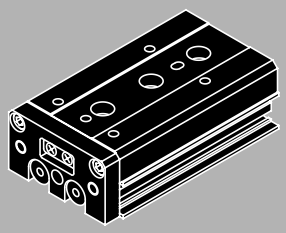


# Air Slide Table

# *Series MXS*

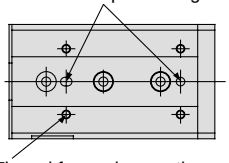
**ø6, ø8, ø12, ø16, ø20, ø25**

## Work table and air cylinder are integrated compactly. Air slide table is ideal for precise assembly.



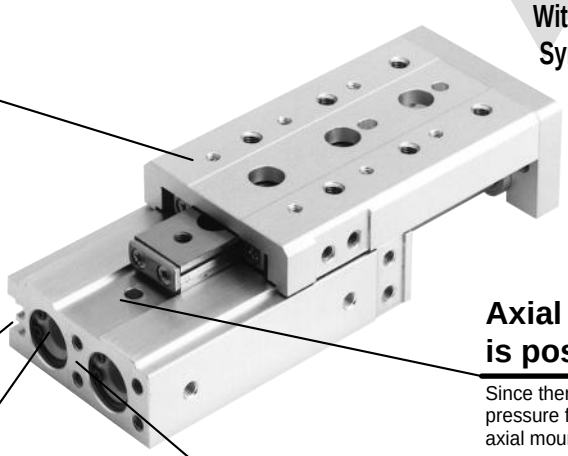
### Repeatability of work mounting

Pin holes for positioning



Thread for work mounting
Helisert is used for improved strength.

With shock absorber and Symmetric styles are released.



### Flush mountable auto switches

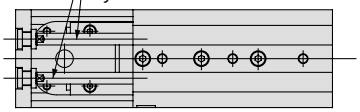
An installed auto switch in the housing groove of the body is flush with the surface.

### Axial mounting is possible

Since there is suitable setting pre-pressure for the unused cross roller guide, axial mounting is possible.

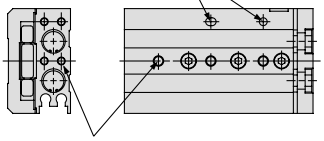
### Dual piston rod

The dual piston rod ensures twice the thrust of the current cylinder.



### Body mounting

Pin holes for positioning

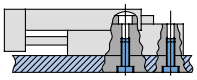
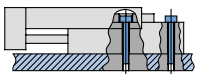
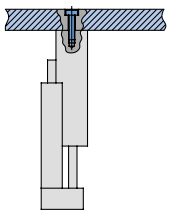


Threaded for body mounting

### Various options

- Adjuster options
  - With stroke adjuster, With shock absorber
- Functional options
  - With buffer mechanism, With end lock
  - Axial piping

**Mounting is possible in three directions.**

| 1. Side mounting (Body tapped) | 2. Side mounting (Body through hole) | 3. Axial mounting (Body tapped) |
|---|---|---|
|  |  |  |

### Variations

| Model | Bore (mm) |
|---|---|
| **MXS 6** | 6 |
| **MXS 8** | 8 |
| **MXS12** | 12 |
| **MXS16** | 16 |
| **MXS20** | 20 |
| **MXS25** | 25 |

Standard stroke (mm)

10 20 30 40 50 75 100 125 150

Adjuster

| Stroke adjuster | Shock absorber (Except ø6) |
|---|---|
| Extension end | |
| Retraction end | |
| Both ends | |

Functional option

- With buffer
- With end lock (Except ø6)
- Axial piping

Auto switch

Reed switch
· D-A9□
· D-A9□V

Solid state switch
· D-F9□
· D-F9□V

2 color solid state switch
· D-F9□W
· D-F9□WV

# Air Slide Table
# Series MXS

## How to Order

**Air slide table** **MXS** **12** — **50** [ ] [ ] — **F9N** **S**

**Bore size (Stroke mm)**

| | |
|---|---|
| **6** | 10, 20, 30, 40, 50 |
| **8** | 10, 20, 30, 40, 50, 75 |
| **12** | 10, 20, 30, 40, 50, 75, 100 |
| **16** | 10, 20, 30, 40, 50, 75, 100, 125 |
| **20** | 10, 20, 30, 40, 50, 75, 100, 125, 150 |
| **25** | 10, 20, 30, 40, 50, 75, 100, 125, 150 |

**Number of auto switches**

| | |
|---|---|
| — | 2 |
| **S** | 1 |
| **n** | n |

**Auto switch**

| | |
|---|---|
| — | Without auto switch |

∗ Refer to below table for parts No. of auto switch.

**Stroke adjuster option**

| | |
|---|---|
| — | Without adjuster |
| **AS** | Adjuster at extension end |
| **AT** | Adjuster at retraction end |
| **A** | Adjuster at both ends |
| **BS**(1) | Absorber at extension end |
| **BT**(1) | Absorber at retraction end |
| **B**(1) | Absorber at both ends |

Note 1) Shock absorber is not available for series MXS6.

**Functional option**

| | |
|---|---|
| — | Standard |
| **F** | With buffer |
| **R**(2) | With end lock |
| **P** | Axial piping |
| **FR**(2) | With buffer, end lock |
| **FP** | With buffer, axial piping |

Note 2) End lock option is not available for series MXS6.

**Combination of Options** ○: Possible X: Not possible

| Adjuster option \ Functional option | — | F | R | P | FR | FP |
|---|---|---|---|---|---|---|
| — | ○ | ○ | ○ | ○ | ○ | ○ |
| **AS** | ○ | ○(3) | ○ | ○ | ○(3) | ○(3) |
| **AT** | ○ | ○ | X | X | X | X |
| **A** | ○ | ○(3) | X | X | X | X |
| **BS** | ○ | X | ○ | ○ | X | X |
| **BT** | ○ | ○ | X | X | X | X |
| **B** | ○ | X | X | X | X | X |

Note 3) For combination of buffer mechanism style and stroke adjuster at extension end style, the buffer stroke is shortened by the adjusted length with the stroke adjuster at extension end.

**Applicable Auto Switches** /Refer to p.5.3-2 for further information on auto switch.

| Style | Special function | Electrical entry | Indicator | Wiring (Output) | Load voltage DC | Load voltage DC | Load voltage AC | Auto switch model: Electrical entry Perpendicular | Auto switch model: Electrical entry In-line | Lead wire (m)(1) 0.5 (–) | Lead wire (m)(1) 3 (L) | Load | | Specification details |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Reed switch** | — | Grommet | No | 2 wire | 24V | 5V, 12V | ≤100V | **A90V** | **A90** | ● | ● | IC circuit | Relay, PLC | P.5.3-19 |
| | | | Yes | | | 12V | 100V | **A93V** | **A93** | ● | ● | — | | |
| | | | | 3 wire (NPN) | — | 5V | — | **A96V** | **A96** | ● | ● | IC circuit | — | |
| **Solid state switch** | — | Grommet | Yes | 3 wire (NPN) | 24V | 12V | — | **F9NV** | **F9N** | ● | ● | — | Relay, PLC | P.5.3-39 |
| | | | | 3 wire (PNP) | | | | **F9PV** | **F9P** | ● | ● | | | |
| | | | | 2 wire | | | | **F9BV** | **F9B** | ● | ● | | | |
| | Diagnostic indication (2 color) | | | 3 wire (NPN) | | | | **F9NWV** | **F9NW** | ● | ● | | | P.5.3-66 |
| | | | | 3 wire (PNP) | | | | **F9PWV** | **F9PW** | ● | ● | | | |
| | | | | 2 wire | | | | **F9BWV** | **F9BW** | ● | ● | | | |

Note 1) Lead wire length 0.5m ····· – (Ex.) A93
3m ····· L A93L

PLC: Programmable Logic Controller

## Specifications

| Bore size (mm) | 6 | 8 | 12 | 16 | 20 | 25 |
|---|---|---|---|---|---|---|
| Port size | M3 X 0.5 | M5 X 0.8 | | | Rc(PT)1/8 | |
| Fluid | Air | | | | | |
| Action | Double acting | | | | | |
| Operating pressure | 0.15 to 0.7MPa | | | | | |
| Proof pressure | 1.05MPa | | | | | |
| Ambient and fluid temperature | –10 to 60°C | | | | | |
| Piston speed | 50 to 500mm/s | | | | | |
| Cushion | Rubber bumper (Standard, With stroke adjuster)<br>Shock absorber (Option) | | | | | |
| Lubrication | Not required | | | | | |
| Auto switch (Option) | Reed switch (2 wire, 3 wire)<br>Solid state switch (2 wire, 3 wire)<br>2 color solid state switch (2 wire, 3 wire) | | | | | |
| Stroke length tolerance | $^{+1}_{0}$ mm | | | | | |

## Option

| | | | |
|---|---|---|---|
| Stroke adjuster option | With stroke adjuster | Adjuster at extension end (AS) | Adjustable stroke range 0 to 5mm |
| | | Adjuster at retraction end (AT) | |
| | | Adjuster at both ends (A) | |
| | With shock absorber | Absorber at extension end (BS) | Shock absorber is not available for MXS6. |
| | | Absorber at retraction end (BT) | |
| | | Absorber at both ends (B) | |
| Functional option | With buffer (F) | | End lock is not available for MXS6. |
| | With end lock (R) | | |
| | Axial piping (P) | | |

* For details of adjuster and functional options, please refer to "Optional specifications" on p.3.11-24 to 3.11-26.

