

# Air Slide Table

# Series MXS

ø6, ø8, ø12, ø16, ø20, ø25

## How to Order

MXS 12 50 AS FR M9N S

**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

Note 1) W/ shock absorber is not available in Series MXS6.

**Number of auto switches**

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

**Auto switch**

Nil	Without auto switch
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\* For the applicable auto switch model, refer to the table below. For the applicable auto switch to buffer, refer to page 8-4-29.

**Functional option**

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

Note 2) W/ end lock is not available in Series MXS6.

**Option Combinations**

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

○: Available, ×: Not available

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

**Applicable Auto Switch**/Refer to page 8-30-1 for further information on auto switches.

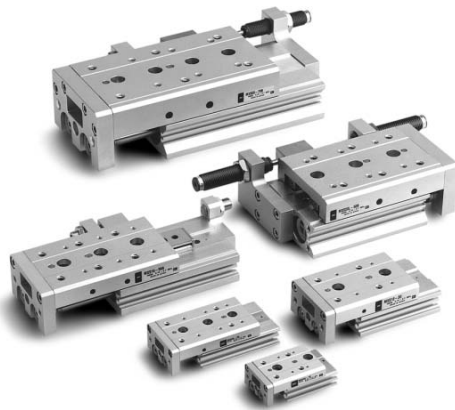
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length* (m)			Pre-wire connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)	IC circuit		Relay, PLC	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V	A93	●	●	—	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PV	M9P	●	●	○	○		
				2-wire		M9BV		M9B	●	●	○	○	—		
				3-wire (NPN)		F9NWV		F9NW	●	●	○	○	IC circuit		
				3-wire (PNP)		F9PWV		F9PW	●	●	○	○	—		
				2-wire		F9BWV		F9BW	●	●	○	○	—		

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9N  
 3 m..... L (Example) M9NL  
 5 m..... Z (Example) M9NZ

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

- Since there are other applicable auto switches than listed, refer to page 8-4-38 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.

# Air Slide Table Series **MXS**



## Specifications

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

## Option

Adjuster option	With stroke adjuster	Extension end (AS)	Stroke adjustment range 0 to 5 mm
		Retraction end (AT)	
		Adjuster on both ends (A)	
Adjuster option	With shock absorber	Extension end (BS)	W/ shock absorber is not available in Series MXS6.
		Retraction end (BT)	
		Absorber on both ends (B)	
Functional option	With buffer (F)		W/ end lock is not available in Series MXS6.
	With end lock (R)		
	Axial piping type (P)		



\* For details of adjuster and functional option, refer to "Option Specifications" on pages 8-4-26 to 8-4-29.



## Made to Order Specifications (For details, refer to page 8-31-1.)

Symbol	Specifications
-X42	Anti-corrosive specifications for guide unit

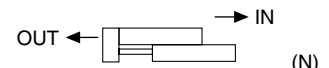
For clean room specifications, refer to "Pneumatic Clean Series" catalog.

## Standard Stroke

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

## Theoretical Output

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



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

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

## Weight

Model	Standard stroke (mm)									Additional weight of adjuster option				Extra for 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			
MXS6	80	100	115	155	180	—	—	—	—	10	5	—	—	30	—	13 + 0.15 S
MXS8	150	160	190	235	285	415	—	—	—	15	9	35	45	40	40	26 + 0.17 S
MXS12	340	340	340	400	500	690	930	—	—	30	20	50	60	80	90	43 + 0.21 S
MXS16	600	600	610	670	800	1150	1450	1800	—	50	30	80	105	120	160	55 + 0.21 S
MXS20	1000	1020	1050	1150	1300	1700	2250	2800	3350	100	71	170	205	140	310	166 + 0.45 S
MXS25	1720	1740	1750	1900	2160	2750	3400	4300	4900	150	125	215	300	240	540	240 + 0.45 S

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

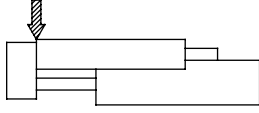
Data

# Series MXS

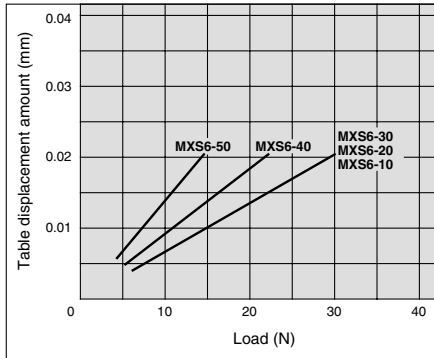
## Table Deflection (Reference values)

### Table Displacement due to Pitch Moment Load

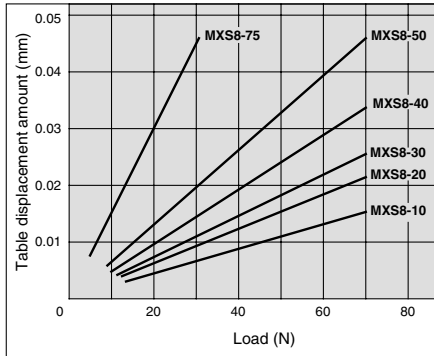
Table yaw deflection due to static yaw moment applied at arrow for fully extended stroke of slide table.



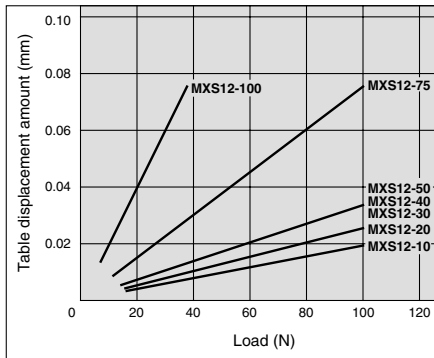
ø6



ø8

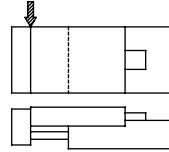


ø12

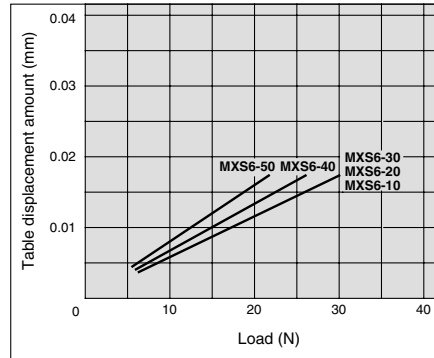


### Table Displacement due to Yaw Moment Load

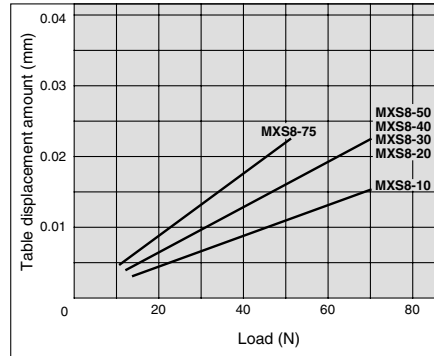
Table yaw deflection due to static yaw moment applied at arrow for fully extended stroke of slide table.



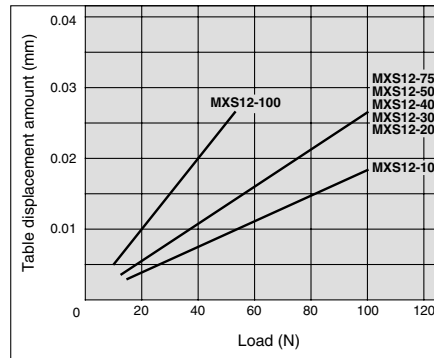
ø6



ø8

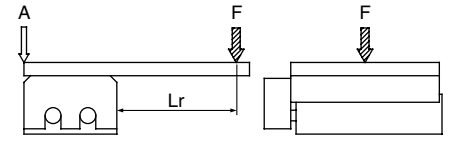


ø12

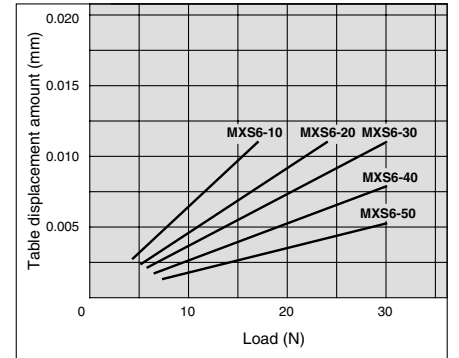


### Table Displacement due to Roll Moment Load

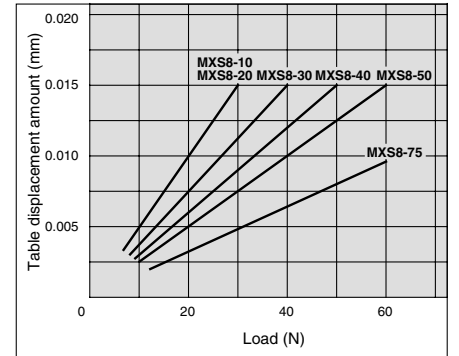
Displacement at "A" when a load is applied to "F" with the slide table retracted.



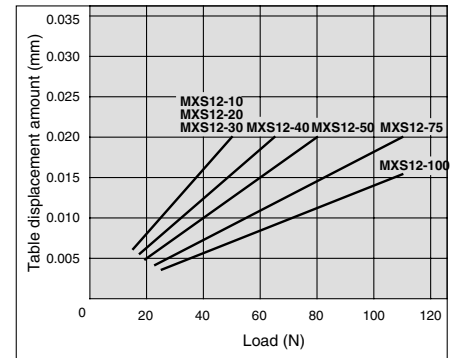
ø6



ø8

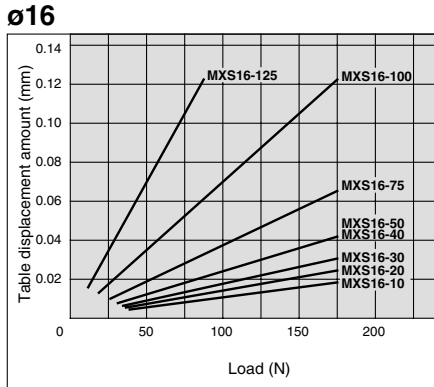
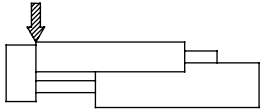


ø12



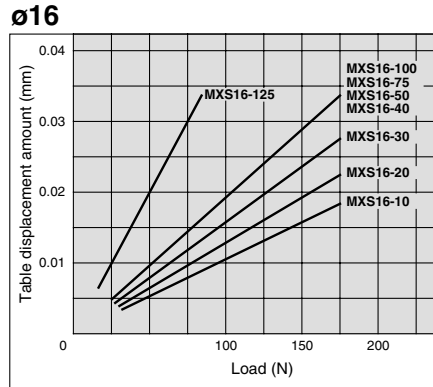
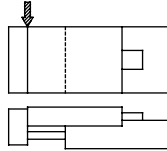
## Table Displacement due to Pitch Moment Load

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



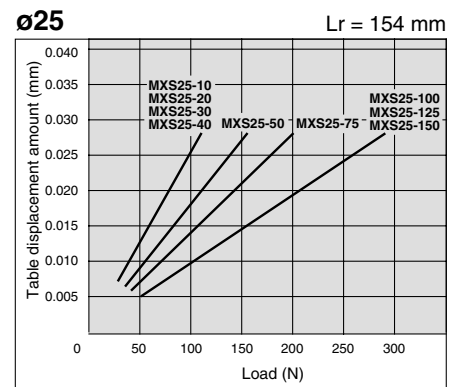
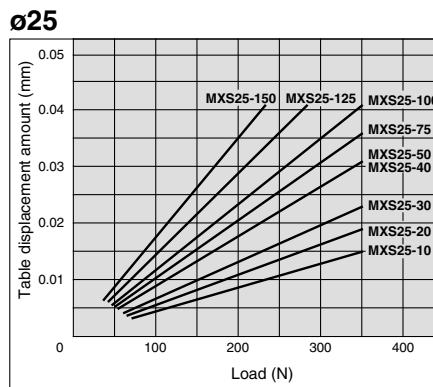
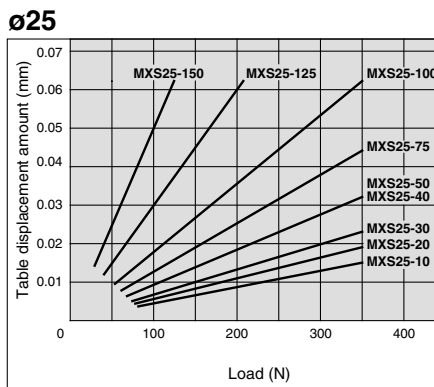
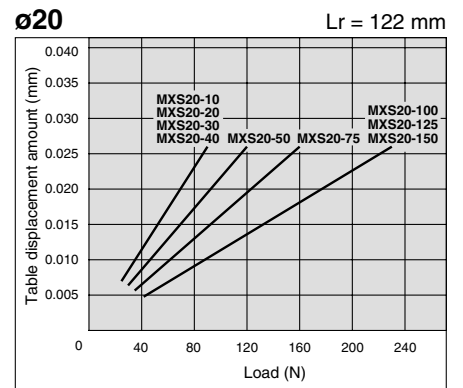
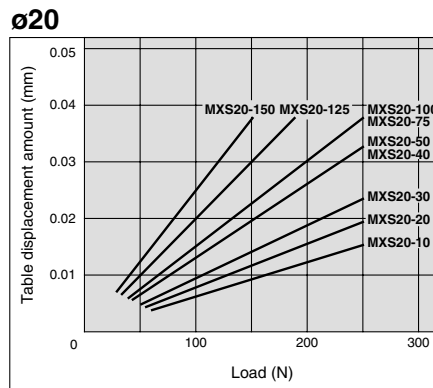
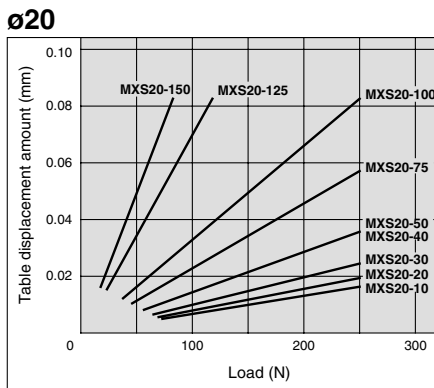
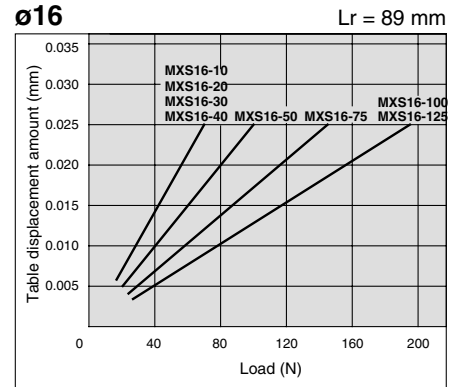
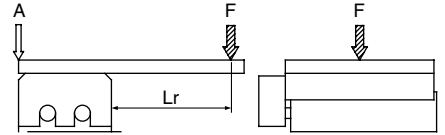
## Table Displacement due to Yaw Moment Load

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



## Table Displacement due to Roll Moment Load

Displacement at "A" when a load is applied to "F" with the slide table retracted.



