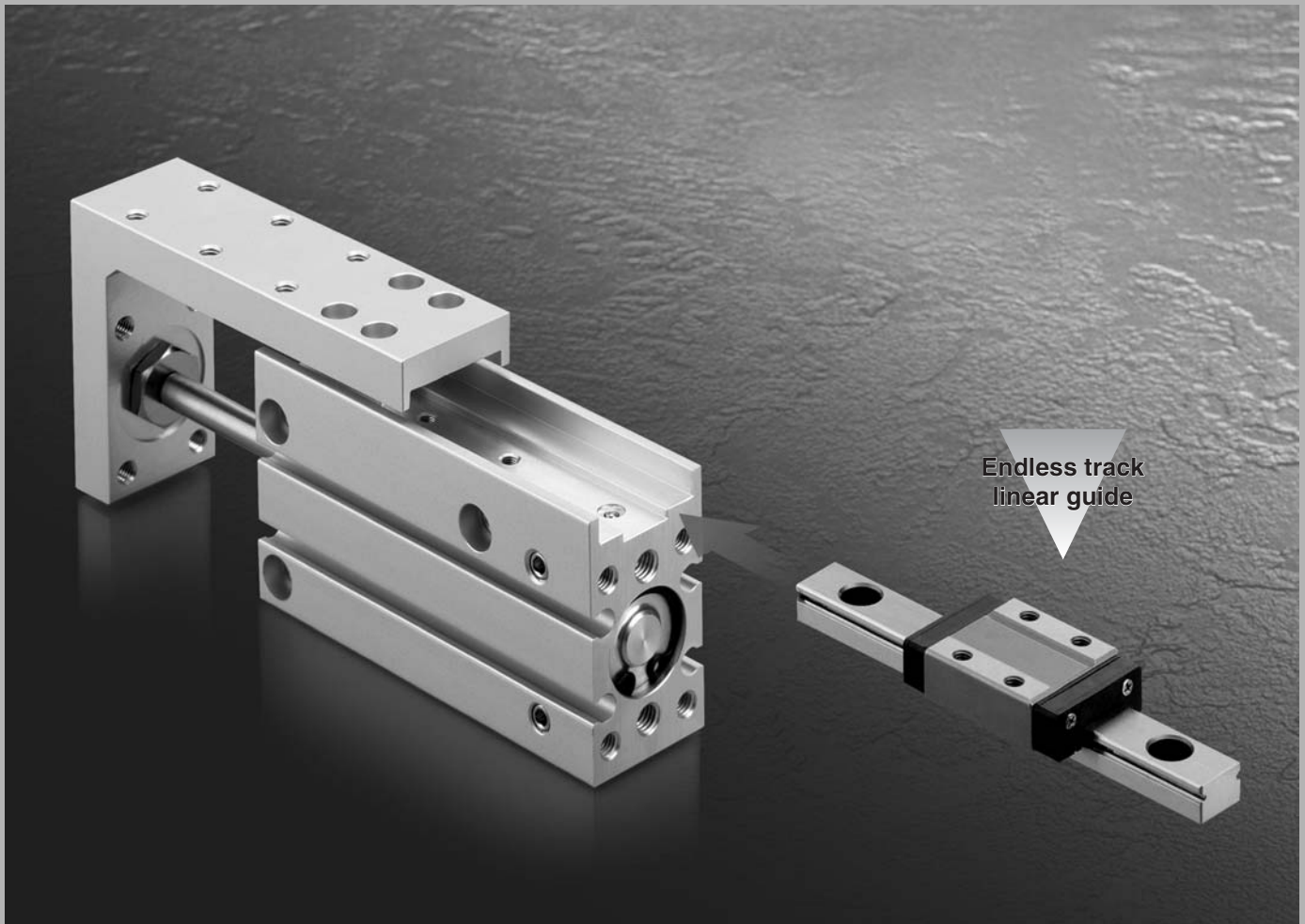


# Compact Slide

## Series MXH

ø6, ø10, ø16, ø20

The use of an endless track linear guide produces a table cylinder having excellent rigidity, linearity and non-rotating accuracy.



