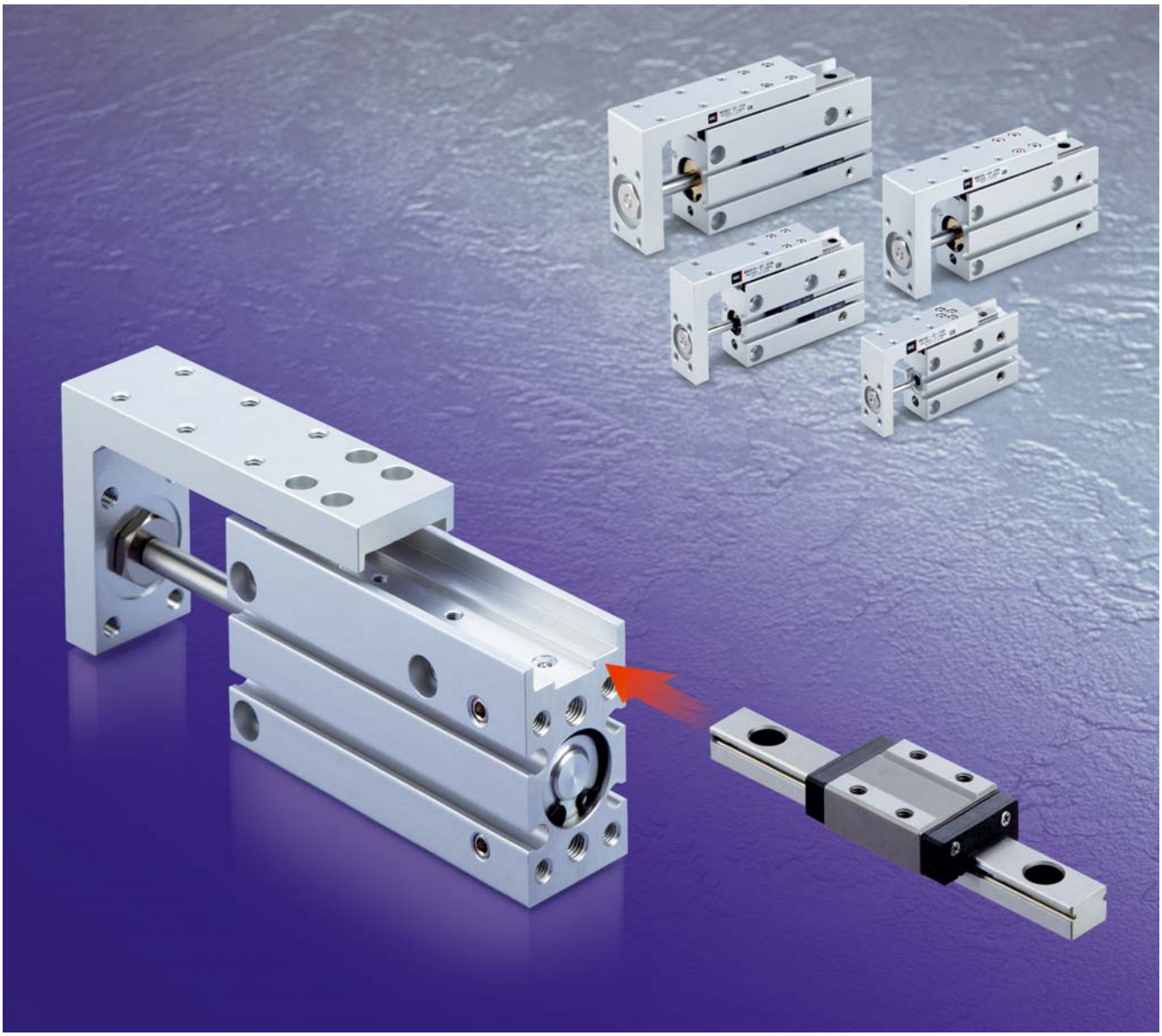
CAT.EUS20-142 B -UK

SMC

Compact Slide
Series MXH
ø6, ø10, ø16, ø20



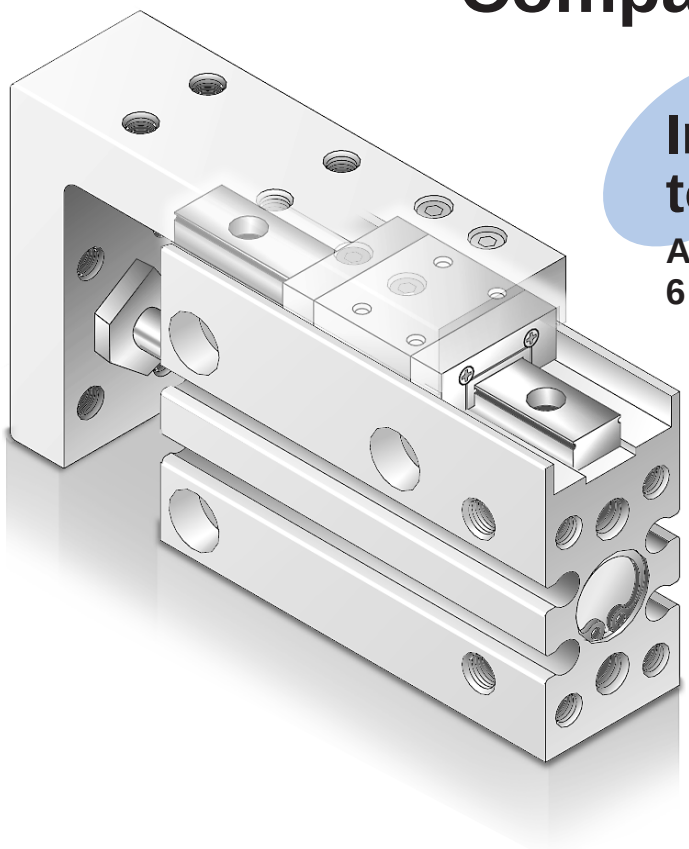
The use of an endless track linear guide produces a table cylinder having excellent rigidity, linearity and non-rotating accuracy.

Made to Order

- **-XB13□: Low speed cylinder (5 to 50 mm/s)**
- **-XC3□: Special port location**
- **-XC19 : Intermediate stroke (Spacer type)**
- **-XC22 : Fluoro rubber seals**
- **-XC79 : Additional machining of tapped hole, drilled hole or pinned hole**

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

Compact Slide Series



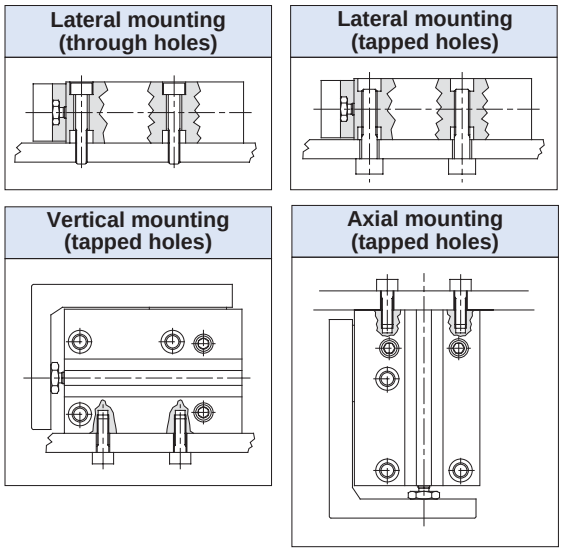
Improved moment tolerance

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

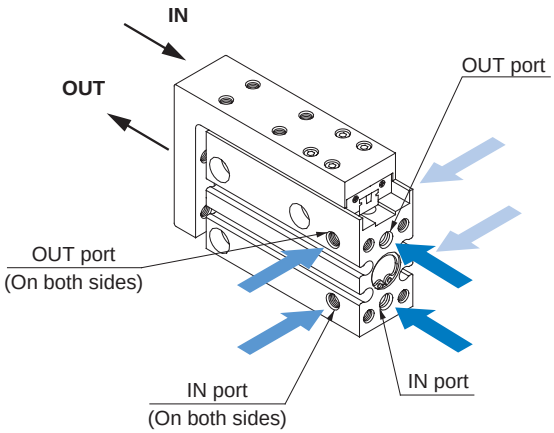
Long strokes up to 60 mm are now standard.

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.

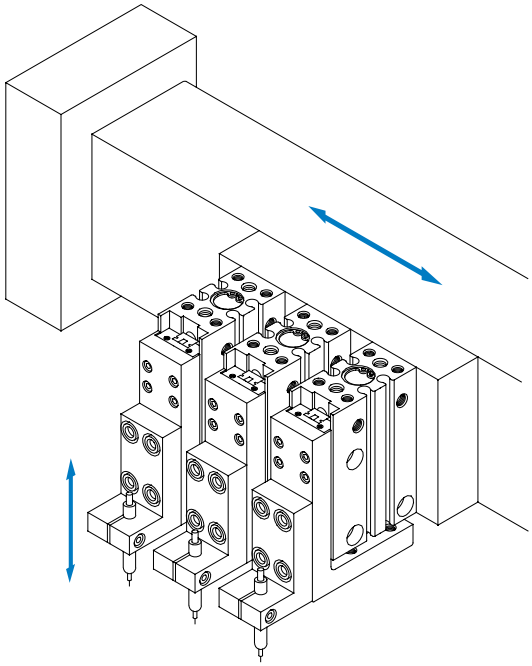


produces a table cylinder non-rotating accuracy.

MXH / ø6, ø10, ø16, ø20

A table cylinder suitable for short pitch mounting

Application example



Numerous variations of auto switches.

Reed switches, solid state switches and 2-colour indicator type solid state switches can be mounted.

ø20 bore size is now standard.

Series Variations

Model	Bore size (mm)	Standard stroke (mm)									Made to Order
		5	10	15	20	25	30	40	50	60	
MXH6	6	●	●	●	●	●	●	●	●	●	• -XB13□ : Low speed cylinder (5 to 50 mm/s) • -XC3□ : Special port location • -XC19 : Intermediate stroke (Spacer type) • -XC22 : Fluoro rubber seals • -XC79 : Additional machining of tapped hole drilled hole or pinned hole.
MXH10	10	●	●	●	●	●	●	●	●	●	
MXH16	16	●	●	●	●	●	●	●	●	●	
MXH20	20	●	●	●	●	●	●	●	●	●	

Compact Slide

Series MXH

ø6, ø10, ø16, ø20

How to Order

MXH **10** – **60** – **M9N** ☐

Compact slide

Number of auto switches

-	2 pcs.
S	1 pc.

Bore size

6	6 mm
10	10 mm
16	16 mm
20	20 mm

Auto switch

-	Without auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switches are shipped together, (but not assembled).

Cylinder stroke (mm)
Refer to "Standard Stroke" on the next page.

Applicable Auto Switches/Refer to page 14 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Perpendicular	Auto switch model In-line	Lead wire length (m) ∗ 0.5 (Nil)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	●	●	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**	**A93**	●	●	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	**A90V**	**A90**	●	●	—	—	IC circuit	
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		12 V		**M9BV**	**M9B**	●	●	○	○	—	
	Diagnostic indication (2-colour indication)			3-wire (NPN)		5 V, 12 V		**F9NWV**	**F9NW**	●	●	○	○	IC circuit	
				3-wire (PNP)				**F9PWV**	**F9PW**	●	●	○	○		
				2-wire		12 V		**F9BWV**	**F9BW**	●	●	○	○	—	

∗ Lead wire length symbols: 0.5 m····· Nil (Example) M9N
3 m····· L (Example) M9NL
5 m····· Z (Example) M9NZ

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

∗ Normally closed (NC = b contact), solid state switch (D-F9G/F9H type) are also available. For details, refer to "SMC Best Pneumatics" catalogue.
∗ For details about auto switches with pre-wired connector, refer to "SMC Best Pneumatics" catalogue.

Specifications

Bore size (mm)	6	10	16	20
Guide rail width (mm)	5	7	9	12
Fluid	Air			
Action	Double acting			
Piping port size	M5			
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 switch: D-A9□ Solid state switch: D-M9□, D-F9□W			

Made to Order

Made to Order
(Refer to pages 19, 20 for details.)

Symbol	Specifications
-XB13	Low speed cylinder (5 to 50 mm/s)
-XC3	Special port location
-XC19	Intermediate stroke (Spacer type)
-XC22	Fluoro rubber seals
-XC79	Additional machining of tapped hole, drilled hole or pinned hole

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 19.)

Theoretical Output

(N)

Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm²)	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 Auto Switch Mounting

(mm)

No. of auto switches mounted	Applicable auto switch model		
	D-A9□ D-A9□V	**D-M9□ D-M9□V**	**D-F9□W D-F9□WV**
1 pc.	5	5	5
2 pcs.	10	5	10

Weight

(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

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

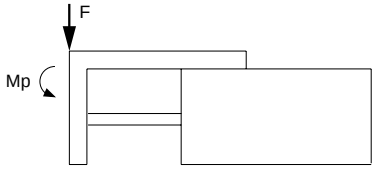
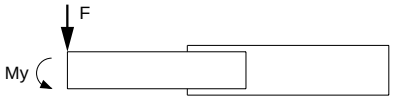
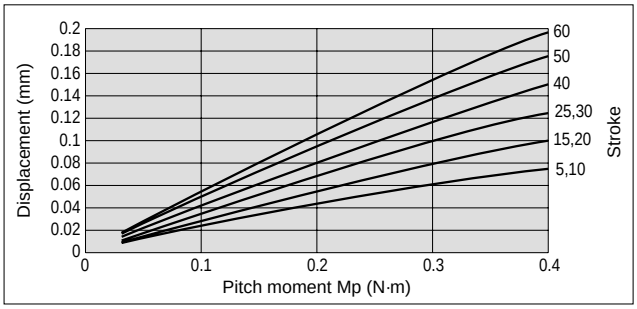


Table Displacement due to Yaw Moment

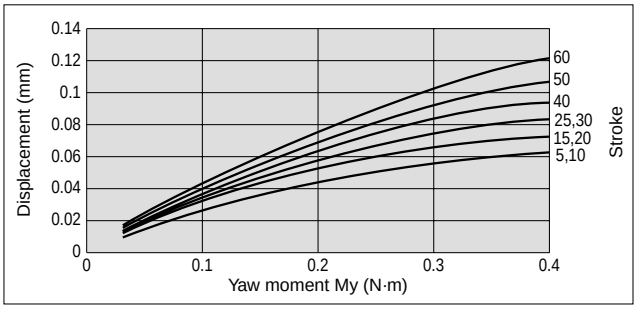
Table displacement (arrow) when a load acts upon the section marked with the arrow at the full stroke of the compact slide



