

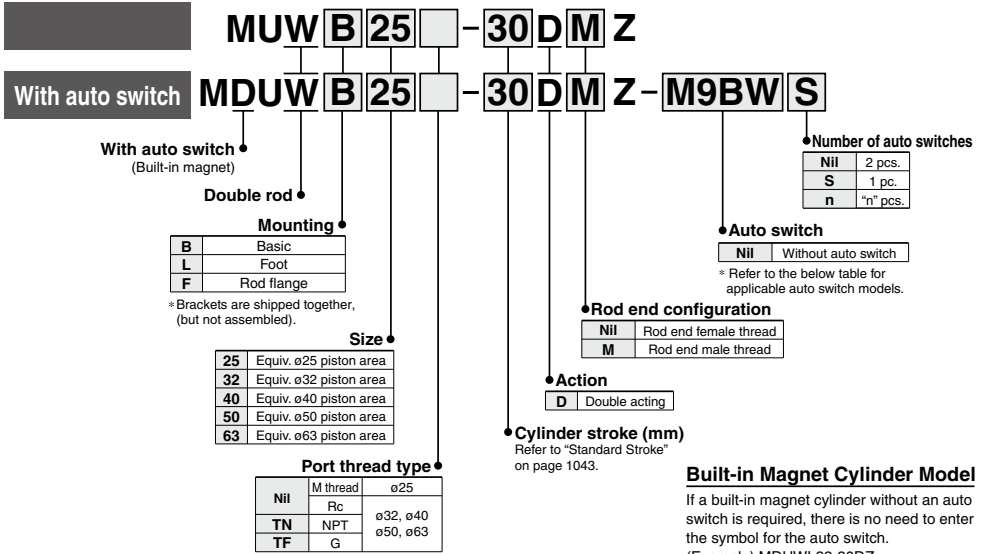
Plate Cylinder: Double Acting, Double Rod

MUW Series

ø25, ø32, ø40, ø50, ø63



How to Order



Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) MDUWL32-30DZ

Applicable Auto Switches

Refer to pages 1575 to 1701 for further information on auto switches.

| Type | Special function | Electrical entry | Indicator light | Wiring (Output) | Load voltage | | Auto switch model | | Lead wire length (m) | | | Pre-wired connector | Applicable load | | |
|-------------------------|--|------------------|-----------------|-------------------------|--------------|----------------|-------------------|---------------|----------------------|-------|-------|---------------------|-----------------|------------|------------|
| | | | | | DC | AC | Perpendicular | In-line | 0.5 (Nil) | 1 (M) | 3 (L) | | | 5 (Z) | |
| Solid state auto switch | Diagnostic indication (2-color indicator) | Grommet | Yes | 3-wire (NPN) | 5 V, 12 V | — | M9NV | M9N | ● | ● | ○ | ○ | IC circuit | Relay, PLC | |
| | | | | | | | M9PV | M9P | ● | ● | ○ | ○ | | | |
| | | | | 2-wire | 12 V | M9BV | M9B | ● | ● | ○ | ○ | — | | | |
| | | | | | | M9NWV | M9NW | ● | ● | ○ | ○ | | | | |
| | 3-wire (PNP) | | | 5 V, 12 V | 24 V | — | M9PWV | M9PW | ● | ● | ○ | ○ | IC circuit | | |
| | | | | | | | M9BWV | M9BW | ● | ● | ○ | ○ | | | |
| | Water resistant (2-color indicator) | | | 3-wire (NPN) | 5 V, 12 V | — | M9NAV*1 | M9NA*1 | ○ | ○ | ● | ○ | IC circuit | | |
| | | | | | | | M9PAV*1 | M9PA*1 | ○ | ○ | ● | ○ | | | |
| | Magnetic field resistant (2-color indicator) | 2-wire | 12 V | — | M9BAV*1 | M9BA*1 | ○ | ○ | ● | ○ | — | | | | |
| | | | | | — | P3DWA (Note 2) | ● | — | ● | ○ | | | | | |
| Reed auto switch | — | Grommet | Yes | 3-wire (NPN equivalent) | — | 5 V | — | A96V | A96 | ● | — | — | IC circuit | — | |
| | | | | 2-wire | 24 V | 12 V | — | 100 V | A93V*2 | A93 | ● | ● | ● | — | Relay, PLC |
| | | | | | | | | 100 V or less | A90V | A90 | ● | — | — | — | |

*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.

*2 1 m type lead wire is only applicable to D-A93.

* Lead wire length symbols: 0.5 m Nil (Example) M9NW
1 m M (Example) M9NWM
3 m L (Example) M9NWL
5 m Z (Example) M9NWW

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

* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

* Auto switches are shipped together, (but not assembled).