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

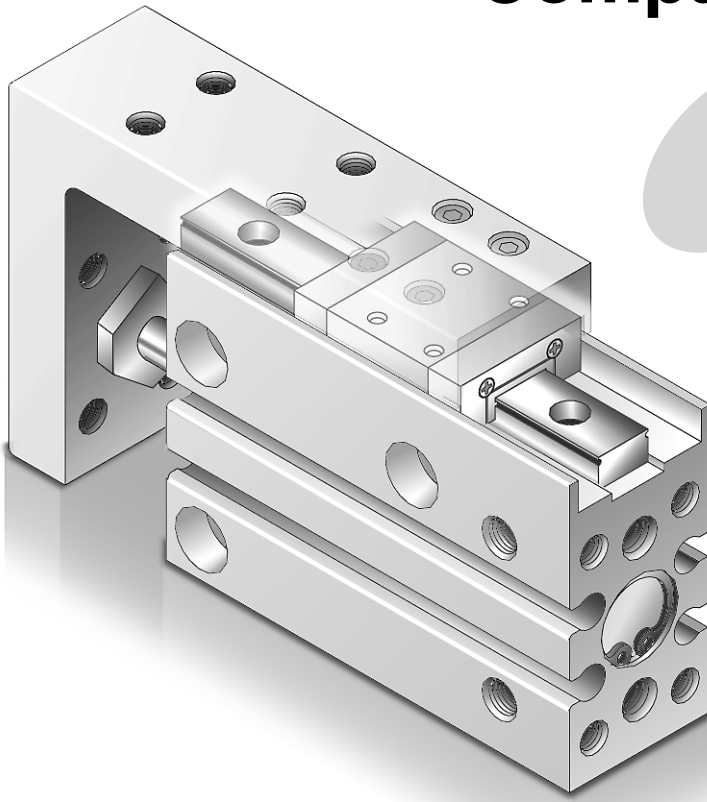
### Series Variations

Model	Bore size (mm)	Standard stroke (mm)								Made to Order	
		5	10	15	20	25	30	40	50		60
MXH6	6	●	●	●	●	●	●	●	●	●	<ul style="list-style-type: none"> <li>• -XB13 : Low-speed cylinder (5 to 50 mm/s)</li> <li>• -XC3□ : Special port positions</li> <li>• -XC19 : Intermediate stroke (Spacer type)</li> <li>• -XC22 : Fluororubber seals</li> <li>• -XC79 : Tapped hole, drilled hole, pinned hole machined additionally</li> </ul>
MXH10	10	●	●	●	●	●	●	●	●		
MXH16	16	●	●	●	●	●	●	●	●		
MXH20	20	●	●	●	●	●	●	●	●		

- D-□
- X□
- Individual -X□

# The use of an endless track linear guide having excellent rigidity, linearity,

## Compact Slide *Series*



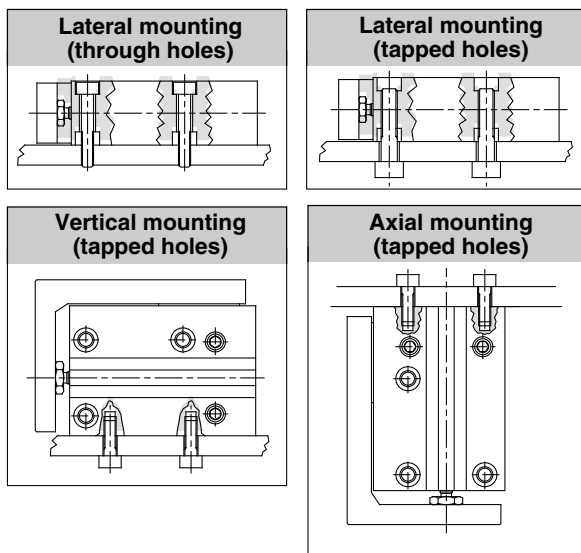
### Improved moment tolerance

Allowable moment is approximately 6 times greater than the MXU series.

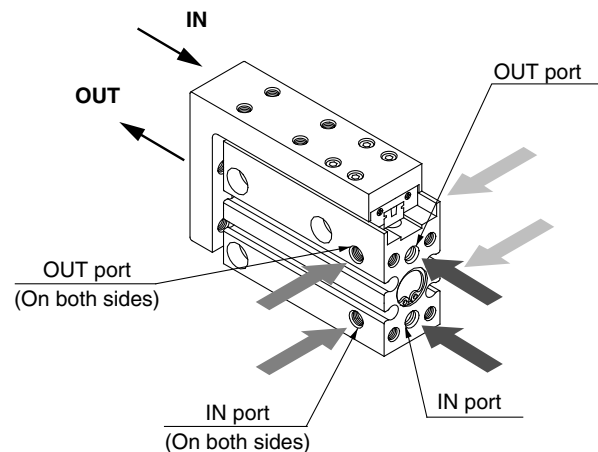
Long strokes up to 60 mm are now standard.

Traveling parallelism	Stroke (mm)	
	5 to 30	40 to 60
0.05 mm or less	0.1 mm or less	

Mounting is possible from 4 directions.



Piping is possible from 3 directions.



If changing the port positions, a made-to-order part number, -XC3□, is available.

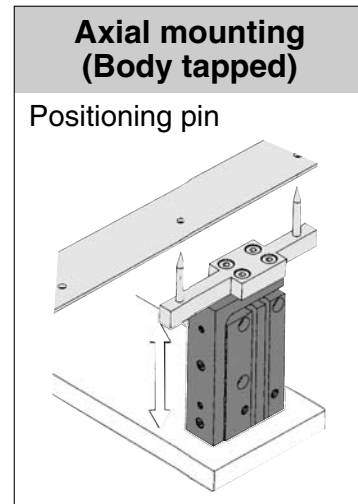
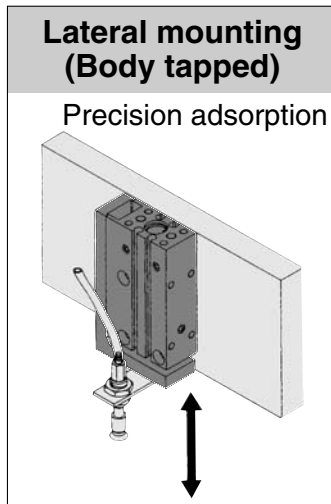
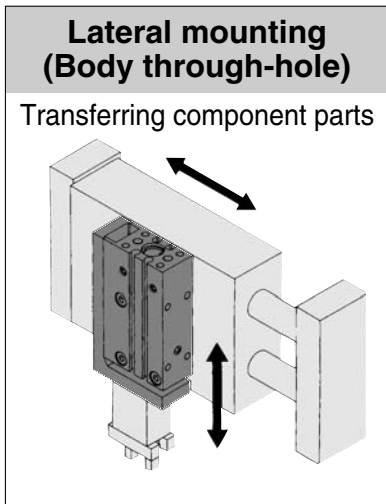
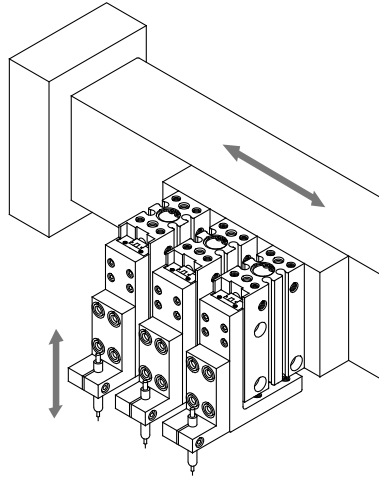
produces a table cylinder  
non-rotating accuracy.