MX

MTS

MY

CY

MG

CX

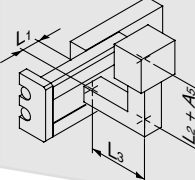
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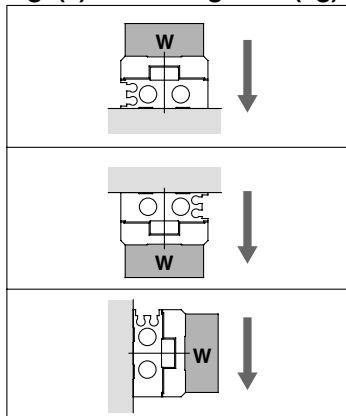
20-

Data

# Series MXS Model Selection

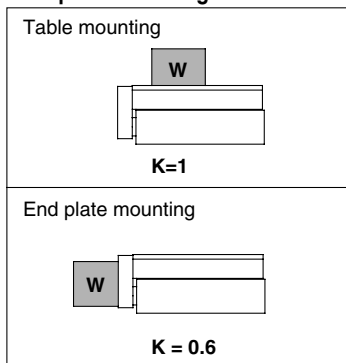
Model Selection Step	Formula/Data	Selection Example								
<p><b>1 Operating Conditions</b></p> <p>Enumerate the operating conditions considering the mounting position and workpiece configuration.</p>	<ul style="list-style-type: none"> <li>• Model to be used</li> <li>• Type of cushion</li> <li>• Workpiece mounting position</li> <li>• Mounting orientation</li> <li>• Average speed Va (mm/s)</li> <li>• Load weight W (kg): Fig. (1)</li> <li>• Overhang Ln (mm): Fig. (2)</li> </ul>	 <p>Cylinder: MAX16-15 Cushion: Rubber bumper Workpiece table mounting Mounting: Horizontal wall mounting Average speed: Va = 300 [mm/s] Load weight: 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). Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.</p>	$E = \frac{1}{2} \cdot W \left( \frac{V}{1000} \right)^2$ <p>Collision speed <math>V = 1.4V_{a\rightarrow}</math> *) Correction factor (Reference values)</p> <p><math>E_a = K \cdot E_{max}</math> Workpiece mounting coefficient K: Fig. (3) Max. allowable kinetic energy <math>E_{max}</math>: 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><math>V = 1.4 \times 300 = 420</math> <math>E_a = 1 \times 0.11 = 0.11</math> Can be used based on <math>E = 0.088 \leq E_a = 0.11</math></p>								
<p><b>3 Load Factor</b></p>										
<p><b>3-1 Load Factor of Load Weight</b></p> <p>Find the allowable load weight Wa (kg). Note) 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 weight <math>\alpha_1</math>.</p>	<p><math>W_a = K \cdot \beta \cdot W_{max}</math> Workpiece mounting coefficient K: Fig. (3) Allowable load weight coefficient <math>\beta</math>: Graph (1) Max. allowable load weight <math>W_{max}</math>: Table (2)</p> <p><math>\alpha_1 = W/W_a</math></p>	<p><math>W_a = 1 \times 1 \times 4 = 4</math> K = 1 <math>\beta = 1</math> <math>W_{max} = 4</math> <math>\alpha_1 = 1/4 = 0.25</math></p>								
<p><b>3-2 Load Factor of the 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><math>M = W \times 9.8(L_n + A_n)/1000</math> Correction value of moment center position distance An: Table (3)</p> <p><math>M_a = K \cdot \gamma \cdot M_{max}</math> Workpiece mounting coefficient K: Fig. (3) Allowable moment coefficient <math>\gamma</math>: Graph (2) Maximum allowable moment <math>M_{max}</math>: Table (4)</p> <p><math>\alpha_2 = M/M_a</math></p>	<table border="0"> <tr> <td style="border: 1px solid black; padding: 2px;">Yawing</td> <td style="border: 1px solid black; padding: 2px;">Rolling</td> </tr> <tr> <td>Examine My. <math>M_y = 1 \times 9.8(10 + 30)/1000 = 0.39</math> <math>A_3 = 30</math></td> <td>Examine Mr. <math>M_r = 1 \times 9.8(10 + 30)/1000 = 0.39</math> <math>A_6 = 10</math></td> </tr> <tr> <td><math>M_a_y = 1 \times 1 \times 15.9 = 15.9</math> <math>M_{y_{max}} = 15.9</math> K = 1 <math>\gamma = 1</math></td> <td><math>M_a_r = 15.9</math> (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> </table>	Yawing	Rolling	Examine My. $M_y = 1 \times 9.8(10 + 30)/1000 = 0.39$ $A_3 = 30$	Examine Mr. $M_r = 1 \times 9.8(10 + 30)/1000 = 0.39$ $A_6 = 10$	$M_a_y = 1 \times 1 \times 15.9 = 15.9$ $M_{y_{max}} = 15.9$ K = 1 $\gamma = 1$	$M_a_r = 15.9$ (Same value as May)	$\alpha_2 = 0.39/15.9 = 0.025$	$\alpha_2 = 0.39/15.9 = 0.025$
Yawing	Rolling									
Examine My. $M_y = 1 \times 9.8(10 + 30)/1000 = 0.39$ $A_3 = 30$	Examine Mr. $M_r = 1 \times 9.8(10 + 30)/1000 = 0.39$ $A_6 = 10$									
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$\alpha_2 = 0.39/15.9 = 0.025$	$\alpha_2 = 0.39/15.9 = 0.025$									
<p><b>3-3 Load Factor of Dynamic Moment</b></p> <p>Find the dynamic moment 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><math>M_e = 1/3 \cdot W_e \times 9.8 \frac{(L_n + A_n)}{1000}</math> Collision equivalent to impact <math>W_e = \delta \cdot W \cdot V</math> <math>\delta</math>: Bumper coefficient With urethane bumper (Standard) = 4/100 With shock absorber = 1/100 Correction value of moment center position distance An: Table (3)</p> <p><math>M_{e_a} = K \cdot \gamma \cdot M_{max}</math> Workpiece mounting coefficient K: Fig. (3) Allowable moment coefficient <math>\gamma</math>: Graph (2) Max. allowable moment <math>M_{max}</math>: Table (4)</p> <p><math>\alpha_3 = M_e/M_{e_a}</math></p>	<table border="0"> <tr> <td style="border: 1px solid black; padding: 2px;">Pitching</td> <td>Examine Mep. <math>M_{ep} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 10)}{1000} = 2.2</math> We = 4/100 x 10 x 420 = 16.8 A2 = 10 Meap = 1 x 0.7 x 15.9 = 11.1 K = 1 <math>\gamma = 0.7</math> Mppmax = 15.9 <math>\alpha_3 = 2.2/11.1 = 0.20</math></td> </tr> <tr> <td style="border: 1px solid black; padding: 2px;">Yawing</td> <td>Examine Mey. <math>M_{ey} = 1/3 \times 16.8 \times 9.8 \times \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> </table>	Pitching	Examine Mep. $M_{ep} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 10)}{1000} = 2.2$ We = 4/100 x 10 x 420 = 16.8 A2 = 10 Meap = 1 x 0.7 x 15.9 = 11.1 K = 1 $\gamma = 0.7$ Mppmax = 15.9 $\alpha_3 = 2.2/11.1 = 0.20$	Yawing	Examine Mey. $M_{ey} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 31)}{1000} = 3.3$ We = 16.8 A4 = 31 Meay = 11.1 (Same value as Meap) $\alpha_3 = 3.3/11.1 = 0.30$				
Pitching	Examine Mep. $M_{ep} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 10)}{1000} = 2.2$ We = 4/100 x 10 x 420 = 16.8 A2 = 10 Meap = 1 x 0.7 x 15.9 = 11.1 K = 1 $\gamma = 0.7$ Mppmax = 15.9 $\alpha_3 = 2.2/11.1 = 0.20$									
Yawing	Examine Mey. $M_{ey} = 1/3 \times 16.8 \times 9.8 \times \frac{(30 + 31)}{1000} = 3.3$ We = 16.8 A4 = 31 Meay = 11.1 (Same value as Meap) $\alpha_3 = 3.3/11.1 = 0.30$									
<p><b>3-4 Sum of the Load Factors</b></p> <p>Use is possible if the sum of the load factors does not exceed 1.</p>	<p><math>\sum \alpha_n = \alpha_1 + \alpha_2 + \alpha_3 \leq 1</math></p>	<p><math>\sum \alpha_n = \alpha_1 + \alpha_2 + \alpha_2' + \alpha_3 + \alpha_3'</math> <math>= 0.25 + 0.025 + 0.025 + 0.20 + 0.30 = 0.80 \leq 1</math> And it is possible to use.</p>								

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



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

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



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

Model	Maximum allowable load weight
MXS6	0.6
MXS8	1
MXS12	2
MXS16	4
MXS20	6
MXS25	9

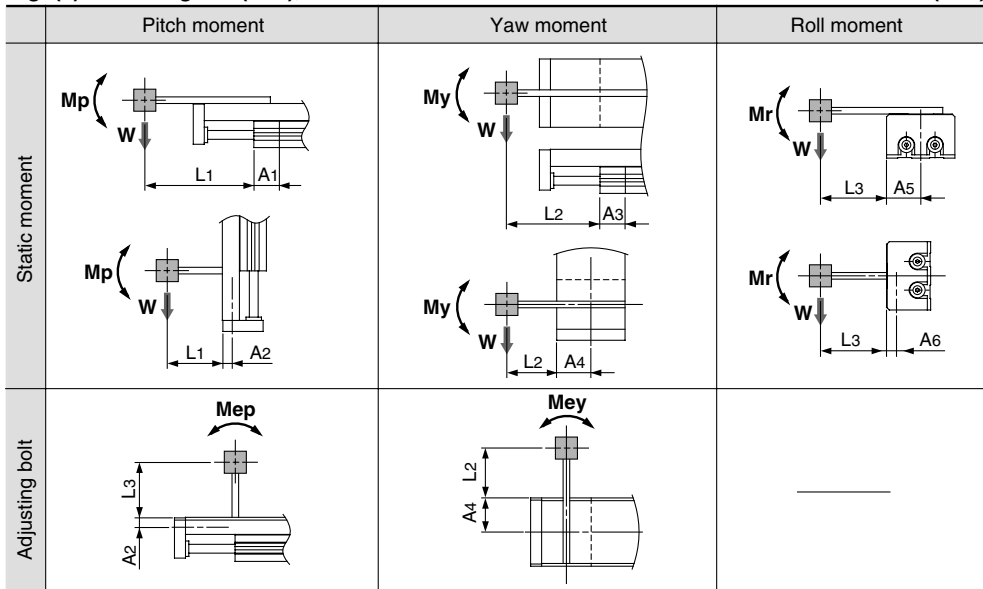
**Table (4) Maximum Allowable Moment: Mmax (N·m)**

Model	Stroke (mm)								
	10	20	30	40	50	75	100	125	150
MXS6	0.7	1.0	1.2	1.2	1.2	—	—	—	—
MXS8	2.0	2.0	2.8	3.6	4.2	4.2	—	—	—
MXS12	4.2	4.2	4.2	5.8	7.0	10.0	10.0	—	—
MXS16	11.3	11.3	11.3	11.3	15.9	25.0	34.1	34.1	—
MXS20	19.4	19.4	19.4	19.4	27.2	35.0	50.5	50.5	50.5
MXS25	30.6	30.6	30.6	30.6	42.8	55.1	67.3	67.3	67.3

**Symbol**

Symbol	Definition	Unit	Symbol	Definition	Unit
An (n = 1 to 6)	Correction value of moment center position distance	mm	Va	Average speed	mm/s
E	Kinetic energy	J	W	Load weight	kg
Ea	Allowable kinetic energy	J	Wa	Allowable load weight	kg
Emax	Max. allowable kinetic energy	J	We	Weight equivalent to impact	kg
Ln (n = 1 to 3)	Overhang	mm	Wmax	Max. allowable load weight	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 weight 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 (Mpm, Mym, Mrmax)	Maximum allowable moment (Pitch, Yaw, Roll)	N·m	K	Workpiece mounting coefficient	—
V	Collision speed	mm/s			

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



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

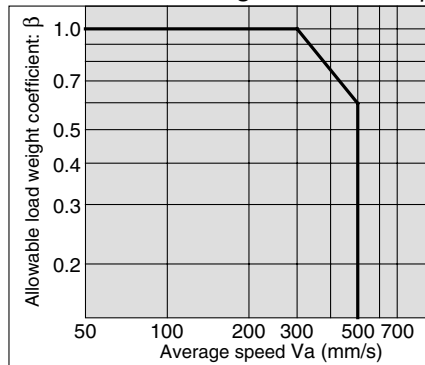
**Table (1) Maximum Allowable Kinetic Energy: Emax (J)**

Model	Allowable kinetic energy	
	Rubber bumper	Shock absorber
MXS6	0.018	—
MXS8	0.027	0.045
MXS12	0.055	0.11
MXS16	0.11	0.22
MXS20	0.16	0.32
MXS25	0.24	0.48

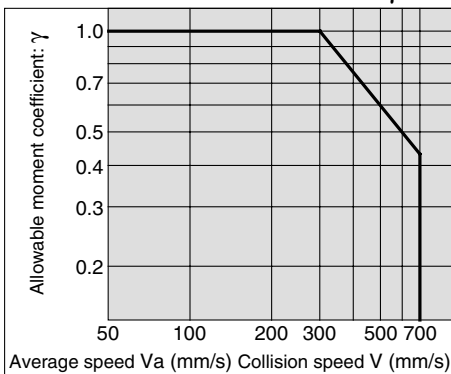
**Table (3) Correction Value of Moment Center Position Distance : An (mm)**