## Made to Order Specifications

Refer to p.5.4-89 for "Made to Order Specifications" of series MXS.

## Theoretical Force

**The dual rod ensures an output twice that of existing cylinders.**

OUT ← → IN

(Unit: N)

| Bore size (mm) | Rod diameter (mm) | Operating direction | Piston area ($mm^2$) | Operating pressure (MPa) 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
|---|---|---|---|---|---|---|---|---|---|
| **6** | 3 | OUT | 57 | 11 | 17 | 23 | 29 | 34 | 40 |
| | | IN | 42 | 8 | 13 | 17 | 21 | 25 | 29 |
| **8** | 4 | OUT | 101 | 20 | 30 | 40 | 51 | 61 | 71 |
| | | IN | 75 | 15 | 23 | 30 | 38 | 45 | 53 |
| **12** | 6 | OUT | 226 | 45 | 68 | 90 | 113 | 136 | 158 |
| | | IN | 170 | 34 | 51 | 68 | 85 | 102 | 119 |
| **16** | 8 | OUT | 402 | 80 | 121 | 161 | 201 | 241 | 281 |
| | | IN | 302 | 60 | 91 | 121 | 151 | 181 | 211 |
| **20** | 10 | OUT | 628 | 126 | 188 | 251 | 314 | 377 | 440 |
| | | IN | 471 | 94 | 141 | 188 | 236 | 283 | 330 |
| **25** | 12 | OUT | 982 | 196 | 295 | 393 | 491 | 589 | 687 |
| | | IN | 756 | 151 | 227 | 302 | 378 | 454 | 529 |

Note) Theoretical force (N)=Pressure (MPa) X Piston area ($mm^2$)

## Standard Stroke

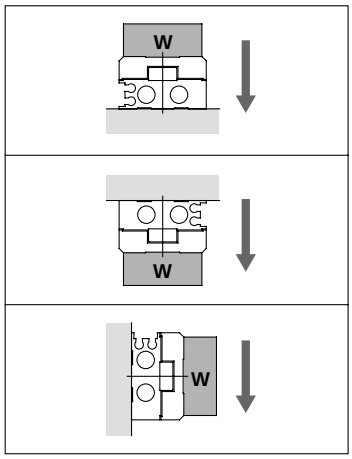
| Model | Standard stroke (mm) |
|---|---|
| **MXS 6** | 10, 20, 30, 40, 50 |
| **MXS 8** | 10, 20, 30, 40, 50, 75 |
| **MXS12** | 10, 20, 30, 40, 50, 75, 100 |
| **MXS16** | 10, 20, 30, 40, 50, 75, 100, 125 |
| **MXS20** | 10, 20, 30, 40, 50, 75, 100, 125, 150 |
| **MXS25** | 10, 20, 30, 40, 50, 75, 100, 125, 150 |

## Weight

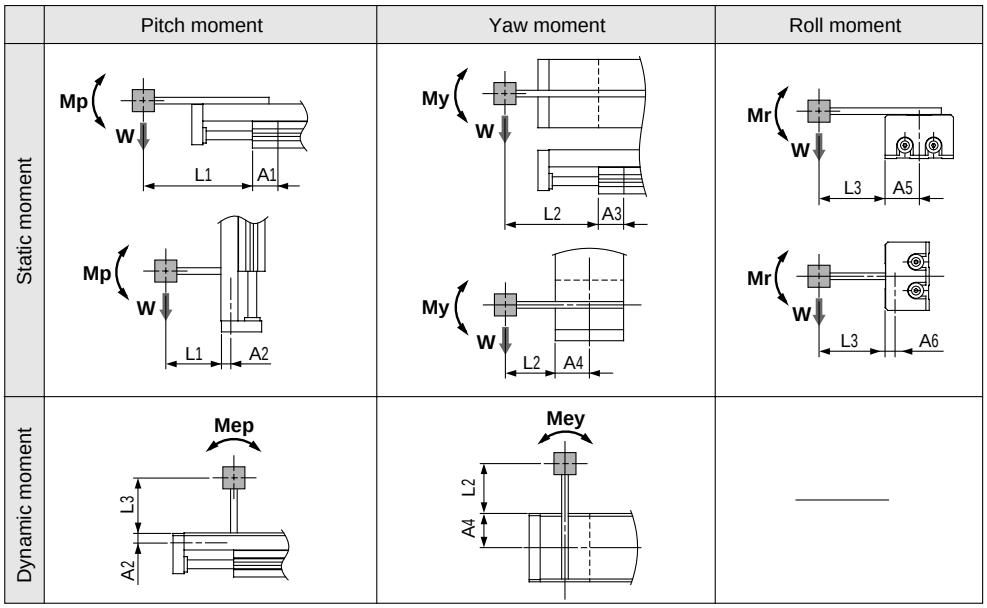
(Unit: g)

| Model | Standard stroke (mm) 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | Extra for options: Extension adjuster | Retraction adjuster | Extension shock absorber | Retraction shock absorber | Buffer | End lock | Axial piping S: Stroke (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MXS 6** | 80 | 100 | 115 | 155 | 180 | — | — | — | — | 10 | 5 | — | — | 30 | — | 13+0.15S |
| **MXS 8** | 150 | 160 | 190 | 235 | 285 | 415 | — | — | — | 15 | 9 | 35 | 45 | 40 | 40 | 26+0.17S |
| **MXS12** | 340 | 340 | 340 | 400 | 500 | 690 | 930 | — | — | 30 | 20 | 50 | 60 | 80 | 90 | 43+0.21S |
| **MXS16** | 600 | 600 | 610 | 670 | 800 | 1150 | 1450 | 1800 | — | 50 | 30 | 80 | 105 | 120 | 160 | 55+0.21S |
| **MXS20** | 1000 | 1020 | 1050 | 1150 | 1300 | 1700 | 2250 | 2800 | 3350 | 100 | 71 | 170 | 205 | 140 | 310 | 166+0.45S |
| **MXS25** | 1720 | 1740 | 1750 | 1900 | 2160 | 2750 | 3400 | 4300 | 4900 | 150 | 125 | 215 | 300 | 240 | 540 | 240+0.45S |

## Fig.1 Allowable load: W (N)

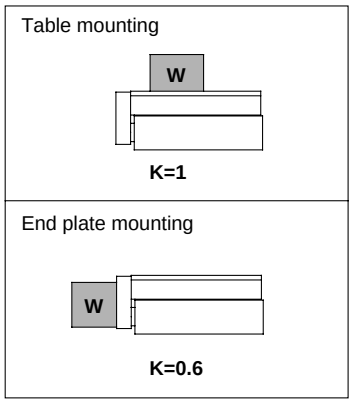



## Fig.2 Overhang: Ln (mm), Correction value for moment center distance An (mm)




Note) Static moment: Moment by gravity
Kinetic moment: Moment by stopper collision

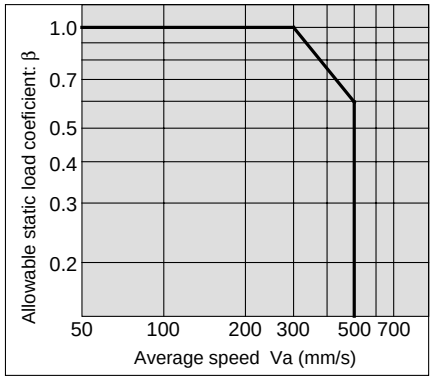
## Fig.3 Work mounting coefficient: K




## Table 1 Max. allowable kinetic energy: Emax (J)

| Model | Allowable kinetic energy | |
|---|---|---|
| | Rubber bumper | Shock absorber |
| **MXS 6** | 0.018 | — |
| **MXS 8** | 0.027 | 0.045 |
| **MXS12** | 0.055 | 0.11 |
| **MXS16** | 0.11 | 0.22 |
| **MXS20** | 0.16 | 0.32 |
| **MXS25** | 0.24 | 0.48 |

