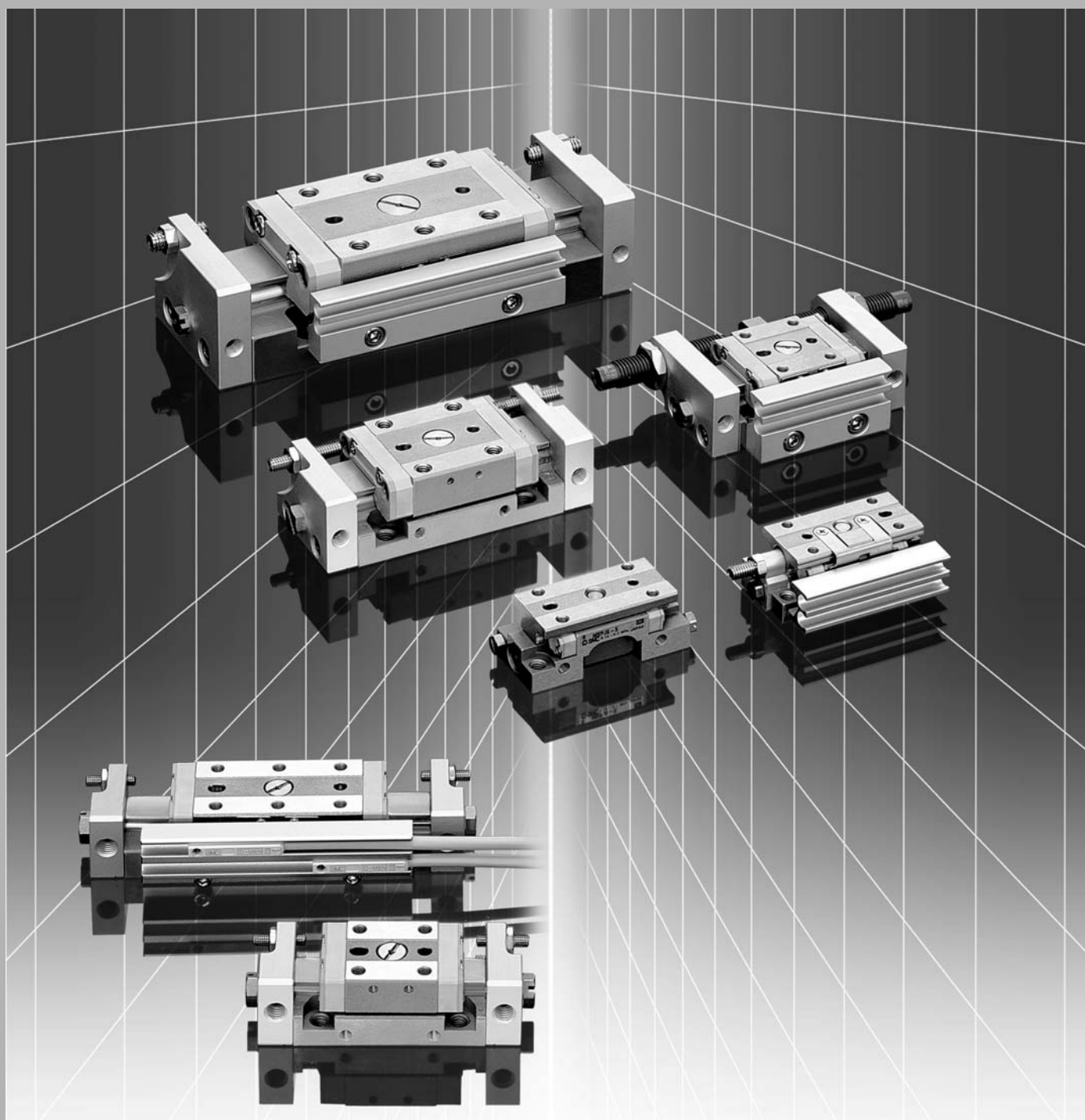


# Air Slide Table

## Series MXP

ø6, ø8, ø10, ø12, ø16



MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

**MXP**

MXY

MTS

D-□

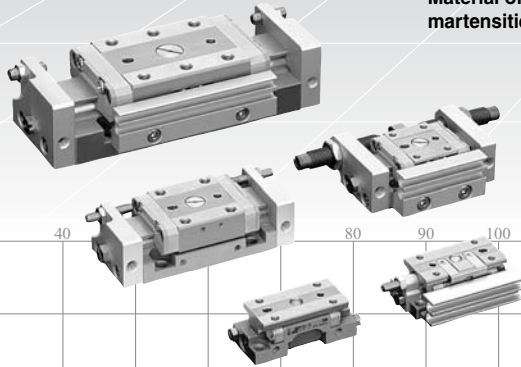
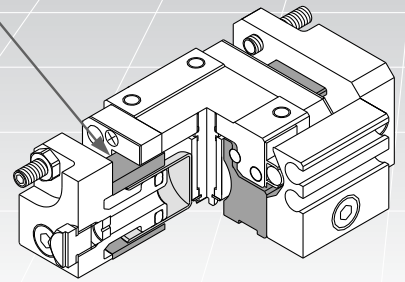
-X□

Individual  
-X□

# Cylinder: Built-in Linear Guide

## High rigidity, High precision

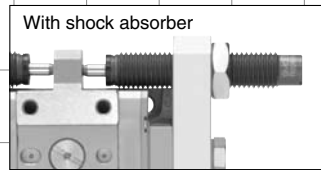
Cylinder is built into the rail of the linear guide.  
Material of body and guide block is martensitic stainless steel.



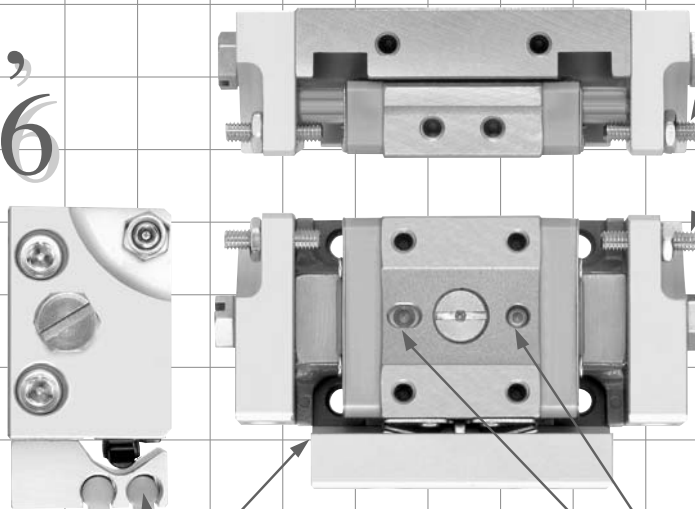
## Stroke adjuster

Three types (rubber stopper, metal stopper, shock absorber) are available.

With shock absorber



MXP  
8,10,  
12,16



## Auto switch attachable

Switch rail and magnet (Standard)  
Without switch rail and magnet are optional.

Without switch rail and magnet



## Highly flexible piping methods

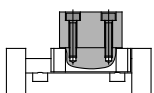
Piping possible in two directions:  
vertical or lateral.

## Positioning pinhole

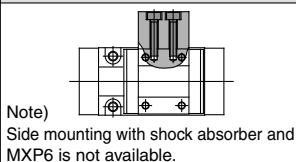
Job performance is improved  
during maintenance.

## Work mounting tap

### ① Tapped on table top



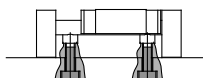
### ② Tapped on table side



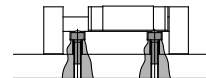
## Highly flexible mounting direction

Mounting from 3 directions.

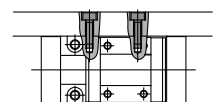
### ① Body tapped



### ② Body through-hole



### ③ Tapped on body side



Note) Side mounting of MXP6 is not available.

# Compact Air Slide Table

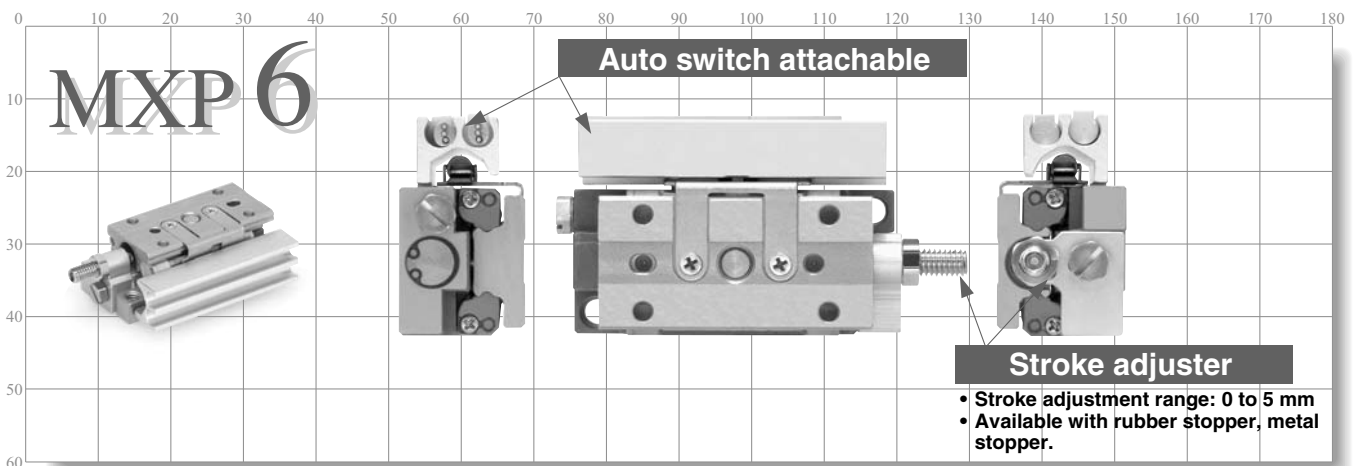
Travelling parallelism\*: **0.004 mm**  
 Parallelism: **0.02 mm**

\* Refer to page 197 for details of the traveling parallelism.

Numerous auto switch variations available

Reed switch, solid state switch, and 2-color indication solid state auto switch can be mounted.

## With auto switches and stroke adjuster

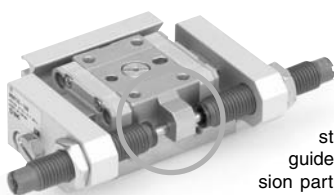


- Stroke adjustment range: 0 to 5 mm
- Available with rubber stopper, metal stopper.

