# MCMA series

## MINIATURE CYLINDERS

## Features:

### ■ Non lubrication:

- Special housing and bushing enables self lubrication of piston rod.

### ■ High quality long service life:

- Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.
- Operation, with the exception of MCMA-11, single and doubling type available- MCMA-13 / 15.

## Table for standard stroke

| | Tube I.D. | Stroke (mm) |
|---|---|---|
| Single Acting | ϕ16 | 15, 25, 50, 75, 100 |
| | ϕ20, 25, 32 | 15, 25, 50, 75, 100, 125, 150 |
| Double Acting | ϕ16 | 15, 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500 |
| | ϕ20, 25, 32, 40 | 15, 25, 50, 75, 100, 125, 150, 200, 250, 300, 350, 400, 450, 500 |

- Stroke out of specification is also available.
- Please consult us if stroke out of specification.

## Specification:

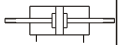
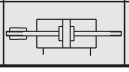
| Model | MCMA | | | | |
|---|---|---|---|---|---|
| Tube I.D. (mm) | 16 | 20 | 25 | 32 | 40 |
| Port size | M5×0.8 | PT 1/8 | | | |
| Medium | Air | | | | |
| Max. operating pressure | 7 kgf/cm² | | | | |
| Min. operating pressure (Double) | 0.6 kgf/cm² | | | | |
| Min. operating pressure (Single) | 1.5 kgf/cm² | | | | |
| Proof pressure | 10 kgf/cm² | | | | |
| Available speed range | 50~500 mm/sec | | | | |
| Ambient temperature | −5~+60℃ (No freezing) | | | | |
| Lubricator | Not required | | | | |
| Sensor switch (band) | RCA (Matching the BA20~BA40 band) (Matching the BGS20~BGS40 band) | | | | |
| | RCM (Matching the BM16~BM40 band) | | | | |
| | RCS (Matching the BJ16 band) | | | | |

- The code of sensor switch band is BM16. "16" represents the tube I.D.

## Order example:

MCMA − 11 − 32 − 100 − A − N − BSP

- MODEL
- STYLE: **1**: Single Rod, **2**: Double Rod
- TUBE I.D.
- STROKE
- Blank: With cushion pad, **A**: With adjustable cushion (This doesn't apply to bore 20)
- Blank: With pivot type, **N**: Non-pivot type (end-plain)
- PORT THREAD: Blank: PT thread, **BSP**: BSP thread, **NPT**: NPT thread

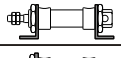
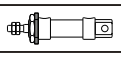
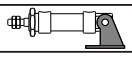
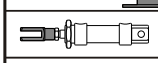
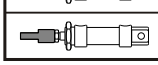
| Code | | Symbol | Description |
|---|---|---|---|
| 1 | 1 |  | Double acting / Male thread |
| 1 | 3 |  | Single acting / Normally extended male thread |
| 1 | 5 |  | Single acting / Normally returned male thread |
| 2 | 1 |  | Double rod / Male thread |
| 2 | 7 |  | Double rod / Adjustable male thread<br>Please mark "adjustable distance(mm)" at order list |

※ Order example for special specification, refer to page **H-03**.