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 Weight Coefficient: β**



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



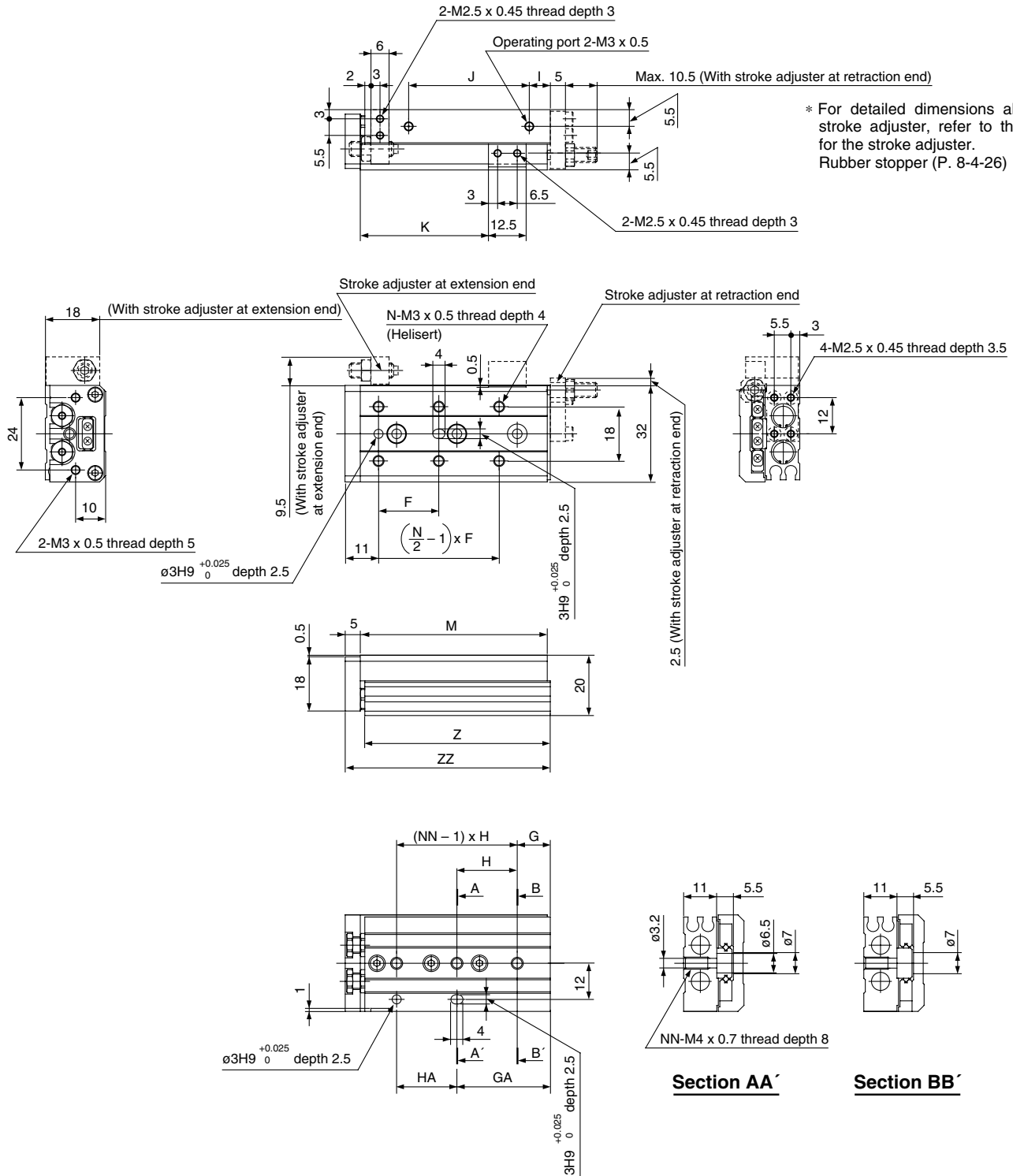
Note) Use the average speed when calculating static moment.  
Use the collision speed when calculating dynamic moment.

- MX
- MTS
- MY
- CY
- MG
- CX
- D-
- X
- 20-
- Data

# Series MXS

## Dimensions: MXS6

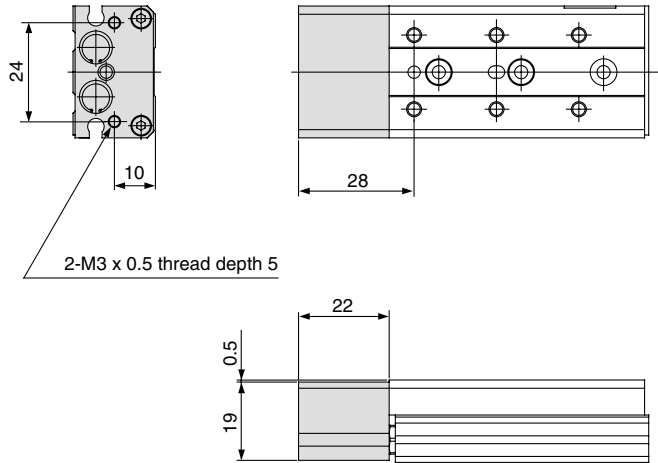
### Basic style



(mm)

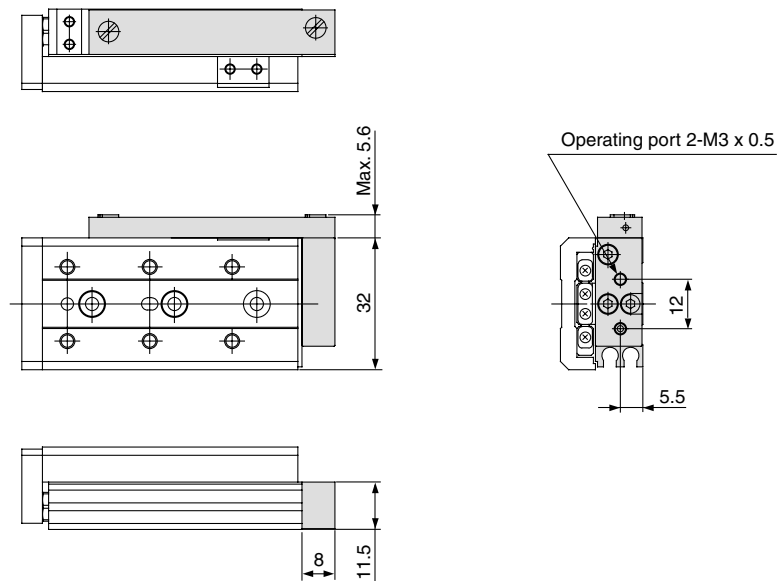
Model	F	N	G	H	NN	GA	HA	I	J	K	M	Z	ZZ
MXS6-10	20	4	6	25	2	11	20	10	17	22.5	42	41.5	48
MXS6-20	30	4	6	35	2	21	20	10	27	32.5	52	51.5	58
MXS6-30	20	6	11	20	3	31	20	7	40	42.5	62	61.5	68
MXS6-40	28	6	13	30	3	43	30	19	50	52.5	84	83.5	90
MXS6-50	38	6	17	24	4	41	48	25	60	62.5	100	99.5	106

## With buffer (ø6) MXS6-□□F



\* Other dimensions are the same as basic style.

## Axial piping type (ø6) MXS6-□□P



\* Other dimensions are the same as basic style.

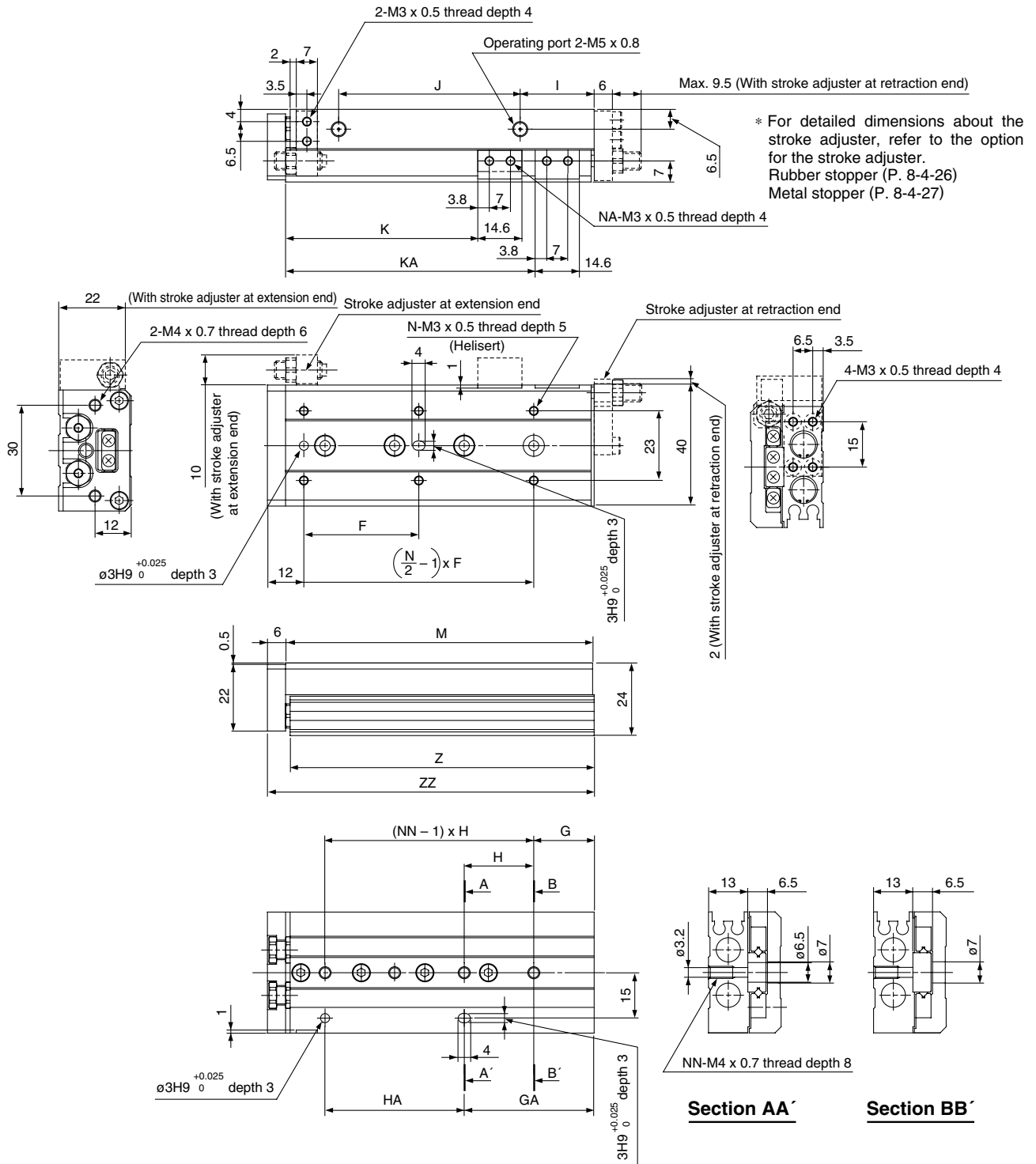
MX□
MTS
MY□
CY□
MG□
CX□
D-
-X
20-
Data



# Series MXS

## Dimensions: MXS8

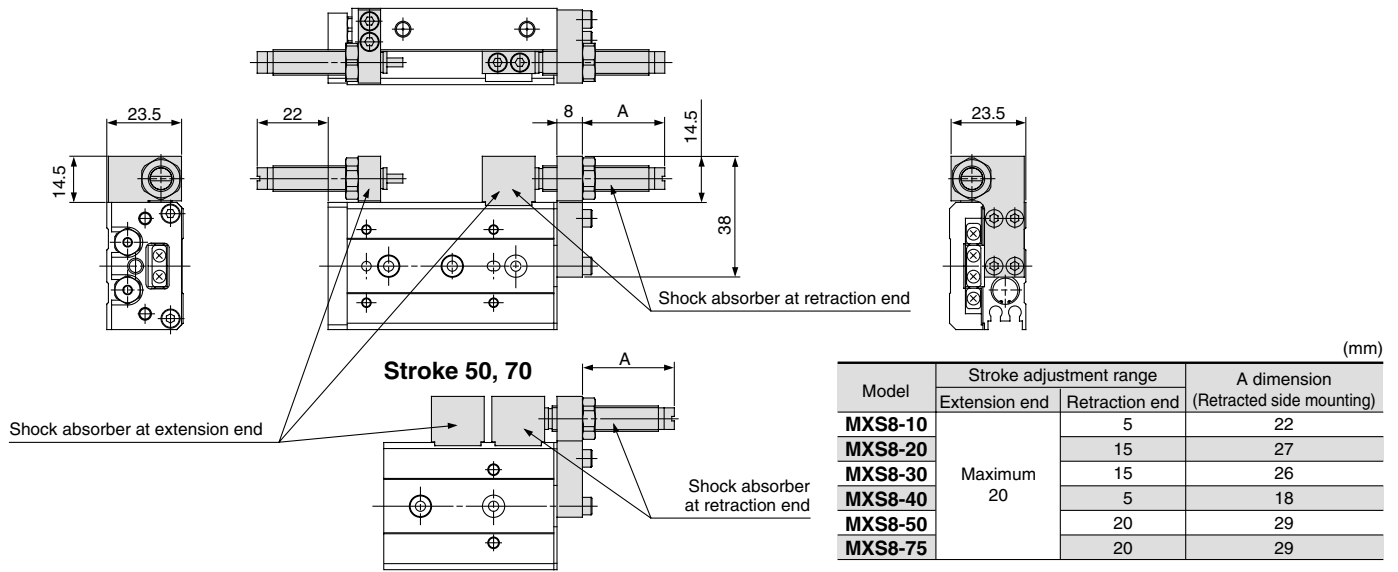
### Basic style



(mm)

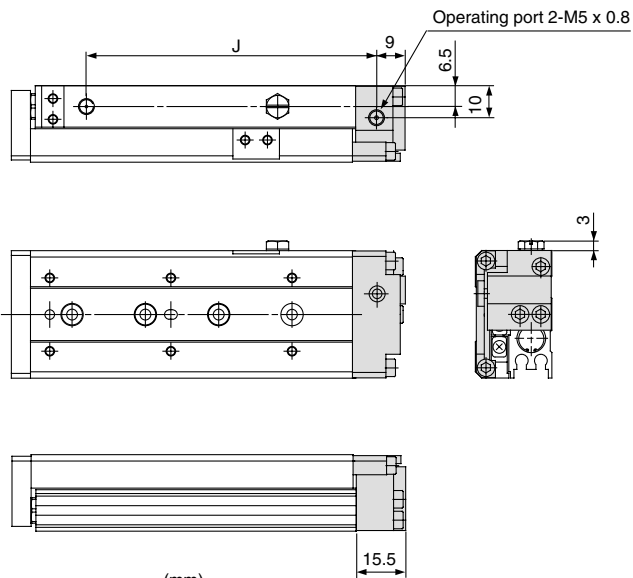
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
<b>MXS8-10</b>	25	4	9	28	2	17	20	13	19.5	23.5	—	2	49	48.5	56
<b>MXS8-20</b>	25	4	12	30	2	12	30	8.5	29	33.5	—	2	54	53.5	61
<b>MXS8-30</b>	40	4	13	20	3	33	20	9.5	39	43.5	—	2	65	64.5	72
<b>MXS8-40</b>	50	4	15	28	3	43	28	10.5	56	53.5	—	2	83	82.5	90
<b>MXS8-50</b>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

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



\* Other dimensions are the same as basic style.