## Graph 1 Allowable static load coefficient: β



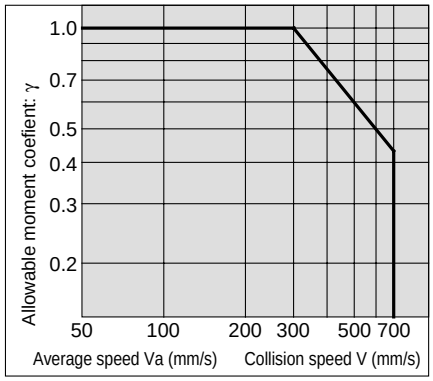

## Table 2 Max. allowable static load: Wmax (kg)

| Model | Max. allowable static load |
|---|---|
| **MXS 6** | 0.6 |
| **MXS 8** | 1 |
| **MXS12** | 2 |
| **MXS16** | 4 |
| **MXS20** | 6 |
| **MXS25** | 9 |

## Table 3 Correction value for moment center distance An (mm)

| Model | Correction value for moment center distance (Refer to Fig.2) | | | | | |
|---|---|---|---|---|---|---|
| | A1 | A2 | A3 | A4 | A5 | A6 |
| **MXS 6** | 11 | 6 | 13 | 16 | 16 | 6 |
| **MXS 8** | 11 | 7.5 | 13 | 20 | 20 | 7.5 |
| **MXS12** | 24 | 8.5 | 26 | 25 | 25 | 8.5 |
| **MXS16** | 27 | 10 | 30 | 31 | 31 | 10 |
| **MXS20** | 34 | 14.5 | 36 | 38 | 38 | 14.5 |
| **MXS25** | 42 | 19 | 44 | 46 | 46 | 19 |

## Graph 2 Allowable moment coefficient: γ




Note) Average speed for static moment
Collision speed for kinetic moment

## Table 4 Max. allowable moment: Mmax (Nm)

| Model | Stroke (mm) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 |
| **MXS 6** | 0.7 | 1.0 | 1.2 | 1.2 | 1.2 | — | — | — | — |
| **MXS 8** | 2.0 | 2.0 | 2.8 | 3.6 | 4.2 | 4.2 | — | — | — |
| **MXS12** | 4.2 | 4.2 | 4.2 | 5.8 | 7.0 | 10.0 | 10.0 | — | — |
| **MXS16** | 11.3 | 11.3 | 11.3 | 11.3 | 15.9 | 25.0 | 34.1 | 34.1 | — |
| **MXS20** | 19.4 | 19.4 | 19.4 | 19.4 | 27.2 | 35.0 | 50.5 | 50.5 | 50.5 |
| **MXS25** | 30.6 | 30.6 | 30.6 | 30.6 | 42.8 | 55.1 | 67.3 | 67.3 | 67.3 |

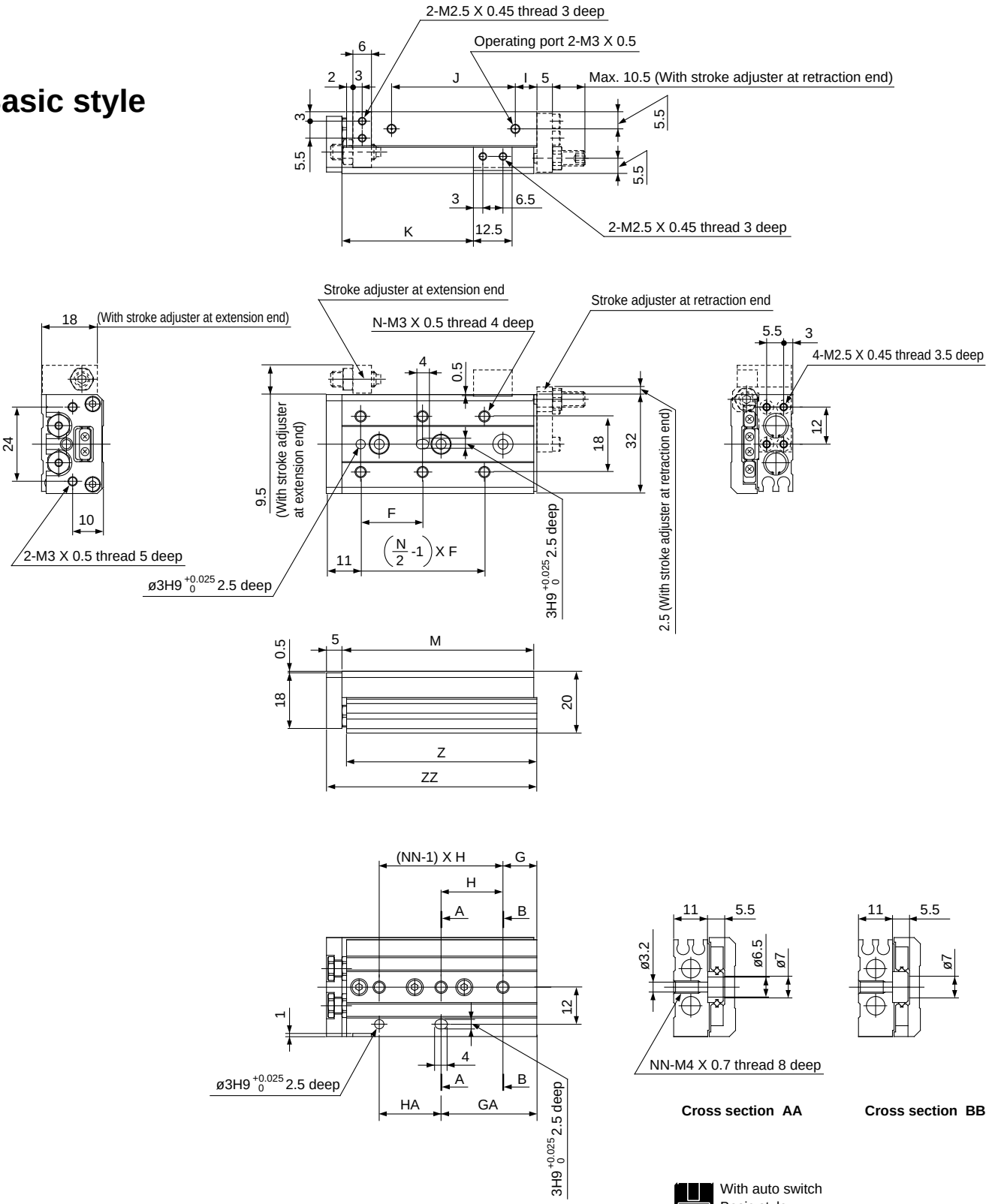
## Symbol

| Symbol | Definition | Unit |
|---|---|---|
| **An (n=1 to 6)** | Correction value for moment center distance | mm |
| **E** | kinetic energy | J |
| **Ea** | Allowable kinetic energy | J |
| **Emax** | Max. allowable kinetic energy | J |
| **Ln (n=1 to 3)** | Over hung | mm |
| **M (Mp, My, Mr)** | Static moment (Pitch, Yaw, Roll) | Nm |
| **Ma (Map, May, Mar)** | Allowable static moment (Pitch, Yaw, Roll) | Nm |
| **Me (Mep, Mey)** | Kinetic moment (Pitch, Yaw) | Nm |
| **Mea (Meap, Meay)** | Allowable kinetic moment (Pitch, Yaw) | Nm |
| **Mmax (Mpmax, Mymax, Mrmax)** | Max. allowable kinetic moment (Pitch, Yaw, Roll) | Nm |
| **V** | Collision speed | mm/s |

| Symbol | Definition | Unit |
|---|---|---|
| **Va** | Average speed | mm/s |
| **W** | Static load | kg |
| **Wa** | Allowable static load | kg |
| **We** | Load equivalent to collision | kg |
| **Wmax** | Max. allowable static load | kg |
| **α** | Load rate | — |
| **β** | Allowable static load coeficient | — |
| **γ** | Allowable moment coeficient | — |
| **δ** | Damper coeficient | — |
| **K** | Work mounting coeficient | — |