# MXH / $\varnothing 6, \varnothing 10, \varnothing 16, \varnothing 20$

Applicable example

A table cylinder suitable for short  
pitch mounting



**Auto switches offer numerous variations.**  
Reed switches, solid state switches and 2-color indicator type  
solid state switches can be mounted.

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

- D-□
- X□
- Individual  
-X□

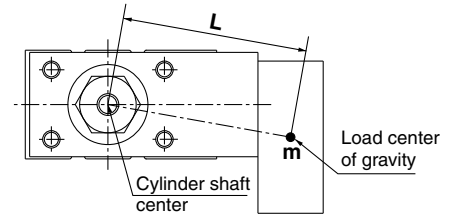
# Series MXH Model Selection

**⚠ Caution** Confirmation of theoretical output is required separately. Refer to “Theoretical Output” on page 21.

**Selection Conditions:** Follow the tables below in order to determine selection conditions and choose one selection graph.

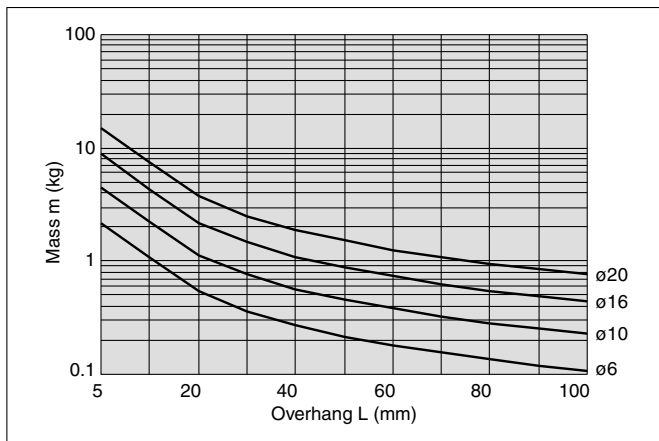
Mounting orientation	Vertical			Horizontal								
Maximum speed (mm/s)	Up to 100	Up to 300	Up to 500	Up to 100			Up to 300			Up to 500		
Load eccentricity (ε mm)	—			50	100	200	50	100	200	50	100	200
Selection graph	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

\* L: Overhang (the distance from the cylinder shaft center to the load center of gravity)  
The direction of L can also be a diagonal direction. (See the drawing at right.)

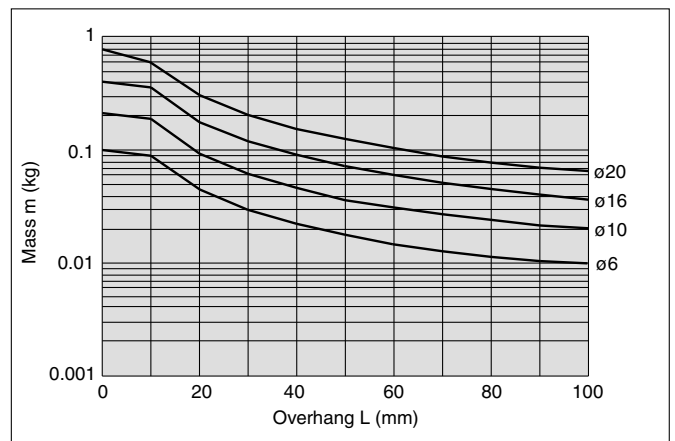


## Selection Graph (1) to (3) (Vertical Mounting)

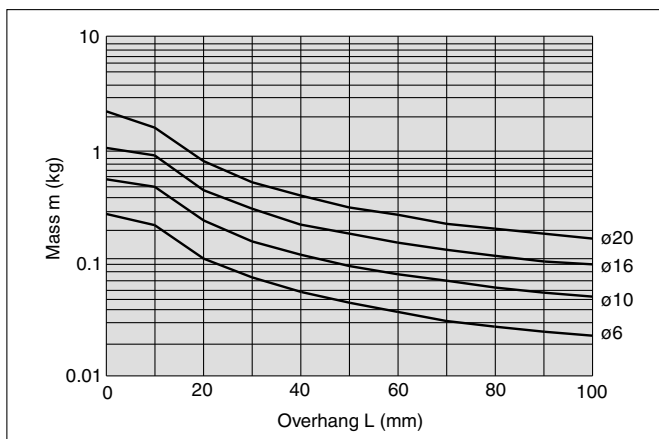
Graph (1) Maximum Speed 100 (mm/s) or Less



