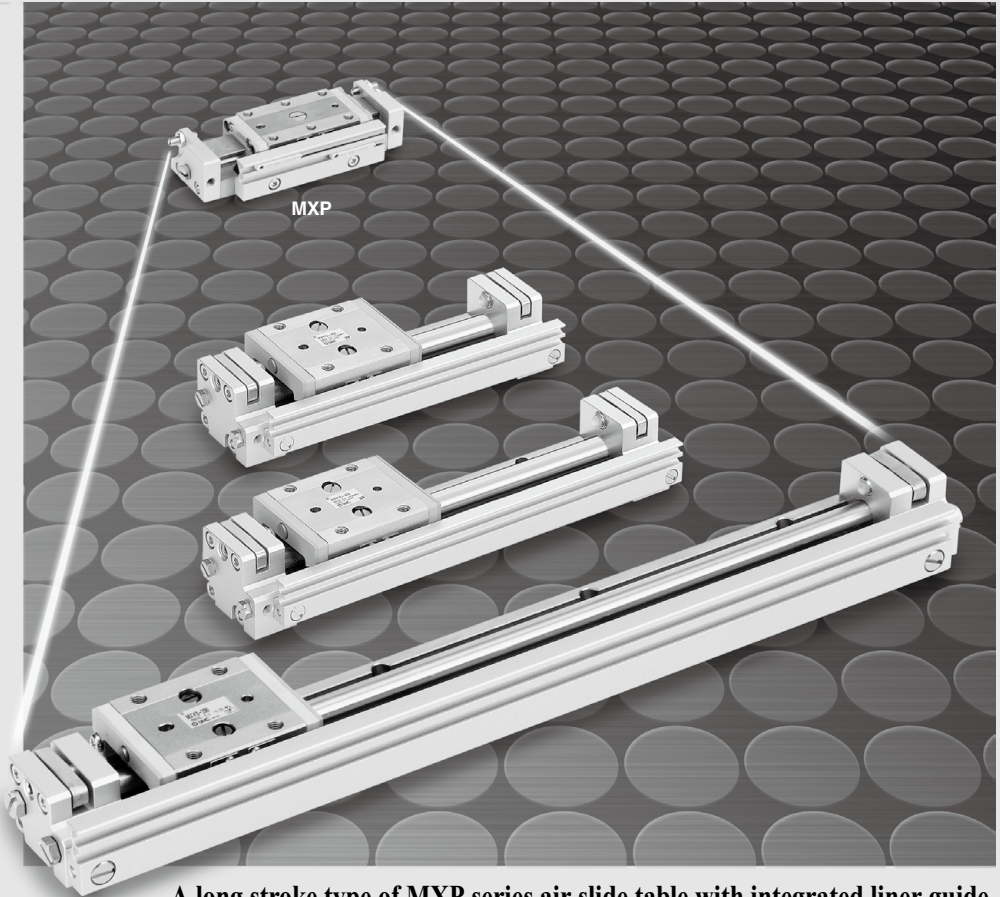


Air Slide Table/Long Stroke Type

MXY Series

ø6, ø8, ø12

RoHS



A long stroke type of MXP series air slide table with integrated liner guide.

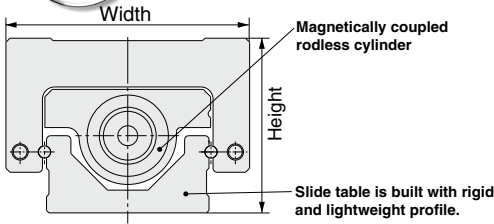
- MXH
- MXS
- MXQ
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MXY**
- MTS

- D-
- X

Use of linear guide provides rigid, The slide table comes with a built-in

Rigid, compact, and lightweight

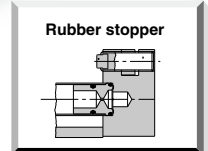
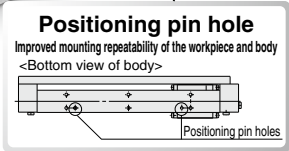
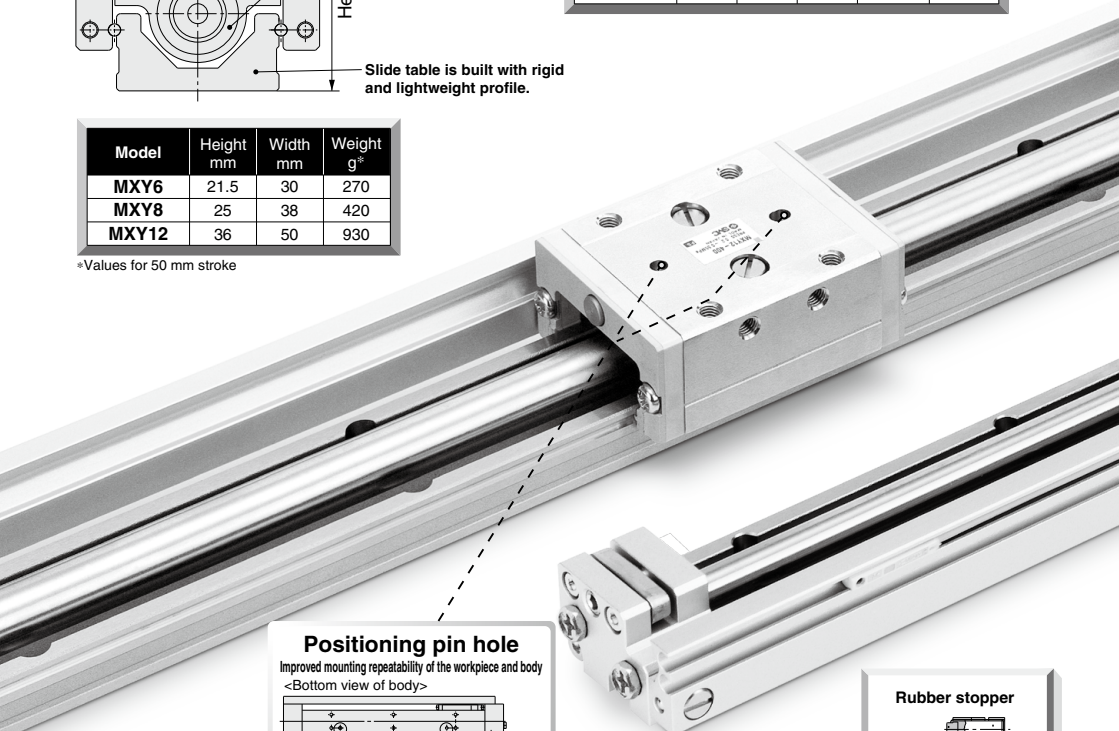
Compact design with higher allowable moment compared to MXY8/MXW8



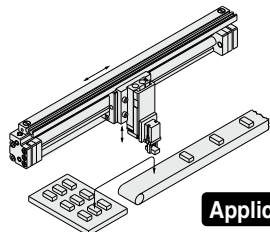
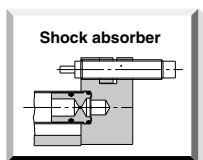
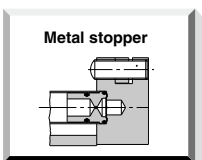
| Model | Height mm | Width mm | Weight g | Allowable moment N·m | | |
|---------|-----------|------------|-----------|----------------------|---------|--|
| | | | | Pitch, Yaw | Roll | |
| MXY8-50 | 25 | 47 | 420 | 5.7 | 13 | |
| MXW8-50 | 30 | 49 | 610 | 5 | 3 | |
| MXY/MXW | 0.8 times | 0.95 times | 0.7 times | 1.14 times | 4 times | |

| Model | Height mm | Width mm | Weight g* |
|-------|-----------|----------|-----------|
| MXY6 | 21.5 | 30 | 270 |
| MXY8 | 25 | 38 | 420 |
| MXY12 | 36 | 50 | 930 |

*Values for 50 mm stroke



Adjuster options



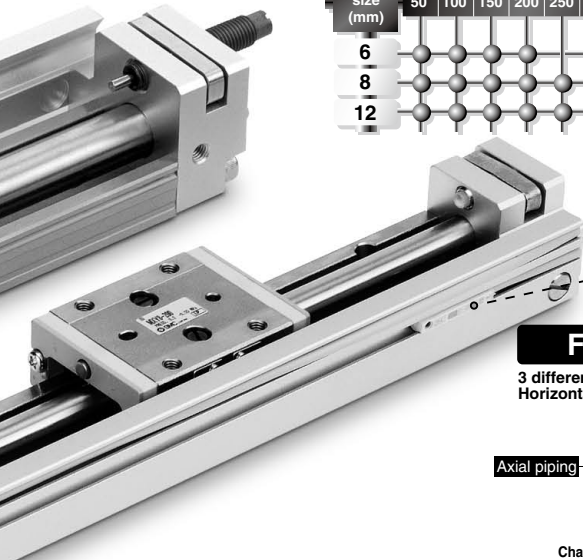
Application Example

compact, and lightweight design. magnetically coupled rodless cylinder.