## Dimensions MXS 6 CAD

# Basic style



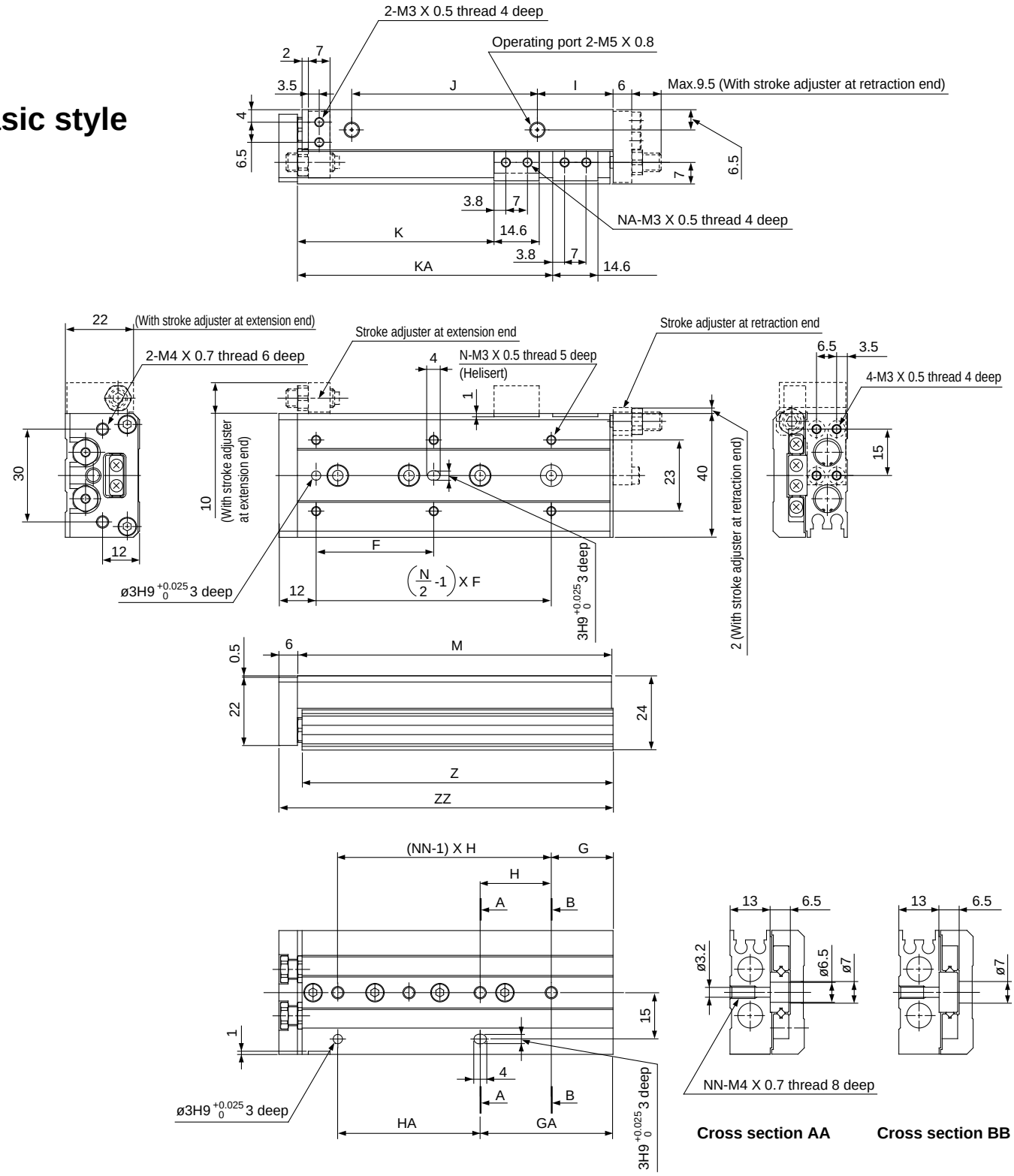

(mm)

| Model | F | N | G | H | NN | GA | HA | I | J | K | M | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MXS6-10** | 20 | 4 | 6 | 25 | 2 | 11 | 20 | 10 | 17 | 22.5 | 42 | 41.5 | 48 |
| **MXS6-20** | 30 | 4 | 6 | 35 | 2 | 21 | 20 | 10 | 27 | 32.5 | 52 | 51.5 | 58 |
| **MXS6-30** | 20 | 6 | 11 | 20 | 3 | 31 | 20 | 7 | 40 | 42.5 | 62 | 61.5 | 68 |
| **MXS6-40** | 28 | 6 | 13 | 30 | 3 | 43 | 30 | 19 | 50 | 52.5 | 84 | 83.5 | 90 |
| **MXS6-50** | 38 | 6 | 17 | 24 | 4 | 41 | 48 | 25 | 60 | 62.5 | 100 | 99.5 | 106 |

CAD With auto switch
Basic style
MXS6-10 ····· SMXS6N, #1
MXS6-20 ····· SMXS6N, #2
MXS6-30 ····· SMXS6N, #3
MXS6-50 ····· SMXS6, #1(#1+#5)
●With stroke adjuster
MXS6-10AS ····· SMXS6N, #4(#1+#4)
MXS6-20AS ····· SMXS6N, #5(#2+#5)
MXS6-30AS ····· SMXS6N, #6(#3+#6+#7)
MXS6-50AS ····· SMXS6, #2(#1+#2+#5)

## Dimensions MXS 8 CAD

# Basic style



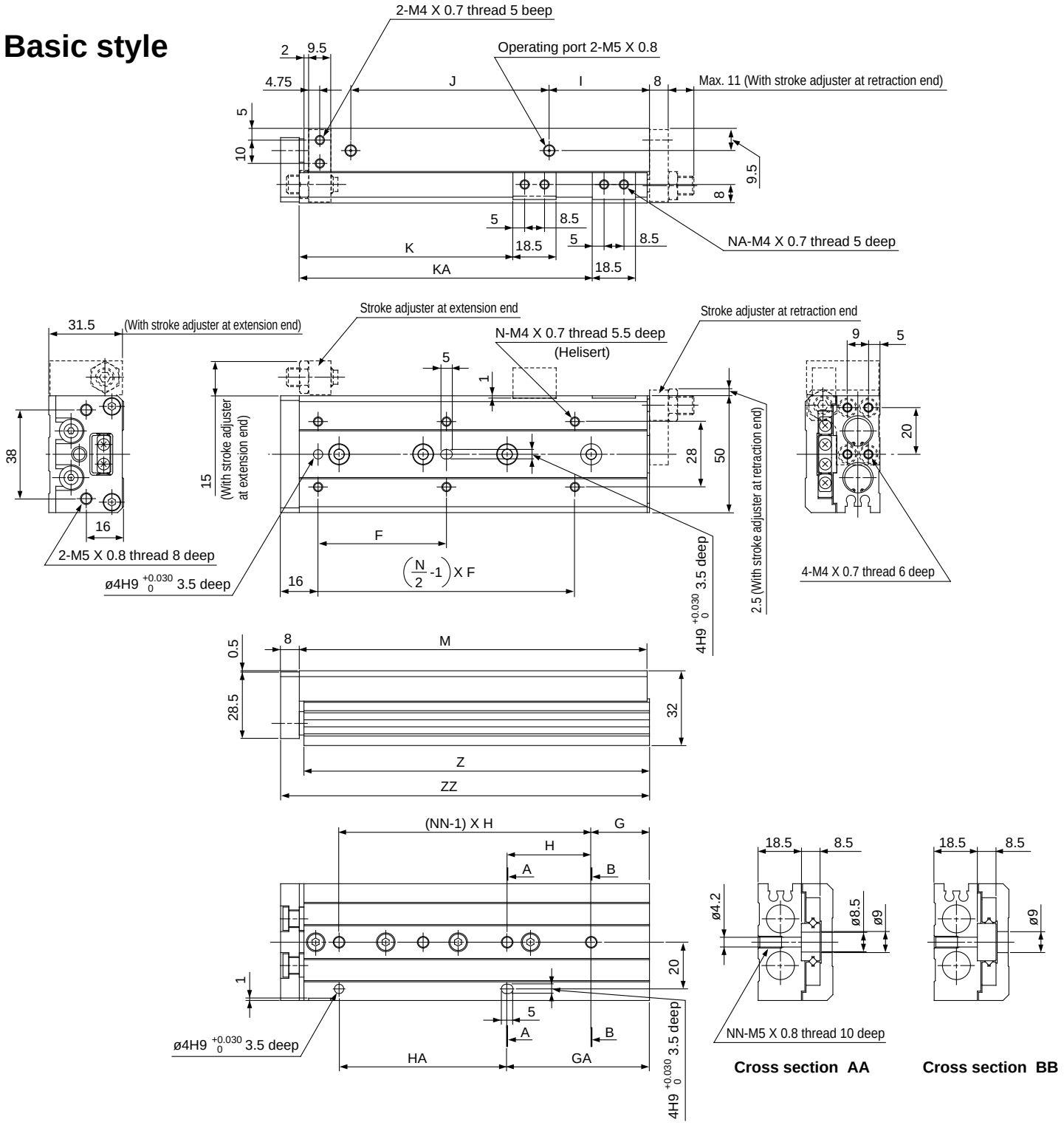

(mm)

| Model | F | N | G | H | NN | GA | HA | I | J | K | KA | NA | M | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MXS8-10** | 25 | 4 | 9 | 28 | 2 | 17 | 20 | 13 | 19.5 | 23.5 | — | 2 | 49 | 48.5 | 56 |
| **MXS8-20** | 25 | 4 | 12 | 30 | 2 | 12 | 30 | 8.5 | 29 | 33.5 | — | 2 | 54 | 53.5 | 61 |
| **MXS8-30** | 40 | 4 | 13 | 20 | 3 | 33 | 20 | 9.5 | 39 | 43.5 | — | 2 | 65 | 64.5 | 72 |
| **MXS8-40** | 50 | 4 | 15 | 28 | 3 | 43 | 28 | 10.5 | 56 | 53.5 | — | 2 | 83 | 82.5 | 90 |
| **MXS8-50** | 38 | 6 | 20 | 23 | 4 | 43 | 46 | 24.5 | 60 | 63.5 | 82.5 | 4 | 101 | 100.5 | 108 |
| **MXS8-75** | 50 | 6 | 27 | 28 | 5 | 83 | 56 | 38.5 | 96 | 88.5 | 132.5 | 4 | 151 | 150.5 | 158 |