Graph (3) Maximum Speed 500 (mm/s) or Less



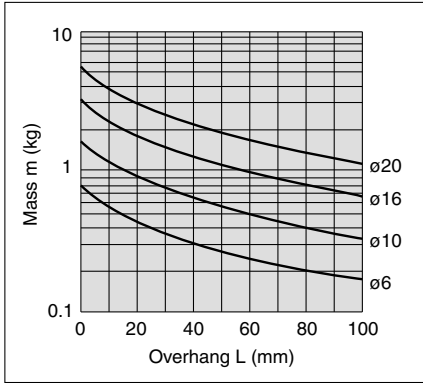
Graph (2) Maximum Speed 300 (mm/s) or Less



**Selection Graph (4) to (12) (Horizontal Mounting)**

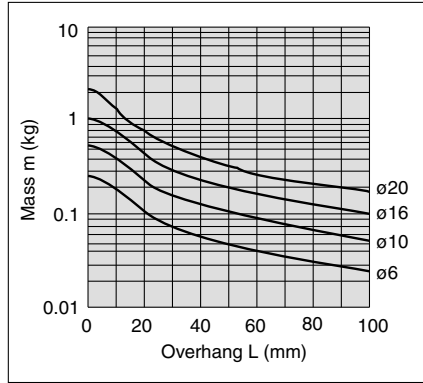
**Maximum Speed 100 mm/s or Less**

**Graph (4) Load Eccentricity 50 mm**



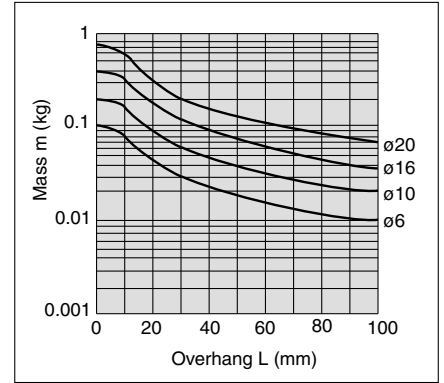
**Maximum Speed 300 mm/s or Less**

**Graph (7) Load Eccentricity 50 mm**

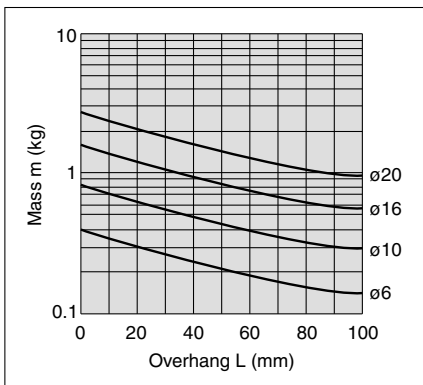


**Maximum Speed 500 mm/s or Less**

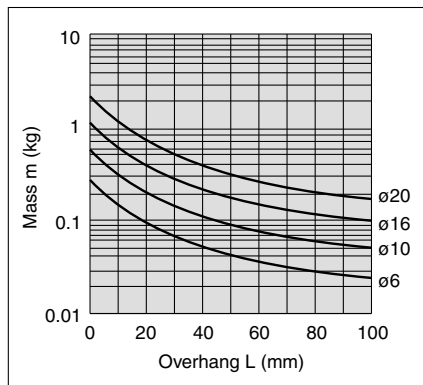
**Graph (10) Load Eccentricity 50 mm**



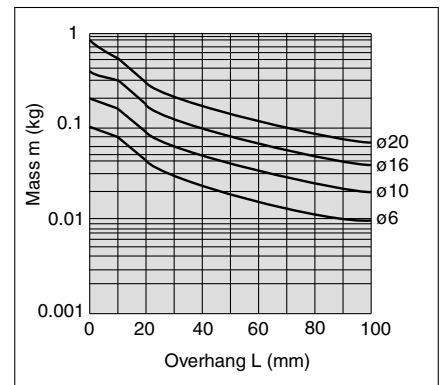
**Graph (5) Load Eccentricity 100 mm**



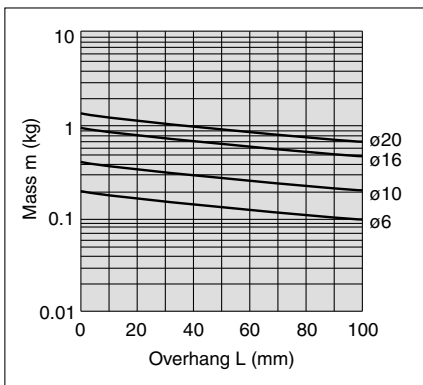
**Graph (8) Load Eccentricity 100 mm**



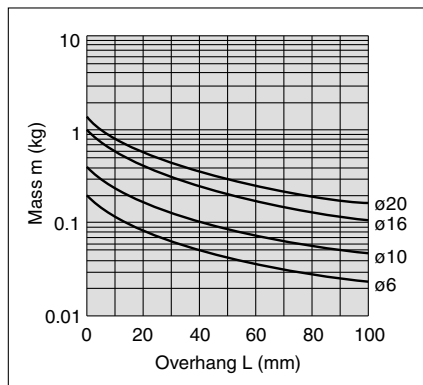
**Graph (11) Load Eccentricity 100 mm**



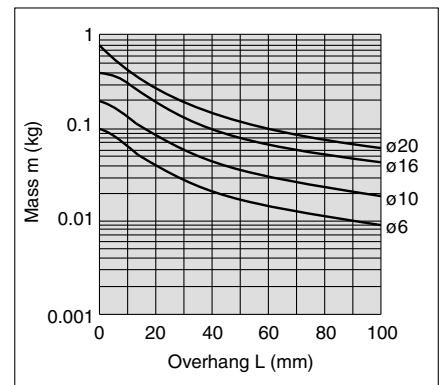
**Graph (6) Load Eccentricity 200 mm**



**Graph (9) Load Eccentricity 200 mm**



**Graph (12) Load Eccentricity 200 mm**



**MXH**

**MXU**

**MXS**

**MXQ**

**MXF**

**MXW**

**MXJ**

**MXP**

**MXY**

**MTS**

**Selection Example**

1. Selection conditions {  
 Mounting: Vertical  
 Max. speed: 500 mm/s  
 Overhang: 40 mm  
 Load mass: 0.1 kg

2. Selection conditions {  
 Mounting: Horizontal  
 Max. speed: 500 mm/s  
 Load eccentricity: 50 mm  
 Overhang: 30 mm  
 Load mass: 0.1 kg

