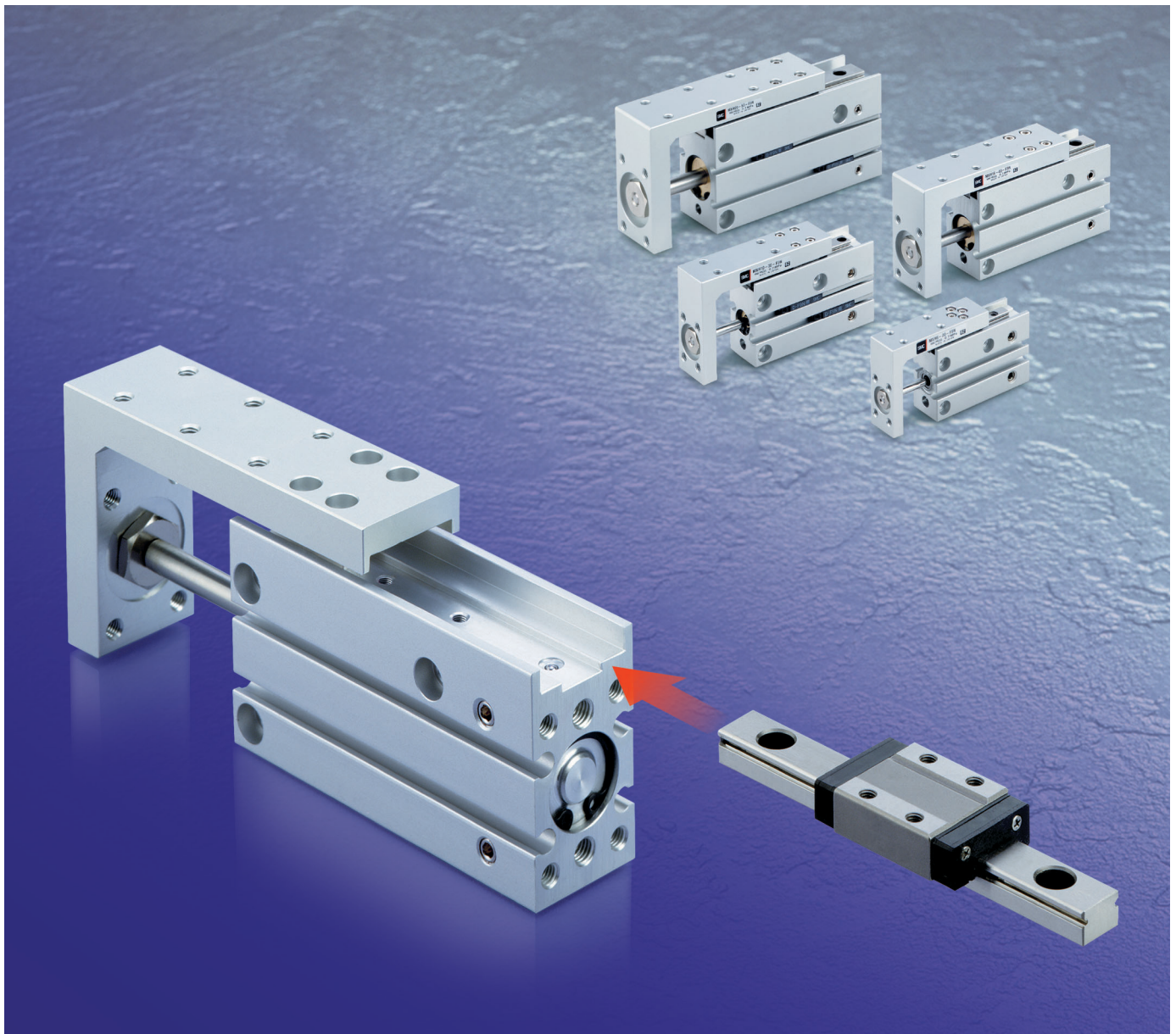


Compact Slide

Series *MXH*

ø6, ø10, ø16, ø20



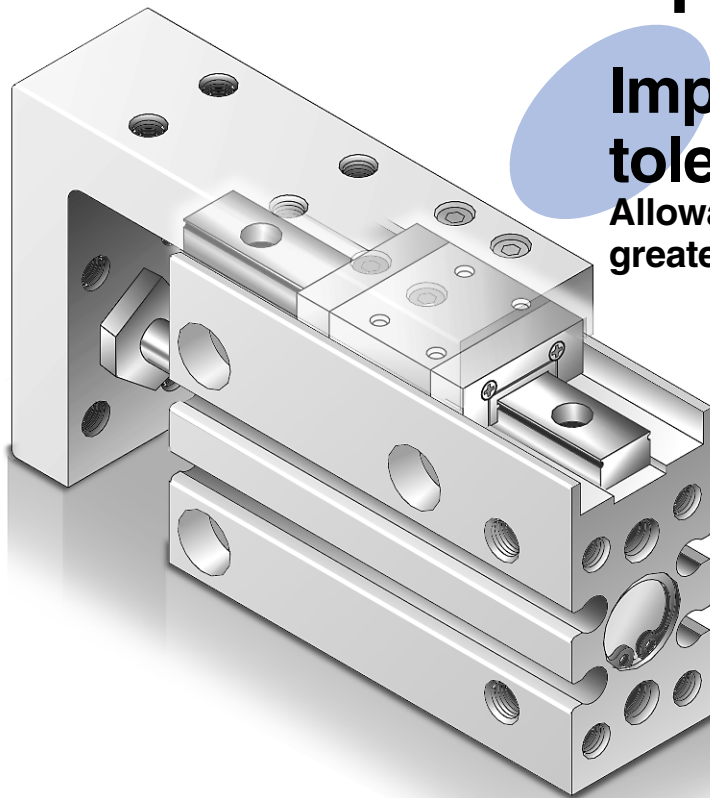
The use of an endless track linear guide produces a table cylinder having excellent rigidity, linearity and non-rotating accuracy.

