

Plate Cylinder/Double Acting Single Rod

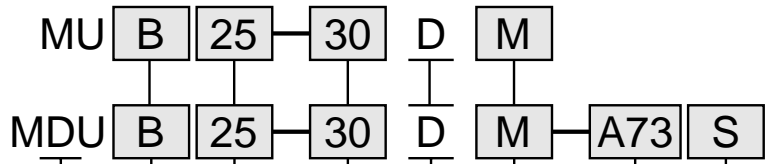
Series MU



ø25, ø32, ø40, ø50, ø63

How to Order

Standard
With auto switch



Built-in magnet

Mounting

| | |
|---|---------------|
| B | Basic |
| L | Axial foot |
| F | Front flange |
| G | Rear flange |
| C | Single clevis |
| D | Double clevis |

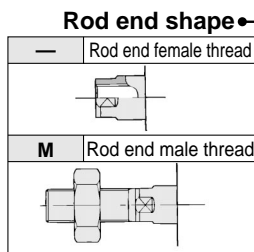
Size

| | |
|----|------------------------|
| 25 | Equiv. ø25 piston area |
| 32 | Equiv. ø32 piston area |
| 40 | Equiv. ø40 piston area |
| 50 | Equiv. ø50 piston area |
| 63 | Equiv. ø63 piston area |

Stroke (mm)
Refer to standard stroke on p.2.4-3.
Refer to p.2.4-3 when using auto switch.

Action

| | |
|---|---------------|
| D | Double acting |
|---|---------------|



Number of auto switches

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

Auto switch

| | |
|---|--------------------------------------|
| — | Without auto switch(built-in magnet) |
|---|--------------------------------------|

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 | | Auto switch model | | Lead wire (m)* | | | | Applicable load | | | | | | |
|--|------------------|------------------|-----------|---------------------|--------------|--------|-------------------|----------------------------------|----------------|--------------|-------|----------|-----------------|------------|------------|---|----|----|----|
| | | | | | DC | AC | Perp. | In-line | 0.5 (→) | 3 (L) | 5 (Z) | None (N) | | | | | | | |
| Reed switch | — | Grommet | Yes | 3 wire (Equiv. NPN) | — | 5V | — | A76H | ● | ● | — | — | IC | Relay, PLC | | | | | |
| | | | | | | | | A72 | A72H | ● | ● | — | — | | — | | | | |
| | | | | | | | | A73 | A73H | ● | ● | ● | — | | — | — | | | |
| | | | | | | | | 24V | 5V 12V | 100V or less | A80 | A80H | ● | | ● | — | — | IC | |
| | | | | | | | | 12V | — | A73C | — | ● | ● | | ● | ● | — | — | |
| | | | | | | | | 5V 12V | 24V or less | A80C | — | ● | ● | | ● | ● | — | IC | |
| Solid state switch | — | Grommet | Yes | 3 wire (NPN) | — | 5V 12V | — | F7NV | F79 | ● | ● | ○ | — | IC | Relay, PLC | | | | |
| | | | | | | | | F7PV | F7P | ● | ● | ○ | — | — | | | | | |
| | | | | | | | | F7BV | J79 | ● | ● | ○ | — | — | | | | | |
| | | | | | | | | J79C | — | ● | ● | ● | ● | — | | — | | | |
| | | | | | | | | 24V | 3 wire (NPN) | 5V 12V | — | F7NWV | F79W | ● | | ● | ○ | — | IC |
| | | | | | | | | 3 wire (PNP) | — | F7PW | ● | ● | ○ | — | | — | | | |
| | | | | | | | | 24V | 2 wire | 12V | — | F7BWV | J79W | ● | | ● | ○ | — | — |
| | | | | | | | | Water resistant (2 color) | — | F7BA | — | ● | ○ | — | | — | | | |
| | | | | | | | | With timer | — | F7NT | — | ● | ○ | — | | — | IC | | |
| | | | | | | | | With diagnostic output (2 color) | — | F79F | ● | ● | ○ | — | | — | — | | |
| Latch with diagnostic output (2 color) | — | F7LF | ● | ● | ○ | — | — | — | | | | | | | | | | | |

*Lead wire length 0.5m..... (Example) A80C 5m.....Z (Example) A80CZ
3m.....L A80CL —.....N A80CN

**Solid state switches marked with a "○" are manufactured upon receipt of order.

Mounting Bracket/Part No.

| Size | 25 | 32 | 40 | 50 | 63 |
|-------------------|--------|--------|--------|--------|--------|
| Foot (1) | MU-L02 | MU-L03 | MU-L04 | MU-L05 | MU-L06 |
| Flange | MU-F02 | MU-F03 | MU-F04 | MU-F05 | MU-F06 |
| Single clevis | MU-C02 | MU-C03 | MU-C04 | MU-C05 | MU-C06 |
| Double clevis (3) | MU-D02 | MU-D03 | MU-D04 | MU-D05 | MU-D06 |

Note 1) When ordering foot brackets, 2pcs. should be ordered for each cylinder.
Note 2) Parts attached with each mounting brackets are as follows.
Foot, Flange, Single clevis/Body mounting bolt
Double clevis/A clevis pin, C shape snap rings for axis, body mounting bolts
Note 3) A clevis pin and snap rings are packed with the double clevis style.

Auto Switch Mounting Bracket/Part No.

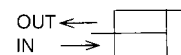
| Size | Model | Note |
|--------------------|----------|---|
| 25, 32, 40, 50, 63 | BMU1-025 | • Auto switch mounting screw (M3 X 0.5 X 6.5d) • Switch mounting nut |

* Mounting screw set made of stainless steel
Following stainless steel mounting screw set (included nut) is provided. Use them with accordance to environment. (Auto switch interface is available. Order it separately.)
BBA2: For D-A7/A8/F7/J7
When D-F7BAL mounted on cylinder is required, the stainless steel screw mentioned above is used at shipping. When auto switch unit is shipped, BBA2 is attached.

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-46 for Safety Instructions and common precautions.

Plate Cylinder/Double Acting Single Rod **Series MU**



Specifications

| | |
|-------------------------------|---|
| Action | Double acting single rod |
| Fluid | Air |
| Proof pressure | 1.05MPa |
| Max. operating pressure | 0.7MPa |
| Min. operating pressure | 0.05MPa |
| Ambient and fluid temperature | -10 to 60°C |
| Lubrication | Not required (Non-lube) |
| Piston speed | 50 to 500mm/S |
| Stroke length tolerance | +1.4 0 |
| Cushion | Rubber bumper |
| Thread tolerance | JIS Class 2 |
| Equivalent tube bore (mm) | ø25, ø32, ø40, ø50, ø63 |
| Mounting | Axial foot, Front flange, Rear flange, Single clevis, Double clevis |
| Rod end shape | Rod end male thread, Rod end female thread |

Rod Non-rotating Accuracy

| Model | MU25 | MU32 | MU40 | MU50 | MU63 |
|-----------------------|------|-------|-------|-------|-------|
| Non-rotating accuracy | ±1° | ±0.8° | ±0.5° | ±0.5° | ±0.5° |

Standard Stroke

| Size | Standard stroke | Allowable max. stroke |
|----------------------|--|-----------------------|
| 25, 32, 40 50, 63 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 75, 100, 125, 150, 175, 200, 250, 300 | 300 |

* Contact SMC for any intermediate strokes that are not indicated above, as they will be produced upon receipt of order.
** Strokes longer than 300mm are not available.

Minimum Stroke for Auto Switch Mounting

| Number of auto switches | D-F7□V D-J79C | D-A7□ D-A80 D-A73C D-A80C | D-F7□WV | D-A7□H, A80H D-F7□W, J79W D-A79W D-F7□, J79 D-F7BA, F7NT D-F7□F |
|-------------------------|------------------|------------------------------------|---------|--|
| 2 | 5 | 10 | 15 | 15 |
| 1 | 5 | 5 | 10 | 15 |

Theoretical Force

| Size | Rod dia. (mm) | Operating direction | Piston area (mm ²) | Operating pressure (MPa) | | | | | | |
|------|---------------|---------------------|--------------------------------|--------------------------|-----|------|------|------|------|--|
| | | | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | |
| 25 | 12 | OUT | 491 | 98 | 147 | 196 | 246 | 295 | 344 | |
| | | IN | 378 | 76 | 113 | 151 | 189 | 227 | 265 | |
| 32 | 14 | OUT | 804 | 161 | 241 | 322 | 402 | 482 | 563 | |
| | | IN | 650 | 130 | 195 | 260 | 325 | 390 | 455 | |
| 40 | 16 | OUT | 1257 | 251 | 377 | 503 | 629 | 754 | 880 | |
| | | IN | 1056 | 211 | 317 | 422 | 528 | 634 | 739 | |
| 50 | 20 | OUT | 1963 | 393 | 589 | 785 | 982 | 1178 | 1374 | |
| | | IN | 1649 | 330 | 495 | 660 | 824 | 989 | 1154 | |
| 63 | 20 | OUT | 3117 | 623 | 935 | 1247 | 1559 | 1870 | 2182 | |
| | | IN | 2803 | 561 | 841 | 1121 | 1402 | 1682 | 1962 | |

Note) Theoretical force (N) = Pressure (MPa) X Piston area (mm²)

Weight

| Size | | 25 | 32 | 40 | 50 | 63 |
|-----------------------------------|---|------|------|------|------|------|
| Basic weight | Basic | 0.18 | 0.28 | 0.42 | 0.80 | 1.20 |
| | Axial foot | 0.25 | 0.42 | 0.63 | 1.14 | 1.83 |
| | Flange/ Front/Rear side | 0.28 | 0.42 | 0.65 | 1.26 | 2.03 |
| | Single clevis | 0.24 | 0.40 | 0.64 | 1.20 | 1.88 |
| | Double clevis (with pin) | 0.25 | 0.44 | 0.68 | 1.27 | 1.96 |
| Additional weight per 50mm stroke | | 0.12 | 0.16 | 0.22 | 0.34 | 0.47 |
| Accessories | Single clevis (Pivot bracket for double clevis) | 0.06 | 0.12 | 0.22 | 0.40 | 0.68 |
| | Double clevis (with pin) (Pivot bracket for single clevis) | 0.07 | 0.16 | 0.26 | 0.47 | 0.76 |
| | Single knuckle joint | 0.03 | 0.04 | 0.07 | 0.16 | 0.16 |
| | Double knuckle joint (with pin) | 0.05 | 0.09 | 0.14 | 0.29 | 0.29 |

Note) The weight of the single and double clevis bracket includes the weight of the 2 bolts for mounting the bracket.

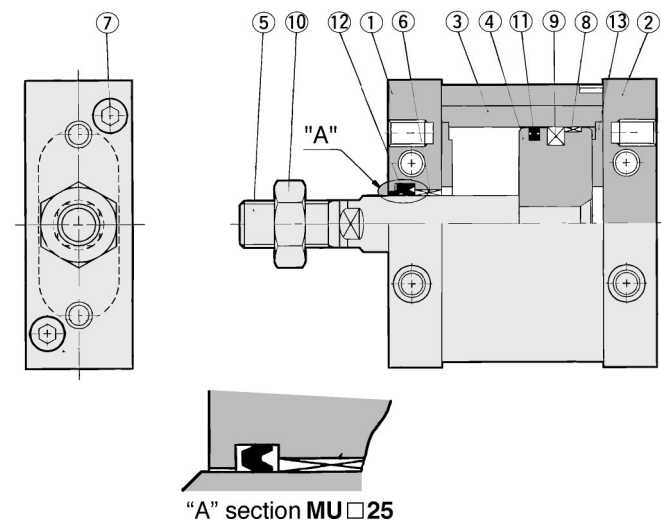
Calculation:

Example: MUL32-100

- Basic weight: 0.42 (Foot style ø32 equiv.)
- Added weight: 0.16/50 stroke
- Stroke: 100mm stroke

$$0.42 + 100 / 50 \times 0.16 = 0.74 \text{ kg}$$

Construction



Component Parts

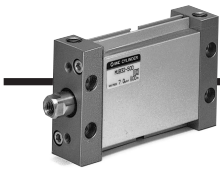
| No. | Description | Material | Note |
|-----|----------------------------|--------------------------------|----------------------------|
| ① | Rod cover | Aluminum alloy | Anodized |
| ② | Head cover | Aluminum alloy | Anodized |
| ③ | Cylinder tube | Aluminum alloy | Hard anodized |
| ④ | Piston | Aluminum alloy | Chromated |
| ⑤ | Piston rod | Carbon steel | Hard chromated |
| ⑥ | Bushing | Oil impregnated sintered alloy | |
| ⑦ | Hex. socket head cap screw | Stainless steel | |
| ⑧ | Wearing | Resin | |
| ⑨ | Magnet | Magnet material | Only built-in magnet style |
| ⑩ | Rod end nut | Rolled steel | Only male thread rod end |
| ⑪ | Piston seal | NBR | |
| ⑫ | Rod seal | NBR | |
| ⑬ | Bumper | Urethane | |

Replacement Parts: Seal Kits

| Bore size (mm) | Kit No. | Contents |
|----------------|----------|---------------------------------------|
| 25 | MUB25-PS | A set of above numbers ⑪, ⑫ and ⑬. |
| 32 | MUB32-PS | |
| 40 | MUB40-PS | |
| 50 | MUB50-PS | |
| 63 | MUB63-PS | |

* Seal kits consist of items ⑪, ⑫ and ⑬, contained in one kit, and can be ordered using the order number for each cylinder bore size.