Long stroke MXY12—Max. stroke 400 mm

Series variations

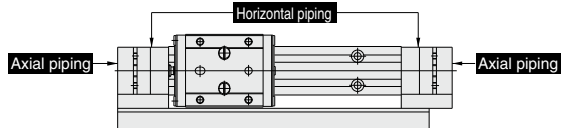
| Bore size (mm) | Stroke | | | | | | | | Adjuster options | | | Function options |
|----------------|--------|-----|-----|-----|-----|-----|-----|-----|------------------|----------------|---------------|--|
| | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | Rubber stopper | Shock absorber | Metal stopper | Piping concentrated on one side of the switch rail |
| 6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| 12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |



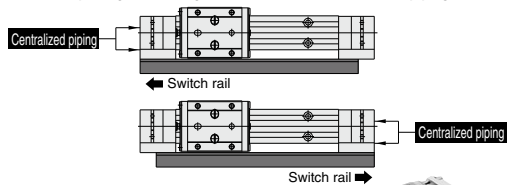
Auto switch mounting
Three types of auto switches can be mounted.
Solid state auto switch: M9 type
Reed auto switch: A9 type
2-color indicator solid state auto switch: M9□W type

Flexible Piping

3 different piping directions are available:
Horizontal piping, axial piping, and centralized piping



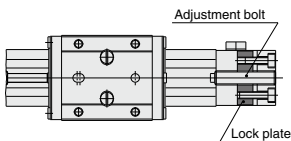
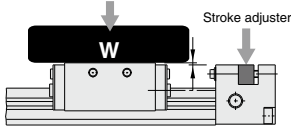
Changing the mounting position of the switch rail, which also used as an air passage can change the direction of the centralized piping.



Stroke adjuster

The stroke adjuster does not protrude from the mounting surface of the workpiece mounting surface, allowing high flexibility in workpiece mounting.

Workpiece mounting surface



Using lock plates to securely lock the adjustment bolt with minimal force.

MXP Series

Compact air slide table that comes with linear guide with built-in cylinder.

| Series | Stroke (mm) | | | | | Stroke adjusters | | | Auto switch | |
|--------|-------------|----|----|----|----|------------------|----------------|---------------|----------------|---|
| | 5 | 10 | 15 | 20 | 25 | 30 | Rubber stopper | Metal stopper | Shock absorber | |
| MXP 6 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| MXP 8 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| MXP10 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| MXP12 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| MXP16 | ● | ● | ● | ● | ● | ● | ● | ● | ● | ● |

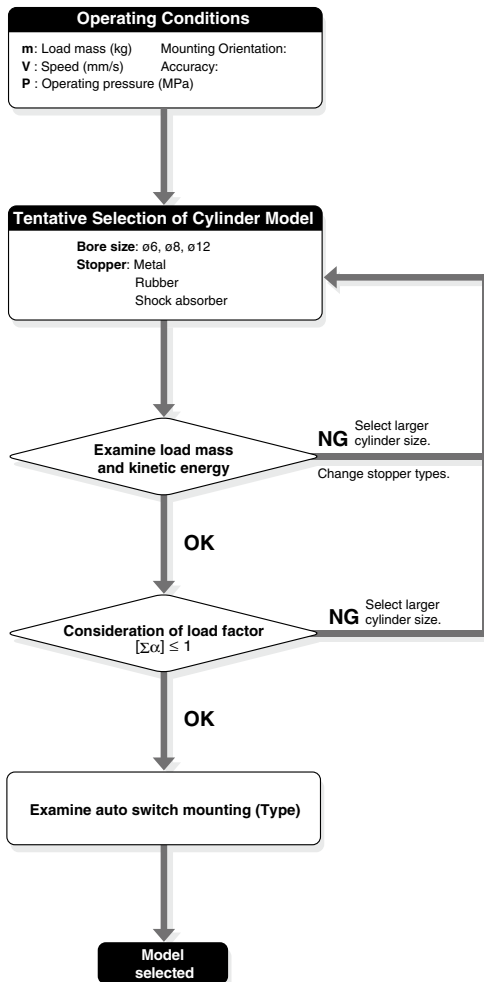
- MXH
- MXS
- MXQ□
- MXQ
- MXF
- MXW
- MXJ
- MPX
- MXY
- MTS

- D-□
- X□

Model Selection 1

The following are the steps for selection of the MXY series best suited to your application,

Conditions and Calculation Flow for Selection



MXH

MXS

MXQ□

MXQ

MXF

MXW

MXJ

MXP

MXY

MTS

D-□

-X□

MX_Y Series

Model Selection 2

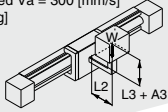
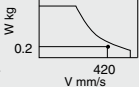
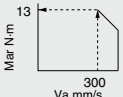
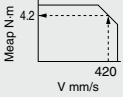
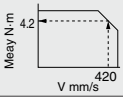
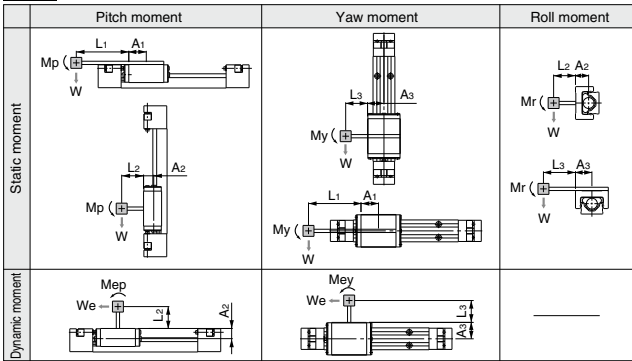
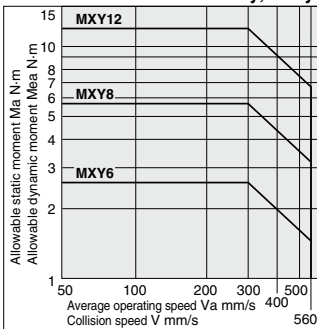
| Model Selection Step | Formula/Data | Selection Example |
|---|--|--|
| <p>1 Operating Conditions</p> <p>Enumerate the operating conditions considering the mounting position and workpiece configuration.</p> | <ul style="list-style-type: none"> • Model to be used • Type of cushion • Mounting orientation • Average operating speed V_a (mm/s) • Load mass W (kg) • Overhang L_n (mm) | <p>Cylinder: MX_Y8-100 Cushion: Rubber stopper Mounting: Horizontal wall mounting Average operating speed $V_a = 300$ [mm/s] Load mass: $W = 0.2$ [kg] $L_2 = 40$ mm $L_3 = 50$ mm</p>  |
| <p>2 Load Mass</p> <p>Find the collision speed V (mm/S)</p> <p>Confirm that the load mass W (kg) does not exceed the value in the graph.</p> | <p>$V = \frac{1.4 \cdot V_a}{\alpha}$ * Correction factor (Reference value)</p> <p>Graph (1)</p> | <p>$V = 1.4 \times 300 = 420$</p> <p>Confirm that $V = 420$ and $W = 0.2$ do not exceed the values in Graph (1).</p> <p>Applicable because it does not exceed the value in Graph (1).</p>  |
| <p>3 Load Factor</p> | | |
| <p>3-1 Load Factor of Static Moment</p> <p>Find the static moment M (N·m).</p> <p>Find the allowable static moment M_a (N·m).</p> <p>Find the load factor α_1 of the static moment.</p> | <p>$M = W \times 9.8 (L_n + A_n)/1000$ Corrected value of moment center position distance A_n: Table (1)</p> <p>Pitch, Yaw moment: Graph (2)</p> <p>Roll moment: Graph (3)</p> <p>$\alpha_1 = M/M_a$</p> | <p>Examine M_r.</p> <p>$M_r = 0.2 \times 9.8 (40 + 15.5)/1000 = 0.1$ $A_2 = 15.5$</p> <p>Obtain $M_{ar} = 13$ from $V_a = 300$ in Graph (3).</p> <p>$\alpha_1 = 0.1/13 = 0.008$</p>  |
| <p>3-2 Load Factor of Dynamic Moment</p> <p>Find the dynamic moment M_e (N·m).</p> <p>Find the allowable dynamic moment M_{ea} (N·m).</p> <p>Find the load factor α_2 of the dynamic moment.</p> | <p>$M_e = 1/3 \cdot W_e \times 9.8 (L_n + A_n)/1000$ Mass equivalent to impact $W_e = \delta \cdot W \cdot V$ δ: Bumper coefficient Rubber stopper screw: 4/100 Shock absorber: 1/100 Metal stopper screw: 16/100 Corrected value of moment center position distance A_n: Table (1)</p> <p>Pitch, yaw moment: Graph (2)</p> <p>$\alpha_2 = M_e/M_{ea}$</p> | <p>Examine M_{ep}.</p> <p>$M_{ep} = 1/3 \times 3.36 \times 9.8 \times (40 + 15.5)/1000 = 0.61$ $W_e = 4/100 \times 0.2 \times 420 = 3.36$ $A^2 = 15.5$</p> <p>Obtain $M_{eap} = 4.2$ from $V = 420$ in Graph (2).</p> <p>$\alpha_2 = 0.61/4.2 = 0.15$</p> <p>Examine M_{ey}.</p> <p>$M_{ey} = 1/3 \times 3.36 \times 9.8 \times (50 + 19)/1000 = 0.76$ $W_e = 3.36$ $A^3 = 19$</p> <p>Obtain $M_{eay} = 4.2$ from $V = 420$ in Graph (2).</p> <p>$\alpha_2' = 0.76/4.2 = 0.18$</p>   |
| <p>3-3 Sum of the Load Factors</p> <p>Use is possible if the sum of the load factors does not exceed 1.</p> | <p>$\alpha_1 + \alpha_2 < 1$</p> | <p>$\alpha_1 + \alpha_2 + \alpha_2' =$ Applicable because $0.008 + 0.15 + 0.18 = 0.34 < 1$</p> |

