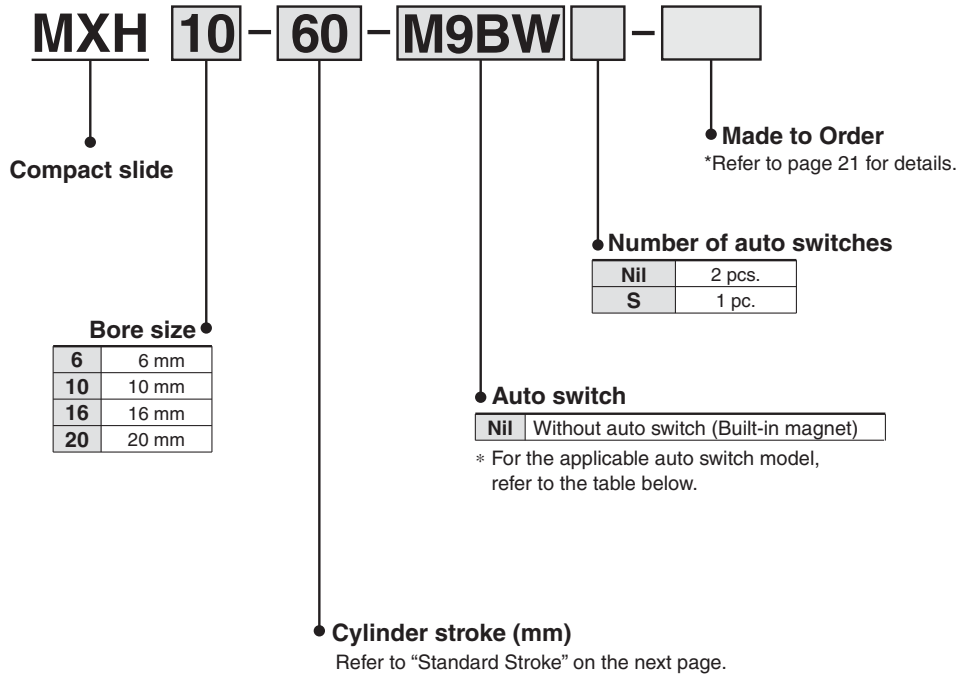


Compact Slide

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	— 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	●	●	●	○	○	IC circuit	
				3-wire (PNP)				M9PWV	M9PW	●	●	●	○	○	IC circuit	
				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			

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

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 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

(N)

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

(g)

D-□

-X□

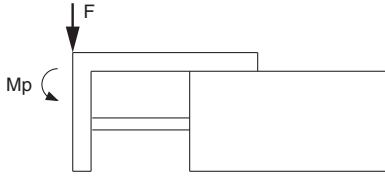
Individual
-X□

Series MXH

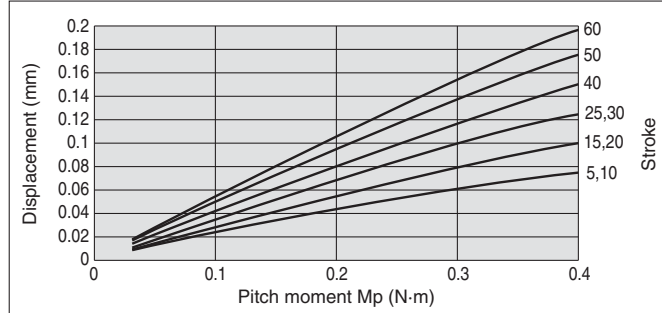
Table Displacement

Table Displacement due to Pitch Moment

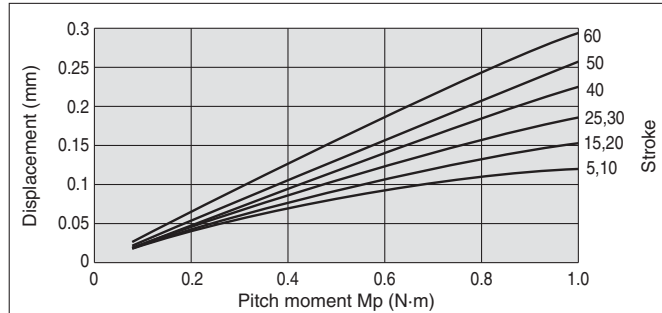
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



