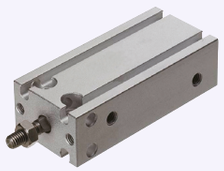
# Small Cylinders / Panel Mount Single Acting

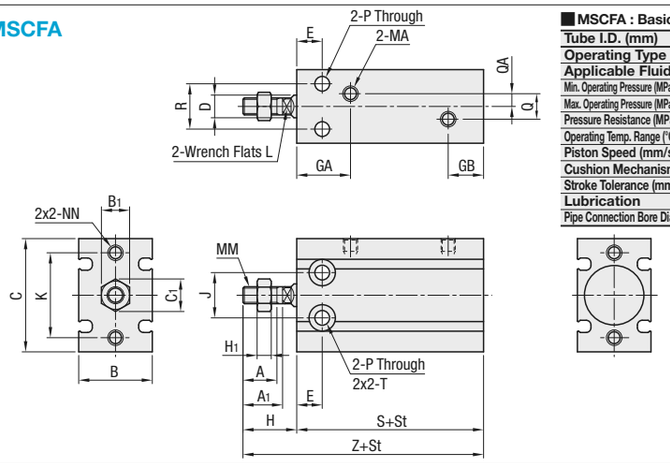
## Tip Shape Selectable

### ■Small Cylinders



RoHS

### MSCFA



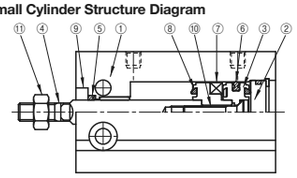

### ■MSCFA : Basic Specifications

| Tube I.D. (mm) | 6 | 10,16 | 20,25 | 32 |
|---|---|---|---|---|
| Operating Type | Double Acting | | | |
| Applicable Fluid | Air | | | |
| Min. Operating Pressure (MPa) | 0.12 | 0.06 | 0.05 | |
| Max. Operating Pressure (MPa) | 0.7 | | | |
| Pressure Resistance (MPa) | 1.0 | | | |
| Operating Temp. Range (°C) | 5~60 | | | |
| Piston Speed (mm/s) | 50~500 | | | |
| Cushion Mechanism | NBR | | | |
| Stroke Tolerance (mm) | 0~+2.0 | | | |
| Lubrication | Lubrication Free | | | |
| Pipe Connection Bore Dia. | M5x0.8 | | | Rc1/8 |

| Tube I.D. (mm) | A | A1 | B | B1 | C | C1 | D | E | GA | GB | H | H1 | J | K | L | MA | MM | NN | P | Q | QA | R | S | T | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 7 | - | 13 | 5.5 | 22 | 6.4 | 3 | 7 | 15 | 10 | 13 | 1.8 | 10 | 17 | - | M5x0.8 | M3x0.5 | M3x0.5 Depth 5 | 3.2 | - | - | 7 | 33 | Ø6 Counterbore Depth 4.8 | 46 |
| 10 | 10 | - | 15 | 7 | 24 | 8.1 | 4 | 7 | 16.5 | 10 | 16 | 2.4 | 11 | 18 | - | M5x0.8 | M4x0.7 | M3x0.5 Depth 5 | 3.2 | - | - | 9 | 36 | Ø6 Counterbore Depth 5 | 52 |
| 16 | 11 | 12.5 | 20 | 8 | 32 | 9.2 | 6 | 7 | 16.5 | 11.5 | 16 | 4 | 14 | 25 | 5 | M5x0.8 | M5x0.8 | M4x0.7 Depth 6 | 4.5 | 4 | 2 | 12 | 40 | Ø7.6 Counterbore Depth 6.5 | 56 |
| 20 | 12 | 14 | 26 | 10 | 40 | 11.5 | 8 | 9 | 19 | 12.5 | 19 | 5 | 16 | 30 | 6 | M5x0.8 | M6x1.0 | M5x0.8 Depth 8 | 5.2 | 9 | 4.5 | 16 | 46 | Ø9.3 Counterbore Depth 8 | 65 |
| 25 | 15.5 | 18 | 32 | 13 | 50 | 15 | 10 | 10 | 21.5 | 13 | 23 | 5 | 20 | 38 | 8 | M5x0.8 | M8x1.25 | M5x0.8 Depth 8 | 5.5 | 9 | 4.5 | 20 | 50 | Ø9.3 Counterbore Depth 9 | 73 |
| 32 | 19.5 | 22 | 40 | 17 | 62 | 19.6 | 12 | 11 | 23 | 12.5 | 27 | 6 | 24 | 48 | 10 | Rc1/8 | M10x1.25 | M6x1.0 Depth 9 | 6.6 | 13.5 | 4.5 | 24 | 52 | Ø11 Counterbore Depth 11.5 | 79 |