## Mounting accessories:

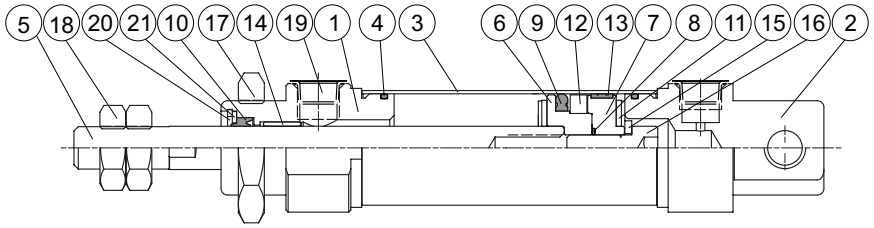
FA − MCMA − 32

- MODEL
- TUBE I.D.
- MOUNTING TYPE

| | |
|---|---|
|  | **LB** |
|  | **FA** |
|  | **FB** |
|  | **SDB** |
|  | **Y** |
|  | **I** |

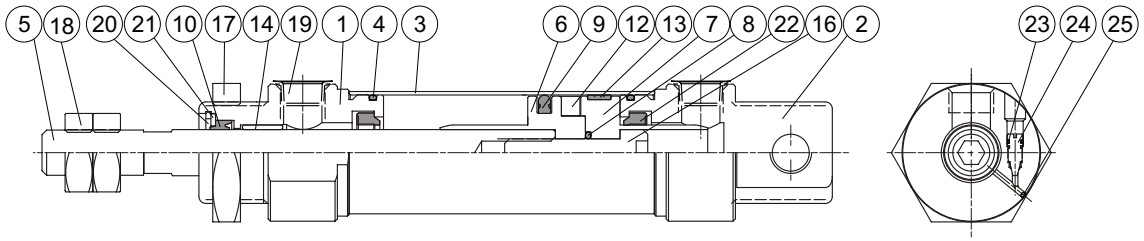
## Cushion pad type

$\phi$16~$\phi$40




## Cushion air type

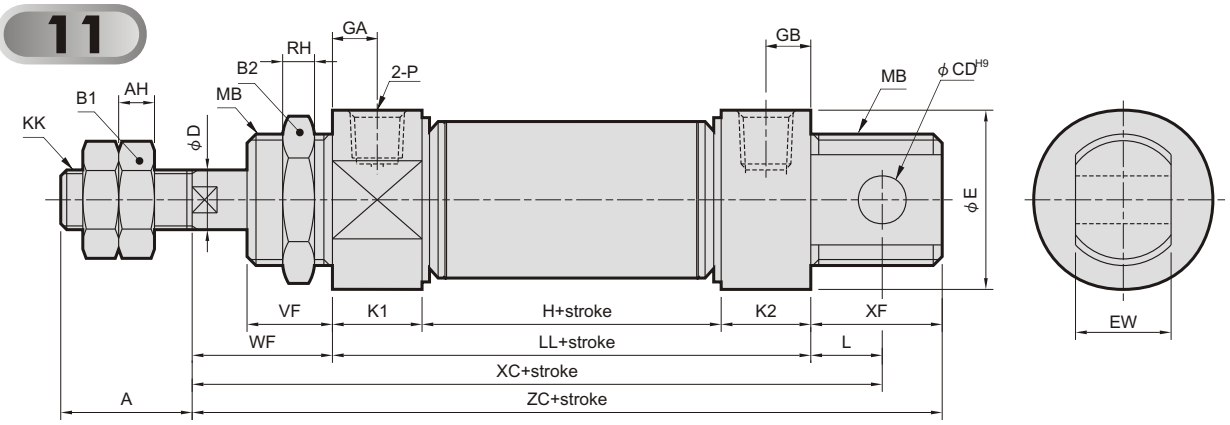
$\phi$16~$\phi$40



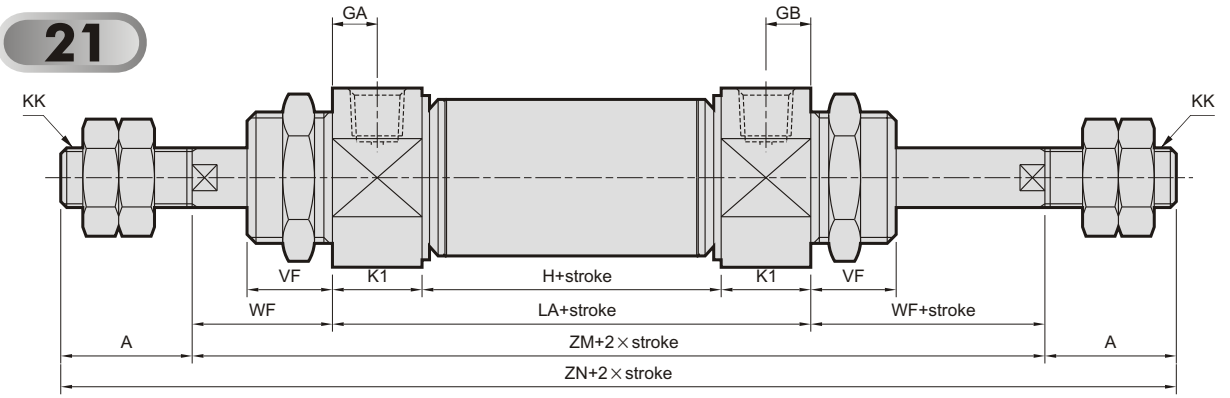

## Material :

| No. | Cushion | | Tube I.D. / Part name | 16 | 20 | 25 | 32 | 40 | Note |
|---|---|---|---|---|---|---|---|---|---|
| | Air | Pad | | | | | | | |
| 1 | ● | ● | Rod cover | Aluminum alloy | | | | | |
| 2 | ● | ● | Head cover | Aluminum alloy | | | | | |
| 3 | ● | ● | Tube | Stainless steel | | | | | |
| 4 | ● | ● | Cover ring | NBR | | | | | |
| 5 | ● | ● | Piston rod | ※ | Medium carbon steel | | | | ※Stainless steel |
| 6 | ● | ● | Piston-R | Polyurethane | | | | | $\phi$25A with cushion air-Aluminum alloy |
| 7 | ● | ● | Piston-H | Polyurethane | | | | | $\phi$25A with cushion air-Aluminum alloy |
| 8 | ● | ● | Piston gasket | NBR | | | | | |
| 9 | ● | ● | Piston packing | NBR | | | | | |
| 10 | ● | ● | Rod packing | NBR | | | | | |
| 11 | | ● | Cushion gasket | NBR | | | | | |
| 12 | ● | ● | Magnet ring | Magnet material | | | | | |
| 13 | ● | ● | Wear ring | Teflon + Graphite | | | | | |
| 14 | ● | ● | Rod bush | Bearing alloy | | | | | |
| 15 | | ● | Washer | Carbon steel | | | | | only for $\phi$25 with cushion pad |
| 16 | ● | ● | Piston bolt | SCM | | | | | |
| 17 | ● | ● | Tie nut | Carbon steel | | | | | |
| 18 | ● | ● | Rod front nut | Carbon steel | | | | | |
| 19 | ● | ● | Port plug | Plastic | | | | | |
| 20 | ● | ● | Snap ring | Spring steel | | | | | |
| 21 | ● | ● | Washer | Carbon steel | | | | | |
| 22 | ● | | Cushion packing | NBR | | | | | |
| 23 | ● | | Needle valve packing | NBR | | | | | |
| 24 | ● | | Needle valve | Stainless steel | | | Carbon steel | | |
| 25 | ● | | Steel ball | Stainless steel | | | | | |