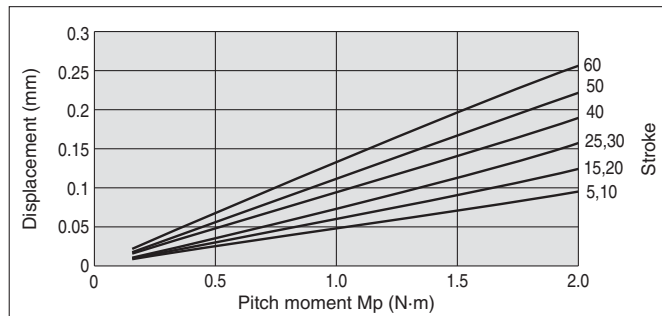
MXH6



MXH10



MXH16



MXH20

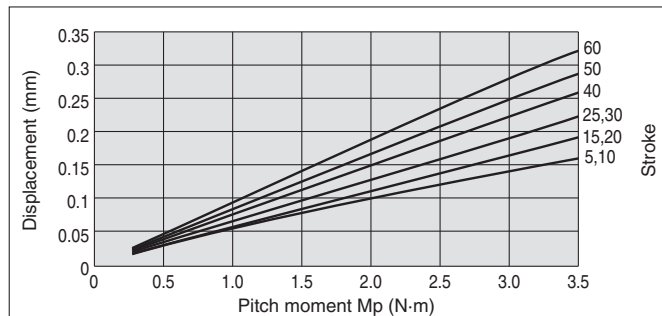
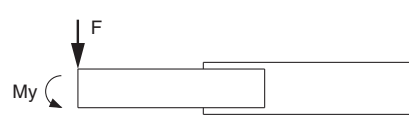
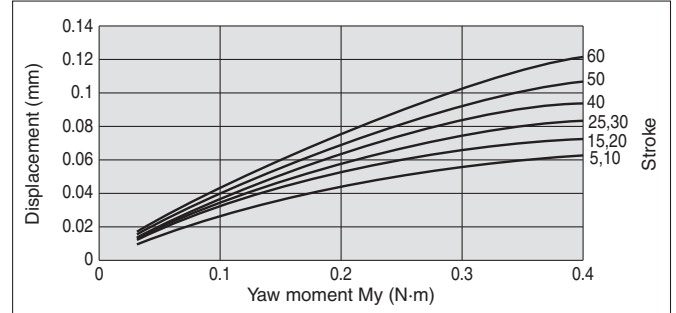


Table Displacement due to Yaw Moment

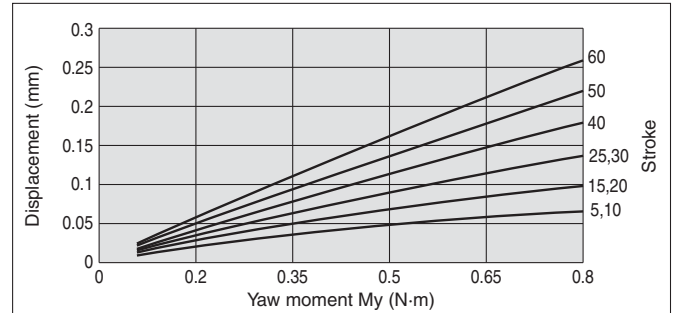
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



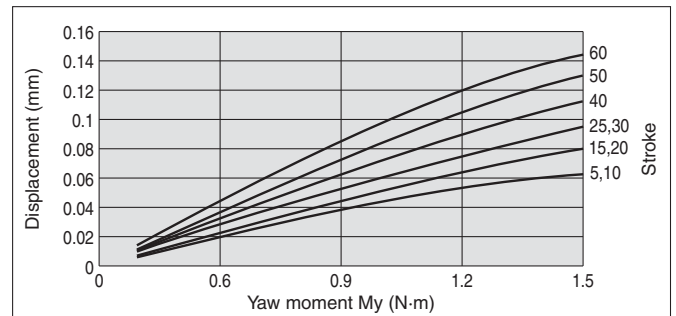
MXH6



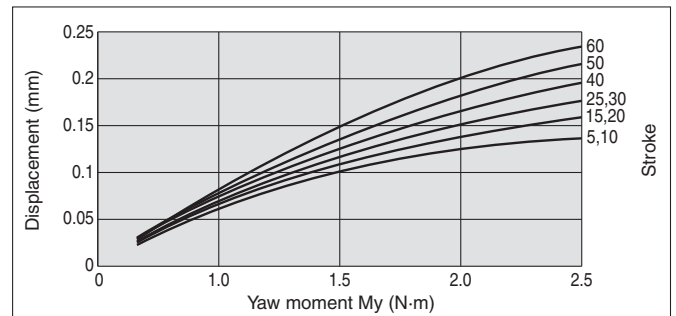
MXH10



MXH16



MXH20



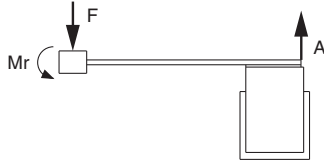
⚠ Caution Caution on Design

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.

