

## Brake cylinders suitable for intermediate stop and emergency stop

- Two types, single type and double type, which differ in braking force are available. Braking force appropriate to the purpose of use can be selected.
- The brake can be applied in any of the cylinder extending and retracting strokes.
- When the brake chamber is in non-pressurized state, the brake will work by the built-in spring.  
(For the operating procedures, see the recommended pneumatic circuit.)



### Cylinder Specifications

| Type                      | Standard type, Switch Set                                                            |                                                                                                                                                                                     |
|---------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | Single brake type                                                                    | Double brake type                                                                                                                                                                   |
| Series                    | 10B-6                                                                                | 10BD-6                                                                                                                                                                              |
| Cylinder bore (mm)        | φ40 · φ50 · φ63 · φ80 · φ100                                                         |                                                                                                                                                                                     |
| Working fluid             | Air                                                                                  |                                                                                                                                                                                     |
| Lubrication               | Necessary (Use JIS K 2213 Class 1 additive-free turbine oil VG32 or its equivalent.) |                                                                                                                                                                                     |
| Working pressure range    | 0.35 to 1 MPa                                                                        |                                                                                                                                                                                     |
| Proof test pressure       | 1.5 MPa                                                                              |                                                                                                                                                                                     |
| Working speed range       | 50 to 300 mm/s                                                                       |                                                                                                                                                                                     |
| Working temperature range | +5 to +60°C                                                                          |                                                                                                                                                                                     |
| Structure of cushioning   | With cushions on both ends (with needle removal preventing mechanism)                |                                                                                                                                                                                     |
| Cushion stroke            | φ40: 16mm, φ50 · φ63: 20mm, φ80 · φ100: 25mm                                         |                                                                                                                                                                                     |
| Mounting style            | SD · LA · LB · FA · FB · CA · CC · CB                                                |                                                                                                                                                                                     |
| Accessories               | Boots                                                                                | Standard: Nylon tarpaulin    Semi-standard: Chloroprene, Conex                                                                                                                      |
|                           | Rod end attachments                                                                  | Rod eye (T-end), rod eye with spherical bearing (S-end), rod clevis (Y-end) with pin, floating joint (F-end)                                                                        |
|                           | Others                                                                               | Bracket for CB                                                                                                                                                                      |
| Brake block               | Brake releasing pressure                                                             | 0.35 MPa or more (0.4 MPa only for φ50)                                                                                                                                             |
|                           | Brake applying direction                                                             | Both directions                                                                                                                                                                     |
|                           | Stop repeatability                                                                   | ±2mm $\left( \begin{array}{l} \text{Load weight: Repeatability at maximum weight of load} \\ \text{Speed: Repeatability at max. transferring speed (300 mm/s)} \end{array} \right)$ |

Notes)

- When the sensor is installed at the intermediate position, the cylinder max. speed must be less than 300 mm/s for reasons of the response speed of the load relay.
- Conex, material of the boots, is the registered trademark of Teijin Limited.

### Product Lineup

| Series Variation |                          | Type                     | Brake Type    | φ40 | φ50 | φ63 | φ80 | φ100 |
|------------------|--------------------------|--------------------------|---------------|-----|-----|-----|-----|------|
| Standard         | Double acting single rod | Standard type Switch Set | Single 10B-6  | ●   | ●   | ●   | ●   | ●    |
|                  |                          |                          | Double 10BD-6 | ●   | ●   | ●   | ●   | ●    |

Unit: mm

### Stroke Range

Unit: mm

| Cylinder bore | Stroke Range |
|---------------|--------------|
| φ40           | 0 to 1000    |
| φ50 to φ100   | 0 to 1500    |

Note)

When a stroke out of the stroke range is required, consult us.

### Max. Weight of Load

Unit: kg

| Cylinder bore (mm) | Single brake type | Double brake type |
|--------------------|-------------------|-------------------|
|                    | 10B-6             | 10BD-6            |
| φ40                | 34                | 68                |
| φ50                | 53                | 106               |
| φ63                | 85                | 170               |
| φ80                | 138               | 276               |
| φ100               | 215               | 430               |

Note)

The max. weight of load refers to the maximum weight of the object to be conveyed which can be controlled by the brake cylinder. The weight is constant regardless of the working pressure and mounting style.

### Weight Table

Unit: kg

| Bore mm | Basic weight            |                          | Additional weight per mm of stroke | Mounting accessory weight |      |      |      |      |      |      | Weight of bracket for CB | Rod end attachment weight |                 |                    |                        |
|---------|-------------------------|--------------------------|------------------------------------|---------------------------|------|------|------|------|------|------|--------------------------|---------------------------|-----------------|--------------------|------------------------|
|         | Single brake type 10B-6 | Double brake type 10BD-6 |                                    | LA                        | LB   | FA   | FB   | CA   | CB   | CC   |                          | Rod eye (S-end)           | Rod eye (T-end) | Rod clevis (Y-end) | Floating joint (F-end) |
| φ40     | 2.21                    | 3.32                     | 0.00300                            | 0.30                      | 0.17 | 0.39 | 0.37 | 0.18 | 0.27 | 0.38 | 0.70                     | 0.11                      | 0.16            | 0.27               | 0.19                   |
| φ50     | 3.62                    | 4.44                     | 0.00428                            | 0.52                      | 0.23 | 0.53 | 0.39 | 0.26 | 0.39 | 0.50 | 0.70                     | 0.20                      | 0.21            | 0.34               | 0.38                   |
| φ63     | 5.68                    | 6.93                     | 0.00515                            | 0.58                      | 0.38 | 1.60 | 0.53 | 0.42 | 0.48 | 0.67 | 0.70                     | 0.20                      | 0.21            | 0.34               | 0.38                   |
| φ80     | 8.97                    | 11.15                    | 0.00834                            | 1.28                      | 0.47 | 2.22 | 1.60 | 1.08 | 0.92 | 1.76 | 0.72                     | 0.36                      | 0.62            | 0.87               | 0.75                   |
| φ100    | 14.69                   | 19.32                    | 0.01061                            | 1.67                      | 0.56 | 2.87 | 2.22 | 1.39 | 1.24 | 2.04 | 0.72                     | 0.36                      | 0.62            | 0.87               | 1.35                   |

### Sensor Additional Weight

Unit: kg

| Sensor | AX type           |                 |                | SR type           |
|--------|-------------------|-----------------|----------------|-------------------|
|        | Cord length 1.5 m | Cord length 5 m | Connector type | Cord length 1.5 m |
| φ40    | 0.05              | 0.13            | 0.04           | 0.22              |
| φ50    |                   |                 |                |                   |
| φ63    |                   |                 |                |                   |
| φ80    |                   |                 |                |                   |
| φ100   |                   |                 |                |                   |

Calculation formula: Cylinder weight (kg) = basic weight + (additional weight per mm of stroke × cylinder stroke (mm))  
+ (sensor additional weight × sensor quantity) + mounting accessory weight + rod end attachment weight

Calculation example: Single brake type, bore 50 mm, cylinder stroke 200 mm, 2 pcs of AX215 (cord length 5 m), mounting style FA, rod clevis (Y-end) 3.62 + (0.00428 × 200) + (0.13 × 2) + 0.53 + 0.34 = 6.462kg

How to order

Standard The item enclosed by broken line needs not to be entered, if unnecessary. Semi-standard specification

● Single brake type 10B-6

● Double brake type 10BD-6

1 Type 2 Mounting style 3 Bore 4 Cushioning 5 Stroke 6 Sensor symbol 7 Sensor quantity 8 Rod end attachment 9 Bracket 10 Boots

LA 50 B 200 - AH 2 - T B - J

LA 50 B 200 - AH 2 - T B - J

Mounting style

Cylinder bore (mm)

φ40 · φ50 · φ63 · φ80 · φ100

With cushions on both ends

No cushion

Cylinder stroke (mm)

Sensor symbol

Note) Select applicable sensors out of the Sensor List.

Note on ordering Switch Set

● Sensors are not mounted on cylinders at delivery.

Sensor quantity (1, 2 to n)

With bracket

Applicable mounting style: CB

J Nylon tarpaulin

JN Chloroprene

JK Conex

T Rod eye (T-end)

Y Rod clevis (Y-end) with pin

S Rod eye with spherical bearing (S-end)

F Floating joint (F-end)