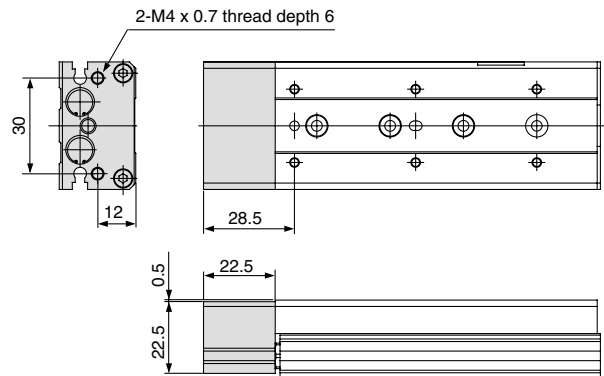
## With end lock (ø8) MXS8-□□R



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

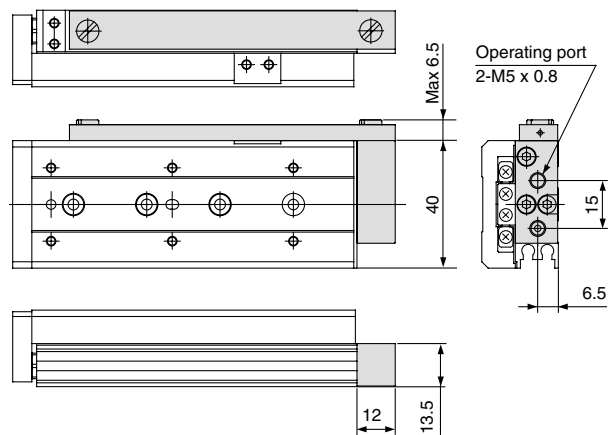
\* Other dimensions are the same as basic style.

## With buffer (ø8) MXS8-□□F



\* Other dimensions are the same as basic style.

## Axial piping type (ø8) MXS8-□□P



\* Other dimensions are the same as basic style.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

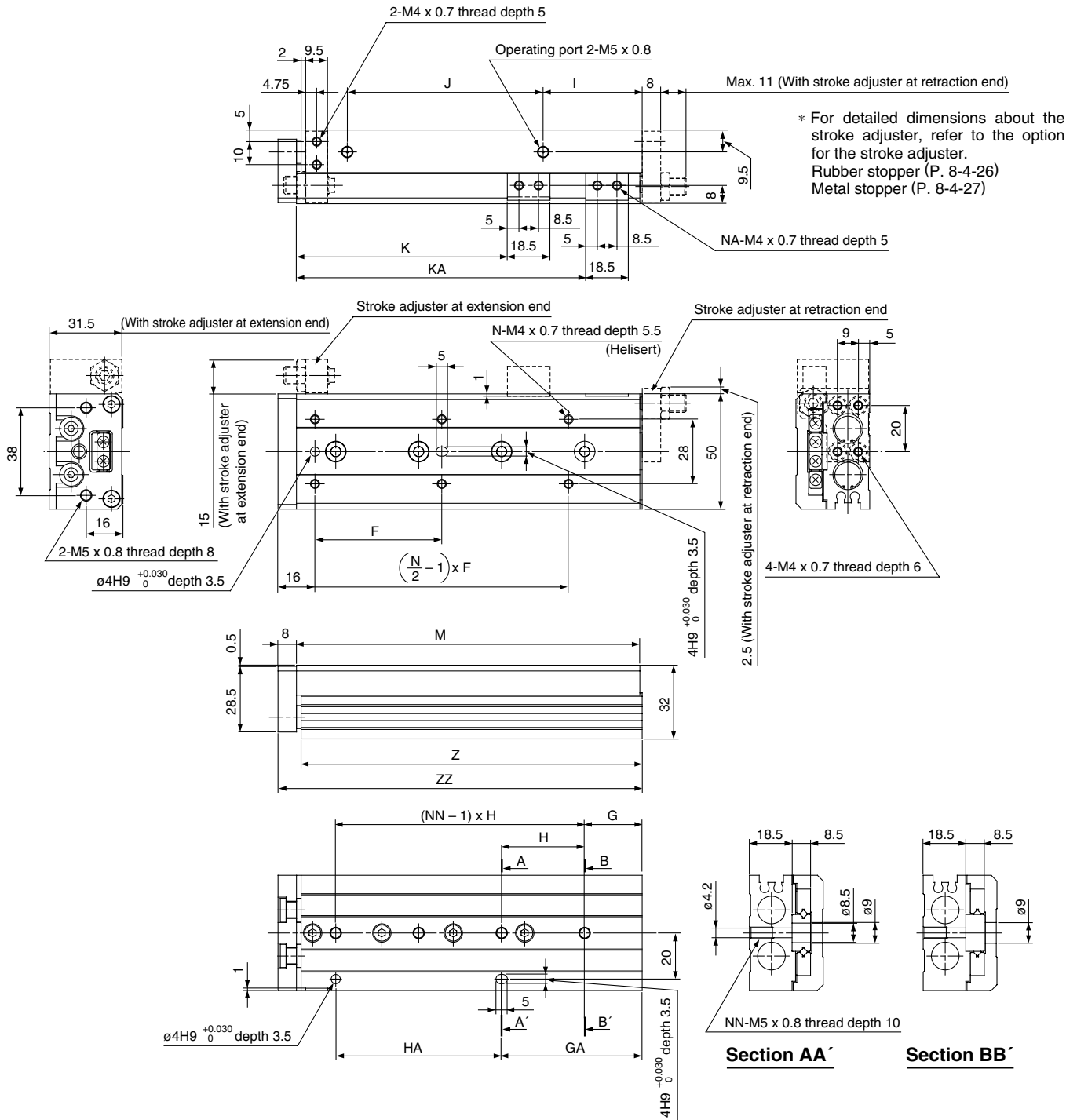
20-

Data

# Series MXS

## Dimensions: MXS12

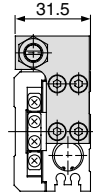
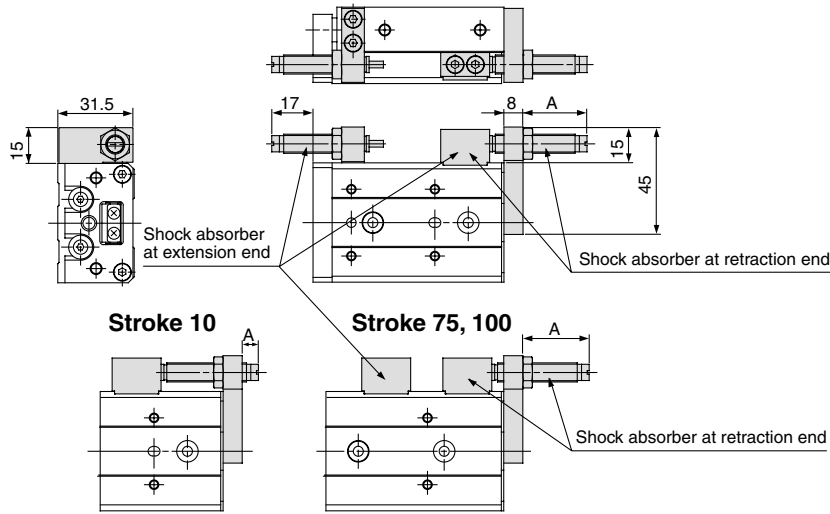
### Basic style



(mm)

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

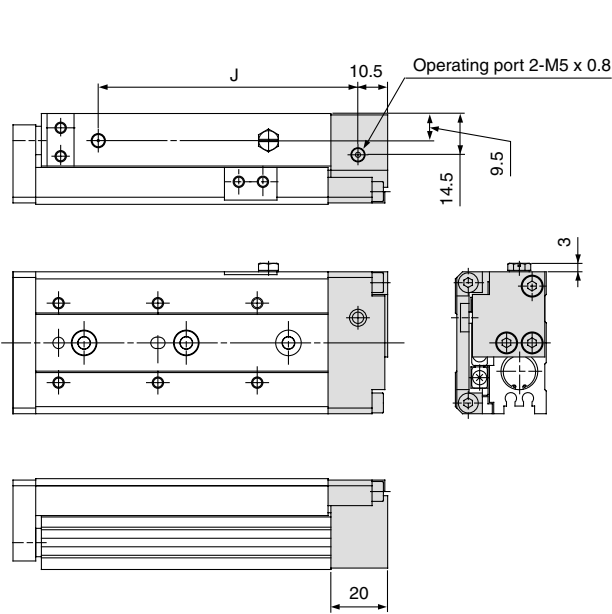
## With shock absorber (ø12) MXS12-□□BS/BT/B



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

\* Other dimensions are the same as basic style.

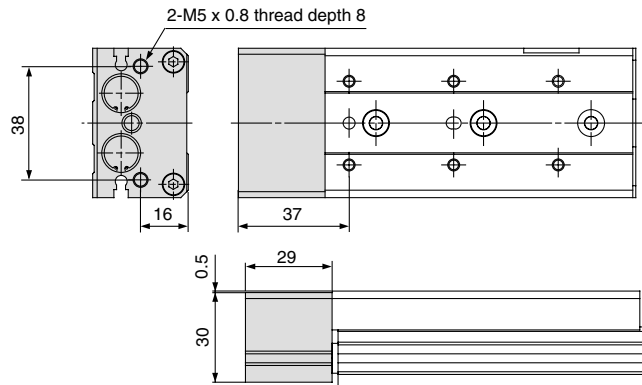
## With end lock (ø12) MXS12-□□R



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

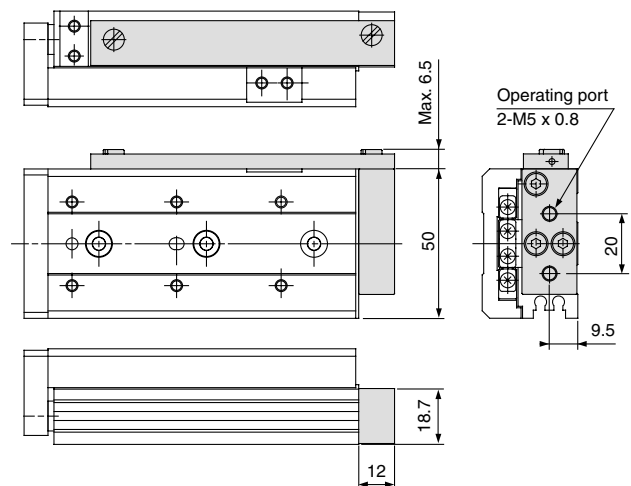
\* Other dimensions are the same as basic style.

## With buffer (ø12) MXS12-□□F



\* Other dimensions are the same as basic style.

## Axial piping type (ø12) MXS12-□□P



\* Other dimensions are the same as basic style.

MX□

MTS

MY□

CY□

MG□

CX□

D-

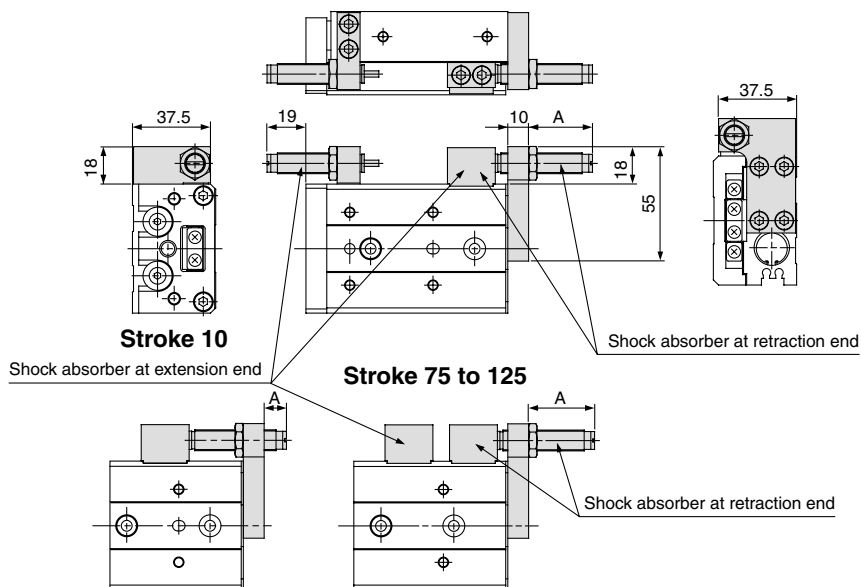
-X

20-

Data



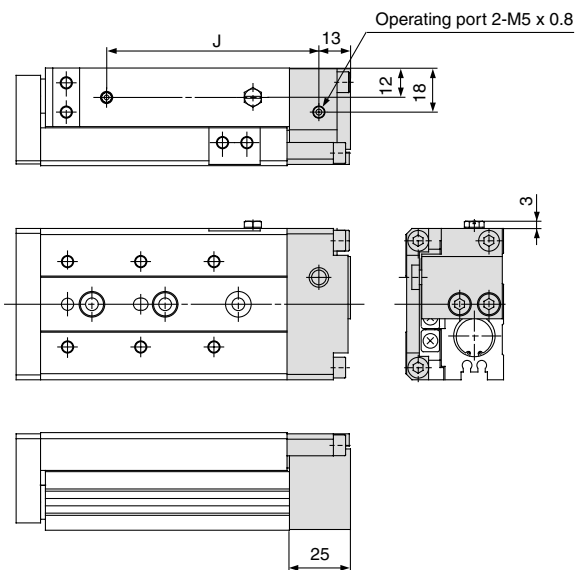
## With shock absorber (ø16) MXS16-□□BS/BT/B



\* Other dimensions are the same as basic style.

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

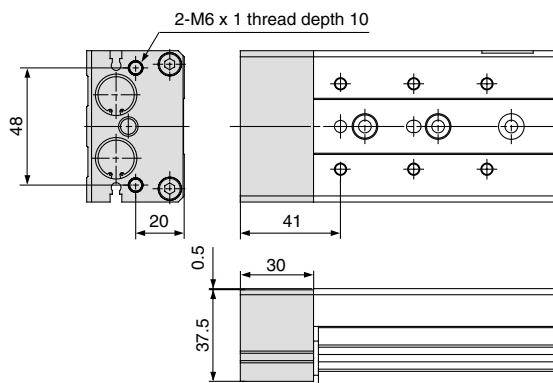
## With end lock(ø16) MXS16-□□R



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

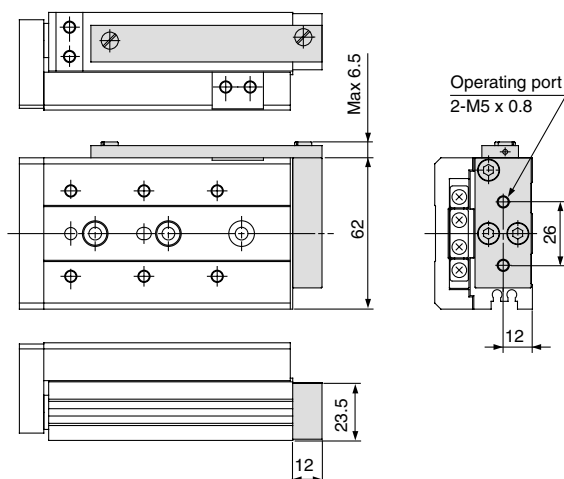
\* Other dimensions are the same as basic style.

## With buffer (ø16) MXS16-□□F



\* Other dimensions are the same as basic style.