Series MU

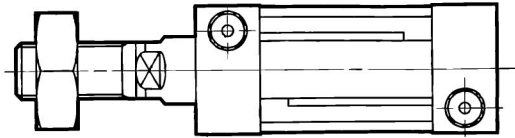


Basic: MUB

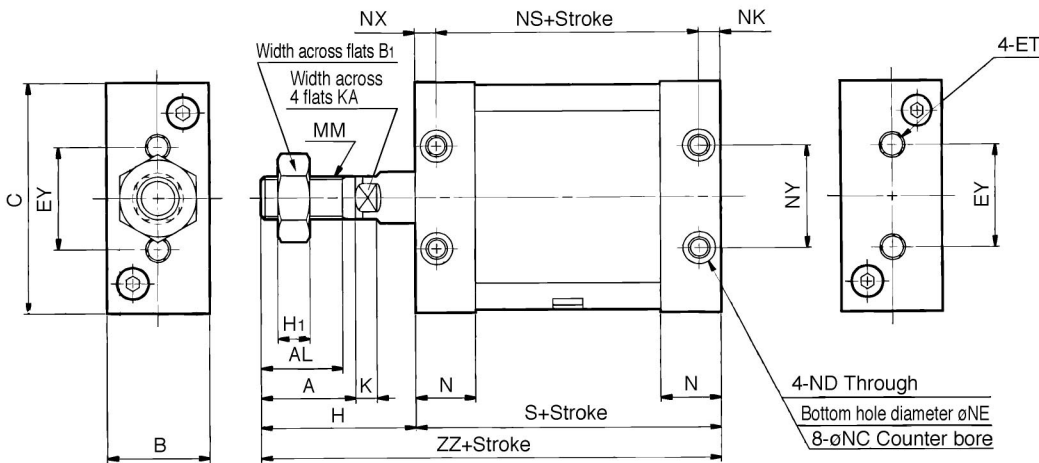
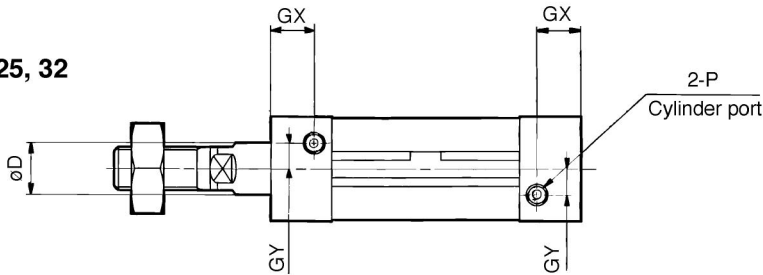


Rod end male thread

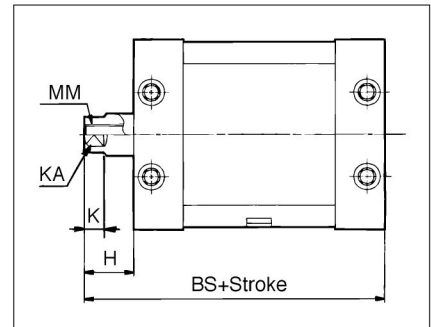
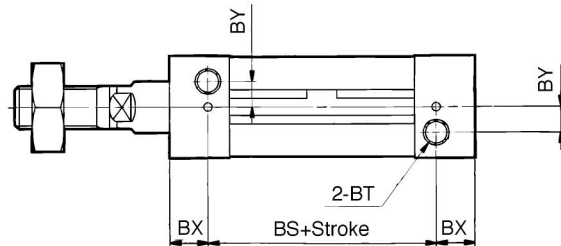
MUB40, 50, 63



MUB25, 32



Rod end female thread



- MUB25 SMU25, #1 (#1+#11)
- MUB32 SMU32, #1 (#1+#11)
- MUB40 SMU40, #1 (#1+#11)
- MUB50 SMU50, #1 (#1+#11)
- MUB63 SMU63, #1 (#1+#11)

* Dimensions except mentioned above are same as male thread style. However, K and KA dimensions are same as male thread style.

| Model | Stroke range (mm) | A | AL | B | B1 | BS | BT | BX | BY | C | D | ET | EY | GX | GY | H | H1 | K |
|-------|-------------------|----|------|----|----|----|--------------------|-----|----|-----|----|-------------------|----|------|-----|----|----|-----|
| MUB25 | 5 to 300 | 22 | 19.5 | 24 | 17 | 37 | M5 X 0.8Depth7.5 | 9 | 7 | 54 | 12 | M5 X 0.8Depth11 | 26 | 10 | 5 | 36 | 6 | 5.5 |
| MUB32 | 5 to 300 | 26 | 23.5 | 28 | 19 | 45 | M6 X 1Depth12 | 6.5 | 8 | 68 | 14 | M6 X 1Depth11 | 42 | 8.5 | 5.5 | 40 | 7 | 5.5 |
| MUB40 | 5 to 300 | 30 | 27 | 32 | 22 | 44 | M8 X 1.25Depth13 | 8 | 9 | 86 | 16 | M8 X 1.25Depth11 | 54 | 9 | 7 | 45 | 8 | 6 |
| MUB50 | 5 to 300 | 35 | 32 | 39 | 27 | 54 | M10 X 1.5Depth14.5 | 10 | 9 | 104 | 20 | M10 X 1.5Depth15 | 64 | 11.5 | 8 | 53 | 11 | 7 |
| MUB63 | 5 to 300 | 35 | 32 | 50 | 27 | 53 | M12 X 1.75Depth18 | 11 | 12 | 124 | 20 | M12 X 1.75Depth15 | 72 | 11.5 | 10 | 56 | 11 | 7 |

| Model | KA | MM | N | NC | ND | NE | NS | NX | NY | P | S | ZZ |
|-------|----|------------|------|--------------|------------|------|----|-----|----|-----------|----|-----|
| MUB25 | 10 | M10 X 1.25 | 14 | 7.5Depth4.5 | M5 X 0.8 | 4.3 | 43 | 6 | 26 | M5 X 0.8 | 55 | 91 |
| MUB32 | 12 | M12 X 1.25 | 15.5 | 9Depth5.5 | M6 X 1 | 5.1 | 45 | 6.5 | 28 | Rc(PT)1/8 | 58 | 98 |
| MUB40 | 14 | M14 X 1.5 | 16 | 10.5Depth6.5 | M8 X 1.25 | 6.9 | 44 | 8 | 36 | Rc(PT)1/8 | 60 | 105 |
| MUB50 | 18 | M18 X 1.5 | 21.5 | 13.5Depth8.5 | M10 X 1.5 | 8.7 | 54 | 10 | 42 | Rc(PT)1/4 | 74 | 127 |
| MUB63 | 18 | M18 X 1.5 | 21.5 | 17Depth10.5 | M12 X 1.75 | 10.5 | 53 | 11 | 46 | Rc(PT)1/4 | 75 | 131 |

Rod end female thread (mm)

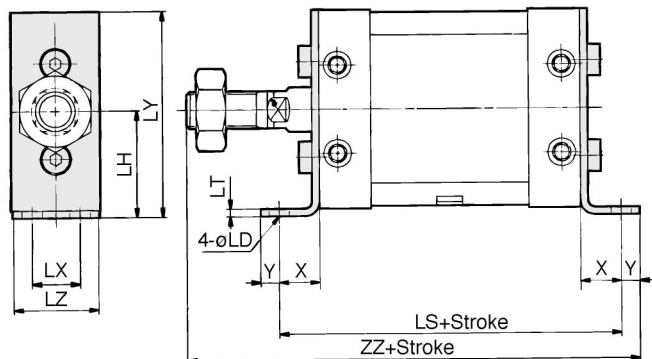
| Model | H | MM | ZZ |
|-------|----|------------------|----|
| MUB25 | 14 | M6 X 1Depth12 | 69 |
| MUB32 | 14 | M8 X 1.25Depth13 | 72 |
| MUB40 | 15 | M8 X 1.25Depth13 | 75 |
| MUB50 | 18 | M10 X 1.5Depth15 | 92 |
| MUB63 | 21 | M10 X 1.5Depth15 | 96 |

* The position of the four flats of the piston rod is $\pm 3^\circ$ in relation to the cylinder side surface.

Dimensions



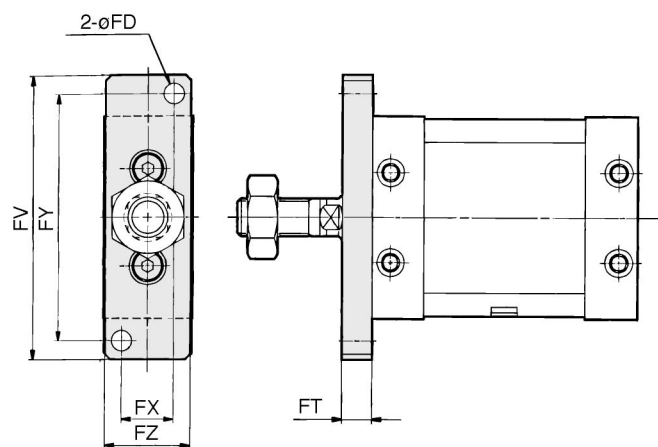
Axial foot



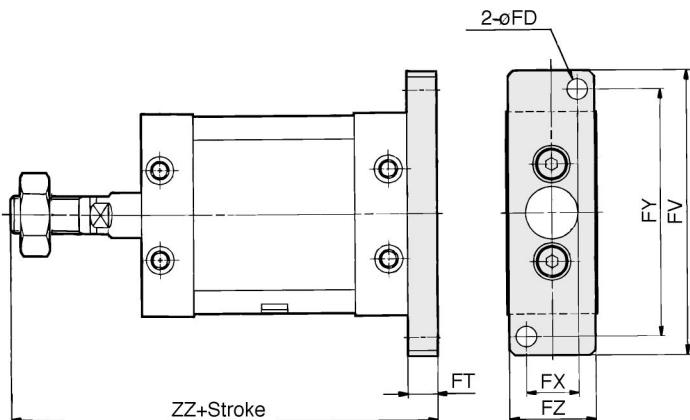
| Model | LD | LH | LS | LT | LX | LY | LZ | X | Y | ZZ |
|--------------|------|----|-----|-----|----|-----|----|----|----|-----|
| MUL25 | 5.5 | 29 | 79 | 3.2 | 11 | 56 | 23 | 12 | 6 | 109 |
| MUL32 | 6.6 | 37 | 90 | 4.5 | 12 | 71 | 27 | 16 | 8 | 122 |
| MUL40 | 9 | 46 | 96 | 4.5 | 15 | 89 | 31 | 18 | 10 | 133 |
| MUL50 | 11 | 57 | 116 | 5 | 18 | 109 | 37 | 21 | 11 | 159 |
| MUL63 | 13.5 | 67 | 123 | 6 | 22 | 129 | 48 | 24 | 14 | 169 |

Axial foot
 MUL25.....SMU25, #2 (#1+#2+#11)
 MUL32.....SMU32, #2 (#1+#2+#11)
 MUL40.....SMU40, #2 (#1+#2+#11)
 MUL50.....SMU50, #2 (#1+#2+#11)
 MUL63.....SMU63, #2 (#1+#2+#11)

Front flange



Rear flange



CU

CQS

CQ2

MU

| Model | FD | FT | FV | FX | FY | FZ | ZZ |
|---------------------|-----|----|-----|----|-----|----|-----|
| MUF25, MUG25 | 5.5 | 8 | 76 | 14 | 66 | 24 | 99 |
| MUF32, MUG32 | 7 | 8 | 94 | 16 | 82 | 28 | 106 |
| MUF40, MUG40 | 9 | 9 | 118 | 18 | 102 | 32 | 114 |
| MUF50, MUG50 | 11 | 12 | 144 | 22 | 126 | 39 | 139 |
| MUF63, MUG63 | 13 | 14 | 168 | 30 | 148 | 50 | 145 |



Front flange
 MUF25.....SMU25, #3 (#1+#3+#11)
 MUF32.....SMU32, #3 (#1+#3+#11)
 MUF40.....SMU40, #3 (#1+#3+#11)
 MUF50.....SMU50, #3 (#1+#3+#11)
 MUF63.....SMU63, #3 (#1+#3+#11)