Series	Stroke (mm)						Stroke adjuster			Auto switch
	5	10	15	20	25	30	Rubber stopper	Metal stopper	Shock absorber	
MXP6	●	●					●	●	●	●
MXP8		●	●				●	●	●	●
MXP10			●	●			●	●	●	●
MXP12				●	●		●	●	●	●
MXP16					●	●	●	●	●	●

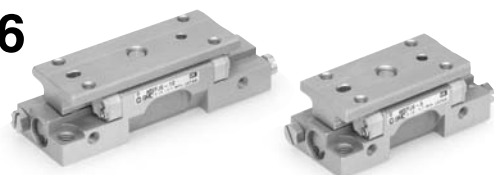
## With shock absorber

Twice the allowable kinetic energy of a rubber stopper



Stopping accuracy is stable, because the guide block and the collision part of a shock absorber are one-piece construction.

## MXPJ6



Compact: Height 17 x Width 20

Compact shape is realized by the cylinder built into the linear guide block. Material of body and table is martensitic stainless steel.

Highly flexible piping methods

Piping possible in two directions: vertical or lateral.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

**MXP**

MXY

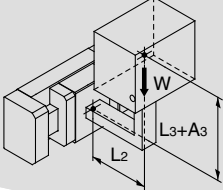
MTS

D-□

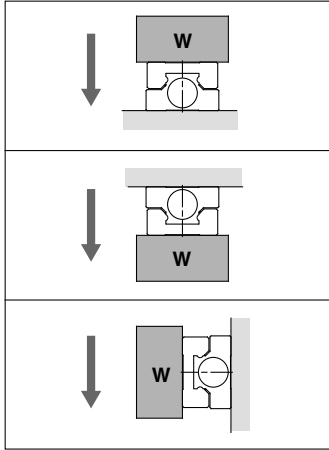
-X□

Individual  
-X□

# Series MXP Model Selection

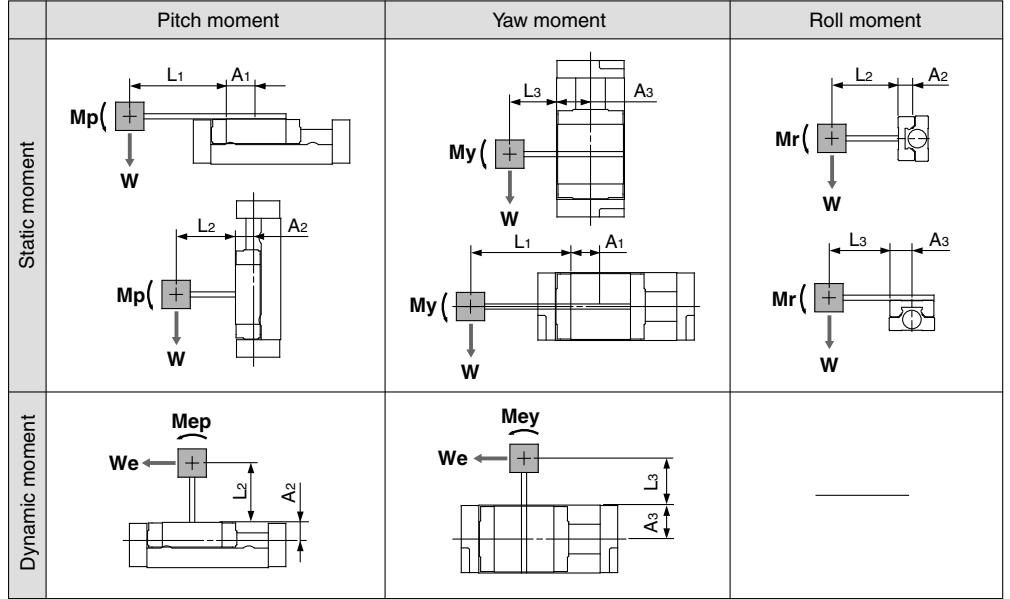
Model Selection Steps	Formula/Data	Selection Example
<b>1 Operating Conditions</b> Enumerate the operating conditions considering the mounting position and workpiece configuration.	<ul style="list-style-type: none"> <li>Model to be used</li> <li>Mounting orientation</li> <li>Average speed <math>V_a</math> (mm/s)</li> <li>Load mass <math>W</math> (kg): <b>Fig. (1)</b></li> <li>Overhang <math>L_n</math> (mm): <b>Fig. (2)</b></li> </ul>	 <p>Cylinder: MXP10-10            Mounting: Horizontal wall mounting            Average speed:  <math>V_a = 300</math> [mm/s]            Load mass: <math>W = 0.2</math> [kg]  <math>L_2 = 20</math> mm  <math>L_3 = 30</math> mm</p>
<b>2 Kinetic Energy</b> Find the kinetic energy $E$ (J) of the load.  Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.	$E = \frac{1}{2} \cdot W \left( \frac{V}{1000} \right)^2$ <p>Collision speed <math>V = 1.4 \cdot V_a</math> * Correction factor</p> <p>Kinetic energy (<math>E</math>) &lt; Allowable kinetic energy (<math>E_{max}</math>)            Allowable kinetic energy <math>E_{max}</math>: <b>Table (1)</b></p>	$E = \frac{1}{2} \cdot 0.2 \left( \frac{420}{1000} \right)^2 = 0.018$ $V = 1.4 \times 300 = 420$ <p>Possible to use by <math>E = 0.018 &lt; E_{max} = 0.045</math></p>
<b>3 Load Factor</b>	<b>3-1 Load Factor of Load Mass</b>	
Find the allowable load mass $W_a$ (kg). Note) No need to consider this load factor in the case of using perpendicularly in a vertical position. (Define $\alpha_1 = 0$ ).  Find the load factor of the load mass $\alpha_1$ .	$W_a = \beta \cdot W_{max}$ <p>Allowable load mass coefficient <math>\beta</math>: <b>Graph (1)</b>            Max. allowable load mass <math>W_{max}</math>: <b>Table (2)</b></p> $\alpha_1 = W/W_a$	$W_a = 1 \times 1.2 = 1.2$ $\beta = 1$ $W_{max} = 1.2$ $\alpha_1 = 0.2/1.2 = 0.17$
<b>3-2 Load Factor of Static Moment</b>	<b>3-2 Load Factor of Static Moment</b>	
Find the static moment $M$ (N·m).  Find the allowable static moment $M_a$ (N·m).  Find the load factor $\alpha_2$ of the static moment.	$M = W \times 9.8 (L_n + A_n)/1000$ <p>Moment center position distance compensation amount <math>A_n</math>: <b>Table (3)</b></p> $M_a = \gamma \cdot M_{max}$ <p>Allowable moment coefficient <math>\gamma</math>: <b>Graph (2)</b>            Maximum allowable moment <math>M_{max}</math>: <b>Table (4)</b></p> $\alpha_2 = M/M_a$	<p>Examine <math>M_r</math>.            [As <math>M_p</math> and <math>M_y</math> does not arise, examination is not needed.]</p> $M_r = 0.2 \times 9.8 (20 + 6.8)/1000 = 0.053$ $A_2 = 6.8$ $M_{ar} = 1 \times 4.2 = 4.2$ $\gamma = 1$ $M_{rmax} = 4.2$ $\alpha_2 = 0.053/4.2 = 0.013$
<b>3-3 Load Factor of Dynamic Moment</b>	<b>3-3 Load Factor of Dynamic Moment</b>	
Find the dynamic moment $M_e$ (N·m).  Find the allowable dynamic moment $M_{ea}$ (N·m).  Find the load factor $\alpha_3$ of the dynamic moment.	$M_e = 1/3 \cdot W_e \times 9.8 \frac{(L_n + A_n)}{1000}$ <p>Load equivalent to collision <math>W_e = \delta \cdot W \cdot V</math>  <math>\delta</math>: Damper coefficient            Rubber stopper = 4/100            Shock absorber = 1/100            Metal stopper = 16/100            Corrected value for moment center position distance <math>A_n</math>: <b>Table (3)</b></p> $M_{ea} = \gamma \cdot M_{max}$ <p>Allowable moment coefficient <math>\gamma</math>: <b>Graph (2)</b>            Max. allowable moment <math>M_{max}</math>: <b>Table (4)</b></p> $\alpha_3 = M_e/M_{ea}$	<p>Examine <math>M_{ep}</math>.</p> $M_{ep} = 1/3 \times 3.36 \times 9.8 \times \frac{(20 + 6.8)}{1000} = 0.29$ $W_e = 4/100 \times 0.2 \times 420 = 3.36$ $A_2 = 6.8$ $M_{eap} = 0.7 \times 1.7 = 1.19$ $\gamma = 0.7$ $M_{pmax} = 1.7$ $\alpha_3 = 0.29/1.19 = 0.24$ <p>Examine <math>M_{ey}</math>.</p> $M_{ey} = 1/3 \times 3.36 \times 9.8 \times \frac{(30 + 10.5)}{1000} = 0.44$ $W_e = 33.6$ $A_1 = 10.5$ $M_{eay} = 1.19$ (Same as $M_{eap}$ ) $\alpha_3 = 0.44/1.19 = 0.37$
<b>3-4 Sum of the Load Factors</b>	<b>3-4 Sum of the Load Factors</b>	
Use is possible if the sum of the load factors does not exceed 1.	$\alpha_1 + \alpha_2 + \alpha_3 < 1$	<p>Can be used based on  <math>\alpha_1 + \alpha_2 + \alpha_3 + \alpha_3 = 0.17 + 0.013 + 0.24 + 0.37 = 0.79 &lt; 1</math></p>

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



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

**Fig. (2) Overhang: Ln (mm), Correction Values for Moment Center Distance: An (mm)**



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

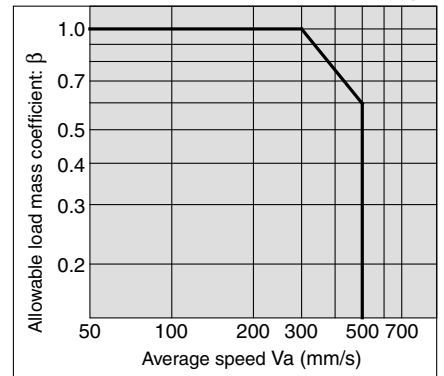
**Table (1) Allowable Kinetic Energy: Emax (J)**

Model	Allowable kinetic energy		
	Rubber stopper	Shock absorber	Metal stopper
<b>MXPJ6</b>	0.010	—	—
<b>MXP 6</b>	0.010	—	0.005
<b>MXP 8</b>	0.033	—	0.017
<b>MXP10</b>	0.045	0.090	0.023
<b>MXP12</b>	0.076	0.152	0.038
<b>MXP16</b>	0.135	0.270	0.068

**Table (2) Max. Allowable Load Mass: Wmax (kg)**

Model	Maximum allowable load
<b>MXPJ6</b>	0.32
<b>MXP 6</b>	
<b>MXP 8</b>	0.75
<b>MXP10</b>	1.2
<b>MXP12</b>	1.7
<b>MXP16</b>	3