## Axial piping type (ø16) MXS16-□□P



\* Other dimensions are the same as basic style.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

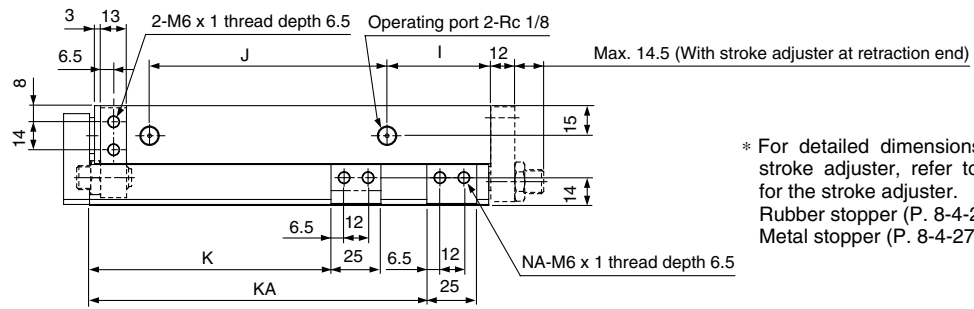
20-

Data

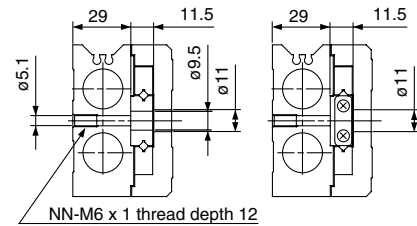
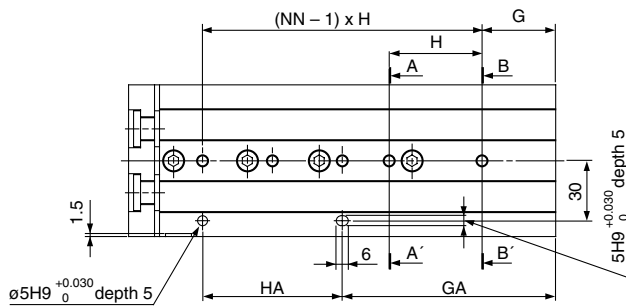
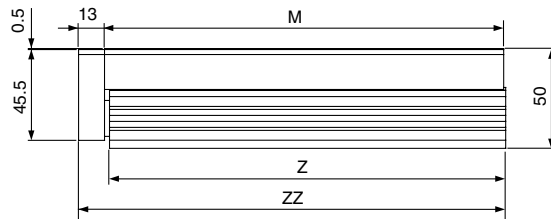
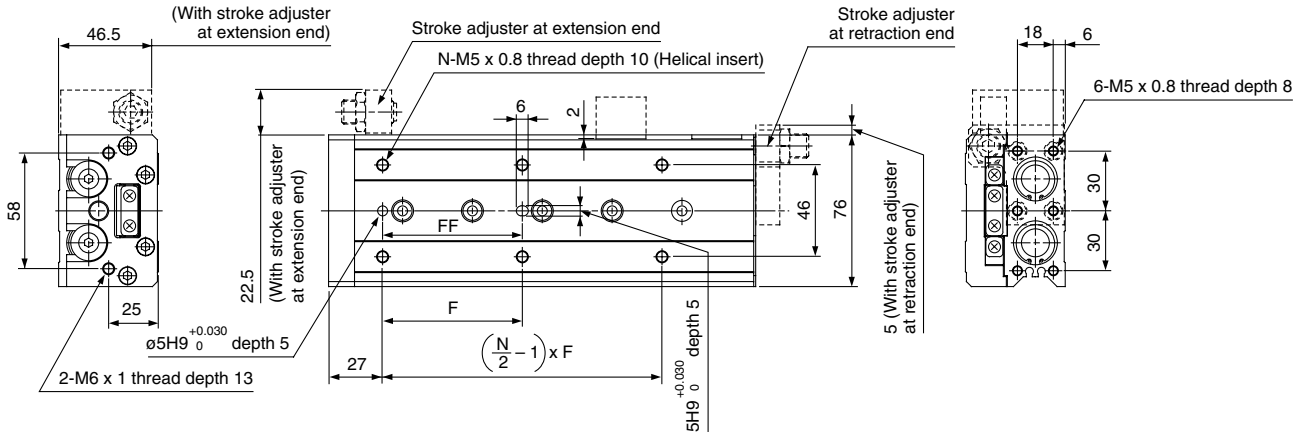
# Series MXS

## Dimensions: MXS20

### Basic style



\* For detailed dimensions about the stroke adjuster, refer to the option for the stroke adjuster.  
 Rubber stopper (P. 8-4-26)  
 Metal stopper (P. 8-4-27)



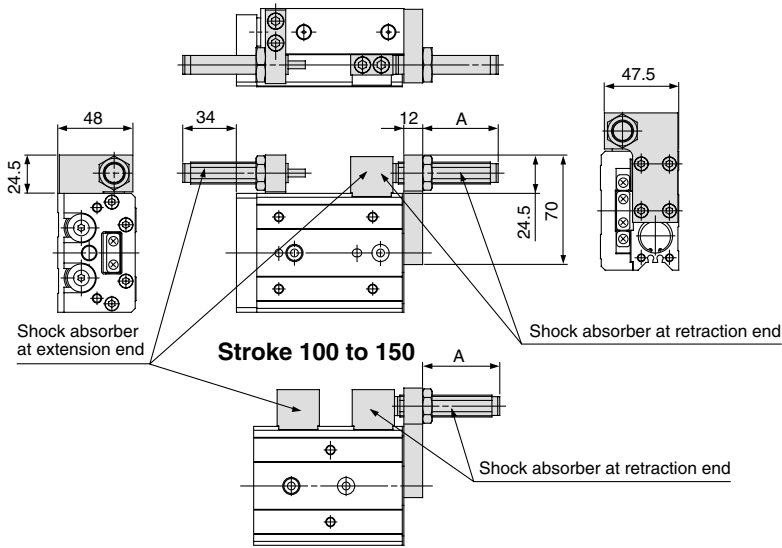
**Section AA'**

**Section BB'**

(mm)

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

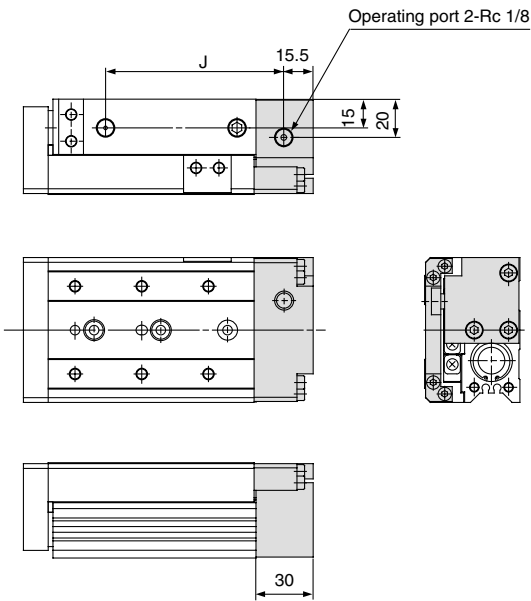
## With shock absorber (ø20) MXS20-□□BS/BT/B



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

\* Other dimensions are the same as basic style.

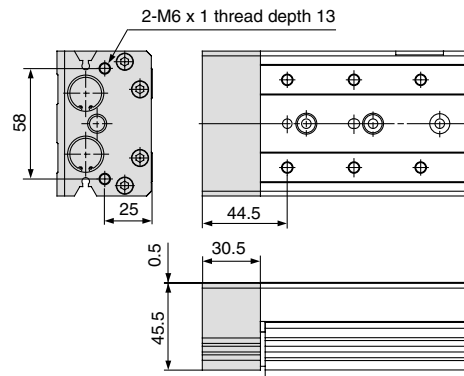
## With end lock(ø20) MXS20-□□R



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

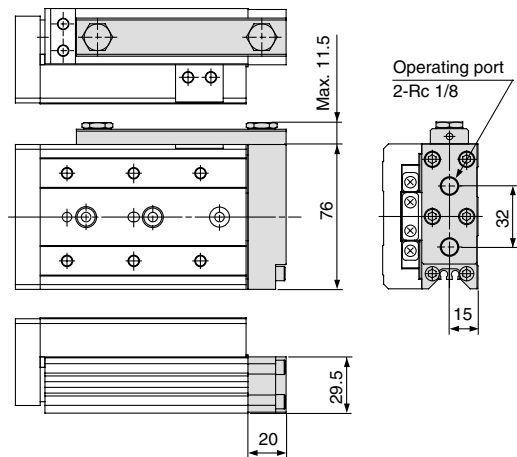
\* Other dimensions are the same as basic style.

## With buffer (ø20) MXS20-□□F



\* Other dimensions are the same as basic style.

## Axial piping type (ø20) MXS20-□□P



\* Other dimensions are the same as basic style.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

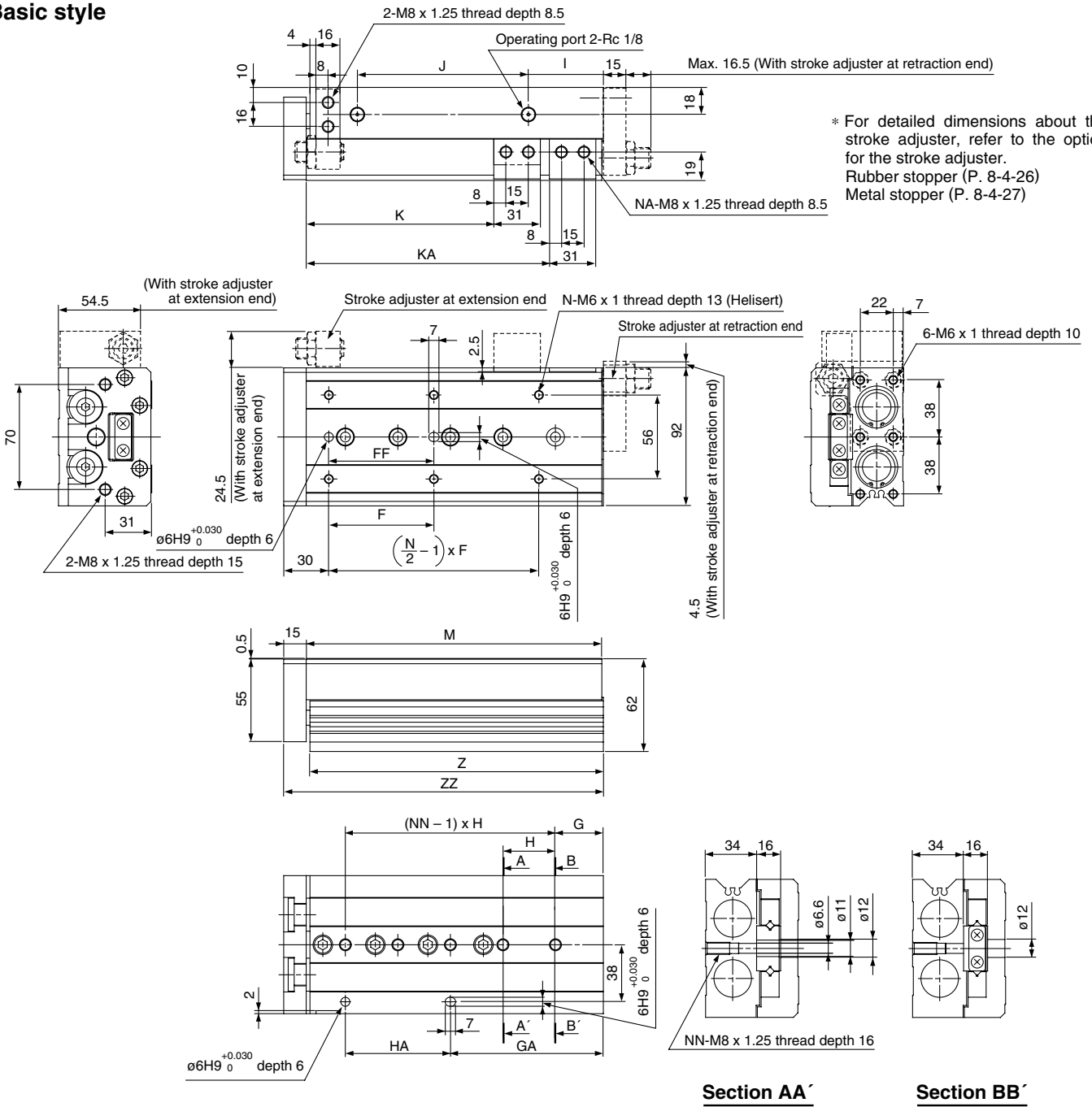
Data



# Series MXS

## Dimensions: MXS25

### Basic style

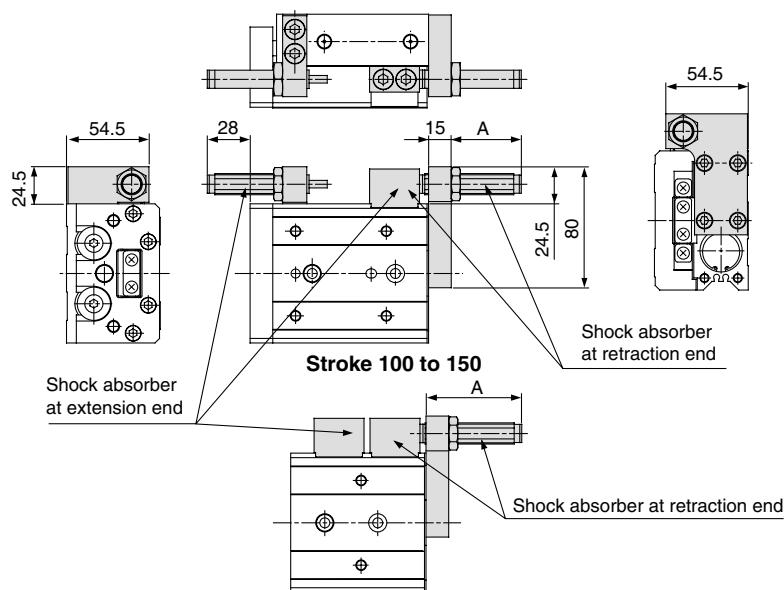


\* For detailed dimensions about the stroke adjuster, refer to the option for the stroke adjuster.  
Rubber stopper (P. 8-4-26)  
Metal stopper (P. 8-4-27)

(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

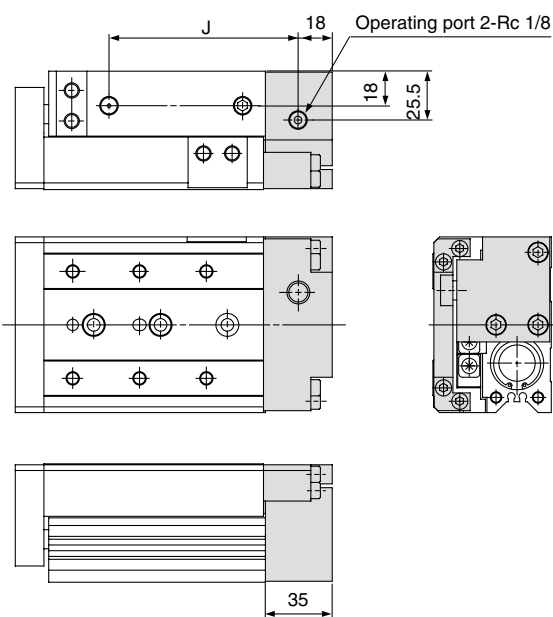
## With shock absorber (ø25) MXS25-□□BS/BT/B



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

\* Other dimensions are the same as basic style.