Refer to Graph (3) based on vertical mounting and a speed of 500 mm/s. In Graph (3), find the intersection of a 40 mm overhang and load mass of 0.1 kg, which results in a determination of ø20.

Refer to Graph (10) based on horizontal mounting, a speed of 500 mm/s and load eccentricity of 50 mm. In Graph (10), find the intersection of a 30 mm overhang and load mass of 0.1 kg, which results in a determination of ø16.

**D-□**

**-X□**

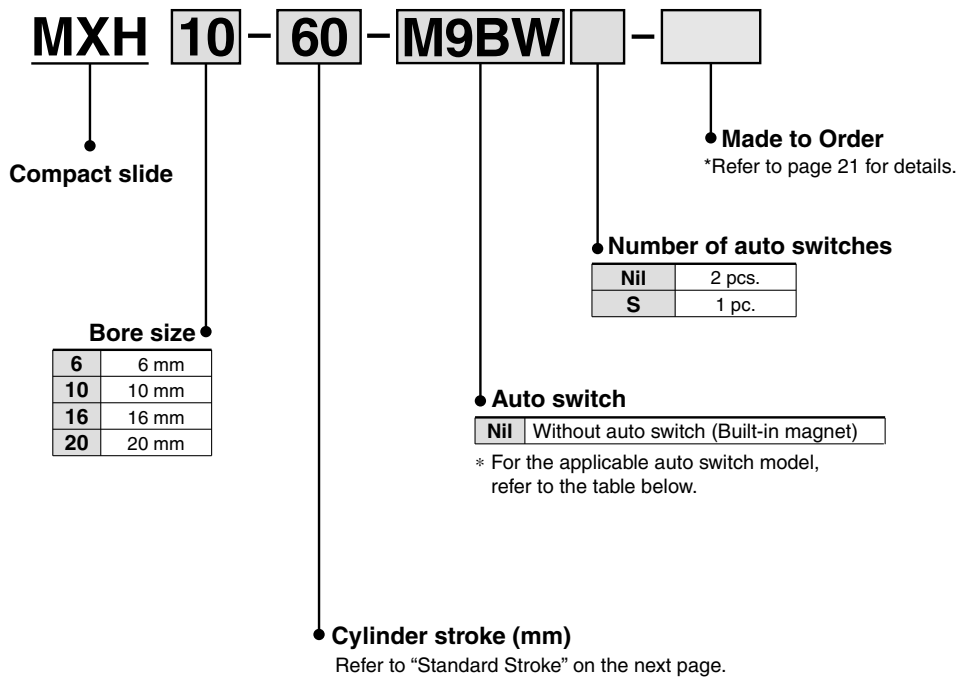
Individual  
**-X□**

# Compact Slide

# Series *MXH*

ø6, ø10, ø16, ø20

## How to Order



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

Type	Special function	Electrical entry	Indicator/light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)				Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)		IC circuit	Relay, PLC	
Solid state switch	—	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)			5 V, 12 V	M9NWV	M9NW	●	●	●	○	○	IC circuit				
	3-wire (PNP)				M9PWV	M9PW	●	●	●	○	○					
	2-wire				M9BWV	M9BW	●	●	●	○	○					
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	—	—	—	Relay, PLC
							100 V or less	A90V	A90	●	—	●	—	—	IC circuit	

\* 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.

\* Refer to page 29 for applicable auto switches other than listed above.  
 \* For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.  
 \* Auto switches are shipped together (not assembled).

## Specifications



**Made to Order**  
(Refer to pages 1847, and 1851 to 1954 for details.)

Symbol	Specifications
-XB13	Low-speed cylinder (5 to 50 mm/s)
-XC3	Special port positions
-XC19	Intermediate stroke (Spacer type)
-XC22	Fluororubber seals
-XC79	Tapped hole, drilled hole, pinned hole machined additionally

Bore size (mm)	6	10	16	20
Guide rail width (mm)	5	7	9	12
Fluid	Air			
Action	Double acting			
Piping port size	M5 x 0.8			
Minimum operating pressure	0.15 MPa	0.06 MPa		0.05 MPa
Maximum operating pressure	0.7 MPa			
Proof pressure	1.05 MPa			
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C (No freezing)			
Piston speed	50 to 500 mm/s			
Allowable kinetic energy (J)	0.0125	0.025	0.05	0.1
Lubrication	Non-lube			
Cushion	Rubber bumper on both ends			
Stroke length tolerance	+1.0 0			
Auto switch (Option)	Reed auto switch: D-A9□ Solid state auto switch: D-M9□, D-M9□W			

## Standard Stroke

Bore size (mm)	Standard stroke (mm)
6, 10, 16, 20	5, 10, 15, 20, 25, 30, 40, 50, 60

Note: Intermediate strokes are available with "Made to Order" models (-XC19). (For details, see page 1916.)