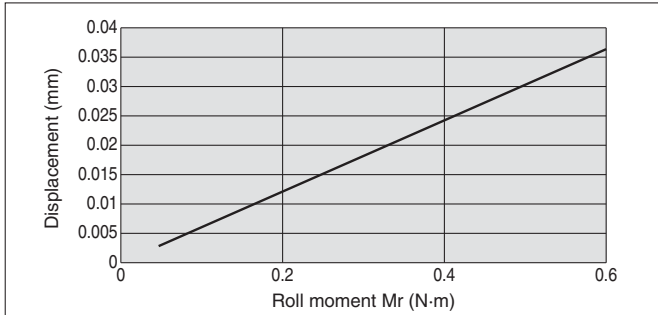
Table Displacement

Table Displacement due to Roll Moment

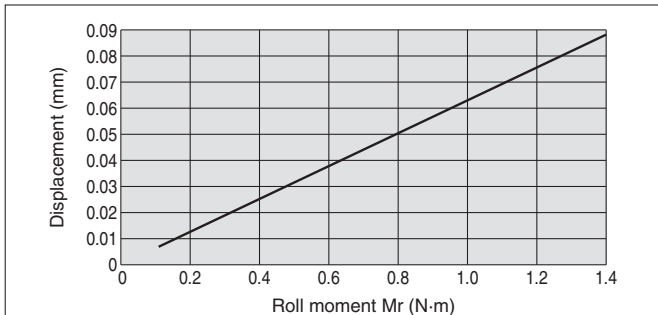
Table displacement (at A) when a load acts upon section F at the full stroke of the compact slide



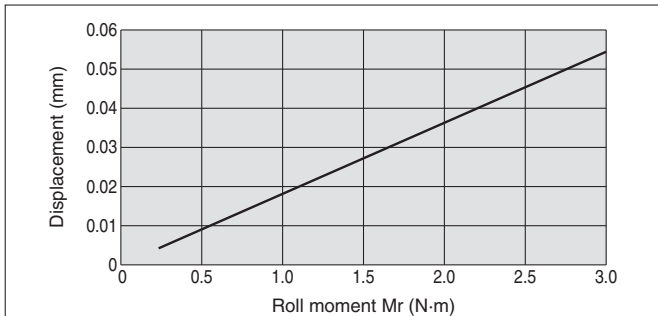
MXH6



MXH10



MXH16



MXH20

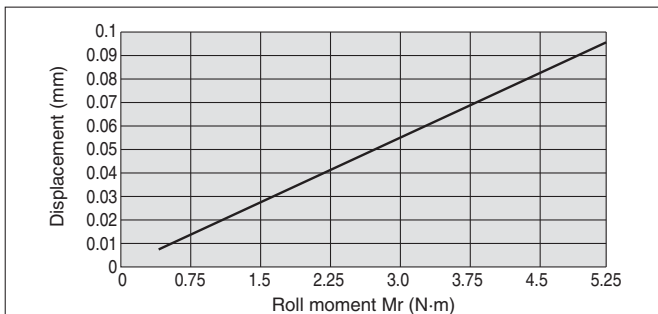


Table Accuracy

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
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