Fig. (1) Overhang: Ln (mm), Correction Value of Moment Center Position Distance: An (mm)



Note) Static moment: Moment generated by gravity
Dynamic moment: Moment generated by impact when colliding with stopper

Graph (2) Allowable Moment
Pitch Moment: M_{ap} , M_{eap}
Yaw Moment: M_{ay} , M_{eay}



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

Graph (3) Allowable Moment
Roll Moment: M_{ar}

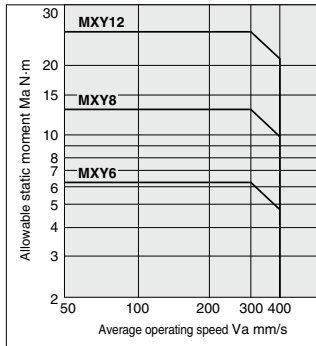


Table (1) Correction Value of Moment Center Position Distance: An (mm)

| Model | Corrected value of moment center position distance (Refer to Figure 2.) | | |
|--------------------|---|----------------|----------------|
| | A ₁ | A ₂ | A ₃ |
| MX _Y 6 | 16 | 14 | 15 |
| MX _Y 8 | 20 | 15.5 | 19 |
| MX _Y 12 | 26 | 23.5 | 25 |

Table (3) Maximum Allowable Moment: Mmax (N·m)

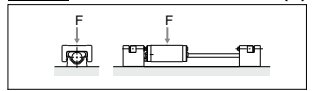
| Model | Pitch/Yaw moment: M_{pmax}/M_{ymax} | Roll moment: M_{rmax} |
|--------------------|---------------------------------------|-------------------------|
| MX _Y 6 | 2.6 | 6.2 |
| MX _Y 8 | 5.7 | 13 |
| MX _Y 12 | 12 | 28 |

The above value represents the maximum value of allowable moment. For the maximum allowable moment for each piston speed, please refer to Graph (2) and (3).

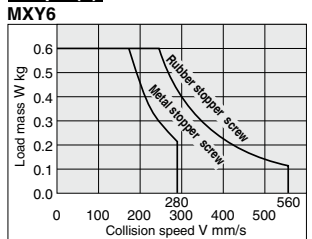
Symbol

| Symbol | Definition | Unit | Symbol | Definition | Unit |
|-----------------------------|--|------|--------|----------------------------|------|
| An (n = 1 to 3) | Corrected value of moment center position distance | mm | F | Allowable static load | N |
| Ln (n = 1 to 3) | Overhang | mm | V | Collision speed | mm/s |
| M (Mp, My, Mr) | Static moment (pitch, yaw, roll) | N·m | Va | Average operating speed | mm/s |
| Ma (Map, May, Mar) | Allowable static moment (pitch, yaw, roll) | N·m | W | Load mass | kg |
| Me (Mep, Mey) | Dynamic moment (pitch, yaw) | N·m | Wa | Equivalent mass for impact | kg |
| Mea (Meap, Meay) | Allowable dynamic moment (pitch, yaw) | N·m | Wmax | Max. allowable load mass | kg |
| Mmax (Mpxmax, Mymax, Mrmax) | Max. allowable moment (pitch, yaw, roll) | N·m | α | Load factor | — |

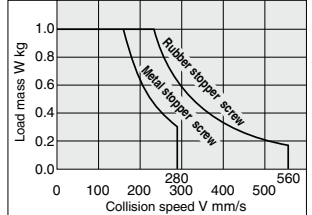
Fig. (2) Allowable Static Load: F(N)



Graph (1) Load Mass: W



MX_Y6



MX_Y12

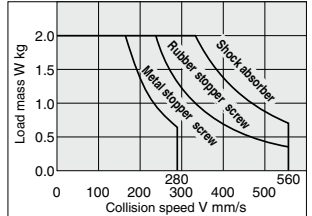


Table (2) Max. Allowable Load Mass: Wmax (kg)

| Model | Max. allowable load weight |
|--------------------|----------------------------|
| MX _Y 6 | 0.6 |
| MX _Y 8 | 1 |
| MX _Y 12 | 2 |

The above value represents the maximum value for each allowable load mass. For the maximum allowable load mass for each piston speed, please refer to Graph (1).

Table (4) Allowable Static Load: F (N)

| Model | Allowable static load |
|--------------------|-----------------------|
| MX _Y 6 | 580 |
| MX _Y 8 | 980 |
| MX _Y 12 | 1600 |

The above value represents the applicable load at the position where the moment does not work at the time of stop. Factors such as impact, etc. are not in consideration with the value.

- MXH
- MXS
- MXQ
- MXQ
- MXF
- MXW
- MXJ
- MXP
- MX_Y
- M_{TS}

- D-□
- X-□

Air Slide Table Long Stroke Type MXY Series

ø6, ø8, ø12



How to Order

MXY 6 - 50 - [] - [] - M9BW [] - []

Bore size/Standard stroke (mm)

| | |
|----|---------------------------------------|
| 6 | 50, 100, 150, 200 |
| 8 | 50, 100, 150, 200, 250, 300 |
| 12 | 50, 100, 150, 200, 250, 300, 350, 400 |

Adjuster option

| | |
|----------------|----------------|
| Nil | Rubber stopper |
| B [*] | Shock absorber |
| C | Metal stopper |

* Only for MXY12

Mode to Order
For details, refer to page 363.

Number of auto switches

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

Auto switch type

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

One side centralized piping, switch rail

| | |
|-----|--|
| Nil | One side centralized piping, with switch rail |
| N | Without one side centralized piping, without switch rail |

The auto switch cannot be mounted on the one side centralized piping type without switch rail (N).