Note 1) The D-M9□V/M9□WV/M9□AV/A9□V auto switches cannot be mounted on the ported surface with some cylinder strokes and sizes of fittings. This should be checked beforehand.

Note 2) The magnetic field resistant auto switch (D-P3DWA□) is available the current MU series. Refer to page 1058 for the how-to-order.



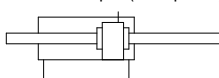
Specifications



| Bore size (mm) | 25 | 32 | 40 | 50 | 63 |
|--------------------------------------|---------------------------|-------|----------|----------|---------|
| Action | Double acting, Double rod | | | | |
| Fluid | Air | | | | |
| Proof pressure | 1.05 MPa | | | | |
| Maximum operating pressure | 0.7 MPa | | | | |
| Minimum operating pressure | 0.05 MPa | | | | |
| Ambient and fluid temperature | -10 to 60°C | | | | |
| Lubrication | Not required (Non-lube) | | | | |
| Piston speed | 50 to 500 mm/s | | | | |
| Stroke length tolerance | +1.4 0 | | | | |
| Cushion | Rubber bumper | | | | |
| Mounting | Foot, Rod flange | | | | |
| Allowable rotational torque | 0.25 N-m | | 0.55 N-m | 1.25 N-m | 2.0 N-m |
| Rod non-rotating accuracy | ±1° | ±0.8° | ±0.5° | | |

Symbol

Rubber bumper (Oval piston)



Standard Stroke

| Size | Standard stroke (mm) | Maximum manufacturable 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 | |

* Other intermediate strokes can be manufactured upon receipt of order. Please contact SMC.

** Strokes longer than 300 mm are not available.

Mounting Bracket/Part No.

| Mounting bracket | Size | 25 | 32 | 40 | 50 | 63 |
|------------------|-------------------------|--------|--------|--------|--------|--------|
| | Foot ^{Note 1)} | | MU-L02 | MU-L03 | MU-L04 | MU-L05 |
| Rod flange | | MU-F02 | MU-F03 | MU-F04 | MU-F05 | MU-F06 |

Note 1) When ordering foot bracket, order 2 pieces per cylinder.

Note 2) Body mounting bolts are attached to the foot and rod flange.

Note 3) The tightening torque for body mounting bolts is shown in the below table.

Note 4) The application of a locking agent (Example: Loctite 242) to body mounting bolts is recommended.

Recommended Tightening Torque for Mounting Bracket on Body

| Bore size | Thread size | Tightening torque (N-m) |
|-------------|-------------|-------------------------|
| MU25 | M5 x 0.8 | 4.9 to 5.9 |
| MU32 | M6 x 1 | 8.28 to 10.12 |
| MU40 | M8 x 1.25 | 19.8 to 24.2 |
| MU50 | M10 x 1.5 | 39.6 to 48.4 |
| MU63 | M12 x 1.75 | 68.4 to 83.6 |

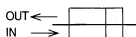
Accessory (Option)

For details about the single knuckle joint, double knuckle joint, clevis pin, and knuckle pin, refer to pages 1054 and 1055.

⚠ Warning

When removing or installing a workpiece using rod end threads, do so while securing the width across flats on the removing or installing side. If applying a torque on the piston rod without securing the width across flats, connection threads inside are loosened, which may cause accidents or malfunctions.

Theoretical Output



(N)

| Size | Rod size (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 output (N) = Pressure (MPa) x Piston area (mm²)

Weight

(kg)

| Size | | 25 | 32 | 40 | 50 | 63 |
|--|---------------------------------|-----------|-----------|-----------|-----------|-----------|
| Basic weight | Basic | 0.18 | 0.31 | 0.46 | 0.87 | 1.34 |
| | Foot | 0.25 | 0.45 | 0.67 | 1.21 | 1.97 |
| | Rod flange | 0.28 | 0.45 | 0.69 | 1.33 | 2.17 |
| Additional weight per each 50 mm of stroke | | 0.15 | 0.22 | 0.29 | 0.44 | 0.55 |
| Mounting bracket weight | 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 |

Additional Weight

(g)

| Bore size (mm) | | 25 | 32 | 40 | 50 | 63 |
|---------------------|-------------|-----------|-----------|-----------|-----------|-----------|
| Rod end male thread | Male thread | 24 | 46 | 54 | 106 | 106 |
| | Nut | 16 | 20 | 34 | 64 | 64 |

