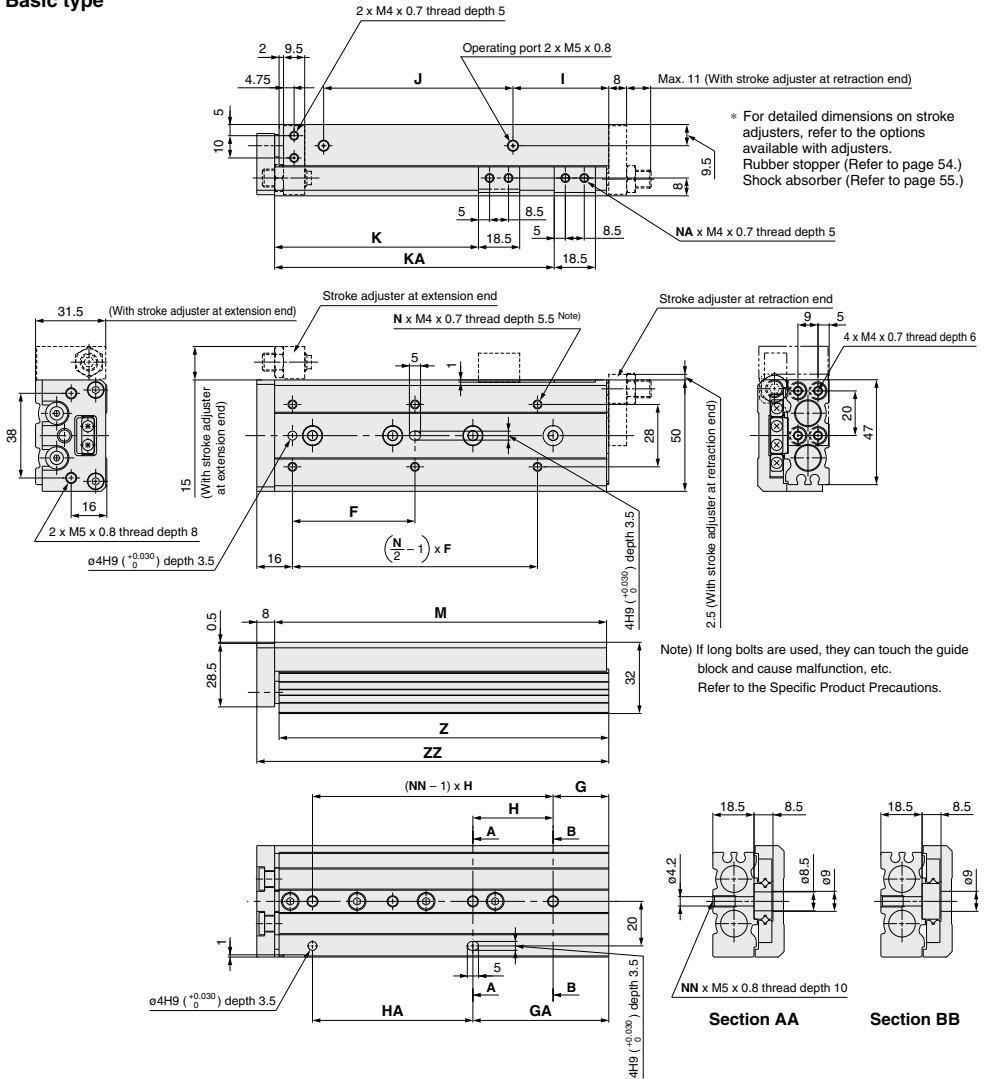
## Axial piping type (∅8) MXS8-□□P



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

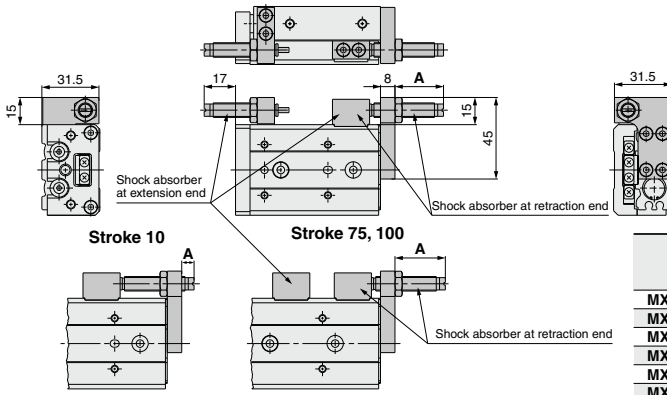
## Dimensions: MXS12

### Basic type



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

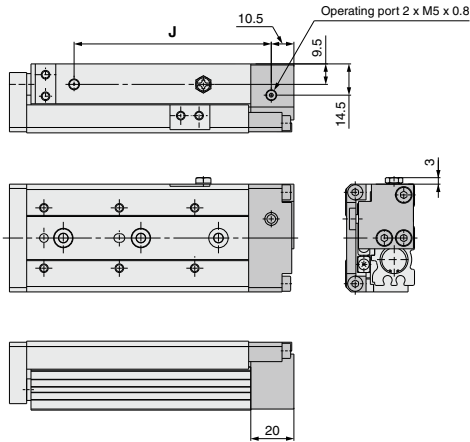
## With shock absorber (ø12) MXS12-□□BS/BT/B



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

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	

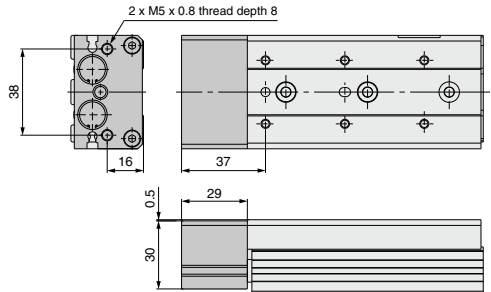
## With end lock (ø12) MXS12-□□R



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

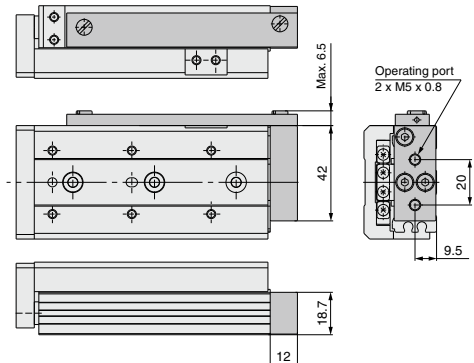
\* Other dimensions are the same as the basic type.