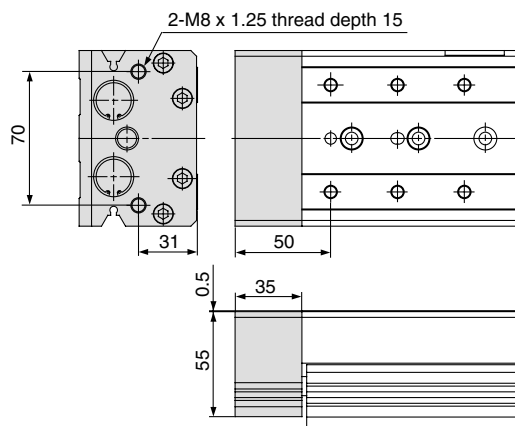
## With end lock(ø25) MXS25-□□R



(mm)	
Model	J
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

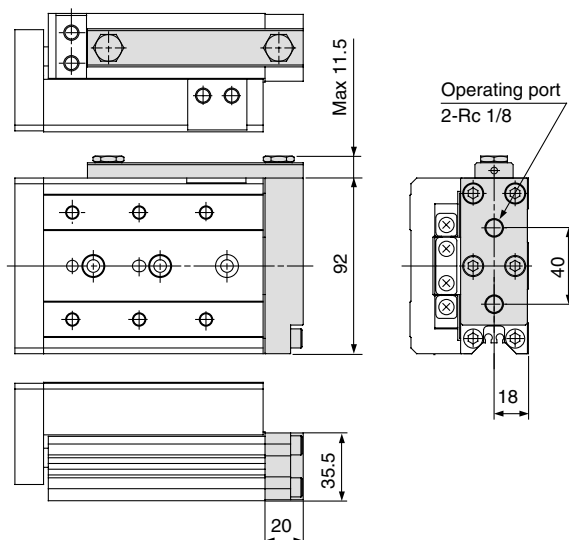
\* Other dimensions are the same as basic style.

## With buffer (ø25) MXS25-□□F



\* Other dimensions are the same as basic style.

## Axial piping type (ø25) MXS25-□□P



\* Other dimensions are the same as basic style.

MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

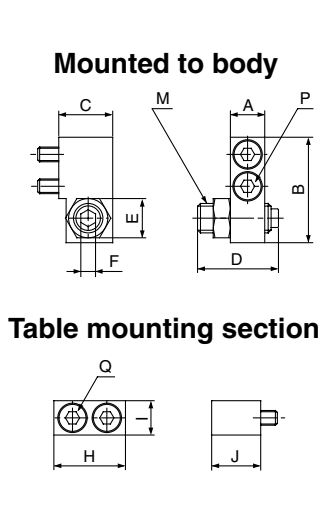
20-

Data

# Series MXS

## Option Specifications

### Dimensions of Stroke Adjuster at Extension End

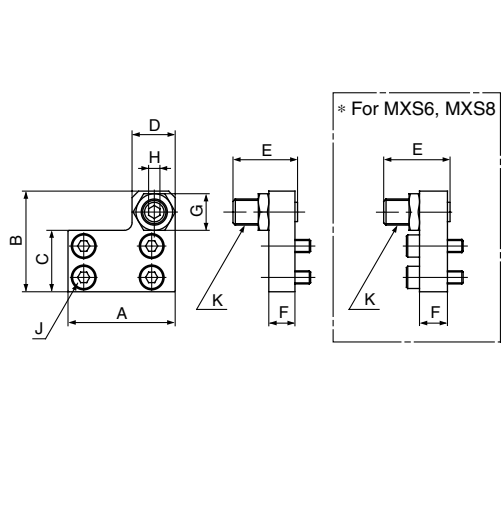


Applicable size	Model	Stroke adjustment range (mm)	Mounted to body								Table mounting section			
			A	B	C	D	E	F	M	P*	H	I	J	Q*
MXS6(L)	MXS-AS6(L)	5	6	17.8	10.5	16.5	7	2.5	M5 x 0.8	M2.5 x 10	12.5	6	8.5	M2.5 x 8
	MXS-AS6(L)-X11	15				26.5								
MXS8(L)	MXS-AS8(L)	5	7	21.5	11	16.5	8	3	M6 x 1	M3 x 12	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 in the symmetric type. Regarding the model no., refer to the model no. for stroke adjuster as shown below. External dimensions are the same as standard type.

### Dimensions of Stroke Adjuster at Retraction End

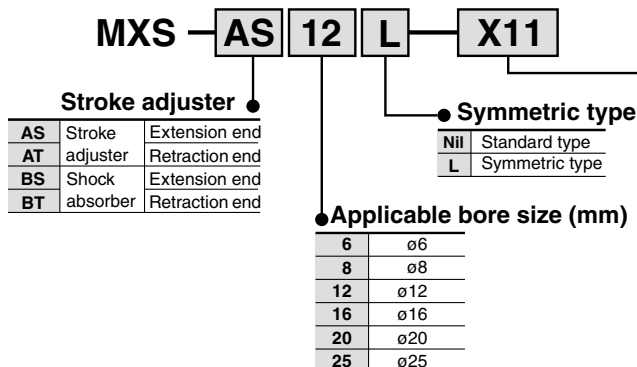


Applicable size	Model	Stroke adjustment range (mm)	A	B	C	D	E	F	G	H	J*1	K
			MXS6(L)	MXS-AT6(L)	5	21	19	10.5	8	16.5	5	7
MXS-AT6(L)-X11	15	26.5										
MXS8(L)	MXS-AT8(L)	5	25	22.5	12.5	9	16.5	6	8	3	M3 x 10	M6 x 1
	MXS-AT8(L)-X11	15					26.5					
	MXS-AT8(L)-X12	25					36.5					
MXS12(L)	MXS-AT12(L)	5	32	31	18.5	13	20	8	12	4	M4 x 8	M8 x 1
	MXS-AT12(L)-X11(L)	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-L11(L)	15					42.5					
	MXS-AT25-L12	25					52.5					

\* Size of hexagon socket head cap screw

It is also available in the symmetric type. Regarding the model no., refer to the model no. for stroke adjuster as shown below. External dimensions are the same as standard type.

### How to Order Stroke Adjuster (Accessory)



#### ● Adjustable range (Stroke adjuster only)

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

\* -X12 (adjustable range: 25 mm) is not available in Series MXS6.

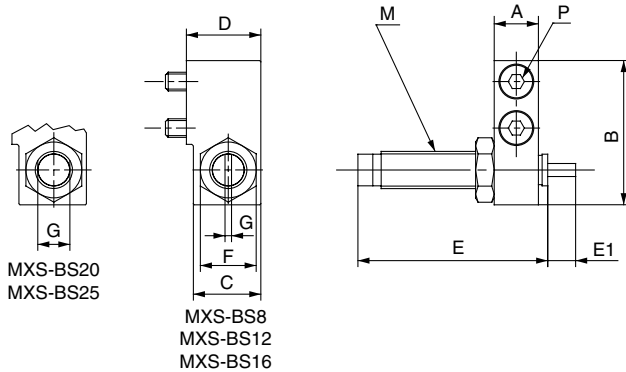
\* -X11 and -X12 are not available for shock absorber type.

\* W/ shock absorber is not available in Series MXS6.

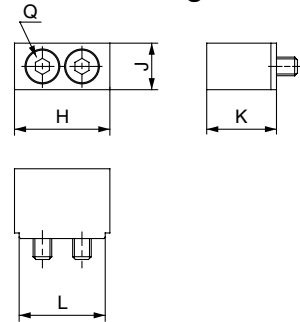
\* For dimensions, refer to the figure above. As for symmetric type, refer to the external dimensions symmetrically. (Adjusting bolt in symmetric type is equipped in reverse direction.)

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

### Mounted to body



### Table mounting section

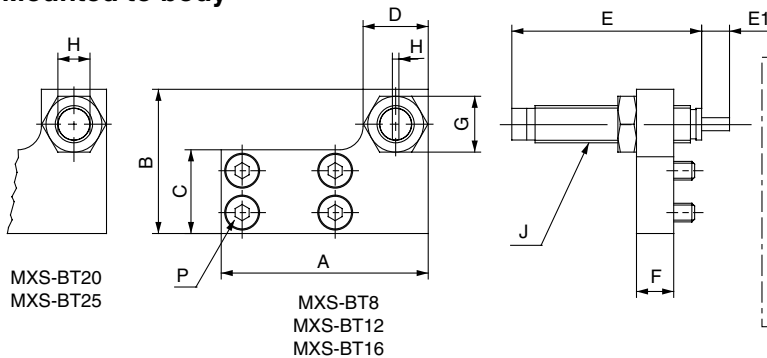


Applicable size	Model	Mounted to body										Table mounting section					
		A	B	C	D	E	E1	F	G	M	P*	H	J	K	L	Q*	
MXS8(L)	MXS-BS8(L)	7	23	14	15.5	40.8	5	12	1.4	M8 x 1	M3 x 16	16.6	7	15.5	14.6	M3 x 16	
MXS12(L)	MXS-BS12(L)	9.5	31	14.5	16	40.8	6	12	1.4	M8 x 1	M4 x 15	20.5	10	15	18.5	M4 x 15	
MXS16(L)	MXS-BS16(L)	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	
MXS20(L)	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	
MXS25(L)	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	

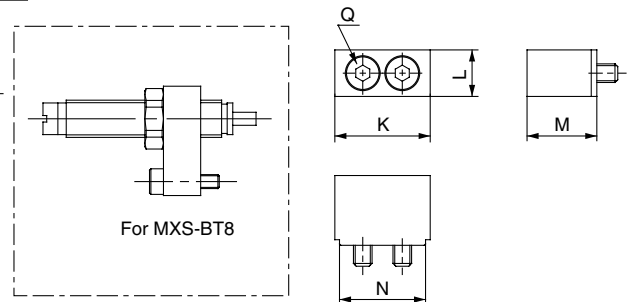
\* Size of hexagon socket head cap screw  
It is also available in the symmetric type. Regarding the model no., refer to the model no. for stroke adjuster as shown below.  
External dimensions are the same as standard type.

## Retraction End

### Mounted to body



### Table mounting section



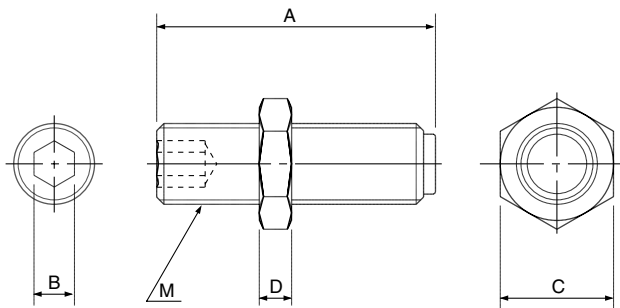
Applicable size	Model	Mounted to body										Table mounting section					
		A	B	C	D	E	E1	F	G	H	J	P*	K	L	M	N	Q*
MXS8(L)	MXS-BT8(L)	38	23	12.5	14	40.8	5	8	12	1.4	M8 x 1	M3 x 12	16.6	7	15.5	14.6	M3 x 16
MXS12(L)	MXS-BT12(L)	45	31	18	14	40.8	6	8	12	1.4	M8 x 1	M4 x 8	20.5	10	15	18.5	M4 x 15
MXS16(L)	MXS-BT16(L)	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
MXS20(L)	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
MXS25(L)	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 in the symmetric type. Regarding the model no., refer to the model no. for stroke adjuster as shown below.  
External dimensions are the same as standard type.

# Series MXS

## Option Specifications

### 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 (mm)

MXS6	ø6
MXS8	ø8
MXS12	ø12
MXS16	ø16
MXS20	ø20
MXS25	ø25

#### Adjustment range

Nil	5 mm
X11	15 mm
X12	25 mm

- \* -X12 (adjustable range: 25 mm) is not available in Series MXS6.
- \* 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

## 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 8-4-7.

## Buffer Mechanism Type 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 caution on handling the buffer, refer to page 8-4-7.

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

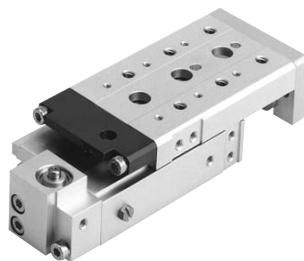
## Applicable Auto Switch to Buffer

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 buffer must be ordered separately.



With buffer mechanism



With end lock

MX□

MTS

MY□

CY□

MG□

CX□

D-

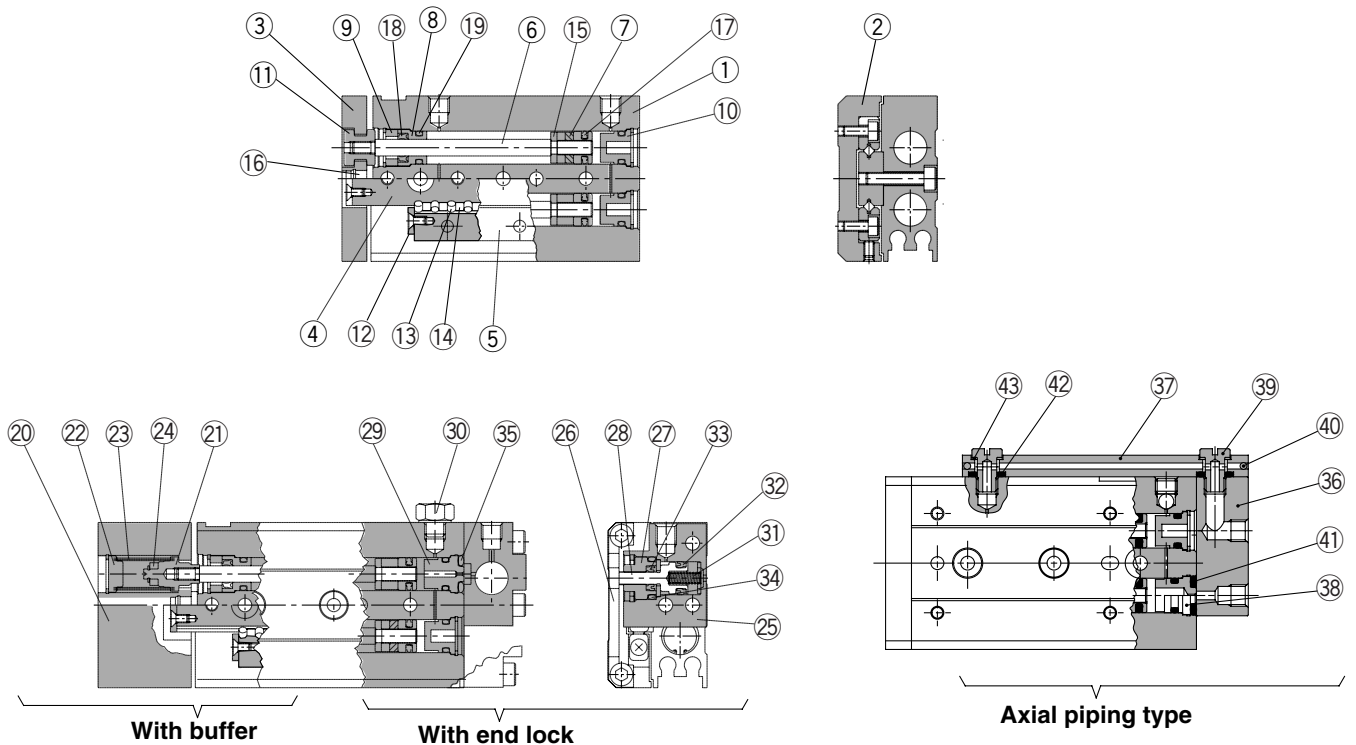
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20-

Data

# Series MXS

## Construction



### Component Parts

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

### Component Parts: With Buffer

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

### Replacement Parts: Seal Kit

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

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

Bore size (mm)	Kit no.	Contents
8	MXS8R-PS	Set of nos. above ⑰ to ⑲, ㉓ to ㉔.
12	MXS12R-PS	
16	MXS16R-PS	
20	MXS20R-PS	
25	MXS25R-PS	

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


Bore size (mm)	Kit no.	Contents
6	MXS6P-PS	Set of nos. above ⑰ to ⑲, ㉑ to ㉓.
8	MXS8P-PS	
12	MXS12P-PS	
16	MXS16P-PS	
20	MXS20P-PS	
25	MXS25P-PS	

### Component Parts: With End Lock

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

### Component Parts: Axial Piping Type

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

 \* Seal kit includes these seals to provide as a set. Order the seal kit, based on each bore size.

