

# MCDA series

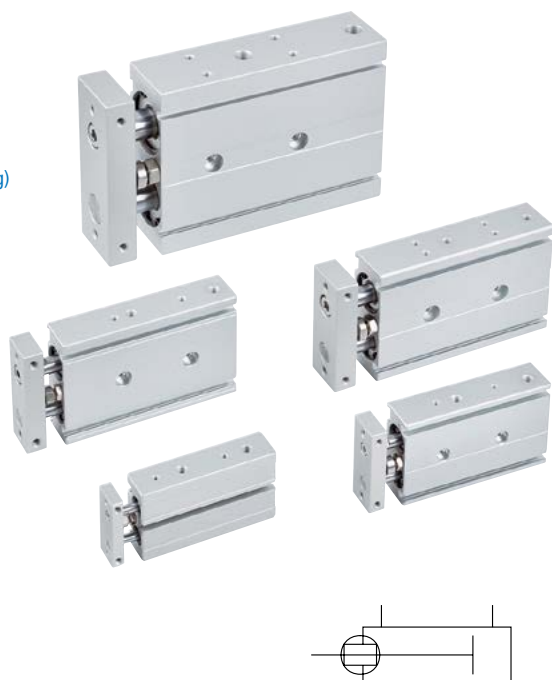
## DUAL-ROD CYLINDER



Technical data



Caution for safety  
(Read before installing)



### Features

- Compact in width and length with precision guidance.
- High lateral loads can be applied on both slide and linear bearing unit.
- Magnetic as standard.

### Specification

| Model                    | MCDA                                                                                                                                                                                                                                                                                |      |               |    |       |    |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------|----|-------|----|
| Acting type              | Double acting                                                                                                                                                                                                                                                                       |      |               |    |       |    |
| Tube I.D.(mm)            | 6                                                                                                                                                                                                                                                                                   | 12   | 16            | 20 | 25    | 32 |
| Port size                | M5×0.8                                                                                                                                                                                                                                                                              |      |               |    | Rc1/8 |    |
| Medium                   | Air                                                                                                                                                                                                                                                                                 |      |               |    |       |    |
| Operating pressure range | Max.                                                                                                                                                                                                                                                                                | 0.7  |               |    |       |    |
| (MPa)                    | Min.                                                                                                                                                                                                                                                                                | 0.15 | 0.1           |    | 0.05  |    |
| Proof pressure           | 1 MPa                                                                                                                                                                                                                                                                               |      |               |    |       |    |
| Ambient temperature      | -5~+60°C (No freezing)                                                                                                                                                                                                                                                              |      |               |    |       |    |
| Cushion                  | With rubber cushion pad (both side)                                                                                                                                                                                                                                                 |      |               |    |       |    |
| Available speed range    | 50~300                                                                                                                                                                                                                                                                              |      | 50~500 mm/sec |    |       |    |
| Lubrication              | Not required<br>(If lubrication is used, apply turbine oil NO1 ISO VG32)                                                                                                                                                                                                            |      |               |    |       |    |
| Sensor switch            | RCE  , RCE1  , RDEP  |      |               |    |       |    |

### Order example

MCDA — 03 — 12 — 50 —

MODEL      TUBE I.D.      STROKE

TYPE OF BEARING

|    |                |
|----|----------------|
| 03 | Slide bush     |
| 23 | Linear bearing |

PORT THREAD  
Blank: M5×0.8  
(for ø6~ø20)  
Blank: Rc thread  
G: G thread  
NPT: NPT thread  
(for ø25, ø32)

### Table for standard stroke

| Tube I.D. | Stroke (mm)                                                           |
|-----------|-----------------------------------------------------------------------|
| ø6        | 10,20,30,40,50                                                        |
| ø12       | 10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150         |
| ø16       | 10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150         |
| ø20       | 10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150,175,200 |
| ø25       |                                                                       |
| ø32       |                                                                       |

- Please contact us if the stroke is out of specification.
- It is possible to adjust length of basic stroke by 0~5mm.