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

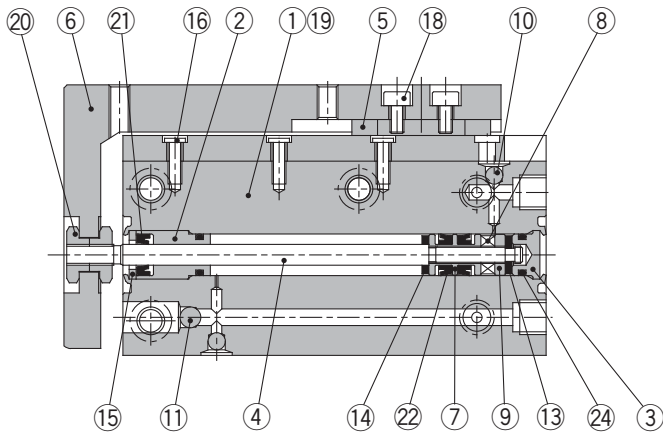
-X□

**Individual
-X□**

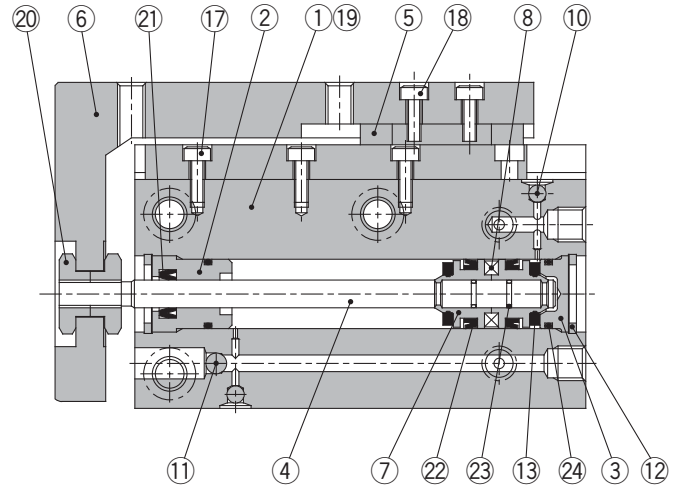
Series MXH

Construction

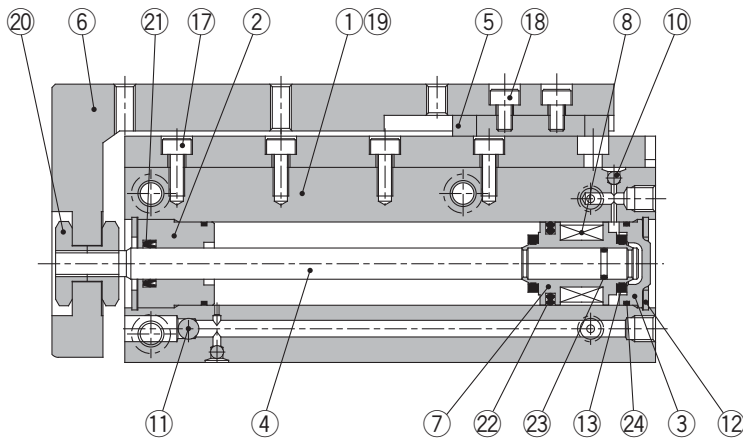
MXH6 (ø6)



MXH10 (ø10)



MXH16/20 (ø16, ø20)



Component Parts

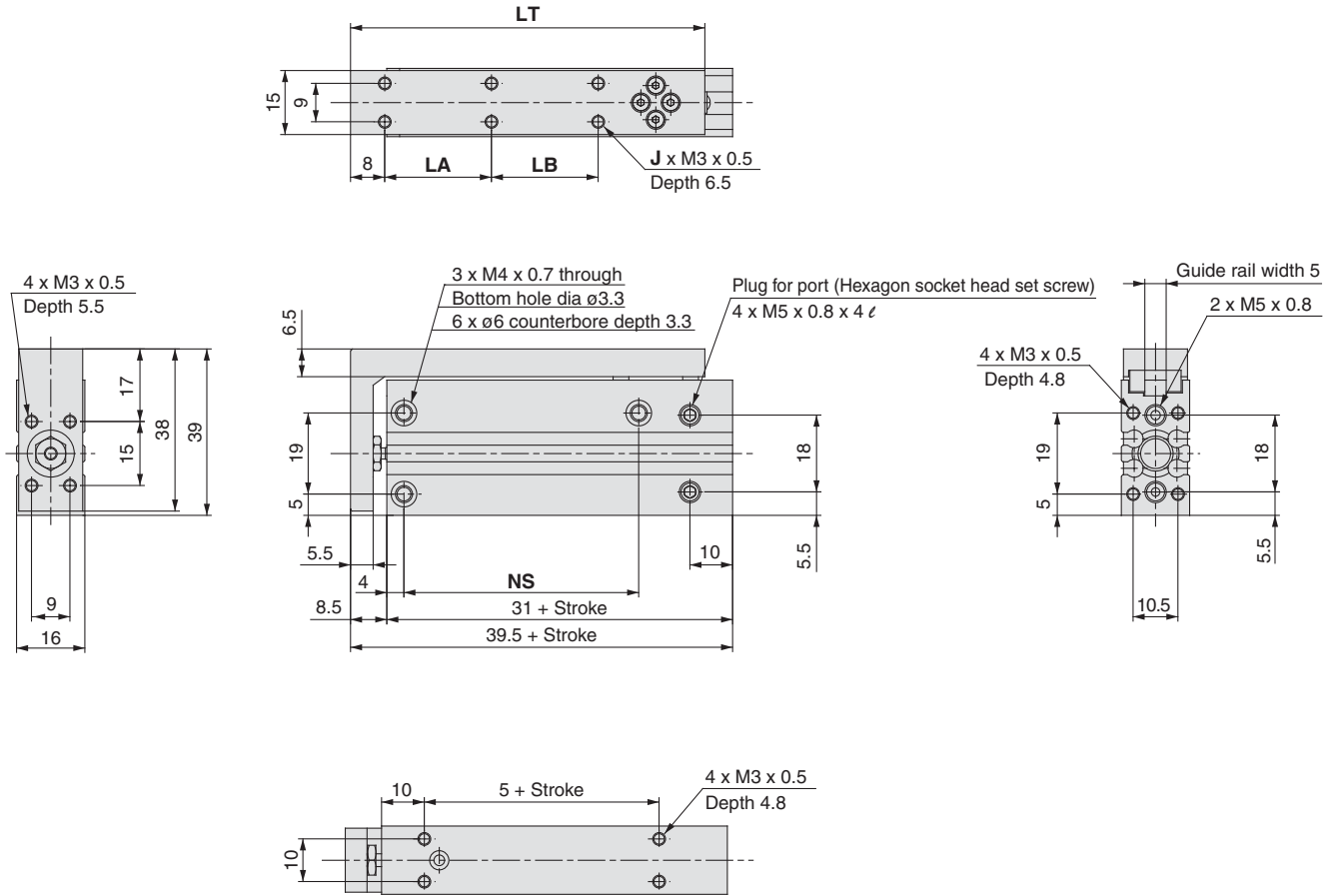
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Rod cover	Brass	
3	Head cover	Brass	ø6, ø10 electroless nickel plated
		Aluminum alloy	ø16, ø20 chromated
4	Piston rod	Stainless steel	
5	Linear guide	—	
6	Table	Aluminum alloy	Hard anodized
7	Piston	Brass	ø6, ø10
		Aluminum 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	