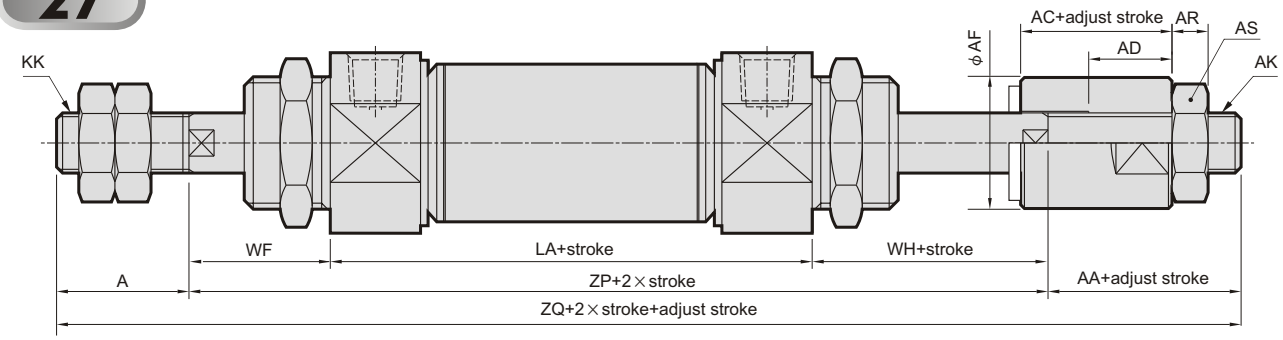
## 11




## 21



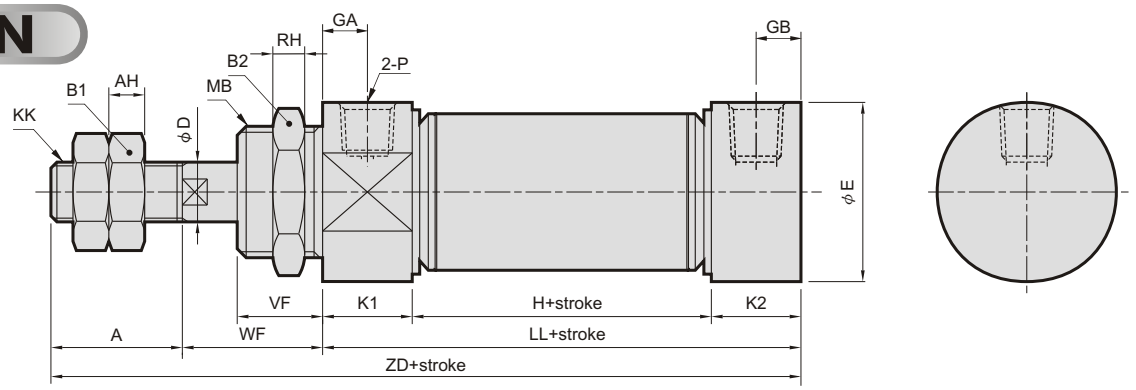

## 27




| Code / Tube I.D. | A | AA | AC | AD | AF | AH | AR | AS | AK | B1 | B2 | CD | D | E | EW | GA | GB | H | KK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 16 | 13 | 7.5 | 12 | 5 | 4 | 8 | M5×0.8 | 10 | 22 | 6 | 6 | 19.7 | $12^{-0.05}_{-0.4}$ | 5 | 5 | 34 | M6×1.0 |
| 20 | 20 | 19 | 15 | 9.5 | 16 | 5 | 5 | 13 | M8×1.25 | 13 | 30 | 8 | 8 | 26.7 | $16^{-0.05}_{-0.4}$ | 7.5 | 7.5 | 40 | M8×1.25 |
| 25 | 22 | 19 | 15 | 9.5 | 16 | 5 | 5 | 13 | M8×1.25 | 17 | 30 | 8 | 10 | 29.7 | $16^{-0.05}_{-0.4}$ | 7.5 | 7.5 | 40 | M10×1.25 |
| 32 | 22 | 18 | 12 | 7 | 20 | 5 | 6 | 17 | M10×1.25 | 17 | 32 | 10 | 12 | 36 | $16^{-0.05}_{-0.4}$ | 7.5 | 10.5 | 37 | M10×1.25 |
| 40 | 30 | 18 | 12 | 7 | 30 | 7 | 7 | 19 | M12×1.25 | 19 | 41 | 12 | 14 | 45 | $20^{-0.05}_{-0.4}$ | 7.5 | 10.5 | 42 | M12×1.25 |

| Code / Tube I.D. | K1 | K2 | L | LA | LL | MB | P | RH | VF | WF | WH | XC | XF | ZC | ZM | ZN | ZP | ZQ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 10 | 10 | 9 | 54 | 54 | M16×1.5 | M5×0.8 | 6 | 12 | 22 | 19.5 | 85 | 16 | 92 | 98 | 130 | 95.5 | 127.5 |
| 20 | 15 | 15 | 12 | 70 | 70 | M22×1.5 | PT 1/8 | 6 | 12 | 18 | 19.5 | 100 | 21 | 109 | 106 | 146 | 107.5 | 146.5 |
| 25 | 15 | 15 | 12 | 70 | 70 | M22×1.5 | PT 1/8 | 6 | 15 | 27 | 22.5 | 109 | 21 | 118 | 124 | 168 | 119.5 | 160.5 |
| 32 | 15 | 18 | 14 | 67 | 70 | M24×2.0 | PT 1/8 | 8 | 18 | 30 | 24 | 114 | 24 | 124 | 127 | 171 | 121 | 161 |
| 40 | 15 | 18 | 16 | 72 | 75 | M30×2.0 | PT 1/8 | 8 | 17 | 27 | 24 | 118 | 28 | 130 | 126 | 186 | 123 | 171 |

## N

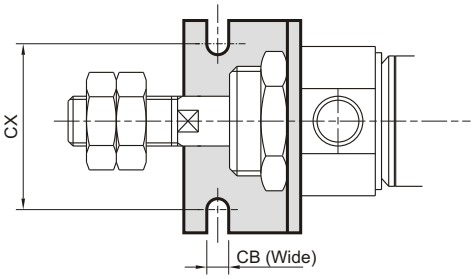



| Code / Tube I.D. | A | AH | B1 | B2 | D | E | GA | GB | H | KK | K1 | K2 | LL | MB | P | RH | VF | WF | ZD |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 5 | 10 | 22 | 6 | 19.7 | 5 | 5 | 34 | M6×1.0 | 10 | 10 | 54 | M16×1.5 | M5×0.8 | 6 | 12 | 22 | 92 |
| 20 | 20 | 5 | 13 | 30 | 8 | 26.7 | 7.5 | 7.5 | 40 | M8×1.25 | 15 | 15 | 70 | M22×1.5 | PT 1/8 | 6 | 12 | 18 | 108 |
| 25 | 22 | 6 | 17 | 30 | 10 | 29.7 | 7.5 | 7.5 | 40 | M10×1.25 | 15 | 15 | 70 | M22×1.5 | PT 1/8 | 6 | 15 | 27 | 119 |
| 32 | 22 | 6 | 17 | 32 | 12 | 36 | 7.5 | 10.5 | 37 | M10×1.25 | 15 | 18 | 70 | M24×2.0 | PT 1/8 | 8 | 18 | 30 | 122 |
| 40 | 30 | 7 | 19 | 41 | 14 | 45 | 7.5 | 10.5 | 42 | M12×1.25 | 15 | 18 | 75 | M30×2.0 | PT 1/8 | 8 | 17 | 27 | 132 |