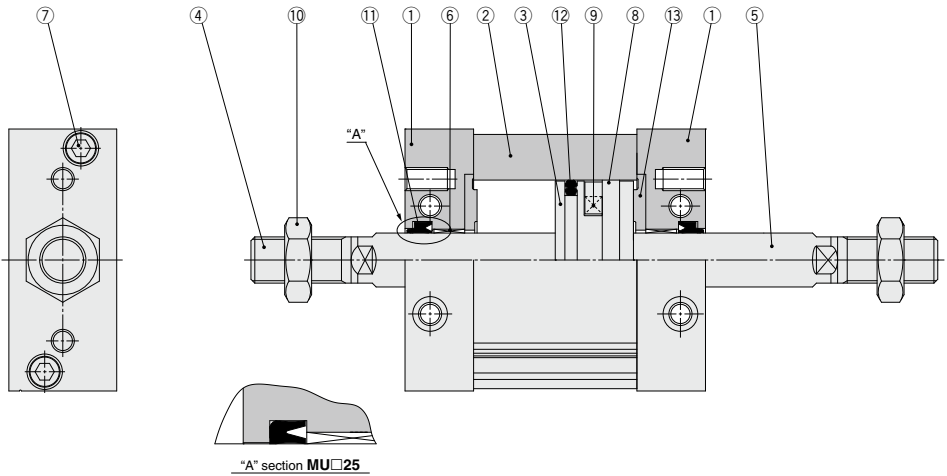
Calculation:

(Example) **MUWL32-100DZ**

- Basic weight 0.45 (Foot, Equivalent to ø32)
- Additional weight 0.22/50 stroke
- Stroke 100 stroke

$$0.45 + 100/50 \times 0.22 = 0.89 \text{ kg}$$

Construction



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 | Bearing alloy | |
| 7 | Hexagon socket head cap screw | Stainless steel | |
| 8 | Wear ring | Resin | |
| 9 | Magnet | — | Only built-in magnet type |
| 10 | Rod end nut | Rolled steel | Only attached to rod end male thread |
| 11 | Rod seal | NBR | |
| 12 | Piston seal | NBR | |
| 13 | Bumper | NBR | |

Replacement Parts/Seal Kit

| Bore size (mm) | Kit no. | Contents |
|----------------|----------|------------------------------|
| 25 | MUW25-PS | Set of nos. above ①, ②, ⑬ |
| 32 | MUW32-PS | |
| 40 | MUW40-PS | |
| 50 | MUW50-PS | |
| 63 | MUW63-PS | |

- * Seal kit includes ① to ⑬. Order the seal kit, based on each bore size.
- * Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

CUJ

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CQS

JCQ

CQ2

RQ

CQM

CQU

MU

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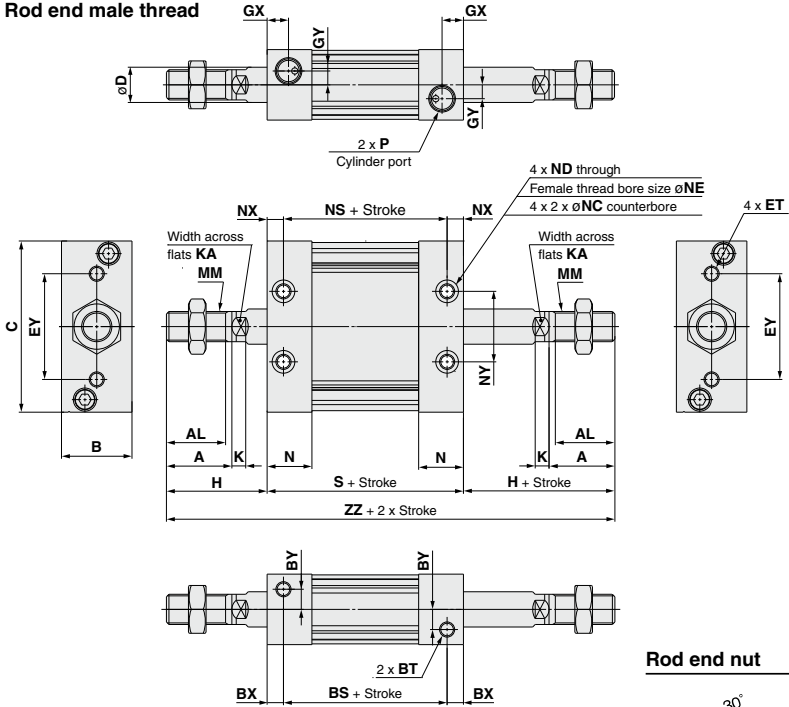
-X□

Technical
Data

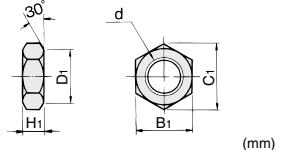
MUW Series

Basic: MUWB

Rod end male thread



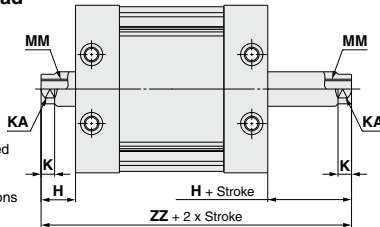
Rod end nut



| Part no. | Size | d | H ₁ | B ₁ | C ₁ | D ₁ |
|----------|--------|------------|----------------|----------------|----------------|----------------|
| 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 to the rod end male thread as standard.
Rod end nut material: Carbon steel
Surface treatment: Chromated
(2 pieces for double rod type)

Rod end female thread



* Dimensions except mentioned on the right are the same as male thread type.
However, K and KA dimensions are the same as male thread type.