| Part Number Type | Tube I.D. (mm) | St Stroke (mm) Selection | Body Price St Stroke (mm) 10 | 20 | 30 | 50 |
|---|---|---|---|---|---|---|
| MSCFA | 6 | 10 20 30 | | | | - |
| | 10 | | | | | - |
| | 16 | | | | | - |
| | 20 | 10 20 30 50 | | | | |
| | 25 | | | | | |
| | 32 | | | | | |

### ■Small Cylinder Structure Diagram

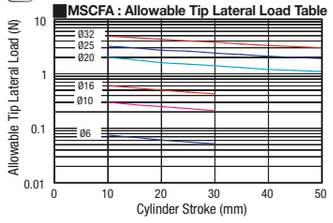



### ■MSCFA : Part List

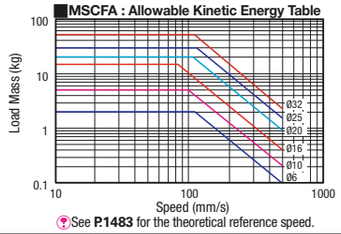
| Number | Part Name | Ø6 | Ø10 | Ø16 | Ø20 | Ø25 | Ø32 |
|---|---|---|---|---|---|---|---|
| ① | Main Body | EN AW-6061 Equiv. | | | | | |
| ② | End Cover | EN AW-6061 Equiv. | EN AW-5052 Equiv. | | EN AW-6061 Equiv. | | |
| ③ | Piston (*) | A6061x2 pcs. | | | | | |
| ④ | Piston Rod | EN 1.4305 Equiv. | | | EN 1.1191 Equiv. | | |
| ⑤ | Rod Gasket | NBR | | | | | |
| ⑥ | Piston Gasket | NBR | | | | | |
| ⑦ | Magnet | Plastic Magnet | | | | | |
| ⑧ | Cushion | NBR | NBR | | | | |
| ⑨ | Rod Cover | EN AW-6061 Equiv. | | | | | |
| ⑩ | Piston Bolt | EN 1.4305 Equiv. | | | | EN 1.7220 Equiv. | |
| ⑪ | Rod Nut | EN 1.0038 Equiv. | | | | | |

(*) One piece of EN AW-6061 Equiv. and EN CW614N Equiv. each are applied for Ø16 rod piston.

### ■MSCFA : Allowable Tip Lateral Load Table




### ■MSCFA : Allowable Kinetic Energy Table



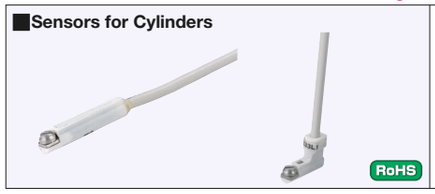

(?)See **P.1483** for the theoretical reference speed.

