



Features

- High quality long service life.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.

Specification

| Model | | MCMJ | | |
|-----------------------------------|---------------------------------|------------------------|------|------|
| Tube I.D. (mm) | | ø6 | ø10 | ø16 |
| Port size | | M5×0.8 | | |
| Medium | | Air | | |
| Max. operating pressure | | 0.7 MPa | | |
| Min. operating pressure (MPa) | Single acting normally extended | 0.25 | 0.15 | |
| | Single acting normally returned | 0.2 | 0.15 | |
| | Double acting | 0.12 | 0.06 | |
| Proof pressure | | 1 MPa | | |
| Lubrication | | Not required | | |
| Ambient temperature | | -5~+60°C (No freezing) | | |
| Available speed range | | 50~500 mm/sec | | |
| Max. allowable kinetic energy (J) | | 0.16 | 0.27 | 0.4 |
| Sensor switch (*) | | RCM | | |
| Sensor switch band | | BM6 | BM10 | BM16 |

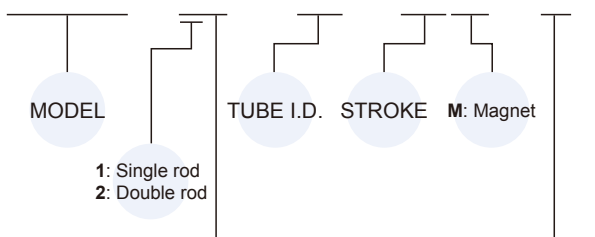
Table for standard stroke

| | Tube I.D. | Stroke (mm) |
|---------------|-----------|------------------------------------|
| Single acting | ø6 | 15,30,45,60 |
| | ø10 | 15,30,45,60 |
| | ø16 | 15,30,45,60,75,100,125,150 |
| Double acting | ø6 | 15,30,45,60 |
| | ø10 | 15,30,45,60,75,100,125,150 |
| | ø16 | 15,30,45,60,75,100,125,150,175,200 |

* RCM specification, please refer to page 8-13.

Order example

MCMJ - 11 - 16 - 45M - B



STYLE

| Code | Symbol | Description |
|------|--------|---|
| 1 1 | | Double acting / Male thread |
| 1 3 | | Single acting / Normally extended male thread |
| 1 5 | | Single acting / Normally returned male thread |
| 2 1 | | Double rod / Male thread |
| 2 7 | | Double rod / Adjustable male thread |

END COVER TYPE

| Code | Symbol | Tube I.D. |
|------|--------|-----------|
| B | | ø10,16 |
| D | | ø10,16 |
| R | | ø6,10,16 |

for tube I.D. ø10,16.

Tightening torque

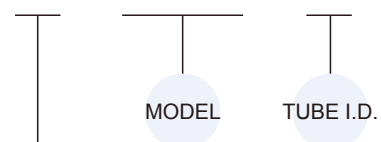
| Tube I.D. | Rod thread | Tightening torque (kgf-cm) |
|-----------|------------|----------------------------|
| ø6 | M3×0.5 | 4.79 |
| ø10 | M4×0.7 | 11.8 |
| ø16 | M5×0.8 | 22.8 |

* Make sure the tightening torque of rod thread does not exceed the value above.

* The tolerance of tightening torque is ±5%.

Mounting accessories

FA - MCMJ - 16



MOUNTING TYPE

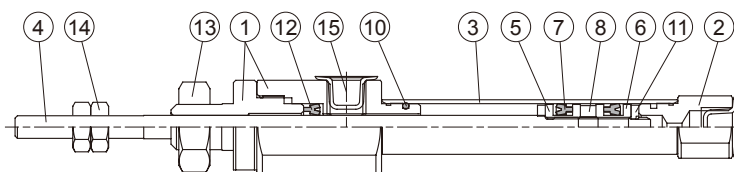
| | |
|--|----|
| | LB |
| | FA |
| | T |
| | Y |
| | I |

* Order example for special specification, refer to page 0-7.

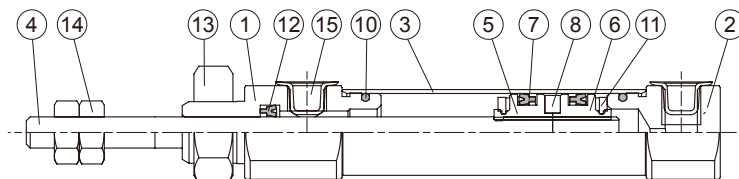
* Order for 21, 27 type, please consult us.

PEN CYLINDER

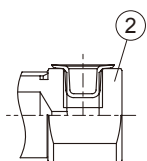
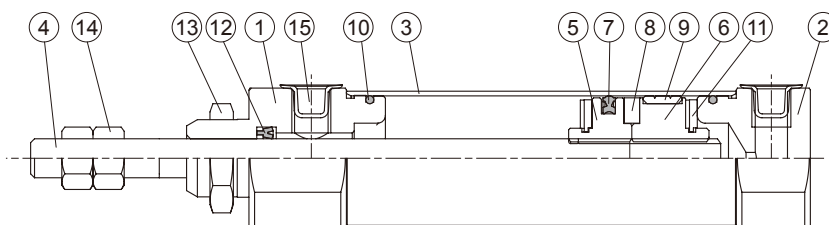
ø6