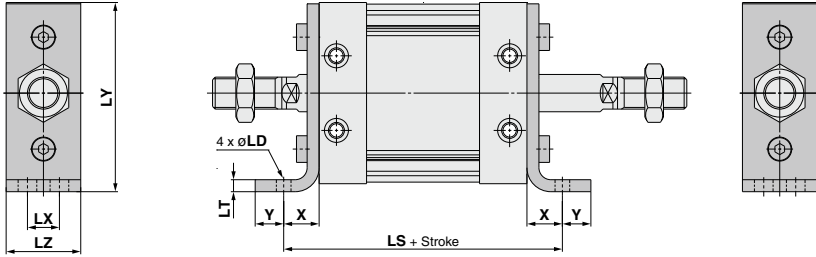
| Model | Stroke range (mm) | A | AL | B | BS | BT | BX | BY | C | D | ET | EY | GX | GY | H | K | KA |
|--------|-------------------|----|------|----|----|----------------------|-----|----|-----|----|---------------------|----|------|-----|----|-----|----|
| MUWB25 | 5 to 300 | 22 | 19.5 | 24 | 37 |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

| Model | MM | N | NC | ND | NE | NS | NX | NY | P | | | S | ZZ | Rod End Female Thread (mm) | | | |
|--------|------------|------|----------------|------------|------|----|-----|----|----------|--------|------|----|-----|----------------------------|----|--------------------|-----|
| | | | | | | | | | TN | TF | — | | | Model | H | MM | ZZ |
| MUWB25 | M10 x 1.25 | 16.5 | 7.5 depth 4.5 | M5 x 0.8 | 4.3 | 43 | 6 | 26 | M5 x 0.8 | — | — | 55 | 127 | MUWB25 | 14 | M6 x 1 depth 12 | 83 |
| MUWB32 | M12 x 1.25 | 18 | 9 depth 5.5 | M6 x 1 | 5.1 | 45 | 6.5 | 28 | Rc1/8 | NPT1/8 | G1/8 | 58 | 138 | MUWB32 | 14 | M8 x 1.25 depth 13 | 86 |
| MUWB40 | M14 x 1.5 | 18.5 | 10.5 depth 6.5 | M8 x 1.25 | 6.9 | 44 | 8 | 36 | Rc1/8 | NPT1/8 | G1/8 | 60 | 150 | MUWB40 | 15 | M8 x 1.25 depth 13 | 90 |
| MUWB50 | M18 x 1.5 | 24 | 13.5 depth 8.5 | M10 x 1.5 | 8.7 | 54 | 10 | 42 | Rc1/4 | NPT1/4 | G1/4 | 74 | 180 | MUWB50 | 18 | M10 x 1.5 depth 15 | 110 |
| MUWB63 | M18 x 1.5 | 24 | 17 depth 10.5 | M12 x 1.75 | 10.5 | 53 | 11 | 46 | Rc1/4 | NPT1/4 | G1/4 | 75 | 187 | MUWB63 | 21 | M10 x 1.5 depth 15 | 117 |

* The position of the 4 flats of the piston rod is different from the above drawing. Position of the 4 flats of the piston rod for double rod type is not the same.