**Graph (1) Allowable Load Mass Coefficient: β**



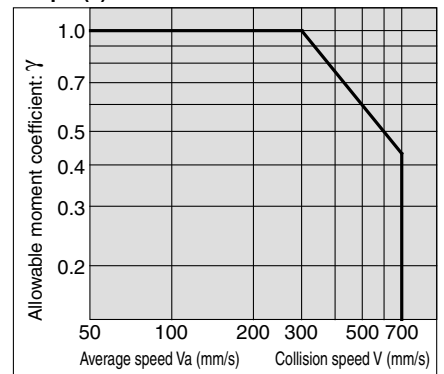
**Table (3) Moment Center Position Distance Compensation Amount: An (mm)**

Model	Stroke	Moment center position distance compensation amount (Refer to Fig. (2).)		
		A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>
<b>MXPJ6</b> <b>MXP 6</b>	5	18.5	5.3	9
	10	23.5		
<b>MXP 8</b>	10	10.5	7.4	11
	20	20.5		
<b>MXP10</b>	10	10.5	6.8	13.5
	20	19.5		
<b>MXP12</b>	15	14.5	8	16
	25	24.5		
<b>MXP16</b>	20	20	12.5	23
	30	28		

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

Model	Pitch/Yaw moment: M <sub>pmax</sub> /M <sub>ymax</sub>						Roll moment: M <sub>rmax</sub>					
	Stroke (mm)						Stroke (mm)					
	5	10	15	20	25	30	5	10	15	20	25	30
<b>MXPJ6</b>	1.4	2.3	—	—	—	—	2.6	3.5	—	—	—	—
<b>MXP 6</b>												
<b>MXP 8</b>	—	1.4	—	5.7	—	—	—	2.6	—	5.6	—	—
<b>MXP10</b>	—	1.7	—	6.3	—	—	—	4.2	—	8.5	—	—
<b>MXP12</b>	—	—	4.5	—	13	—	—	—	9.8	—	17	—
<b>MXP16</b>	—	—	—	12	—	28	—	—	—	26	—	41

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



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

## Symbol

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

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

- D-
- X
- Individual
- X

# Air Slide Table

## Series MXP

ø6, ø8, ø10, ø12, ø16

### How to Order

**Precision Air Slide Table** **MXP 12 - 15 - M9BW**

**Bore size/Standard stroke (mm)**

6	5, 10
8	10, 20
10	10, 20
12	15, 25
16	20, 30

**Adjuster option**

Symbol	Adjuster option
Nil	Rubber stopper
B	Shock absorber
C	Metal stopper

**Number of auto switches**

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

**Auto switch**

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

**Magnet/Switch rail**

Nil	With magnet and rail
N	Without magnet and rail

**Made to Order**  
For details, refer to page 195.

\* In the case of MXP6-5, with 2 auto switches are available for D-M9□ type and D-M9□V type only. For other switches, no other choice is affordable but with 1 piece attached (symbol: S).

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

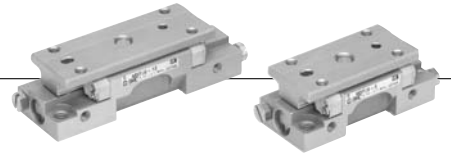
\* Auto switch cannot be mounted on type N (without magnet and rail).

Note 1) Adjuster for Series MXP6 is available for one side only.  
Note 2) Shock absorber is not available in Series MXP6 and MXP8.  
Note 3) Stroke adjusting screw of metal stopper uses stainless steel 304.  
For heat treated specifications, refer to "Made to Order Specifications".

**Applicable Auto Switch/Refer to pages 1719 to 1827 for further information on auto switches.**

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

- \* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW  
1 m..... M (Example) M9NWM  
3 m..... L (Example) M9NWL  
5 m..... Z (Example) M9NWZ
- \* Solid state auto switches marked with "○" are produced upon receipt of order.
- \* Since there are other applicable auto switches than listed, refer to page 209 for details.  
\* For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.  
\* Auto switches are shipped together (not assembled).



## MXPJ6/Air Slide Table ø6

### How to Order

**Air Slide Table MXPJ6 - 10**

**Standard stroke**

5	5 mm
10	10 mm

\* MXPJ6 with auto switch is not available.

### Specifications

Bore size (mm)	6
Piping port size	M3 x 0.5
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
Lubrication	Non-lube
Stroke length tolerance	+ $\frac{1}{0}$ mm

### Theoretical Output

Bore size (mm)	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)					
		0.2	0.3	0.4	0.5	0.6	0.7
6	28	6	8	11	14	17	20

### Stroke

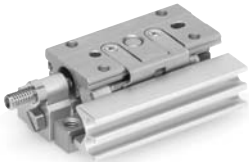
Model	Standard stroke (mm)
MXPJ6	5, 10

### Mass

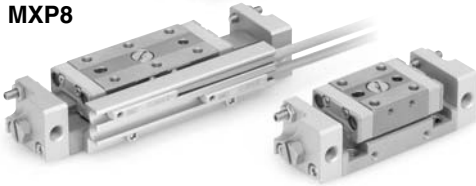
Model	Body mass (g)
MXPJ6-5	80
MXPJ6-10	105



**MXP6**



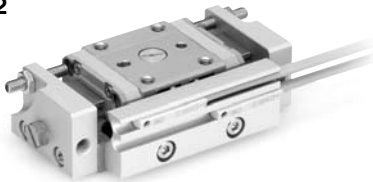
**MXP8**



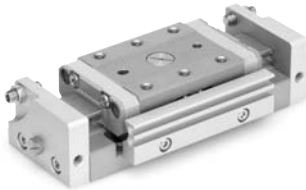
**MXP10**



**MXP12**



**MXP16**



**With Shock Absorber**



\* Exclusive body is to be used for the one with shock absorber.  
Changing specifications, such as replacing component parts and retrofitting shock absorber is not possible.



**Made to Order Specifications**  
(For details, refer to pages 1955 to 2021.)

Symbol	Specifications
-X7	PTFE grease
-X9	Grease for food
-X16	Heat treated metal stopper bolt specification
-X23	Axial piping port set screw specification
-X39	Fluororubber seal
-X42	Anti-rust guide specification
-X45	EPDM seal
-X51	Long adjustment nut specification

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

## Specifications

Model		MXP6	MXP8	MXP10	MXP12	MXP16
<b>Bore size (mm)</b>		6	8	10	12	16
<b>Piping port size</b>		M3 x 0.5	M5 x 0.8			
<b>Fluid</b>		Air				
<b>Action</b>		Double acting				
<b>Operating pressure</b>		0.15 to 0.7 MPa				
<b>Proof pressure</b>		1.05 MPa				
<b>Ambient and fluid temperature</b>		-10 to 60°C				
<b>Piston speed</b>		50 to 500 mm/s (Adjuster option/Metal stopper: 50 to 200 mm/s)				
<b>Cushion</b>		Rubber bumper Shock absorber (Option is not available for Series MXP6 and MXP8) None (Adjuster option/Metal stopper)				
<b>Lubrication</b>		Non-lube				
<b>Stroke adjuster</b>		Standard equipment (Adjustable on one side only, for the MXP6)				
<b>Stroke adjustment range</b>	<b>Rubber stopper</b>	0 to 5 mm on one side only		Each 0 to 3 mm on both ends		
	<b>Shock absorber</b>	—		Each 0 to 5 mm on both ends		
	<b>Metal stopper</b>	0 to 6 mm on one side only	Each 0 to 5 mm on both ends		Each 0 to 4 mm on both ends	
<b>Auto switch</b>		Reed auto switch (2-wire, 3-wire) Solid state auto switch (2-wire, 3-wire) 2-color indication solid state auto switch (2-wire, 3-wire)				
<b>Stroke length tolerance</b>		+ <sub>0</sub> mm				

## Theoretical Output

Bore size (mm)	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)					
		0.2	0.3	0.4	0.5	0.6	0.7
6	28	6	8	11	14	17	20
8	50	10	15	20	25	30	35
10	79	16	24	32	40	47	55
12	113	23	34	45	57	68	79
16	201	40	60	80	101	121	141

## Standard Stroke

Model	Standard stroke (mm)
MXP6	5, 10
MXP8	10, 20
MXP10	10, 20
MXP12	15, 25
MXP16	20, 30

## Mass

Model	Body mass (g)	Additional mass of magnet and rail (g)
MXP6-5	80	10
MXP6-10	105	10
MXP8-10	100	8
MXP8-20	160	12
MXP10-10	130	13
MXP10-20	210	20
MXP12-15	210	17
MXP12-25	320	23
MXP16-20	640	20
MXP16-30	830	23

## Shock Absorber Specifications

Shock absorber model	RB0805	RB0806
Applicable slide table	MXP10/12	MXP16
Max. energy absorption (J)	0.98	2.94
Stroke absorption (mm)	5	6
Max. collision speed (mm/s)	50 to 500	
Max. operating frequency (cycle/min)	80	80
Max. allowable thrust (N)	245	245
Ambient temperature range (°C)	-10 to 60	
Spring force (N)	Extended	1.96
	Retracted	3.83
Mass (g)	15	15

\* The shock absorber service life is different from that of the MXP cylinder depending on the operating conditions. Refer to the Series RB Specific Product Precautions for the replacement period.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□

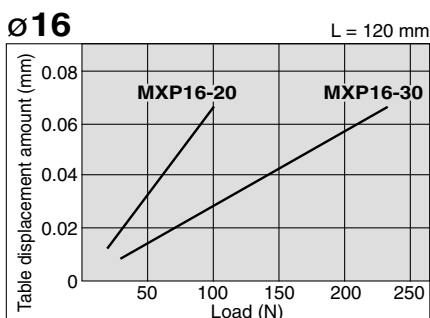
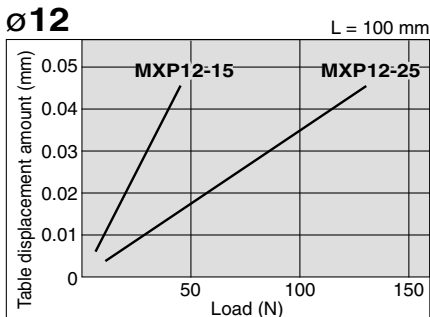
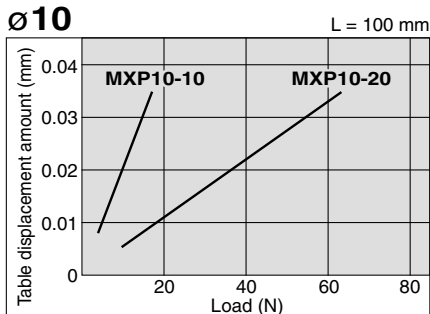
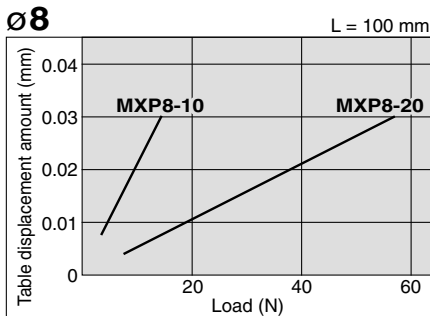
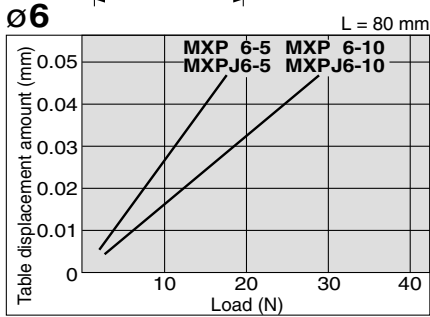
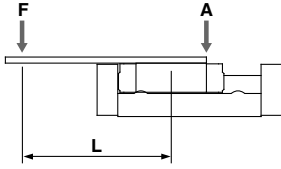
Individual -X□

## Table Deflection (Reference Values)

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.