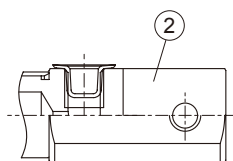
ø10



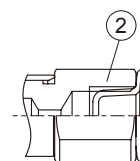
ø16



B type: ø10, ø16



D type: ø10, ø16



R type: ø6, ø10, ø16

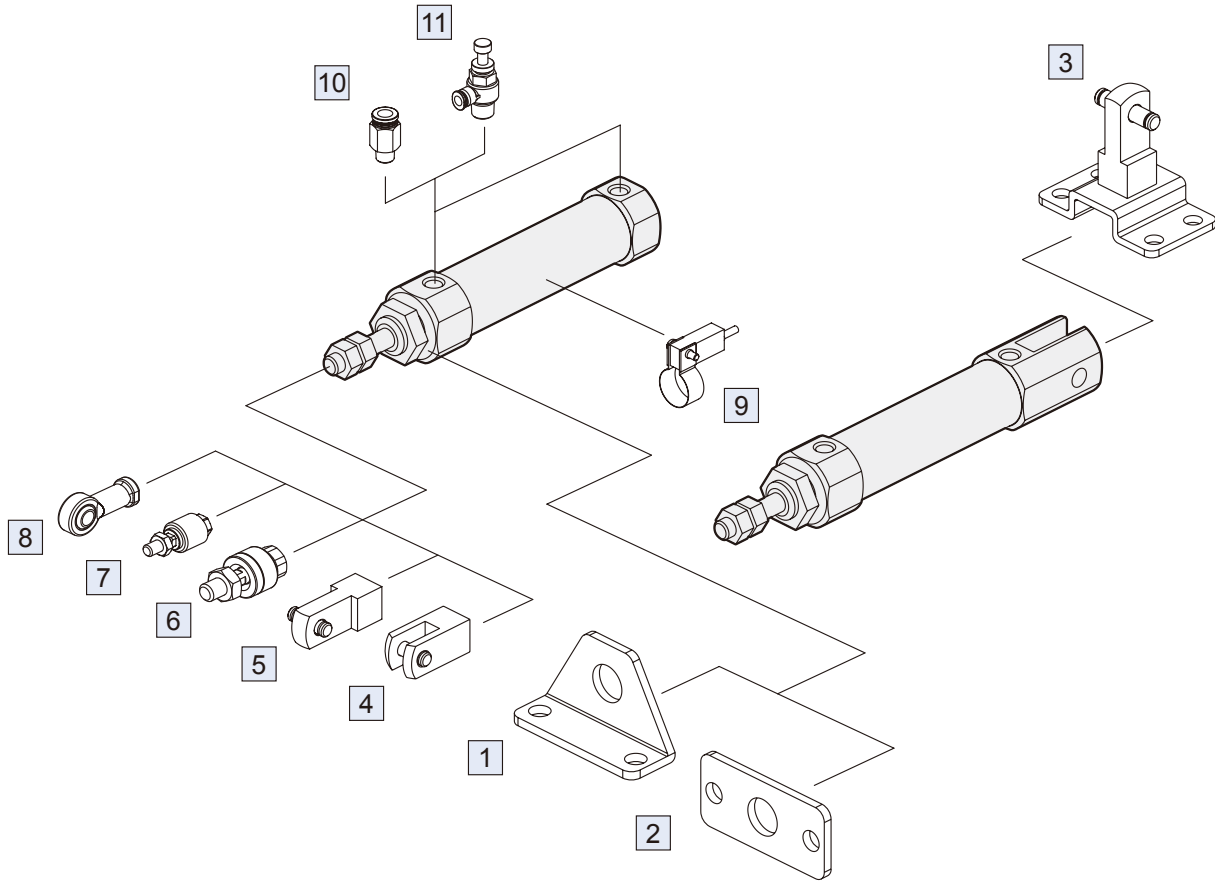
Material

| No. | Tube I.D. Part name | 6 | 10 | 16 | Q'y | Component parts (inclusion) |
|-----|------------------------|-----------------|----|----|-----|--------------------------------|
| 1 | Rod cover | Aluminum alloy | | | 1 | ● |
| 2 | Head cover | Aluminum alloy | | | 1 | ● |
| 3 | Tube | Stainless steel | | | 1 | |
| 4 | Piston rod | Stainless steel | | | 1 | |
| 5 | Piston-R | Aluminum alloy | | | 1 | ● |
| 6 | Piston-H | Aluminum alloy | | | 1 | ● |
| 7 | Piston packing | NBR | | | 2*2 | ● |
| 8 | Magnet ring | Magnet material | | | 1 | ● |
| 9 | Wear ring | — | | *1 | 1 | ● |
| 10 | Cover ring | NBR | | | 2 | ● |
| 11 | Cushion packing | NBR | | | 2 | ● |
| 12 | Snap ring | NBR | | | 1 | ● |
| 13 | Tie nut | Carbon steel | | | 1 | ● |
| 14 | Rod front nut | Carbon steel | | | 2 | ● |
| 15 | Port plug | Plastic | | | 2 | ● |

*1. Teflon+Graphite *2. Cylinder bore 6 (Required quantity: 1 pc)

Order example of Component parts

| Tube I.D. | Component parts |
|-----------|------------------------------|
| ø6 | CP-MCMJ-6-R |
| ø10 | CP-MCMJ-10-R |
| | CP-MCMJ-10-B CP-MCMJ-10-D |
| ø16 | CP-MCMJ-16-R |
| | CP-MCMJ-16-B |
| | CP-MCMJ-16-D |

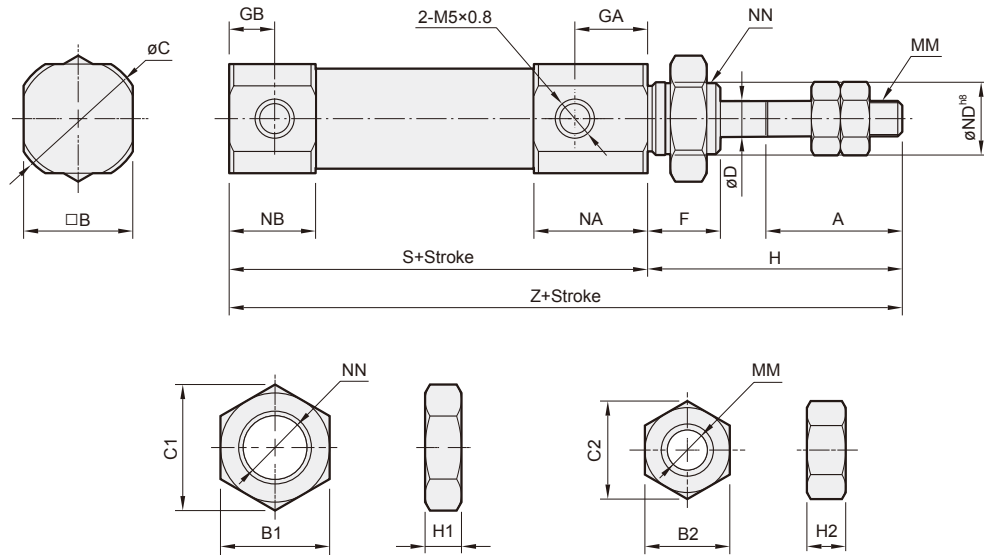


| No. | Accessories | Page |
|-----|----------------------------------|------------------|
| 1 | Mounting accessories LB | 3-56, 58, 60 |
| 2 | Mounting accessories FA | 3-57, 59, 61 |
| 3 | Mounting accessories T+I+PIN (*) | 3-57, 59, 61, 62 |
| 4 | Accessories Y+PIN | 3-62 |
| 5 | Accessories I+PIN | 3-62 |
| 6 | Floating joint MFC | 8-2 |

| No. | Accessories | Page |
|-----|------------------------------|--------------|
| 7 | Floating joint MFCS | 8-4 |
| 8 | Female rod ends PHS | 8-5 |
| 9 | Sensor switch RCM+BM** | 8-13 |
| 10 | Fitting PC (PISCO) | 8-5 (Vol.1) |
| 11 | Speed controller JSC (PISCO) | 8-18 (Vol.1) |

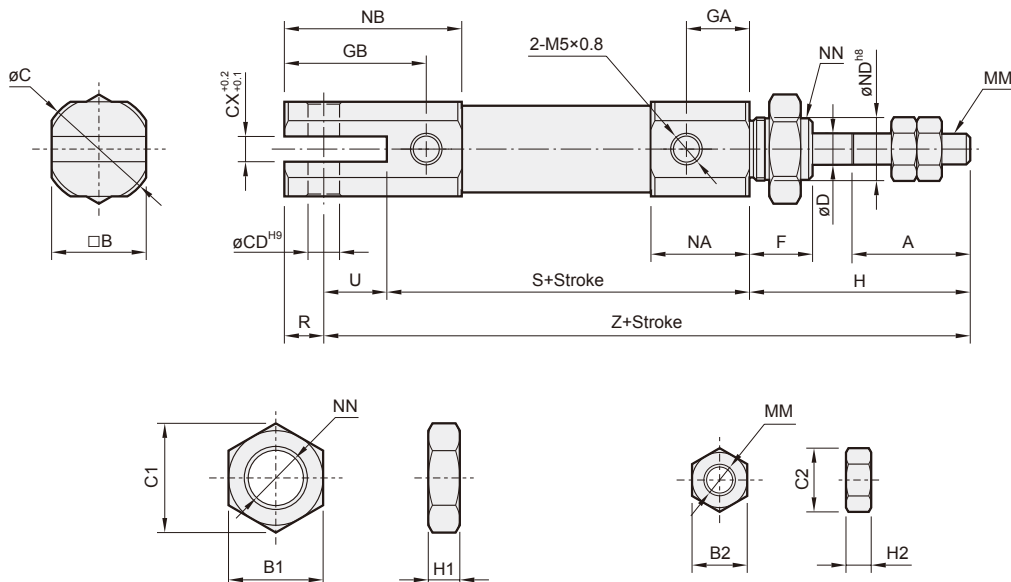
* Only for end cover "D" type.