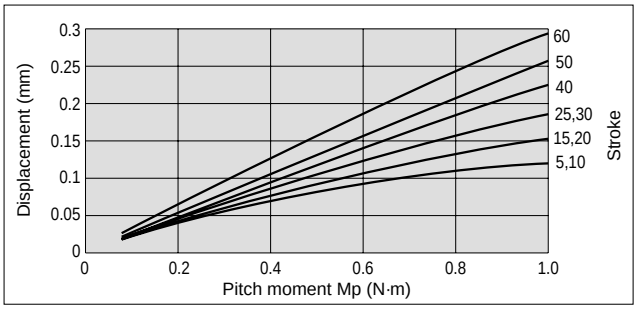
MXH6



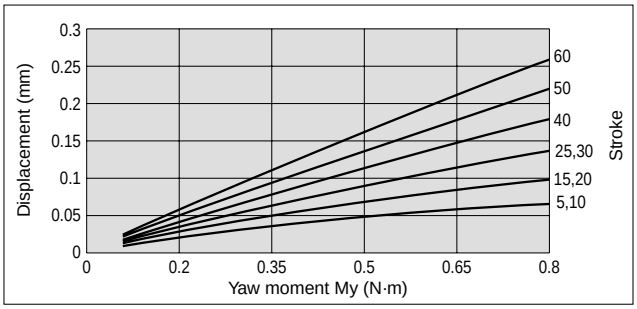
MXH6



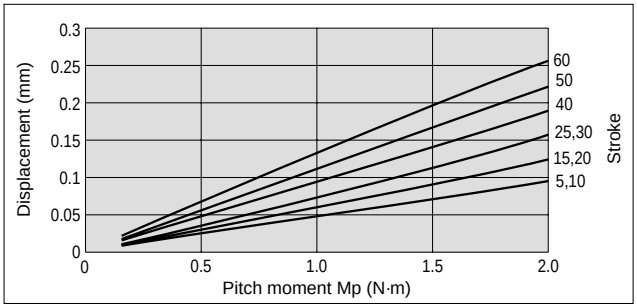
MXH10



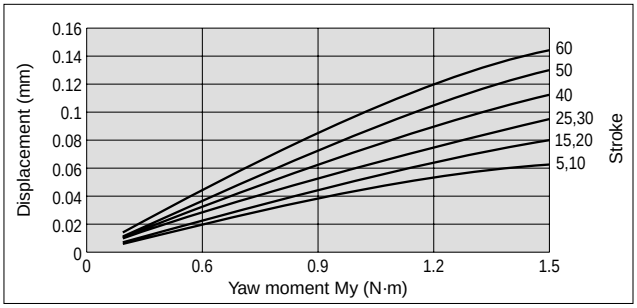
MXH10



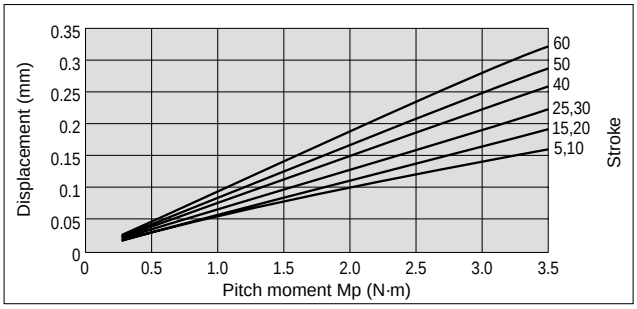
MXH16



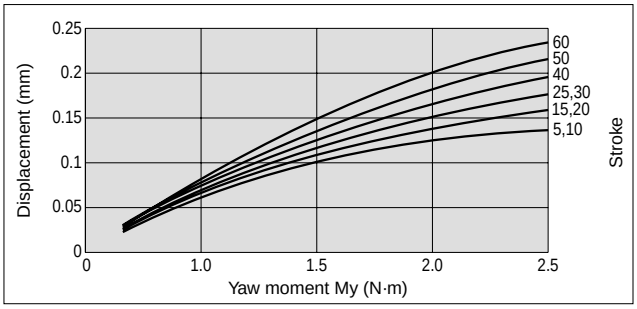
MXH16



MXH20



MXH20



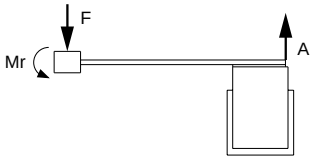
⚠Caution **Caution on Design**

1. Selection of a bore size cannot be made only with above graphs. Select a bore size in accordance with “Model Selection” on page 5 to 6.
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.

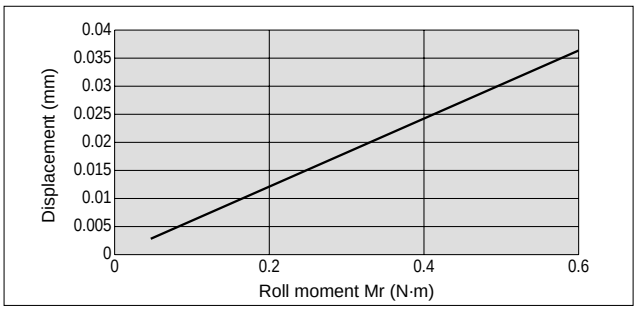
Table Displacement

Table Displacement due to Roll Moment

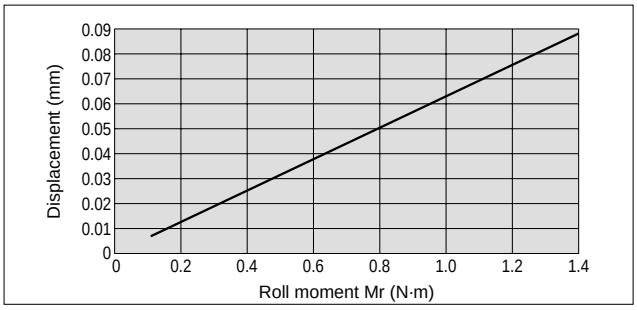
Table displacement (at A) when a load acts upon section F at the full stroke of the compact slide



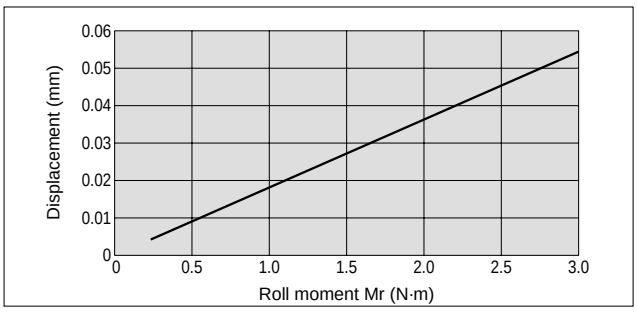
MXH6



MXH10



MXH16



MXH20

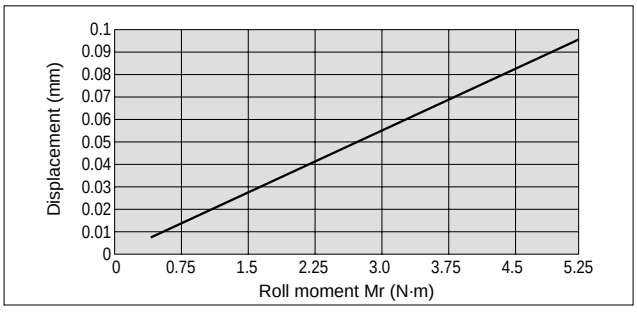


Table Accuracy

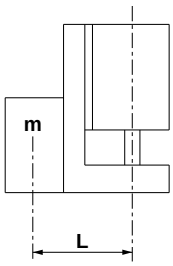
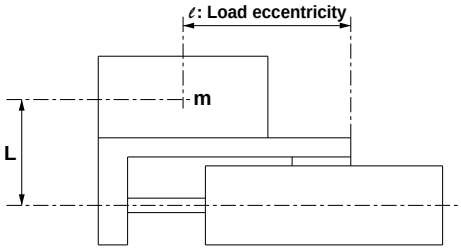
Traveling parallelism	Stroke (st)	
	5 to 30	40 to 60
	0.05 mm or less	0.1 mm or less

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

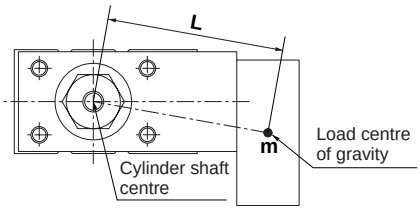
Series MXH
Model Selection

⚠Caution Confirmation of theoretical output is required separately. Refer to “Theoretical Output” on page 2.

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

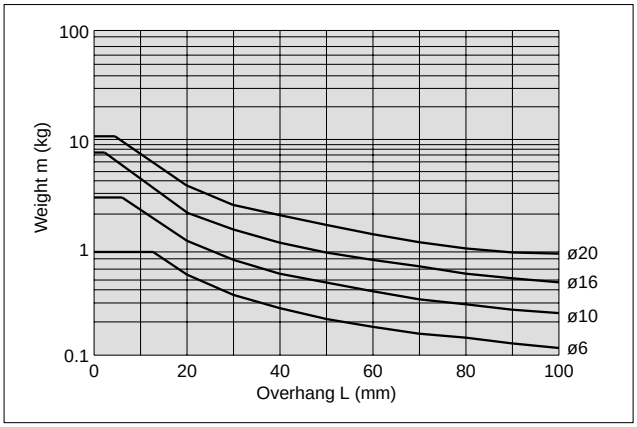
	Vertical			Horizontal								
Mounting orientation												
Maximum speed (mm/s)	Up to 100	Up to 300	Up to 500	Up to 100			Up to 300			Up to 500		
Load eccentricity (ℓ mm)	——			50	100	200	50	100	200	50	100	200
Selection graph	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)

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

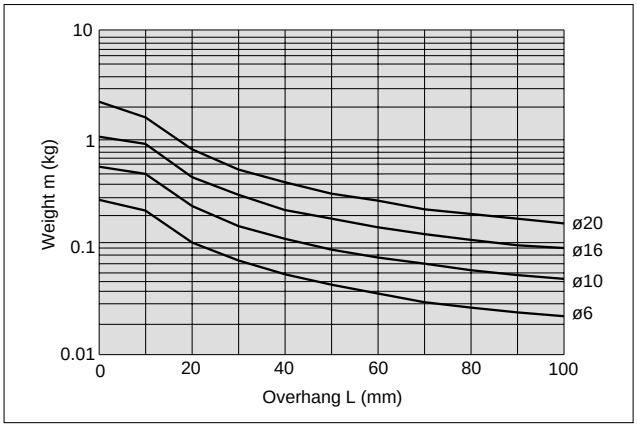


Selection Graph (1) to (3) (Vertical mounting)

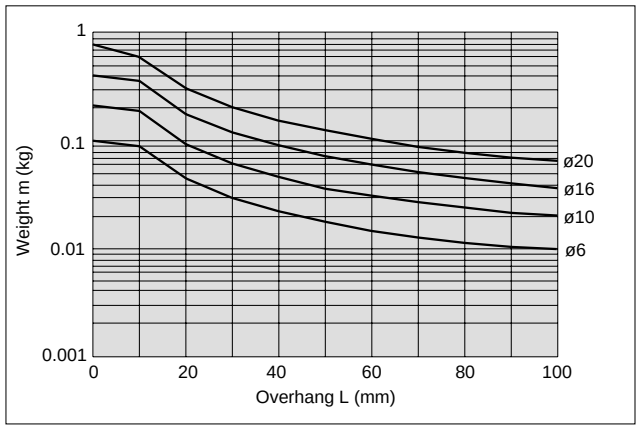
Graph (1) Maximum Speed 100 (mm/s) or Less



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



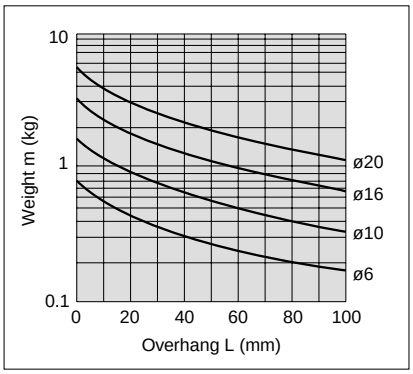
Graph (3) Maximum Speed 500 (mm/s) or Less



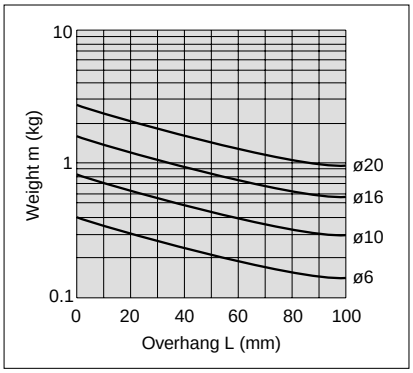
Selection Graph (4) to (12) (Horizontal mounting)