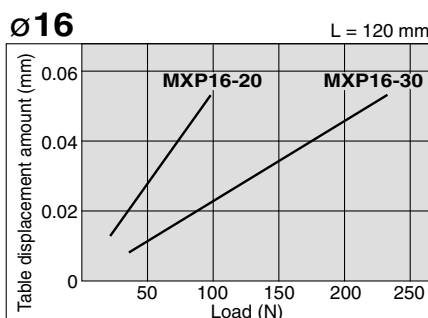
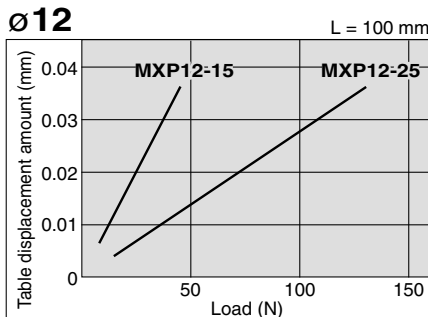
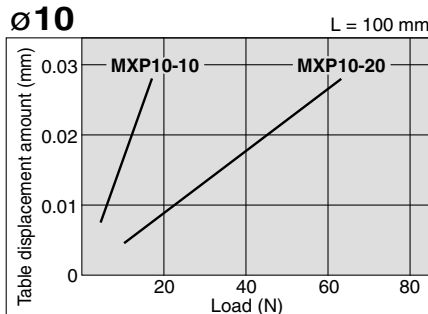
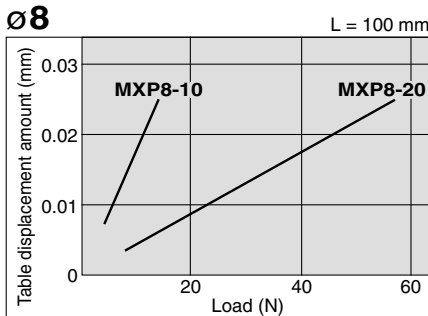
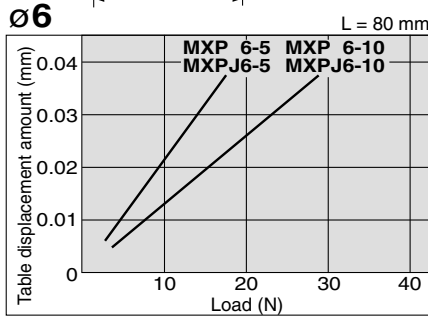
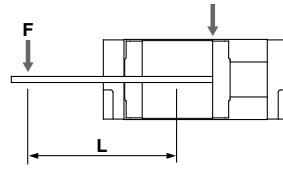
### Table displacement due to pitch moment load

Displacement on A when load is applied on F.



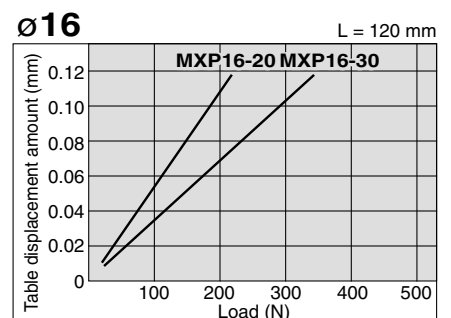
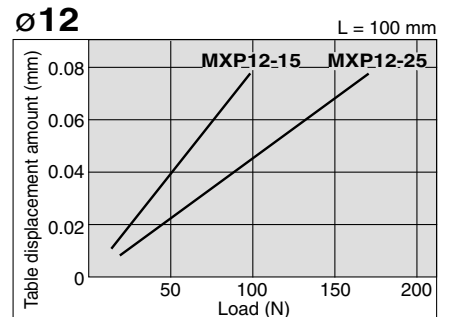
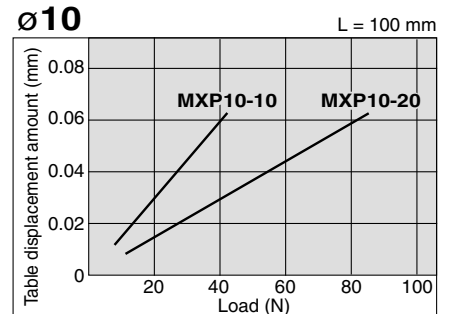
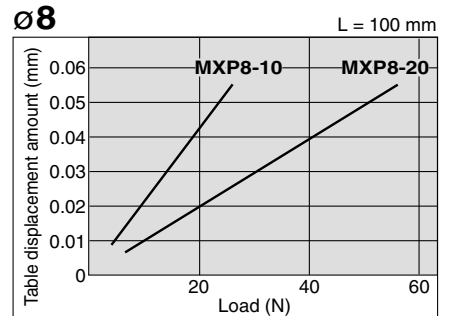
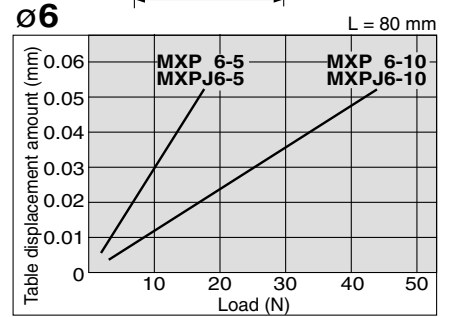
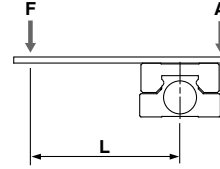
### Table displacement due to yaw moment load

Displacement on A when load is applied on F.



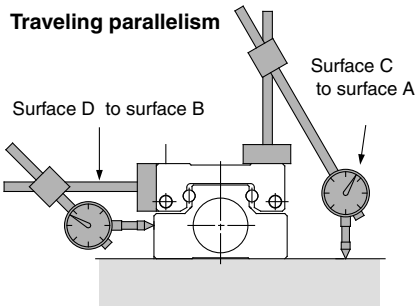
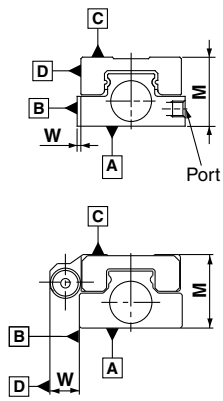
### Table displacement due to roll moment load

Displacement on A when load is applied on F.

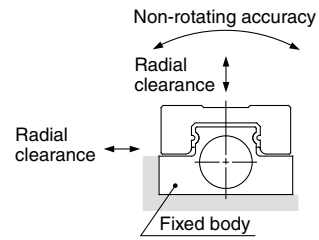




## Table Accuracy



The amount of deflection on a dial gauge when the guide block travels a full stroke with the body secured on a reference base surface.



Model	MXPJ6	MXP6	MXP8	MXP10	MXP12	MXP16
Radial clearance (μm)	0 to -2	0 to -2	0 to -3	0 to -3	0 to -5	0 to -7
Table non-rotating accuracy (deg)	±0.03	±0.03	±0.03	±0.03	±0.04	±0.04

With shock absorber

(mm)

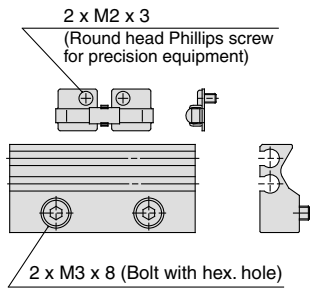
Model	MXPJ6	MXP6	MXP8	MXP10	MXP12	MXP16
Parallelism	Surface C to surface A	0.02				
	Surface D to surface B	0.02				
Traveling parallelism	Surface C to surface A	0.004				
	Surface D to surface B	0.004				
M dimension tolerance	±0.05					
W dimension tolerance	±0.05					

## Option Specifications

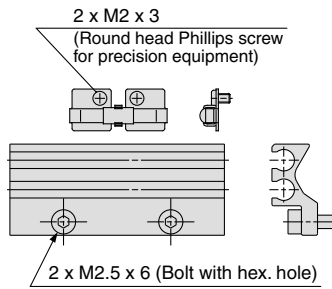
### Rail assembly for mounting auto switch

When auto switch is mounted on air slide table without rail (MXP□-□N), this assembly is used.

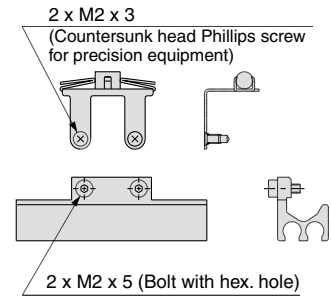
### Dimensions



MXP10, 12, 16



MXP8



MXP6

Applicable size	Switch rail part no.	Note
MXP6-5	MXP-AD6-5	With magnet and mounting screw
MXP6-10		
MXP8-10	MXP-AD8-10	
MXP8-20	MXP-AD8-20	
MXP10-10	MXP-AD10-10	
MXP10-20	MXP-AD10-20	
MXP12-15	MXP-AD12-15	
MXP12-25	MXP-AD12-25	
MXP16-20	MXP-AD10-20	
MXP16-30	MXP-AD12-25	

Note) MXP16-20 and MXP10-20 are common.  
MXP16-30 and MXP12-25 are common.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