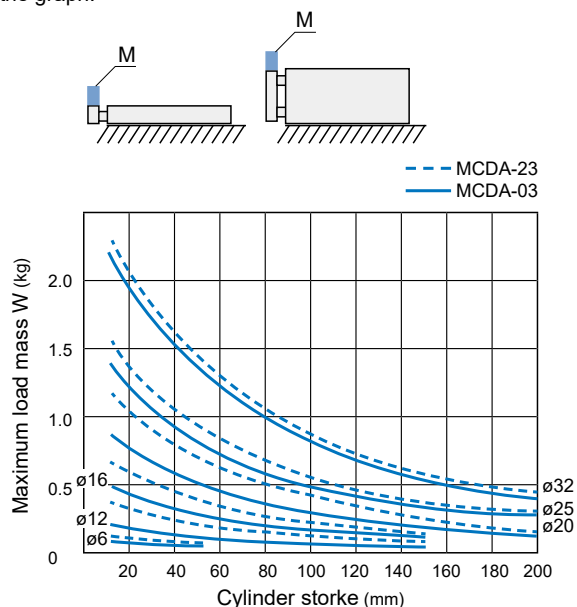
### Cylinder weight

Unit: g

| Model     | Basic weight<br>MCDA | Stroke 5mm<br>MCDA |
|-----------|----------------------|--------------------|
| Tube I.D. |                      |                    |
| ø6        | 85.8                 | 7.5                |
| ø12       | 150                  | 8                  |
| ø16       | 222                  | 13                 |
| ø20       | 376                  | 18                 |
| ø25       | 557                  | 27                 |
| ø32       | 1105                 | 42                 |

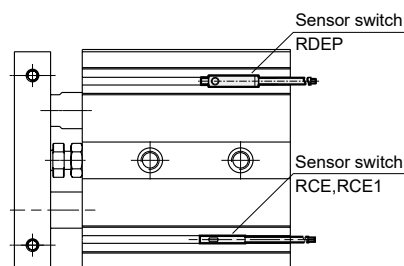
### Maximum load mass

When the cylinder mounted as shown in the diagrams below, the maximum load mass  $W$  should not exceed the values illustrated in the graph.



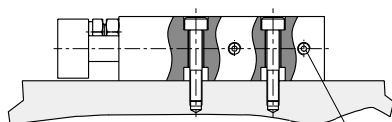
### Installation of sensor switch

Sensor switch: RCE, RCE1, RDEP

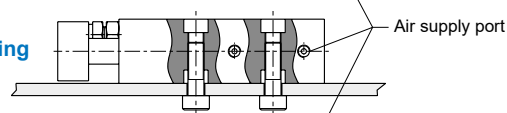


### Mounting methods

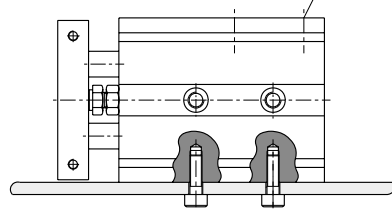
Top mounting



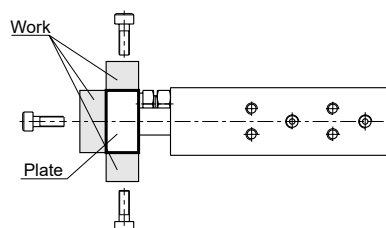
Bottom mounting



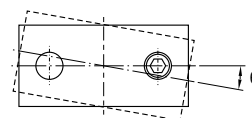
Side mounting



Work can be mounted on three faces of the rod square plate.



### Anti-roll accuracy



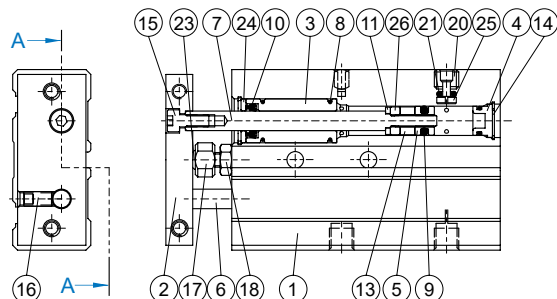
| Code    | $\theta$         |                  |                  |                 |                    |
|---------|------------------|------------------|------------------|-----------------|--------------------|
| Type    | $\phi 6$         | $\phi 12$        | $\phi 16$        | $\phi 20$       | $\phi 25, \phi 32$ |
| MCDA-03 | $\pm 0.3^\circ$  | $\pm 0.45^\circ$ | $\pm 0.35^\circ$ | $\pm 0.3^\circ$ | $\pm 0.25^\circ$   |
| MCDA-23 | $\pm 0.25^\circ$ |                  | $\pm 0.2^\circ$  |                 | $\pm 0.15^\circ$   |