Mounting style

SD Basic style

FA Rod flange

CC Cap eye

LA Side lugs

FB Cap flange

CB Cap clevis with pin

LB End angle

CA Cap eye

Sensor List

Semi-standard specification

| Type                         | Sensor symbol              | Load voltage range                 | Load current range                   | Max. switching capacity | Protective circuit | Indicating lamp                               | Wiring method                                               | Cord length                                                 | Applicable load                      |                                                                  |
|------------------------------|----------------------------|------------------------------------|--------------------------------------|-------------------------|--------------------|-----------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|--------------------------------------|------------------------------------------------------------------|
| Reed sensor                  | <a href="#">AF</a> AX101CE | DC:5 to 30V<br>AC:5 to 120V        | DC:5 to 40mA<br>AC:5 to 20mA         | DC:1.5W<br>AC:2VA       | None               | LED<br>(Lights in red when sensing)           | 0.3 mm <sup>2</sup> , 2-core, outer dia. φ4 mm, rear wiring | 1.5m                                                        | Small relay, programmable controller |                                                                  |
|                              | <a href="#">AG</a> AX105CE |                                    |                                      |                         | 5m                 |                                               |                                                             |                                                             |                                      |                                                                  |
|                              | <a href="#">AH</a> AX111CE |                                    |                                      |                         | 1.5m               |                                               |                                                             |                                                             |                                      |                                                                  |
|                              | <a href="#">AJ</a> AX115CE |                                    |                                      |                         | 5m                 |                                               |                                                             |                                                             |                                      |                                                                  |
|                              | <a href="#">AE</a> AX125CE | C:30 V or less<br>AC:120 V or less | DC:40 mA or less<br>AD:20 mA or less | None                    | None               | 5m                                            |                                                             |                                                             |                                      |                                                                  |
|                              | <a href="#">AK</a> AX11ACE | AC:5 to 120V                       | 5 to 20mA                            | 2VA                     | Provided           | LED<br>(Lights in red when sensing)           | 4-pin connector type, rear wiring                           | 0.5m                                                        |                                      |                                                                  |
|                              | <a href="#">AL</a> AX11BCE | DC:5 to 30V                        | 5 to 40mA                            | 1.5W                    |                    |                                               | 0.5m                                                        |                                                             |                                      |                                                                  |
|                              | <a href="#">AM</a> AX135CE | AC:90 to 240V<br>DC:90 to 240V     | 5 to 300mA                           | B contact output        | Provided           | LED<br>(Lights in red when not sensing)       | 0.3 mm <sup>2</sup> , 2-core, outer dia. φ4 mm, rear wiring | 5m                                                          |                                      |                                                                  |
|                              | <a href="#">S</a> SR405    | AC:80 to 220V                      | 2 to 300mA                           | 30VA                    | Provided           | Neon lamp<br>(Lights in red when not sensing) | 0.5 mm <sup>2</sup> , 2-core, outer dia. φ6 mm, rear wiring | 5m                                                          |                                      | Small relay, programmable controller, small solenoid, pilot lamp |
|                              | Solid state sensor         | <a href="#">BE</a> AX201CE-1       | DC:5 to 30V                          | 5 to 40mA               | —                  | Provided                                      | LED<br>(Lights in red when sensing)                         | 0.3 mm <sup>2</sup> , 2-core, outer dia. φ4 mm, rear wiring |                                      | 1.5m                                                             |
| <a href="#">BF</a> AX205CE-1 |                            | 5m                                 |                                      |                         |                    |                                               |                                                             |                                                             |                                      |                                                                  |
| <a href="#">CE</a> AX211CE-1 |                            | 1.5m                               |                                      |                         |                    |                                               |                                                             |                                                             |                                      |                                                                  |
| <a href="#">CF</a> AX215CE-1 |                            | 5m                                 |                                      |                         |                    |                                               |                                                             |                                                             |                                      |                                                                  |
| <a href="#">CT</a> AX211CE-1 |                            | 1.5m                               |                                      |                         |                    |                                               |                                                             |                                                             |                                      |                                                                  |
| <a href="#">CU</a> AX215CE-1 |                            | LED<br>(2-LED type in red/green)   |                                      |                         |                    |                                               | 4-pin connector type, rear wiring                           | 5m                                                          |                                      |                                                                  |
| <a href="#">CV</a> AX218CE-1 |                            |                                    |                                      |                         |                    |                                               |                                                             | 0.5m                                                        |                                      |                                                                  |
| <a href="#">CW</a> AZ211CE-1 |                            |                                    |                                      |                         |                    |                                               |                                                             | 1.5m                                                        |                                      |                                                                  |
| <a href="#">CX</a> AZ215CE-1 |                            |                                    |                                      |                         |                    |                                               |                                                             | 5m                                                          |                                      |                                                                  |
| <a href="#">CY</a> AZ218CE-1 |                            |                                    |                                      |                         |                    |                                               |                                                             | 4-pin connector type, upper wiring                          | 0.5m                                 |                                                                  |

Notes) ● For the sensors without a protective circuit, be sure to provide a protective circuit (SK-100) with the load when using any induction load (relay, etc.).

● The output logic of AX135CE is a B contact. When the piston is detected, the sensor contact turns off (the lamp turns on).

● For the detailed specifications and handling of sensors, see the sensor specifications at the end of this catalog.

● The AX type sensors can be mounted on any type in addition to the above types. See the sensor specifications at the end of this catalog.

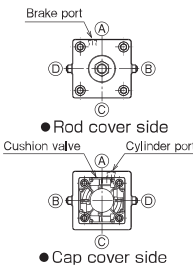
● We recommend AND Unit (AU series) for multiple sensors connected in series.

For details, refer to AND Unit at the end of this catalog.

● AX type sensor Cord type Connector type ● SR type sensor

Ordering procedures

★ Standard specifications



- With cushions on both ends
  - Brake port A
  - Cylinder port position ①, cushion valve position ②
- Note) ● When specifying cylinder port and cushion valve positions other than ①, ②, consult us.

★ Semi-standard range

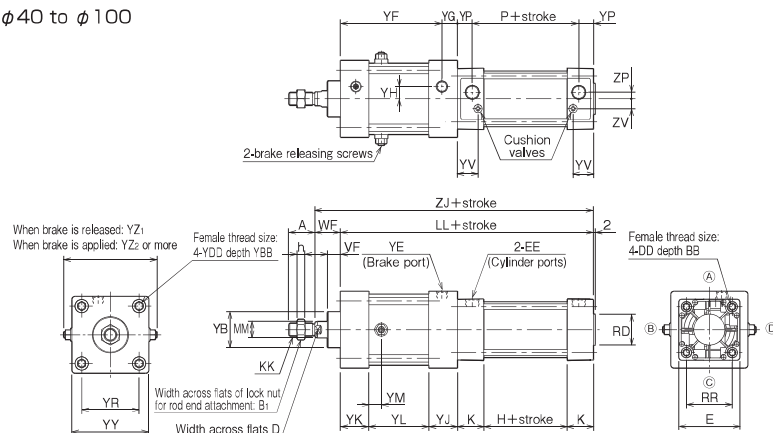
- With boots, without cushions
  - Change of piston rod end (dimensional symbol: WF, A, KK)
- Note) ● Consult us for specifications not stated above.



## SD

Single brake type 10B-6 SD

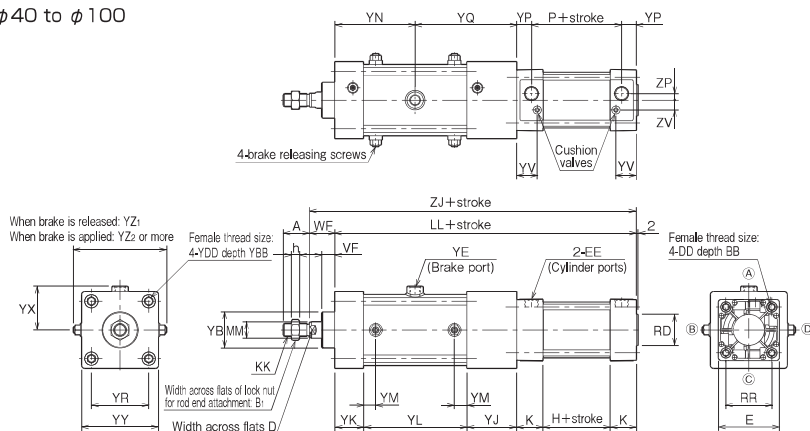
- $\phi 40$  to  $\phi 100$



- For Switch Set Cylinders, see dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 SD   10B-6/TBD6  

- $\phi 40$  to  $\phi 100$



- For Switch Set Cylinders, see dimensional drawings of Switch Set.
- For dimensional drawings of rod end attachments, refer to the Accessories.

### Dimensional Table

| Symbol<br>Bore | A      | B <sub>1</sub> | BB | D  | DD      | E    | EE    | H  | K  | KK       | LL     |        | MM  | N  |
|----------------|--------|----------------|----|----|---------|------|-------|----|----|----------|--------|--------|-----|----|
|                |        |                |    |    |         |      |       |    |    |          | Single | Double |     |    |
| φ40            | 24(21) | 19             | 14 | 14 | M6×1    | □50  | Rc1/4 | 31 | 31 | M12×1.25 | 221    | 299    | φ16 | 57 |
| φ50            | 32(29) | 22             | 14 | 17 | M6×1    | □62  | Rc1/4 | 31 | 31 | M16×1.5  | 231    | 315    | φ20 | 57 |
| φ63            | 32(29) | 22             | 14 | 17 | M8×1.25 | □75  | Rc3/8 | 32 | 32 | M16×1.5  | 239    | 318    | φ20 | 60 |
| φ80            | 40(37) | 27             | 15 | 21 | M10×1.5 | □94  | Rc3/8 | 36 | 36 | M20×1.5  | 270    | 362    | φ25 | 68 |
| φ100           | 40(37) | 27             | 15 | 26 | M10×1.5 | □112 | Rc1/2 | 36 | 36 | M20×1.5  | 284    | 390    | φ30 | 68 |