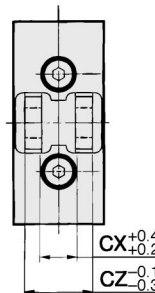
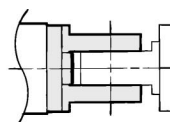
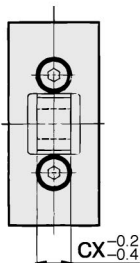
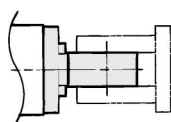
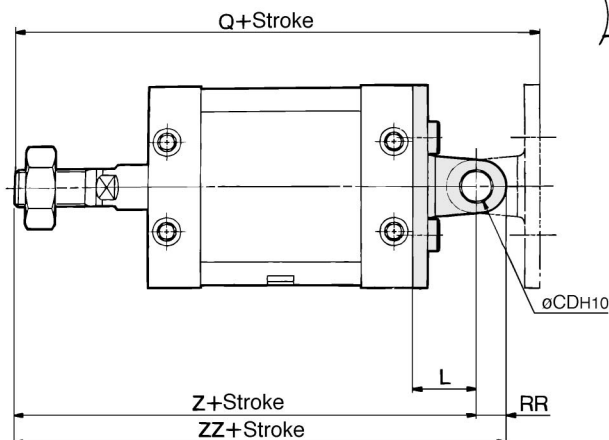
Rear flange
 MUG25.....SMU25, #4 (#1+#4+#11)
 MUG32.....SMU32, #4 (#1+#4+#11)
 MUG40.....SMU40, #4 (#1+#4+#11)
 MUG50.....SMU50, #4 (#1+#4+#11)
 MUG63.....SMU63, #4 (#1+#4+#11)

Single clevis

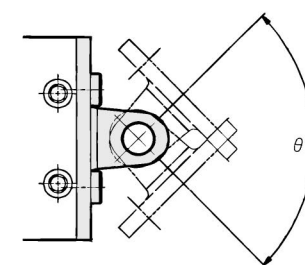
Double clevis

Single clevis

Double clevis



Double clevis
 MUD25.....SMU25, #6 (#1+#6+#11)
 MUD32.....SMU32, #6 (#1+#6+#11)
 MUD40.....SMU40, #6 (#1+#6+#11)
 MUD50.....SMU50, #6 (#1+#6+#11)
 MUD63.....SMU63, #6 (#1+#6+#11)



| Model | CDH10 | CX | CZ | L | Q | RR | Z | ZZ | Rotation(θ°) |
|---------------------|-----------------------------------|----|----|----|-----|----|-----|-----|--------------|
| MUC25, MUD25 | 8 ^{+0.058} ₀ | 9 | 18 | 17 | 125 | 8 | 108 | 116 | 100 |
| MUC32, MUD32 | 10 ^{+0.058} ₀ | 11 | 22 | 22 | 142 | 10 | 120 | 130 | 90 |
| MUC40, MUD40 | 10 ^{+0.058} ₀ | 13 | 26 | 27 | 159 | 10 | 132 | 142 | 80 |
| MUC50, MUD50 | 14 ^{+0.070} ₀ | 16 | 32 | 32 | 191 | 14 | 159 | 173 | 80 |
| MUC63, MUD63 | 14 ^{+0.070} ₀ | 16 | 32 | 38 | 207 | 16 | 169 | 185 | 80 |

Single clevis
 MUC25.....SMU25, #5 (#1+#5+#11)
 MUC32.....SMU32, #5 (#1+#5+#11)
 MUC40.....SMU40, #5 (#1+#5+#11)
 MUC50.....SMU50, #5 (#1+#5+#11)
 MUC63.....SMU63, #5 (#1+#5+#11)

A clevis pin and snap ring are packed with the double clevis style.

Plate Cylinder/Double Acting Double Rod

Series MUW

ø20, ø32, ø40, ø50, ø63

How to Order

Standard

MUW B 25 30 D M

With auto switch

MDUW B 25 30 D M A73 S

Built-in magnet

Double rod

Mounting

| | |
|---|--------|
| B | Basic |
| L | Foot |
| F | Flange |

Size

| | |
|----|------------------------|
| 25 | Equiv. ø25 piston area |
| 32 | Equiv. ø32 piston area |
| 40 | Equiv. ø40 piston area |
| 50 | Equiv. ø50 piston area |
| 63 | Equiv. ø63 piston area |

Stroke(mm)

Refer to standard stroke on p.2.4-7.
Refer to p.2.4-7 when using auto switch.

Rod end shape

| | |
|---|-----------------------|
| — | Rod end female thread |
| M | Rod end male thread |

Auto Switch

| | |
|---|------------------------------------|
| — | Without auto switch (Built-magnet) |
|---|------------------------------------|

Number of auto switches

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

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 | | Auto switch model | | Lead wire (m)* | | | | Applicable load | | | | | | |
|--------------------|------------------|------------------|-----------|-----------------|--------------|----|-------------------|--------------|----------------|-------|--------------|----------|-----------------|------------|------------|----|---|---|----|
| | | | | | DC | AC | Perp. | In-line | 0.5 (-) | 3 (L) | 5 (Z) | None (N) | | | | | | | |
| Reed switch | — | Grommet | Yes | 3 wire (NPN) | — | 5V | — | A76H | ● | ● | — | — | IC | Relay, PLC | | | | | |
| | | | | | | | | 2 wire | 24V | 12V | 100V | A72 | A72H | | ● | ● | — | — | — |
| | | | | | | | | | 5V | 12V | 100V or less | A80 | A80H | | ● | ● | — | — | IC |
| | | | | | | | | | 12V | — | — | A73C | — | | ● | ● | ● | ● | — |
| | | | | | | | | | 5V | 12V | 24V or less | A80C | — | | ● | ● | ● | ● | IC |
| | | | | | | | | — | — | — | A79W | — | ● | | ● | — | — | — | |
| Solid state switch | — | Grommet | Yes | 3 wire (NPN) | — | 5V | 12V | F7NV | F79 | ● | ● | ○ | — | IC | Relay, PLC | | | | |
| | | | | | | | | 3 wire (PNP) | F7PV | F7P | ● | ● | ○ | — | | — | | | |
| | | | | | | | | 2 wire | F7BV | J79 | ● | ● | ○ | — | | — | | | |
| | | | | | | | | — | J79C | — | ● | ● | ○ | ● | | — | | | |
| | | | | | | | | 3 wire (NPN) | F7N WV | F79W | ● | ● | ○ | — | | IC | | | |
| | | | | | | | | 3 wire (PNP) | — | F7P W | ● | ● | ○ | — | | — | | | |
| | | | | | | | | 2 wire | F7B WV | J79W | ● | ● | ○ | — | | — | | | |
| | | | | | | | | — | — | F7B A | — | ● | ○ | — | | — | | | |
| | | | | | | | | 3 wire (NPN) | — | F7N T | — | ● | ○ | — | | IC | | | |
| | | | | | | | | 4 wire (NPN) | — | F79 F | ● | ● | ○ | — | | — | | | |
| — | — | F7L F | ● | ● | ○ | — | — | | | | | | | | | | | | |

* Lead wire length
0.5m.....— (Example) A80C 5m.....Z
3m.....-L (Example) A80CZ
A80CL None.....N (Example) A80CN

* Solid state switches marked with a "○" are manufactured upon receipt of order.

Mounting Bracket/Part No.

| Size | 25 | 32 | 40 | 50 | 63 |
|---------------------|--------|--------|--------|--------|--------|
| Bracket | | | | | |
| Foot ⁽¹⁾ | MU-L02 | MU-L03 | MU-L04 | MU-L05 | MU-L06 |
| Flange | MU-F02 | MU-F03 | MU-F04 | MU-F05 | MU-F06 |

Note 1) When ordering foot brackets, 2pcs. should be ordered for each cylinder.
Note 2) Body mounting bolts are packed with the foot style and flange style.

Auto Switch Mounting Bracket/Part No.

| Size | Model | Note |
|--------------------|----------|---|
| 25, 32, 40, 50, 63 | BMU1-025 | • Auto switch mounting screw (M3 X 0.5 X 6.5d) • Switch mounting nut |

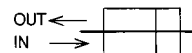
*Mounting screw set made of stainless steel
Following stainless steel mounting screw set (included nut) is provided. Use them with accordance to environment. (Auto switch interface is available. Order it separately.)
BBA2:For D-A7/A8/F7/J7
When D-F7BAL mounted on cylinder is required, the stainless steel screw mentioned above is used when shipping. When auto switch unit is shipped, BBA2 is attached.



Precautions

Be sure to read before handling. Refer to p.0-39 to 0-46 for Safety Instructions and common precautions.

Plate Cylinder/Double Acting Double Rod *Series MUW*



Unit: N

Specifications

| | |
|-------------------------------|--------------------------------|
| Action | Double acting double rod style |
| Fluid | Air |
| Proof pressure | 1.05MPa |
| Max. operating pressure | 0.7MPa |
| Min. operating pressure | 0.05MPa |
| Ambient and fluid temperature | -10 to 60°C |
| Lubrication | Not required (Non-lube) |
| Piston speed | 50 to 500mm/S |
| Stroke length tolerance | +1.4 0 |
| Cushion | Rubber bumper |
| Thread tolerance | JIS Class 2 |
| Equivalent tube bore (mm) | ø25, ø32, ø40, ø50, ø63 |
| Mounting | Foot, Flange |

Rod Non-rotating Accuracy

| | | | | | |
|-----------------------|------|-------|-------|-------|-------|
| Model | MU25 | MU32 | MU40 | MU50 | MU63 |
| Non-rotating accuracy | ±1° | ±0.8° | ±0.5° | ±0.5° | ±0.5° |

Standard Stroke

(mm)

| Size | Standard stroke | Max. stroke(mm) |
|------------|---------------------------------------|-----------------|
| 25, 32, 40 | 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 | 300 |
| 50, 63 | 75, 100, 125, 150, 175, 200, 250, 300 | |

* Contact SMC for any intermediate strokes that are not indicated above, as they will be produced upon receipt of order.

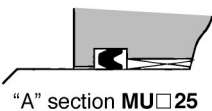
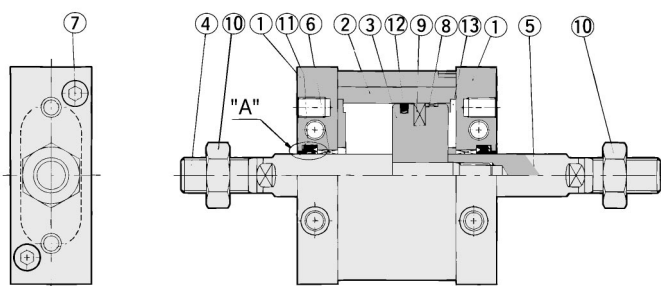
** Strokes longer than 300mm are not available.

Minimum Stroke for Auto Switch Mounting

(mm)

| Number of auto switches | D-F7□V D-J79C | D-A7□ D-A80 D-A73C D-A80C | D-F7□WV | D-A7□H, A80H D-F7□W, J79W D-A79W D-F7□, J79 D-F7BA, F7NT D-F7□F |
|-------------------------|------------------|------------------------------------|---------|--|
| 2 pcs. | 5 | 10 | 15 | 15 |
| 1 pc. | 5 | 5 | 10 | 15 |

Construction



"A" section MU□25

Theoretical Force

| Size | Rod dia. (mm) | Operating direction | Piston area (mm ²) | Operating pressure (MPa) | | | | | | |
|------|---------------|---------------------|--------------------------------|--------------------------|-----|------|------|------|------|--|
| | | | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | |
| 25 | 12 | IN/OUT | 378 | 76 | 113 | 151 | 189 | 227 | 265 | |
| 32 | 14 | IN/OUT | 650 | 130 | 195 | 260 | 325 | 390 | 455 | |
| 40 | 16 | IN/OUT | 1056 | 211 | 317 | 422 | 528 | 634 | 739 | |
| 50 | 20 | IN/OUT | 1649 | 330 | 495 | 660 | 824 | 989 | 1154 | |
| 63 | 20 | IN/OUT | 2803 | 561 | 841 | 1121 | 1402 | 1682 | 1962 | |

Note) Theoretical force (N) = Pressure (MPa) X Piston area (mm²)

Weight

Unit: kg

| Size | | 25 | 32 | 40 | 50 | 63 |
|-----------------------------------|---------------------------------|------|------|------|------|------|
| Standard weight | Basic | 0.19 | 0.32 | 0.48 | 0.91 | 1.38 |
| | Foot | 0.26 | 0.46 | 0.69 | 1.25 | 2.01 |
| | Flange | 0.29 | 0.46 | 0.71 | 1.37 | 2.21 |
| Additional weight per 50mm stroke | | 0.16 | 0.23 | 0.31 | 0.48 | 0.59 |
| Accessories | Single knuckle joint | 0.03 | 0.04 | 0.07 | 0.16 | 0.16 |
| | Double knuckle joint (with pin) | 0.05 | 0.09 | 0.14 | 0.29 | 0.29 |

Calculation

Depends on double acting single rod

Example: MUWL32-100

- Basic weight 0.46 (Foot style ø32 equiv.)
 - Additional weight 0.23/50 stroke
 - Stroke 100 stroke
- 0.46 + 100 / 50 X 0.23 = 0.92kg

CU

CQS

CQ2

MU

Component Parts

| No. | Description | Material | Note |
|-----|----------------------------|--------------------------------|----------------------------|
| ① | Rod cover | Aluminum alloy | Anodized |
| ② | Cylinder tube | Aluminum alloy | Hard anodized |
| ③ | Piston | Aluminum alloy | Chromated |
| ④ | Piston rod A | Carbon steel | Hard chrome plated |
| ⑤ | Piston rod B | Carbon steel | Hard chrome plated |
| ⑥ | Bushing | Oil impregnated sintered alloy | |
| ⑦ | Hex. socket head cap screw | Stainless steel | |
| ⑧ | Wearing | Resin | |
| ⑨ | Magnet | Magnet material | Only built-in magnet style |
| ⑩ | Rod end nut | Rolled steel | Only male thread rod end |
| ⑪ | Rod seal | NBR | |
| ⑫ | Piston seal | NBR | |
| ⑬ | Bumper | NBR | |

Replacement Parts: Seal Kits

| Bore size (mm) | Kit No. | Contents |
|----------------|----------|--------------------------------------|
| 25 | MUW25-PS | A set of above numbers ⑪, ⑫ and ⑬ |
| 32 | MUW32-PS | |
| 40 | MUW40-PS | |
| 50 | MUW50-PS | |
| 63 | MUW63-PS | |

* Seal kits consist of items ⑪, ⑫ and ⑬ contained in one kit, and can be ordered using the kit number for each cylinder bore size.