# Air Slide Table Symmetric Type Series **MXS□L**

ø6, ø8, ø12, ø16, ø20, ø25

## How to Order

Air slide table

**MXS 12 L - 50 AS - M9N S**

• Symmetric type

• Bore size (Stroke (mm))

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

• Adjuster option

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

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

• Number of auto switches

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

• Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

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



MX□

MTS

MY□

CY□

MG□

CX□

D-

-X

20-

Data

## Specifications

Specifications are the same as standard type. Refer to page 8-4-9.

## Applicable Auto Switch/Refer to page 8-30-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length *			Pre-wire connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	<b>A96V</b>	<b>A96</b>	●	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	<b>A93V</b>	<b>A93</b>	●	●	—	—	—	Relay, PLC
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				<b>M9PV</b>	<b>M9P</b>	●	●	○	○		
				2-wire				<b>M9BV</b>	<b>M9B</b>	●	●	○	○	—	
				3-wire (NPN)				<b>F9NWV</b>	<b>F9NW</b>	●	●	○	○	IC circuit	
				3-wire (PNP)				<b>F9PWV</b>	<b>F9PW</b>	●	●	○	○	—	
				2-wire				<b>F9BWV</b>	<b>F9BW</b>	●	●	○	○	—	

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9N      \* Solid state switches marked with "○" are produced upon receipt of order.  
3 m ..... L (Example) M9NL  
5 m ..... Z (Example) M9NZ

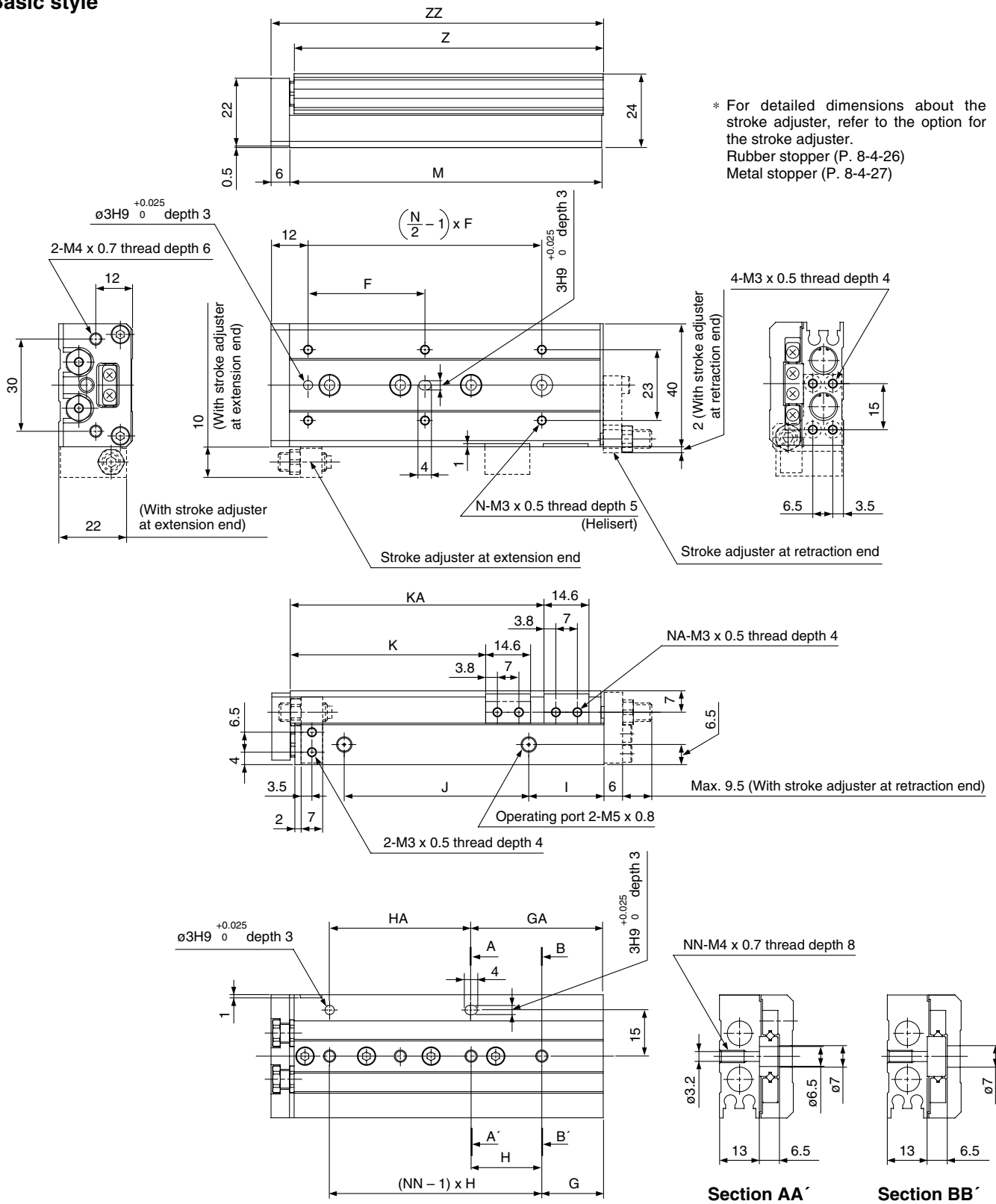
- Since there are other applicable auto switches than listed, refer to page 8-4-38 for details.
- For details about auto switches with pre-wire connector, refer to page 8-30-52.





## Dimensions: MXS8L/Symmetric Type

### Basic style



- MX□
- MTS
- MY□
- CY□
- MG□
- CX□
- D-
- X
- 20-
- Data

(mm)

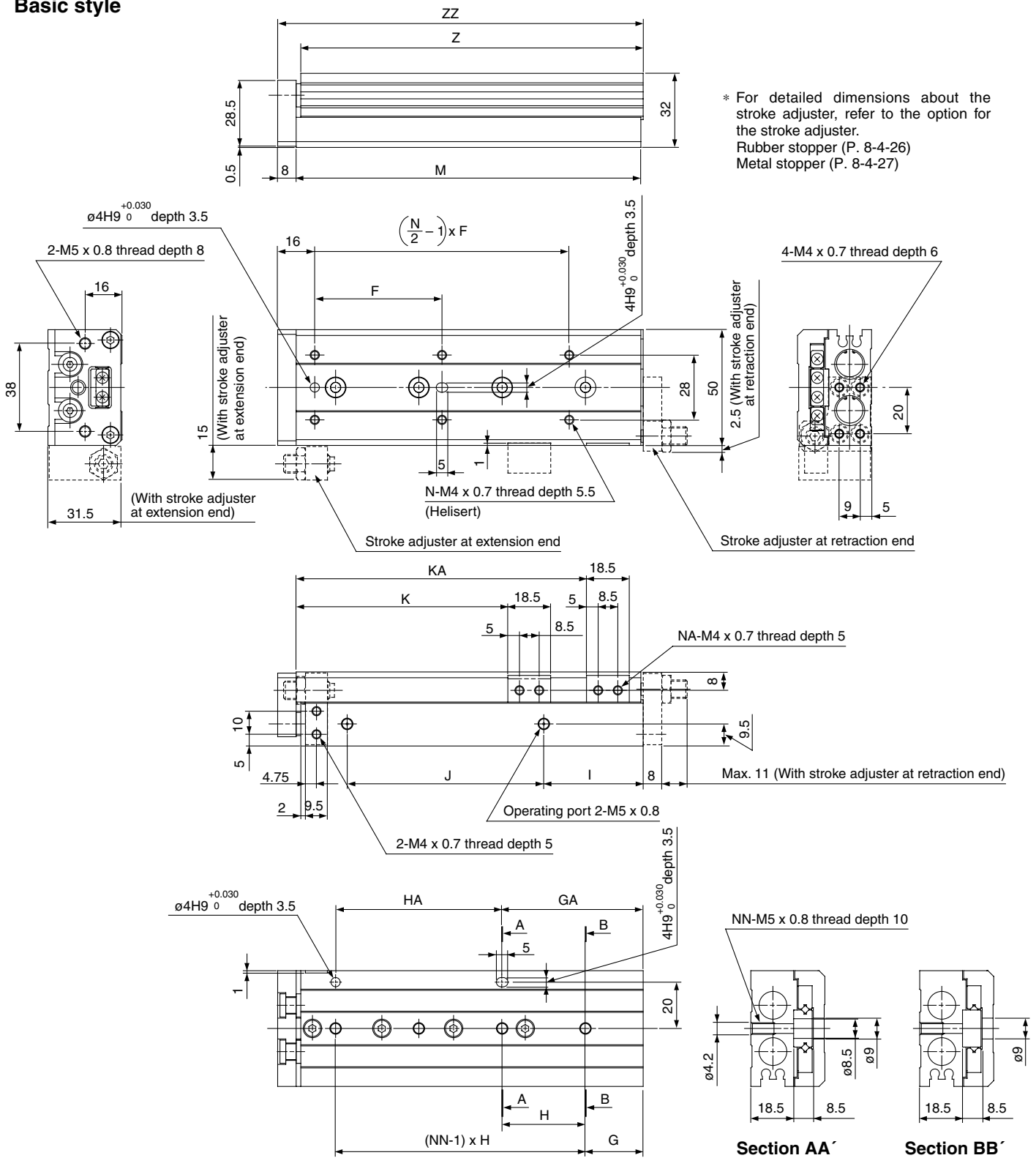
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS8L-10	25	4	9	28	2	17	20	13	19.5	23.5	—	2	49	48.5	56
MXS8L-20	25	4	12	30	2	12	30	8.5	29	33.5	—	2	54	53.5	61
MXS8L-30	40	4	13	20	3	33	20	9.5	39	43.5	—	2	65	64.5	72
MXS8L-40	50	4	15	28	3	43	28	10.5	56	53.5	—	2	83	82.5	90
MXS8L-50	38	6	20	23	4	43	46	24.5	60	63.5	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 shock absorber, refer to the external dimensions of MXS8 symmetrically on page 8-4-17.

# Series MXS

## Dimensions: MXS12L/Symmetric Type

### Basic style



\* For detailed dimensions about the stroke adjuster, refer to the option for the stroke adjuster.  
 Rubber stopper (P. 8-4-26)  
 Metal stopper (P. 8-4-27)

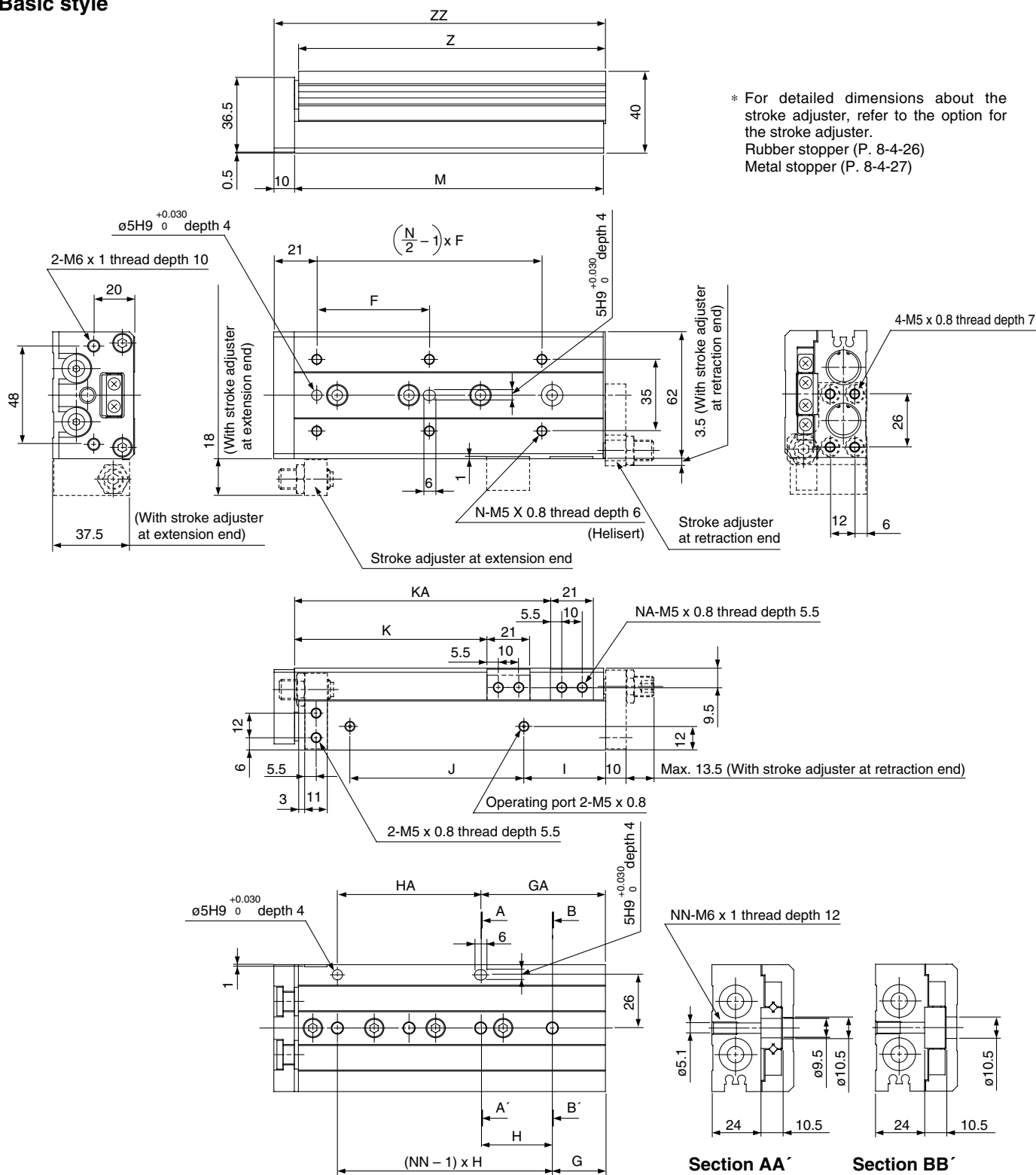
(mm)

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 shock absorber, refer to the external dimensions of MXS12 symmetrically on page 8-4-19.