| Symbol<br>Bore | RD  | RR                                                                                     | VF | WF | YB  | YBB | YDD      | YE    | YF  | YG | YH | YJ     |        | YK |
|----------------|-----|----------------------------------------------------------------------------------------|----|----|-----|-----|----------|-------|-----|----|----|--------|--------|----|
|                |     |                                                                                        |    |    |     |     |          |       |     |    |    | Single | Double |    |
| φ40            | φ32 |  37 | 10 | 25 | φ38 | 14  | M6×1     | Rc1/4 | 111 | 17 | 6  | 28     | 53     | 27 |
| φ50            | φ38 |  47 | 10 | 25 | φ38 | 14  | M8×1.25  | Rc1/4 | 121 | 17 | 11 | 30     | 56     | 30 |
| φ63            | φ38 |  56 | 16 | 31 | φ44 | 15  | M10×1.5  | Rc1/4 | 121 | 22 | 15 | 35     | 61     | 35 |
| φ80            | φ44 |  70 | 16 | 35 | φ50 | 15  | M10×1.5  | Rc3/8 | 138 | 24 | 15 | 39     | 67     | 35 |
| φ100           | φ50 |  84 | 16 | 35 | φ60 | 15  | M12×1.75 | Rc3/8 | 152 | 24 | 15 | 39     | 68     | 36 |

| Symbol<br>Bore | YL     |        | YM | YN  | YP | YQ  | YR   | YV   | YX   | YY   | YZ <sub>1</sub> | YZ <sub>2</sub> | ZJ     |        | ZP | ZV | h  |
|----------------|--------|--------|----|-----|----|-----|------|------|------|------|-----------------|-----------------|--------|--------|----|----|----|
|                | Single | Double |    |     |    |     |      |      |      |      |                 |                 | Single | Double |    |    |    |
| φ40            | 73     | 126    | 12 | 90  | 18 | 116 | □47  | 25.5 | 37.5 | □62  | 88              | 94              | 246    | 324    | 4  | 10 | 7  |
| φ50            | 78     | 136    | 14 | 98  | 18 | 124 | □56  | 24   | 44   | □75  | 97              | 104             | 256    | 340    | 7  | 12 | 10 |
| φ63            | 73     | 126    | 15 | 98  | 18 | 124 | □70  | 25   | 53.5 | □94  | 114             | 122             | 270    | 349    | 8  | 12 | 10 |
| φ80            | 88     | 152    | 18 | 111 | 20 | 143 | □84  | 29   | 68.5 | □112 | 134             | 142             | 305    | 397    | 11 | 16 | 12 |
| φ100           | 101    | 178    | 17 | 125 | 20 | 157 | □104 | 29   | 82   | □138 | 159             | 166             | 319    | 425    | 12 | 18 | 12 |

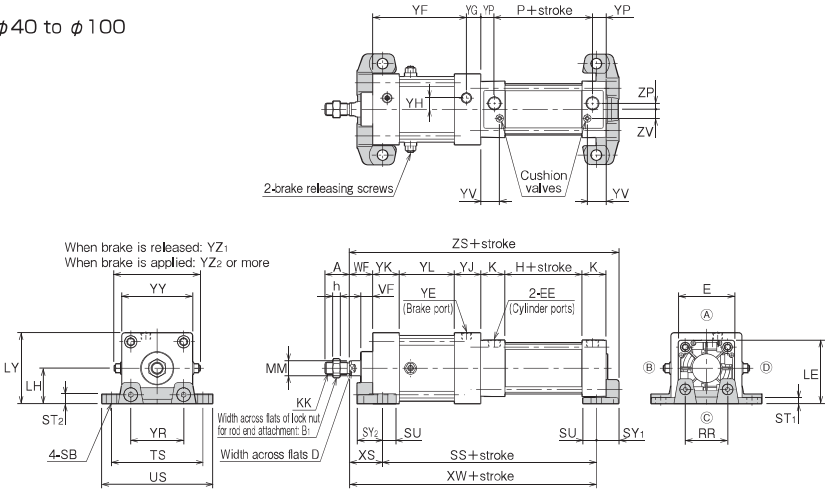
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 Bore CAD/DATA is available.

LA

Single brake type 10B-6 LA Bore B Stroke

- $\phi 40$  to  $\phi 100$

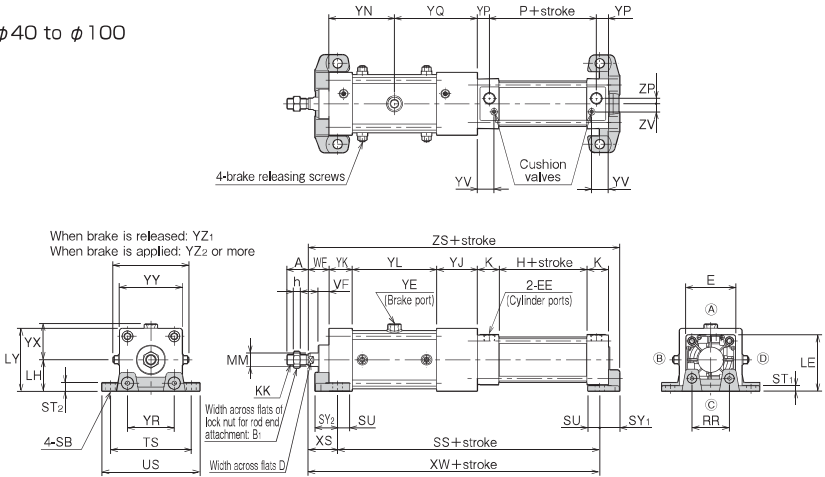


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 LA Bore B Stroke

10B-6/TBD6 Bore

- $\phi 40$  to  $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol     | A       | B <sub>1</sub> | D  | E             | EE    | H  | K  | KK       | LE   | LH | LY   | MM        | P  | RR           | SB        | SS     |        |
|------------|---------|----------------|----|---------------|-------|----|----|----------|------|----|------|-----------|----|--------------|-----------|--------|--------|
| Bore       |         |                |    |               |       |    |    |          |      |    |      |           |    |              |           | Single | Double |
| $\phi 40$  | 24 (21) | 19             | 14 | $\square 50$  | Rc1/4 | 31 | 31 | M12×1.25 | 56   | 31 | 62   | $\phi 16$ | 57 | $\square 37$ | $\phi 12$ | 201    | 279    |
| $\phi 50$  | 32 (29) | 22             | 17 | $\square 62$  | Rc1/4 | 31 | 31 | M16×1.5  | 69   | 38 | 75.5 | $\phi 20$ | 57 | $\square 47$ | $\phi 12$ | 211    | 295    |
| $\phi 63$  | 32 (29) | 22             | 17 | $\square 75$  | Rc3/8 | 32 | 32 | M16×1.5  | 84.5 | 47 | 94   | $\phi 20$ | 60 | $\square 56$ | $\phi 14$ | 213    | 292    |
| $\phi 80$  | 40 (37) | 27             | 21 | $\square 94$  | Rc3/8 | 36 | 36 | M20×1.5  | 104  | 57 | 113  | $\phi 25$ | 68 | $\square 70$ | $\phi 14$ | 244    | 336    |
| $\phi 100$ | 40 (37) | 27             | 26 | $\square 112$ | Rc1/2 | 36 | 36 | M20×1.5  | 125  | 69 | 138  | $\phi 30$ | 68 | $\square 84$ | $\phi 14$ | 257    | 363    |

| Symbol     | ST <sub>1</sub> | ST <sub>2</sub> | SU | SY <sub>1</sub> | SY <sub>2</sub> | TS  | US  | VF | WF | XS | XW     |        | YE    | YF  | YG | YH | YJ     |        |
|------------|-----------------|-----------------|----|-----------------|-----------------|-----|-----|----|----|----|--------|--------|-------|-----|----|----|--------|--------|
| Bore       |                 |                 |    |                 |                 |     |     |    |    |    | Single | Double |       |     |    |    | Single | Double |
| $\phi 40$  | 5.5             | 9               | 14 | 22              | 25              | 83  | 105 | 10 | 25 | 35 | 236    | 314    | Rc1/4 | 111 | 17 | 6  | 28     | 53     |
| $\phi 50$  | 6.5             | 9               | 14 | 24              | 27              | 95  | 117 | 10 | 25 | 35 | 246    | 330    | Rc1/4 | 121 | 17 | 11 | 30     | 56     |
| $\phi 63$  | 8.5             | 13              | 18 | 29              | 34              | 121 | 147 | 16 | 31 | 44 | 257    | 336    | Rc1/4 | 121 | 22 | 15 | 35     | 61     |
| $\phi 80$  | 9.5             | 14              | 18 | 33              | 38              | 140 | 168 | 16 | 35 | 48 | 292    | 384    | Rc3/8 | 138 | 24 | 15 | 39     | 67     |
| $\phi 100$ | 11.5            | 16              | 18 | 37              | 42              | 167 | 195 | 16 | 35 | 49 | 306    | 412    | Rc3/8 | 152 | 24 | 15 | 39     | 68     |

| Symbol     | YK | YL     |        | YN  | YP | YQ  | YR            | YV   | YX   | YY            | YZ <sub>1</sub> | YZ <sub>2</sub> | ZP | ZS     |        | ZV | h  |
|------------|----|--------|--------|-----|----|-----|---------------|------|------|---------------|-----------------|-----------------|----|--------|--------|----|----|
| Bore       |    | Single | Double |     |    |     |               |      |      |               |                 |                 |    | Single | Double |    |    |
| $\phi 40$  | 27 | 73     | 126    | 90  | 18 | 116 | $\square 47$  | 25.5 | 37.5 | $\square 62$  | 88              | 94              | 4  | 258    | 336    | 10 | 7  |
| $\phi 50$  | 30 | 78     | 136    | 98  | 18 | 124 | $\square 56$  | 24   | 44   | $\square 75$  | 97              | 104             | 7  | 270    | 354    | 12 | 10 |
| $\phi 63$  | 35 | 73     | 126    | 98  | 18 | 124 | $\square 70$  | 25   | 53.5 | $\square 94$  | 114             | 122             | 8  | 286    | 365    | 12 | 10 |
| $\phi 80$  | 35 | 88     | 152    | 111 | 20 | 143 | $\square 84$  | 29   | 68.5 | $\square 112$ | 134             | 142             | 11 | 325    | 417    | 16 | 12 |
| $\phi 100$ | 36 | 101    | 178    | 125 | 20 | 157 | $\square 104$ | 29   | 82   | $\square 138$ | 159             | 166             | 12 | 343    | 449    | 18 | 12 |