Maximum Speed 100 mm/s or Less

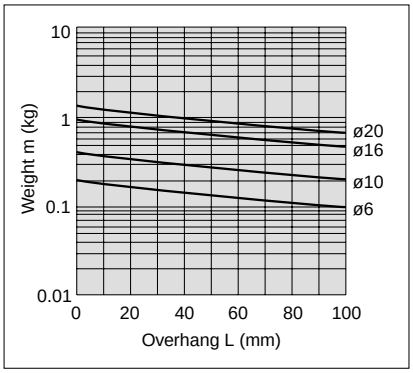
Graph (4) Load Eccentricity 50 mm



Graph (5) Load Eccentricity 100 mm

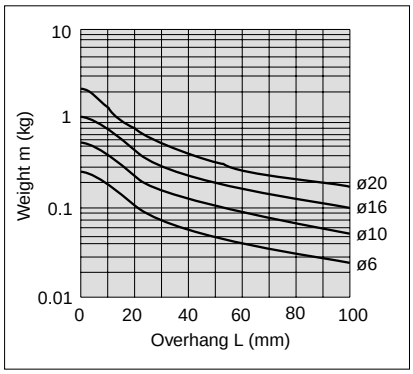


Graph (6) Load Eccentricity 200 mm

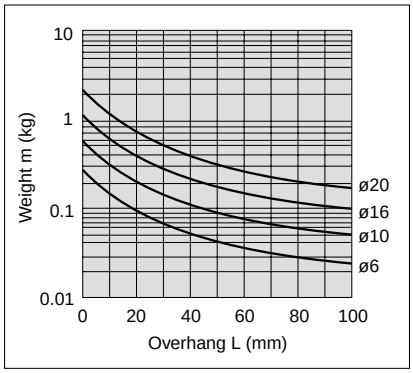


Maximum Speed 300 mm/s or Less

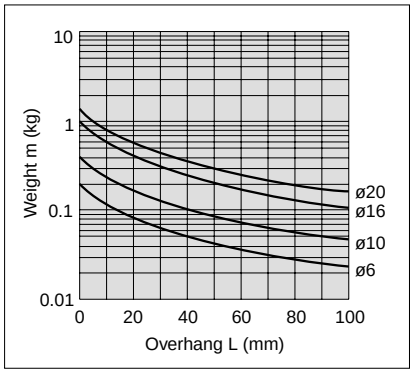
Graph (7) Load Eccentricity 50 mm



Graph (8) Load Eccentricity 100 mm

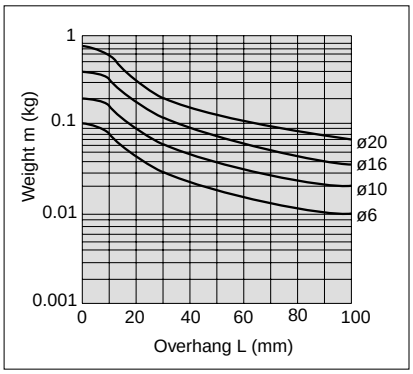


Graph (9) Load Eccentricity 200 mm

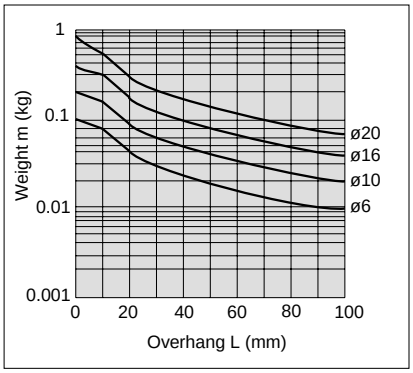


Maximum Speed 500 mm/s or Less

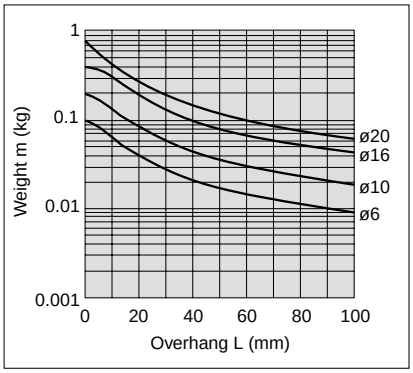
Graph (10) Load Eccentricity 50 mm



Graph (11) Load Eccentricity 100 mm



Graph (12) Load Eccentricity 200 mm



Selection Example

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

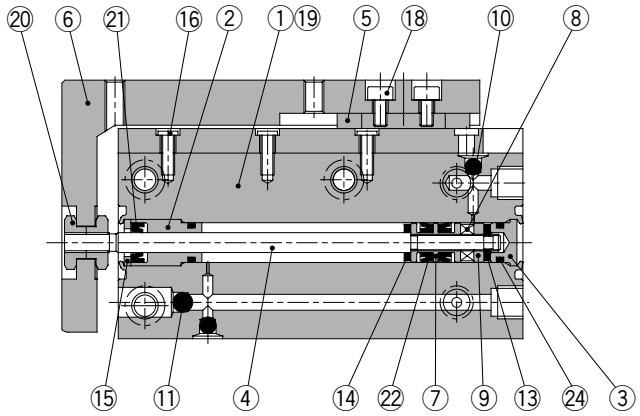
Refer to Graph (3) based on vertical mounting and a speed of 500 mm/s.
In Graph (3), find the intersection of a 40 mm overhang and load weight of 0.1 kg, which results in a determination of ø20.

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

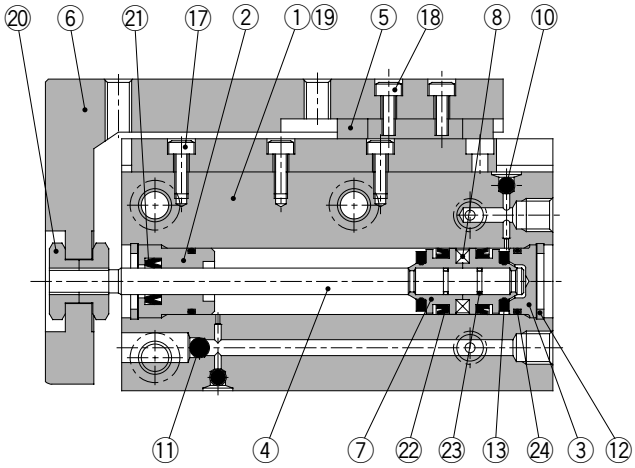
Refer to Graph (10) based on horizontal mounting, a speed of 500 mm/s and load eccentricity of 50 mm.
In Graph (10), find the intersection of a 30 mm overhang and load weight of 0.1 kg, which results in a determination of ø16.

Construction

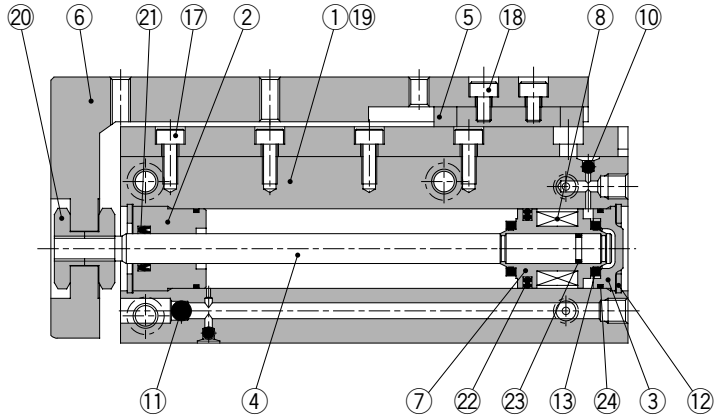
MXH6 (ø6)



MXH10 (ø10)



MXH16/20 (ø16, ø20)



Component Parts

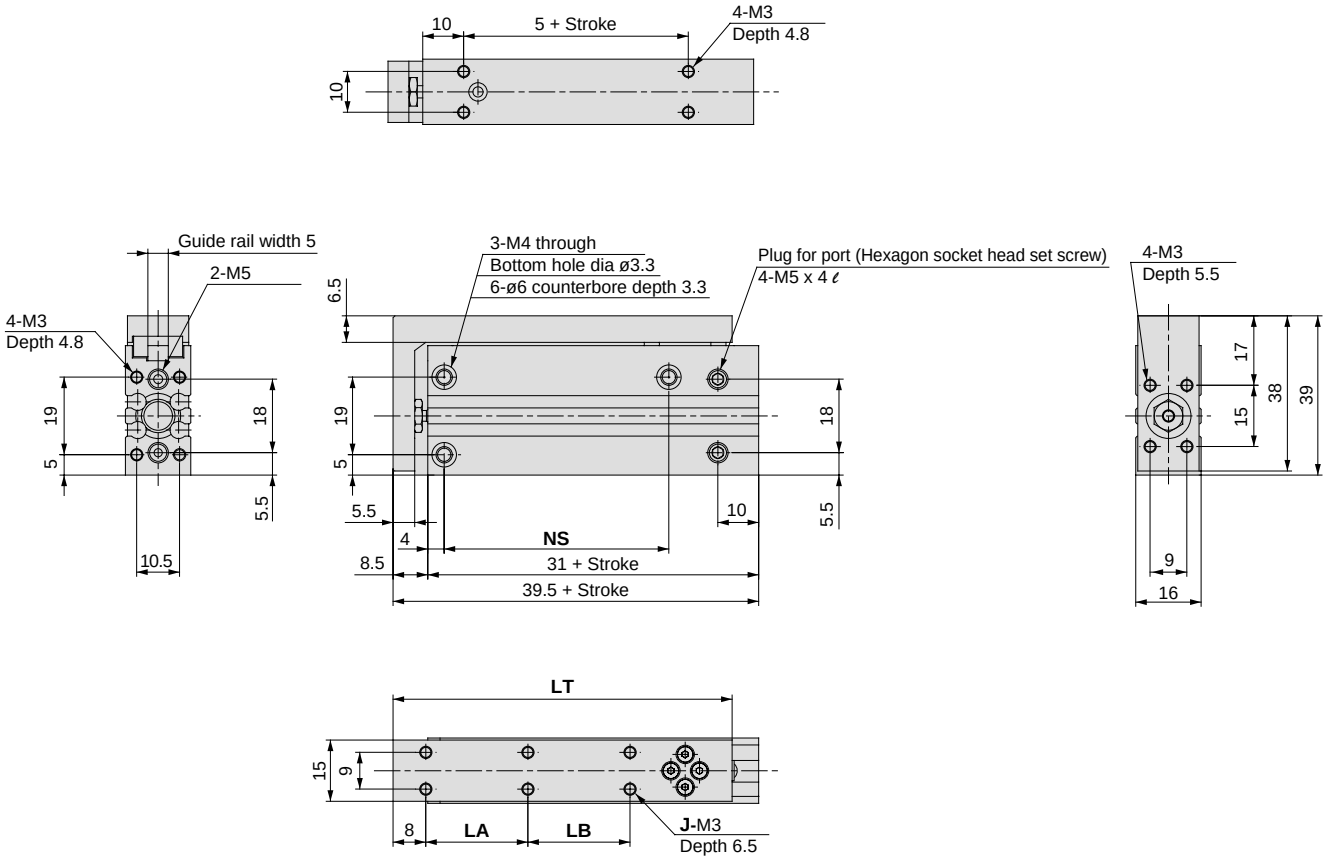
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Rod cover	Brass	
3	Head cover	Brass	ø6, ø10 electroless nickel plated
		Aluminum alloy	ø16, ø20 chromated
4	Piston rod	Stainless steel	
5	Linear guide	—	
6	Table	Aluminum alloy	Hard anodized
7	Piston	Brass	ø6, ø10
		Aluminum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

Note: The MXH series cannot be diassembled.

Component Parts

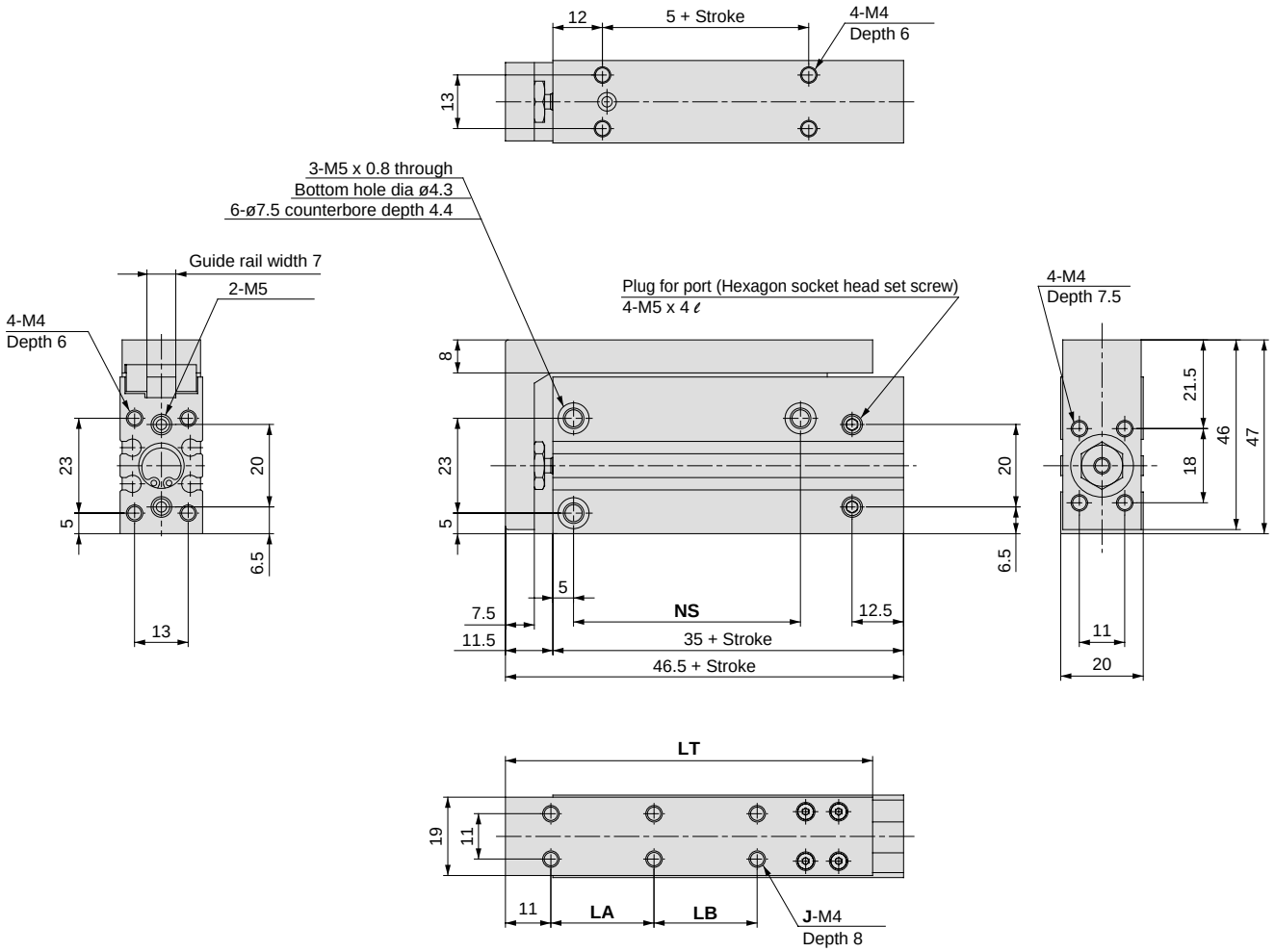
No.	Description	Material	Note
12	C-type retaining ring for hole	Carbon tool steel	ø10, ø16, ø20
13	Bumper	Urethane	
14	Bumper	Urethane	
15	Seal retainer	Stainless steel	ø6
16	Round head Phillips screw	Carbon steel	ø6 black zinc chromated
17	Hexagon socket head cap screw	Chromium molybdenum steel	ø10, 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: ø6