### ■MSCFA : Theoretical Output

Unit : (N)

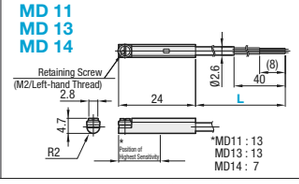
| Tube I.D. (mm) | Operating Direction | Operating Pressure (MPa) 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
|---|---|---|---|---|---|---|---|
| 6 | Push | 5.7 | 8.5 | 11.3 | 14.1 | 17.0 | 19.8 |
| | Pull | 4.2 | 6.4 | 8.5 | 10.6 | 12.7 | 14.8 |
| 10 | Push | 15.7 | 23.6 | 31.4 | 39.3 | 47.1 | 55.0 |
| | Pull | 13.2 | 19.8 | 26.4 | 33.0 | 39.6 | 46.2 |
| 16 | Push | 40 | 60 | 80 | 101 | 121 | 141 |
| | Pull | 35 | 52 | 69 | 86 | 104 | 121 |
| 20 | Push | 63 | 94 | 126 | 157 | 188 | 220 |
| | Pull | 53 | 79 | 106 | 132 | 158 | 185 |
| 25 | Push | 98 | 147 | 196 | 245 | 295 | 344 |
| | Pull | 82 | 124 | 165 | 206 | 247 | 289 |
| 32 | Push | 161 | 241 | 322 | 402 | 483 | 563 |
| | Pull | 138 | 207 | 276 | 346 | 415 | 484 |

### ■Sensors for Cylinders

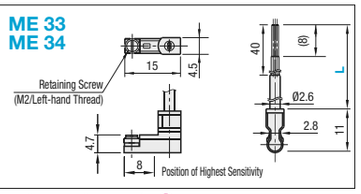


RoHS

**MD 11**
**MD 13**
**MD 14**




**ME 33**
**ME 34**




(?)Operating Temp. Range: 0 ~ 60°C
(?)For detailed specifications of the Sensors, see **P.1484**.

| Part Number Type | L | Load Voltage | Load Current | Indicator Light | Sensor Type | Line | Wire Exit | Unit Price L1 (1m) | L3 (3m) |
|---|---|---|---|---|---|---|---|---|---|
| | L1 (1m) L3 (3m) | 24VDC 110VAC | 24VDC 5~40mA 110VAC 5~20mA | LED (Lights when ON) | Contact | 2-Line | Rear | | |
| MD13 | | 28VDC or Less | 0.1~40mA | | No Contact | 3-Line | | | |
| MD14 | | 10~28VDC | 5~20mA | | No Contact | 2-Line | | | |
| ME33 | | 28VDC or Less | 0.1~40mA | | No Contact | 3-Line | Top | | |
| ME34 | | 10~28VDC | 5~20mA | | No Contact | 2-Line | | | |

**Ordering Example**

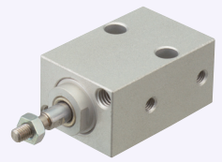
·Small Cylinders

| Part Number | - | St Stroke |
|---|---|---|
| MSCFA6 | - | 10 |

·Sensors for Cylinders

| Part Number |
|---|
| MD14L1 |

### ■Small Cylinders Tip Shape Selectable

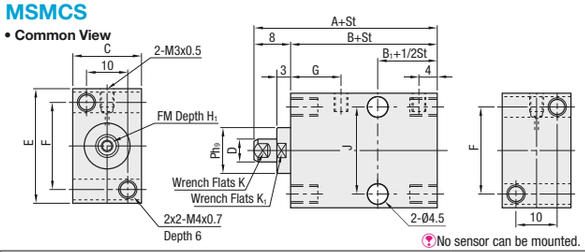


RoHS

(?)The shared diagram of Rod Tip Shape in the right-hand box is for the Standard Stroke Type (MSMCN) available on our website. Please visit our website at : http://fa.misumi.jp/hp-item.jsp

### MSMCS

• Common View



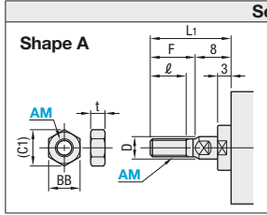

(?)No sensor can be mounted.