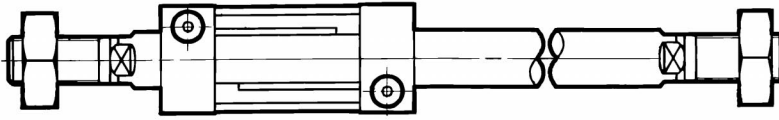
Series MUW



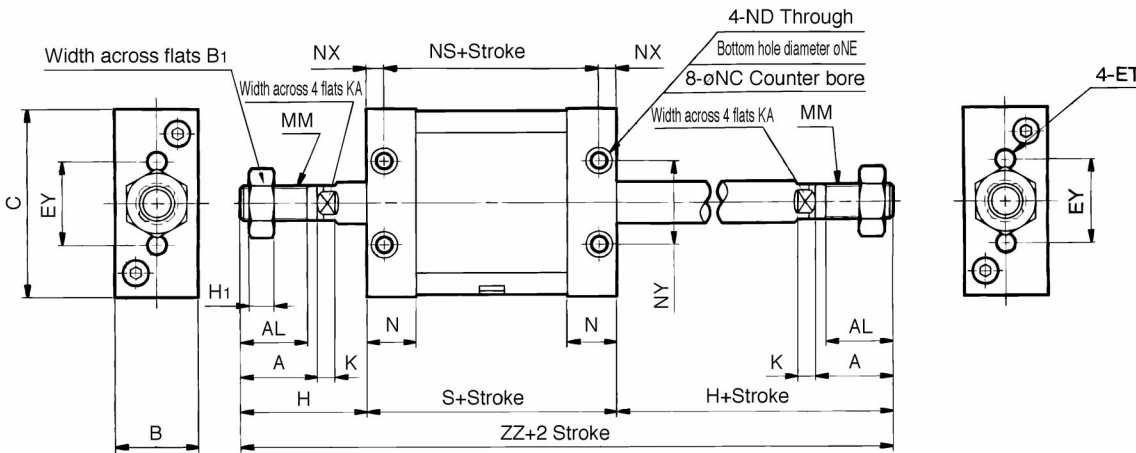
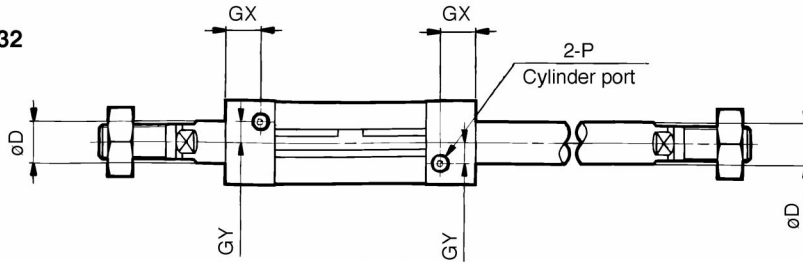
Basic: MUWB

Rod end male thread

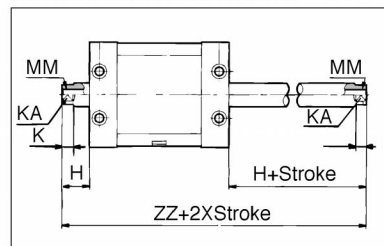
MUW40, 50, 63



MUW25, 32



Rod end female thread



* Dimensions except mentioned above are same as male thread style. However, K and KA dimensions are same as male thread style.

| Model | Stroke range (mm) | A | AL | B | B1 | BS | BT | BX | BY | C | D | ET | EY | GX | GY | H | H1 | K |
|--------|-------------------|----|------|----|----|----|----------------------|-----|----|-----|----|---------------------|----|------|-----|----|----|-----|
| MUWB25 | 5 to 300 | 22 | 19.5 | 24 | 17 | 37 | M5 X 0.8 Depth 7.5 | 9 | 7 | 54 | 12 | M5 X 0.8 Depth 11 | 26 | 10 | 5 | 36 | 6 | 5.5 |
| MUWB32 | 5 to 300 | 26 | 23.5 | 28 | 19 | 45 | M6 X 1 Depth 12 | 6.5 | 8 | 68 | 14 | M6 X 1 Depth 11 | 42 | 8.5 | 5.5 | 40 | 7 | 5.5 |
| MUWB40 | 5 to 300 | 30 | 27 | 32 | 22 | 44 | M8 X 1.25 Depth 13 | 8 | 9 | 86 | 16 | M8 X 1.25 Depth 11 | 54 | 9 | 7 | 45 | 8 | 6 |
| MUWB50 | 5 to 300 | 35 | 32 | 39 | 27 | 54 | M10 X 1.5 Depth 14.5 | 10 | 9 | 104 | 20 | M10 X 1.5 Depth 15 | 64 | 11.5 | 8 | 53 | 11 | 7 |
| MUWB63 | 5 to 300 | 35 | 32 | 50 | 27 | 53 | M12 X 1.75 Depth 18 | 11 | 12 | 124 | 20 | M12 X 1.75 Depth 15 | 72 | 11.5 | 10 | 56 | 11 | 7 |

| Model | KA | MM | N | NC | ND | NE | NS | NX | NY | P | S | ZZ |
|--------|----|------------|------|----------------|------------|------|----|-----|----|------------|----|-----|
| MUWB25 | 10 | M10 X 1.25 | 14 | 7.5 Depth 4.5 | M5 X 0.8 | 4.3 | 43 | 6 | 26 | M5 X 0.8 | 55 | 127 |
| MUWB32 | 12 | M12 X 1.25 | 15.5 | 9 Depth 5.5 | M6 X 1 | 5.1 | 45 | 6.5 | 28 | Rc(PT) 1/8 | 58 | 138 |
| MUWB40 | 14 | M14 X 1.5 | 16 | 10.5 Depth 6.5 | M8 X 1.25 | 6.9 | 44 | 8 | 36 | Rc(PT) 1/8 | 60 | 150 |
| MUWB50 | 18 | M18 X 1.5 | 21.5 | 13.5 Depth 8.5 | M10 X 1.5 | 8.7 | 54 | 10 | 42 | Rc(PT) 1/4 | 74 | 180 |
| MUWB63 | 18 | M18 X 1.5 | 21.5 | 17 Depth 10.5 | M12 X 1.75 | 10.5 | 53 | 11 | 46 | Rc(PT) 1/4 | 75 | 187 |

Rod end female thread (mm)

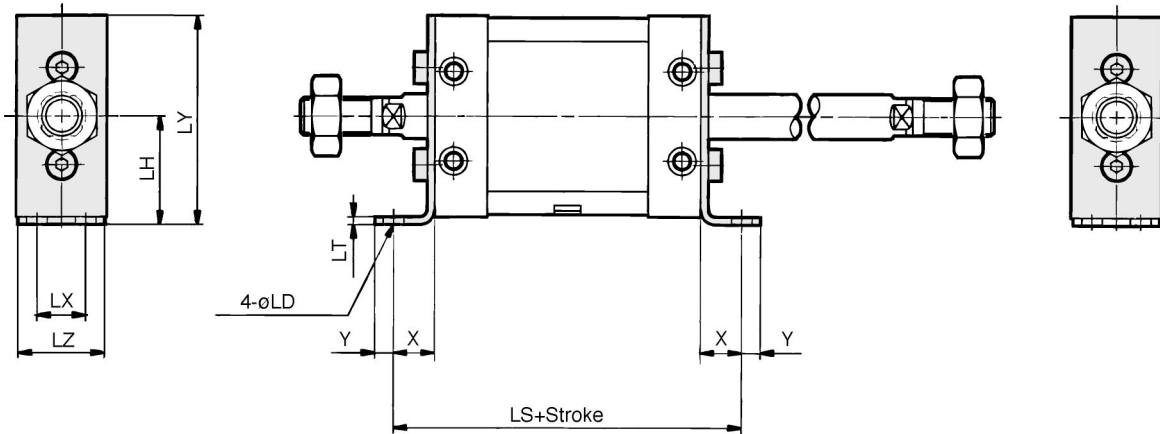
| Model | H | MM | ZZ |
|--------|----|--------------------|-----|
| MUWB25 | 14 | M6 X 1 Depth 12 | 83 |
| MUWB32 | 14 | M8 X 1.25 Depth 13 | 86 |
| MUWB40 | 15 | M8 X 1.25 Depth 13 | 90 |
| MUWB50 | 18 | M10 X 1.5 Depth 15 | 110 |
| MUWB63 | 21 | M10 X 1.5 Depth 15 | 117 |

* The position of piston across 4 flats are different from above drawing. Position of piston across 4 flats of double rod is not same.

Plate Cylinder/Double Acting Double Rod *Series MUW*

Dimensions

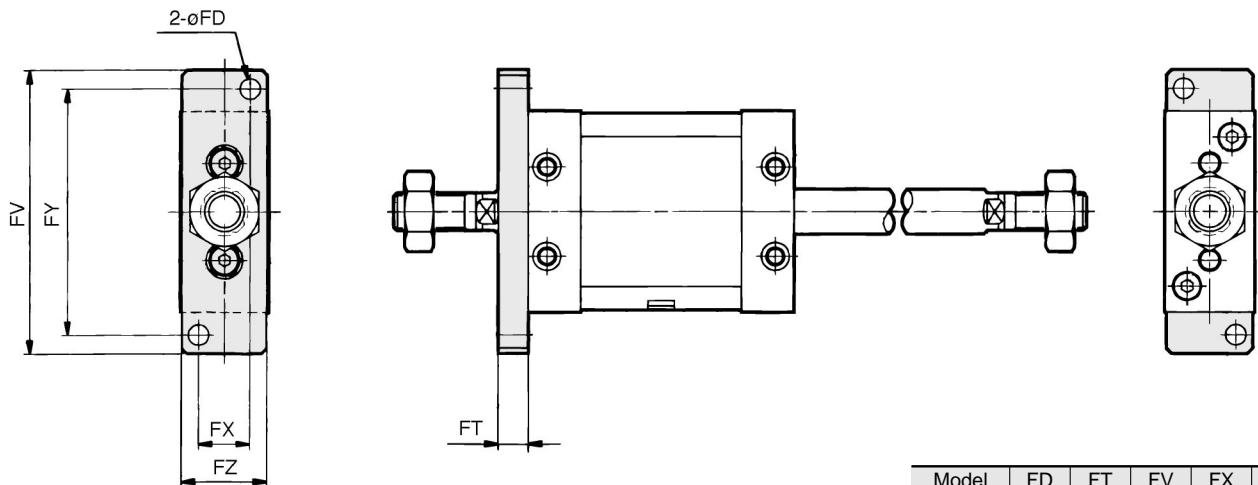
Foot



| Model | LD | LH | LS | LT | LX | LY | LZ | X | Y |
|---------------|------|----|-----|-----|----|-----|----|----|----|
| MUWL25 | 5.5 | 29 | 79 | 3.2 | 11 | 56 | 23 | 12 | 6 |
| MUWL32 | 6.6 | 37 | 90 | 4.5 | 12 | 71 | 27 | 16 | 8 |
| MUWL40 | 9 | 46 | 96 | 4.5 | 15 | 89 | 31 | 18 | 10 |
| MUWL50 | 11 | 57 | 116 | 5 | 18 | 109 | 37 | 21 | 11 |
| MUWL63 | 13.5 | 67 | 123 | 6 | 22 | 129 | 48 | 24 | 14 |

(mm)

Flange



| Model | FD | FT | FV | FX | FY | FZ |
|---------------|-----|----|-----|----|-----|----|
| MUWF25 | 5.5 | 8 | 76 | 14 | 66 | 24 |
| MUWF32 | 7 | 8 | 94 | 16 | 82 | 28 |
| MUWF40 | 9 | 9 | 118 | 18 | 102 | 32 |
| MUWF50 | 11 | 12 | 144 | 22 | 126 | 39 |
| MUWF63 | 13 | 14 | 168 | 30 | 148 | 50 |

(mm)

CU

CQS

CQ2

MU

Plate Cylinder/Single Acting Spring Return/Extend

Series MU

ø25, ø32, ø40, ø50, ø63

How to Order

Standard

MU B 25 10 S M

With auto switch

MDU B 25 10 S M A73 S

Built-in magnet

Mounting

| | |
|---|---------------|
| B | Basic |
| L | Axial foot |
| F | Front flange |
| G | Rear flange |
| C | Single clevis |
| D | Double clevis |

Size

| | |
|----|------------------------|
| 25 | Equiv. ø25 piston area |
| 32 | Equiv. ø32 piston area |
| 40 | Equiv. ø40 piston area |
| 50 | Equiv. ø50 piston area |
| 63 | Equiv. ø63 piston area |

Standard Stroke (mm)

| | |
|---------------|---------------|
| ø25, ø32 | 5, 10 |
| ø40, ø50, ø63 | 5, 10, 15, 20 |

* Refer to p.2.4-11 when using auto switch.