## Theoretical Output

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)		
				0.3	0.5	0.7
6	3	OUT	28.3	8.49	14.2	19.8
		IN	21.2	6.36	10.6	14.8
10	4	OUT	78.5	23.6	39.3	55.0
		IN	66.0	19.8	33.0	46.2
16	6	OUT	201	60.3	101	141
		IN	172	51.6	86.0	121
20	8	OUT	314	94.2	157	220
		IN	264	79.2	132	185

## Mass

Model	Stroke (mm)								
	5	10	15	20	25	30	40	50	60
MXH6	62	67	76	81	91	96	111	125	140
MXH10	117	125	140	148	162	170	192	215	238
MXH16	216	227	247	258	279	290	323	353	386
MXH20	437	455	486	505	542	560	597	656	700

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

(N)

(g)

D-□

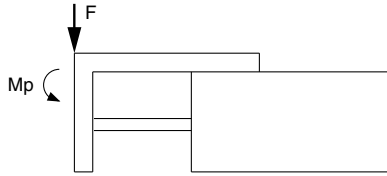
-X□

Individual  
-X□

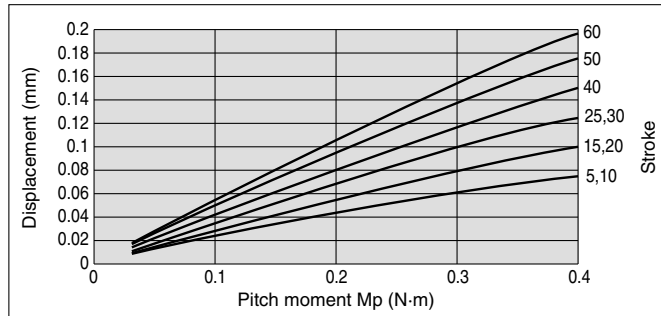
## Table Displacement

### Table Displacement due to Pitch Moment

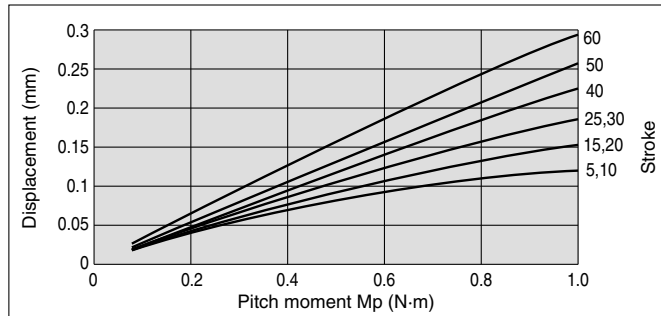
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



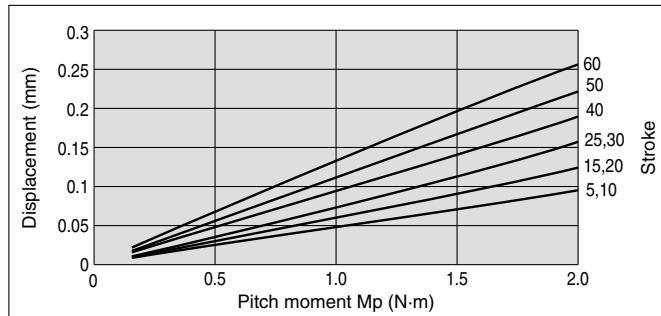
#### MXH6



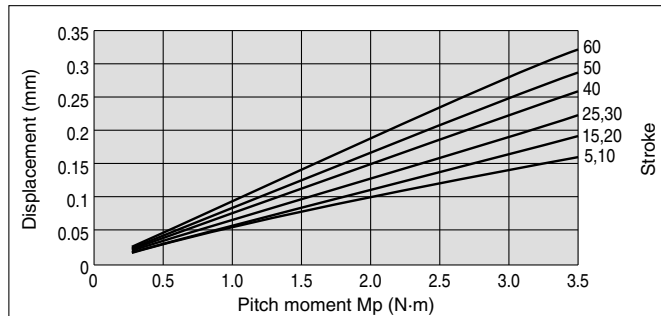
#### MXH10



#### MXH16

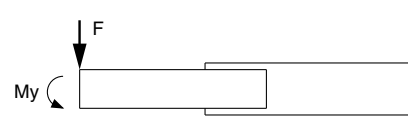


#### MXH20

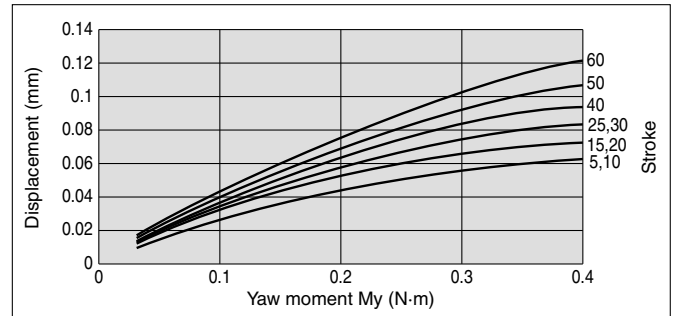


### Table Displacement due to Yaw Moment

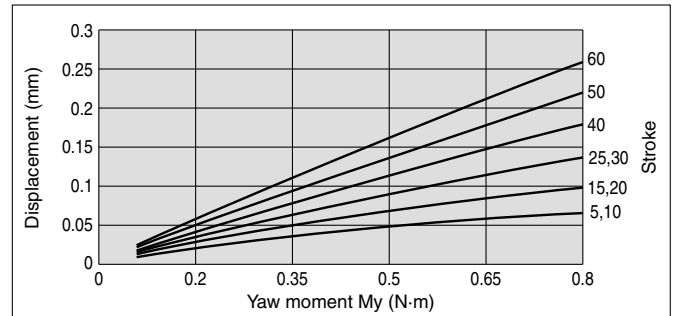
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