### ■Small Cylinder : Basic Specifications

| Tube I.D. (mm) | 6~10 |
|---|---|
| Operating Type | Double Acting |
| Applicable Fluid | Air |
| Min. Operating Pressure (MPa) | 0.2 |
| Max. Operating Pressure (MPa) | 0.7 |
| Pressure Resistance (MPa) | 1.0 |
| Operating Temp. Range (°C) | 5~60 |
| Piston Speed (mm/s) | 50~500 |
| Cushion Mechanism | No |
| Stroke Tolerance (mm) | 0~+0.5 |
| Lubrication | Lubrication Free |
| Pipe Connection Bore Dia. | M3×0.5 |

### Select Tip Shape for Selectable Type.

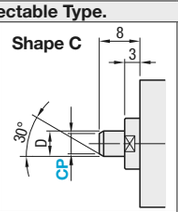
**Shape A**



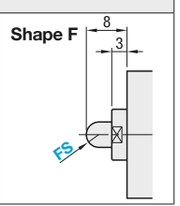

Accessory : Nut 1 pc. (EN 1.4301 Equiv.)

| AM | BB | (C1) | t |
|---|---|---|---|
| 3 | 5.5 | 6.4 | 1.8 |
| 4 | 7 | 8.1 | 2.4 |
| 5 | 8 | 9.2 | 3.2 |

**Shape C**




**Shape F**




| Tube I.D. (mm) | A | B | B1 | E | C | D | F | FM | G | H1 | J | K | K1 | Ph9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 28 | 20 | 6.5 | 20 | 15 | 4 | 15 | M2.5x0.45 | 11 | 5 | 14 | 3.5 | 9 | 10 |
| 8 | 30 | 22 | 8 | 25 | | 5 | 19 | M3x0.5 | 10 | | 19 | 4 | 9.5 | |
| 10 | | | | | | 6 | | | | 6 | | 5 | 11 | 12 |

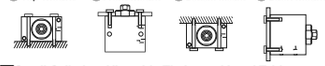
| Part Number Type | Tube I.D. (mm) | St Stroke (mm) Selection | Piston Rod Tip Shape: Shape A AM (Thread Dia.)Selection | Shape C CP (mm) | Shape F FS (mm) | Body Price St Stroke (mm) 5 | 10 | 15 | 20 | 25 | 30 | Surcharge for Piston Rod Tip Shape (Body Price +) AM | CP | FS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MSMCS | 6 | 5 10 15 20 | 3 | 3 | 2 | | | | | - | - | | | |
| | 8 | 5 10 15 20 25 30 | 3 4 | 4 | 2.5 | | | | | | | | | |
| | 10 | | 4 5 | 5 | 3 | | | | | | | | | |

Features: Tip shape of cylinder rod is selectable.

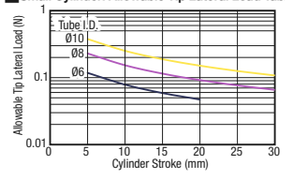
**Ordering Example**

| Part Number | - | St Stroke | - | Piston Rod Tip Shape |
|---|---|---|---|---|
| MSMCS8 | - | 10 | - | AM4 |

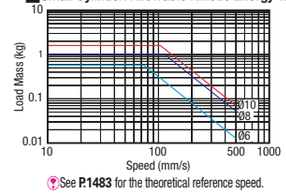
**Example** It can be installed in four directions.
①Top Mount ②Front Mount ③Bottom Mount ④Back Mount



### ■Small Cylinder: Allowable Tip Lateral Load Table




### ■Small Cylinder: Allowable Kinetic Energy Table




(?)See **P.1483** for the theoretical reference speed.