Action

| | |
|---|-----------------------------|
| S | Single acting spring return |
| T | Single acting spring extend |

Rod end shape

| | |
|---|-----------------------|
| — | Rod end female thread |
| M | Rod end male thread |

Auto Switch

— Without auto switch(built-in magnet)

Number of auto switches

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

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 | | Auto switch model | | Lead wire (m)* | | | | Applicable load | | | | |
|--------------------------------|------------------|------------------|-----------|---------------------|--------------|--------|-------------------|---------|----------------|-------|-------|----------|-----------------|------------|---|------------|------------|
| | | | | | DC | AC | Perp. | In-line | 0.5 (—) | 3 (L) | 5 (Z) | None (N) | | | | | |
| Reed switch | — | Grommet | Yes | 3 wire (Equiv. NPN) | — | 5V | — | A76H | ● | ● | — | — | IC circuit | — | | | |
| | | | | | | | | A72 | A72H | ● | ● | — | | | — | | |
| | | | | | | | | A73 | A73H | ● | ● | ● | | | — | | |
| | | | | | | | | 5V 12V | 100V or less | A80 | A80H | ● | | | ● | — | — |
| | | | | | | | | 12V | — | A73C | — | ● | | | ● | ● | ● |
| | | | | | | | | 5V 12V | 24V or less | A80C | — | ● | | | ● | ● | ● |
| Diagnostic indicator (2 color) | Grommet | Yes | — | — | A79W | — | ● | ● | — | — | — | — | | | | | |
| Solid state switch | — | Grommet | Yes | 3 wire (NPN) | — | 5V 12V | — | F7NV | F79 | ● | ● | ○ | — | IC circuit | — | | |
| | | | | | | | | F7PV | F7P | ● | ● | ○ | — | | | | |
| | | | | | | | | F7BV | J79 | ● | ● | ○ | — | | | | |
| | | | | | | | | J79C | — | ● | ● | ● | ● | | | | |
| | | | | | | | | F7NWV | F79W | ● | ● | ○ | — | | | | |
| | | Grommet | Yes | 3 wire (PNP) | 24V | 2 wire | 12V | — | — | F7PW | — | ● | ● | ○ | — | IC circuit | Relay, PLC |
| | | | | | | | | | | F7BWV | J79W | ● | ● | ○ | — | | |
| | | | | | | | | | | — | F7BA | — | ● | ○ | — | | |
| | | | | | | | | | | — | F7NT | — | ● | ○ | — | | |
| | | | | | | | | | | — | F79F | ● | ● | ○ | — | | |
| Grommet | Yes | 3 wire (NPN) | 24V | 4 wire (NPN) | — | 5V 12V | — | — | F7LF | ● | ● | ○ | — | IC circuit | — | | |

* Lead wire length 0.5m..... (Example) A80C 5m.....Z (Example) A80CZ
3m.....L A80CL NoneN A80CN

* Solid state switches marked with a "○" are manufactured upon receipt of order.

Mounting Bracket/Part No.

| Bracket | 25 | 32 | 40 | 50 | 63 |
|-------------------|--------|--------|--------|--------|--------|
| Foot (1) | MU-L02 | MU-L03 | MU-L04 | MU-L05 | MU-L06 |
| Flange | MU-F02 | MU-F03 | MU-F04 | MU-F05 | MU-F06 |
| Single clevis | MU-C02 | MU-C03 | MU-C04 | MU-C05 | MU-C06 |
| Double clevis (3) | MU-D02 | MU-D03 | MU-D04 | MU-D05 | MU-D06 |

Note 1) When ordering foot brackets, 2pcs. should be ordered for each cylinder.
 Note 2) Parts attached with each mounting brackets are as follows.
 Foot, Flange, Single clevis/Body mounting bolt
 Double clevis/A clevis pin, C shape snap rings for axis, body mounting bolts
 Note 3) A clevis pin and snap rings are packed with the double clevis style.

2.4-10

Auto Switch Mounting Bracket/Part No.

| Size | Part No. | Note |
|--------------------|----------|--|
| 25, 32, 40, 50, 63 | BMU1-025 | • Auto switch mounting screw (M3 X 0.5 X 6.5) • Switch mounting nut |

* Mounting screw set made of stainless steel
 Following stainless steel mounting screw set (included nut) is provided. Use them with accordance to environment. (Auto switch interface is available. Order it separately.)
 BBA2: For D-A7/A8/F7/J7
 When D-F7BAL mounted on cylinder is required, the stainless steel screw mentioned above is used at shipping. When auto switch unit is shipped, BBA2 is attached.

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-46 for Safety Instructions and common precautions.

Plate Cylinder/Single Acting Spring Return/Extend **Series MU**

Specifications

| | |
|-------------------------------|---|
| Action | Single acting/Spring return, Spring extend |
| Fluid | Air |
| Proof pressure | 1.05MPa |
| Max. operating pressure | 0.7MPa |
| Min. operating pressure | 0.18MPa |
| Ambient and fluid temperature | -10 to 60°C |
| Lubrication | Not required (Non-lube) |
| Piston speed | 50 to 500mm/S |
| Stroke length tolerance | +1.4 0 |
| Cushion | Rubber bumper |
| Thread tolerance | JIS Class 2 |
| Equivalent tube I.D. (mm) | ø25, ø32, ø40, ø50, ø63 |
| Mounting | Axial foot, Front flange, Rear flange, Single clevis, Double clevis |

Rod Non-rotating Accuracy

| Model | MU25 | MU32 | MU40 | MU50 | MU63 |
|-----------------------|------|-------|-------|-------|-------|
| Non-rotating accuracy | ±1° | ±0.8° | ±0.5° | ±0.5° | ±0.5° |

Standard Stroke

| Action | Equivalent bore size (mm) | | | | |
|----------------------|---------------------------|----|---------------|----|----|
| | 25 | 32 | 40 | 50 | 63 |
| Spring return/extend | 5, 10 | | 5, 10, 15, 20 | | |

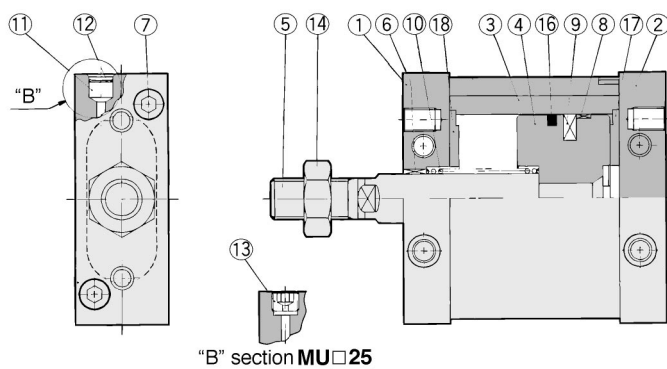
* Contact SMC for strokes not indicated.

Minimum Stroke for Auto Switch Mounting

| Number of auto switches | D-F7□V D-J79C | D-A7□ D-A80 D-A73C D-A80C | D-F7□WV | D-A7□H, A80H D-F7□W, J79W D-A79W D-F7□, J79 D-F7BA, F7NT D-F7□F | |
|-------------------------|------------------|------------------------------------|---------|--|----|
| | | | | 15 | 15 |
| 2 pcs. | 5 | 10 | 15 | 15 | 15 |
| 1 pc. | 5 | 5 | 10 | 15 | 15 |

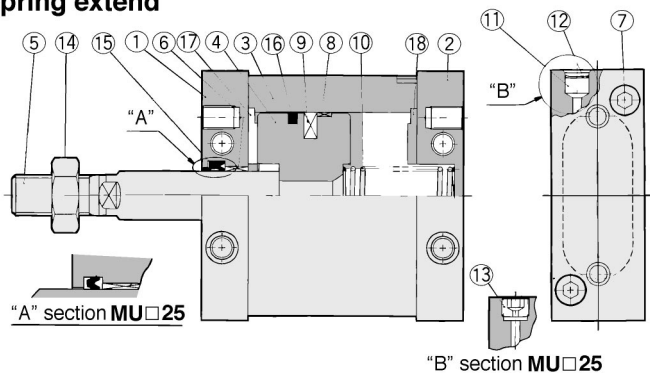
Construction

Spring return



"B" section MU□25

Spring extend



"A" section MU□25

"B" section MU□25

Theoretical Force

Unit: N

| Action | Size | Rod diameter (mm) | Operating direction | Piston area (mm ²) | Operating pressure (MPa) | | | | | | Spring force | |
|---------------|------|-------------------|---------------------|--------------------------------|--------------------------|-----|------|------|------|------|--------------|-----|
| | | | | | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | Begin | End |
| Spring return | 25 | 12 | OUT | 491 | 68 | 117 | 166 | 216 | 265 | 314 | 30 | 15 |
| | 32 | 14 | OUT | 804 | 119 | 199 | 280 | 360 | 440 | 521 | 42 | 24 |
| | 40 | 16 | OUT | 1257 | 195 | 321 | 447 | 573 | 698 | 824 | 56 | 30 |
| | 50 | 20 | OUT | 1963 | 346 | 542 | 738 | 935 | 1131 | 1327 | 47 | 76 |
| Spring extend | 25 | 12 | IN | 378 | 46 | 83 | 121 | 159 | 197 | 235 | 30 | 15 |
| | 32 | 14 | IN | 650 | 88 | 153 | 218 | 283 | 348 | 413 | 42 | 24 |
| | 40 | 16 | IN | 1056 | 155 | 261 | 366 | 472 | 578 | 683 | 56 | 30 |
| | 50 | 20 | IN | 1649 | 283 | 448 | 613 | 777 | 942 | 1107 | 47 | 76 |
| | 63 | 20 | IN | 2803 | 448 | 728 | 1008 | 1289 | 1569 | 1849 | 113 | 61 |

Note) Theoretical force (N) = Pressure (MPa) X Piston area (mm²)

Weight

Unit: kg

| Size | | 25 | 32 | 40 | 50 | 63 |
|------------------|--|------|------|------|------|------|
| Weight | 5 stroke | 0.22 | 0.27 | 0.57 | 1.06 | 1.55 |
| | 10 stroke | 0.23 | 0.35 | 0.60 | 1.09 | 1.60 |
| | 15 stroke | — | — | 0.62 | 1.12 | 1.64 |
| | 20 stroke | — | — | 0.64 | 1.16 | 1.69 |
| Mounting bracket | Axial foot | 0.07 | 0.14 | 0.21 | 0.34 | 0.63 |
| | Flange/Front side, Rear side | 0.10 | 0.14 | 0.23 | 0.46 | 0.83 |
| | Single clevis | 0.06 | 0.12 | 0.22 | 0.40 | 0.68 |
| | Double clevis (with pin) | 0.07 | 0.16 | 0.26 | 0.47 | 0.76 |
| Accessories | Single clevis (Pivot bracket for double clevis) | 0.06 | 0.12 | 0.22 | 0.40 | 0.68 |
| | Double clevis (Pivot bracket for single clevis) | 0.07 | 0.16 | 0.26 | 0.47 | 0.76 |
| | Single knuckle joint | 0.03 | 0.04 | 0.07 | 0.16 | 0.16 |
| | Double knuckle joint (with pin) | 0.05 | 0.09 | 0.14 | 0.29 | 0.29 |

Note) Weight of single clevis and double clevis as optional bracket includes 2pcs. brackets for bracket mounting.

Example 2: MUC50-5S(T)
 • Basic weight.....1.06
 • Additional weight (mounting bracket).....0.40
 • Total weight.....1.06 + 0.40 = 1.46 kg

Component Parts

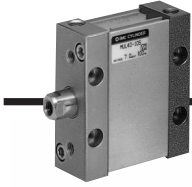
| No. | Description | Material | Note |
|-----|----------------------------|--------------------------------|---------------------------------------|
| ① | Rod cover | Aluminum alloy | Anodized |
| ② | Head cover | Aluminum alloy | Anodized |
| ③ | Cylinder tube | Aluminum alloy | Hard anodized |
| ④ | Piston | Aluminum alloy | Chromated |
| ⑤ | Piston rod | Carbon steel | Hard chrome plated |
| ⑥ | Bushing | Oil impregnated sintered alloy | |
| ⑦ | Hex. socket head cap screw | Stainless steel | |
| ⑧ | Wearing | Resin | |
| ⑨ | Magnet | Magnet material | Only built-in magnet style |
| ⑩ | Return spring | Steel wire | Zinc chromated |
| ⑪ | Element | Bronze | |
| ⑫ | Snap ring | Spring steel | |
| ⑬ | Plug | Chromium molybdenum steel | |
| ⑭ | Rod end nut | Rolled steel | Attached for only male thread rod end |
| ⑮ | Rod seal | NBR | |
| ⑯ | Piston seal | NBR | |
| ⑰ | Bumper | Urethane | |
| ⑱ | Bumper B | Urethane | |

Replacement Parts: Seal Kits

| Bore size (mm) | Kit No. | | Contents |
|----------------|---------------|---------------|---------------------------------------|
| | Spring return | Spring extend | |
| 25 | MU25S-PS | MU25T-PS | A set of above numbers ⑮, ⑯, ⑰ and ⑱. |
| 32 | MU32S-PS | MU32T-PS | |
| 40 | MU40S-PS | MU40T-PS | |
| 50 | MU50S-PS | MU50T-PS | |
| 63 | MU63S-PS | MU63T-PS | |

* Seal kits consist of items ⑮, ⑯, ⑰ and ⑱ contained in one kit, and can be ordered using the kits number for each cylinder bore size.