Applicable Auto Switches

Refer to pages 1119 to 1245 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) | | |
| Solid state auto switch | — | Grommet | Yes | 3-wire (NPN) | 24 V | 5 V, 12 V | — | M9NV | M9N | ● | ● | ○ | ○ | IC circuit | Relay, PLC | |
| | | | | 3-wire (PNP) | | | | M9PV | M9P | ● | ● | ○ | ○ | | | |
| | | | | 2-wire | | | | M9BV | M9B | ● | ● | ○ | ○ | | | |
| | | | | 3-wire (NPN) | | | | M9NVV | M9NV | ● | ● | ○ | ○ | | | |
| | Diagnostic indication (2-color indicator) | | | 3-wire (PNP) | M9PVV | M9PV | ● | ● | ○ | ○ | IC circuit | | | | | |
| | | | | 2-wire | M9BWW | M9BW | ● | ● | ○ | ○ | | | | | | |
| | Water resistant (2-color indicator) | | | 3-wire (NPN) | M9NAV ^{*1} | M9NA ^{*1} | ○ | ○ | ● | ○ | IC circuit | | | | | |
| | | | | 3-wire (PNP) | M9PAV ^{*1} | M9PA ^{*1} | ○ | ○ | ● | ○ | | | | | | |
| 2-wire | | M9BAV ^{*1} | M9BA ^{*1} | ○ | ○ | ● | ○ | | | | | | | | | |
| 2-wire | | M9BAV ^{*1} | M9BA ^{*1} | ○ | ○ | ● | ○ | | | | | | | | | |
| Reed auto switch | — | Grommet | Yes | 3-wire (Equiv. to NPN) | 24 V | 5 V | — | A96V | A96 | ● | — | — | — | IC circuit | — | |
| | | | | 2-wire | | | | A93V ^{*2} | A93 | ● | ● | ● | — | | | Relay, PLC |
| | | | | 2-wire | | | | A90V | A90 | ● | — | — | — | | | |

*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
 *2 1 m type lead wire is only applicable to D-A93.
 * Lead wire length symbols: 0.5 m..... Nil (Example) M9NW * Solid state auto switches marked with "○" are produced upon receipt of order.
 1 m..... M (Example) M9NWM
 3 m..... L (Example) M9NWL
 5 m..... Z (Example) M9NWZ
 * Refer to page 369 for applicable auto switches in addition to those listed above.
 * For details on auto switches with a pre-wired connector, refer to pages 1192 and 1193.
 * Auto switches are shipped together (not assembled).



Specifications



Symbol

Rubber bumper
(Magnet type)



| Model | MX _Y 6 | MX _Y 8 | MX _Y 12 |
|---|---|--------------------|---------------------|
| Bore size (mm) | 6 | 8 | 12 |
| Port size | M5 x 0.8 | | |
| Fluid | Air | | |
| Action | Double acting (type) | | |
| Operating pressure | 0.2 to 0.55 MPa | | |
| Proof pressure | 0.83 MPa | | |
| Ambient and fluid temperature | -10 to 60°C | | |
| Operating speed range (Average operating speed) ^{Note 1)} | 50 to 400 mm/s ^{Note 2)} Metal stopper: 50 to 200 mm/s | | |
| Cushion | Rubber bumper Shock absorber ^{Note 3)} (option, not available on MX _Y 6, MX _Y 8) None (with metal stopper) | | |
| Lubrication | Non-lube (equipment), unlubricated | | |
| Stroke adjuster | Standard | | |
| Stroke adjustment range | Rubber stopper | One side 0 to 5 mm | |
| | Shock absorber | — | One side 0 to 15 mm |
| | Metal stopper | One side 0 to 5 mm | |
| Auto switch | Reed auto switches (2-wire, 3-wire) Solid state auto switches (2-wire, 3-wire) 2-color indicator solid state auto switches (2-wire, 3-wire) | | |
| Stroke length tolerance | + $\frac{1}{0}$ mm | | |

Note 1) Average operating speed: Speed that the stroke is divided by a period of time from starting the operation to reaching the end.

Note 2) When the smooth operation is required in a low speed range of 80 mm/s or less, contact SMC.

Note 3) The shock absorber service life is different from that of the MX_Y cylinder depending on operating conditions. Refer to the Specific Product Precautions for the replacement period.

Theoretical Output

(N)

| Cylinder bore (mm) | Piston area (mm ²) | Operating pressure (MPa) | | | | |
|--------------------|--------------------------------|--------------------------|-----|-----|-----|------|
| | | 0.2 | 0.3 | 0.4 | 0.5 | 0.55 |
| 6 | 28 | 6 | 8 | 11 | 14 | 15 |
| 8 | 50 | 10 | 15 | 20 | 25 | 28 |
| 12 | 113 | 23 | 34 | 45 | 57 | 62 |



Made to Order:
Individual Specifications
(Refer to pages 370 and 371 for details.)

| Symbol | Specifications |
|--------|--|
| -X7 | PTFE grease |
| -X9 | Grease for food processing machines |
| -X11 | Adjusting bolt, long specification (Adjustment range: 15 mm) |
| -X12 | Adjusting bolt, long specification (Adjustment range: 25 mm) |
| -X39 | Fluororubber seal |
| -X42 | Anti-corrosive guide unit |
| -X45 | EPDM seal |

Standard Stroke

(mm)

| Model | Standard stroke |
|-------------------------|---------------------------------------|
| MX_Y6 | 50, 100, 150, 200 |
| MX_Y8 | 50, 100, 150, 200, 250, 300 |
| MX_Y12 | 50, 100, 150, 200, 250, 300, 350, 400 |

Magnetic

Holding Force

(N)

| Model | Magnetic holding force |
|-------------------------|------------------------|
| MX_Y6 | 19 |
| MX_Y8 | 34 |
| MX_Y12 | 77 |

Weight

(g)

| Model | One side centralized piping, with switch rail | | | | | | | | One side centralized piping, without switch rail | | | | | | | | Additional weight of option Shock absorber |
|-------------------------|---|------|------|------|------|------|------|------|--|------|------|------|------|------|------|------|---|
| | Stroke (mm) | | | | | | | | Stroke (mm) | | | | | | | | |
| | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | |
| MX_Y6 | 270 | 330 | 390 | 450 | — | — | — | — | 230 | 280 | 330 | 380 | — | — | — | — | — |
| MX_Y8 | 420 | 510 | 600 | 690 | 780 | 870 | — | — | 410 | 480 | 550 | 620 | 690 | 760 | — | — | — |
| MX_Y12 | 930 | 1060 | 1190 | 1320 | 1450 | 1580 | 1710 | 1840 | 910 | 1020 | 1130 | 1240 | 1350 | 1460 | 1570 | 1680 | 15 |

Moisture Control Tube IDK Series



When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the [IDK series in the Best Pneumatics No. 6](#).

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MX_Y

MTS

D-□

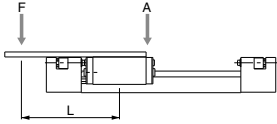
-X□

The graphs below show the table displacement when the static moment load is applied to the table. The graphs do not show the loadable mass. Refer to the Model Selection for the loadable mass.