Dimensions: $\phi 6$



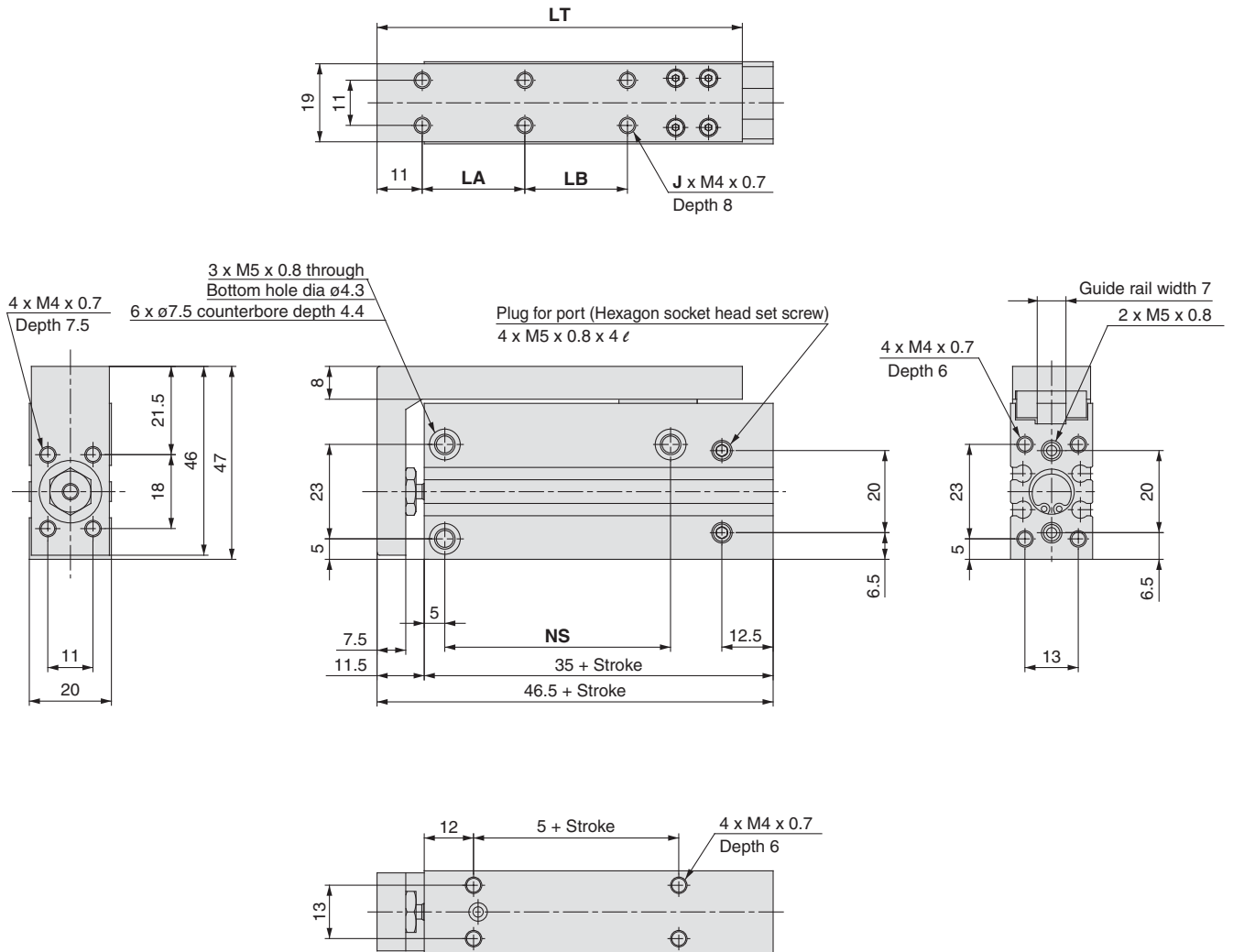
- MXH**
- MXU**
- MXS**
- MXQ**
- MXF**
- MXW**
- MXJ**
- MXP**
- MXY**
- MTS**

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

- D-□**
- X□**
- Individual -X□**

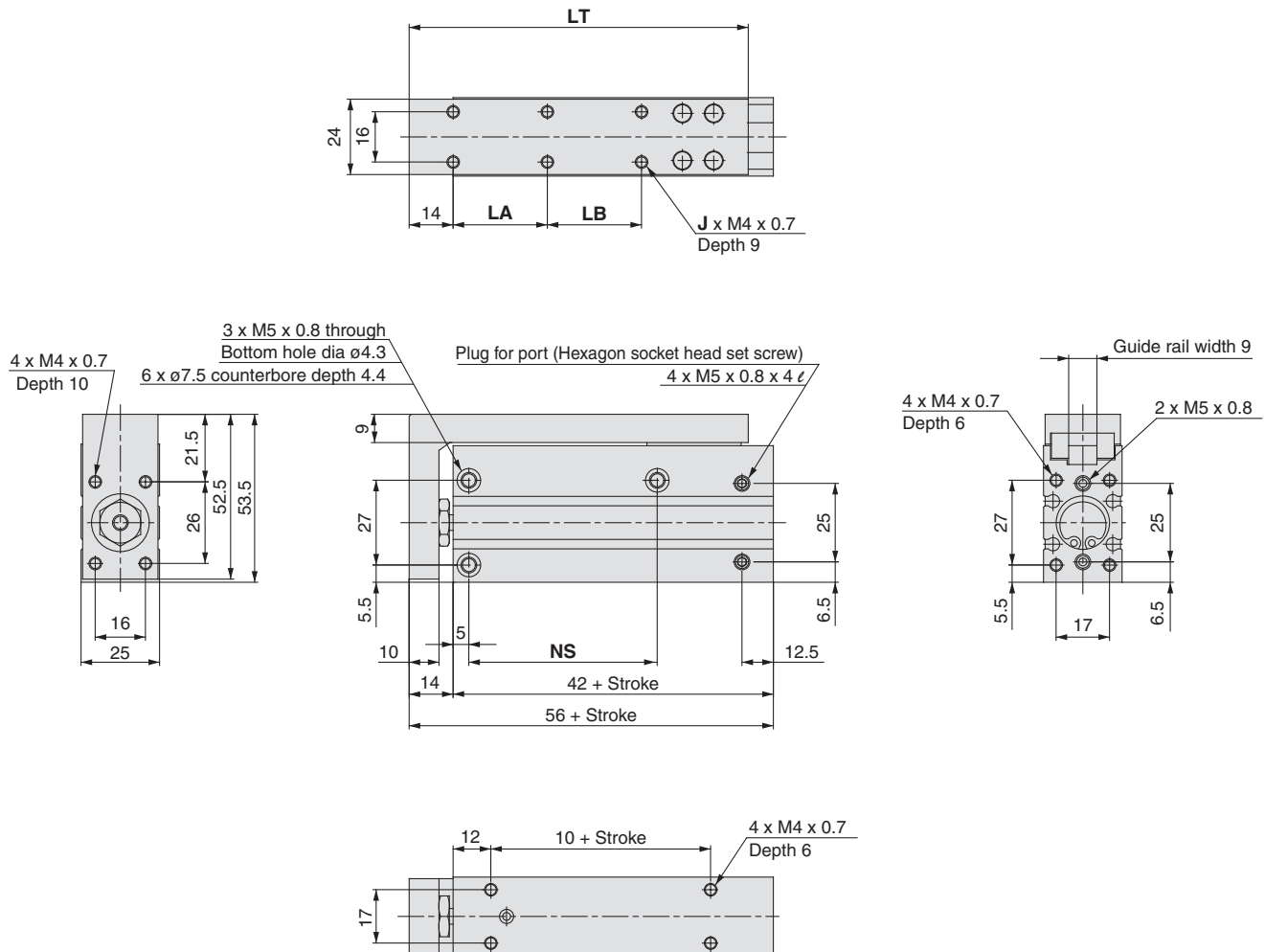
Series MXH

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

Dimensions: $\phi 16$



MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

Stroke (mm)	J	LA	LB	LT	NS
5	4	10	—	58	20
10	4	10	—	58	20
15	4	20	—	68	30
20	4	20	—	68	30
25	4	30	—	78	40
30	4	30	—	78	40
40	6	20	20	88	50
50	6	25	25	98	60
60	6	30	30	108	60