CAD With auto switch
Basic style
MXS8-10 ····· SMXS8A, #1
MXS8-20 ····· SMXS8A, #2
MXS8-30 ····· SMXS8A, #3(#3+#7)
MXS8-40 ····· SMXS8B, #1
MXS8-50 ····· SMXS8B, #2(#2+#5)
●With stroke adjuster
MXS8-10AS ····· SMXS8A, #4(#1+#4)
MXS8-20AS ····· SMXS8A, #5(#2+#5)
MXS8-30AS ····· SMXS8A, #6(#3+#6+#7)
MXS8-40AS ····· SMXS8B, #3(#1+#3)
MXS8-50AS ····· SMXS8B, #4(#2+#4+#5)

## Dimensions MXS 12 CAD

## Basic style



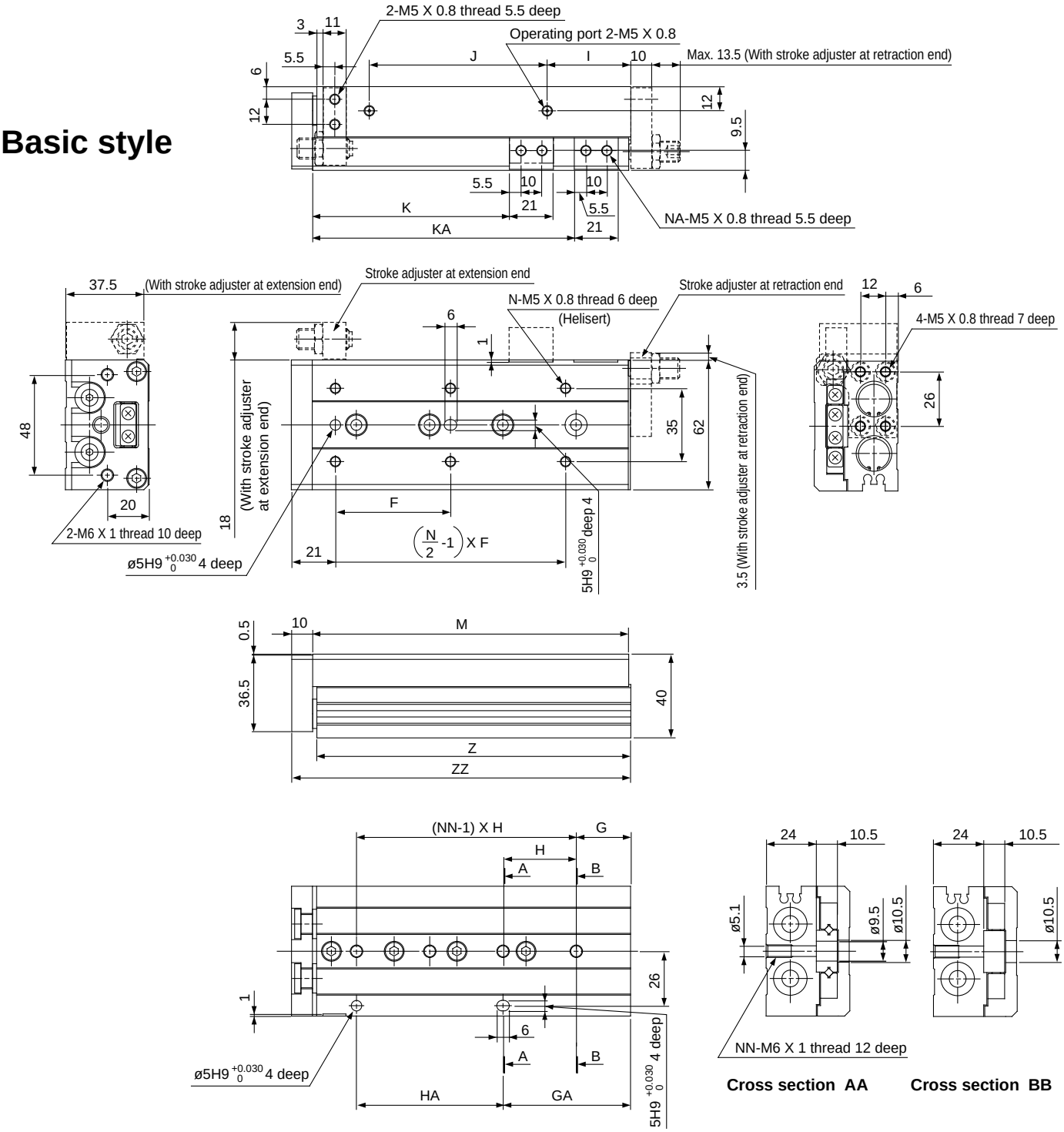

(mm)

| Model | F | N | G | H | NN | GA | HA | I | J | K | KA | NA | M | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MXS12-10** | 35 | 4 | 15 | 40 | 2 | 15 | 40 | 10 | 40 | 26.5 | — | 2 | 71 | 70 | 80 |
| **MXS12-20** | 35 | 4 | 15 | 40 | 2 | 15 | 40 | 10 | 40 | 36.5 | — | 2 | 71 | 70 | 80 |
| **MXS12-30** | 35 | 4 | 15 | 40 | 2 | 15 | 40 | 10 | 40 | 46.5 | — | 2 | 71 | 70 | 80 |
| **MXS12-40** | 50 | 4 | 17 | 25 | 3 | 42 | 25 | 10 | 52 | 56.5 | — | 2 | 83 | 82 | 92 |
| **MXS12-50** | 35 | 6 | 15 | 36 | 3 | 51 | 36 | 22 | 60 | 66.5 | — | 2 | 103 | 102 | 112 |
| **MXS12-75** | 55 | 6 | 25 | 36 | 4 | 61 | 72 | 43 | 85 | 91.5 | 125.5 | 4 | 149 | 148 | 158 |
| **MXS12-100** | 65 | 6 | 35 | 38 | 5 | 111 | 76 | 52 | 130 | 116.5 | 179.5 | 4 | 203 | 202 | 212 |

CAD With auto switch
Basic style
MXS12-10 ·····SMXS12A, #1
MXS12-20 ·····SMXS12A, #2
MXS12-30 ·····SMXS12A, #3(#3+#7)
MXS12-40 ·····SMXS12B, #1
MXS12-50 ·····SMXS12B, #2(#2+#5)
MXS12-75 ·····SMXS12B, #3(#3+#7)
●With stroke adjuster
MXS12-10AS ·····SMXS12A, #4(#1+#4)
MXS12-20AS ·····SMXS12A, #5(#2+#5)
MXS12-30AS ·····SMXS12A, #6(#3+#6+#7)
MXS12-40AS ·····SMXS12B, #4(#1+#4)
MXS12-50AS ·····SMXS12B, #5(#2+#5)