Dimensions with Mounting Bracket

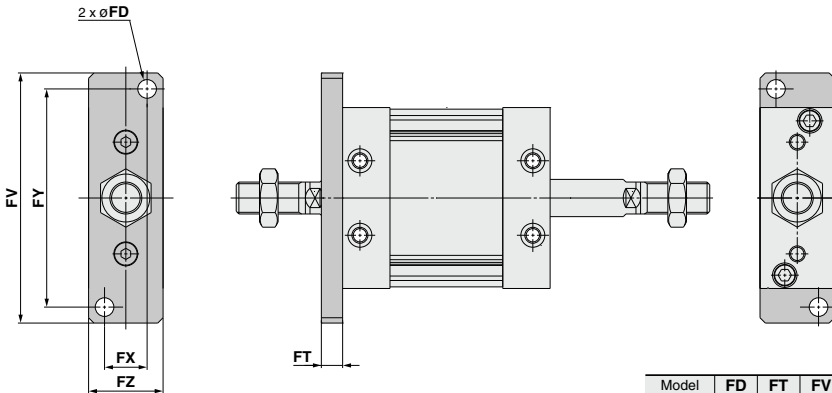
Foot



| 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 |

Foot bracket material: Rolled steel
Surface treatment: Nickel plated

Rod 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 |

Rod flange bracket material: Carbon steel
Surface treatment: Nickel plated

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

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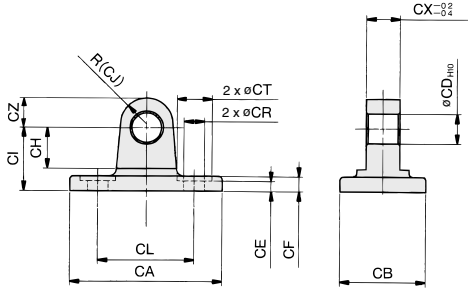
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Technical
Data

MU Series

Accessory Bracket Dimensions

Single Clevis (Double clevis pivot bracket)



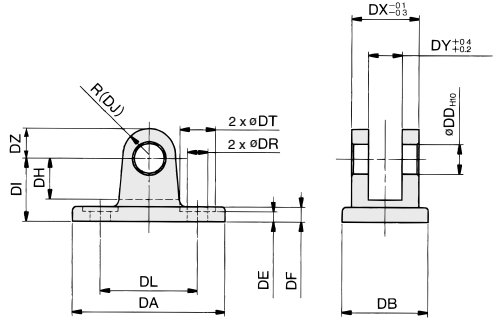
(mm)

| Part no. | Size | CA | CB | CDH10 | CE | CF | CH | CI | CJ |
|----------|------|-----|----|-----------------------------------|-----|----|----|----|----|
| 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 |

Material: Cast iron
Surface treatment: Painted

Double Clevis (Single clevis pivot bracket)



(mm)

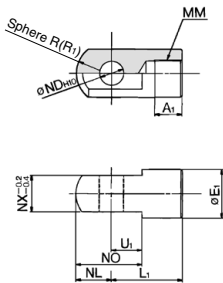
| Part no. | Size | DA | DB | DDH10 | DE | DF | DH | DI | DJ |
|----------|------|-----|----|-----------------------------------|-----|----|----|----|----|
| MU-D02 | 25 | 53 | 23 | 8 ^{+0.058} ₀ | 3.5 | 4 | 11 | 17 | 7 |
| MU-D03 | 32 | 67 | 27 | 10 ^{+0.058} ₀ | 3.5 | 7 | 13 | 22 | 10 |
| MU-D04 | 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 |

Material: Cast iron
Surface treatment: Painted

Clevis pin and retaining ring are attached to double clevis.

Single Knuckle Joint



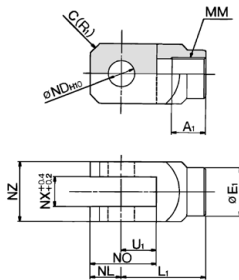
(mm)

| 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 |

Material: Rolled steel
Surface treatment: Nickel plated

Double Knuckle Joint



(mm)

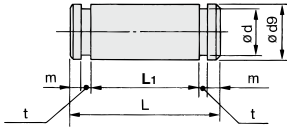
| Part no. | Size | A1 | E1 | L1 | MM | NDH10 |
|----------|--------|------|----|----|------------|-----------------------------------|
| Y-MU02 | 25 | 10.5 | 14 | 27 | M10 x 1.25 | 8 ^{+0.058} ₀ |
| Y-MU03 | 32 | 12 | 18 | 31 | M12 x 1.25 | 10 ^{+0.058} ₀ |
| Y-MU04 | 40 | 14 | 20 | 36 | M14 x 1.5 | 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 retaining ring are included.

Material: Rolled steel
Surface treatment: Chromated

Clevis Pin/Knuckle Pin



(mm)

| Part no. | Size | Dd9 | L | d | L1 | m | t | Retaining ring |
|----------------|--------|--|----|------|------|------|------|-------------------|
| CD-MU02 | 25 | 8 ^{-0.040} _{-0.078} | 23 | 7.6 | 18.2 | 1.5 | 0.9 | Type C8 for axis |
| CD-MU03 | 32 | 10 ^{-0.040} _{-0.078} | 27 | 9.6 | 22.2 | 1.25 | 1.15 | Type C10 for axis |
| CD-MU04 | 40 | 10 ^{-0.040} _{-0.078} | 31 | 9.6 | 26.2 | 1.25 | 1.15 | Type C10 for axis |
| CD-MU05 | 50, 63 | 14 ^{-0.060} _{-0.090} | 38 | 13.4 | 32.2 | 1.75 | 1.15 | Type C14 for axis |

* These are provided as standard for double clevis and double knuckle joint.