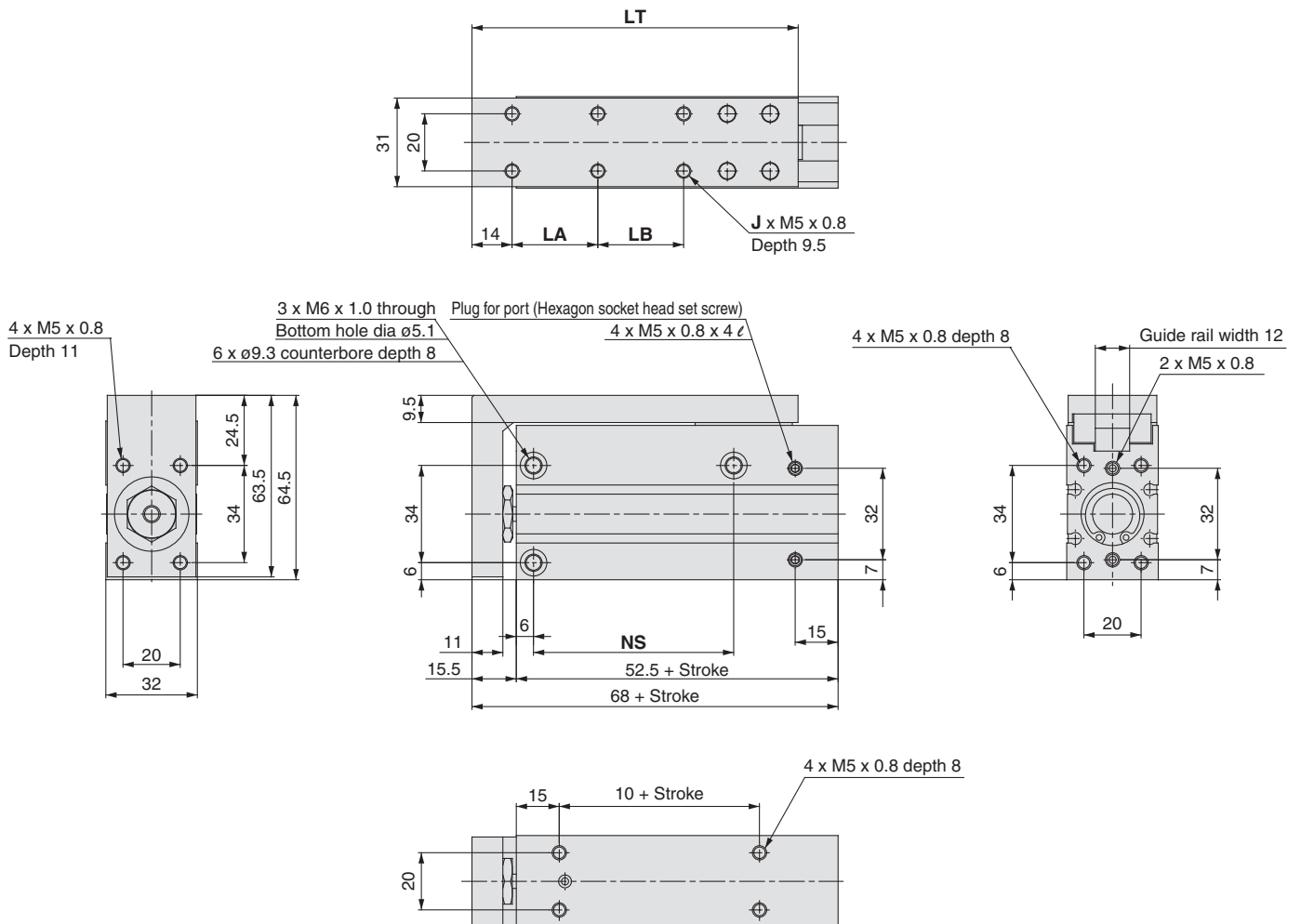
D-□

-X□

Individual
-X□

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

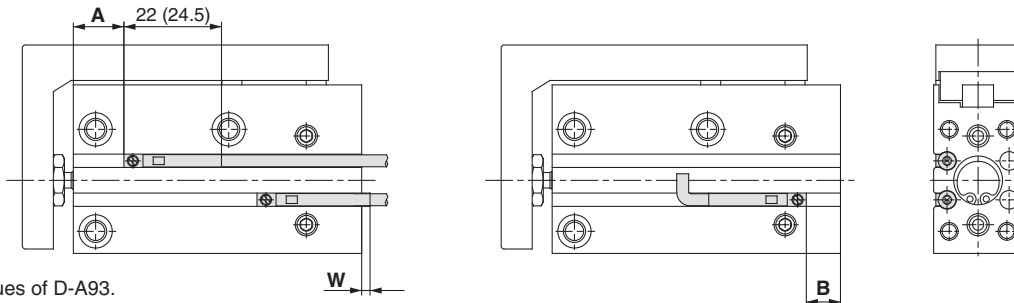
Minimum Stroke for Auto Switch Mounting

(mm)

No. of auto switches mounted	Applicable auto switch model		
	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