## With buffer (ø12) MXS12-□□F



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

## Axial piping type (ø12) MXS12-□□P



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

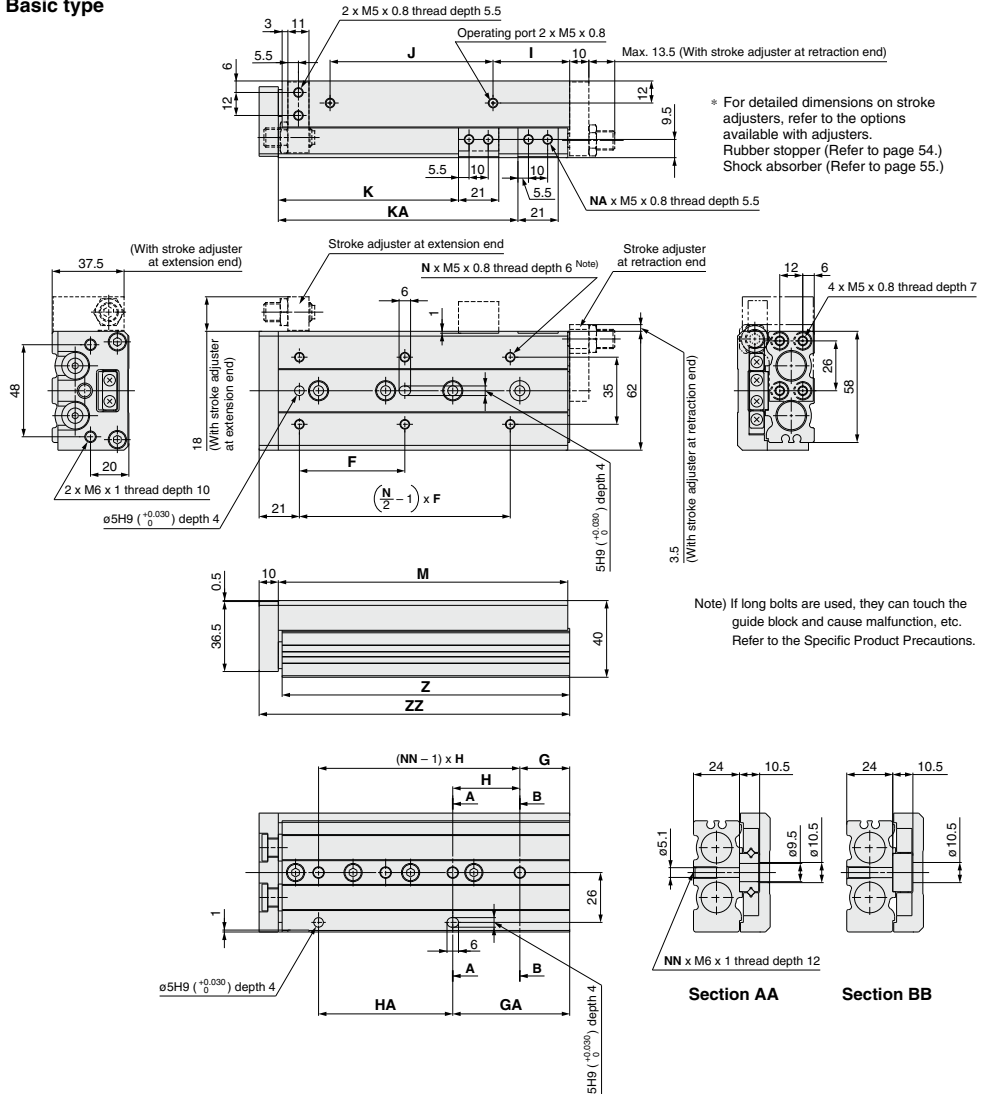
MXH  
MXS  
MXQ  
MXQ  
MXF  
MXW  
MXJ  
MXP  
MXY  
MTS

D-□  
-X□

# MXS Series

## Dimensions: MXS16

### Basic type



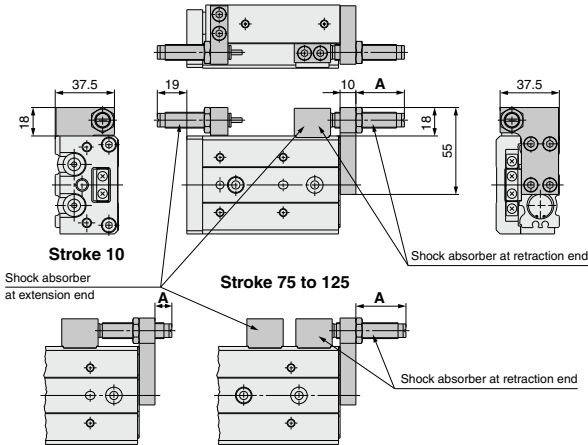
\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
 Rubber stopper (Refer to page 54.)  
 Shock absorber (Refer to page 55.)

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

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



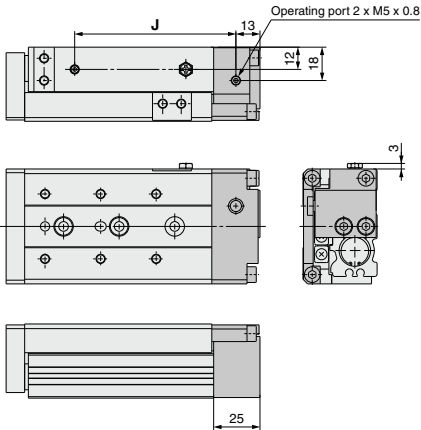
## With shock absorber (ø16) MXS16-□□BS/BT/B



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 type.

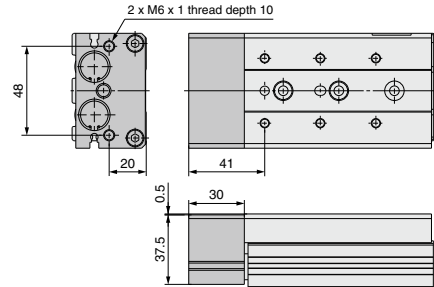
## With end lock (ø16) MXS16-□□R



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

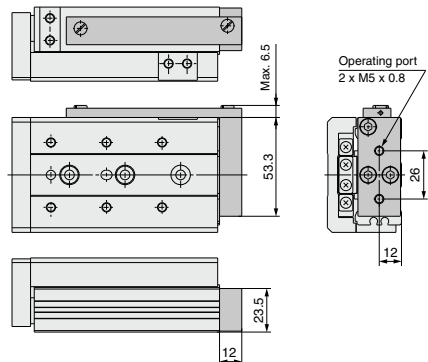
\* Other dimensions are the same as the basic type.

## With buffer (ø16) MXS16-□□F



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

## Axial piping type (ø16) MXS16-□□P

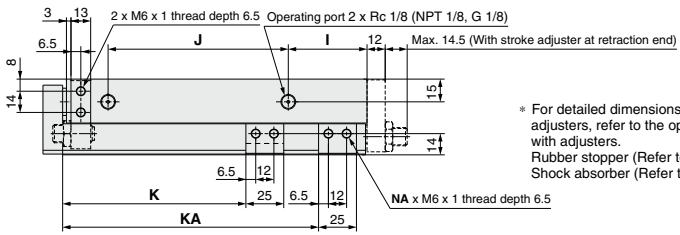


\* Other dimensions are the same as the basic type.

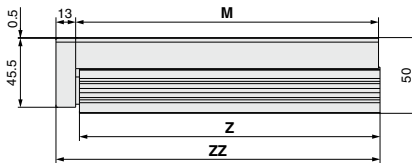
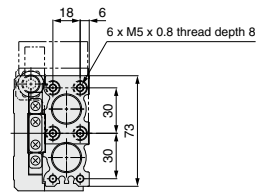
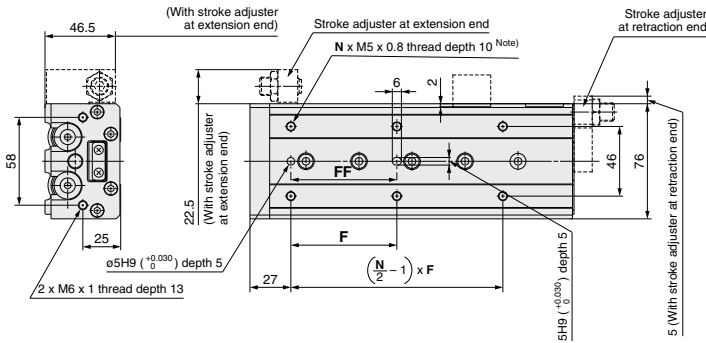
# MXS Series

## Dimensions: MXS20

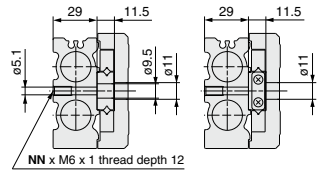
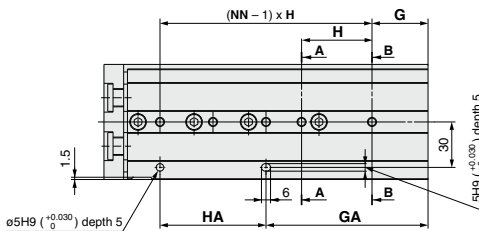
### Basic type



\* For detailed dimensions on stroke adjusters, refer to the options available with adjusters.  
Rubber stopper (Refer to page 54.)  
Shock absorber (Refer to page 55.)