Material: Carbon steel

** Type C retaining rings for axis are attached.

CUJ

CU

CQS

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CQ2

RQ

CQM

CQU

MU

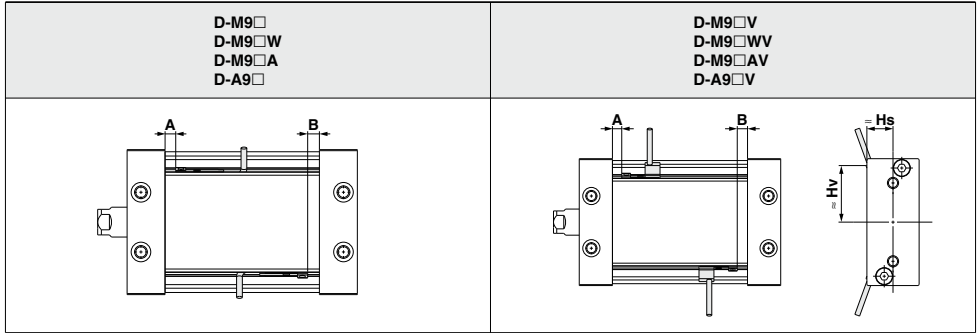
D-□

-X□

Technical
Data

Auto Switch Mounting 1

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



| Size | D-M9□ D-M9□W D-M9□A | | D-M9□V D-M9□WV D-M9□AV | | | | D-A9□ | | D-A9□V | | | |
|------|---------------------------|-----|------------------------------|-----|------|------|-------|-----|--------|-----|----|----|
| | A | B | A | B | Hs | Hv | A | B | A | B | Hs | Hv |
| 25 | 5 | 5 | 5 | 5 | 7.5 | 27.5 | 1 | 1 | 1 | 1 | — | — |
| 32 | 5 | 5 | 5 | 5 | 14.5 | 30 | 1 | 1 | 1 | 1 | — | — |
| 40 | 5.5 | 5.5 | 5.5 | 5.5 | 16.5 | 37 | 1.5 | 1.5 | 1.5 | 1.5 | — | — |
| 50 | 7 | 7 | 7 | 7 | — | — | 3 | 3 | 3 | 3 | — | — |
| 63 | 7.5 | 7.5 | 7.5 | 7.5 | — | — | 3.5 | 3.5 | 3.5 | 3.5 | — | — |

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

Minimum Stroke for Auto Switch Mounting

| Number of auto switches mounted | D-M9□ D-M9□W D-M9□A D-A9□ | D-M9□V | D-M9□WV D-M9□AV | D-A9□V |
|---------------------------------|------------------------------------|--------|--------------------|--------|
| 1 | 10 | 5 | 10 | 5 |
| 2 | 10 | 5 | 10 | 10 |

Note) Consult SMC for shorter stroke length than indicated in the table.

Operating Range

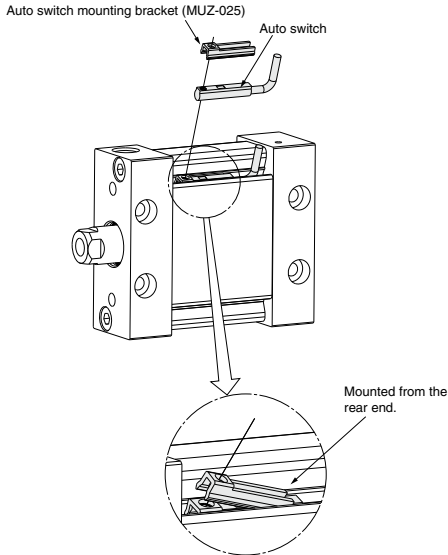
| Auto switch model | Size | | | | |
|--|------|-----|-----|----|-----|
| | 25 | 32 | 40 | 50 | 63 |
| D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV | 5.5 | 5.5 | 5.5 | 5 | 5 |
| D-A9□/A9□V | 7.5 | 8 | 8 | 7 | 6.5 |

* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed. (assuming approx. ±30% dispersion)
It may vary substantially depending on the ambient environment.

Mounting and Moving Method of Auto Switch

A Stroke of 20 or less

1. First insert the auto switch into the switch groove.
2. Then, press the auto switch mounting bracket into the switch groove.



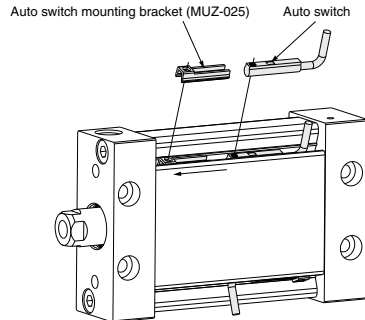
* The auto switch mounting bracket should be mounted from the rear end.