### ■Dimensions for Shape A Selection

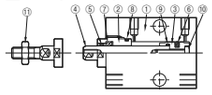
| Tube I.D. (mm) | ℓ | L1 | F |
|---|---|---|---|
| 6 | 6 | 16 | 8 |
| 8 | 8 | 18 | 10 |
| 10 | 10 | 21 | 13 |

### ■Small Cylinder : Theoretical Output

Unit : (N)

| Tube I.D. (mm) | Operating Direction | Operating Pressure (MPa) 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 |
|---|---|---|---|---|---|---|---|
| 6 | Push | 5.7 | 8.5 | 11.3 | 14.1 | 17.0 | 19.8 |
| | Pull | 3.1 | 4.7 | 6.3 | 7.9 | 9.4 | 11.0 |
| 8 | Push | 10.1 | 15.1 | 20.1 | 25.1 | 30.2 | 35.2 |
| | Pull | 6.1 | 9.2 | 12.3 | 15.3 | 18.4 | 21.4 |
| 10 | Push | 15.7 | 23.6 | 31.4 | 39.3 | 47.1 | 55.0 |
| | Pull | 10.1 | 15.1 | 20.1 | 25.1 | 30.2 | 35.2 |

### ■Small Cylinders Tip Shape Selectable Structural Diagram




### ■Small Cylinder : Part List

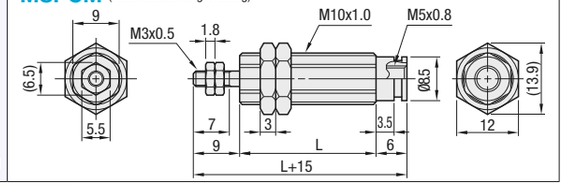
| Number | Part Name | | M Material | S Surface Treatment and Others |
|---|---|---|---|---|
| ① | Main Body | | Aluminum | Clear Anodize |
| ② | Rod Cover | | Aluminum | Clear Anodize |
| ③ | Piston | Ø6 | Stainless Steel | |
| | | Ø8,10 | Aluminum | Clear Anodize |
| ④ | Piston Rod | | Stainless Steel | Hard Chrome Plating |
| ⑤ | Bearing | | PTFE Type | |
| ⑥ | Piston Gasket | | NBR | |
| ⑦ | Rod Gasket | | NBR | |
| ⑧ | Body Gasket | | NBR | |
| ⑨ | Piston Gasket | | NBR | Ø8 and Ø10 only |
| ⑩ | Mounting Screw | | Stainless Steel | Ø8 and Ø10 only |
| ⑪ | Nut | | Stainless Steel | For Threaded Type only |

### ■Panel Mount Single Acting



RoHS

### MSPCM (Panel Mount Single Acting)




### ■MSPCM Basic Specifications

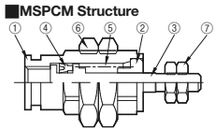
| Tube I.D. (mm) | 6 |
|---|---|
| Operating Type | Single Acting Outstroke Type |
| Applicable Fluid | Air |
| Min. Operating Pressure Â(MPa) | 0.2 |
| Max. Operating Pressure (MPa) | 0.7 |
| Pressure Resistance (MPa) | 1.0 |
| Operating Temp. Range (°C) | 5~60 |
| Piston Speed (mm/s) | 50~500 |
| Cushion Mechanism | No |
| Stroke Tolerance (mm) | 0~+1.0 |
| Lubrication | Lubrication Free |
| Pipe Connection Bore Dia. | M5x0.8 |

| Part Number Type | Tube I.D. (mm) | St Stroke (mm) Selection | L | Unit Price |
|---|---|---|---|---|
| MSPCM | 6 | 5 | 12.5 | |
| | | 10 | 19.5 | |
| | | 15 | 26.5 | |

**Ordering Example**

| Part Number | - | St Stroke |
|---|---|---|
| MSPCM6 | - | 5 |

### ■MSPCM Structure




### ■MSPCM : Parts List

| Number | Part Name | M Material | S Surface Treatment |
|---|---|---|---|
| ① | Main Body | EN CW614N Equiv. | Electroless Nickel Plating |
| ② | Cover | JIS-C5441B | |
| ③ | Piston Rod | EN 1.4305 Equiv. | |
| ④ | Piston Gasket | NBR | |

**Example**