B



| Code Tube I.D. | A | B | B1 | B2 | C | C1 | C2 | D | F | GA | GB | H | H1 | H2 | MM | NA | NB | ND ^{h8} | NN | S | Z |
|-------------------|----|----|----|----|----|------|-----|---|---|----|----|----|----|-----|--------|------|-----|-----------------------------------|---------|----|----|
| 10 | 15 | 12 | 11 | 7 | 14 | 11.5 | 8.1 | 4 | 8 | 8 | 5 | 28 | 4 | 3.2 | M4×0.7 | 12.5 | 9.5 | 8 ⁰ _{-0.022} | M8×1.0 | 46 | 74 |
| 16 | 15 | 18 | 14 | 8 | 20 | 16.2 | 9.2 | 5 | 8 | 8 | 5 | 28 | 4 | 4 | M5×0.8 | 12.5 | 9.5 | 10 ⁰ _{-0.022} | M10×1.0 | 47 | 75 |

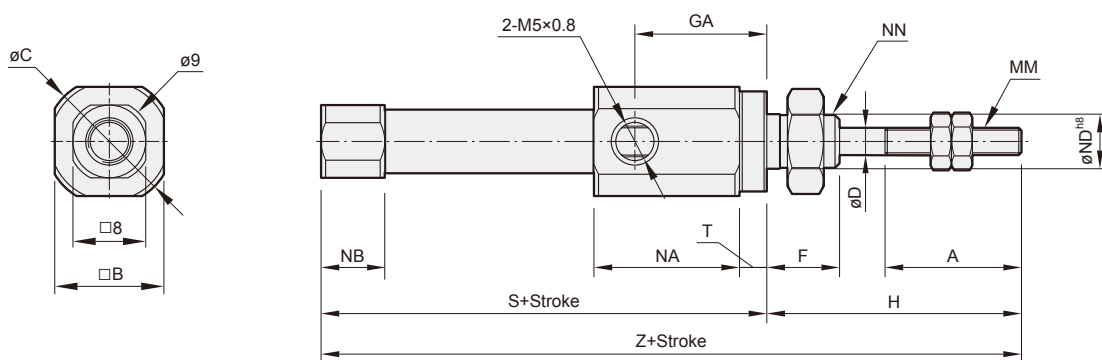
D



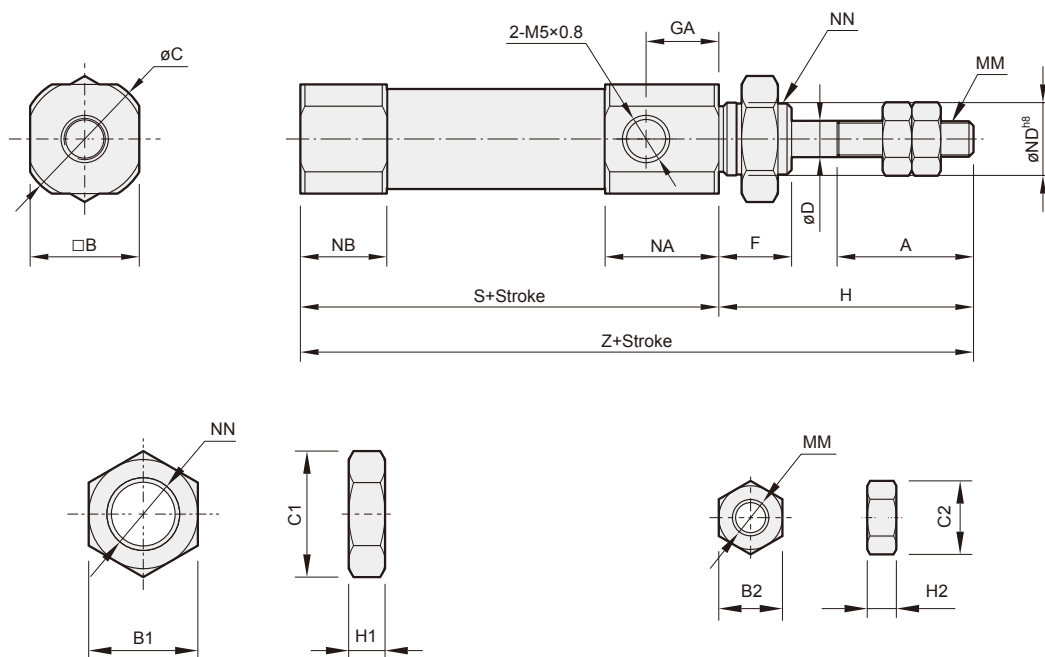
| Code Tube I.D. | A | B | B1 | B2 | C | CD | CX | C1 | C2 | D | F | GA | GB | H | H1 | H2 | MM | NA | NB | ND ^{h8} | NN | R | S | U | Z |
|-------------------|----|----|----|----|----|-----|-----|------|-----|---|---|----|----|----|----|-----|--------|------|------|-----------------------------------|---------|---|----|----|----|
| 10 | 15 | 12 | 11 | 7 | 14 | 3.3 | 3.2 | 12.7 | 8.1 | 4 | 8 | 8 | 18 | 28 | 4 | 3.2 | M4×0.7 | 12.5 | 22.5 | 8 ⁰ _{-0.022} | M8×1.0 | 5 | 46 | 8 | 82 |
| 16 | 15 | 18 | 14 | 8 | 20 | 5 | 6.5 | 16.2 | 9.2 | 5 | 8 | 8 | 23 | 28 | 4 | 4 | M5×0.8 | 12.5 | 27.5 | 10 ⁰ _{-0.022} | M10×1.0 | 8 | 47 | 10 | 85 |

R

$\phi 6$



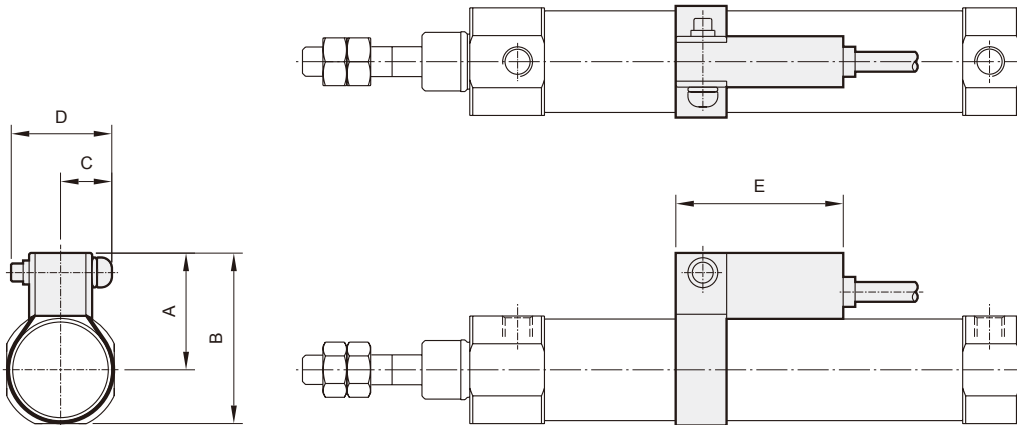
$\phi 10 \sim \phi 16$



| Code Tube I.D. | A | B | B1 | B2 | C | C1 | C2 | D | F | GA | H | H1 | H2 | MM | NA | NB | ND ^{h8} | NN | S | T | Z |
|-------------------|----|----|----|-----|----|------|-----|---|---|------|----|----|-----|--------|------|-----|-----------------------------------|---------|----|---|----|
| 6 | 15 | 12 | 8 | 5.5 | 14 | 9.2 | 6.4 | 3 | 8 | 14.5 | 28 | 4 | 2.4 | M3×0.5 | 16 | 7 | 6 ⁰ _{-0.022} | M6×1.0 | 49 | 3 | 77 |
| 10 | 15 | 12 | 11 | 7 | 14 | 12.7 | 8.1 | 4 | 8 | 8 | 28 | 4 | 3.2 | M4×0.7 | 12.5 | 9.5 | 8 ⁰ _{-0.022} | M8×1.0 | 46 | — | 74 |
| 16 | 15 | 18 | 14 | 8 | 20 | 16.2 | 9.2 | 5 | 8 | 8 | 28 | 4 | 4 | M5×0.8 | 12.5 | 9.5 | 10 ⁰ _{-0.022} | M10×1.0 | 47 | — | 75 |