Table Deflection (Reference Values)

Table deflection due to pitch moment load

Displacement at "A" when load is applied "F"



| L dimension | mm |
|-------------|-----|
| MX Y6 | 100 |
| MX Y8 | 100 |
| MX Y12 | 140 |

Pitch moment

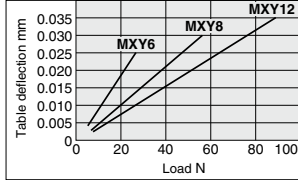
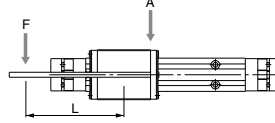


Table deflection due to yaw moment load

Displacement at "A" when load is applied "F"



| L dimension | mm |
|-------------|-----|
| MX Y6 | 100 |
| MX Y8 | 100 |
| MX Y12 | 140 |

Yaw moment

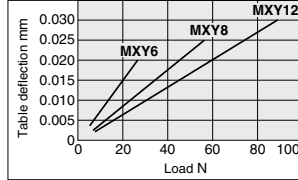
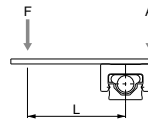


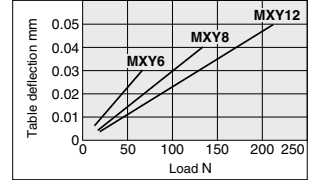
Table deflection due to roll moment load

Displacement at "A" when load is applied "F"

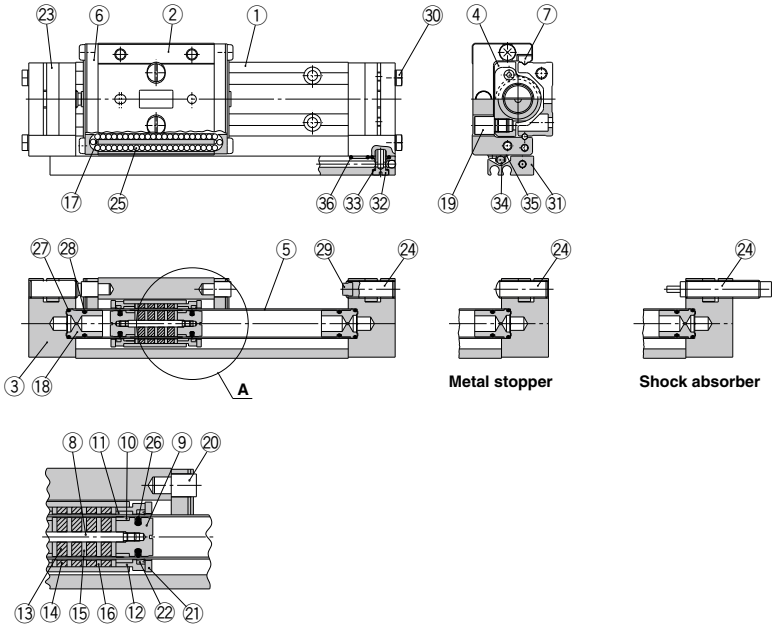


| L dimension | mm |
|-------------|-----|
| MX Y6 | 100 |
| MX Y8 | 100 |
| MX Y12 | 140 |

Roll moment



Construction



Detail drawing of part A

Component Parts

| No. | Description | Material | Note |
|-----|--------------|----------------------|---|
| 1 | Rail | Stainless steel | Heat treatment, electroless nickel plated |
| 2 | Guide block | Stainless steel | Heat treatment, electroless nickel plated |
| 3 | End plate | Aluminum alloy | Hard anodized |
| 4 | Body | Aluminum alloy | Hard anodized |
| 5 | Tube | Stainless steel | |
| 6 | Cover | Resin | |
| 7 | Scraper | Stainless steel, NBR | |
| 8 | Shaft | Stainless steel | |
| 9 | Piston | Brass | Electroless nickel plated |
| 10 | Wear ring A | Resin | |
| 11 | Wear ring B | Resin | |
| 12 | Spacer | Brass | Electroless nickel plated |
| 13 | Magnet A | — | Nickel plated |
| 14 | Magnet B | — | Nickel plated |
| 15 | Yoke A | Steel | Electroless nickel plated |
| 16 | Yoke B | Steel | Electroless nickel plated |
| 17 | Return guide | Resin | |
| 18 | End cap | Resin | |
| 19 | Stud | Stainless steel | Heat treatment |

| No. | Description | Material | Note |
|-----|---------------------------|----------------------------------|-------------------------------|
| 20 | Stopper screw | Stainless steel | Heat treatment |
| 21 | External magnet fix plate | Stainless steel | |
| 22 | Cylinder scraper | NBR | |
| 23 | Lock plate | Stainless steel | |
| 24 | Adjustment bolt | Steel | Zinc chromated Rubber stopper |
| | | Stainless steel | Metal stopper |
| | Shock absorber | — | Shock absorber |
| 25 | Steel ball | High carbon chrome bearing steel | |
| 26 | Piston seal | NBR | |
| 27 | O-ring | NBR | |
| 28 | O-ring | NBR | |
| 29 | Adjustment bumper | Polyurethane | Rubber stopper |
| 30 | Plug | Brass | Electroless nickel plated |
| 31 | Switch rail | Aluminum alloy | Hard anodized |
| 32 | Stud | Brass | Electroless nickel plated |
| 33 | Gasket | NBR | |
| 34 | Magnet | — | Nickel plated |
| 35 | Magnet holder | Steel | Electroless nickel plated |
| 36 | O-ring | NBR | |

Replacement Parts

| Bore size (mm) | Kit no. | Contents |
|----------------|-----------------------|--|
| 6 | MX _Y 6-PS | A set of two of 10, 11, 22 and 26 each |
| 8 | MX _Y 8-PS | |
| 12 | MX _Y 12-PS | |

Replacement Parts: Grease Pack

| Grease pack part no. |
|----------------------|
| GR-S-010 (10g) |
| GR-S-020 (20g) |

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MX_Y

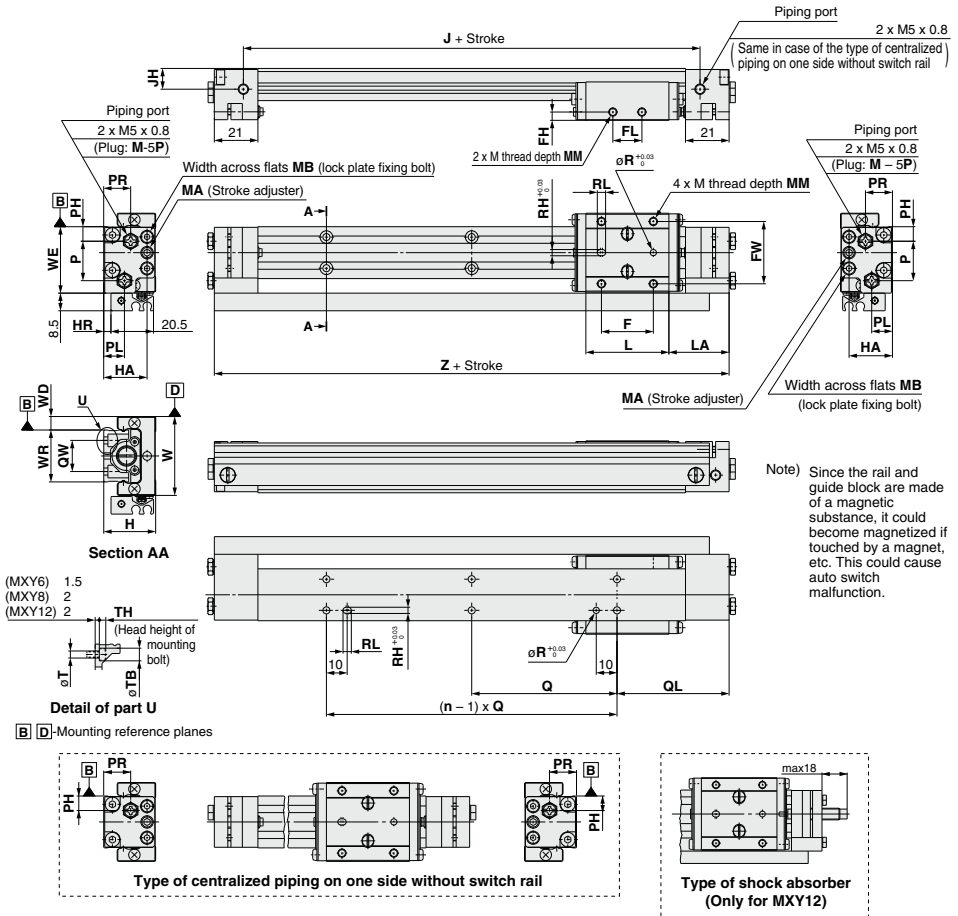
MTS

D-□

-X□

MXY Series

Dimensions

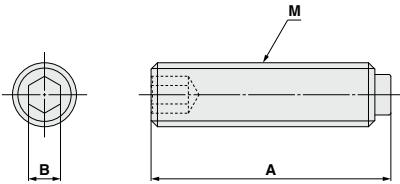


| Model | F | FH | FL | FW | H | HA | HR | J | JH | L | LA | M | MM | MA | MB |
|-------|----|----|----|----|------|------|-----|----|-----|----|----|----------|----|--------------------------------------|-----|
| MXY6 | 20 | 3 | 12 | 24 | 21.5 | 18 | 0.5 | 60 | 8.5 | 32 | 28 | M3 x 0.5 | 4 | M5 x 0.8 (Width across flats 2.5) | 2 |
| MXY8 | 25 | 4 | 14 | 30 | 25 | 20.9 | 3.5 | 70 | 10 | 40 | 29 | M4 x 0.7 | 5 | M5 x 1 (Width across flats 3) | 2.5 |
| MXY12 | 32 | 5 | 18 | 40 | 36 | 30.9 | 8.5 | 86 | 15 | 52 | 31 | M5 x 0.8 | 6 | M5 x 1 (Width across flats 4) | 3 |