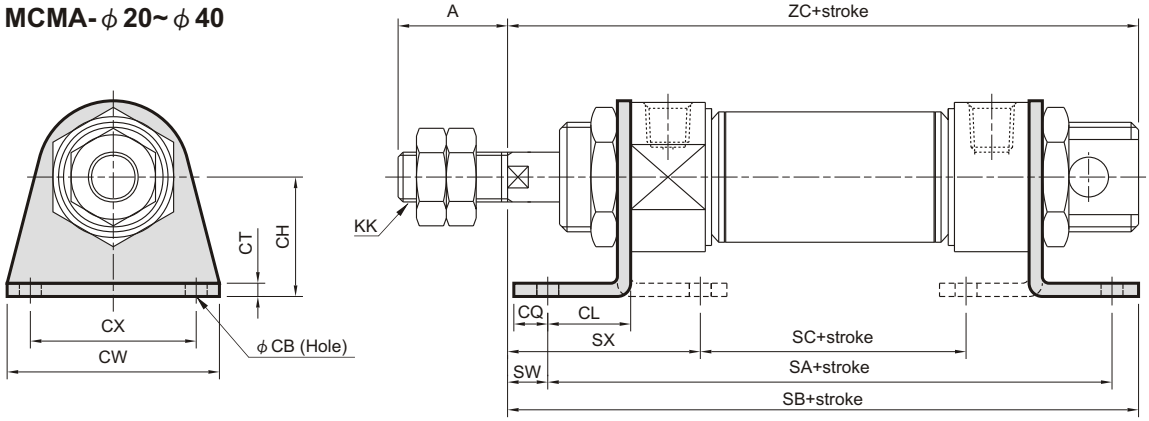
## ■ Mounting accessories

## LB

**MCMA-ϕ16**

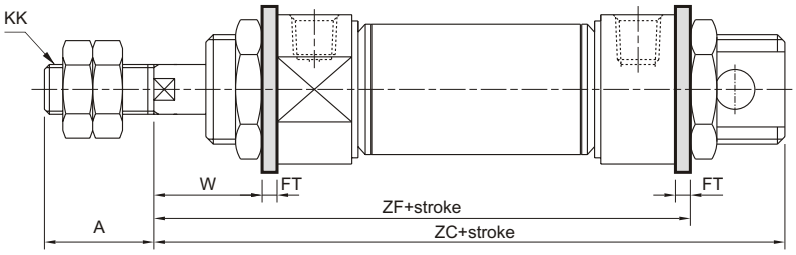



**MCMA-ϕ20~ϕ40**

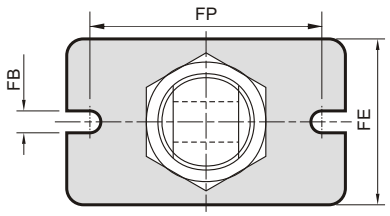



| Code / Tube I.D. | A | CB | CH | CL | CQ | CT | CW | CX | KK | SA | SB | SC | SW | SX | ZC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 5.5 | 20 | 13 | 6 | 3.2 | 44 | 32 | M6×1.0 | 80 | 95 | 34.4 | 9 | 31.8 | 92 |
| 20 | 20 | 6.6 | 25 | 15 | 8 | 3.2 | 54 | 40 | M8×1.25 | 100 | 111 | 46.4 | 3 | 29.8 | 109 |
| 25 | 22 | 6.6 | 25 | 15 | 8 | 3.2 | 54 | 40 | M10×1.25 | 100 | 120 | 46.4 | 12 | 38.8 | 118 |
| 32 | 22 | 6.6 | 32 | 25 | 8 | 4 | 59 | 45 | M10×1.25 | 120 | 133 | 28 | 5 | 51 | 124 |
| 40 | 30 | 6.6 | 36 | 25 | 8 | 4 | 64 | 50 | M12×1.25 | 125 | 135 | 33 | 2 | 48 | 130 |

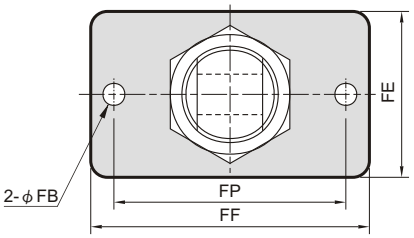
## FA(FB)



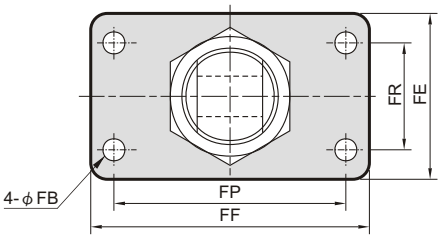

**MCMA-ϕ16**




**MCMA-ϕ20. ϕ25**

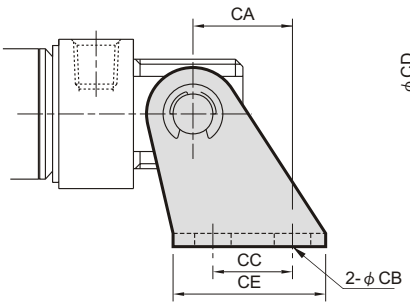



**MCMA-ϕ32. ϕ40**

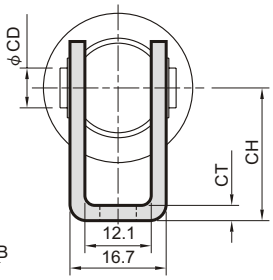


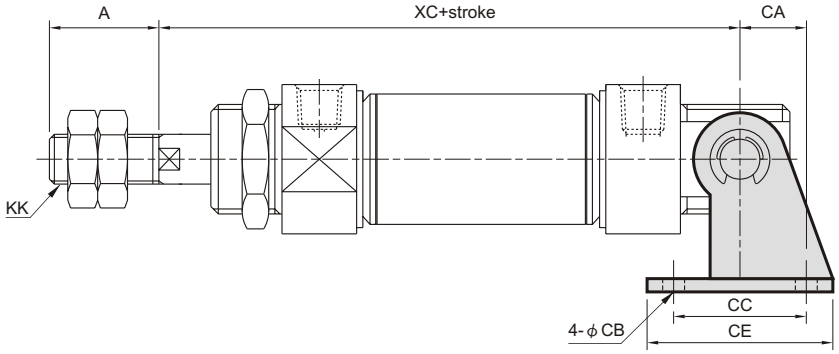

| Code / Tube I.D | A | FB | FE | FF | FP | FR | FT | KK | W | ZC | ZF |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 5.5 | 26 | 52 | 40 | | 3.2 | M6×1.0 | 18.8 | 92 | 79.2 |
| 20 | 20 | 6.6 | 38 | 64 | 50 | | 4.5 | M8×1.25 | 13.5 | 109 | 92.5 |
| 25 | 22 | 6.6 | 38 | 64 | 50 | | 4.5 | M10×1.25 | 22.5 | 118 | 101.5 |
| 32 | 22 | 6.6 | 47 | 72 | 58 | 33 | 4.5 | M10×1.25 | 25.5 | 124 | 104.5 |
| 40 | 30 | 6.6 | 50 | 84 | 70 | 36 | 4.5 | M12×1.25 | 22.5 | 130 | 105.5 |