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



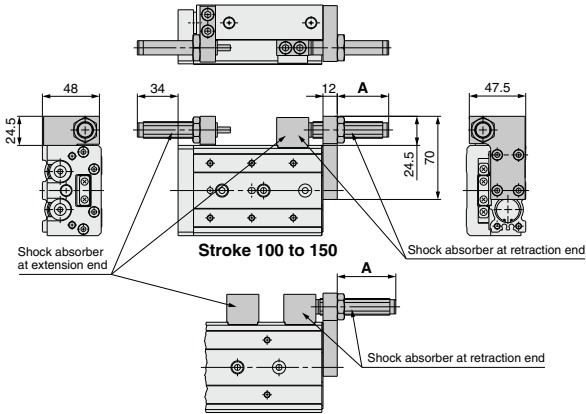
Section AA

Section BB

Model	F	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

(mm)

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

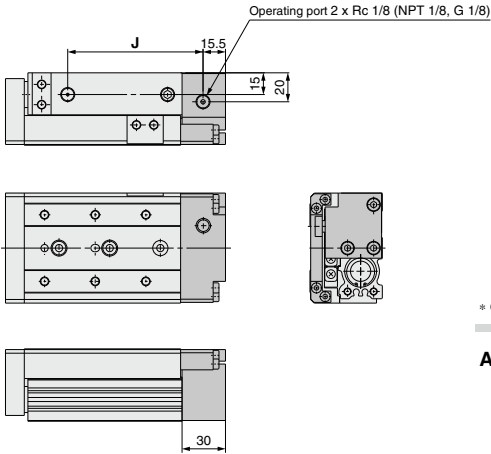


Model	Stroke adjustment range		A dimension (Retracted side mounting)
	Extension end	Retraction end	
MXS20-10	Maximum 40	5	28
MXS20-20		15	38
MXS20-30		25	48
MXS20-40		35	48
MXS20-50		30	43
MXS20-75		15	29
MXS20-100		35	49
MXS20-125		35	49
MXS20-150		35	49

(mm)

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

## With end lock (ø20) MXS20-□□R

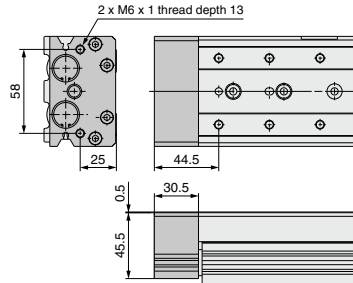


Model	J
MXS20-10R	68.5
MXS20-20R	68.5
MXS20-30R	68.5
MXS20-40R	78.5
MXS20-50R	93.5
MXS20-75R	132.5
MXS20-100R	185.5
MXS20-125R	239.5
MXS20-150R	291.5

(mm)

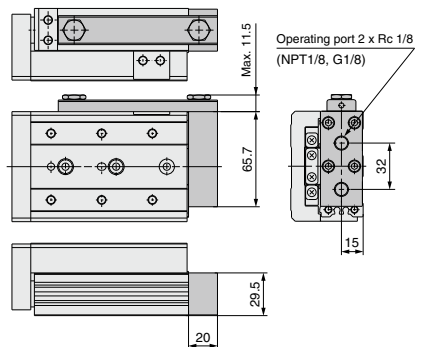
\* Other dimensions are the same as the basic type.

## With buffer (ø20) MXS20-□□F



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

## Axial piping type (ø20) MXS20-□□P



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

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

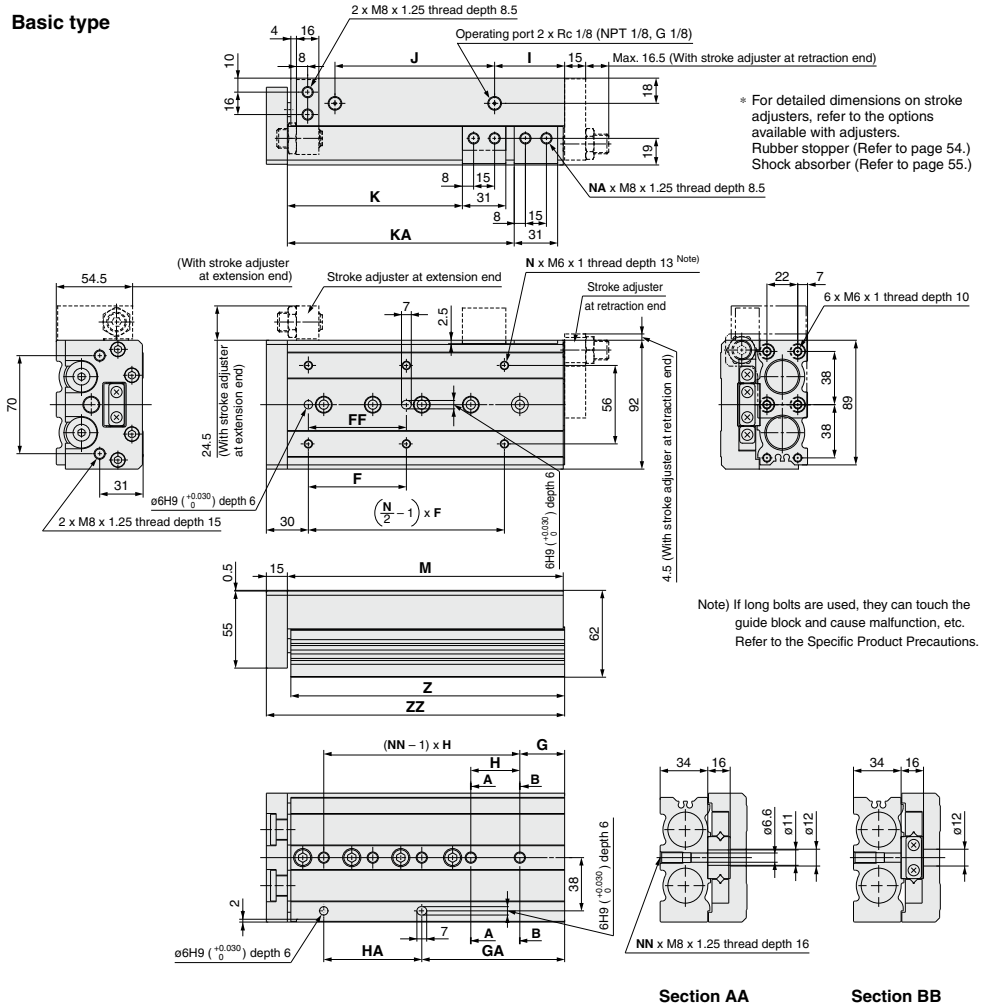
D-□

-X□

# MXS Series

## Dimensions: MXS25

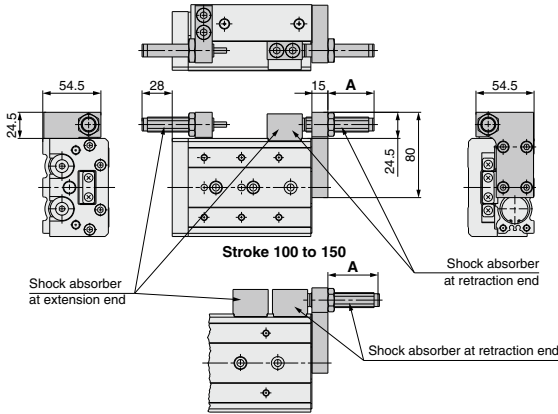
### Basic type



(mm)

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

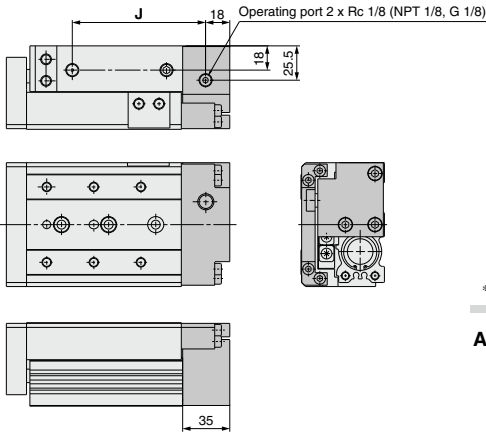
With shock absorber (ø25) MXS25-□□BS/BT/B



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

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

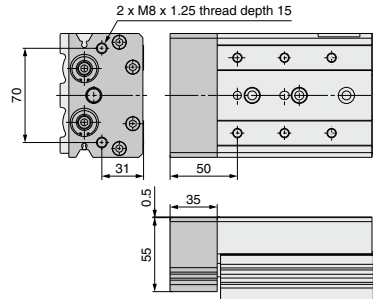
With end lock (ø25) MXS25-□□R



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

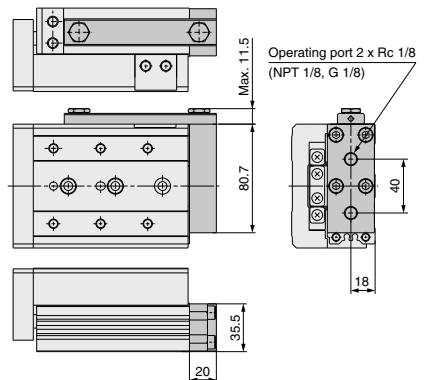
\* Other dimensions are the same as the basic type.