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

Compact Slide *Series*

Improved moment tolerance

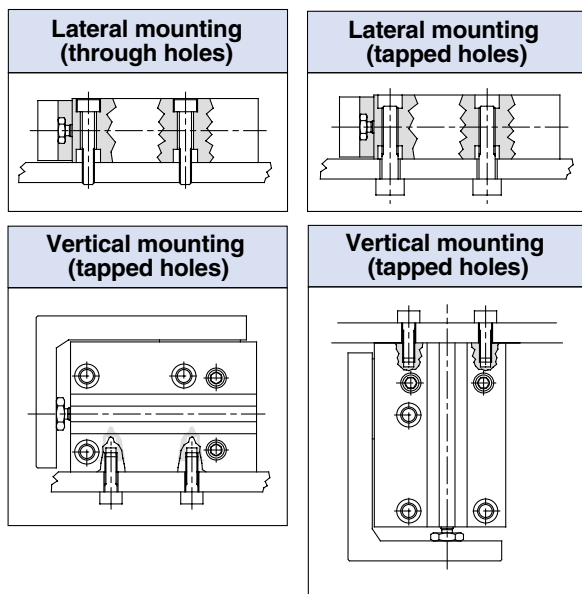
Allowable moment is approximately 6 times greater than the Series MXU



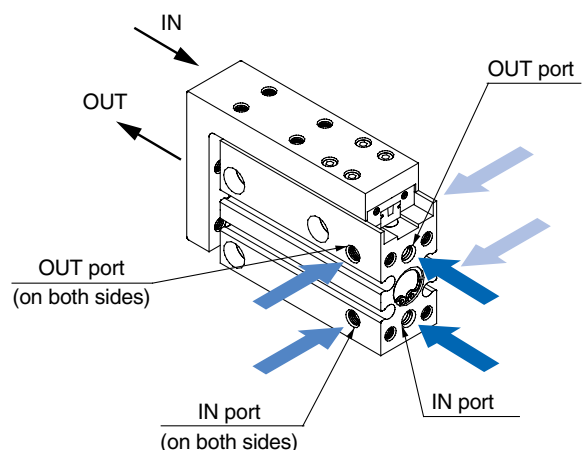
Long strokes up to 60mm are now standard

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

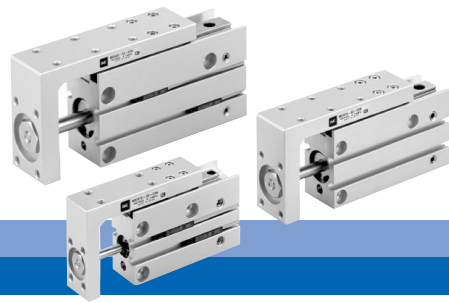
Mounting is possible from 4 directions



Piping is possible from 3 directions



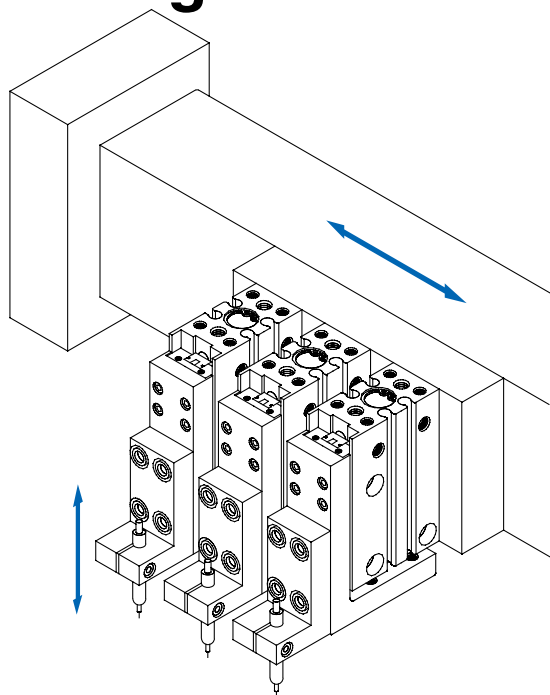
produces a table cylinder
 non-rotating accuracy



MXH / ø6, ø10, ø16, ø20

A table cylinder suitable for short pitch mounting

Application example



Auto switches offer numerous variations

Reed switches, solid state switches and 2 color indicator type
 solid state switches can be mounted

ø20 bore size is now standard

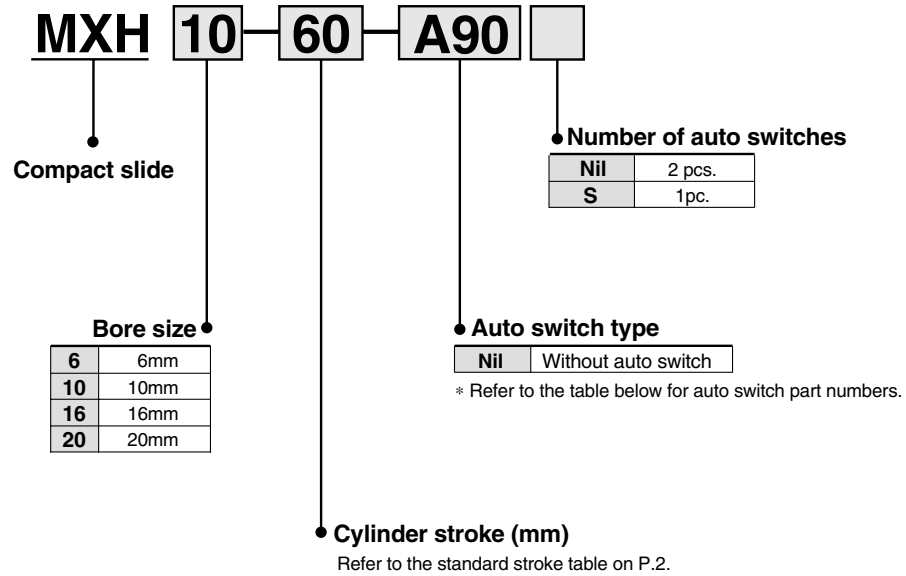
Series variations

Model	Bore size (mm)	Standard stroke (mm)								
		5	10	15	20	25	30	40	50	60
MXH6	6	•	•	•	•	•	•	•	•	•
MXH10	10	•	•	•	•	•	•	•	•	•
MXH16	16	•	•	•	•	•	•	•	•	•
MXH20	20	•	•	•	•	•	•	•	•	•

Series MXH

ø6, ø10, ø16, ø20

How to Order



Applicable auto switch types

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage			Auto switch model		Lead wire length (m) *			Applicable load		Detailed specifications	
					DC	AC		Electrical entry direction		0.5 (Nil)	3 (L)	5 (Z)				
						5V	100V or less	Vertical	Lateral							
Reed switch	-	Grommet	No	2 wire	24V	5V	100V	A90V	A90	●	●	-	IC circuit	Relay PLC	P.14	
					12V	100V	A93V	A93	●	●	-					
			Yes	3 wire (NPN equiv.)	-	5V	-	A96V	A96	●	●	-	IC circuit	-		
Solid state switch	-	Grommet	Yes	3 wire (NPN)	24V	12V	-	F9NV	F9N	●	●	-	-	Relay PLC	P.15	
				3 wire (PNP)				F9PV	F9P	●	●	-				
				2 wire				F9BV	F9B	●	●	-				
	Diagnostic indication (2 color indicator)			3 wire (NPN)				F9NWV	F9NW	●	●	○			-	P.16
	3 wire (PNP)			F9PWV				F9PW	●	●	○					
	2 wire			F9BWV				F9BW	●	●	○					

* Lead wire length symbol 0.5m Nil (Example) A93
3m L (Example) A93L
5m Z (Example) F9NWZ

* Solid state switches marked with a "O" are produced upon receipt of order.