**MXP**

MXY

MTS

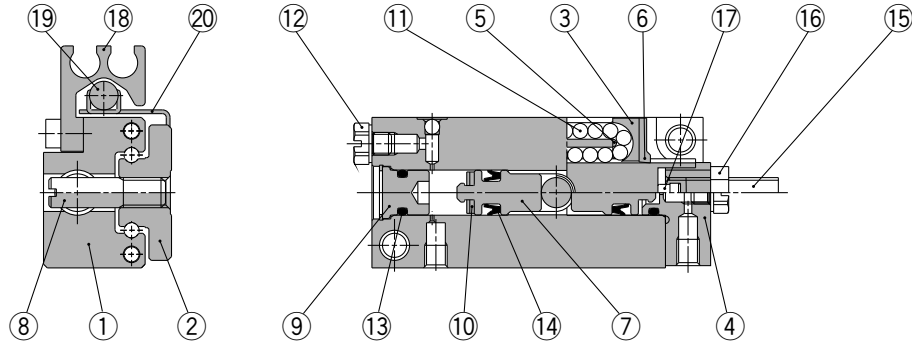
D-□

-X□

Individual  
-X□

## Construction

### MXP6



#### Component Parts

No.	Description	Material	Note
1	Body	Stainless steel	Heat treated
2	Table	Stainless steel	Heat treated
3	Cover	Resin	
4	End plate	Stainless steel	
5	Return guide	Resin	
6	Scraper	Stainless steel, NBR	
7	Piston	Brass	Electroless nickel plated
8	Joint shaft	Carbon steel	Electroless nickel plated
9	End cap	Brass	Electroless nickel plated
10	Rod bumper	Polyurethane	
11	Steel ball	High carbon chrome bearing steel	
12	Plug	Brass, Stainless steel, NBR	Electroless nickel plated

#### Replacement Parts/ Seal Kit

Bore size (mm)	Kit no.	Contents
6	MXP6-PS	A set of two of 13 and 14 each

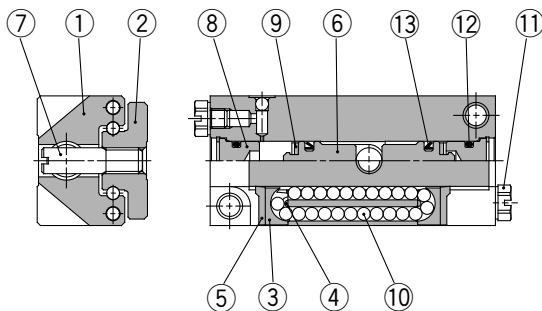
#### Component Parts

No.	Description	Material	Note
13	O-ring	NBR	
14	Piston seal	NBR	
15	Adjusting bolt	Carbon steel (Rubber stopper) Stainless steel (Metal stopper)	Nickel plated
16	Adjusting nut	Carbon steel	Nickel plated
17	Adjusting bumper	Polyurethane	
18	Switch rail	Aluminum alloy	Hard anodized
19	Magnet	—	Nickel plated
20	Magnet holder	Steel	Nickel plated

#### Replacement Parts/ Grease Pack

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

### MXPJ6



#### Replacement Parts/ Grease Pack

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

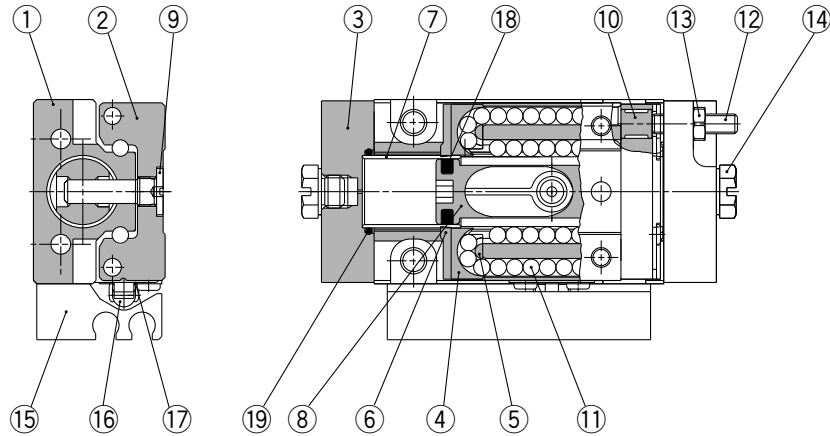
#### Component Parts

No.	Description	Material	Note
1	Body	Stainless steel	Heat treated
2	Table	Stainless steel	Heat treated
3	Cover	Resin	
4	Return guide	Resin	
5	Scraper	Stainless steel, NBR	
6	Piston	Brass	Electroless nickel plated
7	Joint shaft	Carbon steel	Electroless nickel plated
8	End cap	Brass	Electroless nickel plated
9	Rod bumper	Polyurethane	
10	Steel ball	High carbon chrome bearing steel	
11	Plug	Brass, Stainless steel, NBR	Electroless nickel plated
12	O-ring	NBR	
13	Piston seal	NBR	

#### Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
6	MXPJ6-PS	2 pieces of no. 12 and 13

**MXP8,10,12,16**



**Component Parts**

No.	Description	Material	Note
1	Body	Stainless steel	Heat treated
2	Guide block	Stainless steel	Heat treated
3	End plate	Aluminum alloy	Hard anodized
4	Cover	Resin	
5	Return guide	Resin	
6	Scraper	Stainless steel, NBR	
7	Tube	Stainless steel	(Except ø8)
8	Piston	Resin	
9	Joint shaft	Carbon steel	Electroless nickel plated
10	Adjust bumper	Polyurethane	

**Component Parts**

No.	Description	Material	Note
11	Steel ball	High carbon chrome bearing steel	
12	Adjusting bolt	Carbon steel (Rubber stopper)	Nickel plated
		Stainless steel (Metal stopper)	
13	Adjust nut	Carbon steel	Nickel plated
14	Plug	Brass, Stainless steel, NBR	Electroless nickel plated
15	Switch rail	Aluminum alloy	Hard anodized
16	Magnet	—	Nickel plated
17	Magnet holder	Steel	Electroless nickel plated
18	Piston seal	NBR	
19	O-ring	NBR	

**Replacement Parts/ Seal Kit**

Bore size (mm)	Kit no.	Contents
8	MXP8-PS	2 pieces of no. 18 and 19
10	MXP10-PS	
12	MXP12-PS	
16	MXP16-PS	

**Replacement Parts/ Grease Pack**

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

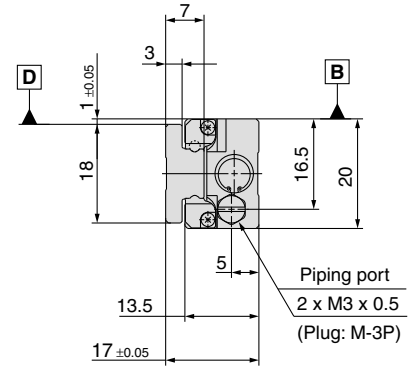
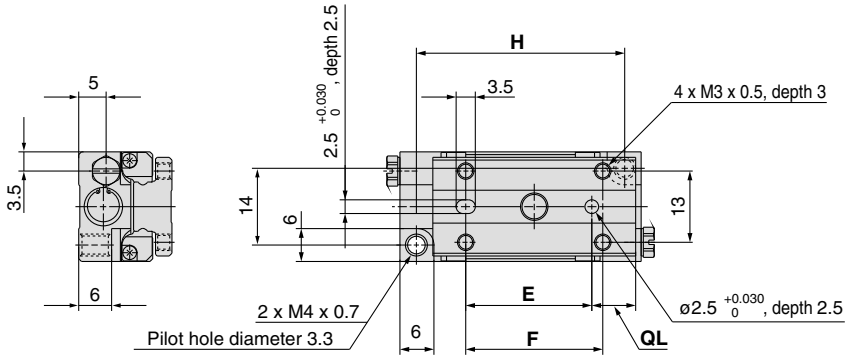
- MXH**
- MXU**
- MXS**
- MXQ**
- MXF**
- MXW**
- MXJ**
- MXP**
- MXY**
- MTS**

- D-□**
- X□**
- Individual  
**-X□**

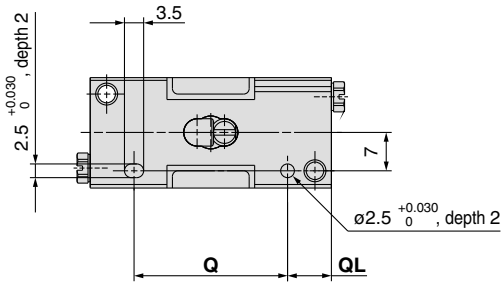
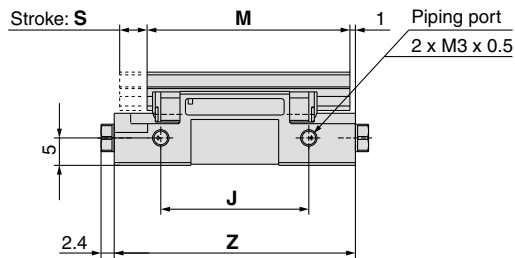
# Series MXP

## Dimensions: MXPJ6

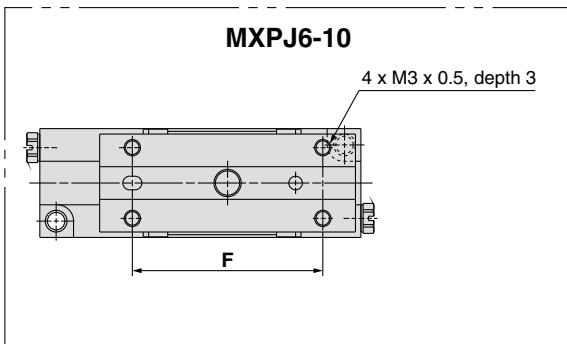
### MXPJ6-5



**B** **D** — Mounting datum level



### MXPJ6-10



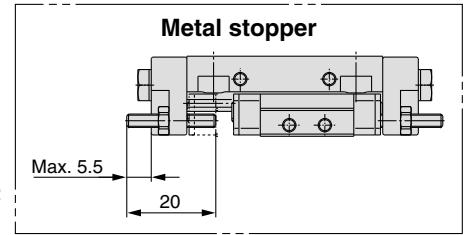
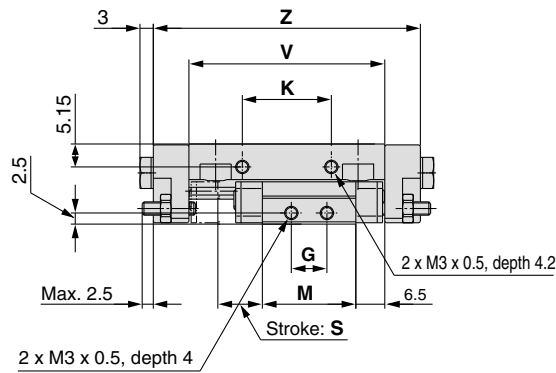
(mm)