Sensor switch: RCM

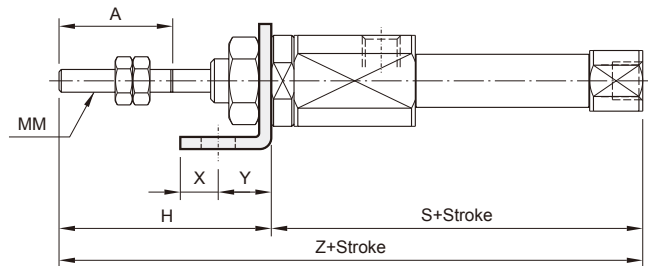
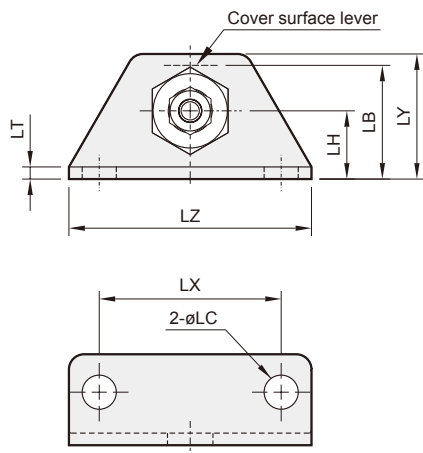
Sensor switch band: BM**



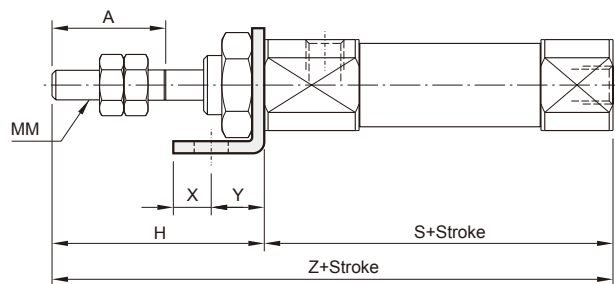
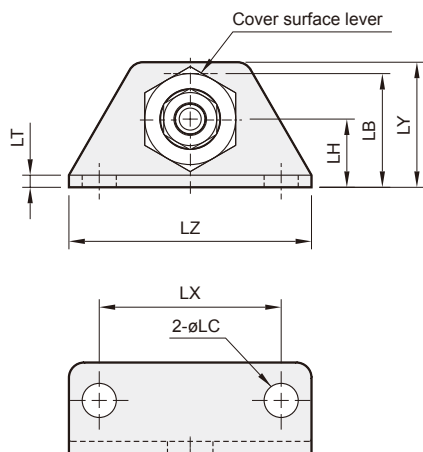
| Code Tube I.D. | A | B | C | D | E |
|-------------------|----|----|----|----|----|
| 6 | 15 | 21 | 10 | 16 | 28 |
| 10 | 17 | 23 | 10 | 16 | 28 |
| 16 | 20 | 29 | 10 | 16 | 28 |

LB

$\phi 6$



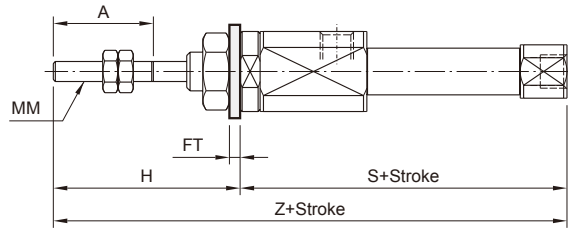
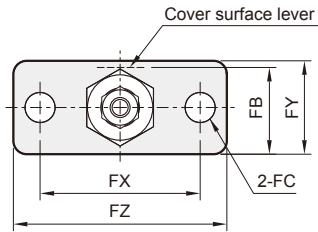
$\phi 10 \sim \phi 16$



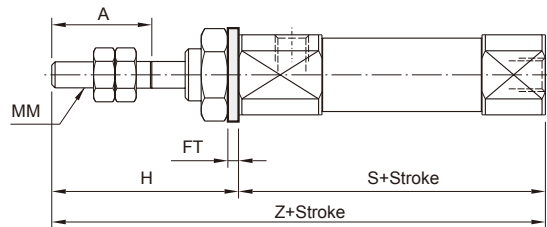
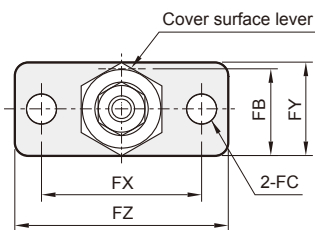
| Code Tube I.D. | A | H | LB | LC | LH | LT | LX | LY | LZ | MM | S | X | Y | Z |
|-------------------|----|----|----|-----|----|-----|----|------|----|--------|----|---|---|----|
| 6 | 15 | 28 | 15 | 4.5 | 9 | 1.6 | 24 | 16.5 | 32 | M3×0.5 | 49 | 5 | 7 | 77 |
| 10 | 15 | 28 | 15 | 4.5 | 9 | 1.6 | 24 | 16.5 | 32 | M4×0.7 | 46 | 5 | 7 | 74 |
| 16 | 15 | 28 | 23 | 5.5 | 14 | 2.3 | 33 | 25 | 42 | M5×0.8 | 47 | 6 | 9 | 75 |

FA

$\varnothing 6$



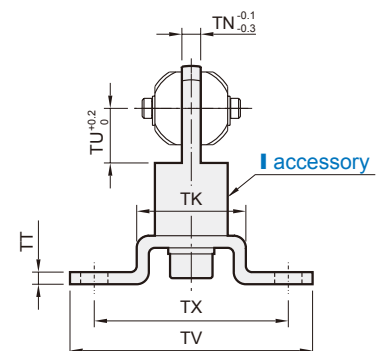
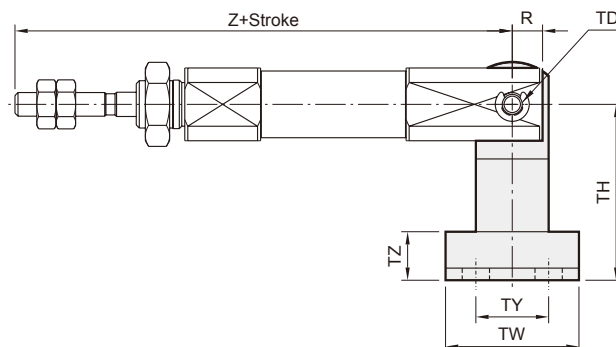
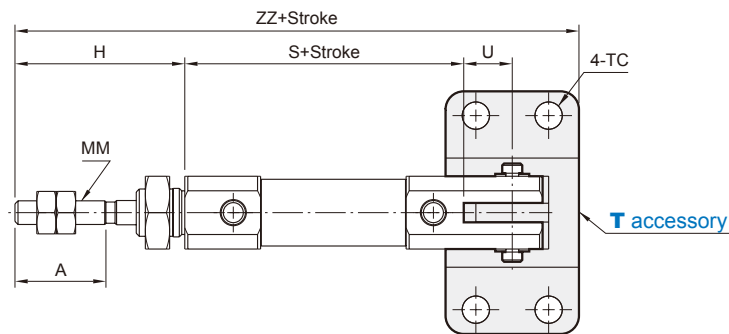
$\varnothing 10\sim\varnothing 16$



| Code Tube I.D. | A | FB | FC | FT | FX | FY | FZ | H | MM | S | Z |
|-------------------|----|----|-----|-----|----|----|----|----|--------|----|----|
| 6 | 15 | 13 | 4.5 | 1.6 | 24 | 14 | 32 | 28 | M3×0.5 | 49 | 77 |
| 10 | 15 | 13 | 4.5 | 1.6 | 24 | 14 | 32 | 28 | M4×0.7 | 46 | 74 |
| 16 | 15 | 19 | 5.5 | 2.3 | 33 | 20 | 42 | 28 | M5×0.8 | 47 | 75 |

T

I+Pin
(Extra purchase)