* Refer to pages 12 through 17 for sections related to auto switches.

Compact Slide *Series MXH*

Specifications



1MPa: Approx. 10.2kgf/cm²

Bore size (mm)	6	10	16	20
Guide rail width (mm)	5	7	9	12
Fluid	Air			
Action	Double acting type			
Piping port size	M5 x 0.8			
Minimum operating pressure	0.12MPa {1.2kgf/cm ² }	0.06MPa {0.61kgf/cm ² }		0.05MPa {0.51kgf/cm ² }
Maximum operating pressure	0.7MPa{7.1kgf/cm ² }			
Proof pressure	1.05MPa{10.7kgf/cm ² }			
Ambient and fluid temperature	Without auto switch: -10 to 70°C (without freezing) With auto switch: -10 to 60°C (without freezing)			
Piston speed	50 to 500mm/s			
Allowable kinetic energy J (kgf·cm)	0.0125(0.127)	0.025(0.25)	0.05(0.5)	0.1(1.0)
Lubrication	Non-lube			
Cushion	Rubber bumpers at both ends			
Stroke length tolerance	+1.0 0			
Auto switches (optional)	Reed switch D-A9□ Solid state switch D-F9□			

Standard Stroke Table

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

Theoretical Output Table

(N)

Bore size (mm)	Rod diameter (mm)	Operating direction	Piston area (mm ²)	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

Minimum Stroke for Mounting of Auto Switches

(mm)

Number of auto switches mounted	Applicable auto switch models		
	D-A9□ D-A9□V	D-F9□ D-F9□V	D-F9□W D-F9□WV
1pc.	5	5	5
2pcs.	10	5	10

Weight Table

(g)

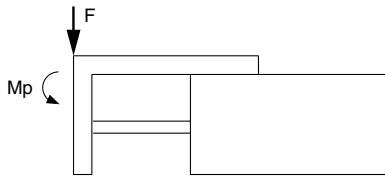
Model	Stroke (mm)								
	5	10	15	20	25	30	40	50	60
MXH6	62	67	76	81	91	96	111	125	140
MXH10	117	125	140	148	162	170	192	215	238
MXH16	216	227	247	258	279	290	323	353	386
MXH20	437	455	486	505	542	560	597	656	700

Series MXH

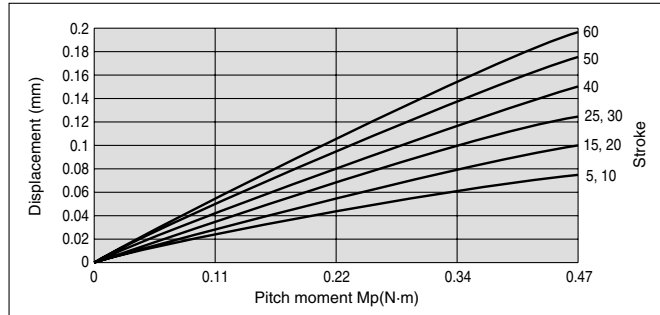
Table Displacement

Table displacement due to pitch moment

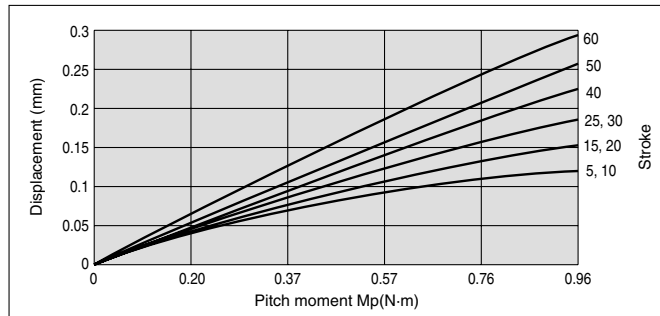
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



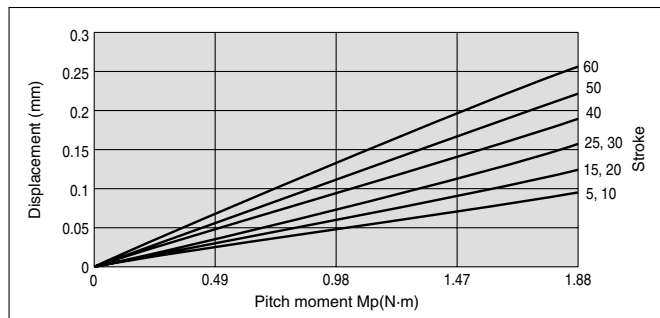
MXH6



MXH10



MXH16



MXH20

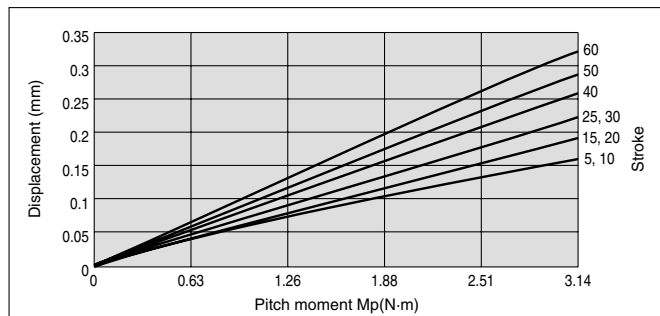
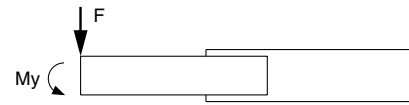
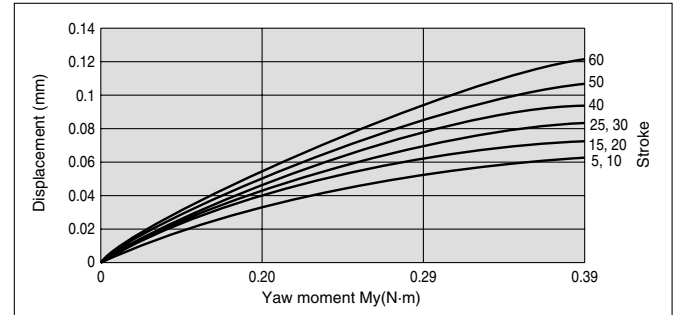