Model	E	F	H	J	M	Q	QL	S	Z
MXPJ6-5	23	25	38	27	37	28	8	5	44
MXPJ6-10	30	35	53	42	47	37	11	10	59



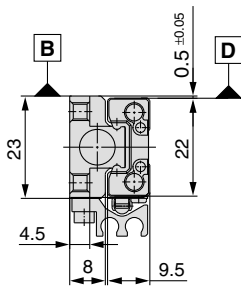
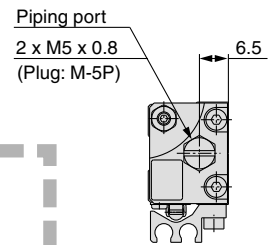
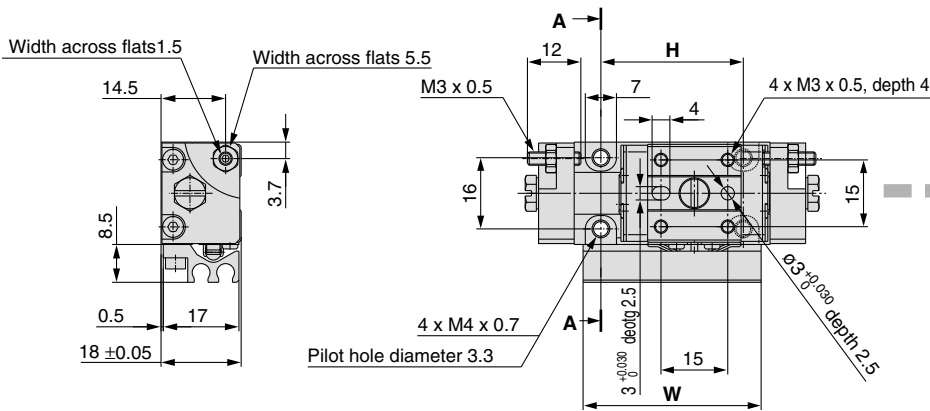
# Series MXP

## Dimensions: MXP8



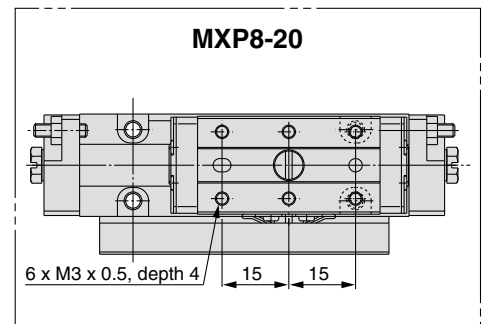
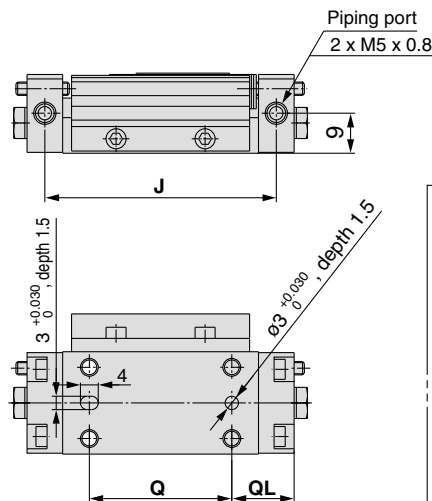
Note) Since the body and table are made of a magnetic substance, it could become magnetized if touched by a magnet, etc. This could cause auto switch malfunction.

### MXP8-10

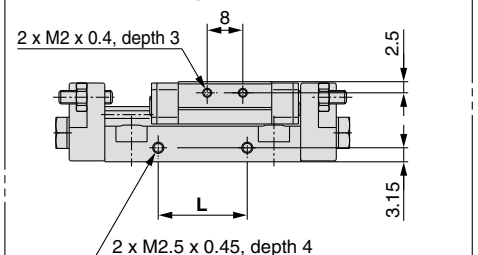


#### Section AA

**B** **D** — Mounting datum level



#### Without magnet and switch rail



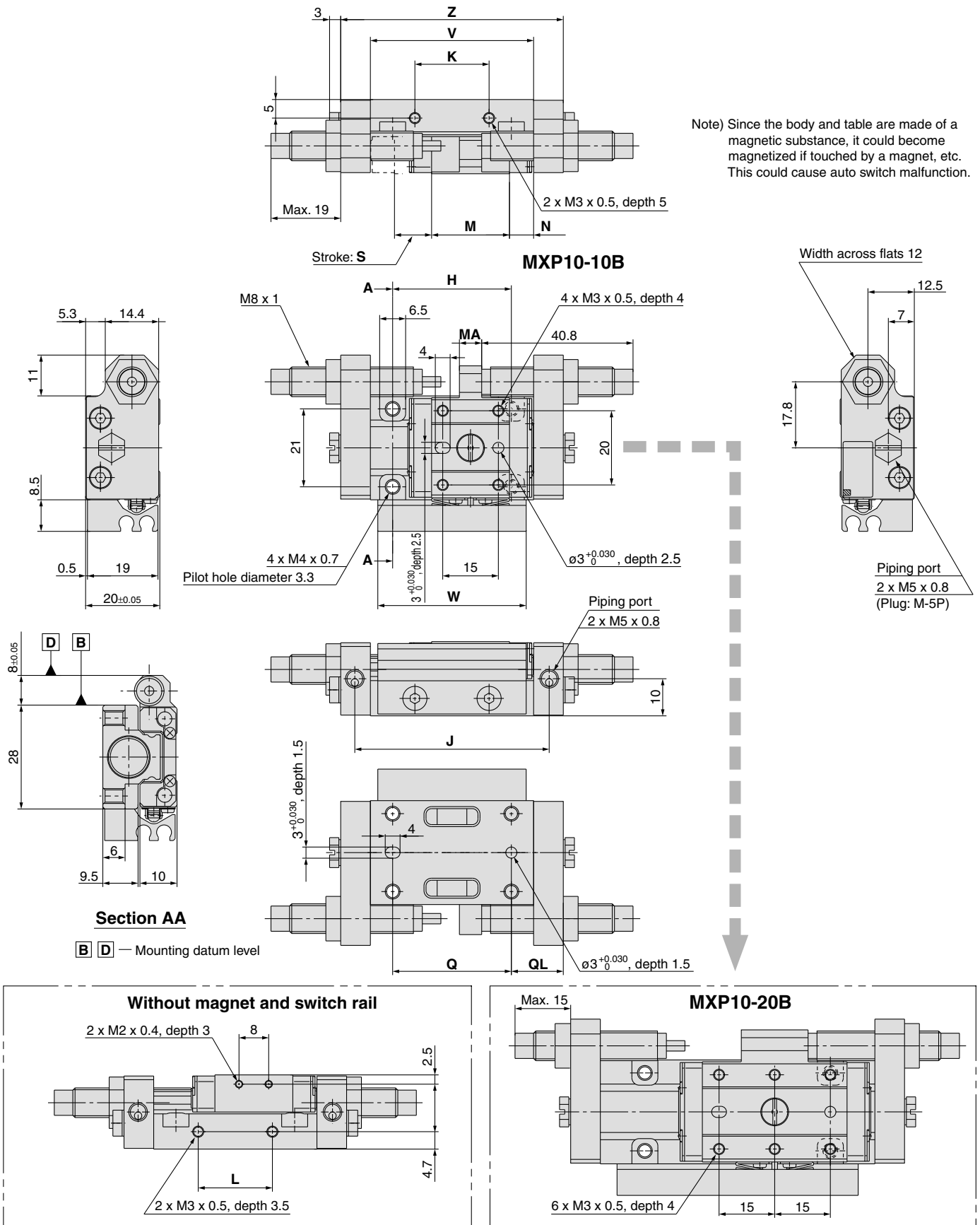
Model	G	H	J	K	L	M	Q	QL	S	V	W	Z
MXP8-10	8	32	52	20	20	21	32	14	10	44	40	60
MXP8-20	20	50	82	36	36	41	50	20	20	74	65	90





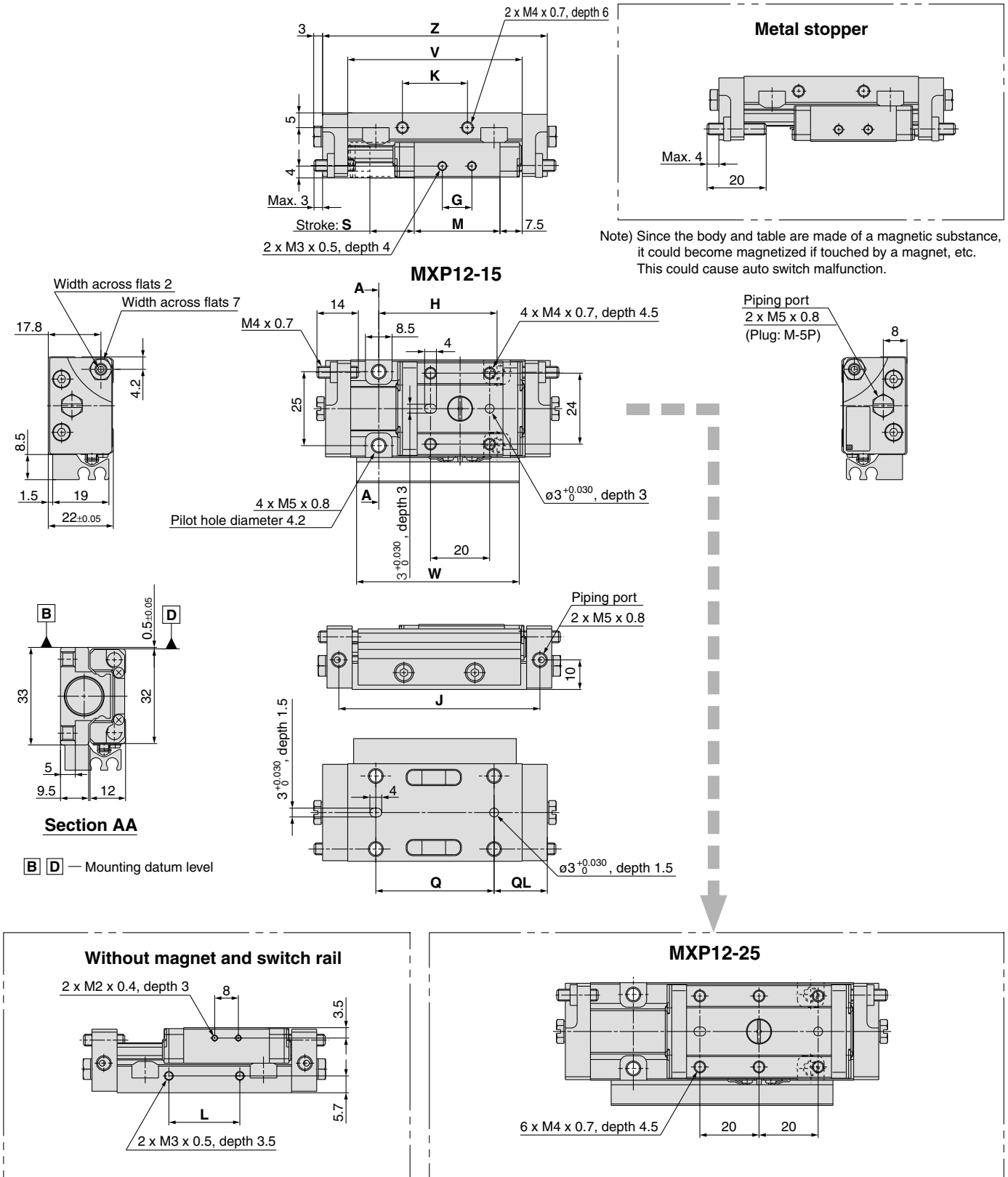
# Series MXP

## Dimensions: MXP10 with Shock Absorber



Model	H	J	K	L	M	MA	N	Q	QL	S	V	W	Z
<b>MXP10-10B</b>	32	52.4	20	20	21	6	6.5	32	14	10	44	40	60
<b>MXP10-20B</b>	50	82.4	36	36	39	18	7.5	50	20	20	74	65	90