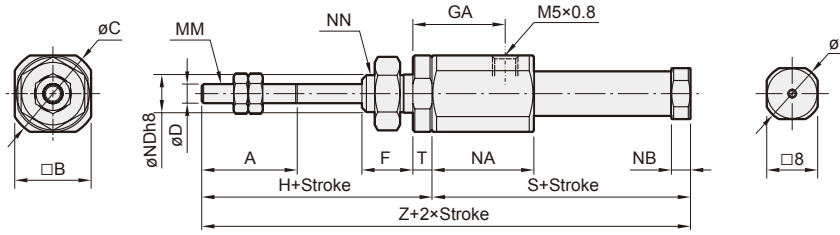


| Code Tube I.D. | A | H | MM | R | S | TC | TD ^{H10} | TH | TK | TN | TT | TU | TV | TW | TX | TY | TZ | U | Z | ZZ |
|-------------------|----|----|--------|---|----|-----|--|----|----|-----|-----|----|----|----|----|----|----|----|----|----|
| 10 | 15 | 28 | M4×0.7 | 5 | 46 | 4.5 | 3.3 ^{+0.048</sup></sub>0} | 29 | 18 | 3.1 | 2 | 9 | 40 | 22 | 32 | 12 | 8 | 8 | 8 | 93 |
| 16 | 15 | 28 | M5×0.8 | 8 | 47 | 5.5 | 5 ^{+0.048</sup></sub>0} | 35 | 20 | 6.4 | 2.3 | 14 | 48 | 28 | 38 | 16 | 10 | 10 | 10 | 99 |

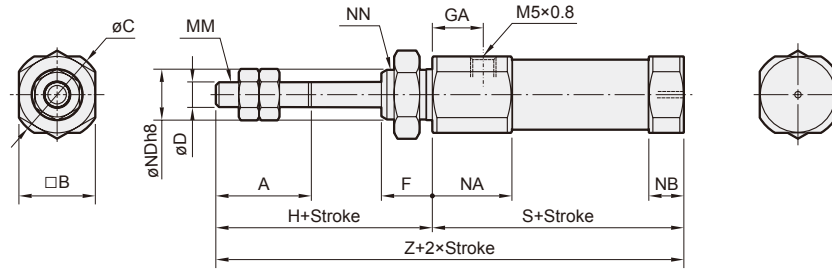
PEN CYLINDER

13

$\phi 6$



$\phi 10, \phi 16$



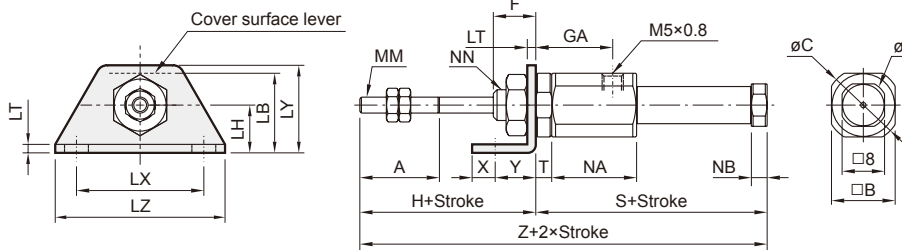
| Code Tube I.D. | A | B | C | D | F | GA | H | MM | NA | NB | ND | NN | T |
|-------------------|----|----|----|---|---|------|----|--------|------|-----|-----------------------------------|---------|---|
| 6 | 15 | 12 | 14 | 3 | 8 | 14.5 | 28 | M3×0.5 | 16 | 3 | 6 ⁰ _{-0.018} | M6×1.0 | 3 |
| 10 | 15 | 12 | 14 | 4 | 8 | 8 | 28 | M4×0.7 | 12.5 | 5.5 | 8 ⁰ _{-0.022} | M8×1.0 | — |
| 16 | 15 | 18 | 20 | 5 | 8 | 8 | 28 | M5×0.8 | 12.5 | 5.5 | 10 ⁰ _{-0.022} | M10×1.0 | — |

* (S), (Z) () indicate the size of that with magnet ring.

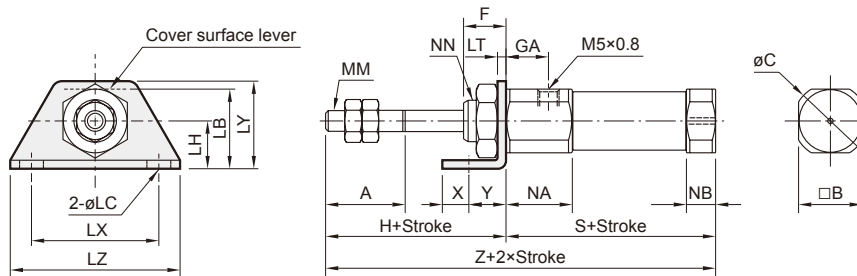
| Code Stroke Tube I.D. | S* | | | | | | | | Z* | | | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|----------------|----------------|----------------|------------------|-------|--------|---------|---------|
| | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 |
| 6 | 46.5 (51.5) | 55.5 (60.5) | 59.5 (64.5) | 73.5 (78.5) | — | — | — | — | 74.5 (79.5) | 83.5 (88.5) | 87.5 (92.5) | 101.5 (106.5) | — | — | — | — |
| 10 | 48.5 | 56 | 68 | 80 | — | — | — | — | 76.5 | 84 | 96 | 108 | — | — | — | — |
| 16 | 48.5 | 57 | 69 | 81 | 87 | 111 | 129 | 141 | 76.5 | 85 | 97 | 109 | 115 | 139 | 157 | 169 |

LB

$\phi 6$



$\phi 10, \phi 16$



| Code Tube I.D. | A | B | C | D | F | GA | H | LB | LC | LH | LT | LX | LY | LZ | MM | NA | NB | NN | T | X | Y |
|-------------------|----|----|----|---|---|------|----|----|-----|----|-----|----|------|----|--------|------|-----|---------|---|---|---|
| 6 | 15 | 12 | 14 | 3 | 8 | 14.5 | 28 | 15 | 4.5 | 9 | 1.6 | 24 | 16.5 | 32 | M3×0.5 | 16 | 3 | M6×1.0 | 3 | 5 | 7 |
| 10 | 15 | 12 | 14 | 4 | 8 | 8 | 28 | 15 | 4.5 | 9 | 1.6 | 24 | 16.5 | 32 | M4×0.7 | 12.5 | 5.5 | M8×1.0 | — | 5 | 7 |
| 16 | 15 | 18 | 20 | 5 | 8 | 8 | 28 | 23 | 5.5 | 14 | 2.3 | 33 | 25 | 42 | M5×0.8 | 12.5 | 5.5 | M10×1.0 | — | 6 | 9 |

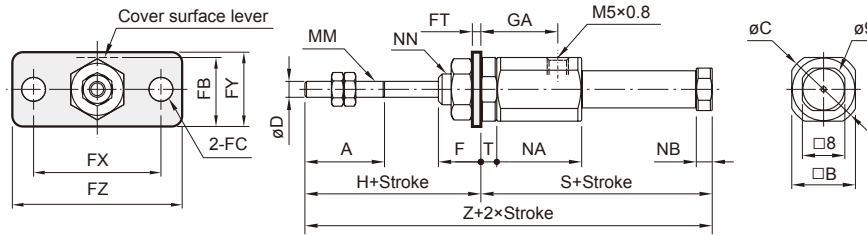
| Code Stroke Tube I.D. | S* | | | | | | | | Z* | | | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|----------------|----------------|----------------|------------------|-------|--------|---------|---------|
| | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 |
| 6 | 46.5 (51.5) | 55.5 (60.5) | 59.5 (64.5) | 73.5 (78.5) | — | — | — | — | 74.5 (79.5) | 83.5 (88.5) | 87.5 (92.5) | 101.5 (106.5) | — | — | — | — |
| 10 | 48.5 | 56 | 68 | 80 | — | — | — | — | 76.5 | 84 | 96 | 108 | — | — | — | — |
| 16 | 48.5 | 57 | 69 | 81 | 87 | 111 | 129 | 141 | 76.5 | 85 | 97 | 109 | 115 | 139 | 157 | 169 |

* (S), (Z) () indicate the size of that with magnet ring.