Table displacement due to yaw moment

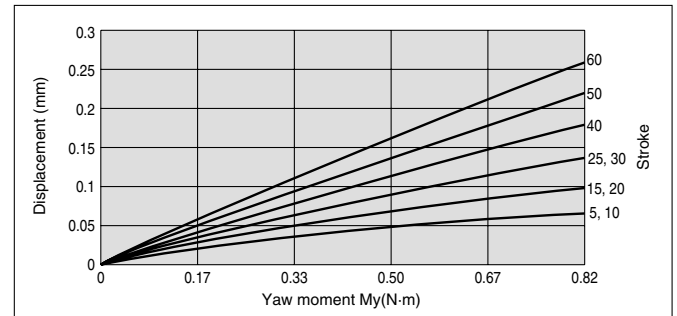
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



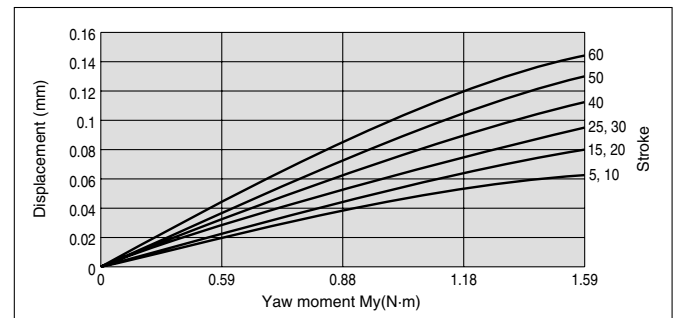
MXH6



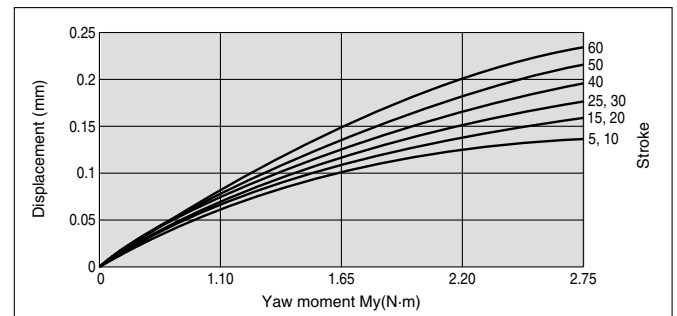
MXH10



MXH16



MXH20



Design Precautions



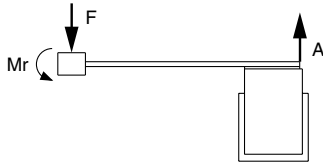
Caution

- ① Bore size selections cannot be made with the above graphs alone. Perform bore size selections with the model selection method provided on pages 5 and 6.
- ② The displacement may increase after the action of an impact load. When the table is subjected to an impact load, there may be permanent distortion of the guide unit and increased displacement.

Table Accuracy

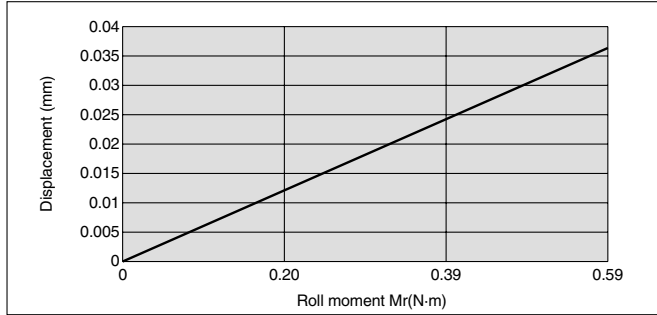
Table displacement due to roll moment

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

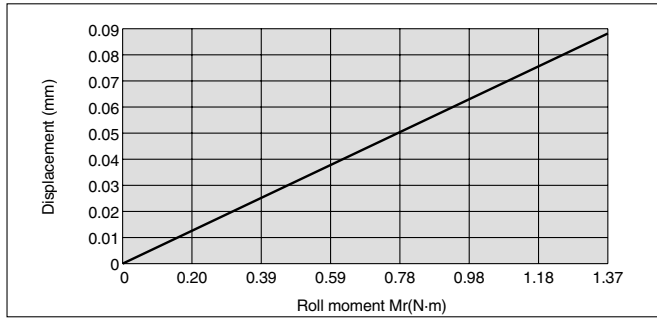


Running parallelism	Stroke (st)	
	5 to 30	40 to 60
	0.05mm or less	0.1mm or less

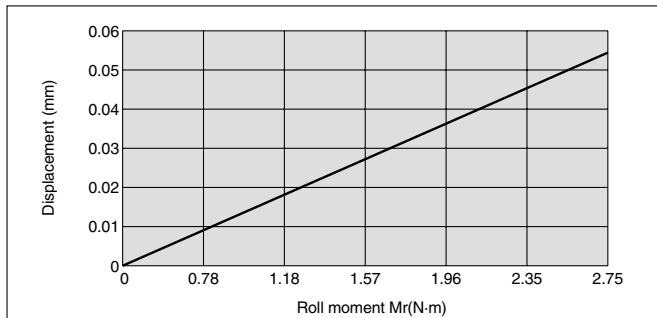
MXH6



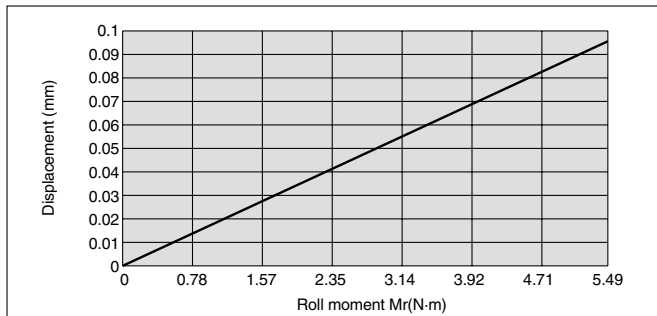
MXH10



MXH16



MXH20



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

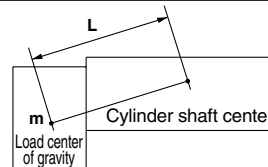
Series MXH Model Selection Method

⚠ Caution Separate confirmation of the theoretical output is necessary. Refer to the theoretical output table on page 2.