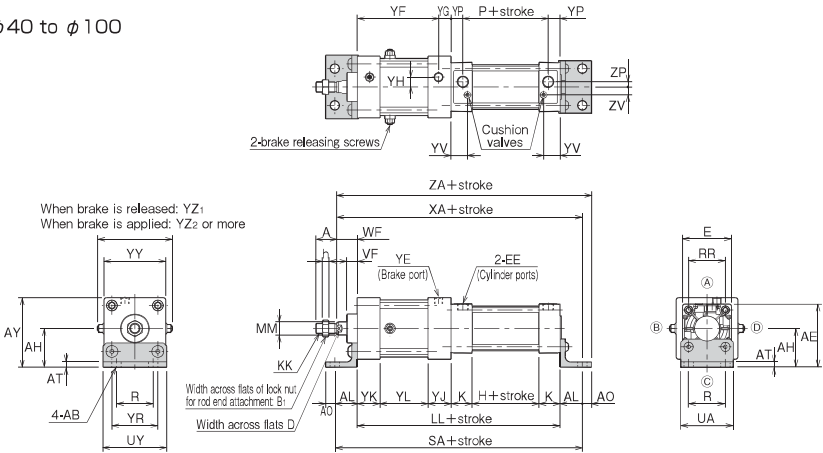
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6  CAD/ATA is available. 

LB

Single brake type 10B-6 LB  

- $\phi 40$  to  $\phi 100$

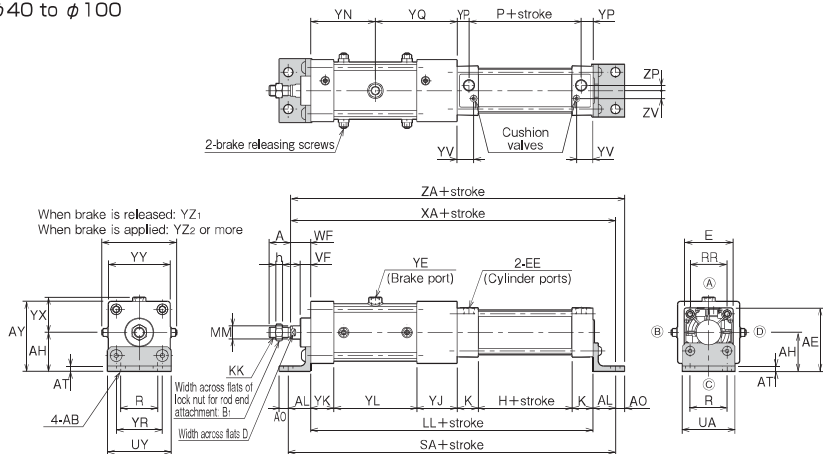


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 LB  

10B-6/TBD6 

- $\phi 40$  to  $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol     | A      | AB        | AE   | AH | AL | AO | AT | AY   | B <sub>1</sub> | D  | E             | EE    | H  | K  | KK       |
|------------|--------|-----------|------|----|----|----|----|------|----------------|----|---------------|-------|----|----|----------|
| Bore       |        |           |      |    |    |    |    |      |                |    |               |       |    |    |          |
| $\phi 40$  | 24(21) | $\phi 12$ | 66   | 41 | 26 | 12 | 6  | 72   | 19             | 14 | $\square 50$  | Rc1/4 | 31 | 31 | M12×1.25 |
| $\phi 50$  | 32(29) | $\phi 12$ | 79   | 48 | 28 | 12 | 6  | 85.5 | 22             | 17 | $\square 62$  | Rc1/4 | 31 | 31 | M16×1.5  |
| $\phi 63$  | 32(29) | $\phi 14$ | 96.5 | 59 | 34 | 14 | 8  | 106  | 22             | 17 | $\square 75$  | Rc3/8 | 32 | 32 | M16×1.5  |
| $\phi 80$  | 40(37) | $\phi 14$ | 113  | 66 | 34 | 14 | 8  | 122  | 27             | 21 | $\square 94$  | Rc3/8 | 36 | 36 | M20×1.5  |
| $\phi 100$ | 40(37) | $\phi 14$ | 135  | 79 | 43 | 18 | 10 | 148  | 27             | 26 | $\square 112$ | Rc1/2 | 36 | 36 | M20×1.5  |

| Symbol     | LL     |        | MM        | P  | R  | RR           | SA     |        | UA  | UY  | VF | WF | XA     |        | YE    | YF  | YG | YH |
|------------|--------|--------|-----------|----|----|--------------|--------|--------|-----|-----|----|----|--------|--------|-------|-----|----|----|
| Bore       | Single | Double |           |    |    |              | Single | Double |     |     |    |    | Single | Double |       |     |    |    |
| $\phi 40$  | 221    | 299    | $\phi 16$ | 57 | 37 | $\square 37$ | 273    | 351    | 60  | 70  | 10 | 25 | 272    | 350    | Rc1/4 | 111 | 17 | 6  |
| $\phi 50$  | 231    | 315    | $\phi 20$ | 57 | 47 | $\square 47$ | 287    | 371    | 70  | 80  | 10 | 25 | 284    | 368    | Rc1/4 | 121 | 17 | 11 |
| $\phi 63$  | 239    | 318    | $\phi 20$ | 60 | 56 | $\square 56$ | 307    | 386    | 80  | 97  | 16 | 31 | 304    | 383    | Rc1/4 | 121 | 22 | 15 |
| $\phi 80$  | 270    | 362    | $\phi 25$ | 68 | 70 | $\square 70$ | 338    | 430    | 97  | 114 | 16 | 35 | 339    | 431    | Rc3/8 | 138 | 24 | 15 |
| $\phi 100$ | 284    | 390    | $\phi 30$ | 68 | 84 | $\square 84$ | 370    | 476    | 114 | 138 | 16 | 35 | 362    | 468    | Rc3/8 | 152 | 24 | 15 |

| Symbol     | YJ     |        | YK | YL     |        | YN  | YQ  | YR            | YV   | YX   | YY            | YZ <sub>1</sub> | YZ <sub>2</sub> | ZA     |        | ZP | ZV | h  |
|------------|--------|--------|----|--------|--------|-----|-----|---------------|------|------|---------------|-----------------|-----------------|--------|--------|----|----|----|
| Bore       | Single | Double |    | Single | Double |     |     |               |      |      |               |                 |                 | Single | Double |    |    |    |
| $\phi 40$  | 28     | 53     | 27 | 73     | 126    | 90  | 116 | $\square 47$  | 25.5 | 37.5 | $\square 62$  | 88              | 94              | 284    | 362    | 4  | 10 | 7  |
| $\phi 50$  | 30     | 56     | 30 | 78     | 136    | 98  | 124 | $\square 56$  | 24   | 44   | $\square 75$  | 97              | 104             | 296    | 380    | 7  | 12 | 10 |
| $\phi 63$  | 35     | 61     | 35 | 73     | 126    | 98  | 124 | $\square 70$  | 25   | 53.5 | $\square 94$  | 114             | 122             | 318    | 397    | 8  | 12 | 10 |
| $\phi 80$  | 39     | 67     | 35 | 88     | 152    | 111 | 143 | $\square 84$  | 29   | 68.5 | $\square 112$ | 134             | 142             | 353    | 445    | 11 | 16 | 12 |
| $\phi 100$ | 39     | 68     | 36 | 101    | 178    | 125 | 157 | $\square 104$ | 29   | 82   | $\square 138$ | 159             | 166             | 380    | 486    | 12 | 18 | 12 |

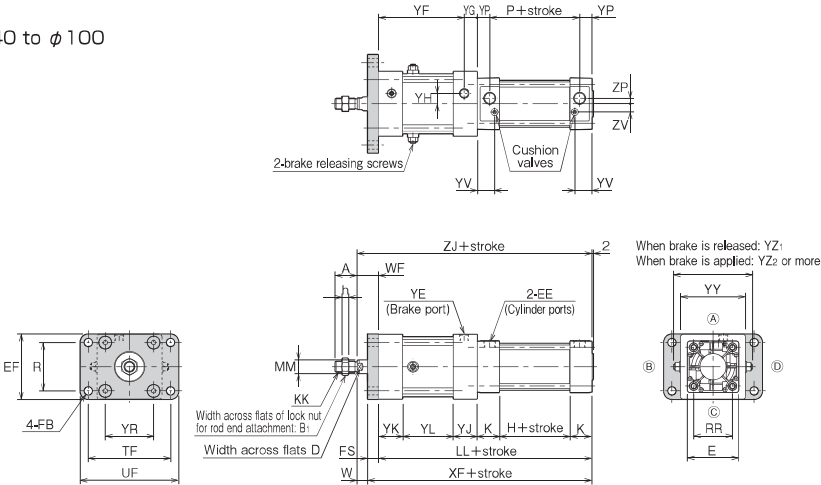
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 Ⓛ CAD/DATA is available. ℹ