# MCDA-03 Inside structure & Parts list

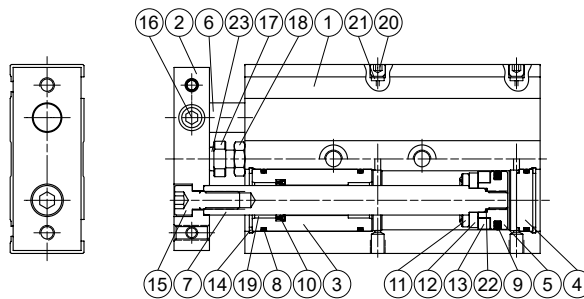
## DUAL-ROD CYLINDER



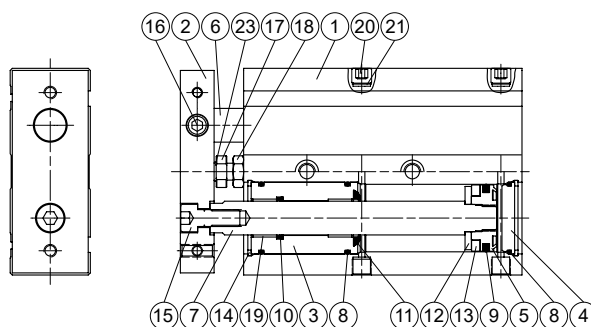
ø6



ø12~ø20



ø25, ø32



### Material

| No. | Tube I.D.<br>Part name | 6               | 12 | 16 | 20 | 25 | 32       | Note | Q'y | Repair kits<br>(inclusion) |
|-----|------------------------|-----------------|----|----|----|----|----------|------|-----|----------------------------|
| 1   | Body                   | Aluminum alloy  |    |    |    |    |          |      | 1   |                            |
| 2   | Plate                  | Aluminum alloy  |    |    |    |    |          |      | 1   |                            |
| 3   | Rod cover              | Aluminum alloy  |    |    |    |    |          |      | 2   |                            |
| 4   | End cover              | Aluminum alloy  |    |    |    |    |          |      | 2   |                            |
| 5   | Piston                 | Aluminum alloy  |    |    |    |    |          |      | 2   |                            |
| 6   | Piston rod #1          | Stainless steel |    |    |    |    | (*)      |      | 1   |                            |
| 7   | Piston rod #2          | Stainless steel |    |    |    |    | (*)      |      | 1   |                            |
| 8   | Cover ring             | NBR             |    |    |    |    |          |      | 6   | ●                          |
| 9   | Piston packing         | NBR             |    |    |    |    |          |      | 2   | ●                          |
| 10  | Rod packing            | NBR             |    |    |    |    |          |      | 2   | ●                          |
| 11  | Rod cushion            | NBR             |    |    |    |    |          |      | 2   | ●                          |
| 12  | Magnet holder          | Stainless steel |    |    |    |    |          |      | 2   |                            |
| 13  | Magnet ring            | Magnet material |    |    |    |    |          |      | 2   |                            |
| 14  | Snap ring              | Spring steel    |    |    |    |    |          |      | 4   |                            |
| 15  | Screw                  | Stainless steel |    |    |    |    |          |      | 1   |                            |
| 16  | Set screw              | Stainless steel |    |    |    |    |          |      | 1   |                            |
| 17  | Cushion screw          | Stainless steel |    |    |    |    |          |      | 1   |                            |
| 18  | Nut                    | Carbon steel    |    |    |    |    |          |      | 1   |                            |
| 19  | Rod bush               | Bearing alloy   |    |    |    |    |          |      | 4   |                            |
| 20  | Plug (set screw)       | Carbon steel    |    |    |    |    |          |      | 2   |                            |
| 21  | Plug ring              | NBR             |    |    |    |    |          |      | 2   | ●                          |
| 22  | O-ring                 | NBR             |    |    |    |    | only ø20 |      | 2   | ●                          |
| 23  | Bumper                 | PU              |    |    |    |    |          |      | 1   |                            |
| 24  | Rod cover washer       | Stainless steel |    |    |    |    | only ø6  |      | 2   |                            |
| 25  | Plug gasket            | Stainless steel |    |    |    |    | only ø6  |      | 1   |                            |
| 26  | Spaced ring            | Aluminium       |    |    |    |    | only ø6  |      | 2   |                            |