Selection Conditions: Determine the selection conditions in order, starting from the upper row in the table below, and choose one of the selection graphs to be used.

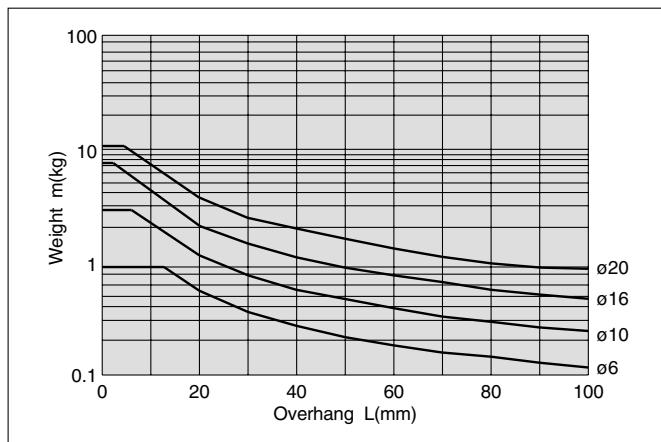
Mounting position	Vertical			Horizontal								
Maximum speed mm/s	to 100	to 300	to 500	to 100			to 300			to 500		
Load eccentricity e mm	-			50	100	200	50	100	200	50	100	200
Selection graph	1	2	3	4	5	6	7	8	9	10	11	12

* 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 drawing at right)

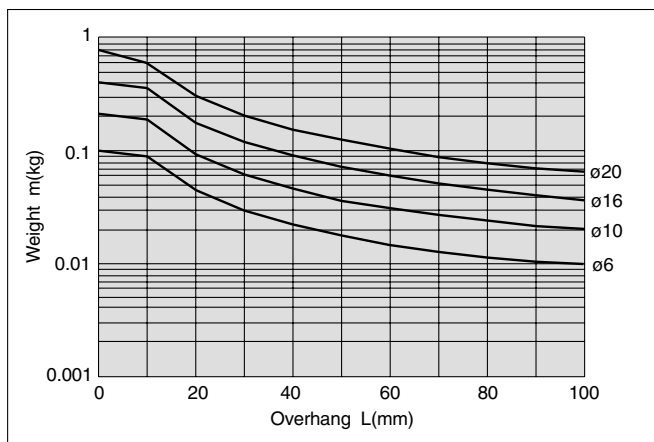


Selection Graphs **1** to **3** (Vertical Mounting)

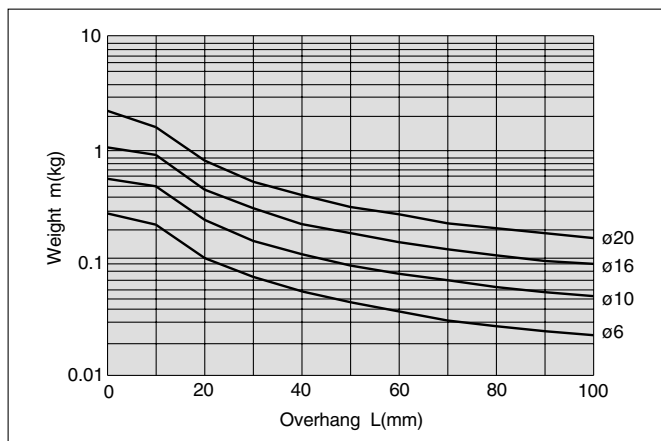
Graph 1 Maximum speed 100(mm/s) or less



Graph 3 Maximum speed 500(mm/s) or less



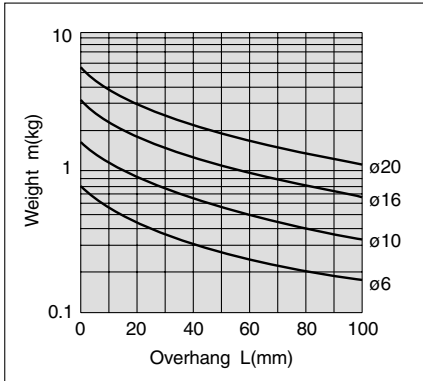
Graph 2 Maximum speed 300(mm/s) or less



Selection Graphs 4 to 12 (Horizontal Mounting)