With buffer (ø25) MXS25-□□F



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

Axial piping type (ø25) MXS25-□□P



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

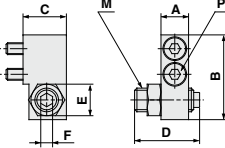
- MXH
- MXS
- MXQ□
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MXY
- MTS

- D-□
- X□

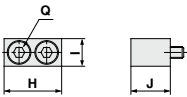
# MXS Series Optional Specifications

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

### Body mounting section



### Table mounting section

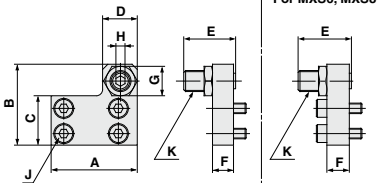


Applicable size	Model	Stroke adjustment range (mm)	Body mounting section							Table mounting section				
			A	B	C	D	E	F	M	P*	H	I	J	Q*
MXS6 (L)	MXS-AS6 (L)	5	6	17.8	10.5	16.5	7	2.5	M5 x 0.8	M2.5 x 10	12.5	6	8.5	M2.5 x 8
	MXS-AS6 (L)-X11	15				26.5								
MXS8 (L)	MXS-AS8 (L)	5	7	21.5	11	16.5	8	3	M6 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	Stroke adjuster	Extension end
AS	Stroke adjuster	Extension end
AT	Stroke adjuster	Retraction end
BS	Shock absorber	Extension end
BT	Shock absorber	Retraction end

Symmetric type	Standard type	Symmetric type
N11	Standard type	Symmetric type
L	Symmetric type	

### Applicable bore size

6	ø6
8	ø8
12	ø12
16	ø16
20	ø20
25	ø25

### Adjustable range (Stroke adjuster only)

N11	5 mm	Standard
-X11	15 mm	Semi-standard
-X12	25 mm	Semi-standard

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

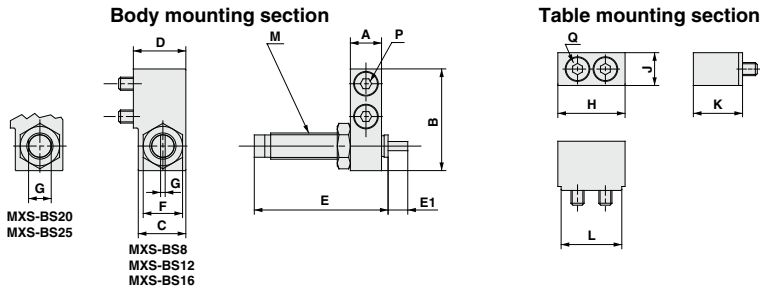
\*-X11 and -X12 are not available with shock absorber type.

\* With 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)

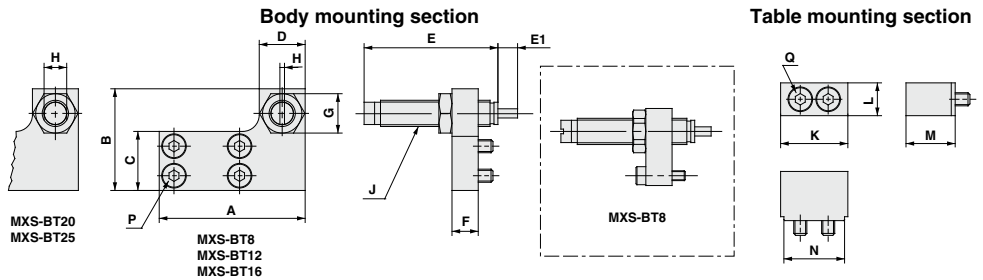
### Extension End



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 54. 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

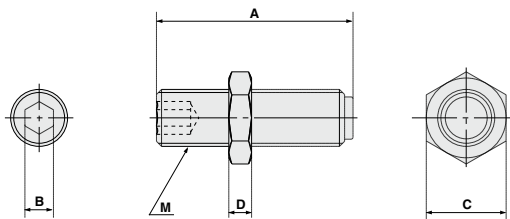
\* Size of hexagon socket head cap screw  
It is also available with the symmetric type. For ordering part numbers, refer to "How to Order Stroke Adjuster" on page 54. Dimensions are identical with the standard type.

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

- D-
- X

# MXS Series

## 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
Weight (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 72.



## 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 72.

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

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

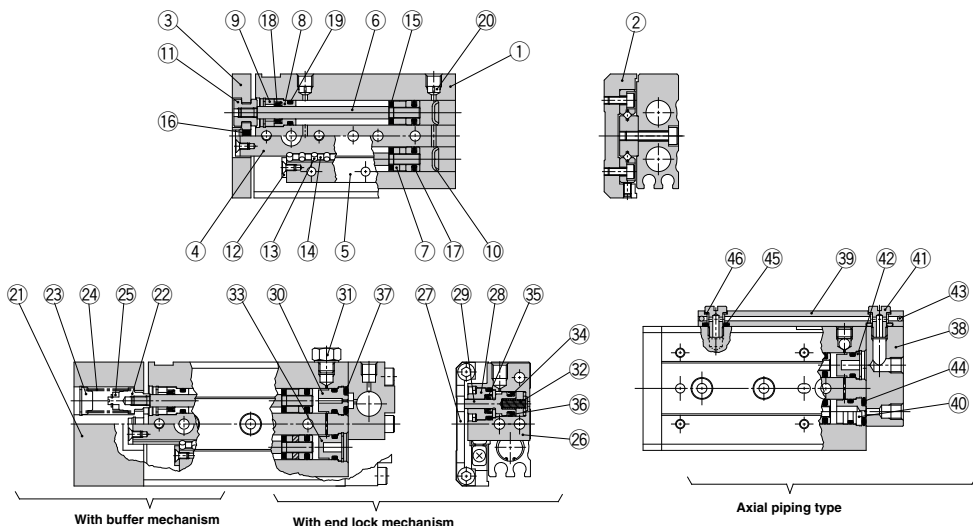
MTS

D-□

-X□

# MXS Series

## 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	High carbon chrome bearing steel
10	Head cap	Aluminum alloy	Hard anodized
11	Floating bushing	Stainless steel	
12	Roller stopper	Stainless steel	
13	Cylindrical roller	High carbon chrome bearing steel	
14	Roller spacer	Synthetic resin	
15	Rod bumper	Polyurethane	
16	End bumper	Polyurethane	
17	Piston seal	NBR	
18	Rod seal	NBR	
19	O-ring	NBR	
20	Orifice	Brass	Electroless nickel plated
	ø6 (Basic type only)		
	ø8 to 16 (Basic type only)	Synthetic resin	

### Component Parts: With Buffer

No.	Description	Material	Note
21	End plate	Aluminum alloy	Hard anodized
22	Spring collar	Stainless steel	
23	Head cap	Stainless steel	
24	Spring	Stainless steel	
25	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
12	MXS12R-PS	
16	MXS16R-PS	(17) to (19)
20	MXS20R-PS	(34) to (37).
25	MXS25R-PS	

### Component Parts: With End Lock

No.	Description	Material	Note
26	Locking body	Aluminum alloy	Hard anodized
27	Table support	Carbon steel	Anti-corrosive treated
28	Rod cover	Aluminum alloy	
29	Piston rod	Stainless steel	
30	Bushing	Aluminum alloy	Chromated
31	Blanking plug	Carbon steel	Nickel plated
32	Return spring	Stainless steel	
33	Head cap	Synthetic resin	
34	Piston seal	NBR	
35	Rod seal	NBR	
36	O-ring	NBR	
37	O-ring	NBR	

### Component Parts: Axial Piping Type

No.	Description	Material	Note
38	Axial piping plate	Aluminum alloy	Hard anodized
39	Pipe	Aluminum alloy	Hard anodized
40	Bushing	Aluminum alloy	Chromated
41	Stud	Brass	Electroless nickel plated
42	Head cap	Synthetic resin	
43	Steel balls	Stainless steel	
44	O-ring	NBR	
45	O-ring	NBR	
46	Gasket	NBR, Stainless steel	

\* 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 (17) to (19)
8	MXS8P-PS	
12	MXS12P-PS	
16	MXS16P-PS	
20	MXS20P-PS	
25	MXS25P-PS	(44) to (46).

### Replacement Parts/ Grease Pack

Applied unit	Grease pack part no.
Guide unit	GR-S-010 (10g) GR-S-020 (20g)
Cylinder unit	GR-L-005 (5g) GR-L-010 (10g)

# Air Slide Table (Symmetric Type)

## MXS□L Series

### 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	

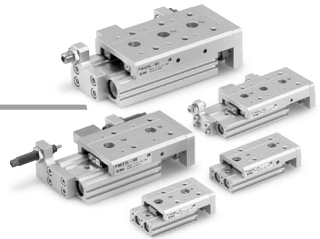
**Symmetric type**

**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



**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 39.

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

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.