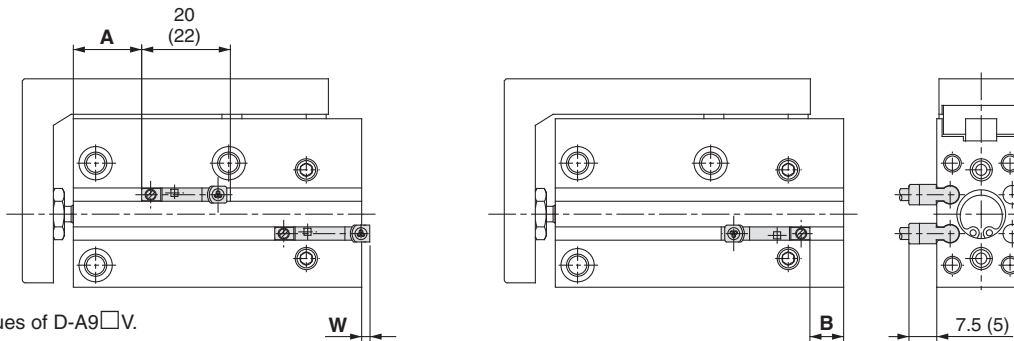
Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

D-A9□
D-M9□
D-M9□W



() : denotes the values of D-A93.

D-A9□V
D-M9□V
D-M9□WV



() : denotes the values of D-A9□V.

(mm)

Bore size (mm)	D-A9□, D-A9□V			D-M9□W, D-M9□			D-M9□WV, D-M9□V		
	A	W	B	A	W	B	A	W	B
6	12.5	3.5 (6)	—	16.5	7.5	2.5	16.5	5.5	2.5
10	11.0	-2.0 (0.5)	3.5	15.0	2.0	7.5	15.0	0	7.5
16	18.0	-2.0 (0.5)	4.0	22.0	2.0	8.0	22.0	0	8.0
20	26.0	-4.5 (-2)	6.5	30.0	-0.5	10.5	30.0	-2.5	10.5

- Note 1) Negative figures in the table W indicate an auto switch is mounted inward from the edge of the cylinder body.
 Note 2) In the case of models with 5 and 10 strokes, the switch may not turn off due to operating range or two switches may turn on simultaneously. Fix switches outside 1 to 4 mm further than the values in the above table. (if 1 switch is used, make sure that it turns ON and OFF properly; if 2 switches are used, make sure that both switches turn ON.)
 Note 3) () in column W denotes the dimensions of D-A93.

Operating Range

(mm)

Auto switch model	Bore size			
	6	10	16	20
D-A9□, A9□V	5	6	9	11
D-M9□, M9□V D-M9□W, M9□WV	3	3.5	5	6

* Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion.)
 There may be the case it will vary substantially depending on an ambient environment.

Besides the models listed in How to Order, the following auto switches are applicable.

* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) are also available. Refer to page 1746 for details.

MXH

MXU

MXS

MXQ

MXF

MXW

MXJ

MXP

MXY

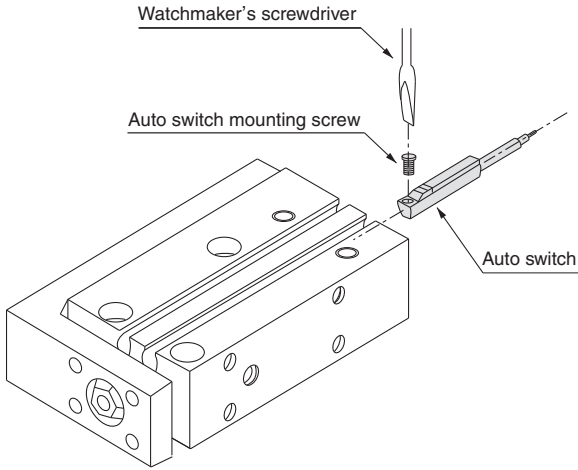
MTS

D-□

-X□

Individual
-X□

Auto Switch Mounting



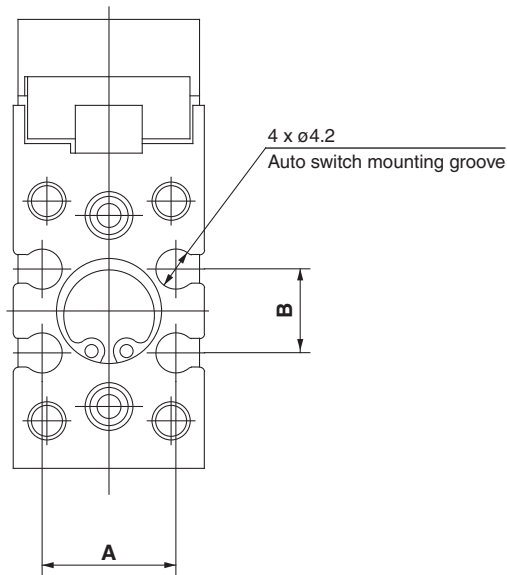
- When tightening the auto switch mounting screw, use a watchmaker's screwdriver with a handle 5 to 6 mm in diameter.

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

Note) When used with side piping, it is not possible to mount a D-A9□V, M9□V auto switch type on the side to which the piping is connected.

Auto switch groove position



Bore size (mm)	(mm)	
	A	B
6	10	6.9
10	14	8.8
16	19	13.7
20	26	17.1