## Dimensions: MXS16L/Symmetric Type

### Basic style



- MX□
- MTS
- MY□
- CY□
- MG□
- CX□
- D-
- X
- 20-
- Data

(mm)

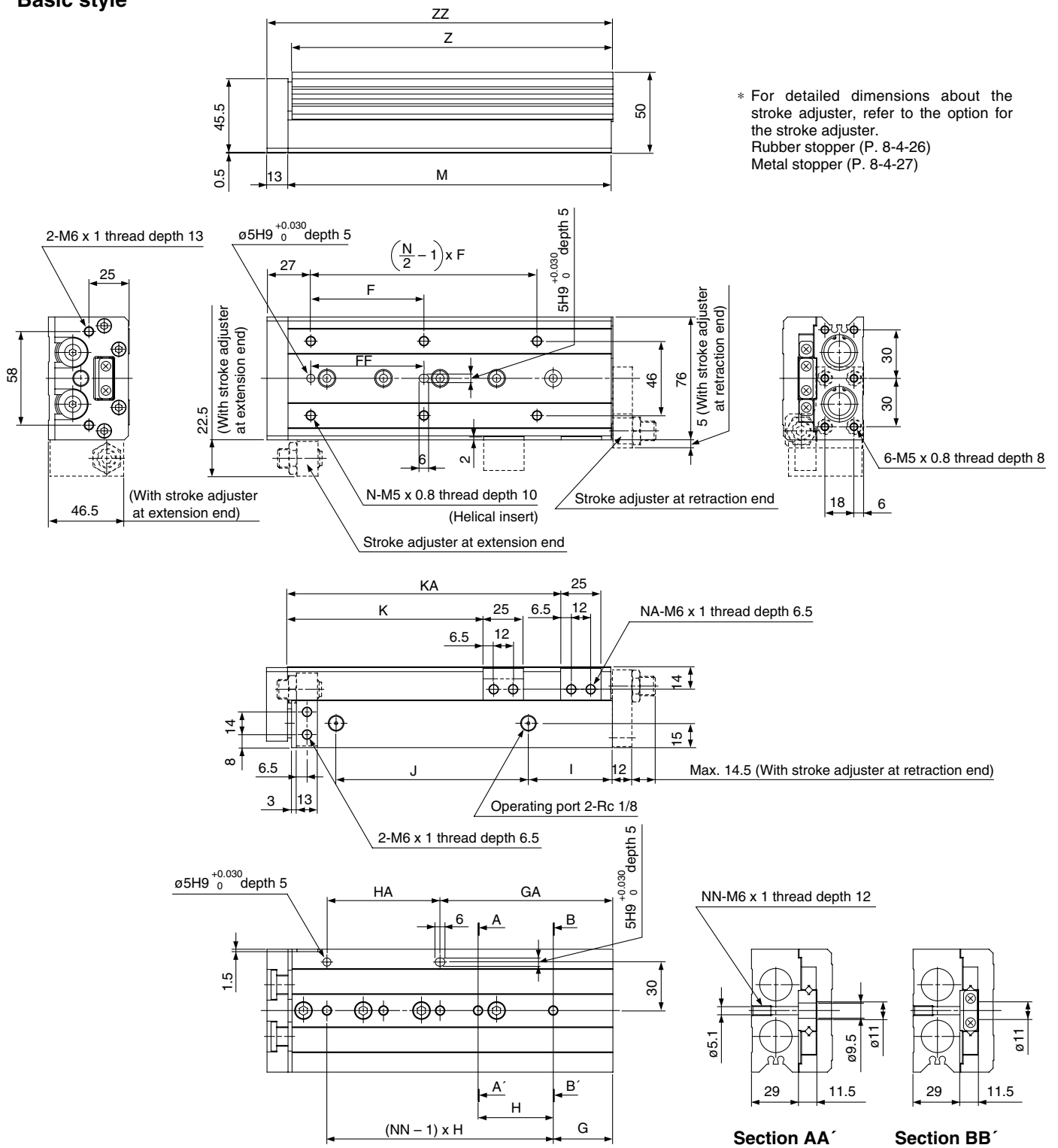
Model	F	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS16L-10	35	4	16	40	2	16	40	10	40	29	—	2	76	75	87
MXS16L-20	35	4	16	40	2	16	40	10	40	39	—	2	76	75	87
MXS16L-30	35	4	16	40	2	16	40	10	40	49	—	2	76	75	87
MXS16L-40	40	4	16	50	2	16	50	10	50	59	—	2	86	85	97
MXS16L-50	30	6	21	30	3	51	30	15	60	69	—	2	101	100	112
MXS16L-75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

Regarding the external dimensions with shock absorber, refer to the external dimensions of MXS16 symmetrically on page 8-4-21.

# Series MXS

## Dimensions: MXS20L/Symmetric Type

### Basic style

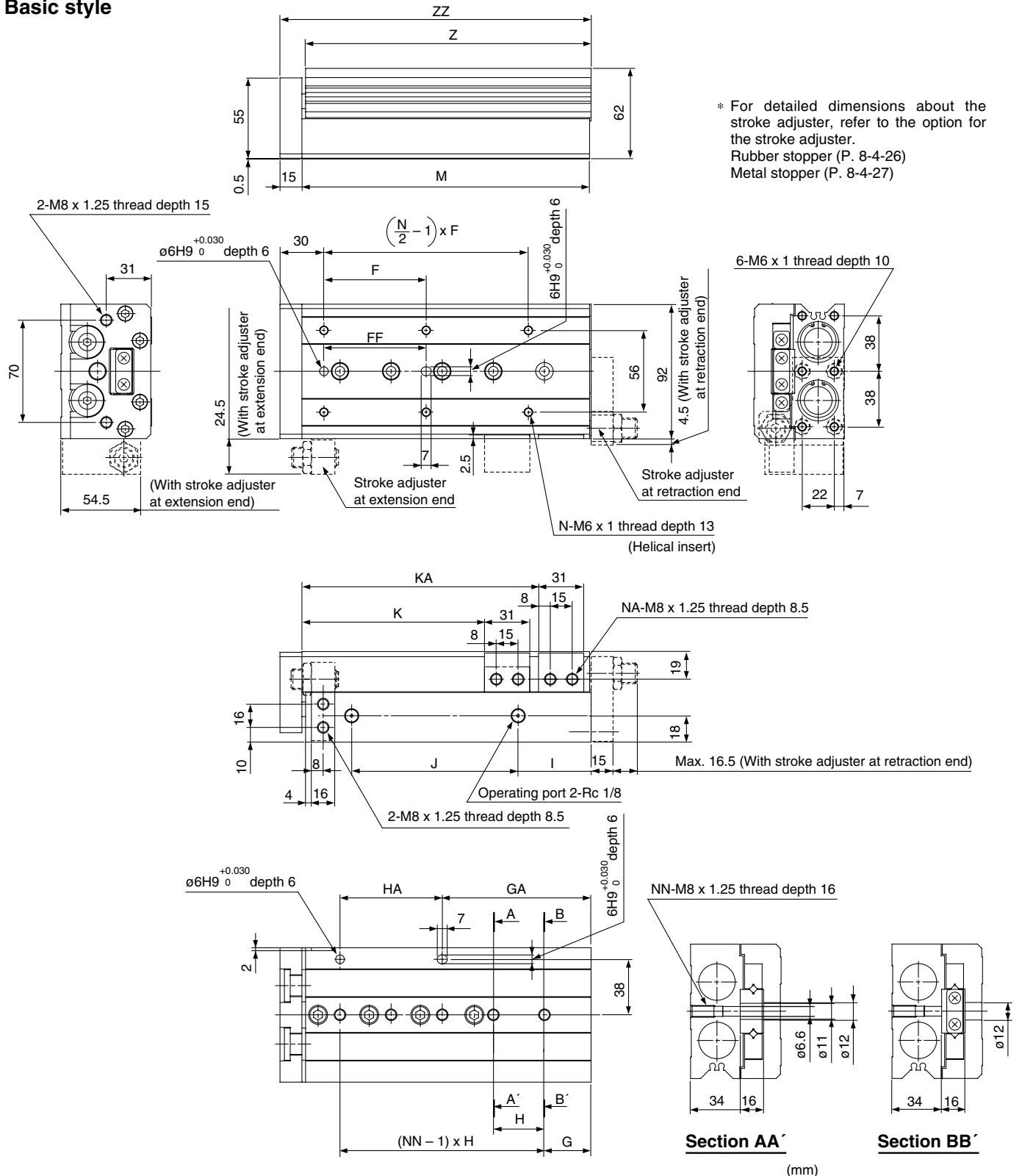


Model	F	FF	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS20L-10	50	40	4	15	45	2	25	35	10	44	31	—	2	83	81.5	97
MXS20L-20	50	40	4	15	45	2	25	35	10	44	41	—	2	83	81.5	97
MXS20L-30	50	40	4	15	45	2	25	35	10	44	51	—	2	83	81.5	97
MXS20L-40	60	50	4	15	55	2	35	35	10	54	61	—	2	93	91.5	107
MXS20L-50	35	35	6	15	35	3	50	35	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 shock absorber, refer to the external dimensions of MXS20 symmetrically on page 8-4-23.

## Dimensions: MXS25L/Symmetric Type

### Basic style



- MX□
- MTS
- MY□
- CY□
- MG□
- CX□
- D-
- X
- 20-
- Data

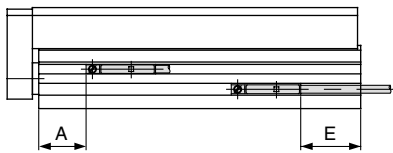
Model	F	FF	N	G	H	NN	GA	HA	I	J	K	KA	NA	M	Z	ZZ
MXS25L-10	50	40	4	22	45	2	22	45	12	47	35	—	2	92	90.5	108
MXS25L-20	50	40	4	22	45	2	22	45	12	47	45	—	2	92	90.5	108
MXS25L-30	50	40	4	22	45	2	22	45	12	47	55	—	2	92	90.5	108
MXS25L-40	60	50	4	22	55	2	22	55	12	57	65	—	2	102	100.5	118
MXS25L-50	35	35	6	20	35	3	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 shock absorber, refer to the external dimensions of MXS25 symmetrically on page 8-4-25.

# Series MXS

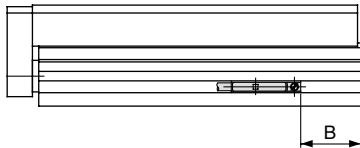
## Proper Auto Switch Mounting Position (Detection at stroke end)

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



Model	A	B										E									
		Stroke										Stroke									
		10	20	30	40	50	75	100	125	150	10	20	30	40	50	75	100	125	150		
<b>MXS6</b>	5.9	5.6	5.6	5.6	17.6	23.6	—	—	—	—	3.6 (1.1)	3.6 (1.1)	3.6 (1.1)	15.6 (13.1)	21.6 (19.1)	—	—	—	—		
<b>MXS8</b>	7.6	10.9	5.9	6.9	14.9	22.9	47.9	—	—	—	8.9 (6.4)	3.9 (1.4)	4.9 (2.4)	12.9 (10.4)	20.9 (18.4)	45.9 (43.4)	—	—	—		
<b>MXS12</b>	11.6	28.4	18.4	8.4	10.4	20.4	41.4	70.4	—	—	26.4 (23.9)	16.4 (13.9)	6.4 (3.9)	8.4 (5.9)	18.4 (15.9)	39.4 (36.9)	68.4 (65.9)	—	—		
<b>MXS16</b>	16.3	28.7	18.7	8.7	8.7	13.7	38.7	61.7	86.7	—	26.7 (24.2)	16.7 (14.2)	6.7 (4.2)	8.7 (6.2)	11.7 (9.2)	36.7 (34.2)	59.7 (57.2)	84.7 (82.2)	—		
<b>MXS20</b>	18.9	32.6	22.6	12.6	12.6	17.6	31.6	59.6	88.6	115.6	30.6 (28.1)	20.6 (18.1)	10.6 (8.1)	10.6 (8.1)	15.6 (13.1)	29.6 (27.1)	57.6 (55.1)	86.6 (84.1)	113.6 (111.1)		
<b>MXS25</b>	23	37.5	27.5	17.5	17.5	20.5	36.5	52.5	85.5	100.5	35.5 (33)	25.5 (23)	15.5 (13)	15.5 (13)	18.5 (16)	34.5 (32)	50.5 (48)	83.5 (81)	98.5 (96)		

\* ( ): Denotes D-A93.



### Solid State Switch: D-M9B, D-M9N, D-M9P, D-F9BW, D-F9NW, D-F9PW

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

### Solid State Switch: D-M9BV, D-M9NV, D-M9PV, D-F9BWV, D-F9NWV, D-F9PWV

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

## Mounting of Auto Switch

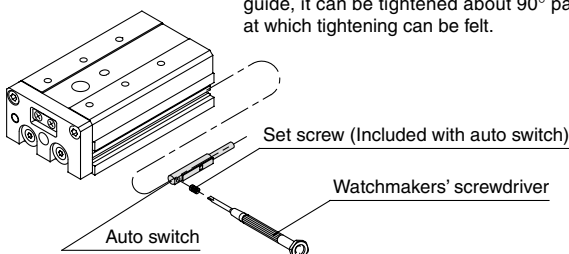
### ⚠ Caution

#### Auto Switch Mounting Tool

- When tightening the auto switch mounting screw (included with auto switch), use a watchmakers' screwdriver with a handle about 5 to 6 mm in diameter.

#### Tightening Torque

- Use a torque of approximately 0.05 to 0.1 N·m. As a guide, it can be tightened about 90° past the position at which tightening can be felt.



## Operating Range

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/F9□W/F9□WV</b>	2 (2)	2.5 (2)	3 (2.5)	4 (3)	6 (3.5)	6 (3.5)

Note) Figures in parentheses are the cases for D-M9□, D-M9□V switch types.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 8-30-1.

Type	Model	Electrical entry (Fetching direction)	Features
Reed switch	D-A90	Grommet (In-line)	Without indicator light
	D-A90V	Grommet (Perpendicular)	

\* Normally closed (NC = b contact), solid state switch (D-F9G/F9H type) are also available. For details, refer to page 8-30-31.