3. Confirm where the mounting position is, and tighten the auto switch mounting screw using a flat head screwdriver to fix the auto switch.

B Stroke of 25 or more

1. First press the auto switch mounting bracket into the switch groove.
2. Then, insert the auto switch into the switch groove, and slide it onto the auto switch mounting bracket.

* Slide the end of the auto switch under the auto switch mounting bracket.



3. Confirm where the mounting position is, and tighten the auto switch mounting screw using a flat head screwdriver to fix the auto switch.

Auto Switch Mounting Bracket Part No.

| Cylinder series | Applicable bore size (mm) | | | | |
|-----------------|---------------------------|----|----|----|----|
| | 25 | 32 | 40 | 50 | 63 |
| MU□-□□Z | MUZ-025 | | | | |

Note 1) For strokes of 25 or more, mounting method A is also possible.

Note 2) When tightening the auto switch mounting screw, use a watchmaker's screwdriver with the handle diameter of about 5 to 6 mm.

The tightening torque of the mounting screw should be approx. 0.05 to 0.1 N·m.
As a guide, turn an additional 90 degree from the position where it feels tight.

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

-X□

Technical
Data

Auto Switch Mounting 2

Mounting of Magnetic Field Resistant Auto Switch (D-P3DWA, D-P4DW□ series)

When the magnetic field resistant auto switch (D-P3DWA, D-P4DW□ series) is mounted, the current MU series are available. Please pay attention to part no.

How to Order

MDU B 40 - 30 D M - P3DWASC

With auto switch
(Built-in magnet)

Mounting

| | |
|---|---------------|
| B | Basic |
| L | Axial foot |
| F | Rod flange |
| G | Head flange |
| C | Single clevis |
| D | Double clevis |

* Brackets are shipped together, (but not assembled).

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 |

Port thread type

| | | |
|-----|----------|----------|
| Nil | M thread | ø25 |
| | Rc | |
| TN | NPT | ø32, ø40 |
| TF | G | ø50, ø63 |

Auto switch

| | |
|-----|------|
| Nil | None |
|-----|------|

* For auto switch model, refer to "How to order the auto switch independently."

Number of auto switches

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

* When cylinders/actuators are ordered with an auto switch, the cylinder/actuator, auto switch and auto switch mounting bracket (including screws) are enclosed.
* When the auto switch is ordered on its own, the auto switch mounting bracket is not included. In that case, please order it separately.

Rod end configuration

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

Action

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

Cylinder stroke (mm)
Refer to "Standard Stroke" on page 1037.

How to order the auto switch independently

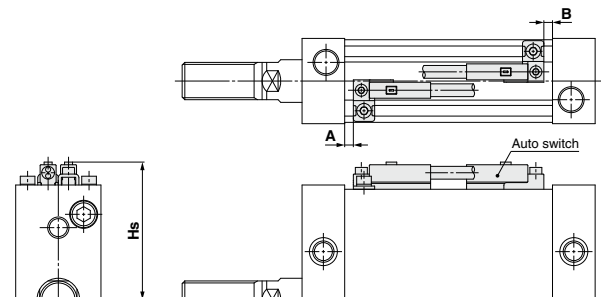
D-P3DWA SC

Lead wire length

| | |
|------|---|
| SC | 0.3 m (M12 connector type: 3 to 4 pins) |
| SE | 0.3 m (M12 connector type: 1 to 4 pins) |
| Nil* | 0.5 m |
| L | 3 m |
| Z | 5 m |

* 0.5 m (Nil) is not available for D-P4DW□.

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



| Bore size (mm) | D-P3DWA | | | D-P4DW | | |
|----------------|---------|-----|------|-----------|-----------|------|
| | A | B | Hs | A | B | Hs |
| 25 | 2.5 | 3 | 37.5 | — | — | — |
| 32 | 2.5 | 3 | 44.5 | — | — | — |
| 40 | 3 | 3.5 | 52.5 | 0.5 (5.5) | 1 (5.5) | 56.5 |
| 50 | 4.5 | 5 | 62 | 2 (7) | 2.5 (7.5) | 66 |
| 63 | 5 | 5.5 | 72 | 2.5 (7.5) | 3 (8) | 76 |

Minimum Stroke for Auto Switch Mounting

| Number of auto switches mounted | D-P3DWA | | D-P4DW | |
|---------------------------------|--------------|--------------------|--------------|--------------------|
| | Same surface | Different surfaces | Same surface | Different surfaces |
| 1 | 15 | | 20 | |
| 2 | 15 | | 75 | 20 |

Auto Switch Operating Range

| Auto switch model | Bore size (mm) | | | | |
|-------------------|----------------|-----|----|----|----|
| | 25 | 32 | 40 | 50 | 63 |
| D-P3DWA | 6 | 6.5 | 6 | 6 | 6 |
| D-P4DW | — | — | 5 | 5 | 5 |

* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed. (assuming approx. ±30% dispersion)
It may vary substantially depending on the ambient environment.