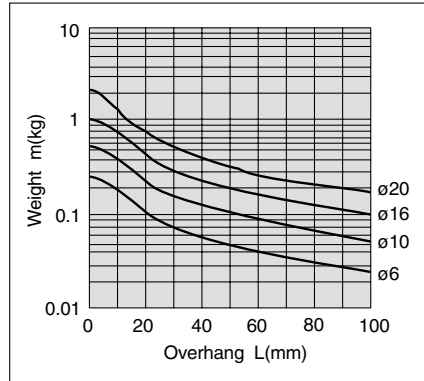
Maximum speed 100mm/s or less

Graph 4 Load eccentricity 50mm



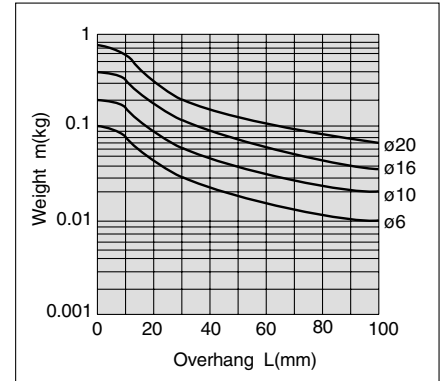
Maximum speed 300mm/s or less

Graph 7 Load eccentricity 50mm

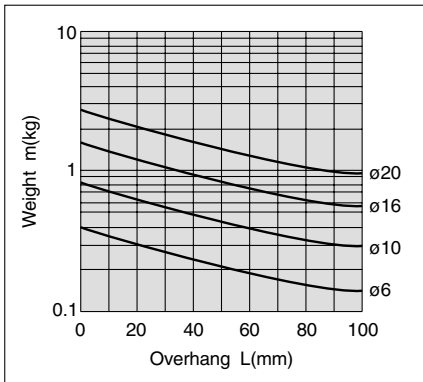


Maximum speed 500mm/s or less

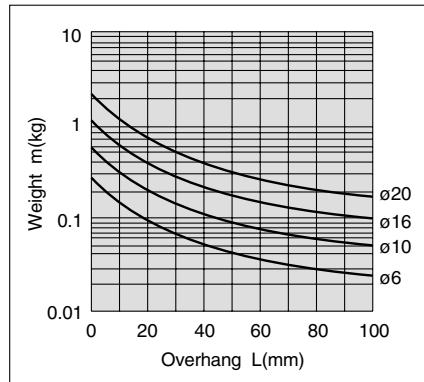
Graph 10 Load eccentricity 50mm



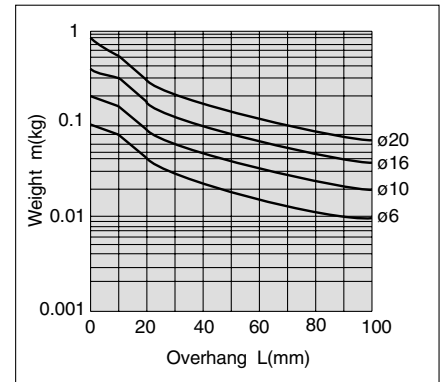
Graph 5 Load eccentricity 100mm



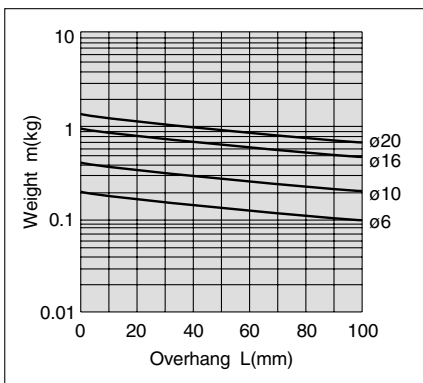
Graph 8 Load eccentricity 100mm



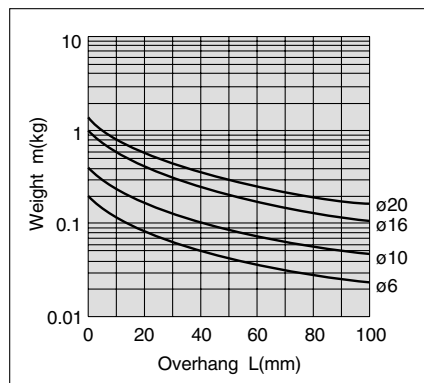
Graph 11 Load eccentricity 100mm



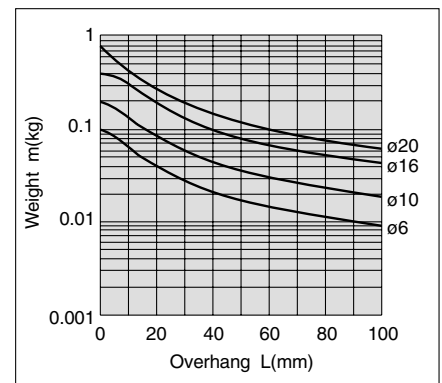
Graph 6 Load eccentricity 200mm



Graph 9 Load eccentricity 200mm



Graph 12 Load eccentricity 200mm



Selection Examples

- ① Selection conditions
- Mounting: Vertical
 - Maximum speed: 500mm/s
 - Overhang: 40mm
 - Load weight: 0.1Kg

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

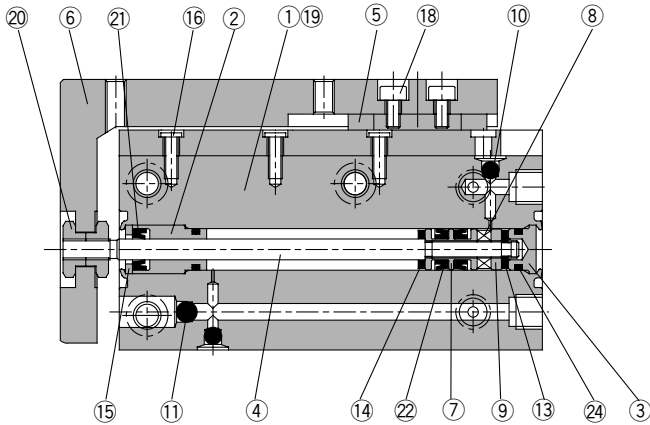
- ② Selection conditions
- Mounting: Horizontal
 - Maximum speed: 500mm/s
 - Load eccentricity: 50mm
 - Overhang: 30mm
 - Load weight: 0.1Kg

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

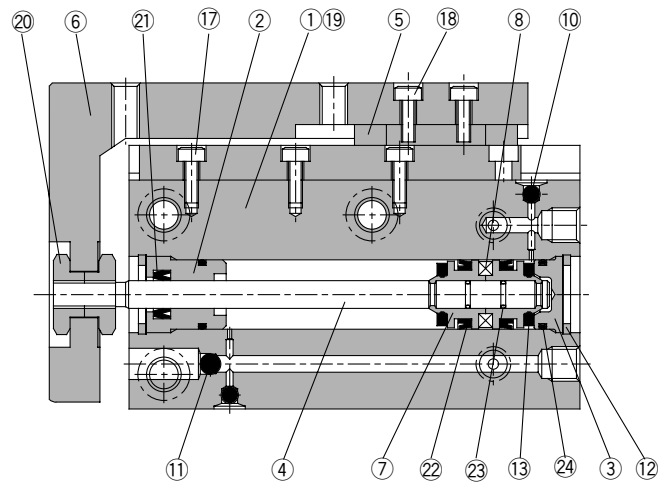
Series MXH

Construction

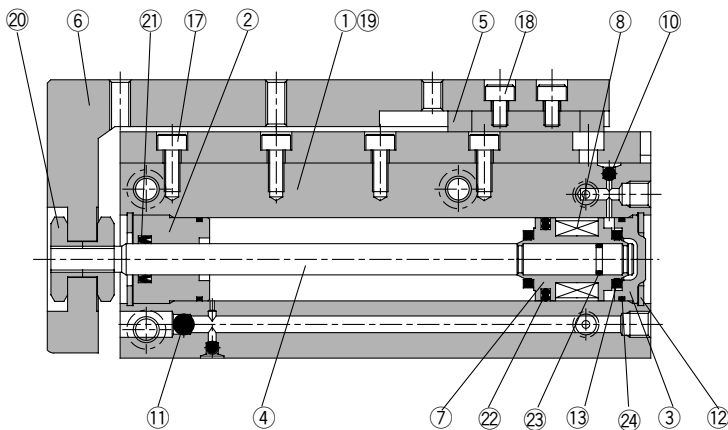
MXH6 (ø6)



MXH10 (ø10)



MXH16, 20 (ø16, ø20)