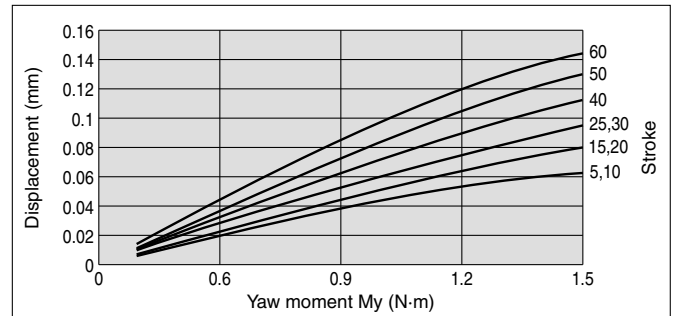
#### MXH6



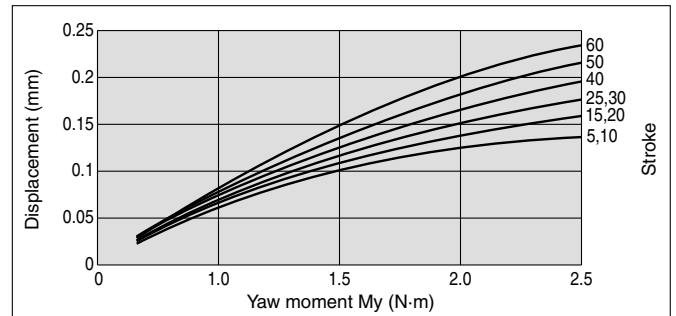
#### MXH10



#### MXH16



#### MXH20



## ⚠ Caution Caution on Design

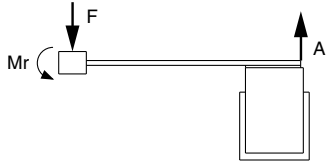
1. Selection of a bore size cannot be made only with above graphs. Select a bore size in accordance with "Model Selection" on page 18 and 19.
2. Displacement may increase after an impact load has been applied. When the table is subjected to an impact load, there may be permanent distortion of the guide unit and increased displacement.



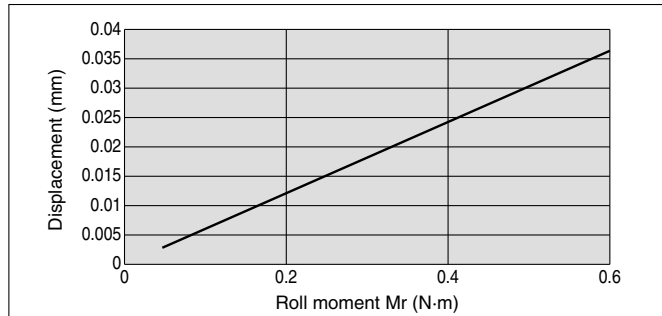
## Table Displacement

### Table Displacement due to Roll Moment

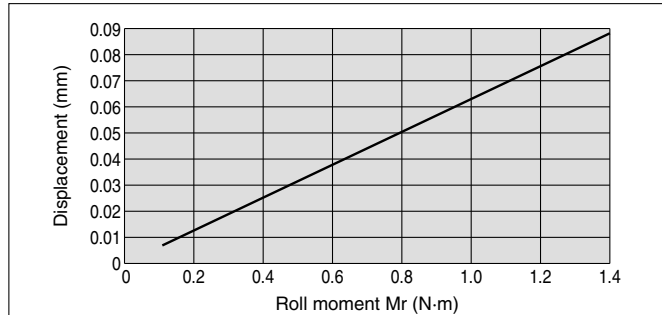
Table displacement (at A) when a load acts upon section F at the full stroke of the compact slide



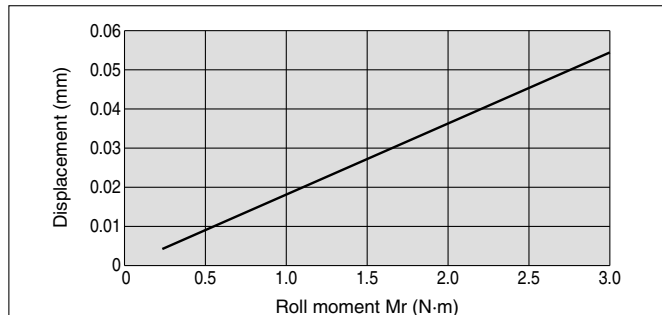
#### MXH6



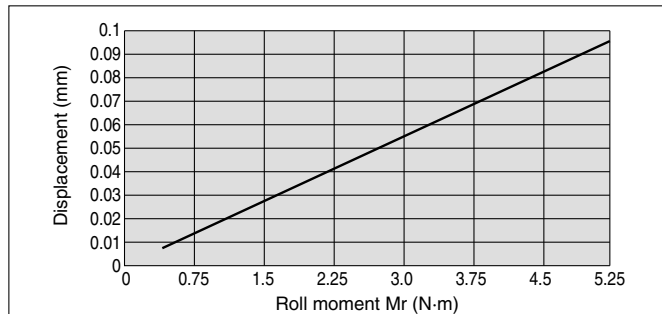
#### MXH10



#### MXH16



#### MXH20



## Table Accuracy

Traveling parallelism	Stroke (st)	
	5 to 30	40 to 60
	0.05 mm or less	0.1 mm or less