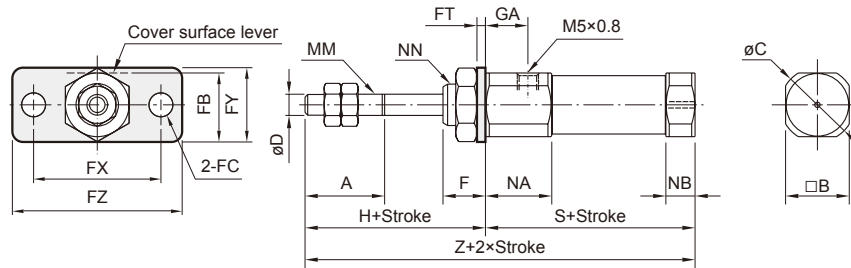
PEN CYLINDER

FA

ø6



ø10~ø16



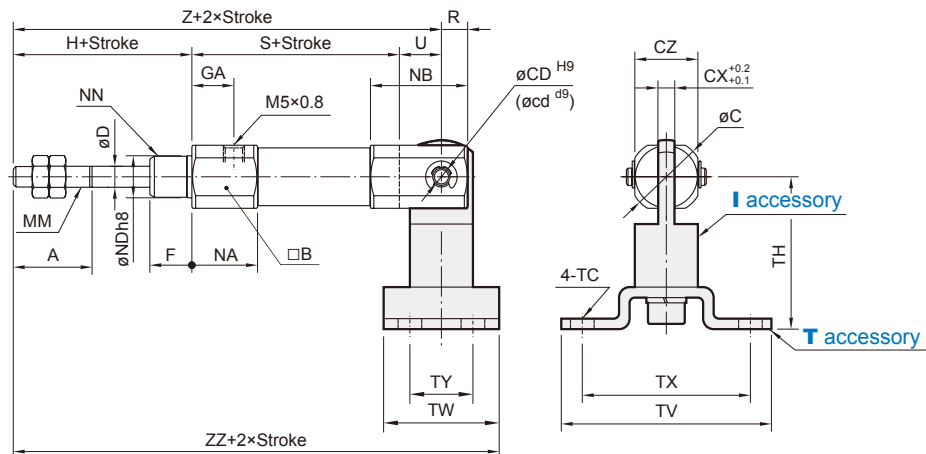
| Code Tube I.D. | A | B | C | D | F | GA | H | FB | FC | FT | FX | FY | FZ | MM | NA | NB | NN | T | X | Y |
|-------------------|----|----|----|---|---|------|----|----|-----|-----|----|----|----|--------|------|-----|---------|---|---|---|
| 6 | 15 | 12 | 14 | 3 | 8 | 14.5 | 28 | 11 | 4.5 | 1.6 | 24 | 14 | 32 | M3×0.5 | 16 | 3 | M6×1.0 | 3 | 5 | 7 |
| 10 | 15 | 12 | 14 | 4 | 8 | 8 | 28 | 13 | 4.5 | 1.6 | 24 | 14 | 32 | M4×0.7 | 12.5 | 5.5 | M8×1.0 | — | 5 | 7 |
| 16 | 15 | 18 | 20 | 5 | 8 | 8 | 28 | 19 | 5.5 | 2.3 | 33 | 20 | 42 | M5×0.8 | 12.5 | 5.5 | M10×1.0 | — | 6 | 9 |

| Code Stroke Tube I.D. | S* | | | | | | | | Z* | | | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|----------------|----------------|----------------|------------------|-------|--------|---------|---------|
| | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 |
| 6 | 46.5 (51.5) | 55.5 (60.5) | 59.5 (64.5) | 73.5 (78.5) | — | — | — | — | 74.5 (79.5) | 83.5 (88.5) | 87.5 (92.5) | 101.5 (106.5) | — | — | — | — |
| 10 | 48.5 | 56 | 68 | 80 | — | — | — | — | 76.5 | 84 | 96 | 108 | — | — | — | — |
| 16 | 48.5 | 57 | 69 | 81 | 87 | 111 | 129 | 141 | 76.5 | 85 | 97 | 109 | 115 | 139 | 157 | 169 |

* (S), (Z) () indicate the size of that with magnet ring.

T

I+Pin
(Extra purchase)

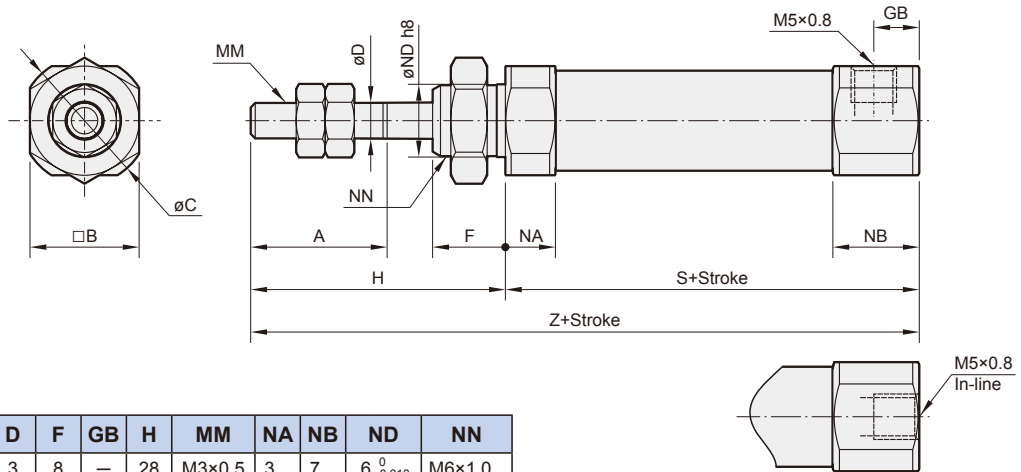


| Code Tube I.D. | A | B | C | CD (cd) | CX | CZ | D | F | GA | H | MM | NA | NB | ND | NN | R | TC | TH | TV | TW | TX | TY | U |
|-------------------|----|----|----|------------|-----|----|---|---|----|----|--------|------|------|-----------------------------------|---------|---|-----|----|----|----|----|----|----|
| 10 | 15 | 12 | 14 | 3.3 | 3.2 | 12 | 4 | 8 | 8 | 28 | M4×0.7 | 12.5 | 18.5 | 8 ⁰ _{-0.022} | M8×1.0 | 5 | 4.5 | 29 | 40 | 22 | 32 | 12 | 8 |
| 16 | 15 | 18 | 20 | 5 | 6.5 | 18 | 5 | 8 | 8 | 28 | M5×0.8 | 12.5 | 23.5 | 10 ⁰ _{-0.022} | M10×1.0 | 8 | 5.5 | 35 | 48 | 28 | 38 | 16 | 10 |

| Code Stroke Tube I.D. | S | | | | | | | | Z | | | | | | | | ZZ | | | | | | | |
|-----------------------------|------|-------|-------|-------|-------|--------|---------|---------|------|-------|-------|-------|-------|--------|---------|---------|-------|-------|-------|-------|-------|--------|---------|---------|
| | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 |
| 10 | 48.5 | 56 | 68 | 80 | — | — | — | — | 84.5 | 92 | 104 | 116 | — | — | — | — | 95.5 | 103 | 115 | 127 | — | — | — | — |
| 16 | 48.5 | 57 | 69 | 81 | 87 | 111 | 129 | 141 | 86.5 | 95 | 107 | 119 | 125 | 149 | 167 | 179 | 100.5 | 109 | 121 | 133 | 139 | 163 | 181 | 193 |