| Model | P | PH | PL | PR | Q | QW | R | RH | RL | T | TB | TH | W | WD | WE | WR | Z |
|-------|----|----|----|----|----|----|-------------|-------------|----|-----|-----|-----|----|-----|------|----|-----|
| MXY6 | 13 | 7 | 9 | 11 | 60 | 12 | 3 (depth 3) | 3 (depth 3) | 4 | 2.9 | 5.1 | 2.5 | 30 | 5 | 25.5 | 20 | 88 |
| MXY8 | 19 | 7 | 10 | 13 | 70 | 15 | 3 (depth 3) | 3 (depth 3) | 4 | 3.4 | 6.1 | 3 | 38 | 6.5 | 32 | 25 | 98 |
| MXY12 | 29 | 7 | 13 | 18 | 90 | 21 | 4 (depth 4) | 4 (depth 4) | 5 | 4.5 | 7.8 | 4 | 50 | 8.5 | 42 | 33 | 114 |

| Model | n | | | | | | | | QL | | | | | | | |
|--------|----|-----|-----|-----|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|-----|
| Stroke | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 |
| MXY6 | 2 | 3 | 3 | 4 | — | — | — | — | 39 | 34 | 59 | 54 | — | — | — | — |
| MXY8 | 2 | 2 | 3 | 4 | 5 | 5 | — | — | 39 | 64 | 54 | 44 | 34 | 59 | — | — |
| MXY12 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 37 | 62 | 42 | 67 | 47 | 72 | 52 | 77 |

Dimensions of Adjusting Bolt/Rubber Stopper



| Applicable size | Model | Stroke adjustment range mm | A | B | M |
|--------------------|----------------------------|----------------------------|------|-----|--------|
| MX _Y 6 | MX _Y -A627 | 5 | 22.5 | 2.5 | M5×0.8 |
| | MX _Y -A627-X11 | 15 | 32.5 | | |
| | MX _Y -A627-X12 | 25 | 42.5 | | |
| MX _Y 8 | MX _Y -A827 | 5 | 22.5 | 3 | M6×1 |
| | MX _Y -A827-X11 | 15 | 32.5 | | |
| | MX _Y -A827-X12 | 25 | 42.5 | | |
| MX _Y 12 | MX _Y -A1227 | 5 | 23 | 4 | M8×1 |
| | MX _Y -A1227-X11 | 15 | 33 | | |
| | MX _Y -A1227-X12 | 25 | 43 | | |

MXH

MXS

MXQ□

MXQ

MXF

MXW

MXJ

MXP

MX_Y

MTS

How to Order Adjusting Bolt/Rubber Stopper

MX_Y — A 12 27 — X11

Applicable bore size ◆

| | |
|--------------------|-----|
| MX _Y 6 | ø6 |
| MX _Y 8 | ø8 |
| MX _Y 12 | ø12 |

◆ Adjustment range

| | |
|------|-------|
| Nil | 5 mm |
| -X11 | 15 mm |
| -X12 | 25 mm |

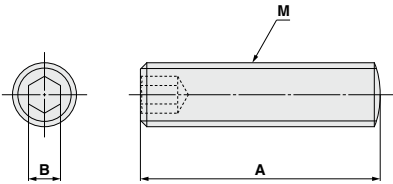
* For dimensions, refer to the figure above.

D-□

-X□

MX Y Series

Dimensions of Adjusting Bolt/Metal Stopper



| Applicable size | Model | Stroke adjustment range mm | A | B | M |
|-----------------|----------------|----------------------------|------|-----|--------|
| MX Y6 | MX Y-A638 | 5 | 22.5 | 2.5 | M5×0.8 |
| | MX Y-A638-X11 | 15 | 32.5 | | |
| | MX Y-A638-X12 | 25 | 42.5 | | |
| MX Y8 | MX Y-A838 | 5 | 22.5 | 3 | M6×1 |
| | MX Y-A838-X11 | 15 | 32.5 | | |
| | MX Y-A838-X12 | 25 | 42.5 | | |
| MX Y12 | MX Y-A1238 | 5 | 23 | 4 | M8×1 |
| | MX Y-A1238-X11 | 15 | 33 | | |
| | MX Y-A1238-X12 | 25 | 43 | | |

How to Order Adjusting Bolt/Metal Stopper

MX Y — A 12 38 — X11

Applicable bore size ●

| | |
|--------|-----|
| MX Y6 | ø6 |
| MX Y8 | ø8 |
| MX Y12 | ø12 |

● Adjustment range

| | |
|------|-------|
| Nil | 5 mm |
| -X11 | 15 mm |
| -X12 | 25 mm |

* For dimensions, refer to the figure above.

MX_Y Series

Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at Stroke End)

Reed Auto Switch

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

| Model | Mounting | Auto switch operating range |
|--------------------|----------|-----------------------------|
| MX _Y 6 | A | 54 |
| | B | 34 |
| MX _Y 8 | A | 59 |
| | B | 39 |
| MX _Y 12 | A | 67 |
| | B | 47 |

Solid State Auto Switch

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

| Model | Mounting | Auto switch operating range |
|--------------------|----------|-----------------------------|
| MX _Y 6 | A | 50 |
| | B | 38 |
| MX _Y 8 | A | 55 |
| | B | 43 |
| MX _Y 12 | A | 63 |
| | B | 51 |

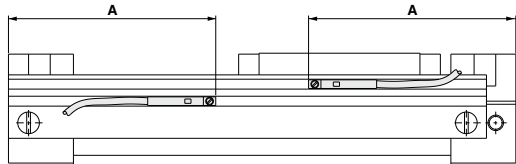
2-Color Indicator Solid State Auto Switch

D-M9BW(V), D-M9N(V), D-M9PW, D-M9□A(V) (mm)

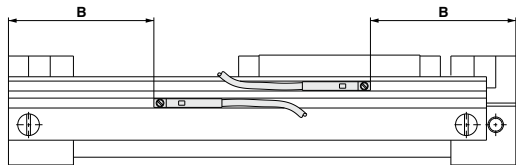
| Model | Mounting | Auto switch operating range |
|--------------------|----------|-----------------------------|
| MX _Y 6 | A | 50 |
| | B | 38 |
| MX _Y 8 | A | 55 |
| | B | 43 |
| MX _Y 12 | A | 63 |
| | B | 51 |

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

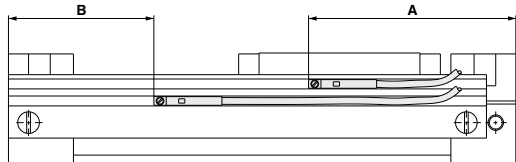
Lead wire entries outside



Lead wire entries inside



Lead wire entries parallel



MXH

MXS

MX□

MXQ

MXF

MXW

MXJ

MPX

MX_Y

MTS

Auto Switch Mounting

⚠ Caution

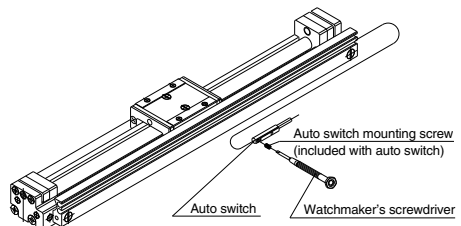
Auto Switch Mounting Tool

- When tightening the auto switch mounting screw (included with auto switch), use a watchmaker's screwdriver with a handle diameter of about 5 to 6 mm.

Tightening Torque

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

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



Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.

* Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) and a solid state auto switch (D-F8) are also available. Refer to pages 1136 and 1592-1 for details.

D-□

-X□

MX_Y Series

Made to Order: Individual Specifications 1

Please contact SMC for detailed dimensions, specifications and lead times.



1 PTFE Grease

Symbol

-X7

MX_Y - X7

↓ PTFE grease

PTFE grease is used for all parts that grease is applied.

Specifications

| Type | PTFE grease |
|-----------------------|-------------|
| Bore size (mm) | 6, 8, 12 |

* Dimensions other than the above is the same as the standard type.

⚠ Warning

Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

2 Grease for Food Processing Machines

Symbol

-X9

MX_Y - X9

↓ Grease for food processing machines

Grease for food processing machines is used for all parts that grease is applied.

Specifications

| Type | Grease for Food Processing Machines (NSF-H1 certified)/Aluminum Complex Soap Base Grease |
|-----------------------|--|
| Bore size (mm) | 6, 8, 12 |

* Dimensions other than the above is the same as the standard type.

⚠ Caution

Do not use this cylinder in a food-related environment.

<Cannot be mounted>

Food zone

Food may directly contact with this cylinder, and is treated as food products.

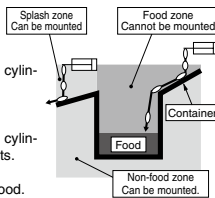
<Can be mounted>

Splash zone

Food may directly contact with this cylinder, but is not treated as food products.

Non-food zone

This cylinder do not directly contact food.



3 Fluororubber Seal

Symbol

-X39

MX_Y - X39

↓ Fluororubber seal

Change the materials for the piston seal, cylinder scraper, O-rings and scrapers (rubber lined parts) to fluororubber.

Specifications

| Type | Fluororubber seal |
|-----------------------|-------------------|
| Bore size (mm) | 6, 8, 12 |
| Seal material | Fluororubber |

* Dimensions other than the above is the same as the standard type.

4 Anti-corrosive Specifications for Guide Unit

Symbol

-X42

MX_Y - X42

↓ Anti-corrosive specifications for guide unit

Martensitic stainless steel is used for the rail and guide block. Use this treatment if more effective anti-corrosive measures are necessary. Anti-corrosive treatment is applied to the rail and guide block.

Specifications

| Type | Anti-corrosive guide unit |
|--------------------------|--------------------------------------|
| Bore size (mm) | 6, 8, 12 |
| Surface treatment | Special anti-corrosive treatment (2) |

* 1 Dimensions other than the above is the same as the standard type.
* 2 The special anti-corrosive treatment turns rail and guide block black.

5 EPDM Seal

Symbol

-X45

MX_Y - X45

↓ EPDM seal

Change the materials for the piston seal, cylinder scraper, O-rings and scrapers (rubber lined parts) to EPDM.

Specifications

| Type | EPDM seal |
|-----------------------|-------------|
| Bore size (mm) | 6, 8, 12 |
| Seal material | EPDM |
| Grease | PTFE grease |

* Dimensions other than the above is the same as the standard type.

⚠ Warning

Precautions

Be aware that smoking cigarettes, etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

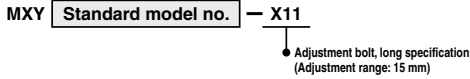
MX_Y Series

Made to Order: Individual Specifications 2

Please contact SMC for detailed dimensions, specifications and lead times.



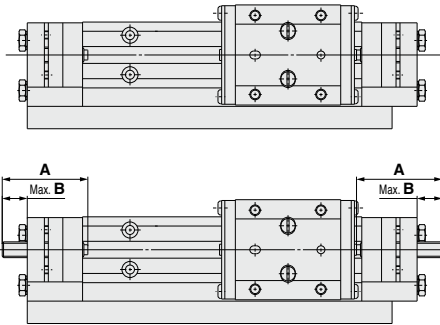
6 Adjustment Bolt, Long Specification (Adjustment range: 15 mm) **-X11**



* -X11 is not available for those with a shock absorber.

The average adjusting stroke range was extended from 5 mm to 15 mm with a long adjustment bolt.

Dimensions



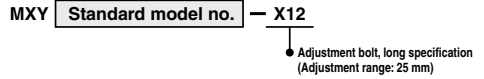
Rubber Stopper (mm)

| Model | A | B |
|-------------------------|------|----|
| MX_Y6 | 32.5 | 10 |
| MX_Y8 | 32.5 | 10 |
| MX_Y12 | 33 | 10 |

Metal Stopper (mm)

| Model | A | B |
|-------------------------|------|----|
| MX_Y6 | 32.5 | 10 |
| MX_Y8 | 32.5 | 10 |
| MX_Y12 | 33 | 10 |

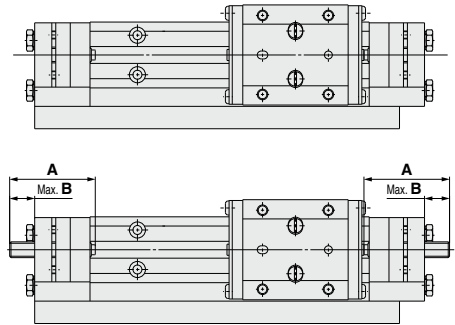
7 Adjustment Bolt, Long Specification (Adjustment range: 25 mm) **-X12**



* -X12 is not available for those with a shock absorber.

The average adjusting stroke range was extended from 5 mm to 25 mm with a long adjustment bolt.

Dimensions



Rubber Stopper (mm)

| Model | A | B |
|-------------------------|------|----|
| MX_Y6 | 42.5 | 20 |
| MX_Y8 | 42.5 | 20 |
| MX_Y12 | 43 | 20 |

Metal Stopper (mm)

| Model | A | B |
|-------------------------|------|----|
| MX_Y6 | 42.5 | 20 |
| MX_Y8 | 42.5 | 20 |
| MX_Y12 | 43 | 20 |

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MX_Y

MTS

D-

-X

Specific Product Precautions 1

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.



Selection

⚠ Caution

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

Select models based on the maximum load weight and the allowable moment. Refer to model selection on pages 359 to 361 for detailed methods. If operated beyond the operating limit, the eccentric load applied to the guide section will be excessive. This can have an adverse effect on service life due to vibration in the guide unit and loss of accuracy, etc.

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

If lurching occurs damage can result. When making a stop with an external stopper to be followed by continued forward movement, first supply pressure to momentarily reverse the table, then retract the intermediate stopper, and finally apply pressure to the opposite port to operate the table again.

3. In vertical operation, it is not possible to stop the piston at an intermediate position using a closed center solenoid valve, etc.

In vertical operation, it is not possible to stop the piston at an intermediate position using a closed center solenoid valve because it can cause dislocation of the magnet coupling. The only available option in such cases is use of an external stopper for an intermediate stop.

4. When stopping the piston using a closed center solenoid valve in horizontal operation, do not allow the kinetic energy exceed the allowable kinetic energy.

When stopping the piston using a closed center solenoid valve in horizontal operation, do not allow the kinetic energy of the load to exceed the values shown below. If the allowable value is exceeded, it can cause dislocation of the magnet coupling.

| Model | Allowable kinetic energy for intermediate stop (J) |
|--------------------|--|
| MX _Y 6 | 0.007 |
| MX _Y 8 | 0.014 |
| MX _Y 12 | 0.047 |

5. Do not operate in such a way that excessive external forces or impact forces are applied to the product.
This can cause damage.

6. Be careful in an application which requires precision in the middle of a stroke.

If straightness is required in the middle of a stroke, fix the entire rail mounting surface on the base.

Mounting

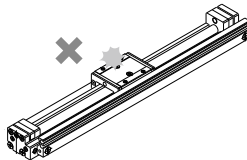
⚠ Caution

1. Do not scratch or gouge the mounting surfaces of the body, table and end plate.

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

2. Do not scratch or gouge the transfer surfaces of the rail and guide.

This can cause vibration and increased operating resistance, etc.



3. Do not apply strong impacts or excessive moment when mounting workpieces.

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

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

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

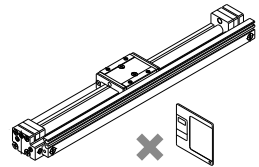
Mounting

⚠ Caution

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

6. Keep away objects which can be influenced by magnets.

A magnet is built inside the body or, in case of a type with auto switch, on the side of the guide lock. Please keep away magnetic disks, cards or tapes. Otherwise, the data can be deleted.