## Dimensions MXS 16

## Basic style



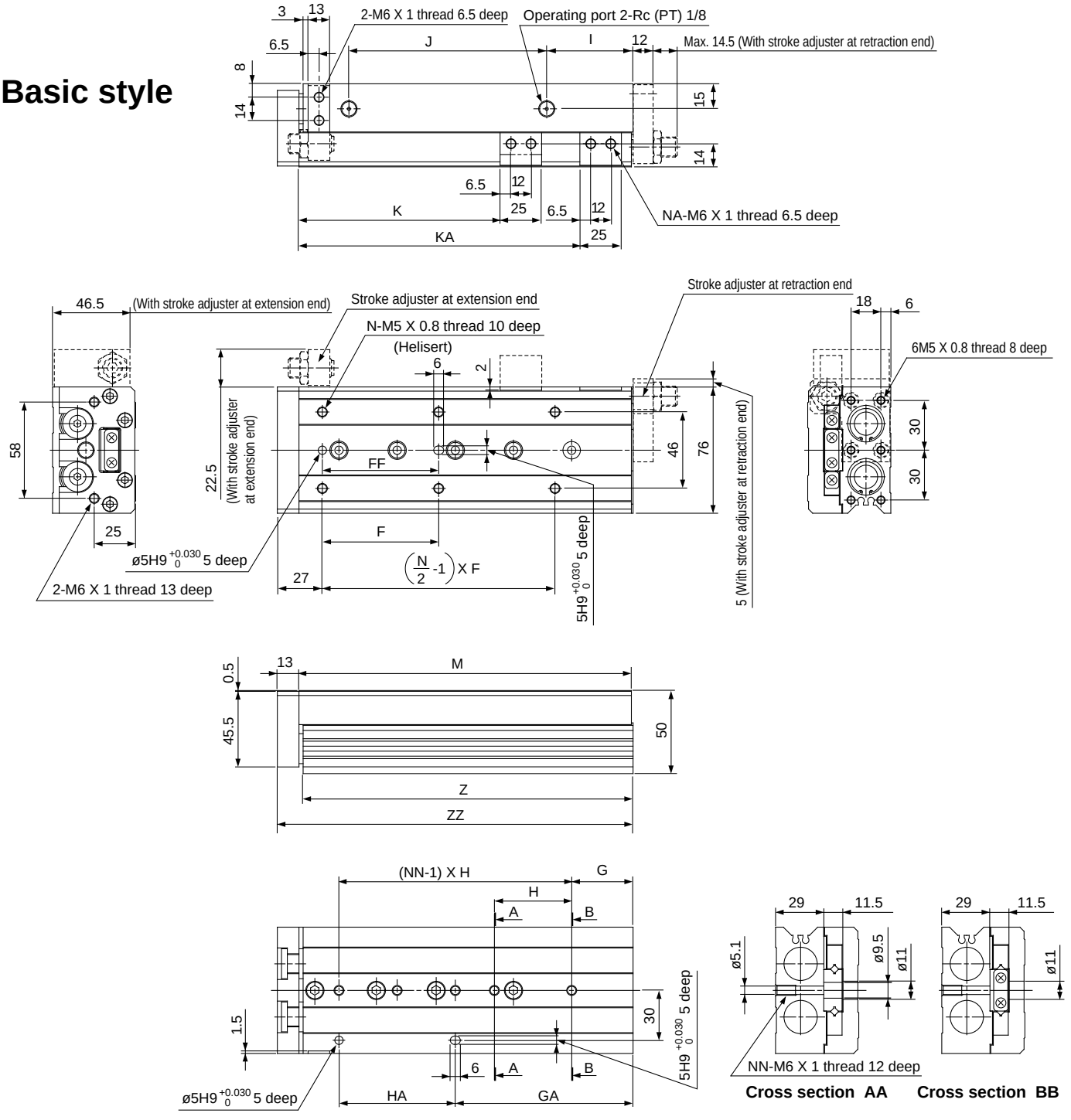

| Model | F | N | G | H | NN | GA | HA | I | J | K | KA | NA | M | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MXS16-10** | 35 | 4 | 16 | 40 | 2 | 16 | 40 | 10 | 40 | 29 | — | 2 | 76 | 75 | 87 |
| **MXS16-20** | 35 | 4 | 16 | 40 | 2 | 16 | 40 | 10 | 40 | 39 | — | 2 | 76 | 75 | 87 |
| **MXS16-30** | 35 | 4 | 16 | 40 | 2 | 16 | 40 | 10 | 40 | 49 | — | 2 | 76 | 75 | 87 |
| **MXS16-40** | 40 | 4 | 16 | 50 | 2 | 16 | 50 | 10 | 50 | 59 | — | 2 | 86 | 85 | 97 |
| **MXS16-50** | 30 | 6 | 21 | 30 | 3 | 51 | 30 | 15 | 60 | 69 | — | 2 | 101 | 100 | 112 |
| **MXS16-75** | 55 | 6 | 26 | 35 | 4 | 61 | 70 | 40 | 85 | 94 | 125 | 4 | 151 | 150 | 162 |
| **MXS16-100** | 65 | 6 | 39 | 35 | 5 | 109 | 70 | 55 | 118 | 119 | 173 | 4 | 199 | 198 | 210 |
| **MXS16-125** | 70 | 8 | 19 | 35 | 7 | 159 | 70 | 68 | 155 | 144 | 223 | 4 | 249 | 248 | 260 |

(mm)

With auto switch
Basic style
MXS16-10 ·····SMXS16A, #1
MXS16-20 ·····SMXS16A, #2
MXS16-30 ·····SMXS16A, #3
MXS16-40 ·····SMXS16A, #4(#4+#9)
MXS16-50 ·····SMXS16B, #1
MXS16-75 ·····SMXS16B, #2
MXS16-100 ····· SMXS16B, #3(#3+#7)
●With stroke adjuster
MXS16-10AS·····SMXS16A, #5(#1+#5)
MXS16-20AS·····SMXS16A, #6(#2+#6)
MXS16-30AS·····SMXS16A, #7(#3+#7)
MXS16-40AS·····SMXS16A, #8(#4+#8+#9)
MXS16-50AS·····SMXS16B, #4(#1+#4)
MXS16-75AS·····SMXS16B, #5(#2+#5)
MXS16-100AS ···SMXS16B, #6(#3+#6+#7)

## Dimensions MXS 20

## Basic style




**Cross section AA** **Cross section BB**

With auto switch
Basic style
MXS20-10 ·····SMXS20A, #1
MXS20-20 ·····SMXS20A, #2
MXS20-30 ·····SMXS20A, #3
MXS20-40 ·····SMXS20A, #4(#4+#9)
MXS20-50 ·····SMXS20B, #1
MXS20-75 ·····SMXS20B, #2
MXS20-100 ·····SMXS20B, #3(#3+#7)
●With stroke adjuster
MXS20-10AS·····SMXS20A, #5(#1+#5)
MXS20-20AS·····SMXS20A, #6(#2+#6)
MXS20-30AS·····SMXS20A, #7(#3+#7)
MXS20-40AS·····SMXS20A, #8(#4+#8+#9)
MXS20-50AS·····SMXS20B, #4(#1+#4)
MXS20-75AS·····SMXS20B, #5(#2+#5)
MXS20-100AS··· SMXS20B, #6(#3+#6+#7)

(mm)

| Model | F | FF | N | G | H | NN | GA | HA | I | J | K | KA | NA | M | Z | ZZ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **MXS20-10** | 50 | 40 | 4 | 15 | 45 | 2 | 25 | 35 | 10 | 44 | 31 | — | 2 | 83 | 81.5 | 97 |
| **MXS20-20** | 50 | 40 | 4 | 15 | 45 | 2 | 25 | 35 | 10 | 44 | 41 | — | 2 | 83 | 81.5 | 97 |
| **MXS20-30** | 50 | 40 | 4 | 15 | 45 | 2 | 25 | 35 | 10 | 44 | 51 | — | 2 | 83 | 81.5 | 97 |
| **MXS20-40** | 60 | 50 | 4 | 15 | 55 | 2 | 35 | 35 | 10 | 54 | 61 | — | 2 | 93 | 91.5 | 107 |
| **MXS20-50** | 35 | 35 | 6 | 15 | 35 | 3 | 50 | 35 | 10 | 69 | 71 | — | 2 | 108 | 106.5 | 122 |
| **MXS20-75** | 60 | 60 | 6 | 19 | 35 | 4 | 54 | 70 | 10 | 108 | 96 | — | 2 | 147 | 145.5 | 161 |
| **MXS20-100** | 70 | 70 | 6 | 37 | 35 | 5 | 107 | 70 | 58 | 113 | 121 | 169 | 4 | 200 | 198.5 | 214 |
| **MXS20-125** | 70 | 70 | 8 | 41 | 38 | 6 | 155 | 76 | 70 | 155 | 146 | 223 | 4 | 254 | 252.5 | 268 |
| **MXS20-150** | 80 | 80 | 8 | 19 | 44 | 7 | 195 | 88 | 87 | 190 | 171 | 275 | 4 | 306 | 304.5 | 320 |

## Shock Absorber Specifications

| Shock absorber part No. | | RB0805 | RB0806 | RB1007 | RB1411 | RB1412 |
|---|---|---|---|---|---|---|
| Applicable slide table | | MXS8 | MXS12 | MXS16 | MXS20 | MXS25 |
| Max. absorbing energy (J) | | 0.98 | 2.94 | 5.88 | 14.7 | 19.6 |
| Absorbing stroke (mm) | | 5 | 6 | 7 | 11 | 12 |
| Max. collision speed (mm/s) | | 50 to 500 | | | | |
| Max. operating frequency (cycle/min) | | 80 | 80 | 70 | 45 | 45 |
| Max. allowable thrust (N) | | 245 | 245 | 422 | 814 | 814 |
| Ambient and fluid temperature (˚C) | | –10 to 60 | | | | |
| Spring force (N) | Extended | 1.96 | 1.96 | 4.22 | 6.86 | 6.86 |
| | Retracted | 3.83 | 4.22 | 6.86 | 15.30 | 15.98 |
| Weight (g) | | 15 | 15 | 25 | 65 | 65 |

## End Lock Specifications

| Model | MXS8 | MXS12 | MXS16 | MXS20 | MXS25 |
|---|---|---|---|---|---|
| Bore size (mm) | 8 | 12 | 16 | 20 | 25 |
| Operating speed range | 50 to 500mm/s | | | | |
| Holding force (N) | 25 | 60 | 110 | 160 | 250 |

Note) Refer to p.3.11-5 for cautions on end lock.