FA

Single brake type 10B-6 FA Ⓛ Ⓛ Ⓛ Stroke

- $\phi 40$  to  $\phi 100$

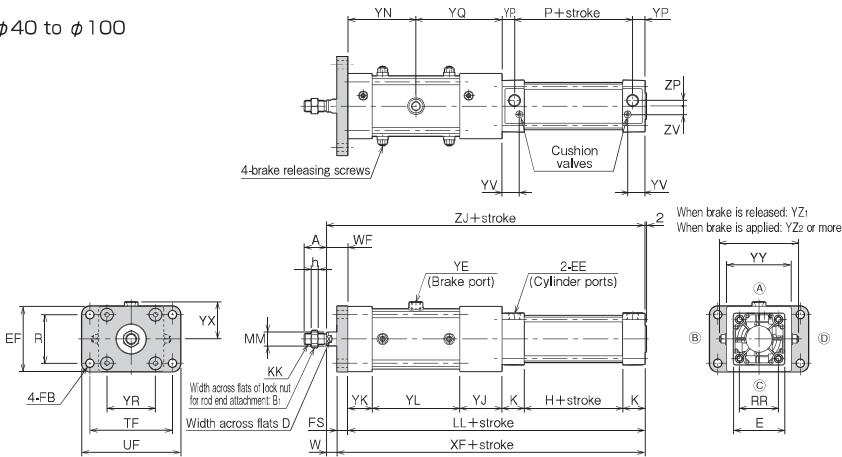


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 FA Ⓛ Ⓛ Ⓛ Stroke

10B-6/TBD6 Ⓛ ℹ

- $\phi 40$  to  $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol     | A      | B <sub>1</sub> | D  | E             | EE    | EF  | FB        | FS | H  | K  | KK       | LL     |        | MM        | P  |
|------------|--------|----------------|----|---------------|-------|-----|-----------|----|----|----|----------|--------|--------|-----------|----|
| Bore       |        |                |    |               |       |     |           |    |    |    |          | Single | Double |           |    |
| $\phi 40$  | 24(21) | 19             | 14 | $\square 50$  | Rc1/4 | 65  | $\phi 9$  | 10 | 31 | 31 | M12×1.25 | 221    | 299    | $\phi 16$ | 57 |
| $\phi 50$  | 32(29) | 22             | 17 | $\square 62$  | Rc1/4 | 76  | $\phi 9$  | 10 | 31 | 31 | M16×1.5  | 231    | 315    | $\phi 20$ | 57 |
| $\phi 63$  | 32(29) | 22             | 17 | $\square 75$  | Rc3/8 | 95  | $\phi 12$ | 16 | 32 | 32 | M16×1.5  | 239    | 318    | $\phi 20$ | 60 |
| $\phi 80$  | 40(37) | 27             | 21 | $\square 94$  | Rc3/8 | 115 | $\phi 12$ | 16 | 36 | 36 | M20×1.5  | 270    | 362    | $\phi 25$ | 68 |
| $\phi 100$ | 40(37) | 27             | 26 | $\square 112$ | Rc1/2 | 138 | $\phi 14$ | 16 | 36 | 36 | M20×1.5  | 284    | 390    | $\phi 30$ | 68 |

| Symbol     | R   | RR           | TF  | UF  | W  | WF | XF     |        | YE    | YF  | YG | YH | YJ     |        | YK |
|------------|-----|--------------|-----|-----|----|----|--------|--------|-------|-----|----|----|--------|--------|----|
| Bore       |     |              |     |     |    |    | Single | Double |       |     |    |    | Single | Double |    |
| $\phi 40$  | 47  | $\square 37$ | 86  | 104 | 15 | 25 | 231    | 309    | Rc1/4 | 111 | 17 | 6  | 28     | 53     | 27 |
| $\phi 50$  | 56  | $\square 47$ | 98  | 116 | 15 | 25 | 241    | 325    | Rc1/4 | 121 | 17 | 11 | 30     | 56     | 30 |
| $\phi 63$  | 70  | $\square 56$ | 119 | 143 | 15 | 31 | 255    | 334    | Rc1/4 | 121 | 22 | 15 | 35     | 61     | 35 |
| $\phi 80$  | 84  | $\square 70$ | 138 | 162 | 19 | 35 | 286    | 378    | Rc3/8 | 138 | 24 | 15 | 39     | 67     | 35 |
| $\phi 100$ | 104 | $\square 84$ | 168 | 196 | 19 | 35 | 300    | 406    | Rc3/8 | 152 | 24 | 15 | 39     | 68     | 36 |

| Symbol     | YL     |        | YN  | YP | YQ  | YR            | YV   | YX   | YY            | YZ <sub>1</sub> | YZ <sub>2</sub> | ZJ     |        | ZP | ZV | h  |
|------------|--------|--------|-----|----|-----|---------------|------|------|---------------|-----------------|-----------------|--------|--------|----|----|----|
| Bore       | Single | Double |     |    |     |               |      |      |               |                 |                 | Single | Double |    |    |    |
| $\phi 40$  | 73     | 126    | 90  | 18 | 116 | $\square 47$  | 25.5 | 37.5 | $\square 62$  | 88              | 94              | 246    | 324    | 4  | 10 | 7  |
| $\phi 50$  | 78     | 136    | 98  | 18 | 124 | $\square 56$  | 24   | 44   | $\square 75$  | 97              | 104             | 256    | 340    | 7  | 12 | 10 |
| $\phi 63$  | 73     | 126    | 98  | 18 | 124 | $\square 70$  | 25   | 53.5 | $\square 94$  | 114             | 122             | 270    | 349    | 8  | 12 | 10 |
| $\phi 80$  | 88     | 152    | 111 | 20 | 143 | $\square 84$  | 29   | 68.5 | $\square 112$ | 134             | 142             | 305    | 397    | 11 | 16 | 12 |
| $\phi 100$ | 101    | 178    | 125 | 20 | 157 | $\square 104$ | 29   | 82   | $\square 138$ | 159             | 166             | 319    | 425    | 12 | 18 | 12 |

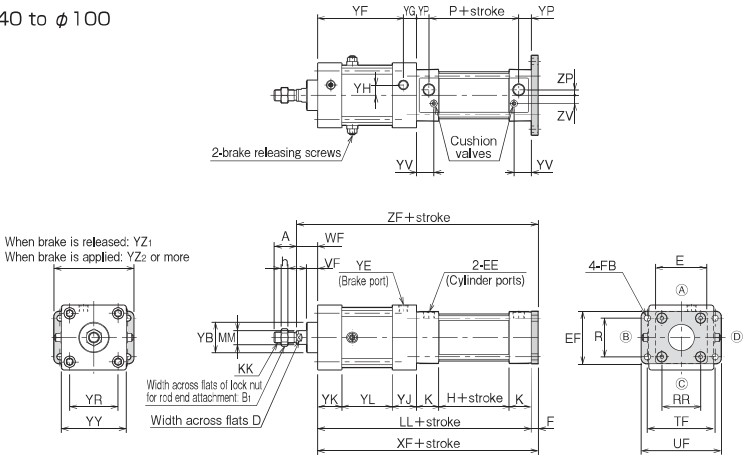
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 **Bore** CAD/DATA is available. **?**

FB

Single brake type 10B-6 FB **Bore** **B** **Stroke**

- $\phi 40$  to  $\phi 100$

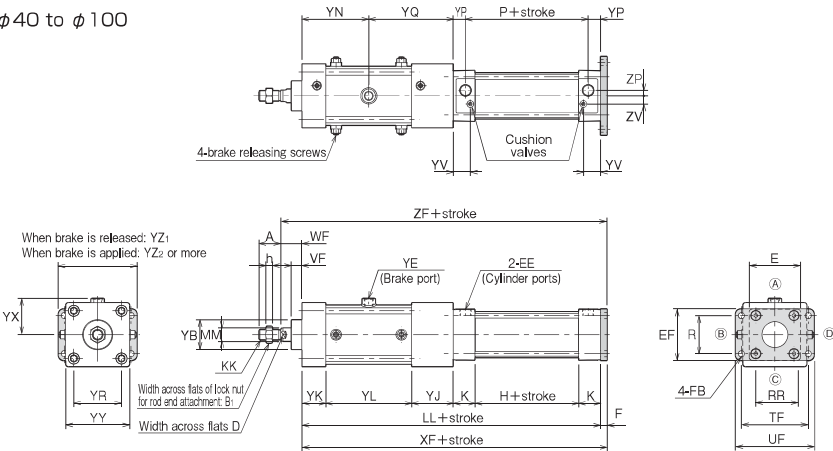


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 FB **Bore** **B** **Stroke**