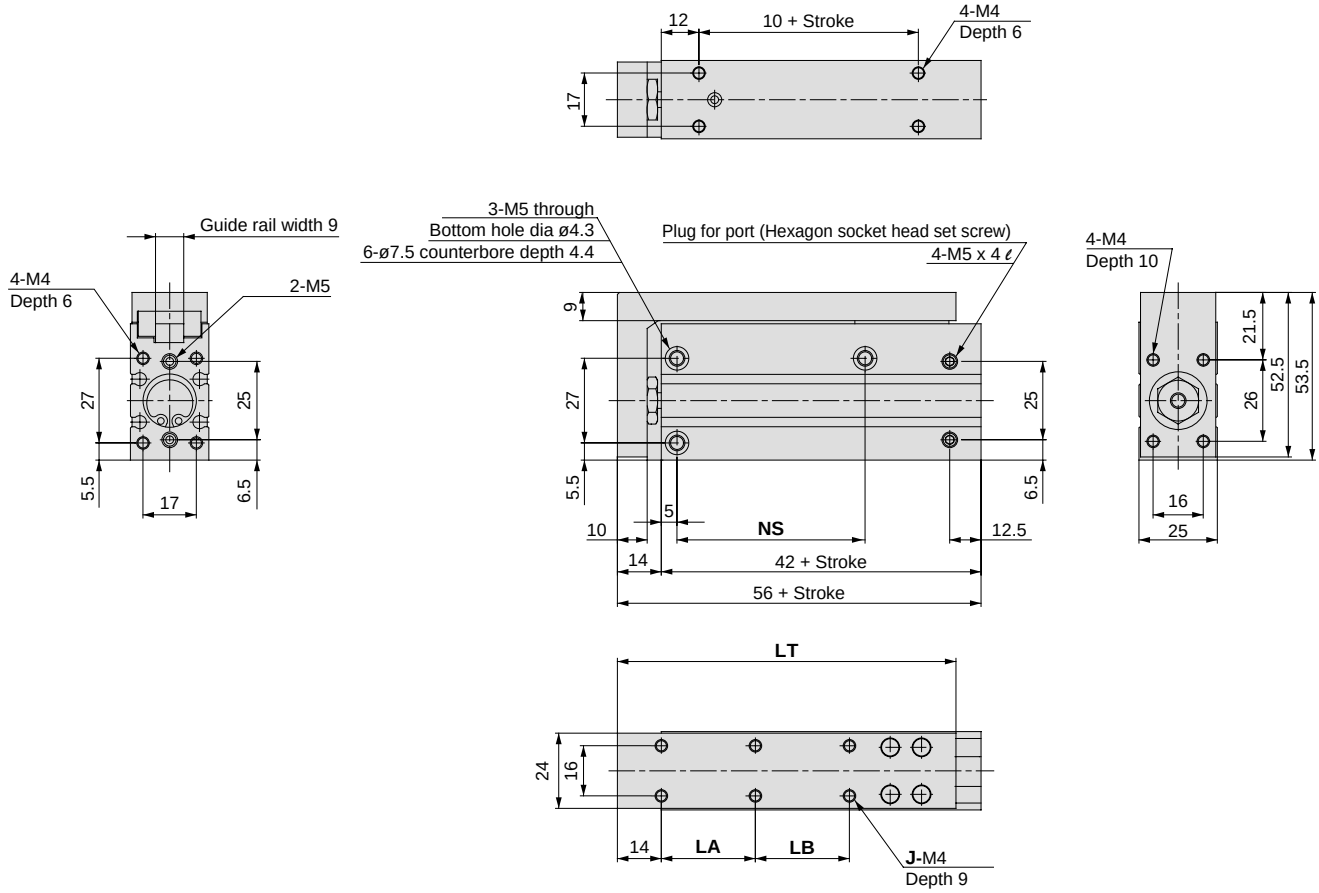
Stroke (mm)	J	LA	LB	LT	NS
5	4	10	—	42	14
10	4	10	—	42	14
15	4	20	—	52	24
20	4	20	—	52	24
25	4	30	—	62	30
30	4	30	—	62	30
40	6	20	20	72	45
50	6	25	25	82	55
60	6	30	30	92	60

Dimensions: ø10



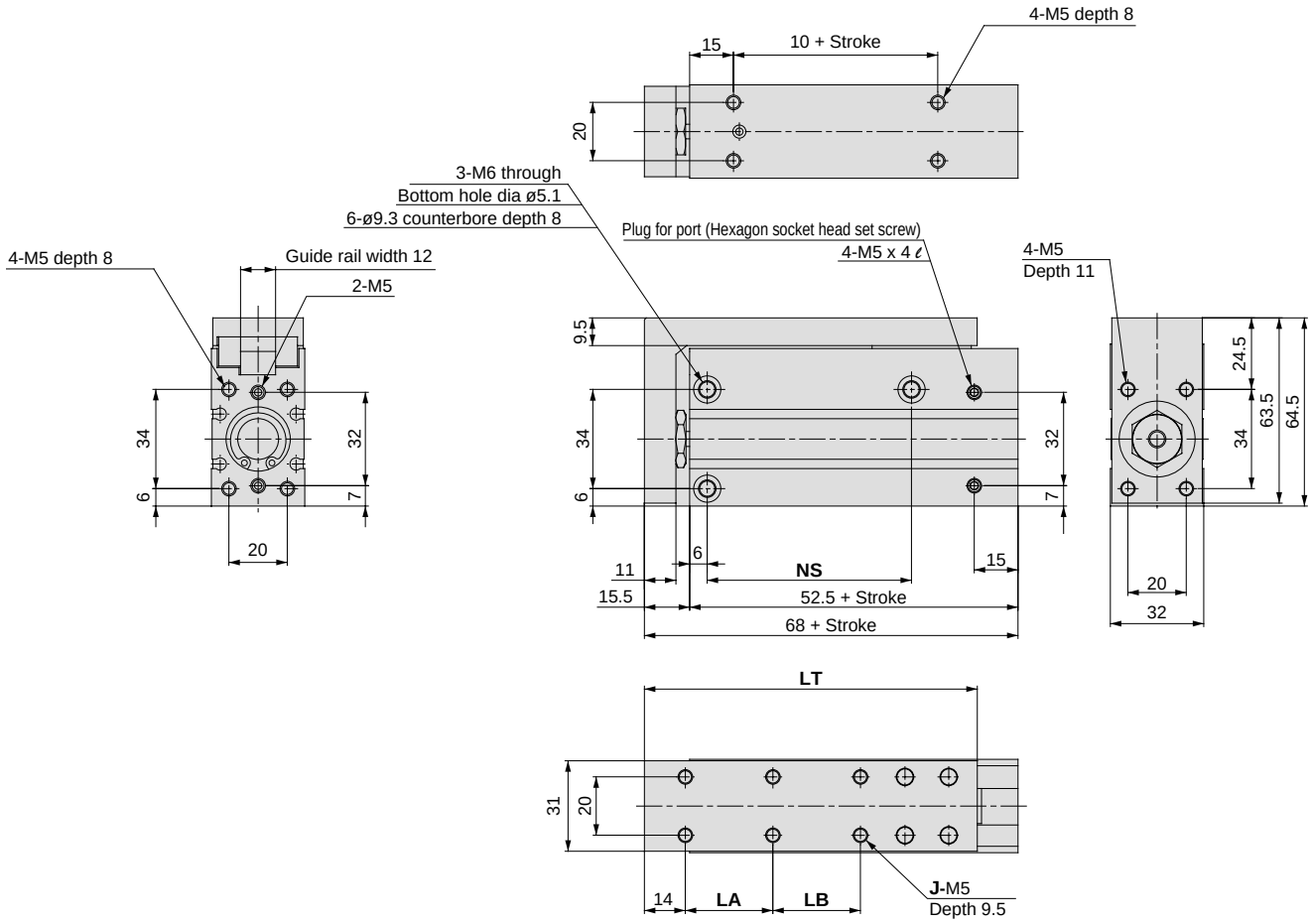
Stroke (mm)	J	LA	LB	LT	NS
5	4	10	—	49	14
10	4	10	—	49	14
15	4	20	—	59	24
20	4	20	—	59	24
25	4	30	—	69	30
30	4	30	—	69	30
40	6	20	20	79	45
50	6	25	25	89	55
60	6	30	30	99	60

Dimensions: ø16



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

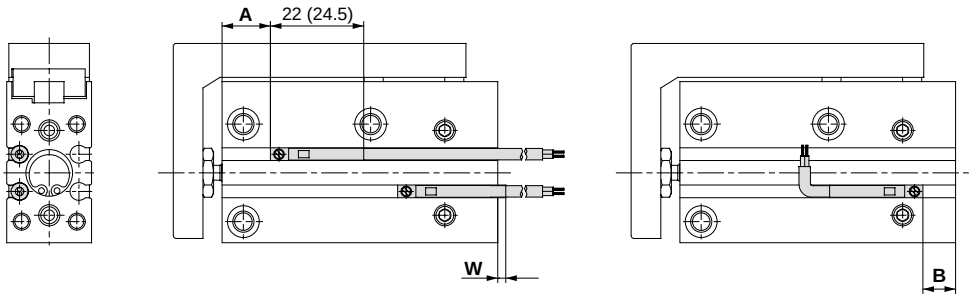
Dimensions: ø20



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

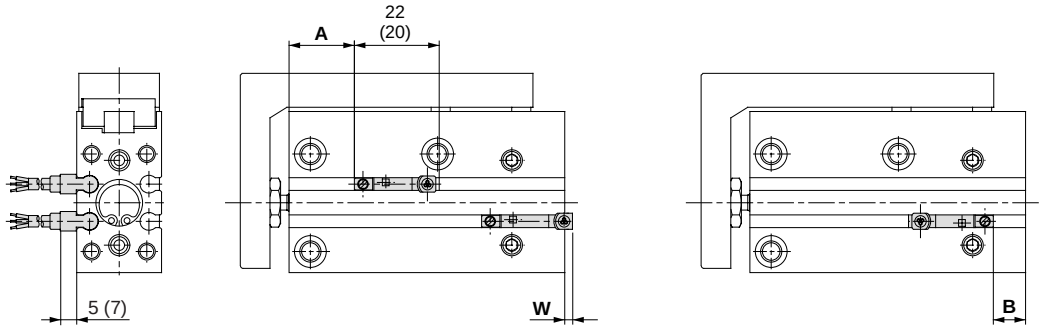
Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

D-A9□
D-M9□
D-F9□W



( ): denotes the values of D-A93.

D-A9□V
D-M9□V
D-F9□WV



( ): denotes the values of D-M9□V, D-F9□WV.

(mm)

Bore size (mm)	D-A9□, D-A9□V			D-F9□W, D-M9□			D-F9□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.

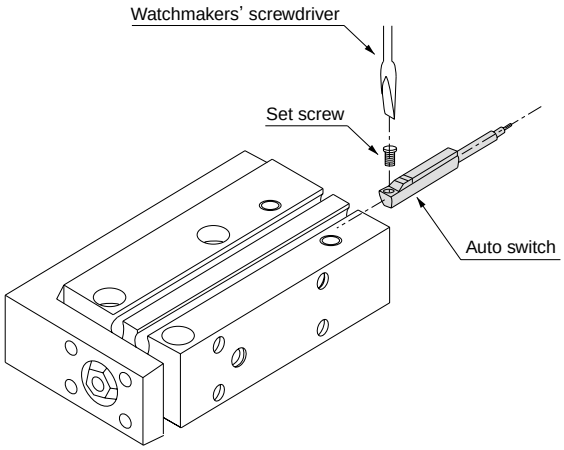
Operating Range

(mm)

Auto switch model	Bore size (mm)			
	6	10	16	20
D-A9□/A9□V	5	6	9	11
D-M9□/M9□V	2	2	3	3.5
D-F9□W/F9□WV	3	3.5	5.5	6.5

∗ 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.

Auto Switch Mounting



⚠Caution

Auto Switch Mounting Tool

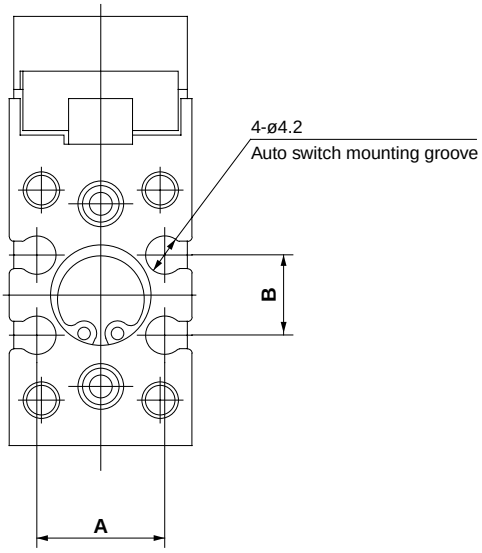
- When tightening the auto switch set screw (included with auto switch), use a watchmakers' screwdriver with a handle 5 to 6 mm in diameter.

Tightening Torque

- Fasten with a torque of 0.10 to 0.20 N·m.

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



(mm)

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

Series MXH
Auto Switch Specifications

Auto Switch Common Specifications

Type	Reed switch	Solid state switch
Leakage current	None	3-wire: 100 μA or less 2-wire: 0.8 mA or less
Operating time	1.2 ms	1 ms or less
Impact resistance	300 m/s^2	1000 m/s^2
Insulation resistance	50 MΩ or more at 500 VDC Mega (between lead wire and case)	
Withstand voltage	1000 VAC for 1 minute (between lead wire and case)	
Ambient temperature	–10 to 60°C	
Enclosure	IEC529 standard IP67, JIS C 0920 waterproof construction	

Lead Wire Length

Lead wire length indication

(Example) **D-M9P[L]**

Lead wire length

-	0.5 m
L	3 m
Z	5 m

Note 1) Applicable auto switch with 5 m lead wire "Z"
Reed switch: None
Solid state switch: Manufactured upon receipt of order as standard.
Note 2) To designate solid state switches with flexible specifications, add "-61" after the lead wire length.

(Example) D-M9PVL-[61]

Flexible specification

Contact Protection Boxes: CD-P11, CD-P12

<Applicable switch model>

D-A9/A9□V

The auto switches above do not have a built-in contact protection circuit. Therefore, please use a contact protection box with the switch for any of the following cases:

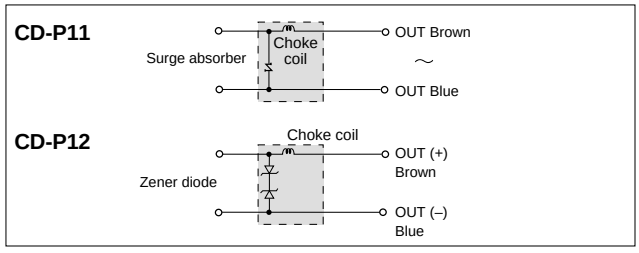
① **Where the operation load is an inductive load.**
② **Where the wiring length to load is greater than 5 m.**
③ **Where the load voltage is 100 VAC.**
The contact life may be shortened. (Due to permanent energising conditions.)