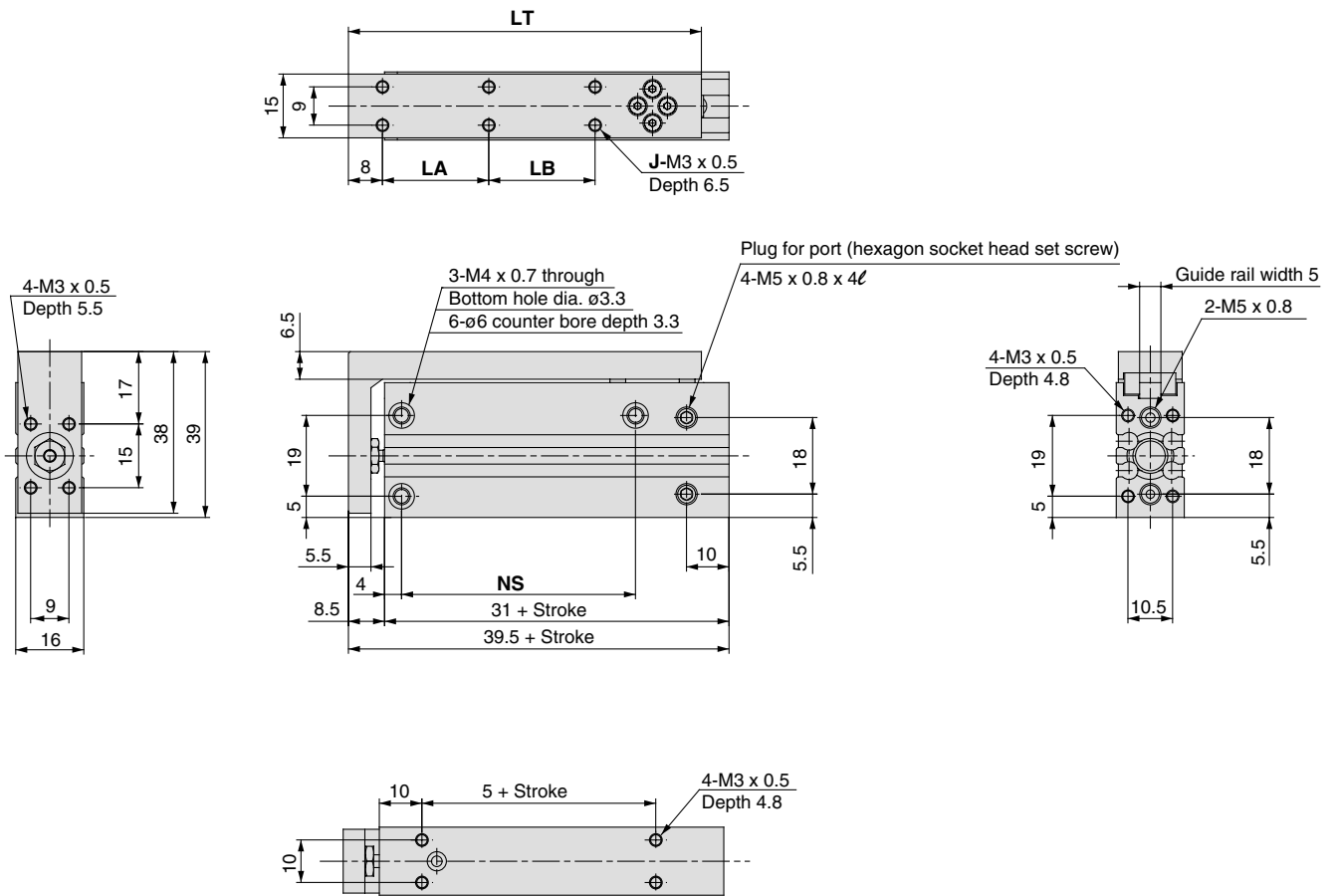
Parts list

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 white 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	Magnet material	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	

Parts list

No.	Description	Material	Note
12	C type snap 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	Chrome molybdenum steel	ø10, ø16, ø20 nickel plated
18	Hexagon socket head cap screw	Chrome molybdenum steel	Nickel plated
19	Hexagon socket head plug	Chrome 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	