10B-6/TBD6 **Bore** **?**

- $\phi 40$  to  $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol<br>Bore | A      | B <sub>1</sub> | D  | E             | EE    | EF  | F  | FB        | H  | K  | KK       | LL     |        | MM        | P  |
|----------------|--------|----------------|----|---------------|-------|-----|----|-----------|----|----|----------|--------|--------|-----------|----|
|                |        |                |    |               |       |     |    |           |    |    |          | Single | Double |           |    |
| $\phi 40$      | 24(21) | 19             | 14 | $\square 50$  | Rc1/4 | 52  | 10 | $\phi 7$  | 31 | 31 | M12×1.25 | 221    | 299    | $\phi 16$ | 57 |
| $\phi 50$      | 32(29) | 22             | 17 | $\square 62$  | Rc1/4 | 65  | 10 | $\phi 9$  | 31 | 31 | M16×1.5  | 231    | 315    | $\phi 20$ | 57 |
| $\phi 63$      | 32(29) | 22             | 17 | $\square 75$  | Rc3/8 | 76  | 10 | $\phi 9$  | 32 | 32 | M16×1.5  | 239    | 318    | $\phi 20$ | 60 |
| $\phi 80$      | 40(37) | 27             | 21 | $\square 94$  | Rc3/8 | 95  | 16 | $\phi 12$ | 36 | 36 | M20×1.5  | 270    | 362    | $\phi 25$ | 68 |
| $\phi 100$     | 40(37) | 27             | 26 | $\square 112$ | Rc1/2 | 115 | 16 | $\phi 12$ | 36 | 36 | M20×1.5  | 284    | 390    | $\phi 30$ | 68 |

| Symbol<br>Bore | R  | RR           | TF  | UF  | VF | WF | XF     |        | YB        | YE    | YF  | YG | YH | YJ     |        | YK |
|----------------|----|--------------|-----|-----|----|----|--------|--------|-----------|-------|-----|----|----|--------|--------|----|
|                |    |              |     |     |    |    | Single | Double |           |       |     |    |    | Single | Double |    |
| $\phi 40$      | 36 | $\square 37$ | 70  | 84  | 10 | 25 | 231    | 309    | $\phi 38$ | Rc1/4 | 111 | 17 | 6  | 28     | 53     | 27 |
| $\phi 50$      | 47 | $\square 47$ | 86  | 104 | 10 | 25 | 241    | 325    | $\phi 38$ | Rc1/4 | 121 | 17 | 11 | 30     | 56     | 30 |
| $\phi 63$      | 56 | $\square 56$ | 98  | 116 | 16 | 31 | 249    | 328    | $\phi 44$ | Rc1/4 | 121 | 22 | 15 | 35     | 61     | 35 |
| $\phi 80$      | 70 | $\square 70$ | 119 | 143 | 16 | 35 | 286    | 378    | $\phi 50$ | Rc3/8 | 138 | 24 | 15 | 39     | 67     | 35 |
| $\phi 100$     | 84 | $\square 84$ | 138 | 162 | 16 | 35 | 300    | 406    | $\phi 60$ | Rc3/8 | 152 | 24 | 15 | 39     | 68     | 36 |

| Symbol<br>Bore | YL     |        | YN  | YP | YQ  | YR            | YV   | YX   | YY            | YZ <sub>1</sub> | YZ <sub>2</sub> | ZF     |        | ZP | ZV | h  |
|----------------|--------|--------|-----|----|-----|---------------|------|------|---------------|-----------------|-----------------|--------|--------|----|----|----|
|                | Single | Double |     |    |     |               |      |      |               |                 |                 | Single | Double |    |    |    |
| $\phi 40$      | 73     | 126    | 90  | 18 | 116 | $\square 47$  | 25.5 | 37.5 | $\square 62$  | 88              | 94              | 256    | 334    | 4  | 10 | 7  |
| $\phi 50$      | 78     | 136    | 98  | 18 | 124 | $\square 56$  | 24   | 44   | $\square 75$  | 97              | 104             | 266    | 350    | 7  | 12 | 10 |
| $\phi 63$      | 73     | 126    | 98  | 18 | 124 | $\square 70$  | 25   | 53.5 | $\square 94$  | 114             | 122             | 280    | 359    | 8  | 12 | 10 |
| $\phi 80$      | 88     | 152    | 111 | 20 | 143 | $\square 84$  | 29   | 68.5 | $\square 112$ | 134             | 142             | 321    | 413    | 11 | 16 | 12 |
| $\phi 100$     | 101    | 178    | 125 | 20 | 157 | $\square 104$ | 29   | 82   | $\square 138$ | 159             | 166             | 335    | 441    | 12 | 18 | 12 |

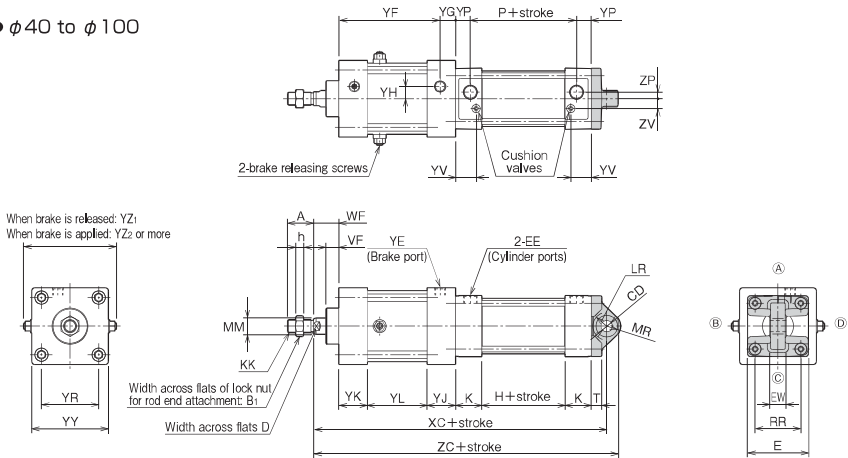
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 Bore CAD/DATA is available,

CA

Single brake type 10B-6 CA Bore B Stroke

•  $\phi 40$  to  $\phi 100$

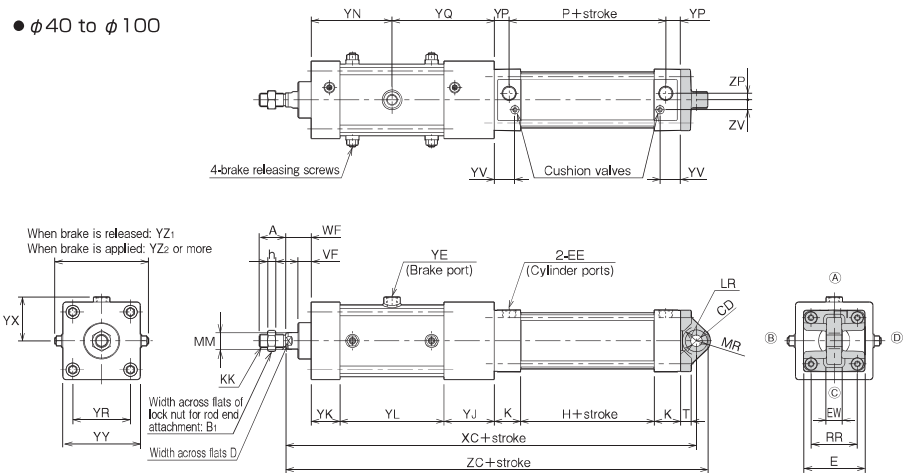


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Double brake type 10BD-6 CA Bore B Stroke

10B-6/TBD6 Bore

•  $\phi 40$  to  $\phi 100$



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol     | A      | B <sub>1</sub> | CD          | D  | E             | EE    | EW              | H  | K  | KK       | LR  | MM        |
|------------|--------|----------------|-------------|----|---------------|-------|-----------------|----|----|----------|-----|-----------|
| Bore       |        |                |             |    |               |       |                 |    |    |          |     |           |
| $\phi 40$  | 24(21) | 19             | $\phi 14H9$ | 14 | $\square 50$  | Rc1/4 | $20_{-0.084}^0$ | 31 | 31 | M12×1.25 | R17 | $\phi 16$ |
| $\phi 50$  | 32(29) | 22             | $\phi 14H9$ | 17 | $\square 62$  | Rc1/4 | $20_{-0.084}^0$ | 31 | 31 | M16×1.5  | R17 | $\phi 20$ |
| $\phi 63$  | 32(29) | 22             | $\phi 14H9$ | 17 | $\square 75$  | Rc3/8 | $20_{-0.084}^0$ | 32 | 32 | M16×1.5  | R17 | $\phi 20$ |
| $\phi 80$  | 40(37) | 27             | $\phi 20H9$ | 21 | $\square 94$  | Rc3/8 | $32_{-0.100}^0$ | 36 | 36 | M20×1.5  | R25 | $\phi 25$ |
| $\phi 100$ | 40(37) | 27             | $\phi 20H9$ | 26 | $\square 112$ | Rc1/2 | $32_{-0.100}^0$ | 36 | 36 | M20×1.5  | R26 | $\phi 30$ |

| Symbol     | MR  | P  | RR           | T  | VF | WF | XC     |        | YE    | YF  | YG | YH | YJ     |        | YK |
|------------|-----|----|--------------|----|----|----|--------|--------|-------|-----|----|----|--------|--------|----|
| Bore       |     |    |              |    |    |    | Single | Double |       |     |    |    | Single | Double |    |
| $\phi 40$  | R17 | 57 | $\square 37$ | 8  | 10 | 25 | 265    | 343    | Rc1/4 | 111 | 17 | 6  | 28     | 53     | 27 |
| $\phi 50$  | R17 | 57 | $\square 47$ | 10 | 10 | 25 | 275    | 359    | Rc1/4 | 121 | 17 | 11 | 30     | 56     | 30 |
| $\phi 63$  | R17 | 60 | $\square 56$ | 13 | 16 | 31 | 289    | 368    | Rc1/4 | 121 | 22 | 15 | 35     | 61     | 35 |
| $\phi 80$  | R24 | 68 | $\square 70$ | 18 | 16 | 35 | 337    | 429    | Rc3/8 | 138 | 24 | 15 | 39     | 67     | 35 |
| $\phi 100$ | R24 | 68 | $\square 84$ | 18 | 16 | 35 | 351    | 457    | Rc3/8 | 152 | 24 | 15 | 39     | 68     | 36 |