### Applicable Auto Switches

Refer to pages 1119 to 1245 for further information on auto switches.

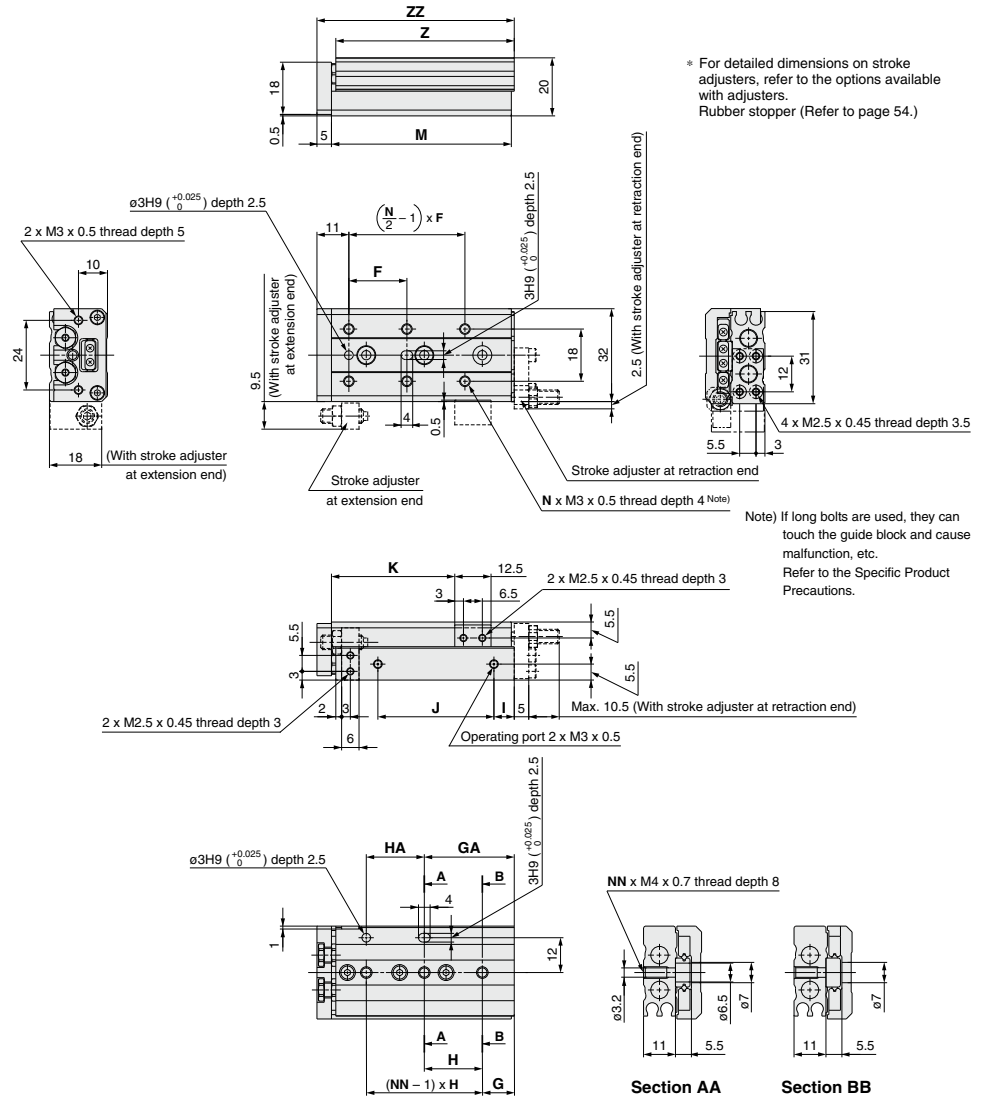
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)				Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)		IC circuit	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	○		
				3-wire (PNP)			12 V	M9PV	M9P	●	●	●	○	○	
				2-wire	24 V		5 V, 12 V	M9BV	M9B	●	●	●	○	○	—
	3-wire (NPN)			5 V, 12 V			M9NVW	M9NW	●	●	●	○	○	IC circuit	
	3-wire (PNP)			12 V			M9PVW	M9PW	●	●	●	○	○	—	
	Water resistant (2-color indicator)			Grommet	Yes		2-wire	5 V, 12 V	—	M9BV	M9B	●	●	●	○
		3-wire (NPN)	5 V, 12 V			M9NV*1	M9NA*1			○	○	●	○	○	IC circuit
		3-wire (PNP)	12 V			M9PV*1	M9PA*1	○		○	●	○	○	—	
	Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	A96V	A96	●	●	●	—	—	IC circuit
2-wire					24 V			12 V	A93V*2	A93	●	●	●	—	—
No					2-wire	24 V		12 V	100 V or less	A90V	A90	●	—	●	—

\* 1 Water resistant type auto switches are mountable on the above models, but in such case SMC cannot guarantee water resistance.  
 \* 2 1 m lead wire is only applicable to the D-A93.  
 \* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NV (Example) M9NVW  
 1 m ..... M (Example) M9NWM  
 3 m ..... L (Example) M9NWL  
 5 m ..... Z (Example) M9NVZ  
 \* 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 66 for details.  
 \* For details on auto switches with a pre-wired connector, refer to pages 1192 and 1193.  
 \* Auto switches are shipped together (not assembled).

- D-□
- X□

## Dimensions: MXS6L/Symmetric Type

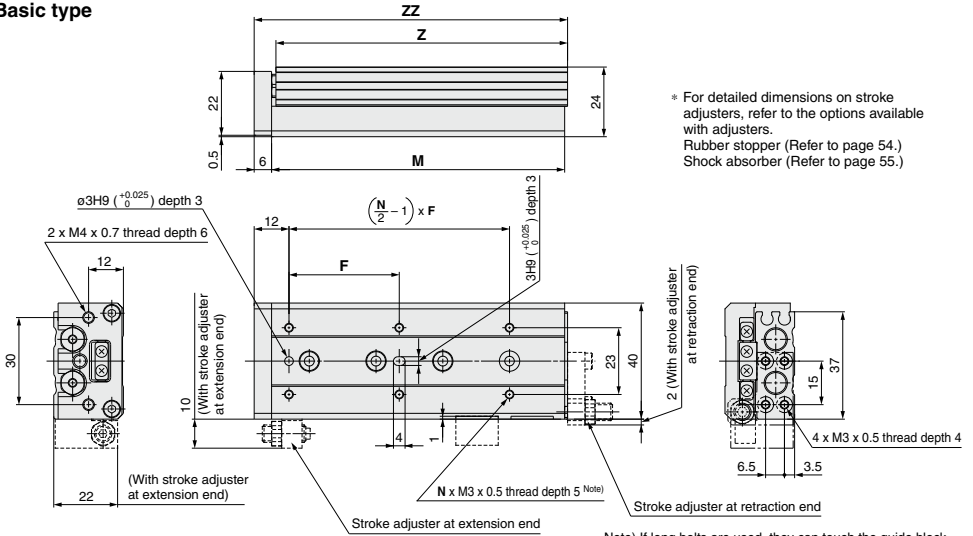
### Basic type



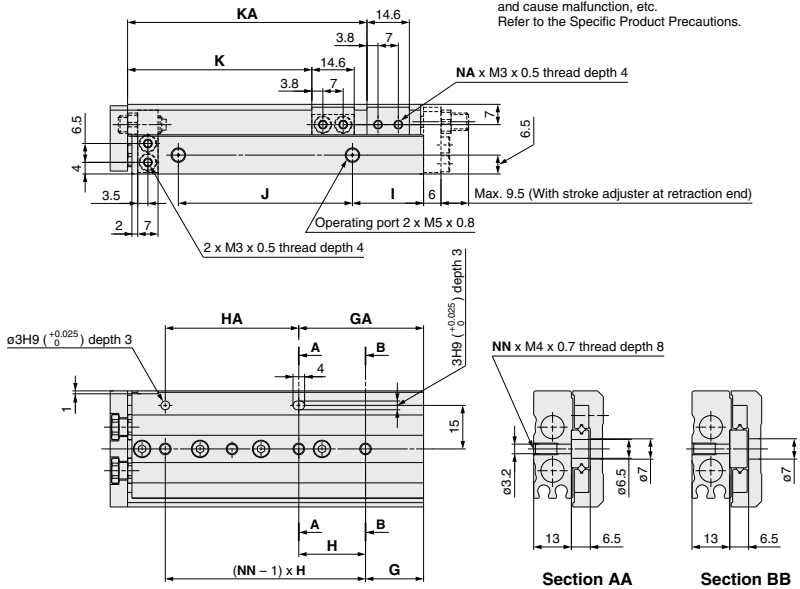
Model	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
MXS6L-10	20	4	6	25	2	11	20	10	17	22.5	42	41.5	48
MXS6L-20	30	4	6	35	2	21	20	10	27	32.5	52	51.5	58
MXS6L-30	20	6	11	20	3	31	20	7	40	42.5	62	61.5	68
MXS6L-40	28	6	13	30	3	43	30	19	50	52.5	84	83.5	90
MXS6L-50	38	6	17	24	4	41	48	25	60	62.5	100	99.5	106