\* Carbon steel

### Order example of repair kits

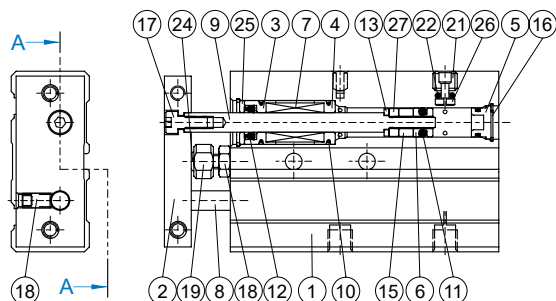
| Tube I.D. | Repair kits |
|-----------|-------------|
| ø6        | PS-MCDA-6   |
| ø12       | PS-MCDA-12  |
| ø16       | PS-MCDA-16  |
| ø20       | PS-MCDA-20  |
| ø25       | PS-MCDA-25  |
| ø32       | PS-MCDA-32  |

# MCDA-23 Inside structure & Parts list

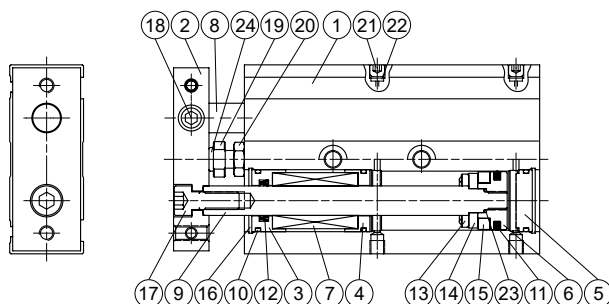
## DUAL-ROD CYLINDER



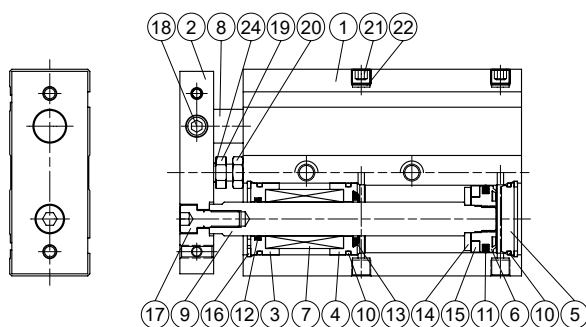
ø6



ø12~ø20



ø25, ø32

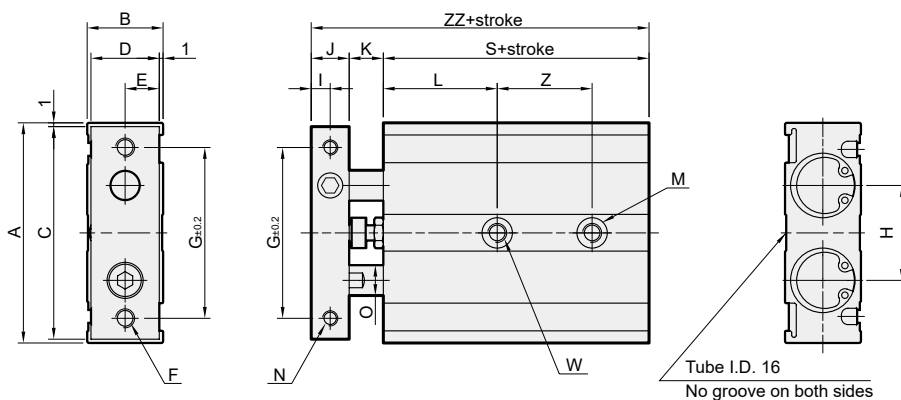


### Material

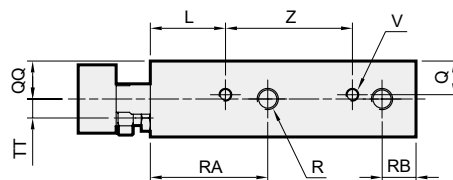
| No. | Tube I.D.<br>Part name | 6               | 12 | 16 | 20 | 25 | 32 | Note     | Q'y | Repair kits<br>(inclusion) |
|-----|------------------------|-----------------|----|----|----|----|----|----------|-----|----------------------------|
| 1   | Body                   | Aluminum alloy  |    |    |    |    |    |          | 1   |                            |
| 2   | Plate                  | Aluminum alloy  |    |    |    |    |    |          | 1   |                            |
| 3   | Rod cover #1           | Aluminum alloy  |    |    |    |    |    |          | 2   |                            |
| 4   | Rod cover #2           | Aluminum alloy  |    |    |    |    |    |          | 2   |                            |
| 5   | End cover              | Aluminum alloy  |    |    |    |    |    |          | 2   |                            |
| 6   | Piston                 | Aluminum alloy  |    |    |    |    |    |          | 2   |                            |
| 7   | Slide bush             | —               |    |    |    |    |    |          | 2   |                            |
| 8   | Piston rod #1          | Special steel   |    |    |    |    |    |          | 1   |                            |
| 9   | Piston rod #2          | Special steel   |    |    |    |    |    |          | 1   |                            |
| 10  | Cover ring             | NBR             |    |    |    |    |    |          | 6   | ●                          |
| 11  | Piston packing         | NBR             |    |    |    |    |    |          | 2   | ●                          |