Series MU

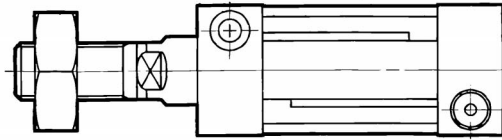


Basic

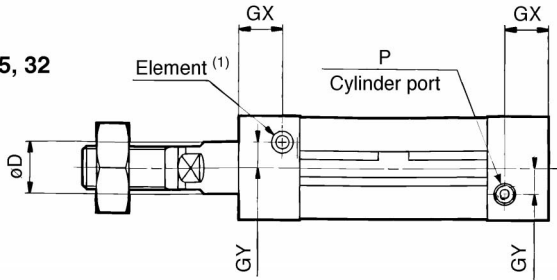


Spring return

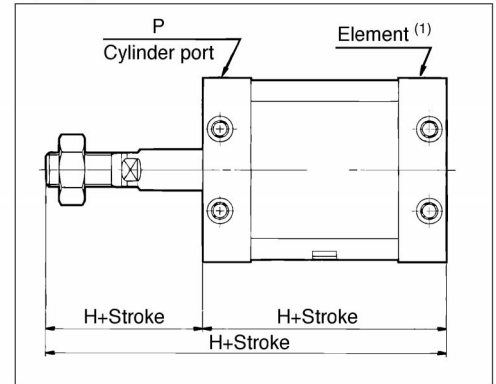
MUB40, 50, 63



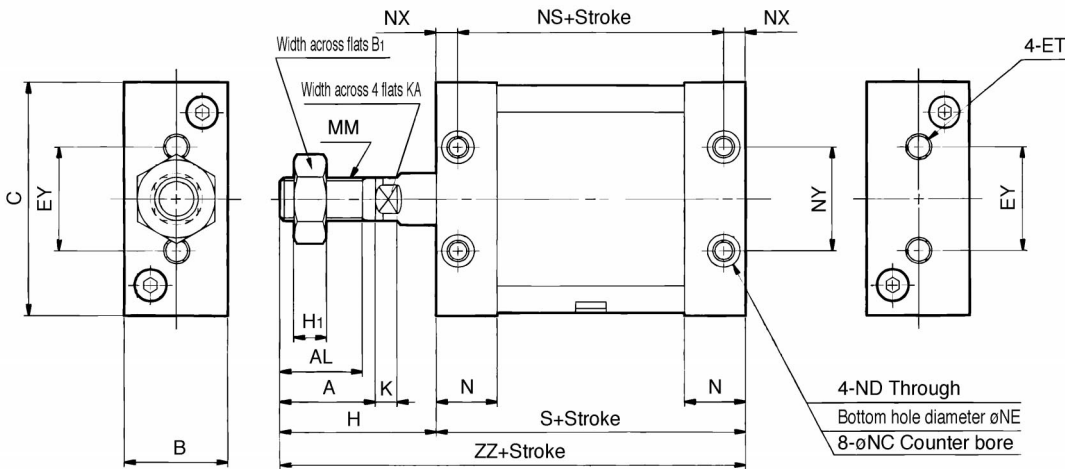
MUB25, 32



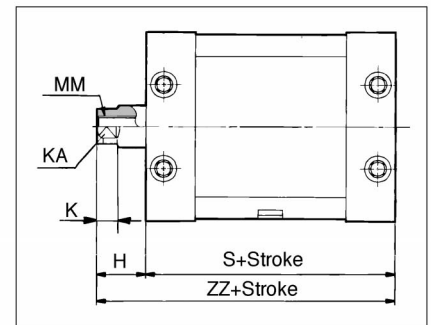
Spring extend



Note1) Plug with bleeding hole is used instead of element for MUB25.



Rod end female thread



* Dimensions except mentioned above are same as male thread style. However, K and KA dimensions are same as male thread style.



Spring return

- MUB25.....SMU25, #8
- MUB32.....SMU32, #8
- MUB40.....SMU40, #8
- MUB50.....SMU50, #8
- MUB63.....SMU63, #8

Spring extend

- MUB25.....SMU25, #9
- MUB32.....SMU32, #9
- MUB40.....SMU40, #9
- MUB50.....SMU50, #9
- MUB63.....SMU63, #9

| Model | Standard stroke(mm) | A | AL | B | B ₁ | BS | BT | BX | BY | C | D | ET | EY | GX | GY | H | H ₁ | K |
|-------|---------------------|----|------|----|----------------|----|----------------------|-----|----|-----|----|---------------------|----|------|-----|----|----------------|-----|
| MUB25 | 5, 10 | 22 | 19.5 | 24 | 17 | 42 | M5 X 0.8 Depth 7.5 | 9 | 7 | 54 | 12 | M5 X 0.8 Depth 11 | 26 | 10 | 5 | 36 | 6 | 5.5 |
| MUB32 | 5, 10 | 26 | 23.5 | 28 | 19 | 50 | M6 X 1 Depth 12 | 6.5 | 8 | 68 | 14 | M6 X 1 Depth 11 | 42 | 8.5 | 5.5 | 40 | 7 | 5.5 |
| MUB40 | 5, 10, 15, 20 | 30 | 27 | 32 | 22 | 54 | M8 X 1.25 Depth 13 | 8 | 9 | 86 | 16 | M8 X 1.25 Depth 11 | 54 | 9 | 7 | 45 | 8 | 6 |
| MUB50 | 5, 10, 15, 20 | 35 | 32 | 39 | 27 | 64 | M10 X 1.5 Depth 14.5 | 10 | 9 | 104 | 20 | M10 X 1.5 Depth 15 | 64 | 11.5 | 8 | 53 | 11 | 7 |
| MUB63 | 5, 10, 15, 20 | 35 | 32 | 50 | 27 | 63 | M12 X 1.75 Depth 18 | 11 | 12 | 124 | 20 | M12 X 1.75 Depth 15 | 72 | 11.5 | 10 | 56 | 11 | 7 |

| Model | KA | MM | N | NC | ND | NE | NS | NX | NY | P | S | ZZ |
|-------|----|------------|------|----------------|------------|------|----|-----|----|------------|----|-----|
| MUB25 | 10 | M10 X 1.25 | 14 | 7.5 Depth 4.5 | M5 X 0.8 | 4.3 | 48 | 6 | 26 | M5 X 0.8 | 60 | 96 |
| MUB32 | 12 | M12 X 1.25 | 15.5 | 9 Depth 5.5 | M6 X 1 | 5.1 | 50 | 6.5 | 28 | Rc(PT) 1/8 | 63 | 103 |
| MUB40 | 14 | M14 X 1.5 | 16 | 10.5 Depth 6.5 | M8 X 1.25 | 6.9 | 54 | 8 | 36 | Rc(PT) 1/8 | 70 | 115 |
| MUB50 | 18 | M18 X 1.5 | 21.5 | 13.5 Depth 8.5 | M10 X 1.5 | 8.7 | 64 | 10 | 42 | Rc(PT) 1/4 | 84 | 137 |
| MUB63 | 18 | M18 X 1.5 | 21.5 | 17 Depth 10.5 | M12 X 1.75 | 10.5 | 63 | 11 | 46 | Rc(PT) 1/4 | 85 | 141 |

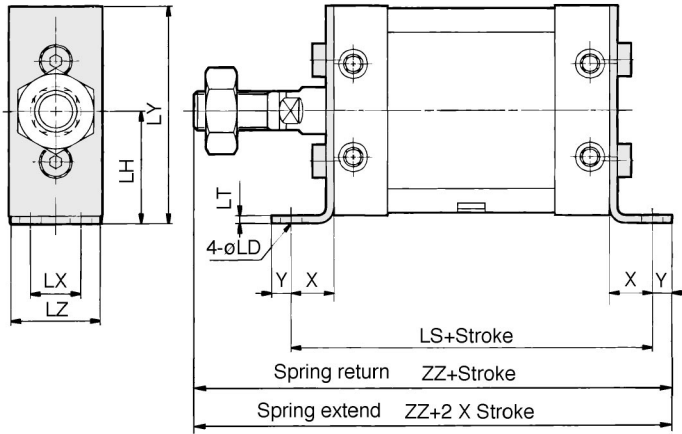
Rod end female thread (mm)

| Model | H | MM | ZZ |
|-------|----|--------------------|-----|
| MUB25 | 14 | M6 X 1 Depth 12 | 74 |
| MUB32 | 14 | M8 X 1.25 Depth 13 | 77 |
| MUB40 | 15 | M8 X 1.25 Depth 13 | 85 |
| MUB50 | 18 | M10 X 1.5 Depth 15 | 102 |
| MUB63 | 21 | M10 X 1.5 Depth 15 | 106 |

* The position of the four flats of the piston rod is ±3° in relation to the cylinder side surface.

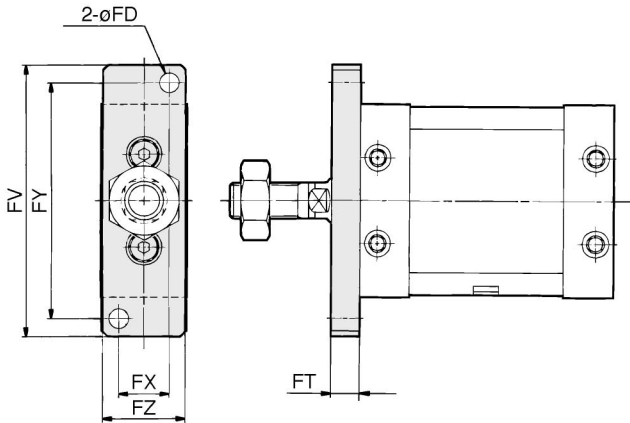
Dimensions

Axial foot

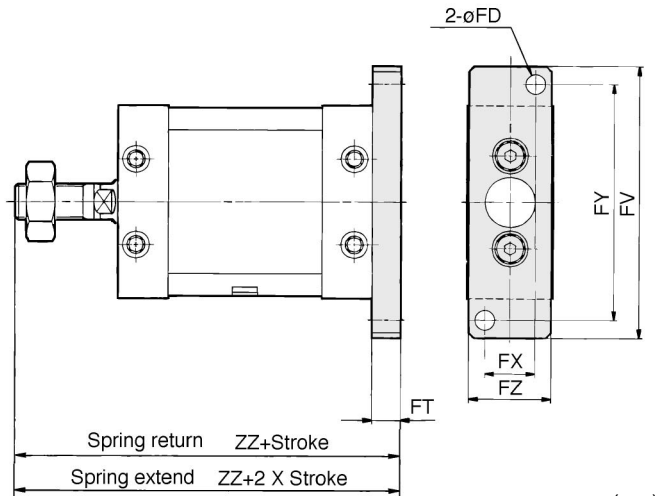


| Model | LD | LH | LS | LT | LX | LY | LZ | X | Y | ZZ |
|--------------|------|----|-----|-----|----|-----|----|----|----|-----|
| MUL25 | 5.5 | 29 | 84 | 3.2 | 11 | 56 | 23 | 12 | 6 | 114 |
| MUL32 | 6.6 | 37 | 95 | 4.5 | 12 | 71 | 27 | 16 | 8 | 127 |
| MUL40 | 9 | 46 | 106 | 4.5 | 15 | 89 | 31 | 18 | 10 | 143 |
| MUL50 | 11 | 57 | 126 | 5 | 18 | 109 | 37 | 21 | 11 | 169 |
| MUL63 | 13.5 | 67 | 133 | 6 | 22 | 129 | 48 | 24 | 14 | 179 |

Front flange



Rear flange



| Model | FD | FT | FV | FX | FY | FZ | ZZ |
|---------------------|-----|----|-----|----|-----|----|-----|
| MUF25, MUG25 | 5.5 | 8 | 76 | 14 | 66 | 24 | 104 |
| MUF32, MUG32 | 7 | 8 | 94 | 16 | 82 | 28 | 111 |
| MUF40, MUG40 | 9 | 9 | 118 | 18 | 102 | 32 | 124 |
| MUF50, MUG50 | 11 | 12 | 144 | 22 | 126 | 39 | 149 |
| MUF63, MUG63 | 13 | 14 | 168 | 30 | 148 | 50 | 155 |

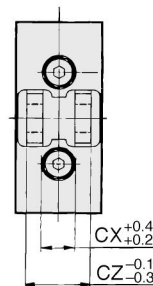
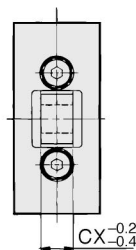
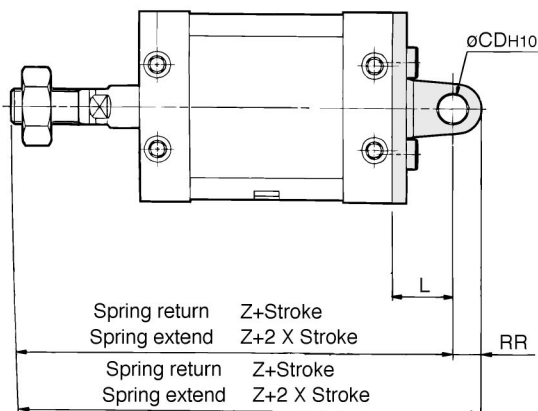
CU
CQS
CQ2
MU

Single clevis

Double clevis

Single clevis

Double clevis



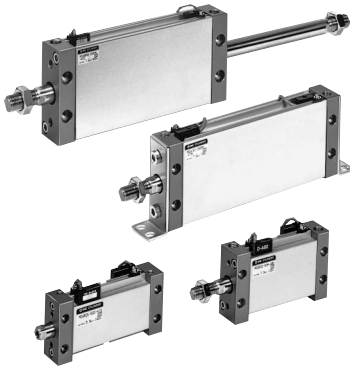
| Model | CDH10 | CX | CZ | L | RR | Z | ZZ |
|---------------------|-----------------------------------|----|----|----|----|-----|-----|
| MUC25, MUD25 | 8 ^{+0.058} ₀ | 9 | 18 | 17 | 8 | 113 | 121 |
| MUC32, MUD32 | 10 ^{+0.058} ₀ | 11 | 22 | 22 | 10 | 125 | 135 |
| MUC40, MUD40 | 10 ^{+0.058} ₀ | 13 | 26 | 27 | 10 | 142 | 152 |
| MUC50, MUD50 | 14 ^{+0.070} ₀ | 16 | 32 | 32 | 14 | 169 | 183 |
| MUC63, MUD63 | 14 ^{+0.070} ₀ | 16 | 32 | 38 | 16 | 179 | 185 |

A clevis pin and snap rings are packed with the double clevis style.