| Symbol     | YL     |        | YN  | YP | YQ  | YR            | YV   | YX   | YY            | YZ <sub>1</sub> | YZ <sub>2</sub> | ZC     |        | ZP | ZV | h  |
|------------|--------|--------|-----|----|-----|---------------|------|------|---------------|-----------------|-----------------|--------|--------|----|----|----|
| Bore       | Single | Double |     |    |     |               |      |      |               |                 |                 | Single | Double |    |    |    |
| $\phi 40$  | 73     | 126    | 90  | 18 | 116 | $\square 47$  | 25.5 | 37.5 | $\square 62$  | 88              | 94              | 279    | 357    | 4  | 10 | 7  |
| $\phi 50$  | 78     | 136    | 98  | 18 | 124 | $\square 56$  | 24   | 44   | $\square 75$  | 97              | 104             | 289    | 373    | 7  | 12 | 10 |
| $\phi 63$  | 73     | 126    | 98  | 18 | 124 | $\square 70$  | 25   | 53.5 | $\square 94$  | 114             | 122             | 303    | 382    | 8  | 12 | 10 |
| $\phi 80$  | 88     | 152    | 111 | 20 | 143 | $\square 84$  | 29   | 68.5 | $\square 112$ | 134             | 142             | 358    | 450    | 11 | 16 | 12 |
| $\phi 100$ | 101    | 178    | 125 | 20 | 157 | $\square 104$ | 29   | 82   | $\square 138$ | 159             | 166             | 371    | 477    | 12 | 18 | 12 |

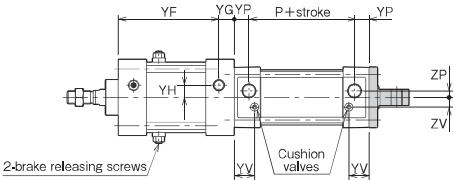
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 CAD/DATA is available.

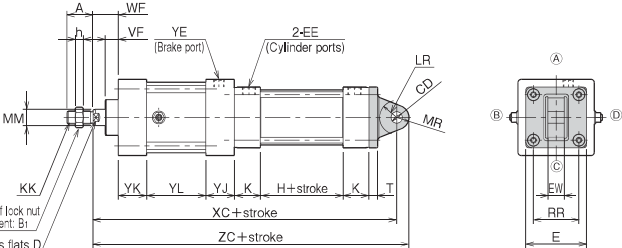
CC

Single brake type 10B-6 CC Bore B Stroke

- $\phi 40$  to  $\phi 100$



When brake is released: YZ<sub>1</sub>  
When brake is applied: YZ<sub>2</sub> or more

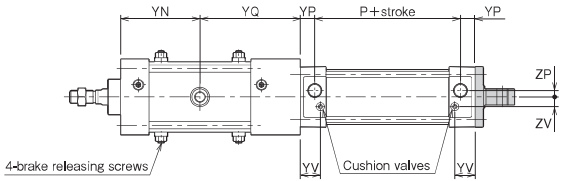


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

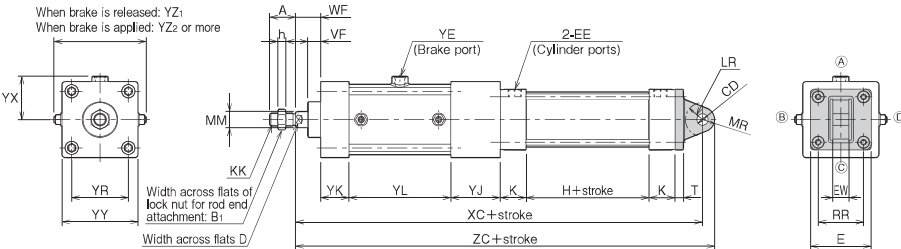
Double brake type 10BD-6 CC Bore B Stroke

10B-6/TBD6 CAD/DATA is available.

- $\phi 40$  to  $\phi 100$



When brake is released: YZ<sub>1</sub>  
When brake is applied: YZ<sub>2</sub> or more



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol     | A      | B <sub>1</sub> | CD          | D  | E             | EE    | EW            | H  | K  | KK       | LR  | MM        |
|------------|--------|----------------|-------------|----|---------------|-------|---------------|----|----|----------|-----|-----------|
| Bore       |        |                |             |    |               |       |               |    |    |          |     |           |
| $\phi 40$  | 24(21) | 19             | $\phi 14H9$ | 14 | $\square 50$  | Rc1/4 | $20_{-0.3}^0$ | 31 | 31 | M12×1.25 | R21 | $\phi 16$ |
| $\phi 50$  | 32(29) | 22             | $\phi 14H9$ | 17 | $\square 62$  | Rc1/4 | $20_{-0.3}^0$ | 31 | 31 | M16×1.5  | R21 | $\phi 20$ |
| $\phi 63$  | 32(29) | 22             | $\phi 14H9$ | 17 | $\square 75$  | Rc3/8 | $20_{-0.3}^0$ | 32 | 32 | M16×1.5  | R21 | $\phi 20$ |
| $\phi 80$  | 40(37) | 27             | $\phi 20H9$ | 21 | $\square 94$  | Rc3/8 | $32_{-0.3}^0$ | 36 | 36 | M20×1.5  | R25 | $\phi 25$ |
| $\phi 100$ | 40(37) | 27             | $\phi 20H9$ | 26 | $\square 112$ | Rc1/2 | $32_{-0.3}^0$ | 36 | 36 | M20×1.5  | R25 | $\phi 30$ |

| Symbol     | MR  | P  | RR           | T  | VF | WF | XC     |        | YE    | YF  | YG | YH | YJ     |        | YK |
|------------|-----|----|--------------|----|----|----|--------|--------|-------|-----|----|----|--------|--------|----|
| Bore       |     |    |              |    |    |    | Single | Double |       |     |    |    | Single | Double |    |
| $\phi 40$  | R14 | 57 | $\square 37$ | 11 | 10 | 25 | 280    | 358    | Rc1/4 | 111 | 17 | 6  | 28     | 53     | 27 |
| $\phi 50$  | R15 | 57 | $\square 47$ | 11 | 10 | 25 | 290    | 374    | Rc1/4 | 121 | 17 | 11 | 30     | 56     | 30 |
| $\phi 63$  | R15 | 60 | $\square 56$ | 11 | 16 | 31 | 304    | 383    | Rc1/4 | 121 | 22 | 15 | 35     | 61     | 35 |
| $\phi 80$  | R20 | 68 | $\square 70$ | 15 | 16 | 35 | 353    | 445    | Rc3/8 | 138 | 24 | 15 | 39     | 67     | 35 |
| $\phi 100$ | R20 | 68 | $\square 84$ | 15 | 16 | 35 | 367    | 473    | Rc3/8 | 152 | 24 | 15 | 39     | 68     | 36 |

| Symbol     | YL     |        | YN  | YP | YQ  | YR            | YV   | YX   | YY            | YZ <sub>1</sub> | YZ <sub>2</sub> | ZC     |        | ZP | ZV | h  |
|------------|--------|--------|-----|----|-----|---------------|------|------|---------------|-----------------|-----------------|--------|--------|----|----|----|
| Bore       | Single | Double |     |    |     |               |      |      |               |                 |                 | Single | Double |    |    |    |
| $\phi 40$  | 73     | 126    | 90  | 18 | 116 | $\square 47$  | 25.5 | 37.5 | $\square 62$  | 88              | 94              | 294    | 372    | 4  | 10 | 7  |
| $\phi 50$  | 78     | 136    | 98  | 18 | 124 | $\square 56$  | 24   | 44   | $\square 75$  | 97              | 104             | 305    | 389    | 7  | 12 | 10 |
| $\phi 63$  | 73     | 126    | 98  | 18 | 124 | $\square 70$  | 25   | 53.5 | $\square 94$  | 114             | 122             | 319    | 398    | 8  | 12 | 10 |
| $\phi 80$  | 88     | 152    | 111 | 20 | 143 | $\square 84$  | 29   | 68.5 | $\square 112$ | 134             | 142             | 373    | 465    | 11 | 16 | 12 |
| $\phi 100$ | 101    | 178    | 125 | 20 | 157 | $\square 104$ | 29   | 82   | $\square 138$ | 159             | 166             | 387    | 493    | 12 | 18 | 12 |

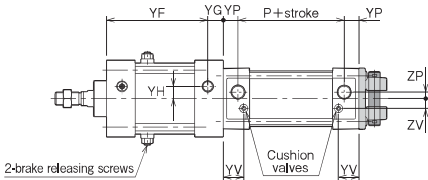
\*The parenthesized values of dimension A indicate the screw length.