## SDB

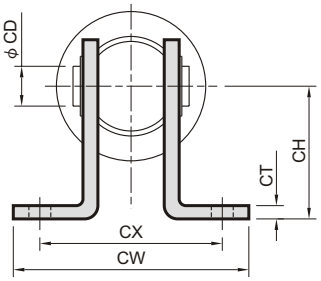



**MCMA-ϕ16**



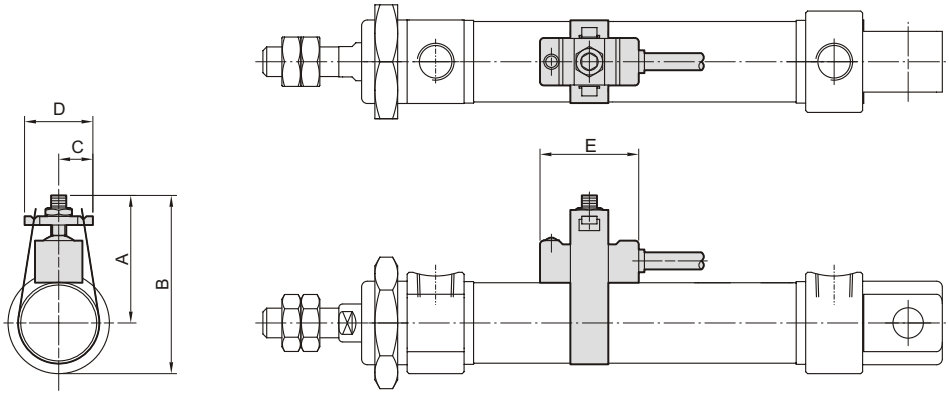




**MCMA-ϕ20~ϕ40**



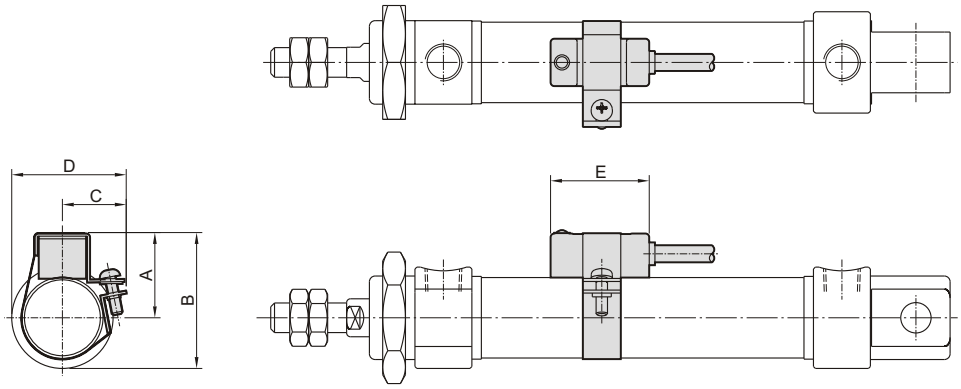

| Code / Tube I.D | A | CA | CB | CC | CD | CE | CH | CT | CW | CX | KK | XC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 15 | 5.5 | 12 | 6 | 23 | 20 | 2.3 | | | M6×1.0 | 85 |
| 20 | 20 | 16 | 6.6 | 32 | 8 | 48 | 32 | 3.2 | 67 | 51 | M8×1.25 | 100 |
| 25 | 22 | 16 | 6.6 | 32 | 8 | 48 | 32 | 3.2 | 67 | 51 | M10×1.25 | 109 |
| 32 | 22 | 18 | 6.6 | 36 | 10 | 52 | 36 | 4 | 67 | 51 | M10×1.25 | 114 |
| 40 | 30 | 20 | 6.6 | 40 | 12 | 56 | 40 | 4 | 69 | 53 | M12×1.25 | 121 |

Sensor switch: RCA
Sensor switch band: BA**



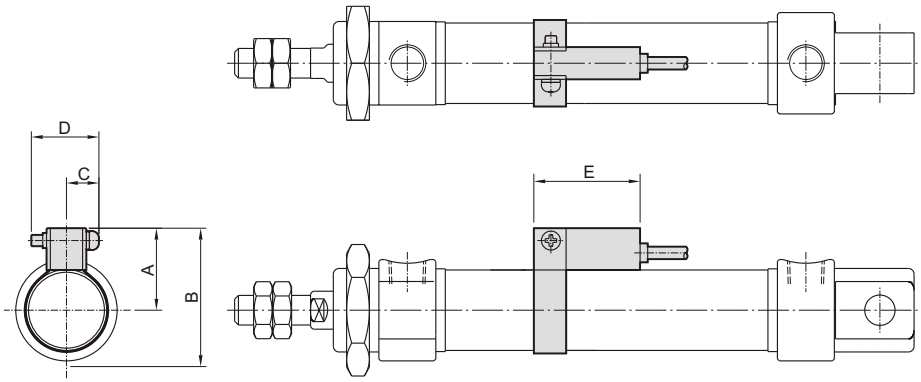

| Code / Tube I.D. | A | B | C | D | E |
|---|---|---|---|---|---|
| 20 | 33 | 46.5 | 9 | 18 | 26 |
| 25 | 35.5 | 50.5 | 9 | 18 | 26 |
| 32 | 39 | 57 | 9 | 18 | 26 |
| 40 | 43 | 65.5 | 9 | 18 | 26 |

Sensor switch: RCA
Sensor switch band: BGS**



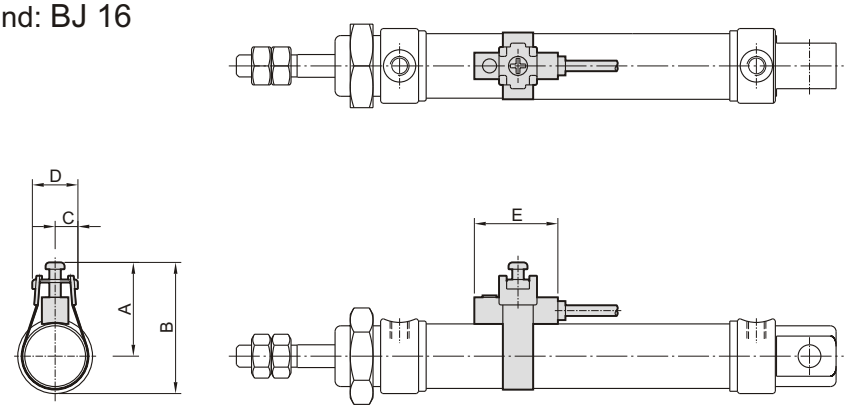

| Code / Tube I.D. | A | B | C | D | E |
|---|---|---|---|---|---|
| 20 | 25 | 38.5 | 18 | 30.5 | 26 |
| 25 | 25.5 | 40.5 | 18.5 | 31.5 | 26 |
| 32 | 29 | 47 | 22 | 39 | 26 |
| 40 | 33 | 55.5 | 26 | 47 | 26 |

Sensor switch: RCM
Sensor switch band: BM**



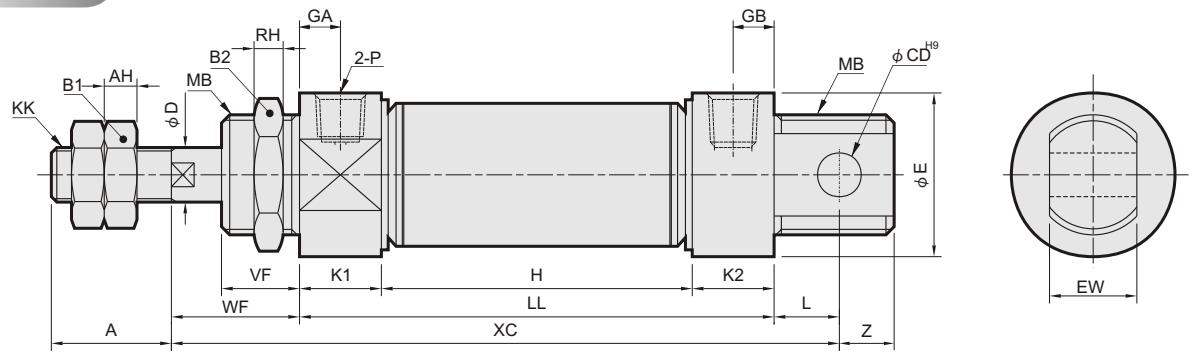

| Code / Tube I.D. | A | B | C | D | E |
|---|---|---|---|---|---|
| 16 | 20 | 30 | 10 | 16 | 28 |
| 20 | 22 | 36 | 10 | 16 | 28 |
| 25 | 25 | 40 | 10 | 16 | 28 |
| 32 | 28 | 46 | 10 | 16 | 28 |
| 40 | 32 | 55 | 10 | 16 | 28 |

Sensor switch: RCS
Sensor switch band: BJ 16




| Code / Tube I.D. | A | B | C | D | E |
|---|---|---|---|---|---|
| 16 | 23.4 | 33.3 | 6 | 12 | 22 |