PEN CYLINDER

15

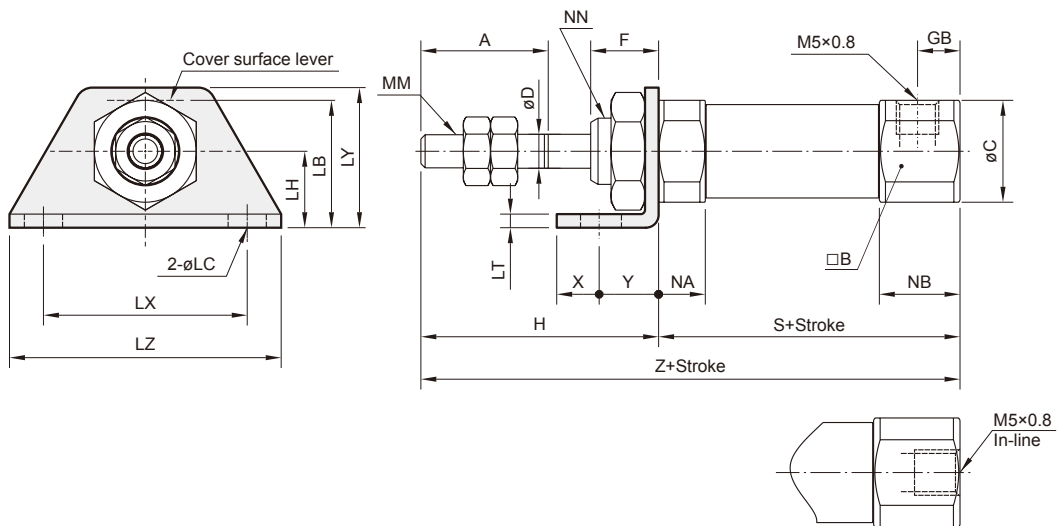


| Code Tube I.D. | A | B | C | D | F | GB | H | MM | NA | NB | ND | NN |
|-------------------|----|----|----|---|---|----|----|--------|-----|-----|-----------------------------------|---------|
| 6 | 15 | 8 | 9 | 3 | 8 | — | 28 | M3×0.5 | 3 | 7 | 6 ⁰ _{-0.018} | M6×1.0 |
| 10 | 15 | 12 | 14 | 4 | 8 | 5 | 28 | M4×0.7 | 5.5 | 9.5 | 8 ⁰ _{-0.022} | M8×1.0 |
| 16 | 15 | 18 | 20 | 5 | 8 | 5 | 28 | M5×0.8 | 5.5 | 9.5 | 10 ⁰ _{-0.022} | M10×1.0 |

| Code Stroke Tube I.D. | S* | | | | | | | | Z* | | | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|
| | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 |
| 6 | 34.5 (39.5) | 43.5 (48.5) | 47.5 (52.5) | 61.5 (66.5) | — | — | — | — | 62.5 (67.5) | 71.5 (76.5) | 75.5 (80.5) | 89.5 (94.5) | — | — | — | — |
| 10 | 45.5 | 53 | 65 | 77 | — | — | — | — | 73.5 | 81 | 93 | 105 | — | — | — | — |
| 16 | 45.5 | 54 | 66 | 78 | 84 | 108 | 126 | 138 | 73.5 | 82 | 94 | 106 | 112 | 136 | 154 | 166 |

* (S), (Z) () indicate the size of that with magnet ring.

LB



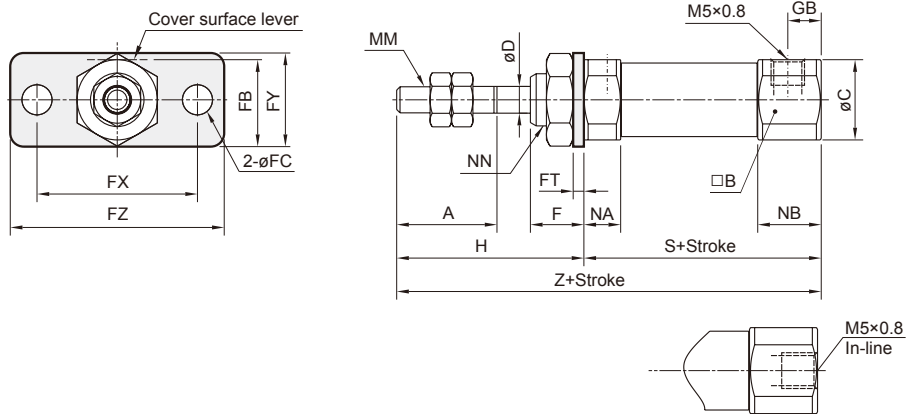
| Code Tube I.D. | A | B | C | D | F | GB | H | LB | LC | LH | LT | LX | LY | LZ | MM | NA | NB | NN | X | Y |
|-------------------|----|----|----|---|---|----|----|----|-----|----|-----|----|------|----|--------|-----|-----|---------|---|---|
| 6 | 15 | 8 | 9 | 3 | 8 | — | 28 | 13 | 4.5 | 9 | 1.6 | 24 | 16.5 | 32 | M3×0.5 | 3 | 7 | M6×1.0 | 5 | 7 |
| 10 | 15 | 12 | 14 | 4 | 8 | 5 | 28 | 15 | 4.5 | 9 | 1.6 | 24 | 16.5 | 32 | M4×0.7 | 5.5 | 9.5 | M8×1.0 | 5 | 7 |
| 16 | 15 | 18 | 20 | 5 | 8 | 5 | 28 | 23 | 5.5 | 14 | 2.3 | 33 | 25 | 42 | M5×0.8 | 5.5 | 9.5 | M10×1.0 | 6 | 9 |

| Code Stroke Tube I.D. | S* | | | | | | | | Z* | | | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|
| | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 | 5-15 | 16-30 | 31-45 | 46-60 | 61-75 | 76-100 | 101-125 | 126-150 |
| 6 | 34.5 (39.5) | 43.5 (48.5) | 47.5 (52.5) | 61.5 (66.5) | — | — | — | — | 62.5 (67.5) | 71.5 (76.5) | 75.5 (80.5) | 89.5 (94.5) | — | — | — | — |
| 10 | 45.5 | 53 | 65 | 77 | — | — | — | — | 73.5 | 81 | 93 | 105 | — | — | — | — |
| 16 | 45.5 | 54 | 66 | 78 | 84 | 108 | 126 | 138 | 73.5 | 82 | 94 | 106 | 112 | 136 | 154 | 166 |

* (S), (Z) () indicate the size of that with magnet ring.

PEN CYLINDER

FA



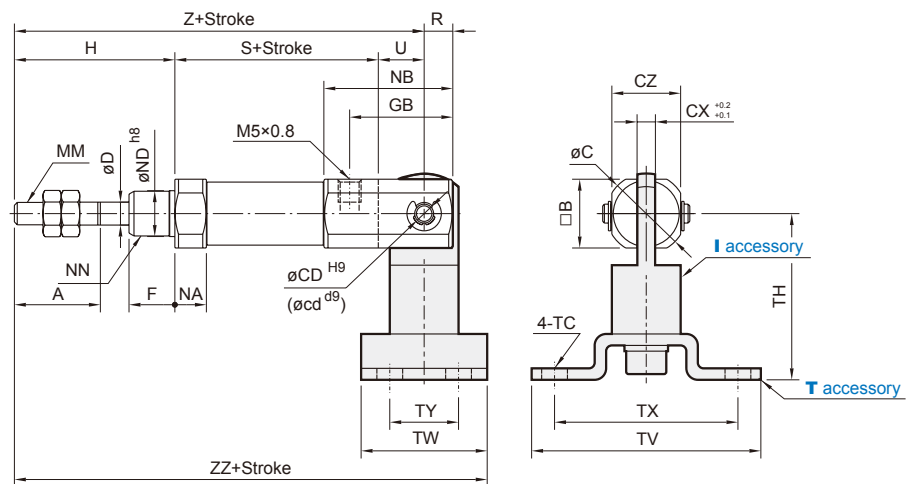
| Code Tube I.D. | A | B | C | D | F | GB | H | FB | FC | FT | FX | FY | FZ | MM | NA | NB | NN | X | Y |
|-------------------|----|----|----|---|---|----|----|----|-----|-----|----|----|----|--------|-----|-----|---------|---|---|
| 6 | 15 | 8 | 9 | 3 | 8 | — | 28 | 11 | 4.5 | 1.6 | 24 | 14 | 32 | M3×0.5 | 3 | 7 | M6×1.0 | 5 | 7 |
| 10 | 15 | 12 | 14 | 4 | 8 | 5 | 28 | 13 | 4.5 | 1.6 | 24 | 14 | 32 | M4×0.7 | 5.5 | 9.5 | M8×1.0 | 5 | 7 |
| 16 | 15 | 18 | 20 | 5 | 8 | 5 | 28 | 19 | 5.5 | 2.3 | 33 | 20 | 42 | M5×0.8 | 5.5 | 9.5 | M10×1.0 | 6 | 9 |