Mounting and Moving Method of Auto Switch

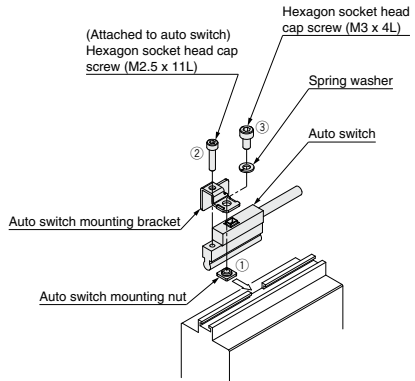
<Applicable auto switch>

Solid state.....D-P3DWA□

1. Insert the auto switch mounting nut into the groove on the auto switch mounting rail.
2. Remove the hexagon socket head cap screw (M2.5) that is attached to the auto switch. Mount the auto switch mounting bracket (pressed stainless steel bracket) on the auto switch and tighten the hexagon socket head cap screw (M2.5) you have removed 3 to 4 turns to temporarily mount the bracket.
3. Put the spring washer through the hexagon socket head cap screw (M3), and then put the screw through the hole in the flange of the auto switch mounting bracket (pressed stainless steel bracket). Screw it into the M3 tapped part of the auto switch mounting nut and tighten it 3 to 4 turns to temporarily mount the auto switch.
4. After checking the detection position, tighten each hexagon socket head cap screw firmly.
5. Modification of the detection position should be made in the condition of 3.

Note 1) The tightening torque for a hexagon socket head cap screw (M2.5) is 0.2 to 0.3 N·m. Hold the shorter side of a hexagon wrench, and turn it to tighten. (Too much tightening may break the switch)

Note 2) The tightening torque for a hexagon socket head cap screw (M3) is 0.5 to 0.7 N·m.

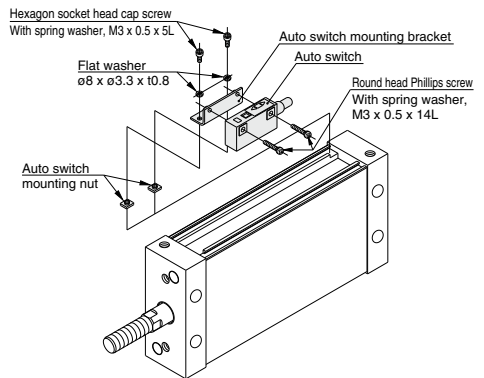


Auto Switch Mounting Bracket Part No. (Including Bracket, Bolt, Nut)

| Bore size (mm) | | | | |
|----------------|----|----|----|----|
| 25 | 32 | 40 | 50 | 63 |
| BMU4-040S | | | | |

Solid state.....D-P4DW□

1. From the cutoff part of the rail on the cylinder body, insert the auto switch mounting nuts (2 pcs.) into the rail groove.
2. Slide the auto switch mounting nuts (2 pcs.) and set into the auto switch mounting position roughly. (25 mm or more should be left for the distance between 2 nuts.)
3. Insert the convex portion of the auto switch mounting bracket into the concave portion of a rail groove. Through-hole for the auto switch mounting bracket should be placed on the auto switch mounting nut.
4. Put a flat washer (ø8 x ø3.3) through a hexagon socket head screw (with spring washer, M3 x 0.5 x 5L) and passing through the hole of an auto switch mounting bracket, then turning it lightly down to a mounting nut of auto switch. (2 locations)
5. Put a round head Phillips screw (with spring washer, M3 x 0.5 x 14L) through the auto switch's through-hole (2 locations), and then push it down into the M3 tapped part on the auto switch mounting bracket while turning it lightly.
6. After reconfirming the detecting position, tighten the auto switch mounting screw to secure the auto switch mounting bracket and the auto switch. (Tightening torque of M3 screw should be 0.5 to 0.7 N·m.)



Auto Switch Mounting Bracket Part No. (Including bracket, screw)

| Cylinder series | Applicable bore size (mm) | | |
|-----------------|---------------------------|----------|----------|
| | 40 | 50 | 63 |
| MDU | BMU2-040 | BMU2-040 | BMU2-040 |
| MDLU | | | — |

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

-X□

Technical Data