## Buffer Specifications

| Model | | MXS6 | MXS8 | MXS12 | MXS16 | MXS20 | MXS25 |
|---|---|---|---|---|---|---|---|
| Bore size (mm) | | 6 | 8 | 12 | 16 | 20 | 25 |
| Piston speed | | 50 to 500mm/s (Horizontal mounting 50 to 300mm/s) | | | | | |
| Buffer stroke (mm) | | 5 | | 10 | | | |
| Buffer stroke load (N) | At 0mm stroke | 3 | 5 | 10 | 13 | 17 | 21 |
| | At max. stroke | 6 | 8 | 13 | 17 | 25 | 29 |

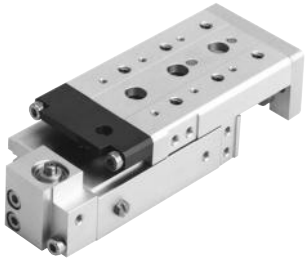
Note) Refer to p.3.11-5 for cautions on buffer.
Note) If stroke is adjusted with the stroke adjuster at extension end, the buffer stroke is shortened by the adjusted length.

## Applicable Auto Switches to Buffer

| Style | Part No. | Specifications | Electrical entry |
|---|---|---|---|
| Solid state switch | **D-F9BV** | With light, 2 wire | Perpendicular |
| | **D-F9NV** | With light, 3 wire, Output: NPN | |
| | **D-F9PV** | With light, 3 wire, Output: PNP | |

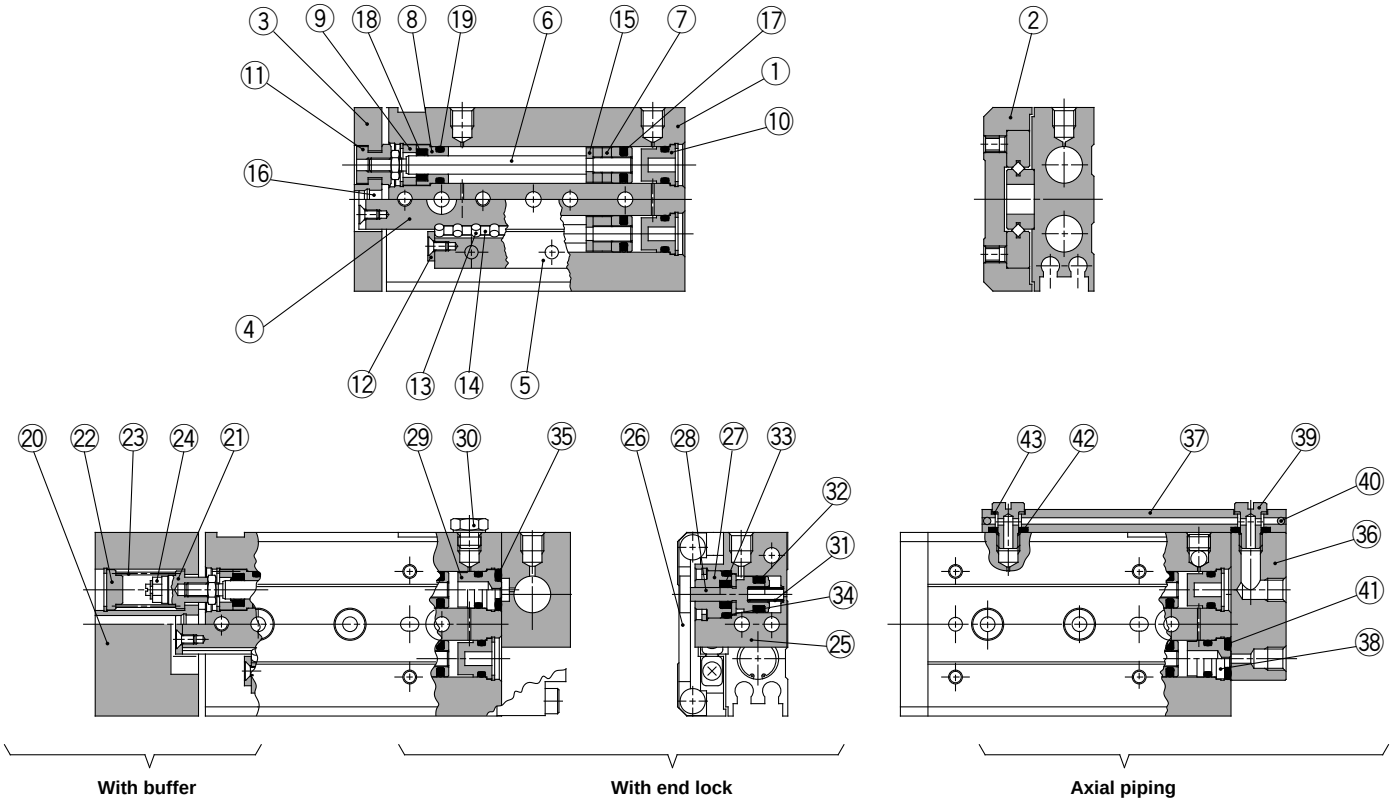
∗ The auto switch for buffer must be ordered separately.

With buffer



With end lock

## Construction




### Component Parts

| No. | Description | Material | Note |
|---|---|---|---|
| ① | Body | Aluminum alloy | Hard anodized |
| ② | Table | Aluminum alloy | Hard anodized |
| ③ | End plate | Aluminum alloy | Hard anodized |
| ④ | Rail | Carbon tool steel | Heat treatment |
| ⑤ | Guide | Carbon tool steel | Heat treatment |
| ⑥ | Rod | Stainless steel | |
| ⑦ | Piston assembly | | With one side magnet |
| ⑧ | Rod cover | Aluminum alloy | Anodized |
| ⑨ | Seal support | Brass | Electroless nickel plated |
| ⑩ | Head cap | Resin | |
| ⑪ | Floating bushing | Stainless steel | |
| ⑫ | Roller stopper | Stainless steel | |
| ⑬ | Cylindrical roller | High carbon chromium bearing steel | |
| ⑭ | Roller spacer | Resin | |
| ⑮ | Rod bumper | Polyurethane | |
| ⑯ | End bumper | Polyurethane | |
| ⑰ | Piston seal | NBR | |
| ⑱ | Rod seal | NBR | |
| ⑲ | O ring | NBR | |

### Component Parts/With buffer

| No. | Description | Material | Note |
|---|---|---|---|
| ⑳ | End plate | Aluminum alloy | Hard anodized |
| ㉑ | Spring collar | Stainless steel | |
| ㉒ | Head cap | Stainless steel | |
| ㉓ | Spring | Stainless steel | |
| ㉔ | Magnet | Rare earth | |

### Component Parts/With end lock

| No. | Description | Material | Note |
|---|---|---|---|
| ㉕ | Body for lock | Aluminum alloy | Hard anodized |
| ㉖ | Table support | Carbon steel | Anticorrosive treatment |
| ㉗ | Rod cover | Aluminum alloy | |
| ㉘ | Piston rod | Stainless steel | |
| ㉙ | Bushing | Aluminum alloy | Chromated |
| ㉚ | Blanking plug | Brass | Electroless nickel plated |
| ㉛ | Return spring | Stainless steel | |
| ㉜ | Piston seal | NBR | |
| ㉝ | Rod seal | NBR | |
| ㉞ | O ring | NBR | |
| ㉟ | O ring | NBR | |

### Component Parts/Axial piping

| No. | Description | Material | Note |
|---|---|---|---|
| ㊱ | Axial side piping plate | Aluminum alloy | Hard anodized |
| ㊲ | Pipe | Aluminum alloy | Hard anodized |
| ㊳ | Bushing | Aluminum alloy | Chromated |
| ㊴ | Stud | Brass | Electrolrss nickel plated |
| ㊵ | Steel ball | Stainless steel | |
| ㊶ | O ring | NBR | |
| ㊷ | O ring | NBR | |
| ㊸ | Gasket | | |

* The parts indicated with the numbers in the list below are included in a seal kit. Specify the order numbers in compliance with respective cylinder bore size.