| 12  | Rod packing            | NBR             |    |    |    |    |    |          | 2   | ●                          |
| 13  | Rod cushion            | NBR             |    |    |    |    |    |          | 2   | ●                          |
| 14  | Magnet holder          | Stainless steel |    |    |    |    |    |          | 2   |                            |
| 15  | Magnet ring            | Magnet material |    |    |    |    |    |          | 2   |                            |
| 16  | Snap ring              | Spring steel    |    |    |    |    |    |          | 4   |                            |
| 17  | Screw                  | Stainless steel |    |    |    |    |    |          | 1   |                            |
| 18  | Set screw              | Stainless steel |    |    |    |    |    |          | 1   |                            |
| 19  | Cushion screw          | Stainless steel |    |    |    |    |    |          | 1   |                            |
| 20  | Nut                    | Carbon steel    |    |    |    |    |    |          | 1   |                            |
| 21  | Plug(set screw)        | Carbon steel    |    |    |    |    |    |          | 2   |                            |
| 22  | Plug ring              | NBR             |    |    |    |    |    |          | 2   | ●                          |
| 23  | O-ring                 | NBR             |    |    |    |    |    | only ø20 | 2   | ●                          |
| 24  | Bumper                 | PU              |    |    |    |    |    |          | 1   |                            |
| 25  | Rod cover washer       | Stainless steel |    |    |    |    |    | only ø6  | 2   |                            |
| 26  | Plug gasket            | Stainless steel |    |    |    |    |    | only ø6  | 1   |                            |
| 27  | Spaced ring            | Aluminum        |    |    |    |    |    | only ø6  | 2   |                            |

### Order example of repair kits

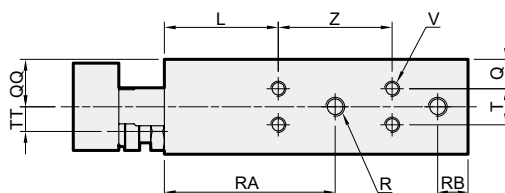
| Tube I.D. | Repair kits |
|-----------|-------------|
| ø6        | PS-MCDA-6   |
| ø12       | PS-MCDA-12  |
| ø16       | PS-MCDA-16  |
| ø20       | PS-MCDA-20  |
| ø25       | PS-MCDA-25  |
| ø32       | PS-MCDA-32  |