Specifications

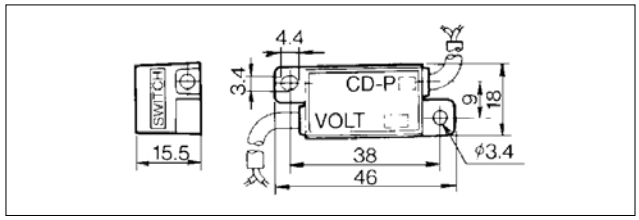
Part no.	CD-P11		CD-P12
Load voltage	100 VAC	200 VAC	24 VDC
Maximum load current	25 mA	12.5 mA	50 mA

∗ Lead wire length —— Switch conneciton side 0.5 m
Load connection side 0.5 m

Internal Circuit



Dimensions



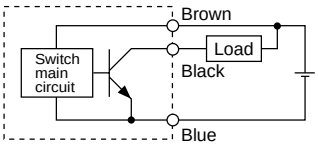
Connection

To connect a switch unit to a contact protection box, connect the lead wire from the side of the contact protection box marked SWITCH to the lead wire coming out of the switch unit. Keep the switch as close as possible to the contact protection box, with a lead wire length of no more than 1 metre.

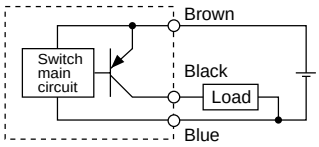
Series MXH
Auto Switch Connections and Examples

Basic Wiring

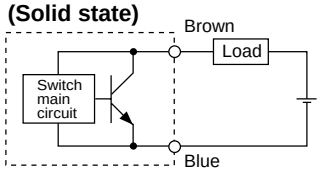
Solid state 3-wire, NPN



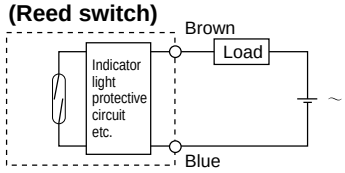
Solid state 3-wire, PNP



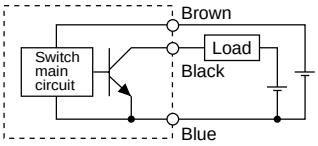
2-wire (Solid state)

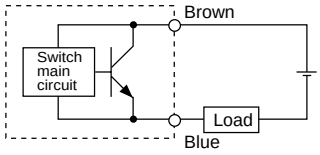


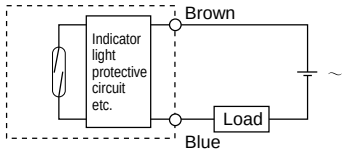
2-wire (Reed switch)



(Power supplies for switch and load are separate.)

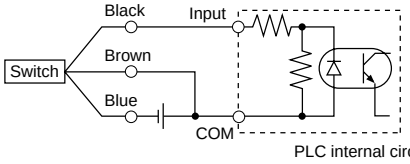




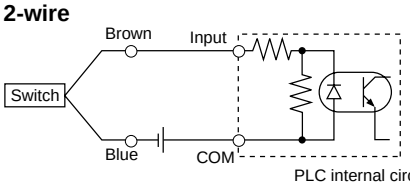


Example of Connection to PLC (Programmable Logic Controller)

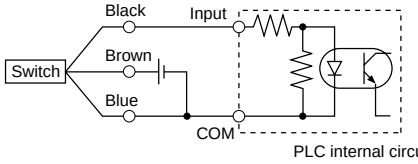
• Sink input specifications
3-wire, NPN



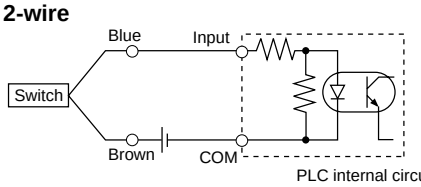
2-wire



• Source input specifications
3-wire, PNP



2-wire

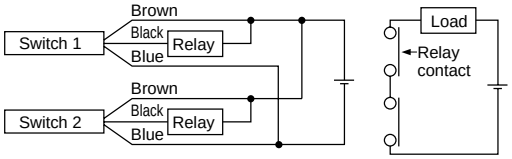


Connect according to the applicable PLC input specifications, since the connection method will vary depending on the PLC input specifications.

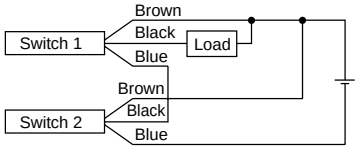
Example of AND (Serial) and OR (Parallel) Connection

● **3-wire**

AND connection for NPN output (using relays)

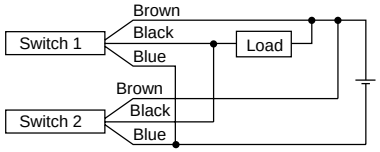


AND connection for NPN output (performed with switches only)

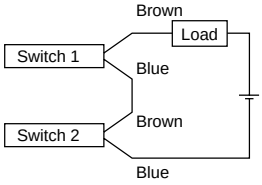


The indicator lights will illuminate when both switches are turned ON.

OR connection for NPN output



2-wire with 2-switch AND connection

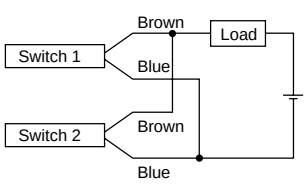


When two switches are connected in series, a load may malfunction because the load voltage will decrease when in the ON state.
The indicator lights will illuminate if both of the switches are in the ON state.

Load voltage at ON = $\frac{\text{Power supply voltage}}{} - \frac{\text{Residual voltage}}{} \times 2$ pcs.
= 24 V - 4 V x 2 pcs.
= 16 V

Example: Power supply is 24 VDC.
Internal voltage drop in switch is 4 V.

2-wire with 2-switch OR connection



(Solid state)
When two switches are connected in parallel, a malfunction may occur because the load voltage will increase when in the OFF state.

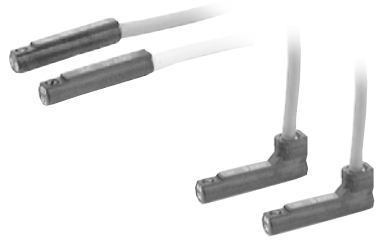
Load voltage at OFF = Leakage current x 2 pcs.
x Load impedance
= 1 mA x 2 pcs. x 3 kΩ
= 6 V

Example: Load impedance is 3 kΩ.
Leakage current from switch is 1 mA.

(Reed switch)
Because there is no current leakage, the load voltage will not increase when turned OFF. However, depending on the number of switches in the ON state, the indicator lights may sometimes dim or not light because of the dispersion and reduction of the current flowing to the switches.

Reed Switch: Direct Mounting Style
D-A90(V)/D-A93(V)/D-A96(V) CE

Grommet
Electrical entry direction: In-line



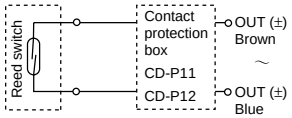
⚠Caution

Operating Precautions

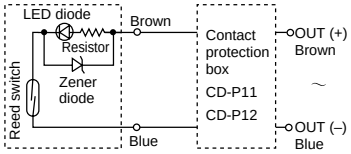
Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

Auto Switch Internal Circuit

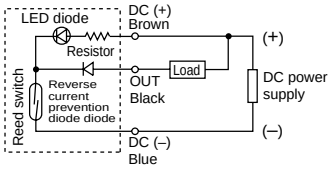
D-A90(V)



D-A93(V)



D-A96(V)



Note) ① In a case where the operation load is an inductive load.
② In a case where the wiring load is greater than 5 m.
③ In a case where the load voltage is 100 VAC.

Use the auto switch with a contact protection box in any of the above mentioned cases.
(For details about the contact protection box, refer to page 14.)

Auto Switch Specifications

For details about certified products conforming to international standards, visit us at www.smcworld.com.

PLC: Programmable Logic Controller

D-A90/D-A90V (Without indicator light)			
Auto switch part no.	**D-A90/D-A90V**		
Applicable load	IC circuit, Relay, PLC		
Load voltage	24 V AC/DC or less	48 V AC/DC or less	100 V AC/DC or less
Maximum load current	50 mA	40 mA	20 mA
Contact protection circuit	None		
Internal resistance	1 Ω or less (including lead wire length of 3 m)		
D-A93/D-A93V/D-A96/D-A96V (With indicator light)			
Auto switch part no.	**D-A93/D-A93V**		**D-A96/D-A96V**
Applicable load	Relay, PLC		IC circuit
Load voltage	24 VDC	100 VAC	4 to 8 VDC
Note 3) Load current range and max. load current	5 to 40 mA	5 to 20 mA	20 mA
Contact protection circuit	None		
Internal voltage drop	D-A93 — 2.4 V or less (to 20 mA)/3 V or less (to 40 mA) D-A93V — 2.7 V or less		0.8 V or less
Indicator light	Red LED illuminates when ON.		

● Lead wires
D-A90(V)/D-A93(V) — Oilproof heavy-duty vinyl cable: ø2.7, 0.18 mm² x 2 cores (Brown, Blue), 0.5 m
D-A96(V) — Oilproof heavy-duty vinyl cable: ø2.7, 0.15 mm² x 3 cores (Brown, Black, Blue), 0.5 m
Note 1) Refer to page 14 for reed switch common specifications.
Note 2) Refer to page 14 for lead wire lengths.

Weight

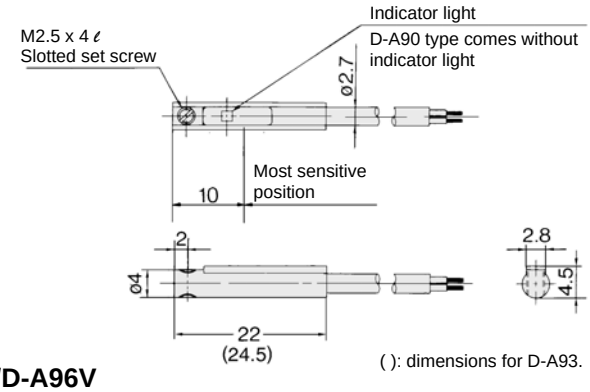
(g)

Auto switch part no.	D-A90	D-A90V	D-A93	D-A93V	D-A96	D-A96V
Lead wire length: 0.5 m	6	6	6	6	8	8
Lead wire length: 3 m	30	30	30	30	41	41

Dimensions

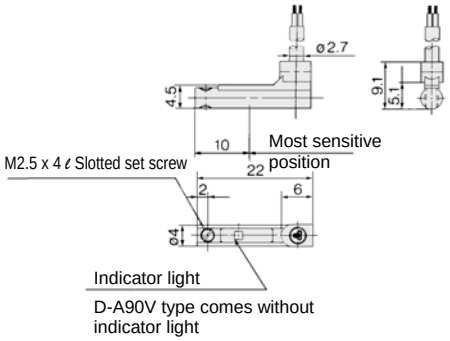
(mm)

D-A90/D-A93/D-A96



( ): dimensions for D-A93.

D-A90V/D-A93V/D-A96V



Solid State Switch: Direct Mounting Style
D-M9N(V)/D-M9P(V)/D-M9B(V) CE

Grommet

- **2-wire load current is reduced (2.5 to 40 mA)**
- **Lead free**
- **UL certified (style 2844) lead cable is used.**

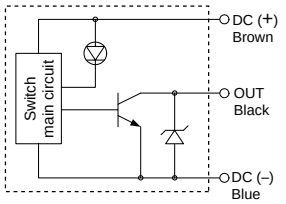
⚠Caution

Operating Precautions

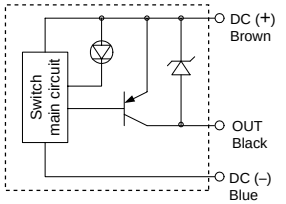
Fix the switch with the existing screw installed on the switch body. The switch may be damaged if a screw other than the one supplied, is used.

Auto Switch Internal Circuit

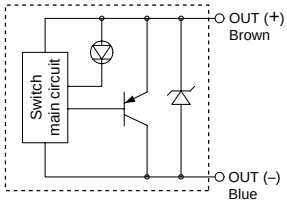
D-M9N(V)



D-M9P(V)



D-M9B(V)



Auto Switch Specifications

For details about certified products conforming to international standards, visit us at www.smcworld.com.

PLC: Programmable Logic Controller

D-M9□/D-M9□V (With indicator light)						
Auto switch part no.	D-M9N	D-M9NV	D-M9P	D-M9PV	D-M9B	D-M9BV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 V)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less				2.5 to 40 mA	
Internal voltage drop	0.8 V or less				4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Red LED illuminates when ON.					

● Lead wires
Oilproof heavy-duty vinyl cable: ø2.7 x 3.2 ellipse
D-M9B(V) 0.15 mm² x 2 cores
D-M9N(V), D-M9P(V) 0.15 mm² x 3 cores

Note 1) Refer to page 14 for solid state switch common specifications.
Note 2) Refer to page 14 for lead wire lengths.

Weight

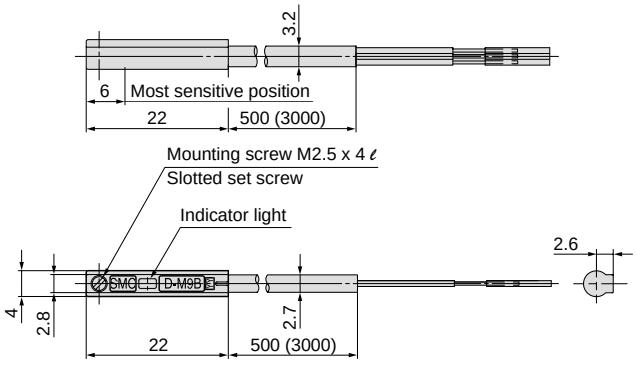
(g)

Auto switch part no.		D-M9N(V)	D-M9P(V)	D-M9B(V)
Lead wire length (m)	0.5	8	8	7
	3	41	41	38
	5	68	68	63

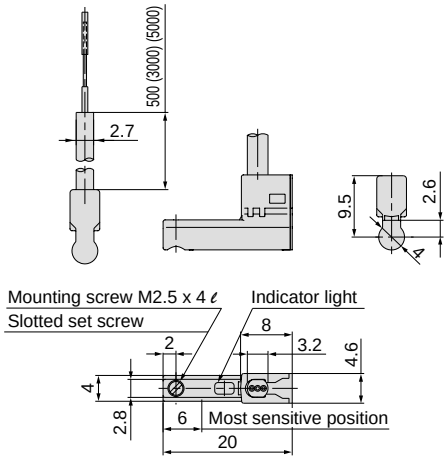
Dimensions

(mm)

D-M9□



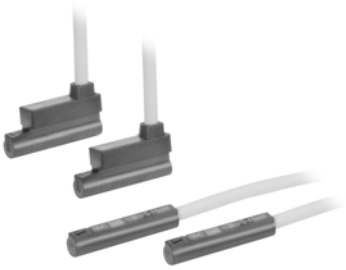
D-M9□V



SMC

2-colour Indication Solid State Switch: Direct Mounting Style
D-F9NW(V)/D-F9PW(V)/D-F9BW(V)

Grommet



Auto Switch Specifications

For details about certified products conforming to international standards, visit us at www.smcworld.com.