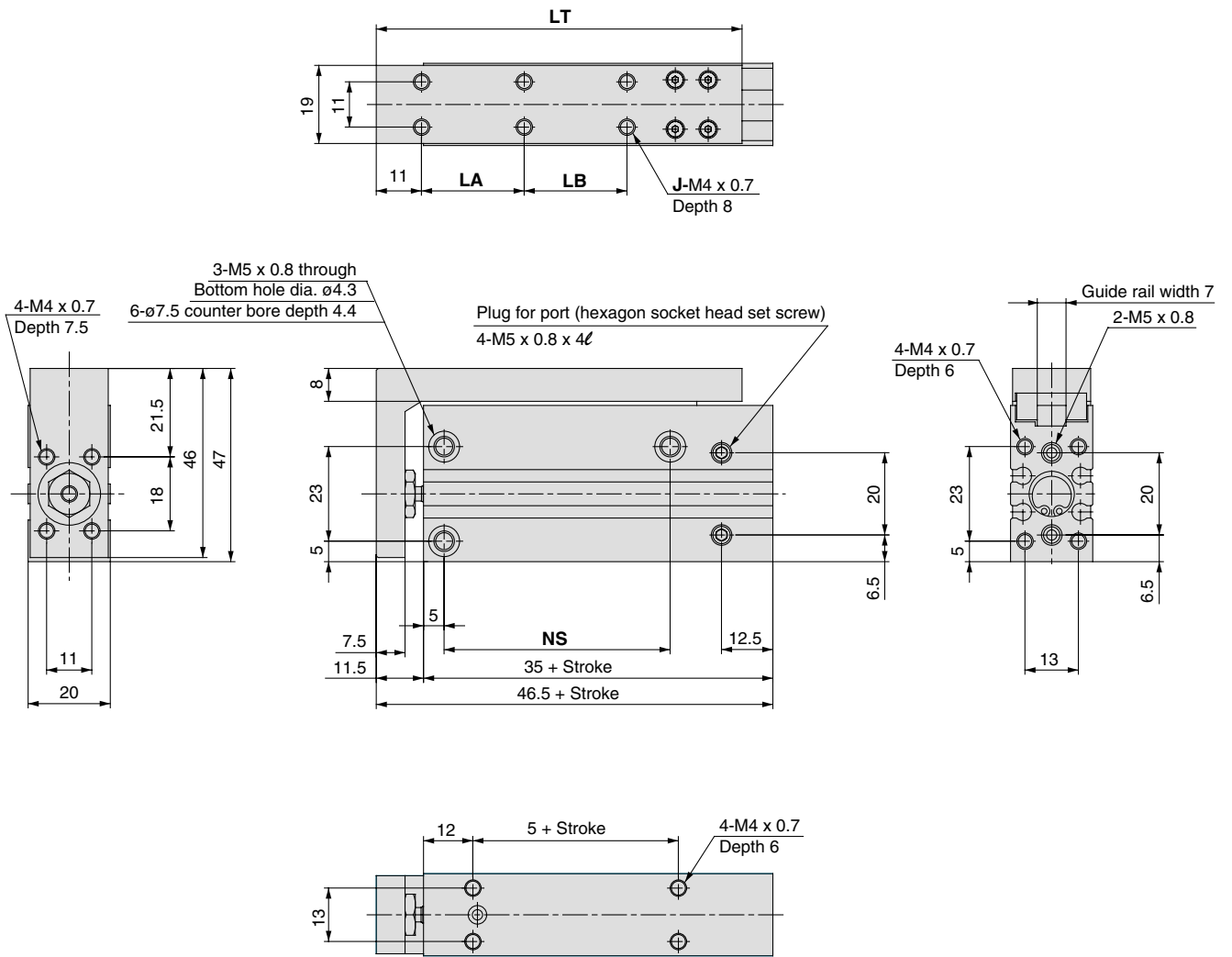
Dimensions/ø6



Stroke (mm)	J	LA	LB	LT	NS
5	4	10	—	42	14
10	4	10	—	42	14
15	4	20	—	52	24
20	4	20	—	52	24
25	4	30	—	62	30
30	4	30	—	62	30
40	6	20	20	72	45
50	6	25	25	82	55
60	6	30	30	92	60

Series MXH

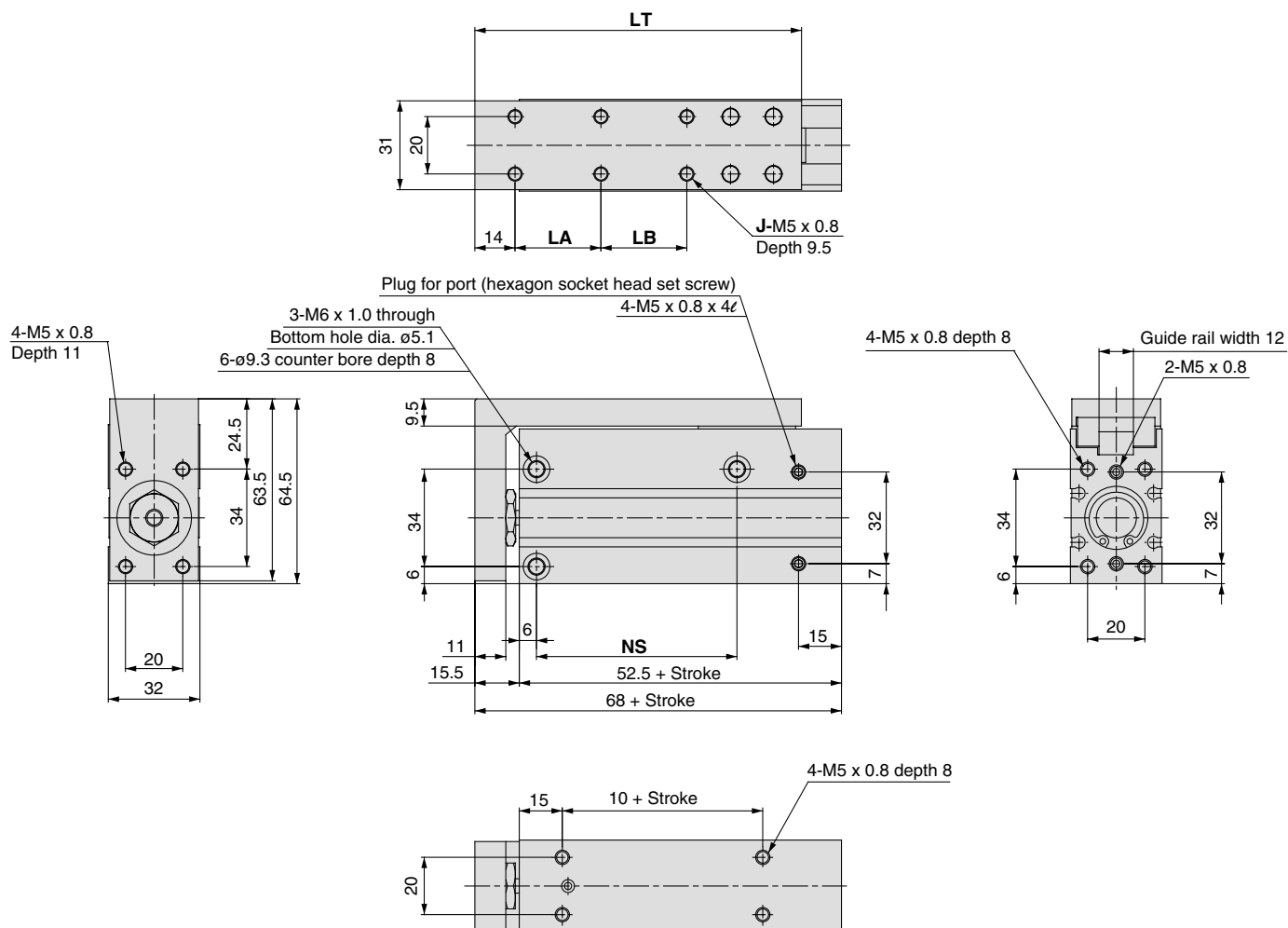
Dimensions/ $\phi 10$



Stroke (mm)	J	LA	LB	LT	NS
5	4	10	—	49	14
10	4	10	—	49	14
15	4	20	—	59	24
20	4	20	—	59	24
25	4	30	—	69	30
30	4	30	—	69	30
40	6	20	20	79	45
50	6	25	25	89	55
60	6	30	30	99	60

Series MXH

Dimensions/ $\phi 20$



Stroke (mm)	J	LA	LB	LT	NS
5	4	10	—	64	20
10	4	10	—	64	20
15	4	20	—	74	25
20	4	20	—	74	25
25	4	30	—	84	40
30	4	30	—	84	40
40	6	20	20	94	50
50	6	25	25	104	70
60	6	30	30	114	70