## Dimensions: MXP12



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

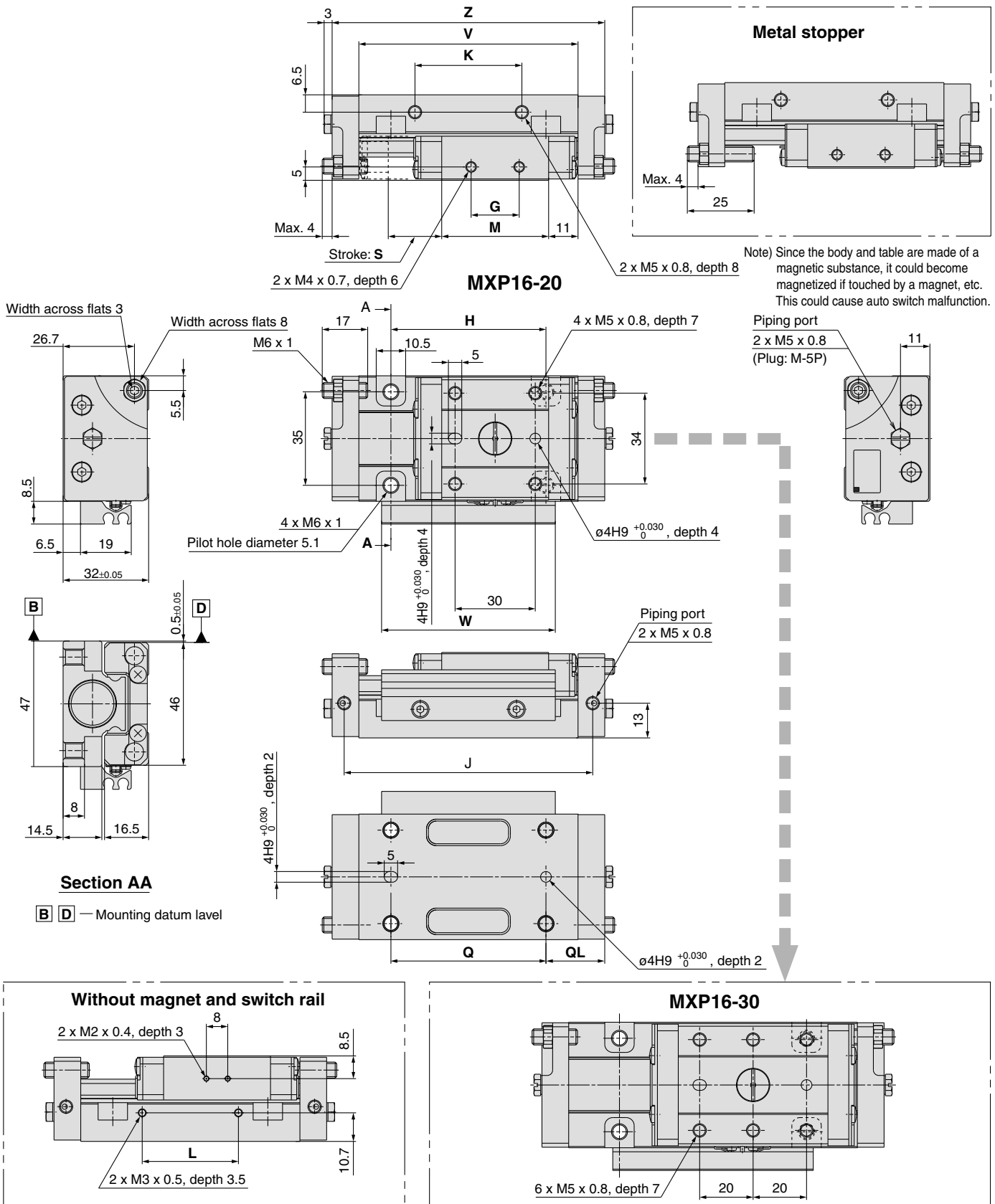
(mm)

Model	G	H	J	K	L	M	Q	QL	S	V	W	Z
<b>MXP12-15</b>	10	40	68	22	24	29	40	18	15	59	55	76
<b>MXP12-25</b>	30	60	98	40	42	49	60	23	25	89	75	106

- D-
- X
- Individual  
-X



## Dimensions: MXP16



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

- D-□
- X□
- Individual -X□

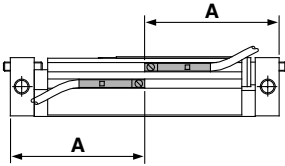
Model	G	H	J	K	L	M	Q	QL	S	V	W	Z
<b>MXP16-20</b>	18	58	93	40	36	40	58	22	20	82	65	102
<b>MXP16-30</b>	28	70	119	50	42	56	70	29	30	108	75	128



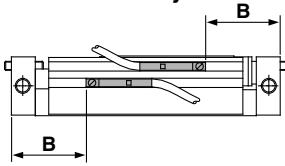
### Auto Switch Proper Mounting Position (Detection at Stroke End)

#### MXP8,10,12,16

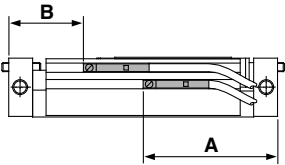
- Electrical entry from outside



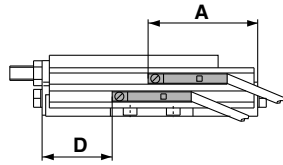
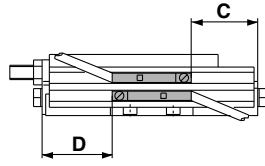
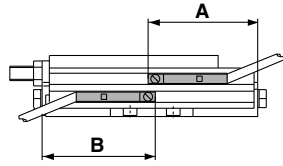
- Electrical entry from inside



- Parallel electrical entry



#### MXP6



#### Reed Auto Switch

D-A90(V), D-A93(V), D-A96(V) (mm)

Model		Stroke (mm)				
		10	15	20	25	30
MXP8	A	35	—	45	—	—
	B	15	—	25	—	—
MXP10	A	35	—	45	—	—
	B	15	—	25	—	—
MXP12	A	—	40.5	—	50.5	—
	B	—	20.5	—	30.5	—
MXP16	A	—	—	51	—	59
	B	—	—	31	—	39

#### Solid State Auto Switch

D-M9B(V), D-M9N(V), D-M9P(V) (mm)

Model		Stroke (mm)				
		10	15	20	25	30
MXP8	A	31	—	41	—	—
	B	19	—	29	—	—
MXP10	A	31	—	41	—	—
	B	19	—	29	—	—
MXP12	A	—	36.5	—	46.5	—
	B	—	24.5	—	34.5	—
MXP16	A	—	—	47	—	55
	B	—	—	35	—	43

#### 2-Color Indication, Solid State Auto Switch

D-M9BW(V), D-M9NW(V), D-M9PW(V) (mm)

Model		Stroke (mm)				
		10	15	20	25	30
MXP8	A	31	—	41	—	—
	B	19	—	29	—	—
MXP10	A	31	—	41	—	—
	B	19	—	29	—	—
MXP12	A	—	36.5	—	46.5	—
	B	—	24.5	—	34.5	—
MXP16	A	—	—	47	—	55
	B	—	—	35	—	43

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

#### Reed Auto Switch

D-A90(V), D-A93(V), D-A96(V)

Model		Stroke (mm)	
		10	
MXP6	A	34.5	
	B	35.5	
	C	14.5	
	D	15.5	

#### Solid State Auto Switch

D-M9B(V), D-M9N(V), D-M9P(V)

Model		Stroke (mm)	
		5	10
MXP6	A	25.5	30.5
	B	26.5	31.5
	C	13.5	18.5
	D	14.5	19.5

#### 2-Color Indication,

#### Solid State Auto Switch

D-M9BW(V), D-M9NW(V), D-M9PW(V)

Model		Stroke (mm)	
		5	10
MXP6	A	25.5	30.5
	B	26.5	31.5
	C	13.5	18.5
	D	14.5	19.5

### Operating Range

Auto switch model	Applicable bore size (mm)				
	6	8	10	12	16
D-A9□/A9□V	5	5	5	5	5
D-M9□/M9□V	3	3	3.5	3	3
D-M9□W/M9□WV					

### Minimum Auto Switch Mounting Stroke

No. of auto switches mounted	Applicable auto switch model (mm)		
	D-A9□ D-A9□V	D-M9□ D-M9□V	D-M9□W D-M9□WV
1 pc.	5	5	5
2 pcs.	10	5	10

### Auto Switch Mounting

#### ⚠ Caution

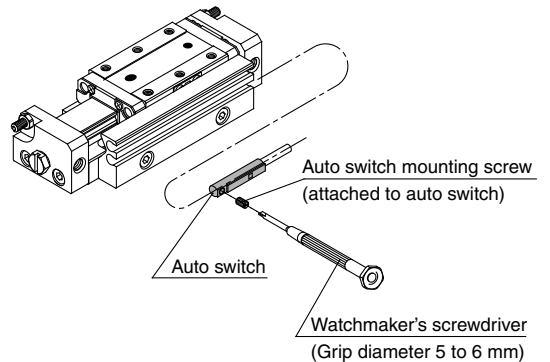
#### Auto Switch Mounting Tool

- Use the watchmaker's screwdriver with a handle diameter 5 to 6 mm when tightening the auto switch mounting screw (attached to auto switch).

#### Tightening Torque

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

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



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 a solid state auto switch (D-F8) are also available. Refer to pages 1745 and 1746 for details.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□

Individual

-X□

# Series MXP Specific Product Precautions 1

Be sure to read before handling.

Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

## Selection

### ⚠ Caution

#### 1. Use a load within a range that does not exceed the operating limit.

Select models based on the maximum load mass and the allowable moment. Refer to model selection on pages 192 and 193 for detailed methods. If operated beyond the operating limit, the eccentric load applied to the guide section will be excessive. This can have an adverse effect on service life due to vibration in the guide unit and loss of accuracy, etc.

#### 2. When performing intermediate stops with an external stopper, employ measures to prevent lurching.

If lurching occurs damage can result. When making a 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 operate in such a way that excessive external forces or impact forces are applied to the product.

This can cause damage.