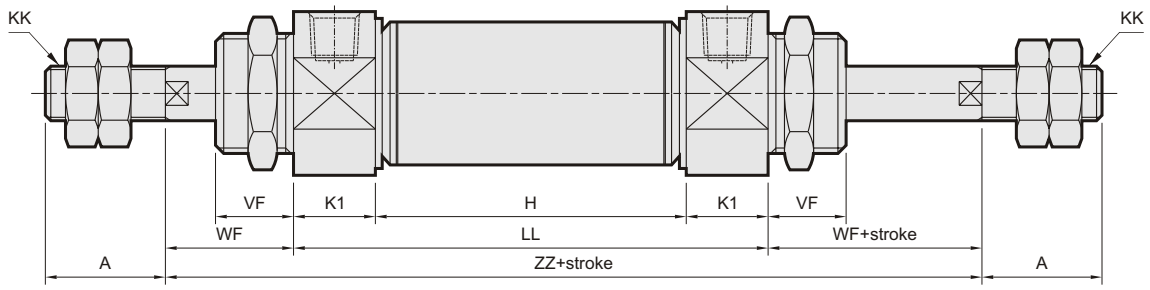
## 15




| Code / Tube I.D. | A | AH | B1 | B2 | CD | D | E | EW | GA | GB | KK | K1 | K2 | L | MB | P | RH | VF | WF | YP | Z |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 5 | 10 | 22 | 6 | 6 | 19.7 | $12^{-0.05}_{-0.4}$ | 5 | 5 | M6×1.0 | 10 | 10 | 9 | M16×1.5 | M5×0.8 | 6 | 12 | 22 | 5 | 7 |
| 20 | 20 | 5 | 13 | 30 | 8 | 8 | 26.7 | $16^{-0.05}_{-0.4}$ | 7.5 | 7.5 | M8×1.25 | 15 | 15 | 12 | M22×1.5 | PT 1/8 | 6 | 12 | 18 | 7.5 | 9 |
| 25 | 22 | 6 | 17 | 30 | 8 | 10 | 29.7 | $16^{-0.05}_{-0.4}$ | 7.5 | 7.5 | M10×1.25 | 15 | 15 | 12 | M22×1.5 | PT 1/8 | 6 | 15 | 27 | 7.5 | 9 |
| 32 | 22 | 6 | 17 | 32 | 10 | 12 | 36 | $16^{-0.05}_{-0.4}$ | 7.5 | 10.5 | M10×1.25 | 15 | 18 | 14 | M24×2.0 | PT 1/8 | 8 | 18 | 30 | 7.5 | 10 |

| Code / Stroke / I.D. | H | | | | | | | LL | | | | | | | XC | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | 25 | 50 | 75 | 100 | 125 | 150 | 15 | 25 | 50 | 75 | 100 | 125 | 150 | 15 | 25 | 50 | 75 | 100 | 125 | 150 |
| 16 | 64 | 74 | 114 | 154 | 194 | | | 84 | 94 | 134 | 174 | 214 | | | 115 | 125 | 165 | 205 | 245 | | |
| 20 | 80 | 90 | 140 | 190 | 240 | 290 | 340 | 110 | 120 | 170 | 220 | 270 | 320 | 370 | 140 | 150 | 200 | 250 | 300 | 350 | 400 |
| 25 | 80 | 90 | 140 | 190 | 240 | 290 | 340 | 110 | 120 | 170 | 220 | 270 | 320 | 370 | 149 | 159 | 209 | 259 | 309 | 359 | 409 |
| 32 | 77 | 87 | 137 | 187 | 237 | 287 | 337 | 110 | 120 | 170 | 220 | 270 | 320 | 370 | 154 | 164 | 214 | 264 | 314 | 364 | 414 |

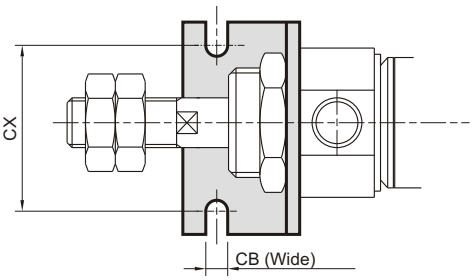
## 21



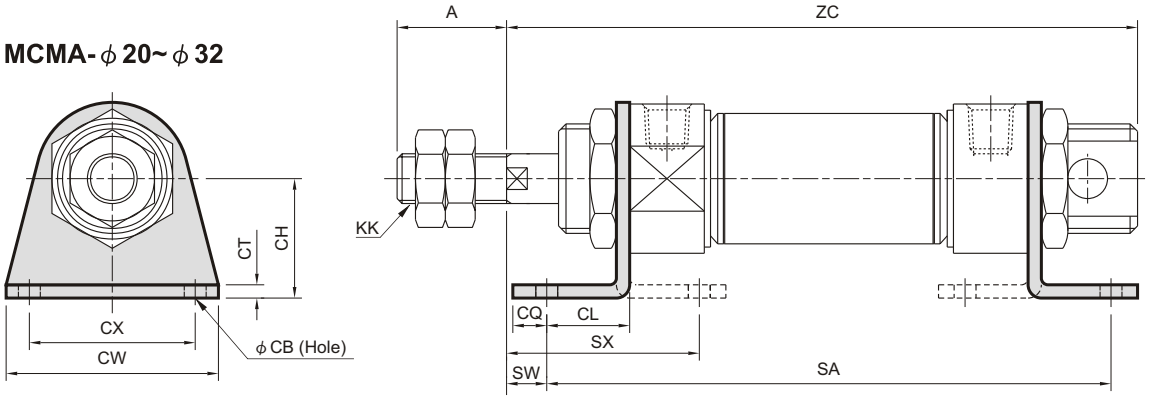

| Code / Stroke / I.D. | H | | | | | | | LL | | | | | | | ZZ | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | 25 | 50 | 75 | 100 | 125 | 150 | 15 | 25 | 50 | 75 | 100 | 125 | 150 | 15 | 25 | 50 | 75 | 100 | 125 | 150 |
| 16 | 64 | 74 | 114 | 154 | 194 | | | 84 | 94 | 134 | 174 | 214 | | | 125 | 135 | 175 | 215 | 255 | | |
| 20 | 80 | 90 | 140 | 190 | 240 | 290 | 340 | 110 | 120 | 170 | 220 | 270 | 320 | 370 | 146 | 156 | 206 | 256 | 306 | 356 | 406 |
| 25 | 80 | 90 | 140 | 190 | 240 | 290 | 340 | 110 | 120 | 170 | 220 | 270 | 320 | 370 | 164 | 174 | 224 | 274 | 324 | 374 | 424 |
| 32 | 77 | 87 | 137 | 187 | 237 | 287 | 337 | 107 | 117 | 167 | 217 | 267 | 317 | 367 | 167 | 177 | 227 | 277 | 327 | 377 | 427 |