PLC: Programmable Logic Controller

D-F9□W/D-F9□WV (With indicator light)						
Auto switch part no.	D-F9NW	D-F9NWV	D-F9PW	D-F9PWV	D-F9BW	D-F9BWV
Electrical entry direction	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring type	3-wire				2-wire	
Output type	NPN		PNP		—	
Applicable load	IC circuit, Relay IC, PLC				24 VDC relay, PLC	
Power supply voltage	5, 12, 24 VDC (4.5 to 28 VDC)				—	
Current consumption	10 mA or less				—	
Load voltage	28 VDC or less		—		24 VDC (10 to 28 VDC)	
Load current	40 mA or less		80 mA or less		5 to 40 mA	
Internal voltage drop	1.5 V or less (0.8 V or less at 10 mA load current)		0.8 V or less		4 V or less	
Leakage current	100 μA or less at 24 VDC				0.8 mA or less	
Indicator light	Operating position ····· Red LED illuminates. Optimum operating position ····· Green LED illuminates.					

● Lead wires
Oilproof heavy-duty vinyl cable: ø2.7, 0.15 mm² x 3 cores (Brown, Black, Blue), 0.18 mm² x 2 cores (Brown, Blue), 0.5 m

Note 1) Refer to page 14 for solid state switch common specifications.

Note 2) Refer to page 14 for lead wire lengths.

Weight

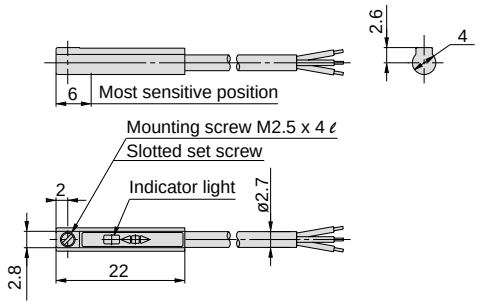
(g)

Auto switch part no.		D-F9NW(V)	D-F9PW(V)	D-F9BW(V)
Lead wire length (m)	0.5	7	7	7
	3	34	34	32
	5	56	56	52

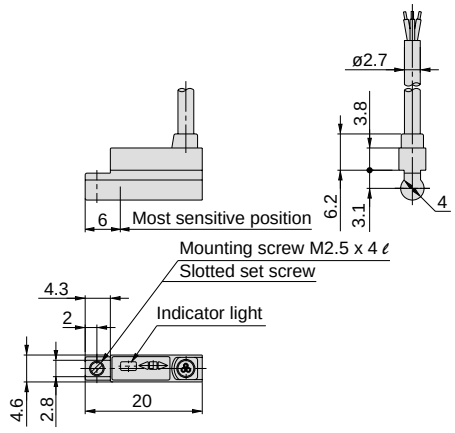
Dimensions

(mm)

D-F9□W

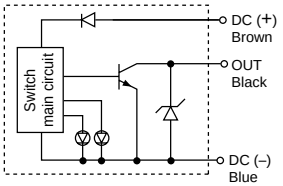


D-F9□WV

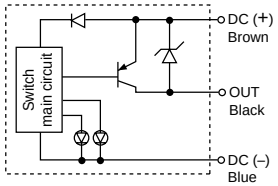


Auto Switch Internal Circuit

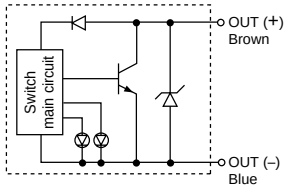
D-F9NW(V)



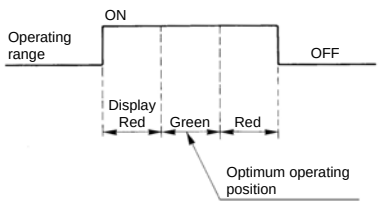
D-F9PW(V)



D-F9BW(V)



Indicator light/Display method



Made to Order
-XB13: Low Speed Cylinder (5 to 50mm/s)

1 Low Speed Cylinder

Symbol: **-XB13**

Even if driving at lower speeds 5 to 50mm/s, there would be no stick-slip phenomenon and it can run smoothly.

How to order

Standard model no. — **XB13**

Low Speed Cylinder

Note 1) Operate witout lubrication from a pneumatic system lubricator.
Note 2) For the speed adjustment, use speed controllers for controling at lower speeds. (Series AS-FM/AS-M)

Specifications

Piston speed	5 to 50 mm/s
Dimensions	Same as standard type
Aditional specifications	Same as standard type

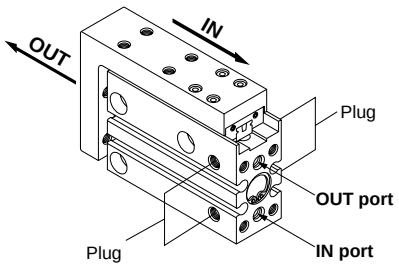
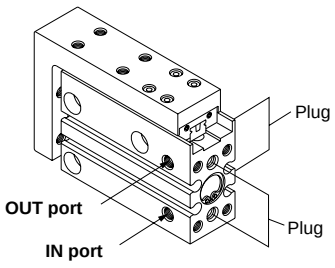
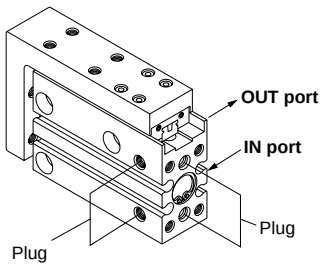
2 Special Port Location

Symbol: **-XC3□**

Standard product ports are located axially and the ports on both sides are plugged when shipping. But side ports are also available, resulting in customer labor savings.

Standard model no. — **XC3□**

Special port location

Standard	-XC3A	-XC3B
		

3 Intermediate Stroke (Spacer type)

Symbol: **-XC19**

Creating an intermediate stroke by installing a spacer into the standard stroke cylinder.

Standard model no. — **XC19**

Intermediate stroke (Spacer type)

Applicable Stroke (mm)

ø6, ø10, ø16, ø20	35, 45, 55

- Mode by installing a 5 mm width spacer into the standard stroke cylinder.
- Specifications other than above are the same as standard type.
- External dimensions are the same as standard stroke products added by 5 mm for the required stroke.
- Consult with SMC when stroke other than applicable stroke is required.

4 Fluoro Rubber Seals

Symbol: **-XC22**

Changing the seal materials to fluoro rubber provides excellent chemical compatibility.

Standard model no. — **XC22**

Fluoro rubber seals

Specifications

Rod seal Piston seal Piston gasket Gasket	Fluoro rubber

- Specifications and dimensions other than above are the same as standard type.

Symbol

5 Additional machining of tapped hole, drilled hole or pinned hole -XC79

Tapped, drilled and pinned holes can be used to mount a workpiece, etc. on the table. These will be machined according to customer requests.

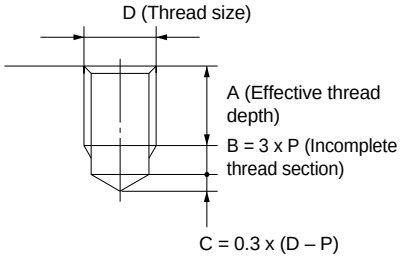
Standard model no. — **XC79**

Additional machining of tapped hole, drilled hole or pinned hole

Explanation of the Additional Machining/The following 3 types of holes can be additionally machined.

Tapped hole

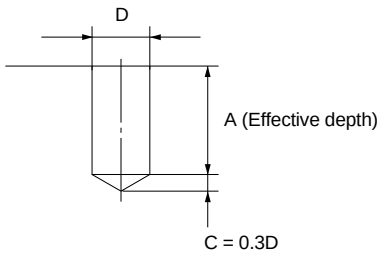
A tapped hole with a designated nominal diameter and pitch is machined. (Maximum nominal thread diameter M20).
The depth of the prepared blind hole is the sum of the dimensions A to C in Fig. 1, in contrast to the effective depth of the tapped hole. When there is a condition that does not allow a through-hole, etc., please allow sufficient thickness for the lower part of the hole.



Note) P stands for thread pitch.

Drilled hole

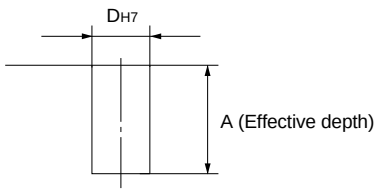
A drilled hole with a designated internal diameter is machined. (Maximum hole diameter 20 mm).
If a blind hole is required, please specify the effective depth. (Refer to Fig. 2) Additionally the dimensional accuracy for the internal diameter will be -0.02 mm.



Pinned hole

A pinned hole with a designated diameter (reamed hole) is machined. (maximum hole diameter 20 mm).
The internal dimension of the designated hole diameter has an H7 tolerance. (Refer to the table below).

Hole dia.	3 or less	Over 3 to 6	Over 6 to 10	Over 10 to 18	Over 18 to 20
Tolerance	+0.01 0	+0.012 0	+0.015 0	+0.018 0	+0.021 0



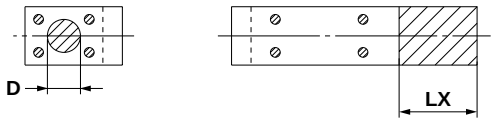
Precautions

- SMC cannot take any responsibility for the strength of the additionally machined holes and the effects of the decreased strength of the product itself.
- The additionally machined parts will not be re-plated.
- Be sure to fill in “through” for through-hole and the effective depth for a blind hole.
- When using an additionally machined through-hole, ensure that the tip of the bolt, etc. used for mounting a work piece does not stick through into the cylinder side. Otherwise this may result in an unexpected problem.
- Use caution not to interfere the existing mounting holes on the standard product with an additionally machined hole. It is possible to additionally drill a larger hole size in the same location as an existing hole.

Limitation for Additional Machining

The slanted lines bellow denote the restricted range for additional machining. When specifying the dimensions for additional machining, please refer to the table below..

Top plate material: Aluminum



Dimensional Range Which is Not Possible to Additionally Machine (mm)

Model	ø**D**	**LX**
MXH6	11	27
MXH10	15.2	32
MXH16	20	38
MXH20	26	43

Series MXH
Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/or equipment damage. These instructions indicate the level of potential hazard by labels of **"Caution", "Warning"** or **"Danger"**. To ensure safety, be sure to observe ISO 4414 Note 1), JIS B 8370 Note 2) and other safety practices.

■Explanation of the Labels

Labels	Explanation of the labels
⚠ **Danger**	In extreme conditions, there is a possible result of serious injury or loss of life.
⚠ **Warning**	Operator error could result in serious injury or loss of life.
⚠ **Caution**	Operator error could result in injury Note 3) or equipment damage Note 4).

Note 1) ISO 4414: Pneumatic fluid power – General rules relating to systems
Note 2) JIS B 8370: General Rules for Pneumatic Equipment
Note 3) Injury indicates light wounds, burns and electrical shocks that do not require hospitalisation or hospital visits for long-term medical treatment.
Note 4) Equipment damage refers to extensive damage to the equipment and surrounding devices.

■Selection/Handling/Applications

1. The compatibility of the pneumatic equipment is the responsibility of the person who designs the pneumatic system or decides its specifications.
Since the products specified here are used in various operating conditions, their compatibility for the specific pneumatic system must be based on specifications or post analysis and/or tests to meet the specific requirements. The expected performance and safety assurance are the responsibility of the person who has determined the compatibility of the system. This person should continuously review the suitability of all items specified, referring to the latest catalogue information with a view to giving due consideration to any possibility of equipment failure when configuring a system.

2. Only trained personnel should operate pneumatically operated machinery and equipment.
Compressed air can be dangerous if handled incorrectly. Assembly, handling or repair of pneumatic systems should be performed by trained and experienced operators. (Understanding JIS B 8370 General Rules for Pneumatic Equipment, and other safety rules are included.)

3. Do not service machinery/equipment or attempt to remove components until safety is confirmed.
1. Inspection and maintenance of machinery/equipment should only be performed once measures to prevent falling or runaway of the driver objects have been confirmed.
2. When equipment is removed, confirm that safety process as mentioned above. Turn off the supply pressure for this equipment and exhaust all residual compressed air in the system, and release all the energy (liquid pressure, spring, condenser, gravity).
3. Before machinery/equipment is restarted, take measures to prevent quick extension of a cylinder piston rod, etc.

4. Contact SMC if the product will be used in any of the following conditions:
1. Conditions and environments beyond the given specifications, or if product is used outdoors.
2. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverages, recreation equipment, emergency stop circuits, clutch and brake circuits in press applications, or safety equipment.
3. An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis.
4. If the products are used in an interlock circuit, prepare a double interlock style circuit with a mechanical protection function for the prevention of a breakdown. And, examine the devices periodically if they function normally or not.

■Exemption from Liability

1. SMC, its officers and employees shall be exempted from liability for any loss or damage arising out of earthquakes or fire, action by a third person, accidents, customer error with or without intention, product misuse, and any other damages caused by abnormal operating conditions.

2. SMC, its officers and employees shall be exempted from liability for any direct or indirect loss or damage, including consequential loss or damage, loss of profits, or loss of chance, claims, demands, proceedings, costs, expenses, awards, judgments and any other liability whatsoever including legal costs and expenses, which may be suffered or incurred, whether in tort (including negligence), contract, breach of statutory duty, equity or otherwise.

3. SMC is exempted from liability for any damages caused by operations not contained in the catalogues and/or instruction manuals, and operations outside of the specification range.

4. SMC is exempted from liability for any loss or damage whatsoever caused by malfunctions of its products when combined with other devices or software.

Series MXH
Auto Switch Precautions 1

Be sure to read this before handling.

Design & Selection

⚠Warning

1. Confirm the specifications.

Read the specifications carefully and use this product appropriately. The product may be damaged or malfunction if it is used outside the range of specifications of current load, voltage, temperature or impact. We do not guarantee any damage in any case the product is used outside of the specification range.

2. Keep wiring as short as possible.

<Reed switch>

As the length of the wiring to a load gets longer, the rush current at switching ON becomes greater, and this may shorten the product's life. (The switch will stay ON all the time.) Use a contact protection box when the wire length is 5 m or longer.

<Solid state switch>

Although wire length should not affect switch function, use a wire 100 m or shorter.