Model	Allowable moment (N-m)		
	Pitch moment	Yaw moment	Roll moment
	Mp	My	Mr
<b>MXH6</b>	0.47	0.39	0.59
<b>MXH10</b>	0.96	0.82	1.37
<b>MXH16</b>	1.88	1.59	2.75
<b>MXH20</b>	3.14	2.75	5.49

**MXH**

**MXU**

**MXS**

**MXQ**

**MXF**

**MXW**

**MXJ**

**MXP**

**MXY**

**MTS**

**D-□**

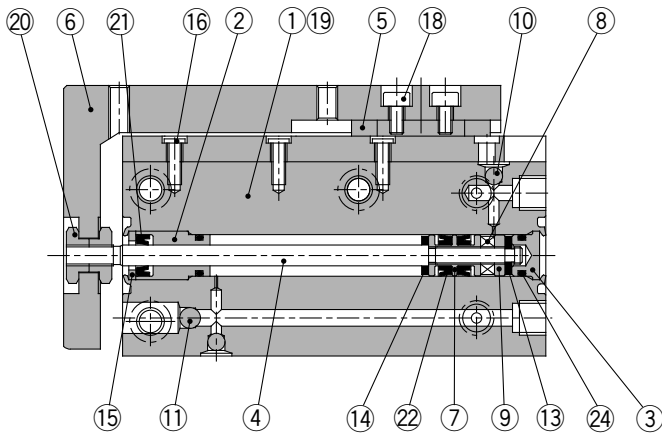
**-X□**

Individual  
**-X□**

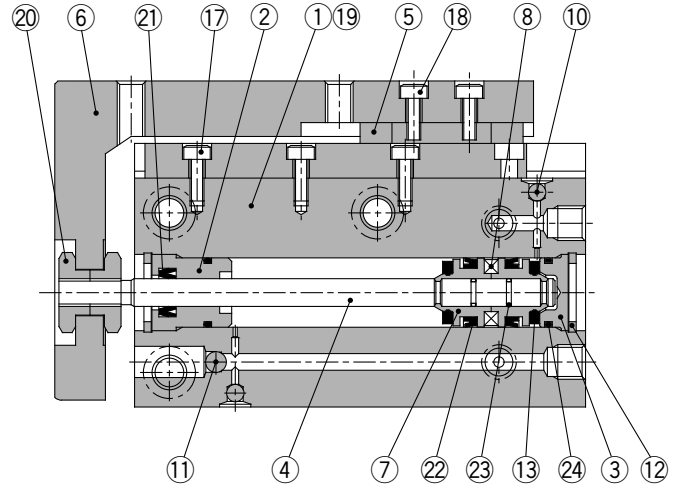
# Series MXH

## Construction

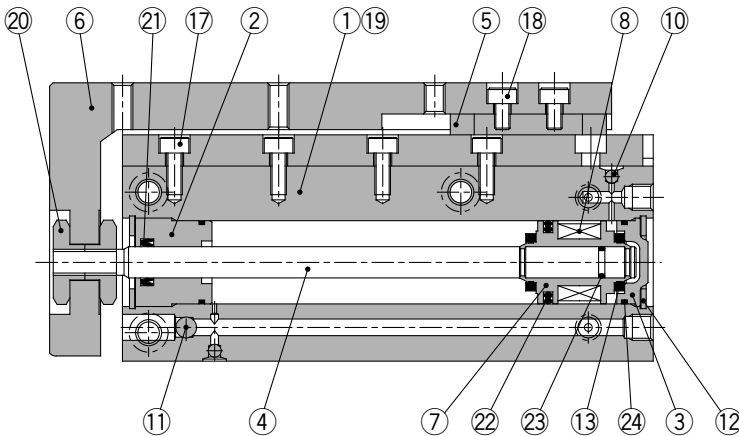
### MXH6 (ø6)



### MXH10 (ø10)



### MXH16/20 (ø16, ø20)



#### Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Rod cover	Brass	
3	Head cover	Brass	ø6, ø10 electroless nickel plated
		Aluminum alloy	ø16, ø20 chromated
4	Piston rod	Stainless steel	
5	Linear guide	—	
6	Table	Aluminum alloy	Hard anodized
7	Piston	Brass	ø6, ø10
		Aluminum alloy	ø16, ø20
8	Magnet	—	ø6, ø10 nickel plated
		Synthetic rubber	ø16, ø20
9	Magnet holder	Brass	ø6
10	Steel ball A	High carbon chrome bearing steel	
11	Steel ball B	High carbon chrome bearing steel	

Note: The MXH series cannot be disassembled.

#### Component Parts

No.	Description	Material	Note
12	C-type retaining ring for hole	Carbon tool steel	ø10, ø16, ø20
13	Bumper	Urethane	
14	Bumper	Urethane	
15	Seal retainer	Stainless steel	ø6
16	Round head Phillips screw	Carbon steel	ø6 black zinc chromated
17	Hexagon socket head cap screw	Chromium molybdenum steel	ø10, ø16, ø20 nickel plated
18	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
19	Hexagon socket head plug	Chromium molybdenum steel	Nickel plated
20	Nut	Brass	Nickel plated
21	Rod seal	NBR	
22	Piston seal	NBR	
23	Piston gasket	NBR	ø10, ø16, ø20
24	Gasket	NBR	