## Mounting

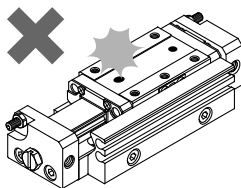
### ⚠ Caution

#### 1. Do not scratch or gouge the mounting surfaces of the body and table (guide block).

This can cause loss of parallelism in the mounting surfaces, vibration of the guide unit and increased operating resistance, etc.

#### 2. Do not scratch or gouge the transfer surfaces of the body and table (guide block).

This can cause vibration and increased operating resistance, etc.



#### 3. Do not apply strong impacts or excessive moment when mounting work pieces.

Application of external forces greater than the allowable moment can cause vibration of the guide unit and increased operating resistance, etc.

#### 4. Ensure that the parallelism of the mounting surface is 0.02 mm or less.

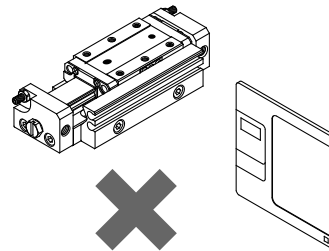
Poor parallelism of the workpiece mounted on the body, the base, and other parts can cause vibration of the guide unit and increased operating resistance, etc.

#### 5. For connection to a load that has an external support or guide mechanism, select an appropriate connection method and perform careful alignment.

## Mounting

#### 6. Do not allow objects affected by magnets in close proximity to the air slide table

Since magnets are built into the side of the guide block when equipped with auto switches, do not allow items such as magnetic disks, magnetic cards or magnetic tape close to the air slide table. Data may be erased.



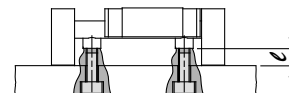
#### 7. Do not attach magnets to the table (guide block) section.

Since the table (guide block) is constructed with a magnetic substance, it becomes magnetized when magnets, etc. are attached to it, and this may cause malfunction of auto switches, etc.

#### 8. When mounting a body, use screws of an appropriate length and tighten them properly at no more than the maximum tightening torque.

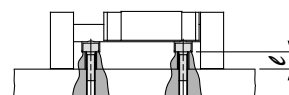
Tightening with a torque above the limit can cause malfunction, while insufficient tightening can cause slippage and dropping, etc.

### 1. Body Tapped



Model	Bolt	Max. tightening torque N·m	Max. screw-in depth $\ell$ (mm)
<b>MXPJ6</b>	M4 x 0.7	2.1	6
<b>MXP6</b>	M4 x 0.7	2.1	6
<b>MXP8</b>	M4 x 0.7	2.1	4.5
<b>MXP10</b>	M4 x 0.7	2.1	6
<b>MXP12</b>	M5 x 0.8	4.4	5
<b>MXP16</b>	M6 x 1	7.4	8

### 2. Body Through-hole



Model	Bolt	Max. tightening torque N·m	Body thickness $\ell$ (mm)
<b>MXPJ6</b>	M3 x 0.5	1.2	6
<b>MXP6</b>	M3 x 0.5	1.2	6
<b>MXP8</b>	M3 x 0.5	1.2	4.5
<b>MXP10</b>	M3 x 0.5	1.2	6
<b>MXP12</b>	M4 x 0.7	2.1	5
<b>MXP16</b>	M5 x 0.8	4.4	8



# Series MXP Specific Product Precautions 2

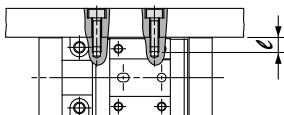
Be sure to read before handling.

Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

## Mounting

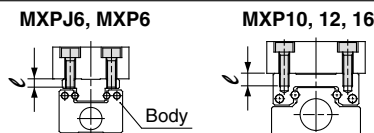
### ⚠ Caution

#### 3. Tapped on Body Side



Model	Bolt	Max. tightening torque N·m	Max. screw-in depth $\ell$ (mm)
MXP8	M3 x 0.5	1.2	4
MXP10	M3 x 0.5	1.2	5
MXP12	M4 x 0.7	2.1	6
MXP16	M5 x 0.8	4.4	8

#### 1. Top Mounting

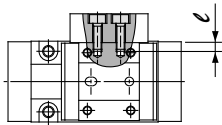


Model	Bolt	Max. tightening torque N·m	Max. screw-in depth $\ell$ (mm)
MXPJ6	M3 x 0.5	1.2	3
MXP6	M3 x 0.5	1.2	3
MXP8	M3 x 0.5	1.2	4
MXP10	M3 x 0.5	1.2	4
MXP12	M4 x 0.7	2.1	4.5
MXP16	M5 x 0.8	4.4	7

### ⚠ Caution

Since the bolts pass through in the case of MXPJ6 and MXP6, use bolts shorter than the maximum screw-in depth. If long bolts are used, they can touch the body and cause trouble.

#### 2. Side Mounting



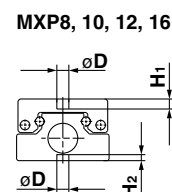
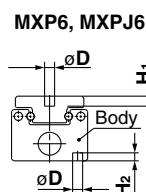
Model	Bolt	Max. tightening torque N·m	Max. screw-in depth $\ell$ (mm)
MXP8	M3 x 0.5	1.2	4
MXP10	M3 x 0.5	1.2	3
MXP12	M3 x 0.5	1.2	4
MXP16	M4 x 0.7	2.1	6

### ⚠ Caution

Side mounting is not possible when equipped with shock absorber.

## Mounting

9. When the positioning pinhole is used for mounting a body, select a positioning pin with an appropriate length.



Model	Pinhole diameter	Pinhole depth	
	$\phi D$	$H_1$ mm	$H_2$ mm
MXPJ6	2.5 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	2.5	2
MXP6	2.5 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	2.5	2
MXP8	3 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	2.5	1.5
MXP10	3 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	2.5	1.5
MXP12	3 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	3	1.5
MXP16	4H9 $\begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	4	2

## Operating Environment

### ⚠ Caution

1. Do not use in environments where there is direct exposure to liquids such as cutting oil.

Operation in environments where the body is exposed to cutting oil, coolant or oil mist can cause vibration, increased operating resistance and air leakage, etc.

2. Do not use in environments where there is direct exposure to foreign matter such as dust, dirt, chips and spatter.

This can cause vibration, increased operating resistance and air leakage, etc. Consult with SMC regarding use in this kind of environment.

3. Be careful about the corrosion resistance of the linear guide.

Be careful the rail and guide block use martensitic stainless steel, which is inferior to austenitic stainless steel in terms of corrosion resistance.

## Adjuster Option Handling Precautions

### With Shock Absorber

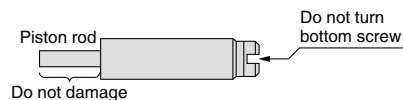
### ⚠ Caution

1. Never turn the screw on the bottom of the shock absorber body.

This is not an adjustment screw. Turning it can cause oil leakage.

2. Do not scratch the sliding surface of the shock absorber's piston rod.

This can cause a loss of durability and return malfunction.



MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MPX

MXY

MTS

D-□

-X□

Individual  
-X□

# Series MXP Specific Product Precautions 3

Be sure to read before handling.

Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

## Adjuster Option Handling Precautions

### ⚠ Caution

3. Use the tightening torque in the table below for the shock absorber's lock nut.

Bolt	Tightening torque N·m
MXP10	1.67
MXP12	
MXP16	

Rust may occur specifically in an environment where water drops from condensation adhere to a surface.

4. Provide shade in locations exposed to direct sunlight.

5. Block off sources of heat located near by.

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.

6. Do not use in locations where vibration or impact occur.

Consult with SMC regarding use in this kind of environment, as damage and malfunction can result.

## Service Life and Replacement Period of Shock Absorber

### ⚠ Caution

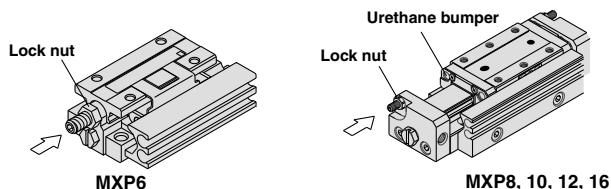
1. Allowable operating cycle under the specifications set in this catalog is shown below.

1.2 million cycles RB08□□

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
MXP10	RB0805
MXP12	RB0805
MXP16	RB0806

## Stroke Adjustment



Loosen the lock nut, adjust the stroke with a hexagon wrench from the side marked with an arrow and secure with the lock nut.

## Stroke Adjustment

### ⚠ Caution

#### Urethane Bumper

If not adjusted for effective operation of the urethane bumper, impact will increase and have an adverse effect on service life. As a guide, adjust so that dimension L<sub>1</sub> is less than the value shown in "Table 1".

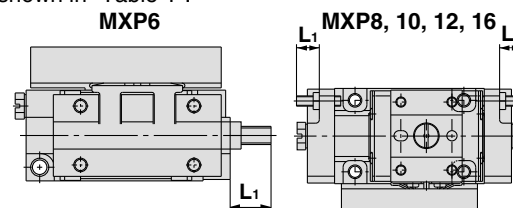


Table 1

Model	L <sub>1</sub> (mm)
MXP6-5	9 (one side only)
MXP6-10	9 (one side only)
MXP8-10	7
MXP8-20	6
MXP10-10	7
MXP10-20	6
MXP12-15	7
MXP12-25	7
MXP16-20	8
MXP16-30	8

#### Metal Stopper

In the case of a metal stopper, adjust so that the stroke adjuster hits the end face of the guide block.

As a guide, adjust so that dimension L<sub>2</sub> is less than the value shown in "Table 2".

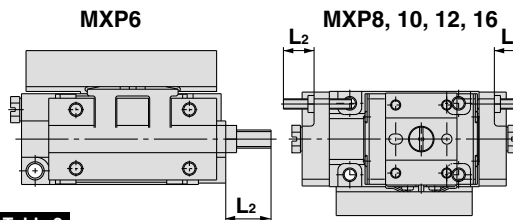


Table 2

Model	L <sub>2</sub> (mm)
MXP6-5C	10 (one side only)
MXP6-10C	10 (one side only)
MXP8-10C	9
MXP8-20C	8
MXP10-10C	9
MXP10-20C	8
MXP12-15C	8
MXP12-25C	8
MXP16-20C	8
MXP16-30C	8

#### Shock Absorber

When equipped with shock absorber, adjust so that the end face of the shock absorber hits the guide block. If the shock absorber does not operate effectively, impact will increase and have an adverse effect on service life. As a guide, adjust so that dimension L<sub>3</sub> is less than the value shown in "Table 3".

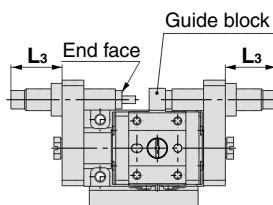


Table 3

Model	L <sub>3</sub> (mm)
MXP10-10B	19
MXP10-20B	15
MXP12-15B	15
MXP12-25B	15
MXP16-20B	15
MXP16-30B	15