3. Do not use a load that generates surge voltage. If a surge voltage is generated, the discharge occurs at the contact, possibly resulting in the shortening of product life.

<Reed switch>

If driving a load such as a relay that generates a surge voltage, use a switch with a built-in contact protection circuit or use a contact protection box.

<Solid state switch>

Although a zener diode for surge protection is connected at the output side of a solid state auto switch, damage may still occur if the surge is applied repeatedly. When a load, such as a relay or solenoid, which generates surge is directly driven, use a type of switch with a built-in surge absorbing element.

4. Cautions for use in an interlock circuit

When an auto switch is used for an interlock signal requiring high reliability, devise a double interlock system to avoid trouble by providing a mechanical protection function, or by also using another switch (sensor) together with the auto switch. Also perform periodic maintenance and confirm proper operation.

5. Do not make any modifications to the product.

Do not take the product apart. It may cause human injuries and accidents.

⚠Caution

1. Use caution when multiple actuators are used and close to each other.

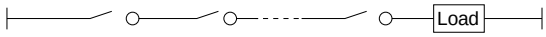
When two or more auto switch actuators are lined up in close proximity to each other, magnetic field interference may cause the switches to malfunction. Maintain a minimum cylinder separation of 40 mm. (When the allowable interval is specified for each cylinder series, use the indicated value.)

2. Take note of the internal voltage drop of the switch.

<Reed switch>

1) Switches with an indicator light (Except D-A96, A96V)

- If auto switches are connected in series as shown below, take note that there will be a large voltage drop because of internal resistance in the light emitting diodes. (Refer to internal voltage drop in the auto switch specifications.)
  [The voltage drop will be "n" times larger when "n" auto switches are connected.]
  Even though an auto switch operates normally, the load may not operate.



- In the same way, when operating under a specified voltage, although an auto switch may operate normally, the load may not operate. Therefore, the formula below should be satisfied after confirming the minimum operating voltage of the load.

$$\text{Supply voltage} - \text{Internal voltage drop of switch} > \text{Minimum operating voltage of load}$$

2) If the internal resistance of a light emitting diode causes a problem, select a switch without an indicator light (Model D-A90, A90V).

<Solid state switch>

3) Generally, the internal voltage drop will be greater with a 2-wire solid state auto switch than with a reed switch. Take the same precautions as in 1).
Also, note that a 12 VDC relay is not applicable.

3. Pay attention to leakage current.

<Solid state switch>

With a 2-wire solid state auto switch, current (leakage current) flows to the load to operate the internal circuit even when in the OFF state.

$$\text{Operating current of load (OFF condition)} > \text{Leakage current}$$

If the criteria given in the above formula are not met, it will not reset correctly (stays ON). Use a 3-wire switch if this specification will not be satisfied.
Moreover, leakage current flow to the load will be "n" times larger when "n" auto switches are connected in parallel.

4. Ensure sufficient clearance for maintenance activities.

When designing an application, be sure to allow sufficient clearance for maintenance and inspections.

Series MXH
Auto Switch Precautions 2

Be sure to read this before handling.

Mounting & Adjustment

⚠Warning

1. Instruction manual

Install the products and operate them only after reading the instruction manual carefully and understanding its contents. Also keep the manual where it can be referred to as necessary.

2. Do not drop or bump.

Do not drop, bump or apply excessive impacts (300 m/s² or more for reed switches and 1000 m/s² or more for solid state switches) while handling. Although the body of the switch may not be damaged, the inside of the switch could be damaged and cause a malfunction.

3. Mount switches using the proper fastening torque.

When a switch is tightened beyond the range of fastening torque, the mounting screws, mounting bracket or switch may be damaged. On the other hand, tightening below the range of fastening torque may allow the switch to slip out of position. (Refer to switch mounting for each series regarding switch mounting, moving, and fastening torque, etc.)

4. Mount a switch at the centre of the operating range.

Adjust the mounting position of an auto switch so that the piston stops at the centre of the operating range (the range in which a switch is ON).
(The mounting position shown in a catalogue indicates the optimum position at stroke end.) If mounted at the end of the operating range (around the borderline of ON and OFF), operation will be unstable.

<D-M9□(V)>
When the D-M9□(V) auto switch is used to replace old series auto switch, it may not activate depending on operating condition because of its shorter operating range.

Such as

- **Application where the stop position of actuator may vary and exceed the operating range of the auto switch, for example, pushing, pressing, clamping operation, etc.**
- **Application where the auto switch is used for detecting an intermediate stop position of the actuator. (In this case the detecting time will be reduced.)**

In these applications, set the auto switch to the centre of the required detecting range.

⚠Caution

1. Do not carry an actuator by the auto switch lead wires.

Never carry a cylinder (actuator) by its lead wires. This may not only cause broken lead wires, but it may cause internal elements of the switch to be damaged by the stress.

2. Fix the switch with appropriate screw installed on the switch body. If using other screws, switch may be damaged.

Wiring

⚠Warning

1. Confirm proper insulation of wiring.

Be certain that there is no faulty wiring insulation (contact with other circuits, ground fault, improper insulation between terminals, etc.). Damage may occur due to excess current flow into a switch.

2. Do not wire with power lines or high voltage lines.

Wire separately from power lines or high voltage lines, avoiding parallel wiring or wiring in the same conduit with these lines. Control circuits, including auto switches, may malfunction due to noise from these other lines.

⚠Caution

1. Avoid repeatedly bending or stretching lead wires.

Broken lead wires will result from applying bending stress or stretching force to the lead wires.

2. Be sure to connect the load before power is applied.

<2-wire type>
If the power is turned ON when an auto switch is not connected to a load, the switch will be instantly damaged because of excess current.

3. Do not allow short circuit of loads.

<Reed switch>
If the power is turned ON with a load in a short circuited condition, the switch will be instantly damaged because of excess current flow into the switch.

<Solid state switch>
Model D-M9□(V), F9□W(V) and all models of PNP output type switches do not have built-in short circuit prevention circuits. If loads are short circuited, the switches will be instantly damaged, as in the case of reed switches.
Take special care to avoid reverse wiring with the power supply line (brown) and the output line (black) on 3-wire type switches.

Series MXH
Auto Switch Precautions 3

Be sure to read this before handling.

Wiring

⚠Caution

4. Avoid incorrect wiring.

<Reed switch>

A 24 VDC switch with indicator light has polarity. The brown lead wire is (+) and the blue lead wire is (–).

1) If connections are reversed, a switch will operate, however, the light emitting diode will not light up.
Also note that a current greater than that specified will damage a light emitting diode and it will no longer operate.

Applicable models:
D-A93, A93V

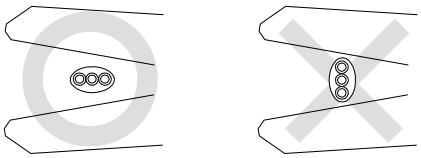
<Solid state switch>

1) If connections are reversed on a 2-wire type switch, the switch will not be damaged if protected by a protection circuit, but the switch will always stay in an ON state. However, it is still necessary to avoid reversed connections, since the switch could be damaged by a load short circuit in this condition.
2) If connections are reversed (power supply line + and power supply line –) on a 3-wire type switch, the switch will be protected by a protection circuit. However, if the power supply line (+) is connected to the blue wire and the power supply line (–) is connected to the black wire, the switch will be damaged.

<D-M9□(V)>

D-M9□(V) does not have built-in short circuit protection circuit. Be aware that if the power supply connection is reversed (e.g. (+) power supply wire and (–) power supply wire connection is reversed), the switch will be damaged.

5. When the cable sheath is stripped, confirm the stripping direction. The insulator may be split or damaged depending on the direction. (D-M9□(V) only)



Recommended Tool

Model name	Model no.
Wire stripper	D-M9N-SWY

∗ Stripper for a round cable (ø2.0) can be used for a 2-wire type cable.

Operating Environment

⚠Warning

1. Never use in an atmosphere of explosive gases.

The construction of auto switches is not intended to prevent explosion. Never use in an atmosphere with an explosive gas since this may cause a serious explosion.

2. Do not use in an area where a magnetic field is generated.

Auto switches will malfunction or magnets inside actuators will become demagnetised.

3. Do not use in an environment where the auto switch will be continually exposed to water.

Although switches, satisfy IEC standard IP67 construction (JIS C 0920: watertight construction), do not use switches in applications where continually exposed to water splash or spray. Poor insulation or swelling of the potting resin inside switches may cause malfunction.

4. Do not use in an environment with oil or chemicals.

Consult with SMC if auto switches will be used in an environment with coolant, cleaning solvent, various oils or chemicals. If auto switches are used under these conditions for even a short time, they may be adversely affected by improper insulation, malfunction due to swelling of the potting resin, or hardening of the lead wires.

5. Do not use in an environment with temperature cycles.

Consult with SMC if switches are used where there are temperature cycles other than normal temperature changes, as they may be adversely affected internally.

6. Do not use in an environment where there is excessive impact shock.

<Reed switch>

When excessive impact (300 m/s^2 or more) is applied to a reed switch during operation, the contact point will malfunction and generate or cut off a signal momentarily (1 ms or less). Consult with SMC regarding the need to use a solid state switch depending upon the environment.

7. Do not use in an area where surges are generated.

<Solid state switch>

When there are units (solenoid type lifter, high frequency induction furnace, motor, etc.) which generate a large amount of surge in the area around actuators with solid state auto switches, this may cause deterioration or damage to the switches. Avoid sources of surge generation and crossed lines.

Series MXH
Auto Switch Precautions 4

Be sure to read this before handling.

Operating Environment

⚠Caution

1. Avoid accumulation of iron debris or close contact with magnetic substances.

When a large amount of ferrous debris such as machining chips or spatter is accumulated, or a magnetic substance (something attracted by a magnet) is brought into close proximity with an auto switch actuator, it may cause the auto switch (actuator) to malfunction due to a loss of the magnetic force inside the actuator.

2. Consult with SMC concerning water resistance, elasticity of lead wires, usage at welding sites, etc.

3. Do not use in direct sunlight.

4. Do not mount the product in locations where it is exposed to radiant heat.

Maintenance

⚠Warning

1. Perform the following maintenance periodically in order to prevent possible danger due to unexpected auto switch malfunction.

1) Securely tighten switch mounting screws.
If screws become loose or the mounting position is dislocated, retighten them after readjusting the mounting position.

2) Confirm that there is no damage to lead wires.
To prevent faulty insulation, replace switches or repair lead wires, etc., if damage is discovered.

3) Confirm the lighting of the green light on the 2-colour indicator type switch.
Confirm that the green LED is on when stopped at the established position. If the red LED is on, the mounting position is not appropriate. Readjust the mounting position until the green LED lights up.

2. Maintenance procedures are outlined in the operation manual.

Not following proper procedures could cause the product to malfunction and could lead to damage to the equipment or machine.

3. Removal of equipment, and supply/exhaust of compressed air

Before any machinery or equipment is removed, first ensure that the appropriate measures are in place to prevent the fall or erratic movement of driven objects and equipment, then cut off the electric power and reduce the pressure in the system to zero. Only then should you proceed with the removal of any machinery and equipment.
When machinery is restarted, proceed with caution after confirming that appropriate measures are in place to prevent actuators from sudden movement.

Series MXH
Specific Product Precautions 1

Be sure to read this before handling. For Safety Instructions, Actuator Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

Caution on Handling Auto Switches

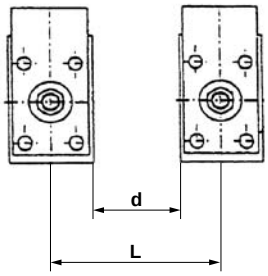
When installing in close proximity to each other

⚠ Caution

1. When compact slide cylinders equipped with D-A9□ or D-F9□ auto switches are used, the auto switches could activate unintentionally if the installed distance is less than the dimension shown in Table (1). Therefore, make sure to provide at least this much clearance. Due to unavoidable circumstances, if they must be used with less distance than the dimensions given in the table below, the cylinders must be shielded. Therefore, affix a steel plate or a magnetic shield plate (MU-S025) to the area on the cylinder that corresponds to the adjacent auto switch. (Please contact SMC for details.) The auto switch could activate unintentionally if a shield plate is not used.

Table (1) (mm)

Bore size (mm)	d	L
MXH6	5	21
MXH10	5	25
MXH16	10	35
MXH20	15	47



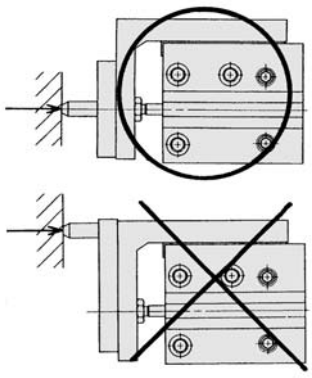
Operating Precautions

⚠ Caution

1. Do not place your fingers in the clearance between the non-rotating plate and the cylinder tube. Your fingers could get caught between the table and the cylinder tube when the piston rod retracts. If fingers are caught in a cylinder, there is a danger of injury due to the strong cylinder output, and therefore caution must be exercised.

2. In terms of the load weight and moment, the cylinder must be operated below the maximum load weight and allowable moment.

3. If the output of the compact slide is applied directly to the table, make sure it is applied along the rod axial line. (Refer to the figure below.)

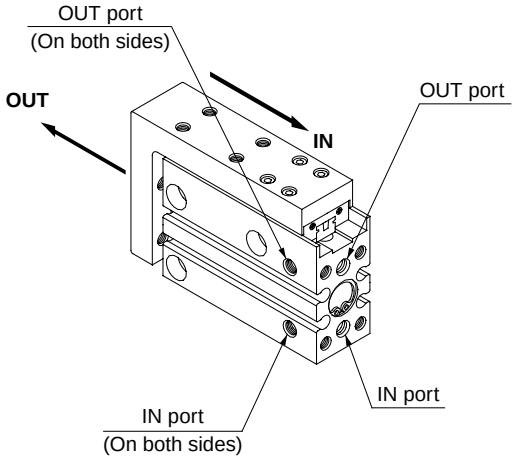


4. Make sure to connect a speed controller and adjust it to a speed of 500 mm/s or less to operate the cylinder.

Operating Direction with Different Pressure Ports

⚠ Caution

1. The compact slide can be mounted in three directions. Check the pressure port and the operating direction. (Refer to the figure below.)

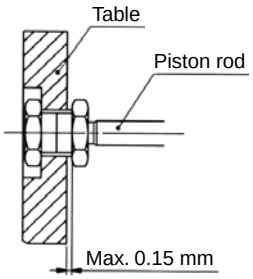


When changing the port location, order plugs as shown below.
Replacement plug part no.: CXS10-08-28747A

Stroke Direction Backlash

⚠ Caution

- Since the connection between the piston rod and table is a floating structure, there is a maximum table backlash of 0.15 mm in the stroke direction. (Refer to the figure below.)