**Dimensions: MXS8L/Symmetric Type**

**Basic type**



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



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

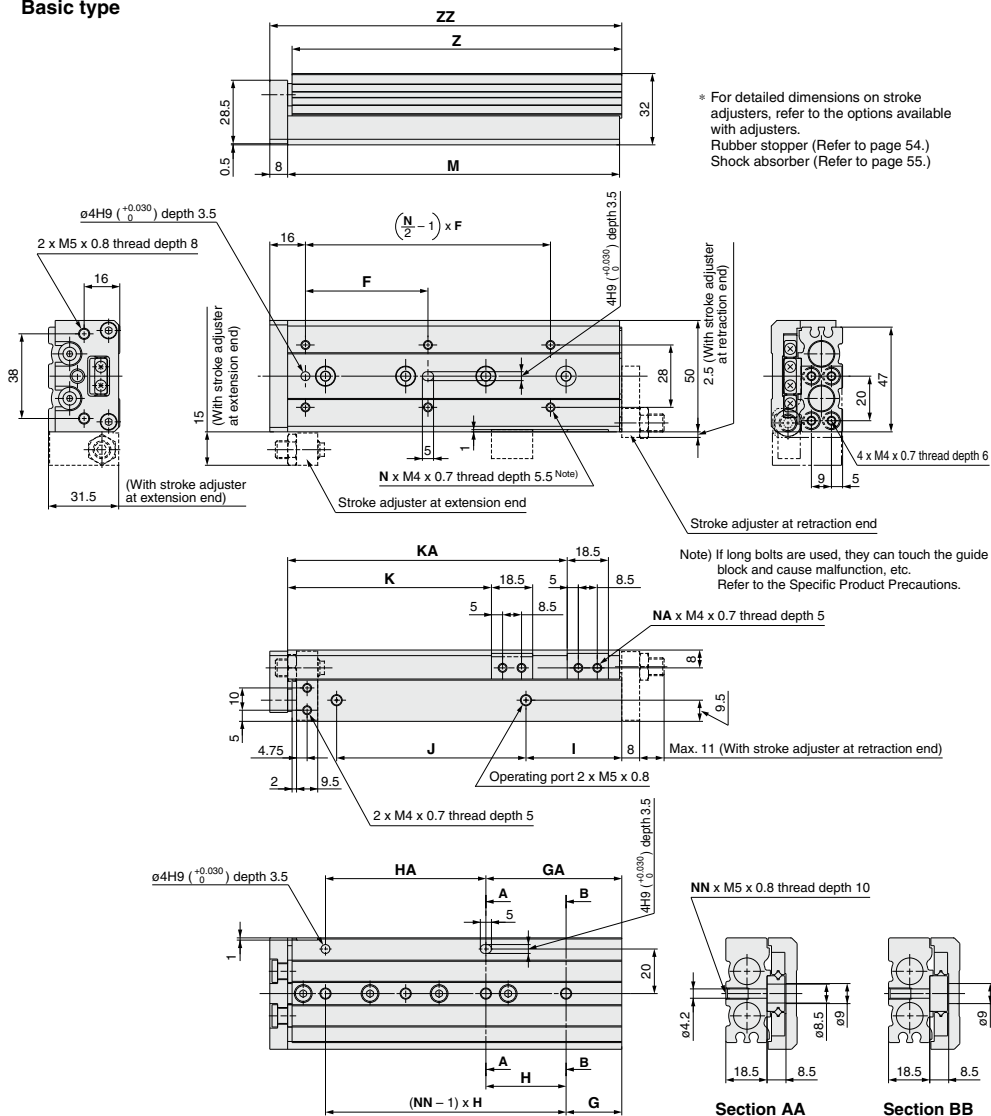
Regarding the external dimensions with a shock absorber, view the external dimensions of MXS8 symmetrically on page 45.

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

- D-□
- X□

## Dimensions: MXS12L/Symmetric Type

### Basic type



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

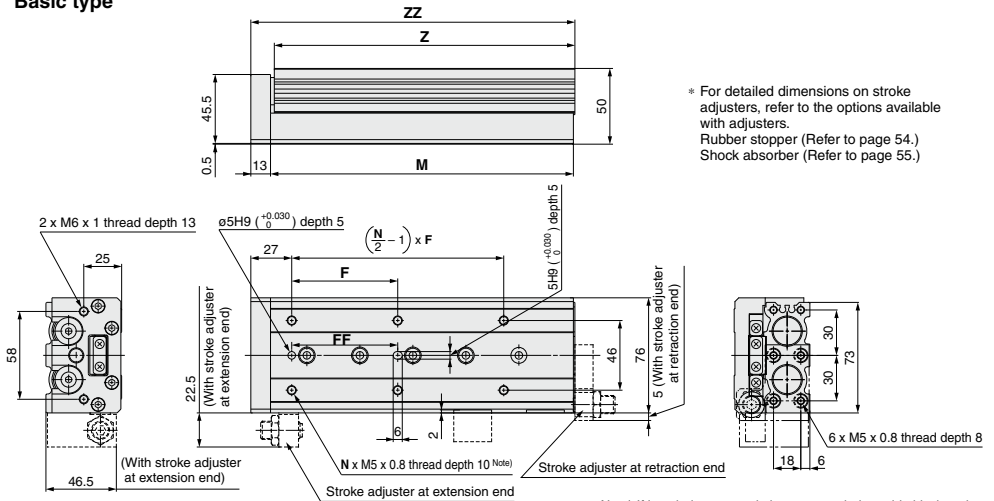
Regarding the external dimensions with a shock absorber, view the external dimensions of MXS12 symmetrically on page 47.