7. Do not attach magnets to the rail and guide block.

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



MX_Y Series

Specific Product Precautions 2

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

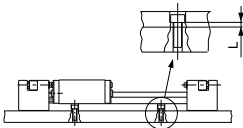
Mounting

⚠ Caution

8. When mounting the body, use screws of an appropriate length and do not exceed the maximum tightening torque.

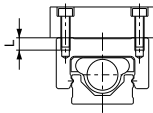
Tightening with a torque above the limit could cause malfunction. Whereas tightening insufficiently could result in misalignment or dropping.

Using through holes



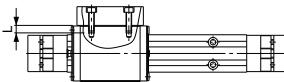
| Model | Bolt | Max. tightening torque N·m | Rail thickness L (mm) |
|--------------------|-------------|----------------------------|-----------------------|
| MX _Y 6 | M2.5 x 0.45 | 0.65 | 1.5 |
| MX _Y 8 | M3 x 0.5 | 1.14 | 2 |
| MX _Y 12 | M4 x 0.7 | 2.7 | 2 |

Top mounting type



| Model | Bolt | Max. tightening torque N·m | Max. screw-in depth L (mm) |
|--------------------|----------|----------------------------|----------------------------|
| MX _Y 6 | M3 x 0.5 | 1.14 | 3 |
| MX _Y 8 | M4 x 0.7 | 2.7 | 4 |
| MX _Y 12 | M5 x 0.8 | 5.4 | 5 |

Side mounting type



| Model | Bolt | Max. tightening torque N·m | Max. screw-in depth L (mm) |
|--------------------|----------|----------------------------|----------------------------|
| MX _Y 6 | M3 x 0.5 | 1.14 | 3 |
| MX _Y 8 | M4 x 0.7 | 2.7 | 4 |
| MX _Y 12 | M5 x 0.8 | 5.4 | 5 |

9. Be careful not to bruise the outer surface of the cylinder tube.

If can damage the scraper and wear ring and result in malfunction.

10. Make sure that the magnet coupling is in position when operating.

In case it is displaced, please return it to the right position by pushing the external mover by hand (or pushing the piston mover with air pressure).

11. In vertical operation, be careful about dislocation of the magnet coupling.

Note that the mover may drop off due to dislocation of the magnet coupling if pressure or load beyond the specification is applied.

12. The positioning holes on the top surface of the guide block and those on the bottom of the rail are not aligned.

These holes are used when re-mounting the same product after having removed it for maintenance.

Operating Environment

⚠ Caution

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

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

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

This can cause vibration, increased operating resistance and air leakage, etc.

Do not use the product in the following conditions.

3. Provide shade in locations exposed to direct sunlight.

4. Block off sources of heat located near by.

When there are heat sources in the surrounding area, radiated heat may cause the product's temperature to rise and exceed the operating temperature range. Block off the heat with a cover, etc.

Operating Environment

⚠ Caution

5. Do not use in locations where vibration or impact occurs.

Do not use the product in such an environment as it can result in damage or malfunction.

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

Be careful the rail and guide block use martensitic stainless steel, which is inferior to austenitic stainless steel in terms of corrosion resistance. Rust may result especially in an environment that allows water drops from condensation to stay on the surface.

Handling of Adjuster Options

Stroke adjuster

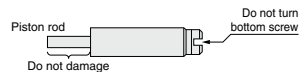
⚠ Caution

1. Do not replace the special adjusting bolt with other bolts.

This may cause looseness and damage due to impact forces, etc.

2. Use the tightening torque in the table below for the lock nut.

Insufficient torque will cause a decrease in the positioning accuracy.



Service Life and Replacement Period of Shock Absorber

⚠ Caution

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

1.2 million cycles RB08□

Note) Specified service life (suitable replacement period) is the value at room temperature (20 to 25°C). The period may vary depending on the temperature and other conditions. In some cases the absorber may need to be replaced before the allowable operating cycle above.

| Applicable size | Shock absorber model |
|--------------------|----------------------|
| MX _Y 12 | RB0806 |

MXH

MXS

MXQ

MXQ

MXF

MXW

MXJ

MXP

MX_Y

MTS

D-□

-X□

MXY Series

Specific Product Precautions 3

Be sure to read this before handling the products.

Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.



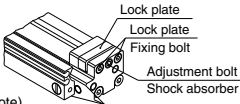
Stroke Adjustment

⚠ Caution

1. Adjustment method

Loosen the 2 lock plate fixing bolts (or shock absorbers) and rotate the adjustment bolt (or shock absorber) to adjust the stroke. Then tighten the lock plate fixing bolts evenly to secure the adjustment bolt (or shock absorber). Be careful not to tighten the lock plate adjusting bolts too firmly.

| Model | Tightening torque of lock plate fixing bolt |
|-------|---|
| MXY6 | 0.1 N·m |
| MXY8 | 0.2 N·m |
| MXY12 | 0.4 N·m |



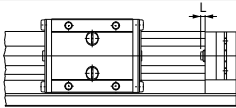
(Note)

The lock plate may bend slightly due to tightening of the lock plate fixing bolts but it will not affect the adjustment bolt or shock absorber that has been secured.

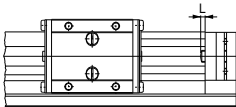
2. Adjustment range

Adjust the stroke within the range where the stopper or shock absorber works effectively. As a guideline, keep the stroke within the range where the L dimension in the figure below is larger than the value in the table. If the stroke exceeds this range, the guide lock will bump into the end plate, affecting the life time.

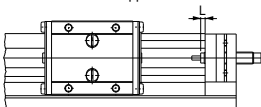
| Model | L |
|-------|--------|
| MXY6 | 2 mm |
| MXY8 | 2 mm |
| MXY12 | 2.5 mm |



Rubber stopper screw



Metal stopper screw

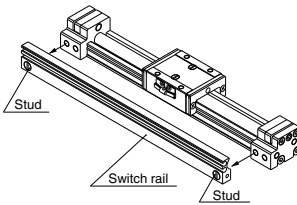


Shock absorber

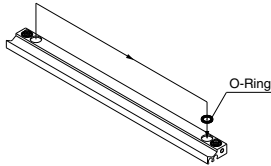
How to Change Concentrated Piping

The piping is concentrated on the left side at the time of shipment. To switch to the right side piping, follow the steps below.

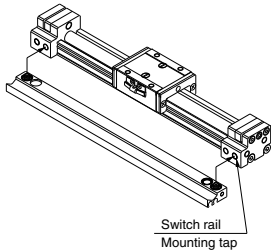
1. Loosen the 2 studs to remove the switch rail.



2. Change the position of the O-ring shown in the figure.

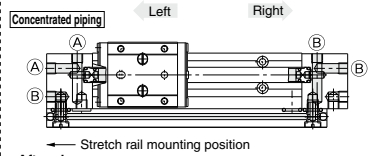


3. Fasten the stud onto the tap at the right side of the end plate and secure the switch rail.

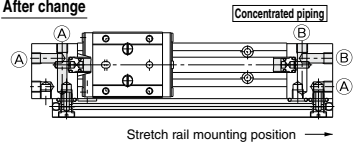


* Stud fastening: After a temporary tightening, tighten an additional 1/4 turn.

At the time of shipment



After change



| Port | Actuation Direction |
|------|---------------------|
| (A) | Right |
| (B) | Left |

Disassembly and Maintenance

⚠ Warning

Be careful the magnets have a large absorption force.

Please pay enough attention when the external mover and piston mover are removed from the cylinder tube for maintenance, etc. Because the magnet mounted on each mover has a large adsorption force. Please refer to the disassembly instructions when disassembling the product.

⚠ Caution

1. Be careful if the external mover is removed in the normal condition, it will directly absorb the piston mover.

When removing the external mover or piston mover, first force the magnet coupling to go off the position to disable the holding power and then remove them separately. If they are removed in the normal condition, the magnets will directly absorb each other and will not go apart.

2. Never disassemble the magnet constructions (piston mover and external mover).

If it can cause a drop of the holding power or malfunction.