Series MDU

Auto Switch Specifications

Refer to p.5.3-2 for auto switch specifications.



Applicable Auto Switch

| Auto switch model | | Electrical entry | Page |
|--------------------|--------------------|--|--------|
| Reed switch | D-A7/A8 | Grommet (Perpendicular) | 5.3-14 |
| | D-A7□H/A80H | Grommet (In-line) | 5.3-15 |
| | D-A73C/A80C | Connector | 5.3-16 |
| | D-A79W | Grommet (2 color, Perpendicular) | 5.3-26 |
| Solid state switch | D-F7□V | Grommet (Perpendicular) | 5.3-35 |
| | D-F7/J7 | Grommet (In-line) | 5.3-34 |
| | D-J79C | Connector | 5.3-36 |
| | D-F7□WV | Grommet (2 color, Perpendicular) | 5.3-45 |
| | D-7□W/J79W | Grommet (2 color, In-line) | 5.3-44 |
| | D-F7BAL | Grommet (2 color, Water resistant, In-line) | 5.3-57 |
| | D-F79F | Grommet (2 color, With diagnostic output, In-line) | 5.3-53 |
| | D-F7LF | Grommet (2 color, Latch with diagnostic output, In-line) | 5.3-52 |
| | D-F7NTL | Grommet (With timer, In-line) | 5.3-60 |

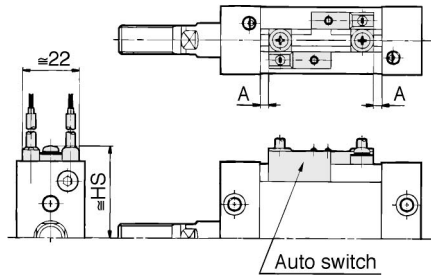
Precautions

Be sure to read before handling. Refer to p.0-44 to 0-46 for auto switch common precautions.

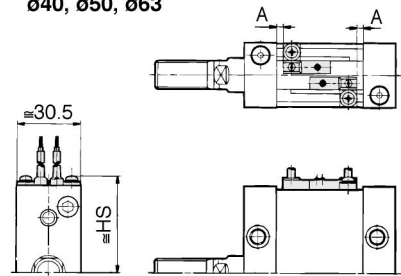
Auto Switch Mounting Position and Mounting Height

D-A7, D-A8

ø25, ø32

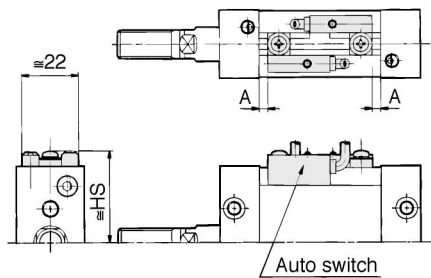


ø40, ø50, ø63

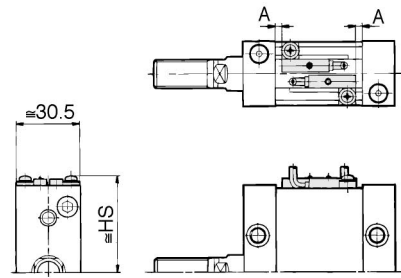


**D-A7□H, D-A80H
D-F7□, D-J79
D-F7□W, D-J79W
D-F7□F, D-FBAL
D-F7NTL**

ø25, ø32

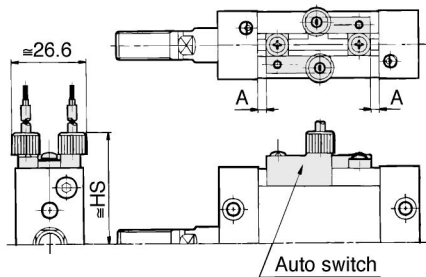


ø40, ø50, ø63

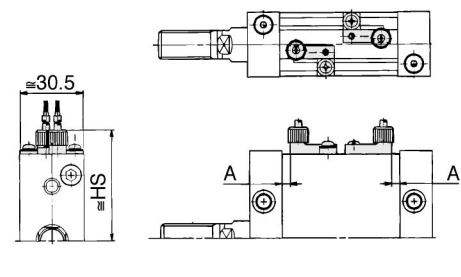


**Connector style
D-A73C, D-A80C, D-J79C**

ø25, ø32

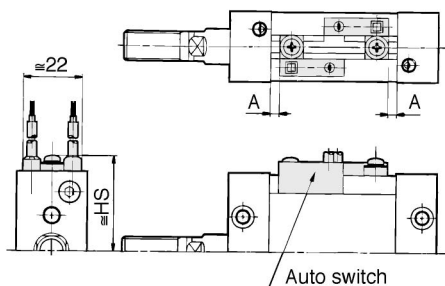


ø40, ø50, ø63

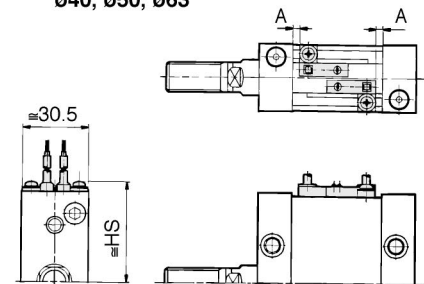


D-A79W, D-F7□WV, D-F7□V

ø25, ø32



ø40, ø50, ø63



Auto Switch Mounting Position

(mm)

| Auto switch model | Auto Switch Mounting Position (mm) | | | | | |
|-------------------|------------------------------------|--|----------------------------|--------------|---|----------------|
| | D-A7 D-A8 | D-A7□H D-A80H D-F7 D-J7 D-F7□V | D-A73C D-A80C D-J79C | D-A79W | D-F7BA D-F7□W D-F7□F D-J79W D-F7□WV | D-F7NTL |
| Equiv. bore size | A | A | A | A | A | A |
| 25 | 4.5 (7) | 5 (7.5) | 5 (7.5) | 2 (4.5) | 9 (11.5) | 10 (12.5) |
| 32 | 4.5 (7) | 5 (7.5) | 5 (7.5) | 2 (4.5) | 9 (11.5) | 10 (12.5) |
| 40 | 5 (10) | 5.5 (10.5) | 0 (4) | 2.5 (7.5) | 9.5 (14.5) | 10.5 (15.5) |
| 50 | 6.5 (11.5) | 7 (12) | 1 (6) | 4 (9) | 11 (16) | 12 (17) |
| 63 | 7 (12) | 7.5 (12.5) | 1.5 (6.5) | 4.5 (9.5) | 11.5 (16.5) | 12.5 (17.5) |

Auto Switch Mounting Height

(mm)

| Auto switch model | Auto Switch Mounting Height (mm) | | | | | |
|-------------------|----------------------------------|------------------|-------------------|--------|--------|--|
| | D-A7 D-A8 | D-A73C D-A80C | D-F7□V D-F7□WV | D-J79C | D-A79W | |
| Hs | Hs | Hs | Hs | Hs | Hs | |
| 32 | 33 | 39 | 35.5 | 37.5 | 34.5 | |
| 39 | 40 | 46 | 42.5 | 44.5 | 41.5 | |
| 47 | 48 | 54 | 50.5 | 52.5 | 49.5 | |
| 56 | 57 | 63 | 59.5 | 61.5 | 58.5 | |
| 66 | 67 | 73 | 69.5 | 71.5 | 68.5 | |

Note) (): Value of single acting (spring return, spring extend)

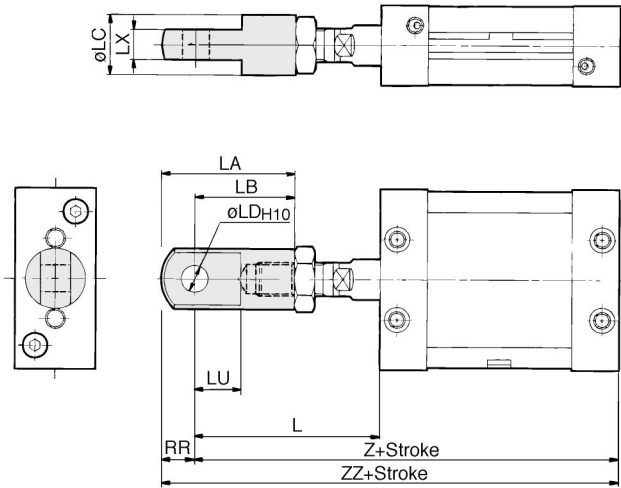
CU
CQS
CQ2
MU

Plate Cylinder

Series MU

Accessory Dimensions

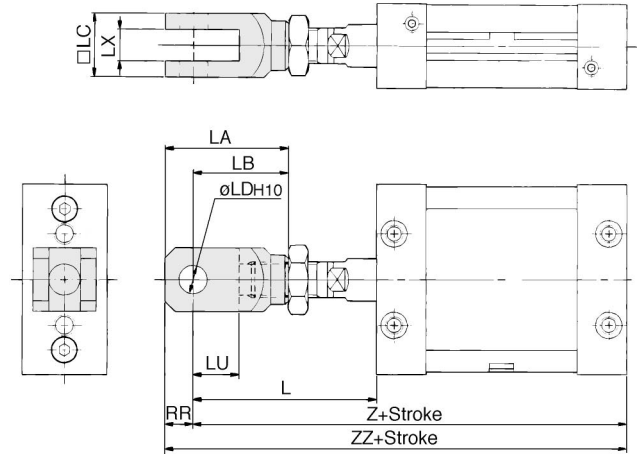
Single Knuckle Joint



| Model | L | LA | LB | LC | LD | LU | LX | RR | Z | ZZ | (mm) |
|-------|------|------|----|----|-----------------------------------|----|------------------------------------|-----|-------|-----|------|
| MU□25 | 52.5 | 35.5 | 27 | 16 | 8 ^{+0.058} ₀ | 11 | 9 ^{-0.2} _{-0.4} | 8.5 | 107.5 | 116 | |
| MU□32 | 59 | 41 | 31 | 18 | 10 ^{+0.058} ₀ | 14 | 11 ^{-0.2} _{-0.4} | 10 | 117 | 127 | |
| MU□40 | 67 | 47 | 36 | 20 | 10 ^{+0.058} ₀ | 15 | 13 ^{-0.2} _{-0.4} | 11 | 127 | 138 | |
| MU□50 | 81 | 62 | 46 | 28 | 14 ^{+0.070} ₀ | 20 | 16 ^{-0.2} _{-0.4} | 16 | 155 | 171 | |
| MU□63 | 84 | 62 | 46 | 28 | 14 ^{+0.070} ₀ | 20 | 16 ^{-0.2} _{-0.4} | 16 | 159 | 175 | |

* Dimensions L, Z, and ZZ are reference dimensions for installing a single knuckle joint, which may be used as a guide.