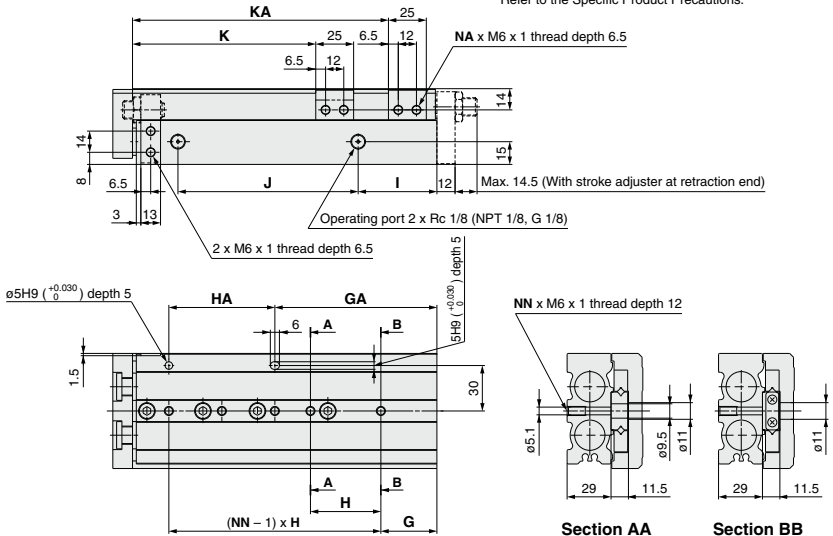
# MXS□L Series

## Dimensions: MXS20L/Symmetric Type

### Basic type



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



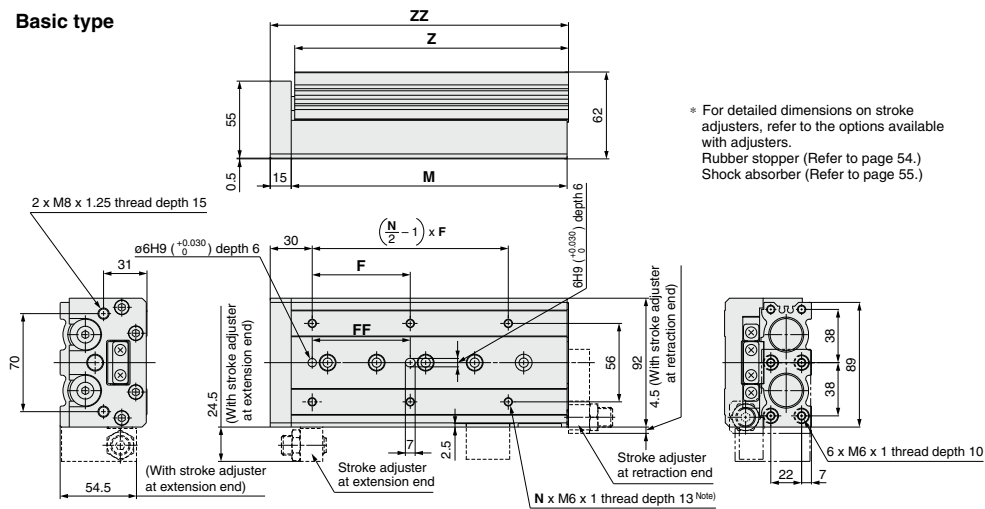
Model	F	FF	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS20L-10	50	40	4	15	45	2	25	35	10	44	31	—	2	83	81.5	97
MXS20L-20	50	40	4	15	45	2	25	35	10	44	41	—	2	83	81.5	97
MXS20L-30	50	40	4	15	45	2	25	35	10	44	51	—	2	83	81.5	97
MXS20L-40	60	50	4	15	55	2	35	35	10	54	61	—	2	93	91.5	107
MXS20L-50	35	35	6	15	35	3	50	35	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 51.

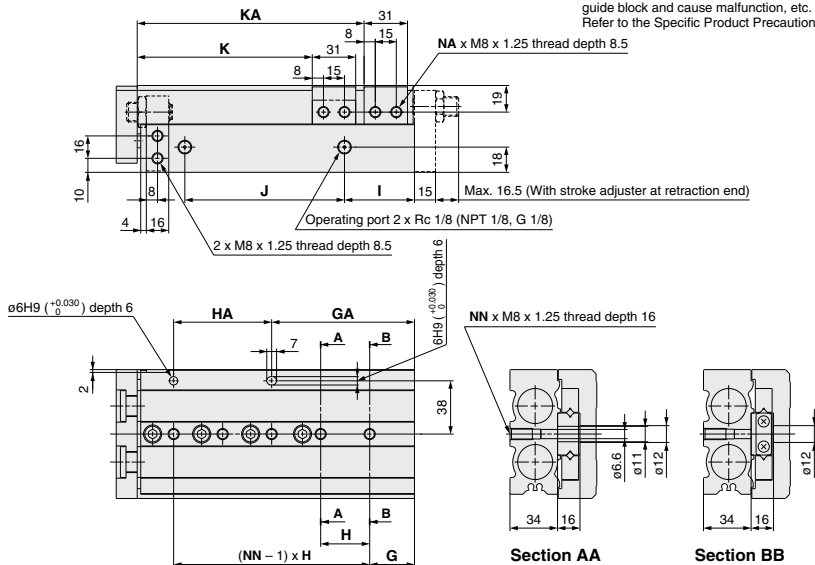


## Dimensions: MXS25L/Symmetric Type

### Basic type



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
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 53.

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

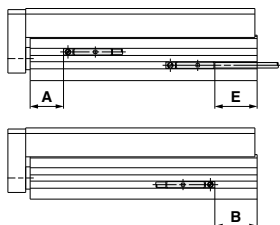
MTS

D-□

-X□

# Auto Switch Mounting

## 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	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)	38.4 (35.9)	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)	20.5 (18)	34.5 (32)	59.5 (57)	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, D-M9□A

Model	A	B															E															E (D-M9□A)														
		Stroke															Stroke															Stroke														
		10	20	30	40	50	75	100	125	150	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	9.6	21.6	27.6	—	—	—	-0.4	-0.4	-0.4	11.6	17.5	—	—	—	-2.4	-2.4	-2.4	9.6	15.5	—	—	—																				
<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	—	—	2.9	-2.1	1.1	6.9	14.9	39.9	—	—																				
<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	—	—	20.4	10.4	0.4	2.4	12.4	33.4	62.4	—																			
<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	—	20.7	10.7	0.7	0.7	5.7	30.7	53.7	78.7	—																		
<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	24.6	14.6	4.6	4.6	9.6	23.6	51.6	80.6	107.6																		
<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	29.5	19.5	9.5	9.5	12.5	28.5	44.5	77.5	92.5																		

Solid State Auto Switch: D-M9BV, D-M9NV, D-M9PV, D-M9BWV, D-M9NWV, D-M9PWV, D-M9□AV

Model	A	B															E															E (D-M9□AV)														
		Stroke															Stroke															Stroke														
		10	20	30	40	50	75	100	125	150	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	9.6	21.6	27.6	—	—	—	1.6	1.6	1.6	13.6	19.6	—	—	—	-0.4	-0.4	-0.4	11.6	17.6	—	—	—																				
<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	—	—	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	—	—	24.4	14.4	4.4	6.4	16.4	37.4	66.4	—	—	22.4	12.4	2.4	4.4	12.4	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	—	24.7	14.7	4.7	4.7	9.7	34.7	57.7	82.7	—	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	28.6	18.6	8.6	8.6	13.6	27.6	55.6	84.6	111.6	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	33.5	23.5	13.5	13.5	16.5	32.5	48.5	81.5	96.5	31.5	21.5	11.5	11.5	14.5	30.5	46.5	79.5	94.5																		

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

## Auto Switch Mounting



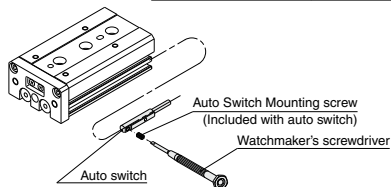
### Auto Switch Mounting Tool

- 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
<b>D-M9□A(V)</b>	0.05 to 0.10



## 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> <b>D-M9□A/M9□AV</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  $\pm 30\%$  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 1136 and 1137 for details.

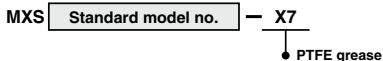
# MXS Series

## Made to Order: Individual Specifications



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

### 1 PTFE Grease Symbol -X7



PTFE grease is used for all parts that grease is applied.

#### Specifications

Type	PTFE grease
Bore size (mm)	6, 8, 12, 16, 20, 25

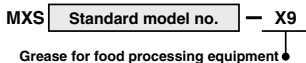
\* Specifications and dimensions other than the above are the same as the standard type.

#### Warning

#### Precautions

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

### 2 Grease for Food Processing Equipment Symbol -X9



Grease for food processing equipment is used for all parts that grease is applied.

#### Specifications

Type	Grease for food processing equipment (NSF-H1 certified)/Aluminum complex soap base grease
Bore size (mm)	6, 8, 12, 16, 20, 25

\* Specifications and dimensions other than the above are the same as the standard type.

#### Caution

#### Do not use this cylinder in a food-related environment.

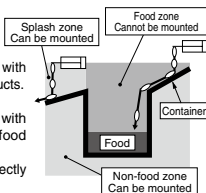
<Cannot be mounted>

Food zone--Food may directly contact with this cylinder, and is treated as food products.

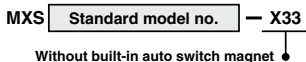
<Can be mounted>

Splash zone--Food may directly contact with this cylinder, but is not treated as food products.

Non-food zone--This cylinder does not directly contact food.



### 3 Without Built-in Auto Switch Magnet Symbol -X33



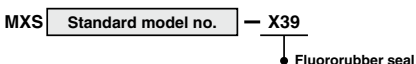
Auto switch magnet is not built in.

#### Specifications

Type	Without built-in auto switch magnet
Bore size (mm)	6, 8, 12, 16, 20, 25
Auto switch	Not mountable

\* Specifications and dimensions other than the above are the same as the standard type.

### 4 Fluororubber Seal Symbol -X39



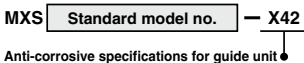
Change the materials for the piston seal, rod seal and O-rings to fluororubber.