Piston rod and table connection

Series MXH
Specific Product Precautions 2

Be sure to read this before handling. For Safety Instructions, Actuator Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

Caution on Handling Auto Switches

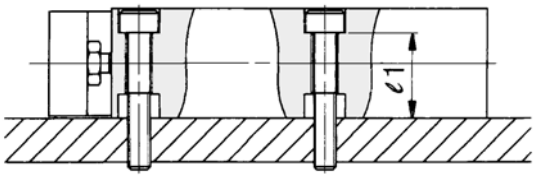
⚠ Caution

1. When tightening threads for compact slide, properly tighten within the specified torque.

How to Mount a Compact Slide

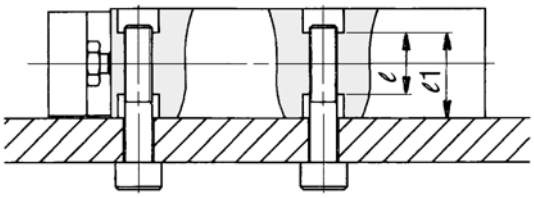
A compact slide can be mounted from 4 directions. Make a selection suitable for the applicable machinery and workpieces, etc.

Lateral Mounting (Body through-hole)



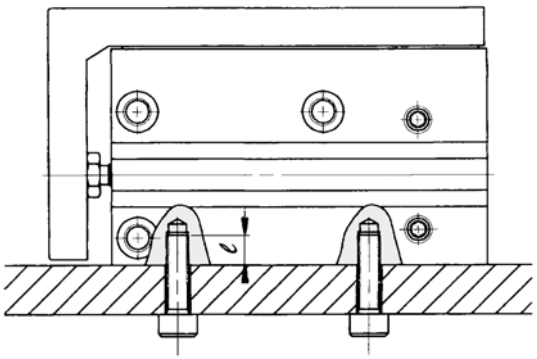
Model	Bolt	Maximum tightening torque (N·m)	ℓ1
MXH6	M3	1.1	12.7
MXH10	M4	2.5	15.6
MXH16	M4	2.5	20.6
MXH20	M5	5.1	24.0

Lateral Mounting (Body tapped)



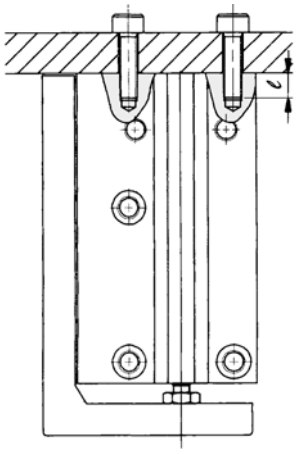
Model	Bolt	Maximum tightening torque (N·m)	ℓ1	ℓ
MXH6	M4	2.5	12.7	9.4
MXH10	M5	5.1	15.6	11.2
MXH16	M5	5.1	20.6	16.2
MXH20	M6	8.1	24.0	16.0

Vertical Mounting (Body tapped)



Model	Bolt	Maximum tightening torque (N·m)	ℓ
MXH6	M3	1.1	4.8
MXH10	M4	2.5	6
MXH16	M4	2.5	6
MXH20	M5	5.1	8

Axial Mounting (Body tapped)



Model	Bolt	Maximum tightening torque (N·m)	ℓ
MXH6	M3	1.1	4.8
MXH10	M4	2.5	6
MXH16	M4	2.5	6
MXH20	M5	5.1	8

Series MXH
Specific Product Precautions 3

Be sure to read this before handling. For Safety Instructions, Actuator Precautions, refer to "Precautions for Handling Pneumatic Devices" (M-03-E3A).

Mounting

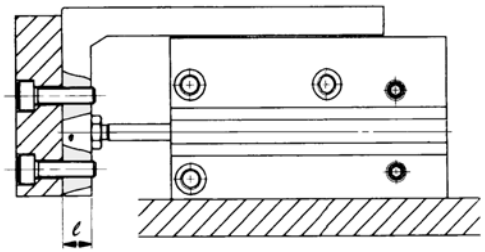
⚠ Caution

1. When tightening threads for compact slide, properly tighten within the specified torque.
2. When mounting a workpiece on the top of the table, do not screw a bolt in more deeper than the female thread (Below table ℓ dimension).
If screwing a bolt in more deeper than the ℓ dimension, the edge of the bolt could reach the linear guide and might damage the linear guide.

How to Mount a Workpiece

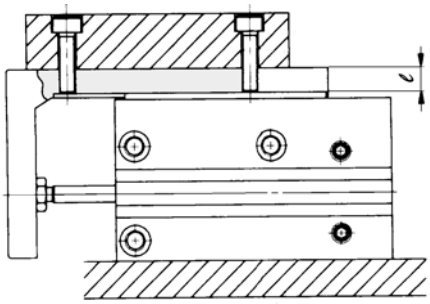
A compact slide can be mounted from 2 directions. Make a selection suitable for the applicable machinery and workpieces, etc.

Front Mounting



Model	Bolt	Maximum tightening torque (N·m)	ℓ
MXH6	M3	1.1	5.5
MXH10	M4	2.5	7.5
MXH16	M4	2.5	10
MXH20	M5	5.1	11

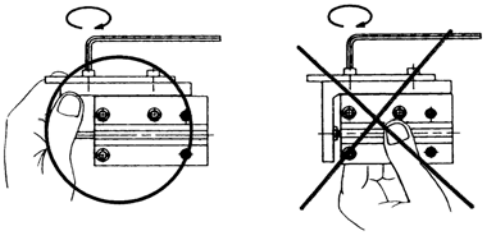
Top Mounting



Model	Bolt	Maximum tightening torque (N·m)	ℓ
MXH6	M3	1.1	6.5
MXH10	M4	2.5	8
MXH16	M4	2.5	9
MXH20	M5	5.1	9.5

How to Mount a Workpiece

Workpieces can be mounted on 2 surfaces of the compact slide.
- Since the table is supported by the linear guide, take care not to apply strong impact or large moment, etc. when mounting workpieces.
- Hold the table when fastening workpieces to it with bolts, etc. If the body is held while tightening bolts, etc., the guide section will be



- For connection with a load having an external support/guide mechanism, select an appropriate connection method and perform careful alignment.
- Use caution, as scratches or nicks, etc. on the sliding parts of the piston rod can cause malfunction and air leakage.

EUROPEAN SUBSIDIARIES:

Austria
SMC Pneumatik GmbH (Austria).
Girakstrasse 8, A-2100 Korneuburg
Phone: +43 2262-62280, Fax: +43 2262-62285
E-mail: office@smc.at
http://www.smc.at

Belgium
SMC Pneumatics N.V./S.A.
Nijverheidsstraat 20, B-2160 Wommelgem
Phone: +32 (0)3-355-1464, Fax: +32 (0)3-355-1466
E-mail: post@smcpneumatics.be
http://www.smcpneumatics.be

Bulgaria
SMC Industrial Automation Bulgaria EOOD
16 kliment Ohridski Blvd., fl.13 BG-1756 Sofia
Phone:+359 2 9744492, Fax:+359 2 9744519
E-mail: office@smc.bg
http://www.smc.bg

Croatia
SMC Industrijska automatika d.o.o.
Crnomerec 12, 10000 ZAGREB
Phone: +385 1 377 66 74, Fax: +385 1 377 66 74
E-mail: office@smc.hr
http://www.smceu.com

Czech Republic
SMC Industrial Automation CZ s.r.o.
Hudcova 78a, CZ-61200 Brno
Phone: +420 5 414 24611, Fax: +420 5 412 18034
E-mail: office@smc.cz
http://www.smc.cz

Denmark
SMC Pneumatik A/S
Knudsminde 4B, DK-8300 Odder
Phone: +45 70252900, Fax: +45 70252901
E-mail: smc@smc-pneumatik.dk
http://www.smcdk.com

Estonia
SMC Pneumatics Estonia OÜ
Laki 12-101, 106 21 Tallinn
Phone: +372 (0)6 593540, Fax: +372 (0)6 593541
E-mail: smc@smcpneumatics.ee
http://www.smcpneumatics.ee

Finland
SMC Pneumatics Finland OY
PL72, Tiistinniityntie 4, SF-02031 ESPOO
Phone: +358 207 513513, Fax: +358 207 513595
E-mail: smcfi@smc.fi
http://www.smc.fi

France
SMC Pneumatique, S.A.
1, Boulevard de Strasbourg, Parc Gustave Eiffel
Bussy Saint Georges F-77607 Marne La Vallee Cedex 3
Phone: +33 (0)1-6476 1000, Fax: +33 (0)1-6476 1010
E-mail: contact@smc-france.fr
http://www.smc-france.fr

Germany
SMC Pneumatik GmbH
Boschring 13-15, D-63329 Egelsbach
Phone: +49 (0)6103-4020, Fax: +49 (0)6103-402139
E-mail: info@smc-pneumatik.de
http://www.smc-pneumatik.de

Greece
S. Parianopoulus S.A.
7, Konstantinoupoleos Street, GR-11855 Athens
Phone: +30 (0)1-3426076, Fax: +30 (0)1-3455578
E-mail: parianos@hol.gr
http://www.smceu.com

Hungary
SMC Hungary Ipari Automatizálási Kft.
Budafoki ut 107-113, H-1117 Budapest
Phone: +36 1 371 1343, Fax: +36 1 371 1344
E-mail: office@smc-automation.hu
http://www.smc-automation.hu

Ireland
SMC Pneumatics (Ireland) Ltd.
2002 Citywest Business Campus, Naas Road, Saggart, Co. Dublin
Phone: +353 (0)1-403 9000, Fax: +353 (0)1-464-0500
E-mail: sales@smcpneumatics.ie
http://www.smcpneumatics.ie

Italy
SMC Italia S.p.A
Via Garibaldi 62, I-20061Carugate, (Milano)
Phone: +39 (0)2-92711, Fax: +39 (0)2-9271365
E-mail: mailbox@smcitalia.it
http://www.smcitalia.it

Latvia
SMC Pneumatics Latvia SIA
Smerla 1-705, Riga LV-1006, Latvia
Phone: +371 781-77-00, Fax: +371 781-77-01
E-mail: info@smclv.lv
http://www.smclv.lv

Lithuania
SMC Pneumatics Lietuva, UAB
Savanoriu pr. 180, LT-01354 Vilnius, Lithuania
Phone: +370 5 264 81 26, Fax: +370 5 264 81 26

Netherlands
SMC Pneumatics BV
De Ruyterkade 120, NL-1011 AB Amsterdam
Phone: +31 (0)20-5318888, Fax: +31 (0)20-5318880
E-mail: info@smcpneumatics.nl
http://www.smcpneumatics.nl

Norway
SMC Pneumatics Norway A/S
Vollsveien 13 C, Granfos Næringspark N-1366 Lysaker
Tel: +47 67 12 90 20, Fax: +47 67 12 90 21
E-mail: post@smc-norge.no
http://www.smc-norge.no

Poland
SMC Industrial Automation Polska Sp.z.o.o.
ul. Konstruktorska 11A, PL-02-673 Warszawa,
Phone: +48 22 548 5085, Fax: +48 22 548 5087
E-mail: office@smc.pl
http://www.smc.pl

Portugal
SMC Sucursal Portugal, S.A.
Rua de Engº Ferreira Dias 452, 4100-246 Porto
Phone: +351 22-610-89-22, Fax: +351 22-610-89-36
E-mail: postpt@smc.smces.es
http://www.smces.es

Romania
SMC Romania srl
Str Frunzei 29, Sector 2, Bucharest
Phone: +40 213205111, Fax: +40 213261489
E-mail: smcromania@smcromania.ro
http://www.smcromania.ro

Russia
SMC Pneumatik LLC.
4B Sverdlovskaja nab, St. Petersburg 195009
Phone.:+812 718 5445, Fax:+812 718 5449
E-mail: info@smc-pneumatik.ru
http://www.smc-pneumatik.ru

Slovakia
SMC Priemyselná Automatizáciá, s.r.o.
Námestie Martina Benku 10, SK-81107 Bratislava
Phone: +421 2 444 56725, Fax: +421 2 444 56028
E-mail: office@smc.sk
http://www.smc.sk

Slovenia
SMC industrijska Avtomatika d.o.o.
Grajski trg 15, SLO-8360 Zuzemberk
Phone: +386 738 85240 Fax: +386 738 85249
E-mail: office@smc-ind-avtom.si
http://www.smc-ind-avtom.si

Spain
SMC España, S.A.
Zuazobidea 14, 01015 Vitoria
Phone: +34 945-184 100, Fax: +34 945-184 124
E-mail: post@smc.smces.es
http://www.smces.es

Sweden
SMC Pneumatics Sweden AB
Ekhagsvägen 29-31, S-141 71 Huddinge
Phone: +46 (0)8-603 12 00, Fax: +46 (0)8-603 12 90
E-mail: post@smcpneumatics.se
http://www.smc.nu

Switzerland
SMC Pneumatik AG
Dorfstrasse 7, CH-8484 Weisslingen
Phone: +41 (0)52-396-3131, Fax: +41 (0)52-396-3191
E-mail: info@smc.ch
http://www.smc.ch

Turkey
Entek Pnömatik San. ve Tic Ltd. Sti.
Perpa Tic. Merkezi Kat: 11 No: 1625, TR-80270 Okmeydani Istanbul
Phone: +90 (0)212-221-1512, Fax: +90 (0)212-221-1519
E-mail: smc-entek@entek.com.tr
http://www.entek.com.tr

UK
SMC Pneumatics (UK) Ltd
Vincent Avenue, Crownhill, Milton Keynes, MK8 0AN
Phone: +44 (0)800 1382930 Fax: +44 (0)1908-555064
E-mail: sales@smcpneumatics.co.uk
http://www.smcpneumatics.co.uk

OTHER SUBSIDIARIES WORLDWIDE:

ARGENTINA, AUSTRALIA, BOLIVIA, BRASIL, CANADA, CHILE, CHINA, HONG KONG, INDIA, INDONESIA, MALAYSIA, MEXICO, NEW ZEALAND, PHILIPPINES, SINGAPORE, SOUTH KOREA, TAIWAN, THAILAND, USA, VENEZUELA

http://www.smceu.com
http://www.smcworld.com

SMC CORPORATION Akihabara UDX 15F, 4-14-1, Sotokanda, Chiyoda-ku, Tokyo 101-0021, JAPAN Phone: 03-5207-8249 FAX: 03-5298-5362

1st printing **KQ** printing **KQ 00 UK Printed in Spain**