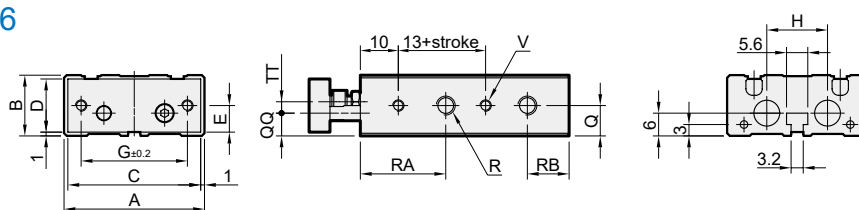
$\phi 12, \phi 16$



$\phi 20 \sim \phi 32$



$\phi 6$



### MCDA-03 / 23

| Code<br>Tube I.D. | A  | B  | C  | D  | E    | F<br>(Thru) | G  | H  | I    | J   | K  | L  | M<br>(Both side)              | N<br>(Both side) | O  | Q    | QQ   | R<br>(Both side) | RA   | RB | S  | T   |
|-------------------|----|----|----|----|------|-------------|----|----|------|-----|----|----|-------------------------------|------------------|----|------|------|------------------|------|----|----|-----|
| 6                 | 37 | 16 | 35 | 14 | 7    | 2-M3×0.5    | 28 | 16 | 2.75 | 5.5 | 8  | 13 | 2- $\phi 6.5 \times 3.3dp$ *1 | 2-M3×0.5 thru    | 4  | 8    | 6    | 4-M5×0.8         | 22.5 | 11 | 45 | —   |
| 12                | 46 | 18 | 44 | 16 | 8    | 2-M4×0.7    | 35 | 19 | 4    | 8   | 9  | 20 | 4- $\phi 6.5 \times 3.3dp$    | 4-M3×0.5×5dp     | 6  | 9    | 10   | 4-M5×0.8         | 30   | 8  | 55 | —   |
| 16                | 58 | 20 | 56 | 18 | 9    | 2-M5×0.8    | 45 | 25 | 5    | 10  | 9  | 30 | 4- $\phi 8 \times 4.4dp$      | 4-M4×0.7×6dp     | 8  | 10   | 10   | 4-M5×0.8         | 38.5 | 8  | 60 | —   |
| 20                | 64 | 25 | 62 | 23 | 11.5 | 2-M5×0.8    | 50 | 28 | 6    | 12  | 12 | 30 | 4- $\phi 9.5 \times 5.3dp$    | 4-M4×0.7×6dp     | 10 | 7.75 | 12.5 | 4-M5×0.8         | 45   | 8  | 70 | 9.5 |
| 25                | 80 | 30 | 78 | 28 | 14   | 2-M6×1.0    | 60 | 35 | 6    | 12  | 12 | 30 | 4- $\phi 11 \times 6.3dp$     | 4-M5×0.8×8dp     | 12 | 8.5  | 15   | 4-Rc1/8          | 46   | 9  | 72 | 13  |
| 32                | 98 | 38 | 96 | 36 | 18   | 2-M6×1.0    | 75 | 44 | 8    | 16  | 14 | 30 | 4- $\phi 11 \times 6.3dp$     | 4-M5×0.8×8dp     | 16 | 9    | 19   | 4-Rc1/8          | 56   | 10 | 82 | 20  |

| Code<br>Tube I.D. | TT   | V<br>(Both side) | W<br>(Thru)   | Z (Stroke)       |                |             |        |             |     |         |   | ZZ   |
|-------------------|------|------------------|---------------|------------------|----------------|-------------|--------|-------------|-----|---------|---|------|
|                   |      |                  |               | 10,15,20,25      | 30,35,40,45,50 | 60,70,75,80 | 90,100 | 110,120,125 | 150 | 175,200 |   |      |
| 6                 | 3    | 4-M3×0.5×4.5dp   | 2- $\phi 3.4$ | 10+1/2 stroke *2 |                |             |        |             |     |         |   | 58.5 |
| 12                | 3.5  | 4-M3×0.5×4.5dp   | 2-M4×0.7      | 30               | 40             | 50          | 60     | 70          | 80  | —       | — | 72   |
| 16                | 5    | 4-M4×0.7×5dp     | 2-M5×0.8      | 25               | 35             | 45          | 55     | 65          | 75  | —       | — | 79   |
| 20                | 6.5  | 8-M4×0.7×5.5dp   | 2-M6×1.0      | 30               | 40             | 60          | 80     | 100         | 120 | —       | — | 94   |
| 25                | 9    | 8-M5×0.8×7.5dp   | 2-M8×1.25     | 30               | 40             | 60          | 80     | 100         | 120 | —       | — | 96   |
| 32                | 11.5 | 8-M5×0.8×7.5dp   | 2-M8×1.25     | 40               | 50             | 70          | 90     | 110         | 130 | —       | — | 112  |

\*1.  $\phi 6$ - single side.

\*2.  $\phi 6$ - stroke ( 10, 20, 30, 40, 50)