#### Specifications

Type	Fluororubber seal
Bore size (mm)	6, 8, 12, 16, 20, 25
Seal material	Fluororubber

\* Specifications and dimensions other than the above are the same as the standard type.

### 5 Anti-corrosive Specifications for Guide Unit Symbol -X42



Rail and guide are given anti-corrosive treatment.

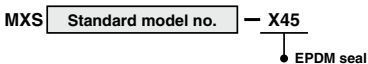
#### Specifications

Type	Anti-corrosive guide unit
Bore size (mm)	6, 8, 12, 16, 20, 25
Surface treatment	Special anti-corrosive treatment *2

\*1 Specifications and dimensions other than the above are the same as the standard type.

\*2 Special anti-corrosive treatment makes the rail and the guide black.

### 6 EPDM Seal Symbol -X45



Change the materials for the piston seal, rod seal and O-rings to EPDM.

#### Specifications

Type	EPDM seal
Bore size (mm)	6, 8, 12, 16, 20, 25
Seal material	EPDM
Grease	PTFE grease

\* Specifications and dimensions other than the above are the same as the standard type.

#### Warning

#### Precautions

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

MXH

MXS

MXQ

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

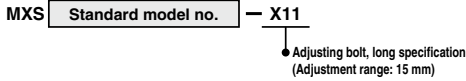
MTS

D-□

-X□

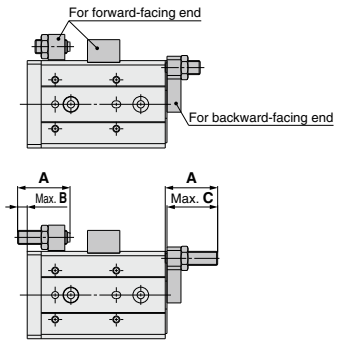
# MXS Series

## 7 Adjusting Bolt, Long Specification (Adjustment range: 15 mm) **-X11**



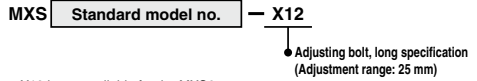
\* -X11 is not available for those with a shock absorber (BS, BT, B).  
The average adjusting stroke range was extended from 5 mm to 15 mm with a long adjusting bolt.

### Dimensions



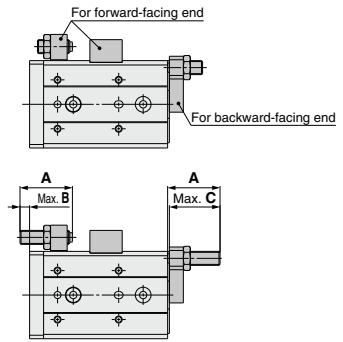
	(mm)		
Model	A	B	C
<b>MXS6(L)</b>	26.5	9	25.5
<b>MXS8(L)</b>	26.5	7	25.5
<b>MXS12(L)</b>	30	5.5	29
<b>MXS16(L)</b>	34.5	5.5	33.5
<b>MXS20(L)</b>	37.5	3.5	36.5
<b>MXS25(L)</b>	42.5	2.5	41.5

## 8 Adjusting Bolt, Long Specification (Adjustment range: 25 mm) **-X12**



\* -X12 is not available for the MXS6.  
\* -X12 is not available for those with a shock absorber (BS, BT, B).  
The average adjusting stroke range was extended from 5 mm to 25 mm with a long adjusting bolt.

### Dimensions



	(mm)		
Model	A	B	C
<b>MXS8(L)</b>	36.5	17	35.5
<b>MXS12(L)</b>	40	15.5	39
<b>MXS16(L)</b>	44.5	15.5	43.5
<b>MXS20(L)</b>	47.5	13.5	46.5
<b>MXS25(L)</b>	52.5	12.5	51.5



# MXS Series Specific Product Precautions 1

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

## 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 36 and 37. 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

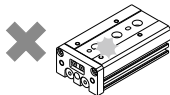
### ⚠ Caution

#### 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.

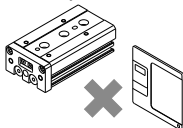
#### 5. Select the proper connection with the load which has external support and/or guide mechanism on the outside, and align it properly.

#### 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.

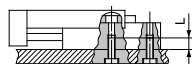
Since an body has magnets built-in, do not allow close contact with magnetic disks, magnetic cards or magnetic tapes. Data may be erased.



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

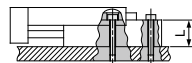
Tightening with a torque above the limit could cause malfunction. Whereas tightening insufficiently could result in misalignment or dropping.

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



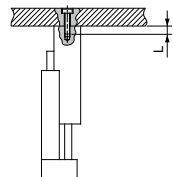
Model	Bolt	Maximum tightening torque (N·m)	Maximum screw-in depth (L, mm)
MXS6	M4 x 0.7	2.1	8
MXS8	M4 x 0.7	2.1	8
MXS12	M5 x 0.8	4.4	10
MXS16	M6 x 1	7.4	12
MXS20	M6 x 1	7.4	12
MXS25	M8 x 1.25	18	16

##### 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

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-

-X



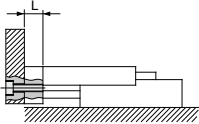
# MXS Series Specific Product Precautions 2

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

## Mounting

### ⚠ Caution

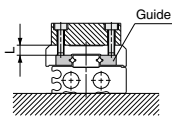
#### 1. Front mounting



**⚠ Caution** If longer bolts are used, they can touch the body and cause a malfunction.

Model	Bolt	Maximum tightening torque (N·m)	Maximum screw-in depth (L mm)
MXS6	M3 x 0.5	0.9	4.5
MXS8	M4 x 0.7	2.1	5.5
MXS12	M5 x 0.8	4.4	7.5
MXS16	M6 x 1	7.4	9.5
MXS20	M6 x 1	7.4	12.5
MXS25	M8 x 1.25	18	14.5

#### 2. Top mounting



**⚠ Caution** 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	3.5
MXS8	M3 x 0.5	0.9	4.5
MXS12	M4 x 0.7	2.1	5
MXS16	M5 x 0.8	4.4	5.5
MXS20	M5 x 0.8	4.4	9.5
MXS25	M6 x 1	7.4	12.5

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.

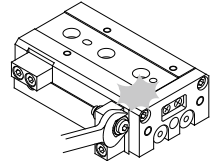
Model	Tightening torque (N·m)
MXS6	3.0
MXS8	5.0
MXS12	12.5
MXS16	25.0
MXS20	43.0
MXS25	69.0

## 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

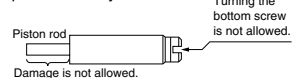
### ⚠ Caution

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	
MXS16	3.14
MXS20	10.8
MXS25	



# MXS Series Specific Product Precautions 3

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

## 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		Bolt size	Tightening torque (N-m)
	Bolt size	Tightening torque (N-m)	Bolt 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	
	Bolt size	Tightening torque (N-m)	Bolt size	Tightening torque (N-m)	Bolt size	Tightening torque (N-m)	Bolt 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

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□



# MXS Series Specific Product Precautions 4

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

## Caution on Handling Functional Option

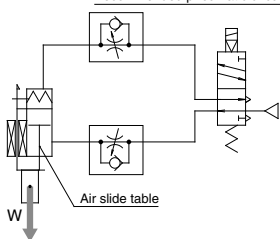
### With End Lock

#### ⚠ 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.

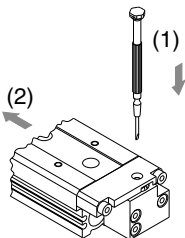
#### 3. When releasing the end lock manually, be sure that air pressure is released.

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.

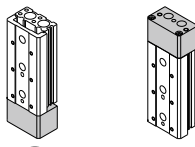


### With Buffer Mechanism

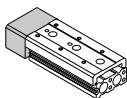
#### ⚠ Caution

#### 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.

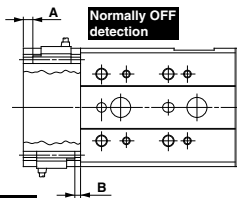


Vertical use



Horizontal use

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



Normally ON detection

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

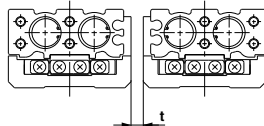
Model	A	B
MXS6	2	3
MXS8	2.5	
MXS12	4	
MXS16	5	
MXS20	5.5	
MXS25	10	

## Caution on Handling Symmetric Type

#### ⚠ Caution

#### 1. Maintain a longer distance than prescribed below if standard type and symmetric type 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