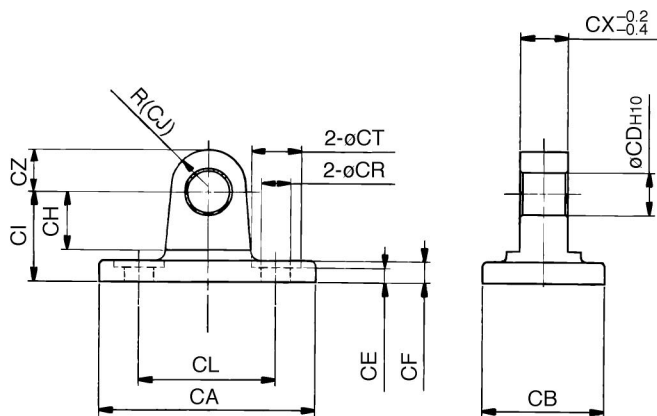
Double Knuckle Joint



| Model | L | LA | LB | LC | LD | LU | LX | RR | Z | ZZ | Applicable pin | (mm) |
|-------|------|----|----|----|-----------------------------------|----|------------------------------------|----|-------|-------|----------------|------|
| MU□25 | 52.5 | 35 | 27 | 18 | 8 ^{+0.058} ₀ | 13 | 9 ^{+0.2} _{+0.4} | 8 | 107.5 | 115.5 | CD-MU02 | |
| MU□32 | 59 | 41 | 31 | 22 | 10 ^{+0.058} ₀ | 14 | 11 ^{+0.2} _{+0.4} | 10 | 117 | 127 | CD-MU03 | |
| MU□40 | 67 | 46 | 36 | 26 | 10 ^{+0.058} ₀ | 17 | 13 ^{+0.2} _{+0.4} | 10 | 127 | 137 | CD-MU04 | |
| MU□50 | 81 | 62 | 46 | 32 | 14 ^{+0.070} ₀ | 23 | 16 ^{+0.2} _{+0.4} | 16 | 155 | 171 | CD-MU05 | |
| MU□63 | 84 | 62 | 46 | 32 | 14 ^{+0.070} ₀ | 23 | 16 ^{+0.2} _{+0.4} | 16 | 159 | 175 | CD-MU05 | |

* Dimensions L, Z, and ZZ are reference dimensions for installing a double knuckle joint, which may be used as a guide.

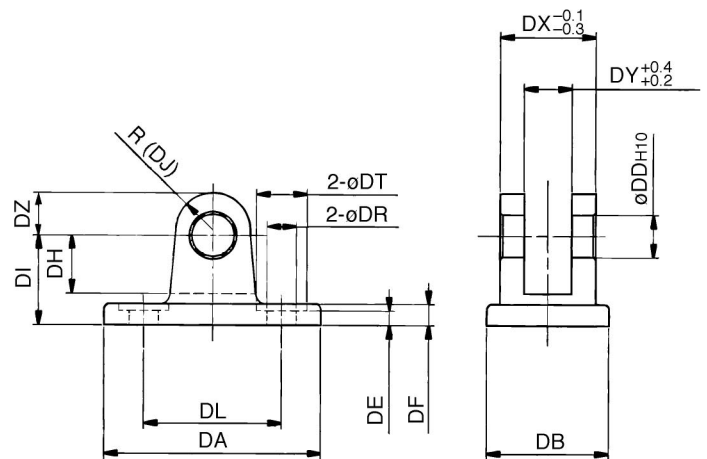
Single Clevis (Pivot Bracket for Double Clevis)



| Part No. | Size | CA | CB | CDH10 | CE | CF | CH | CI | CJ | (mm) |
|----------|------|-----|----|-----------------------------------|-----|----|----|----|----|------|
| MU-C02 | 25 | 53 | 23 | 8 ^{+0.058} ₀ | 3.5 | 4 | 11 | 17 | 7 | |
| MU-C03 | 32 | 67 | 27 | 10 ^{+0.058} ₀ | 3.5 | 7 | 13 | 22 | 10 | |
| MU-C04 | 40 | 85 | 31 | 10 ^{+0.058} ₀ | 3.5 | 10 | 13 | 27 | 10 | |
| MU-C05 | 50 | 103 | 37 | 14 ^{+0.070} ₀ | 5.5 | 12 | 17 | 32 | 14 | |
| MU-C06 | 63 | 122 | 48 | 14 ^{+0.070} ₀ | 6 | 14 | 19 | 38 | 16 | |

| Part No. | CL | CR | CT | CX | CZ |
|----------|----|------|-----|----|----|
| MU-C02 | 26 | 5.3 | 9.5 | 9 | 8 |
| MU-C03 | 42 | 6.4 | 11 | 11 | 10 |
| MU-C04 | 54 | 8.4 | 14 | 13 | 10 |
| MU-C05 | 64 | 10.5 | 17 | 16 | 14 |
| MU-C06 | 72 | 13 | 20 | 16 | 16 |

Double Clevis (Pivot Bracket for Single Clevis)

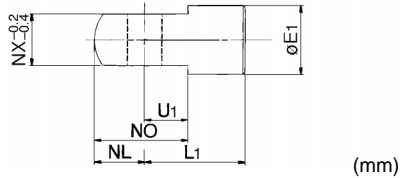
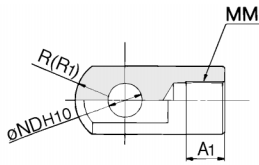


| Part No. | Size | DA | DB | DDH10 | DE | DF | DH | DI | DJ | (mm) |
|----------|------|-----|----|-----------------------------------|-----|----|----|----|----|------|
| MU-D02 | 25 | 53 | 23 | 8 ^{+0.058} ₀ | 3.5 | 4 | 11 | 17 | 7 | |
| MU-D03 | 32 | 67 | 27 | 10 ^{+0.058} ₀ | 3.5 | 7 | 13 | 22 | 10 | |
| MU-D04 | 40 | 85 | 31 | 10 ^{+0.058} ₀ | 3.5 | 10 | 13 | 27 | 10 | |
| MU-D05 | 50 | 103 | 37 | 14 ^{+0.070} ₀ | 5.5 | 12 | 17 | 32 | 14 | |
| MU-D06 | 63 | 122 | 48 | 14 ^{+0.070} ₀ | 6 | 14 | 19 | 38 | 16 | |

| Part No. | DL | DR | DT | DX | DY | DZ | Applicable pin |
|----------|----|------|-----|----|----|----|----------------|
| MU-D02 | 26 | 5.3 | 9.5 | 18 | 9 | 8 | CD-MU02 |
| MU-D03 | 42 | 6.4 | 11 | 22 | 11 | 10 | CD-MU03 |
| MU-D04 | 54 | 8.4 | 14 | 26 | 13 | 10 | CD-MU04 |
| MU-D05 | 64 | 10.5 | 17 | 32 | 16 | 14 | CD-MU05 |
| MU-D06 | 72 | 13 | 20 | 32 | 16 | 16 | CD-MU05 |

Clevis pin and snap ring are packed with the double clevis style.

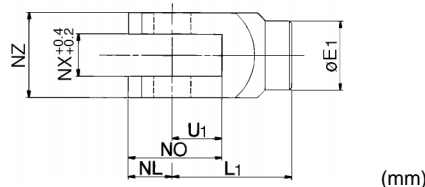
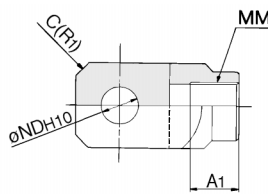
Single Knuckle Joint



| Part No. | Size | A1 | E1 | L1 | MM |
|----------|--------|------|----|----|------------|
| I-MU02 | 25 | 10.5 | 16 | 27 | M10 X 1.25 |
| I-MU03 | 32 | 12 | 18 | 31 | M12 X 1.25 |
| I-MU04 | 40 | 14 | 20 | 36 | M14 X 1.5 |
| I-MU05 | 50, 63 | 18 | 28 | 46 | M18 X 1.5 |

| Part No. | NDH10 | NL | NO | NX | R1 | U1 |
|----------|-----------------------------------|-----|------|----|-----|----|
| I-MU02 | 8 ^{+0.058} ₀ | 8.5 | 19.5 | 9 | 8.5 | 11 |
| I-MU03 | 10 ^{+0.058} ₀ | 10 | 24 | 11 | 10 | 14 |
| I-MU04 | 10 ^{+0.058} ₀ | 11 | 26 | 13 | 11 | 15 |
| I-MU05 | 14 ^{+0.070} ₀ | 16 | 36 | 16 | 16 | 20 |

Double Knuckle Joint

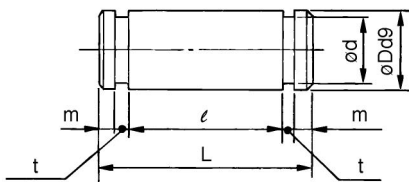


| Part No. | Size | A1 | E1 | L1 | MM | NDH10 |
|----------|--------|------|----|----|------------|-----------------------------------|
| Y-MU02 | 25 | 10.5 | 14 | 27 | M10 X 1.25 | 8 ^{+0.058} ₀ |
| Y-MU03 | 32 | 12 | 18 | 31 | M12 X 1.25 | 10 ^{+0.058} ₀ |
| Y-MU04 | 40 | 14 | 20 | 36 | M14 X 1.5 | 10 ^{+0.058} ₀ |
| Y-MU05 | 50, 63 | 18 | 28 | 46 | M18 X 1.5 | 14 ^{+0.070} ₀ |

| Part No. | NL | NO | NX | NZ | R1 | U1 | Applicable pin |
|----------|----|----|----|----|----|----|----------------|
| Y-MU02 | 8 | 21 | 9 | 18 | 3 | 13 | CD-MU02 |
| Y-MU03 | 10 | 24 | 11 | 22 | 4 | 14 | CD-MU03 |
| Y-MU04 | 10 | 27 | 13 | 26 | 5 | 17 | CD-MU04 |
| Y-MU05 | 16 | 39 | 16 | 32 | 6 | 23 | CD-MU05 |

* Knuckle pin and snap ring are packed with the double clevis style.

Clevis Pin, Knuckle Pin

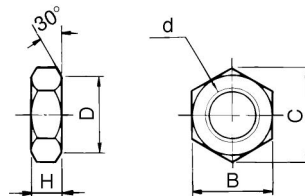


| Part No. | Size | Dd9 | L | d | ℓ |
|----------|--------|--|----|------|------|
| CD-MU02 | 25 | 8 ^{-0.040} _{-0.076} | 23 | 7.6 | 18.2 |
| CD-MU03 | 32 | 10 ^{-0.040} _{-0.076} | 27 | 9.6 | 22.2 |
| CD-MU04 | 40 | 10 ^{-0.040} _{-0.076} | 31 | 9.6 | 26.2 |
| CD-MU05 | 50, 63 | 14 ^{-0.050} _{-0.093} | 38 | 13.4 | 32.2 |

| Part No. | m | t | Snap ring |
|----------|------|------|--------------------|
| CD-MU02 | 1.5 | 0.9 | C shape for axis8 |
| CD-MU03 | 1.25 | 1.15 | C shape for axis10 |
| CD-MU04 | 1.25 | 1.15 | C shape for axis10 |
| CD-MU05 | 1.75 | 1.15 | C shape for axis14 |

* These are installed with double clevis style and double knuckle joint style as standard.

Rod End Nut



| Part No. | Size | d | H | B | C | D |
|----------|--------|------------|----|----|------|------|
| NT-03 | 25 | M10 X 1.25 | 6 | 17 | 19.6 | 16.5 |
| NT-MU03 | 32 | M12 X 1.25 | 7 | 19 | 21.9 | 18 |
| NT-04 | 40 | M14 X 1.5 | 8 | 22 | 25.4 | 21 |
| NT-05 | 50, 63 | M18 X 1.5 | 11 | 27 | 31.2 | 26 |

* A nut is attached with rod end male thread as standard. (Double rod style: 2 pcs.)

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-43 for Safety Instructions and common precautions.

Mounting

⚠ Caution

- To secure a workpiece to the end of the piston rod, make sure to retract the piston rod entirely. Place a wrench on the wrench flats at the end of the rod, and tighten it without applying torque to the piston rod in excess of the allowable installation torque.
- Operate in such a way that the load to the piston rod is always applied in the axial direction. Furthermore, avoid operations that could apply rotational torque to the piston rod. If rotational torque must be applied due to unavoidable circumstances, use the table below as a guide to make sure the allowable rotational torque is not exceeded.

Allowable Rotating Torque (Nm)

| Size | 25 | 32 | 40 | 50 | 63 |
|--------------------------------|------|------|------|------|-----|
| Allowable rotating torque | 0.25 | 0.25 | 0.55 | 1.25 | 2.0 |
| Work mounting allowable torque | 1.7 | 1.9 | 2.0 | 4.9 | 7.3 |

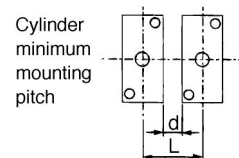
- Operating the cylinder by connecting the piping directly to the cylinder can cause the piston speed to exceed the maximum operating speed of 500mm/s. Therefore, to operate the cylinder, make sure to use an SMC speed controller and adjust the piston speed to 500mm/s or less.

Auto Switch Precaution

Be sure to read before handling. Refer to p.0-44 to 0-46 for auto switch common precautions.

⚠ Warning

- If multiple cylinders are operated adjacent to each other, the magnets that are enclosed in the adjacent cylinders could affect the operation of the auto switches, causing the switches to malfunction. Therefore, make sure that the mounting pitch of the cylinders is at least that indicated in the table below.



| Size | ø25 | ø32 | ø40 | ø50 | ø63 |
|------|--------|-------|-------|-------|-------|
| L(d) | 33(10) | 32(5) | 36(5) | 38(0) | 49(0) |

If the cylinders must be operated with the mounting pitch less than indicated above, they must be shielded with steel plates or magnetic shield plates (Part No.: MU-S025). Contact SMC for details.

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