### Replacement Parts: Seal Kits

| Bore (mm) | Kit No. | Contents |
|---|---|---|
| **6** | MXS6-PS | 1 set including ⑰ to ⑲ |
| **8** | MXS8-PS | |
| **12** | MXS12-PS | |
| **16** | MXS16-PS | |
| **20** | MXS20-PS | |
| **25** | MXS25-PS | |

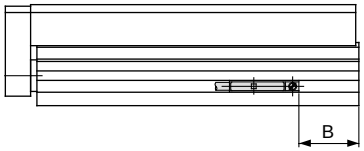
### Replacement Parts: Seal Kits for End Lock Model

| Bore (mm) | Kit No. | Contents |
|---|---|---|
| **8** | MXS8R-PS | 1 set including ⑰ to ⑲ & ㉜ to ㉟ |
| **12** | MXS12R-PS | |
| **16** | MXS16R-PS | |
| **20** | MXS20R-PS | |
| **25** | MXS25R-PS | |

### Replacement Parts: Seal kits for Axial Piping Model

| Bore (mm) | Kit No. | Contents |
|---|---|---|
| **6** | MXS6P-PS | 1 set including ⑰ to ⑲ & ㊶ to ㊸ |
| **8** | MXS8P-PS | |
| **12** | MXS12P-PS | |
| **16** | MXS16P-PS | |
| **20** | MXS20P-PS | |
| **25** | MXS25P-PS | |

## Auto Switch Mounting Position for Stroke End Detection




**Reed switch: D-A90, D-A93, D-A96, D-A90V, D-A93V, D-A96V**

| Model | A | B Stroke | | | | | | | | | E Stroke | | | | | | | | | Operating range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | |
| **MXS6** | 5.9 | 5.6 | 5.6 | 5.6 | 17.6 | 23.6 | – | – | – | – | 3.6 (1.1) | 3.6 (1.1) | 3.6 (1.1) | 15.6 (13.1) | 21.6 (19.1) | – | – | – | – | 4.5 |
| **MXS8** | 7.6 | 10.9 | 5.9 | 6.9 | 14.9 | 22.9 | 47.9 | – | – | – | 8.9 (6.4) | 3.9 (1.4) | 4.9 (2.4) | 12.9 (10.4) | 20.9 (18.4) | 45.9 (43.4) | – | – | – | 5 |
| **MXS12** | 11.6 | 28.4 | 18.4 | 8.4 | 10.4 | 20.4 | 41.4 | 70.4 | – | – | 26.4 (23.9) | 16.4 (13.9) | 6.4 (3.9) | 8.4 (5.9) | 18.4 (15.9) | 39.4 (36.9) | 68.4 (65.9) | – | – | 6 |
| **MXS16** | 16.3 | 28.7 | 18.7 | 8.7 | 8.7 | 13.7 | 38.7 | 61.7 | 86.7 | – | 26.7 (24.2) | 16.7 (14.2) | 6.7 (4.2) | 6.7 (4.2) | 11.7 (9.2) | 36.7 (34.2) | 59.7 (57.2) | 84.7 (82.2) | – | 7 |
| **MXS20** | 18.9 | 32.6 | 22.6 | 12.6 | 12.6 | 17.6 | 31.6 | 59.6 | 88.6 | 115.6 | 30.6 (28.1) | 20.6 (18.1) | 10.6 (8.1) | 10.6 (8.1) | 15.6 (13.1) | 29.6 (27.1) | 57.6 (55.1) | 86.6 (84.1) | 113.6 (111.1) | 8 |
| **MXS25** | 23 | 37.5 | 27.5 | 17.5 | 17.5 | 20.5 | 36.5 | 52.5 | 85.5 | 100.5 | 35.5 (33) | 25.5 (23) | 15.5 (13) | 15.5 (13) | 18.5 (16) | 24.5 (32) | 50.5 (48) | 83.5 (81) | 98.5 (96) | 8 |

( ) : D-F9N

**Solid state switch: D-F9B, D-F9N, D-F9P, D-F9BW, D-F9NW, D-F9PW**

| Model | A | B Stroke | | | | | | | | | E Stroke | | | | | | | | | Operating range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | |
| **MXS6** | 10 | 9.6 | 9.6 | 9.6 | 21.6 | 27.6 | – | – | – | – | -0.4 | -0.4 | -0.4 | 11.6 | 17.5 | – | – | – | – | 2 |
| **MXS8** | 11.6 | 14.9 | 9.9 | 10.9 | 18.9 | 26.9 | 51.9 | – | – | – | 4.9 | -0.1 | 0.9 | 8.9 | 16.9 | 41.9 | – | – | – | 2.5 |
| **MXS12** | 15.6 | 32.4 | 22.4 | 12.4 | 14.4 | 24.4 | 45.4 | 74.4 | – | – | 22.4 | 12.4 | 2.4 | 4.4 | 14.4 | 35.4 | 64.4 | – | – | 3 |
| **MXS16** | 20.3 | 32.7 | 22.7 | 12.7 | 12.7 | 17.7 | 42.7 | 65.7 | 90.7 | – | 22.7 | 12.7 | 2.7 | 2.7 | 7.7 | 32.7 | 55.7 | 80.7 | – | 4 |
| **MXS20** | 22.9 | 36.6 | 26.6 | 16.6 | 16.6 | 21.6 | 35.6 | 63.6 | 92.6 | 119.6 | 26.6 | 16.6 | 6.6 | 6.6 | 11.6 | 25.6 | 53.6 | 82.6 | 109.6 | 6 |
| **MXS25** | 27 | 41.5 | 31.5 | 21.5 | 21.5 | 24.5 | 40.5 | 56.5 | 89.5 | 104.5 | 31.5 | 21.5 | 11.5 | 11.5 | 14.5 | 30.5 | 46.5 | 79.5 | 94.5 | 6 |

**Solid state switch: D-F9BV, D-F9NV, D-F9PV, D-F9BWV, D-F9NWV, D-F9PWV**

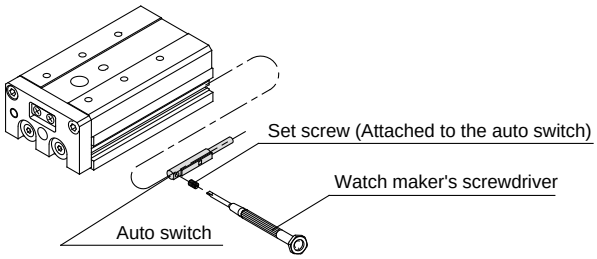
| Model | A | B Stroke | | | | | | | | | E Stroke | | | | | | | | | Operating range |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | 10 | 20 | 30 | 40 | 50 | 75 | 100 | 125 | 150 | |
| **MXS6** | 10 | 9.6 | 9.6 | 9.6 | 21.6 | 27.6 | – | – | – | – | 1.6 | 1.6 | 1.6 | 13.6 | 19.6 | – | – | – | – | 2 |
| **MXS8** | 11.6 | 14.9 | 9.9 | 10.9 | 18.9 | 26.9 | 51.9 | – | – | – | 6.9 | 1.9 | 2.9 | 10.9 | 18.9 | 43.9 | – | – | – | 2.5 |
| **MXS12** | 15.6 | 32.4 | 22.4 | 12.4 | 14.4 | 24.4 | 45.4 | 74.4 | – | – | 24.4 | 14.4 | 4.4 | 6.4 | 16.4 | 37.4 | 66.4 | – | – | 3 |
| **MXS16** | 20.3 | 32.7 | 22.7 | 12.7 | 12.7 | 17.7 | 42.7 | 65.7 | 90.7 | – | 24.7 | 14.7 | 4.7 | 4.7 | 9.7 | 34.7 | 57.7 | 82.7 | – | 4 |
| **MXS20** | 22.9 | 36.6 | 26.6 | 16.6 | 16.6 | 21.6 | 35.6 | 63.6 | 92.6 | 119.6 | 28.6 | 18.6 | 8.6 | 8.6 | 13.6 | 27.6 | 55.6 | 84.6 | 111.6 | 6 |
| **MXS25** | 27 | 41.5 | 31.5 | 21.5 | 21.5 | 24.5 | 40.5 | 56.5 | 89.5 | 104.5 | 33.5 | 23.5 | 13.5 | 13.5 | 16.5 | 32.5 | 48.5 | 81.5 | 96.5 | 6 |

## How to Install an Auto Switch

### ⚠ Caution

**Auto switch mounting tool**

· To tighten the set screw (attached to the auto switch), use a watch maker's screwdriver with a grip diameter of 5 to 6mm.

**Clamping torque**

· Clamping torque is approx. 0.05 to 01Nm. Rotate about 90° from when you feel the fitting tightness.