| Code Stroke Tube I.D. | S* | | | | | | | | Z* | | | | | | | |
|-----------------------------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|----------------|----------------|----------------|----------------|-------|--------|---------|---------|
| | 5~15 | 16~30 | 31~45 | 46~60 | 61~75 | 76~100 | 101~125 | 126~150 | 5~15 | 16~30 | 31~45 | 46~60 | 61~75 | 76~100 | 101~125 | 126~150 |
| 6 | 34.5 (39.5) | 43.5 (48.5) | 47.5 (52.5) | 61.5 (66.5) | — | — | — | — | 62.5 (67.5) | 71.5 (76.5) | 75.5 (80.5) | 89.5 (94.5) | — | — | — | — |
| 10 | 45.5 | 53 | 65 | 77 | — | — | — | — | 73.5 | 81 | 93 | 105 | — | — | — | — |
| 16 | 45.5 | 54 | 66 | 78 | 84 | 108 | 126 | 138 | 73.5 | 82 | 94 | 106 | 112 | 136 | 154 | 166 |

* (S), (Z) () indicate the size of that with magnet ring.

T

I+Pin
(Extra purchase)

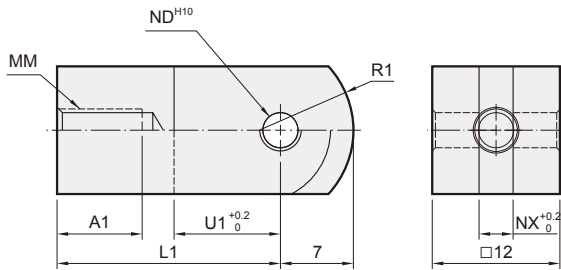


| Code Tube I.D. | A | B | C | CD (cd) | CX | CZ | D | F | GB | H | MM | NA | NB | ND | NN | R | TC | TH | TV | TW | TX | TY | U |
|-------------------|----|----|----|------------|-----|----|---|---|----|----|--------|-----|------|-----------------------------------|---------|---|-----|----|----|----|----|----|----|
| 10 | 15 | 12 | 14 | 3.3 | 3.2 | 12 | 4 | 8 | 18 | 28 | M4×0.7 | 5.5 | 22.5 | 8 ⁰ _{-0.022} | M8×1.0 | 5 | 4.5 | 29 | 40 | 22 | 32 | 12 | 8 |
| 16 | 15 | 18 | 20 | 5 | 6.5 | 18 | 5 | 8 | 23 | 28 | M5×0.8 | 5.5 | 27.5 | 10 ⁰ _{-0.022} | M10×1.0 | 8 | 5.5 | 35 | 48 | 28 | 38 | 16 | 10 |

| Code Stroke Tube I.D. | S | | | | | | | | Z | | | | | | | | ZZ | | | | | | | |
|-----------------------------|------|-------|-------|-------|-------|--------|---------|---------|------|-------|-------|-------|-------|--------|---------|---------|------|-------|-------|-------|-------|--------|---------|---------|
| | 5~15 | 16~30 | 31~45 | 46~60 | 61~75 | 76~100 | 101~125 | 126~150 | 5~15 | 16~30 | 31~45 | 46~60 | 61~75 | 76~100 | 101~125 | 126~150 | 5~15 | 16~30 | 31~45 | 46~60 | 61~75 | 76~100 | 101~125 | 126~150 |
| 10 | 45.5 | 53 | 65 | 77 | — | — | — | — | 81.5 | 89 | 101 | 113 | — | — | — | — | 92.5 | 100 | 112 | 124 | — | — | — | — |
| 16 | 45.5 | 54 | 66 | 78 | 84 | 108 | 126 | 138 | 83.5 | 92 | 104 | 116 | 122 | 146 | 164 | 176 | 97.5 | 106 | 118 | 130 | 136 | 160 | 178 | 190 |

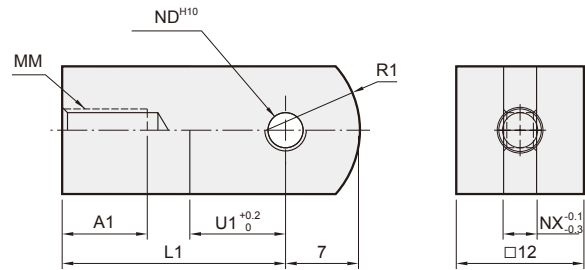
PEN CYLINDER

Y connector



| Code Tube I.D. | A1 | L1 | MM | ND ^{H10} | NX | R1 | U1 |
|-------------------|----|----|--------|--------------------------------------|-----|----|----|
| 10 | 8 | 21 | M4×0.7 | 3.3 ^{+0.048} / ₀ | 3.2 | 8 | 10 |
| 16 | 11 | 21 | M5×0.8 | 5 ^{+0.048} / ₀ | 6.5 | 12 | 10 |

I connector

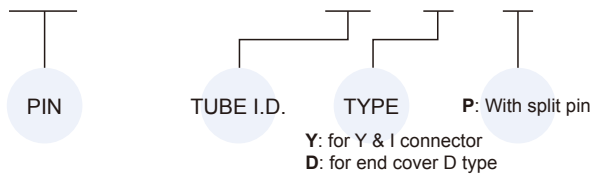


| Code Tube I.D. | A1 | L1 | MM | ND ^{H10} | NX | R1 | U1 |
|-------------------|----|----|--------|--------------------------------------|-----|----|----|
| 10 | 8 | 21 | M4×0.7 | 3.3 ^{+0.048} / ₀ | 3.1 | 8 | 9 |
| 16 | 8 | 25 | M5×0.8 | 5 ^{+0.048} / ₀ | 6.4 | 12 | 14 |

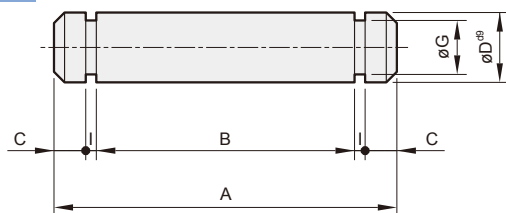
PIN

Order example

PIN – MCMJ – 10 – Y – P



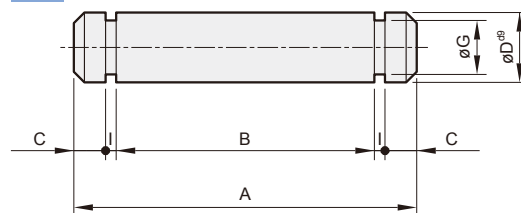
P



for Y & I connector

| Code Tube I.D. | A | B | C | D ^{d9} | G | I | Split pin |
|-------------------|------|------|-----|---|-----|-----|-----------|
| 10 | 16.2 | 12.2 | 1.5 | 3.3 ^{-0.03} / _{-0.06} | 2.5 | 0.5 | E-2.5 |
| 16 | 16.2 | 12.2 | 1.5 | 5 ^{-0.03} / _{-0.06} | 4 | 0.7 | E-4 |

P



for end cover D type

| Code Tube I.D. | A | B | C | D ^{d9} | G | I | Split pin |
|-------------------|------|------|-----|---|-----|-----|-----------|
| 10 | 15.2 | 12.2 | 1 | 3.3 ^{-0.03} / _{-0.06} | 2.5 | 0.5 | E-2.5 |
| 16 | 22.7 | 18.3 | 1.5 | 5 ^{-0.03} / _{-0.06} | 4 | 0.7 | E-4 |