LB

MCMA-ϕ16



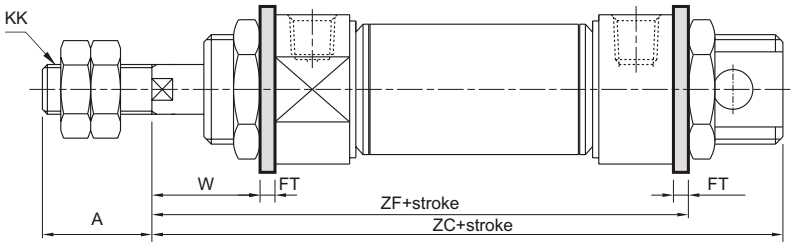

MCMA-ϕ20~ϕ32



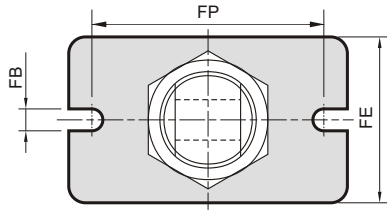

| Code / Tube I.D. | A | CB | CH | CL | CQ | CT | CW | CX | KK | SW | SX |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 5.5 | 20 | 13 | 6 | 3.2 | 44 | 32 | M6×1.0 | 9 | 31.8 |
| 20 | 20 | 6.6 | 25 | 15 | 8 | 3.2 | 54 | 40 | M8×1.25 | 3 | 29.8 |
| 25 | 22 | 6.6 | 25 | 15 | 8 | 3.2 | 54 | 40 | M10×1.25 | 12 | 38.8 |
| 32 | 22 | 6.6 | 32 | 25 | 8 | 4 | 59 | 45 | M10×1.25 | 5 | 51 |

| Code / Stroke / I.D. | SA | | | | | | | ZC | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | 25 | 50 | 75 | 100 | 125 | 150 | 15 | 25 | 50 | 75 | 100 | 125 | 150 |
| 16 | 110 | 120 | 160 | 200 | 240 | | | 121 | 131 | 171 | 211 | 251 | | |
| 20 | 140 | 150 | 200 | 250 | 300 | 350 | 400 | 146 | 156 | 206 | 256 | 306 | 356 | 406 |
| 25 | 140 | 150 | 200 | 250 | 300 | 350 | 400 | 155 | 165 | 215 | 265 | 315 | 365 | 415 |
| 32 | 160 | 170 | 220 | 270 | 320 | 370 | 420 | 162 | 172 | 222 | 272 | 322 | 372 | 422 |

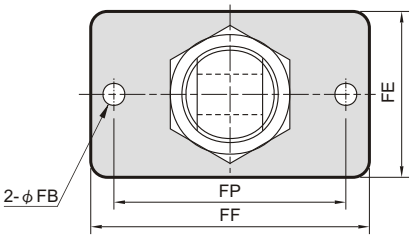
## FA(FB)



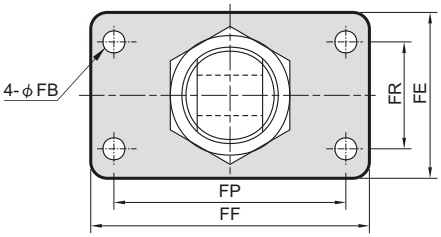

MCMA-ϕ16




MCMA-ϕ20. ϕ25



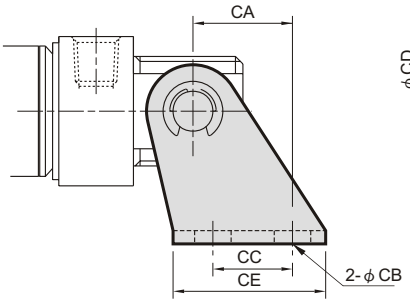

MCMA-ϕ32



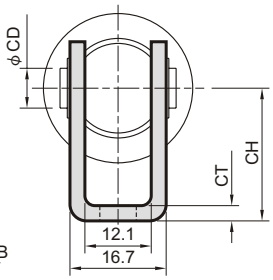

| Code / Tube I.D. | A | FB | FE | FF | FP | FR | FT | KK | W |
|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 5.5 | 26 | 52 | 40 | | 3.2 | M6×1.0 | 18.8 |
| 20 | 20 | 6.6 | 38 | 64 | 50 | | 4.5 | M8×1.25 | 13.5 |
| 25 | 22 | 6.6 | 38 | 64 | 50 | | 4.5 | M10×1.25 | 22.5 |
| 32 | 22 | 6.6 | 47 | 72 | 58 | 33 | 4.5 | M10×1.25 | 25.5 |

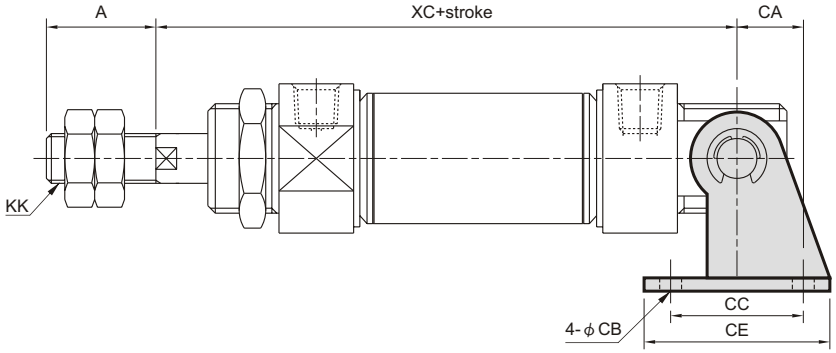
| Code / Stroke / I.D. | ZC | | | | | | | ZF | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 15 | 25 | 50 | 75 | 100 | 125 | 150 | 15 | 25 | 50 | 75 | 100 | 125 | 150 |
| 16 | 121 | 131 | 171 | 211 | 251 | | | 109.2 | 119.2 | 159.2 | 199.2 | 239.2 | | |
| 20 | 146 | 156 | 206 | 256 | 306 | 356 | 406 | 132.5 | 142.5 | 192.5 | 242.5 | 292.5 | 342.5 | 392.5 |
| 25 | 155 | 165 | 215 | 265 | 315 | 365 | 415 | 141.5 | 151.5 | 201.5 | 251.5 | 301.5 | 351.5 | 401.5 |
| 32 | 162 | 172 | 222 | 272 | 322 | 372 | 422 | 144.5 | 154.5 | 204.5 | 254.5 | 304.5 | 354.5 | 404.5 |

## SDB

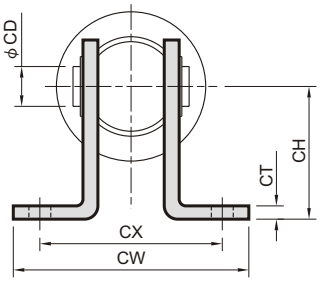



MCMA-ϕ16




MCMA-ϕ20~ϕ32



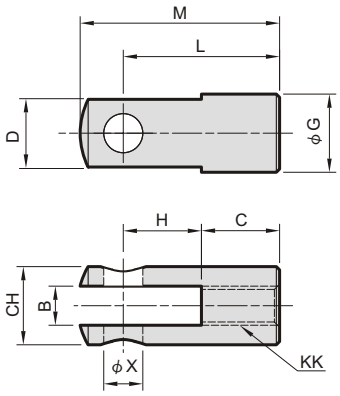

| Code / Tube I.D. | A | CA | CB | CC | CD | CE | CH | CT | CX | CW | KK |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 16 | 15 | 5.5 | 12 | 6 | 23 | 20 | 2.3 | | | M6×1.0 |
| 20 | 20 | 16 | 6.6 | 32 | 8 | 48 | 32 | 3.2 | 51 | 67 | M8×1.25 |
| 25 | 22 | 16 | 6.6 | 32 | 8 | 48 | 32 | 3.2 | 51 | 67 | M10×1.25 |
| 32 | 22 | 18 | 6.6 | 36 | 10 | 52 | 36 | 4 | 51 | 67 | M10×1.25 |

| Code / Stroke / I.D. | XC | | | | | | |
|---|---|---|---|---|---|---|---|
| | 15 | 25 | 50 | 75 | 100 | 125 | 150 |
| 16 | 107 | 117 | 157 | 197 | 257 | | |
| 20 | 139 | 149 | 199 | 249 | 299 | 349 | 399 |
| 25 | 141 | 151 | 172 | 222 | 272 | 322 | 372 |
| 32 | 142 | 152 | 173 | 223 | 273 | 323 | 373 |

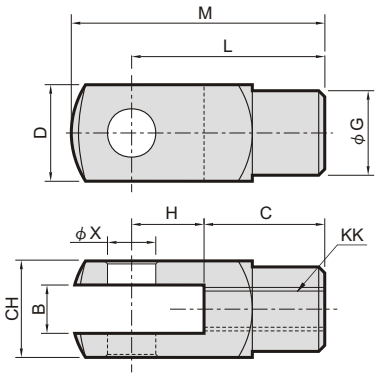
## Y connector

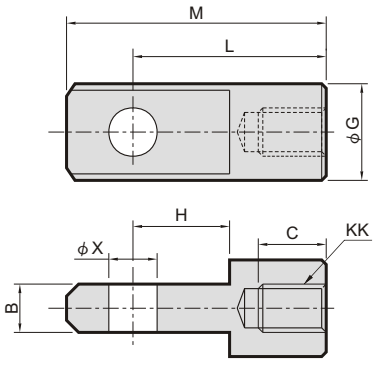
## I connector

ϕ8 ~ ϕ16




ϕ20 ~ ϕ40

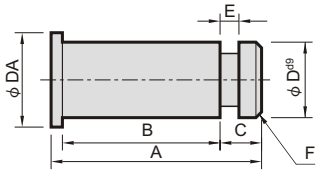



| Code / Tube I.D. | B | | C | | CH | | D | | G | | H | | KK | | L | | M | | X H9 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Y | I | Y | I | Y | I | Y | I | Y | I | Y | I | Y | I | Y | I | Y | I | |
| 8,10 | 4 $^{+0.4}_{+0.1}$ | | 8 | | 8 | | 8 | | | | 8 | | M4×0.7 | | 16 | | 20.75 | | 4 $^{+0.03}_{+0}$ |
| 12,16 | 6 $^{+0.4}_{+0.1}$ | 6 $^{-0.2}_{-0.3}$ | 12 | 8 | 12 | | | | 12 | 12 | 12 | 10 | M6×1 | | 24 | 21 | 31 | 28 | 6 $^{+0.03}_{+0}$ |
| 20 | 8 $^{+0.5}_{+0.15}$ | 8 $^{-0.1}_{-0.2}$ | 16 | 14 | 16 | | 16 | | 14 | 16 | 16 | 12 | M8×1.25 | | 32 | 32 | 42 | 42 | 8 $^{+0.036}_{+0}$ |
| 25,32 | 10 $^{+0.5}_{+0.15}$ | 10 $^{-0.1}_{-0.2}$ | 20 | 17 | 19 | | 19 | | 18 | 20 | 20 | 15 | M10×1.25 | | 40 | 40 | 52 | 52 | 10 $^{+0.036}_{+0}$ |
| 40 | 12 $^{+0.5}_{+0.15}$ | 12 $^{-0.1}_{-0.2}$ | 24 | 21 | 22 | | 22 | | 20 | 24 | 24 | 18 | M12×1.25 | | 48 | 48 | 62 | 62 | 12 $^{+0.043}_{+0}$ |

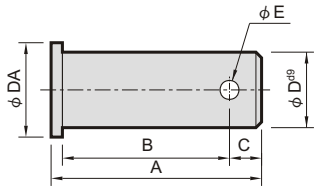
## Pin

ϕ8~ϕ16




【Ⅰ】

ϕ20~ϕ40

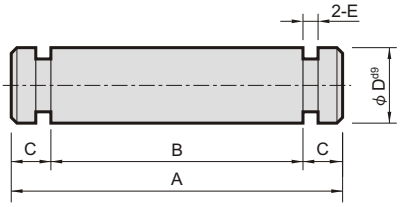



【Ⅱ】

### Order example:

PIN – MCMA – 16 – Y – P

- PIN
- MODEL — **MCMI** : for ϕ8~12 tube I.D. **SDB** : for SDB accessory; **MCMA** : for ϕ16~40 tube I.D.
- TUBE I.D.
- TYPE — **Y** : for Y&I connector
- **P** : with split pin




### for Y & I connector

| Code / Tube I.D. | A | B | C | D d9 | DA | E | Split pin |
|---|---|---|---|---|---|---|---|
| 8,10 | 12 | 8.5 | 2 | 4 $^{-0.03}_{-0.06}$ | 8 | 0.7 | E3 |
| 12,16 | 18.5 | 15 | 2 | 6 $^{-0.03}_{-0.06}$ | 10 | 0.7 | E4 |
| 20 | 24.5 | 20.5 | 2.5 | 8 $^{-0.04}_{-0.08}$ | 12 | ϕ2.5 | 2.5×16L |
| 25,32 | 30 | 25 | 3.5 | 10 $^{-0.04}_{-0.08}$ | 14 | ϕ3.2 | 3.2×20L |
| 40 | 37 | 30 | 5 | 12 $^{-0.05}_{-0.09}$ | 16 | ϕ3.2 | 3.2×20L |

### for SDB

| Code / Tube I.D. | A | B | C | D d9 | E | Split pin |
|---|---|---|---|---|---|---|
| 8,10 | 18 | 14 | 2 | 4 $^{-0.03}_{-0.06}$ | 0.7 | E3.2 |
| 12 | 23.5 | 19.5 | 2 | 6 $^{-0.03}_{-0.06}$ | 0.7 | E5 |
| 16 | 21 | 17 | 2 | 6 $^{-0.03}_{-0.06}$ | 0.7 | E5 |
| 20 | 30 | 25 | 2.5 | 8 $^{-0.04}_{-0.08}$ | 0.9 | E7 |
| 25,32 | 33 | 27 | 3 | 10 $^{-0.04}_{-0.08}$ | 0.9 | E9 |
| 40 | 37 | 31 | 3 | 12 $^{-0.05}_{-0.09}$ | 0.9 | E9 |