10B-6/TB6 Bore is available, CAD/DATA

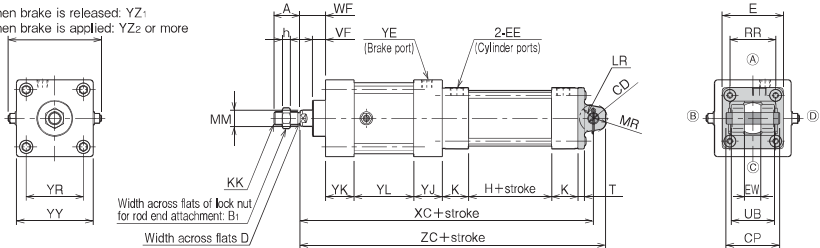
CB

Single brake type 10B-6 CB Bore Stroke

- φ40 to φ100



When brake is released: YZ<sub>1</sub>  
When brake is applied: YZ<sub>2</sub> or more

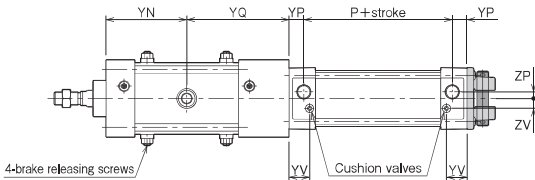


- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

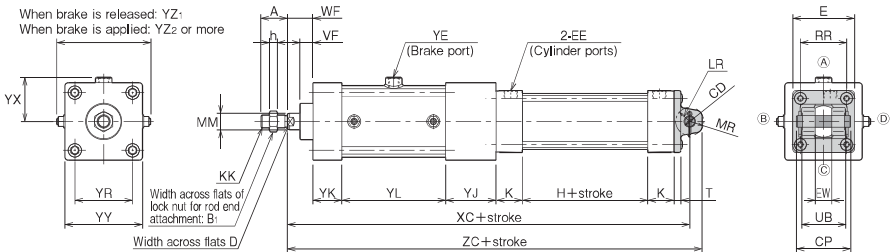
Double brake type 10BD-6 CB Bore Stroke

10B-6/TBD6 Bore

- φ40 to φ100



When brake is released: YZ<sub>1</sub>  
When brake is applied: YZ<sub>2</sub> or more



- For dimensions not shown here, refer to SD (basic style).
- For dimensional drawings of rod end attachments, refer to the Accessories.

Dimensional Table

| Symbol | A      | B <sub>1</sub> | CD       | CP | D  | E    | EE    | EW                                 | H  | K  | KK       | LR  | MM  |
|--------|--------|----------------|----------|----|----|------|-------|------------------------------------|----|----|----------|-----|-----|
| Bore   |        |                |          |    |    |      |       |                                    |    |    |          |     |     |
| φ40    | 24(21) | 19             | φ14H9/f8 | 58 | 14 | □50  | Rc1/4 | 20 <sup>+0.7</sup> <sub>+0.5</sub> | 31 | 31 | M12×1.25 | R17 | φ16 |
| φ50    | 32(29) | 22             | φ14H9/f8 | 66 | 17 | □62  | Rc1/4 | 20 <sup>+0.7</sup> <sub>+0.5</sub> | 31 | 31 | M16×1.5  | R17 | φ20 |
| φ63    | 32(29) | 22             | φ14H9/f8 | 66 | 17 | □75  | Rc3/8 | 20 <sup>+0.7</sup> <sub>+0.5</sub> | 32 | 32 | M16×1.5  | R17 | φ20 |
| φ80    | 40(37) | 27             | φ20H9/f8 | 78 | 21 | □94  | Rc3/8 | 32 <sup>+0.7</sup> <sub>+0.5</sub> | 36 | 36 | M20×1.5  | R30 | φ25 |
| φ100   | 40(37) | 27             | φ20H9/f8 | 78 | 26 | □112 | Rc1/2 | 32 <sup>+0.7</sup> <sub>+0.5</sub> | 36 | 36 | M20×1.5  | R30 | φ30 |

| Symbol | MR  | P  | RR  | T  | UB | VF | WF | XC     |        | YE    | YF  | YG | YH | YJ     |        | YK |
|--------|-----|----|-----|----|----|----|----|--------|--------|-------|-----|----|----|--------|--------|----|
| Bore   |     |    |     |    |    |    |    | Single | Double |       |     |    |    | Single | Double |    |
| φ40    | R15 | 57 | □37 | 8  | 45 | 10 | 25 | 265    | 343    | Rc1/4 | 111 | 17 | 6  | 28     | 53     | 27 |
| φ50    | R17 | 57 | □47 | 8  | 53 | 10 | 25 | 275    | 359    | Rc1/4 | 121 | 17 | 11 | 30     | 56     | 30 |
| φ63    | R17 | 60 | □56 | 8  | 53 | 16 | 31 | 289    | 368    | Rc1/4 | 121 | 22 | 15 | 35     | 61     | 35 |
| φ80    | R24 | 68 | □70 | 11 | 67 | 16 | 35 | 337    | 429    | Rc3/8 | 138 | 24 | 15 | 39     | 67     | 35 |
| φ100   | R24 | 68 | □84 | 11 | 67 | 16 | 35 | 351    | 457    | Rc3/8 | 152 | 24 | 15 | 39     | 68     | 36 |

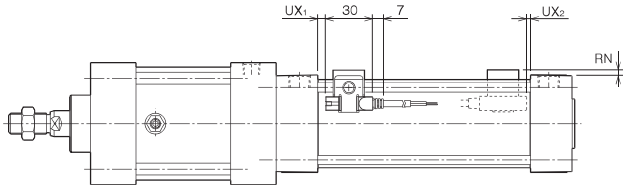
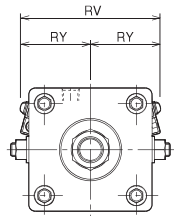
| Symbol | YL     |        | YN  | YP | YQ  | YR   | YV   | YX   | YY   | YZ <sub>1</sub> | YZ <sub>2</sub> | ZC     |        | ZP | ZV | h  |
|--------|--------|--------|-----|----|-----|------|------|------|------|-----------------|-----------------|--------|--------|----|----|----|
| Bore   | Single | Double |     |    |     |      |      |      |      |                 |                 | Single | Double |    |    |    |
| φ40    | 73     | 126    | 90  | 18 | 116 | □47  | 25.5 | 37.5 | □62  | 88              | 94              | 278    | 356    | 4  | 10 | 7  |
| φ50    | 78     | 136    | 98  | 18 | 124 | □56  | 24   | 44   | □75  | 97              | 104             | 290    | 374    | 7  | 12 | 10 |
| φ63    | 73     | 126    | 98  | 18 | 124 | □70  | 25   | 53.5 | □94  | 114             | 122             | 304    | 383    | 8  | 12 | 10 |
| φ80    | 88     | 152    | 111 | 20 | 143 | □84  | 29   | 68.5 | □112 | 134             | 142             | 358    | 450    | 11 | 16 | 12 |
| φ100   | 101    | 178    | 125 | 20 | 157 | □104 | 29   | 82   | □138 | 159             | 166             | 372    | 478    | 12 | 18 | 12 |

\*The parenthesized values of dimension A indicate the screw length.

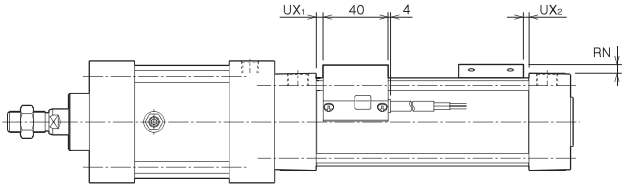
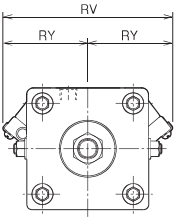
Switch Set

10B-6 SD Bore B Stroke – Sensor symbol Sensor quantity

●AX type sensor



●SR type sensor



Dimensional Table

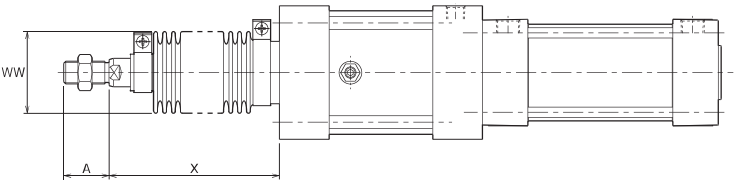
| Symbol<br>Bore | RY      |         | RV      |         | RN      |         | UX <sub>1</sub> |         | UX <sub>2</sub> |         |
|----------------|---------|---------|---------|---------|---------|---------|-----------------|---------|-----------------|---------|
|                | AX type | SR type | AX type | SR type | AX type | SR type | AX type         | SR type | AX type         | SR type |
| φ40            | 36      | 40      | 72      | 80      | 3       | 4       | 8               | 2       | 4               | 0       |
| φ50            | 40      | 45      | 80      | 90      | 2       | 3       | 9               | 2       | 5               | 0       |
| φ63            | 47      | 52      | 94      | 104     | 2       | 5       | 9               | 2       | 5               | 0       |
| φ80            | 52      | 60      | 104     | 120     | 0       | 2       | 11              | 4       | 6               | 0       |
| φ100           | 60      | 67      | 120     | 134     | 0       | 0       | 11              | 4       | 6               | 0       |

Note) Dimension UX indicates the optimum sensor mounting position for detection of stroke end.

Operating Range and Hysteresis

| Bore | Reed sensor     |            |                 |            | Solid state sensor |            |
|------|-----------------|------------|-----------------|------------|--------------------|------------|
|      | AX1** type      |            | SR形             |            | AX2** type         |            |
|      | Operating range | Hysteresis | Operating range | Hysteresis | Operating range    | Hysteresis |
| φ40  | 5 to 10         | 1 or less  | 8 to 12         | 2 or less  | 3 to 6             | 1 or less  |
| φ50  | 6 to 12         |            | 9 to 13         |            | 4 to 8             |            |
| φ63  |                 |            |                 |            |                    |            |
| φ80  |                 |            |                 |            |                    |            |
| φ100 |                 |            |                 |            |                    |            |

With Boots

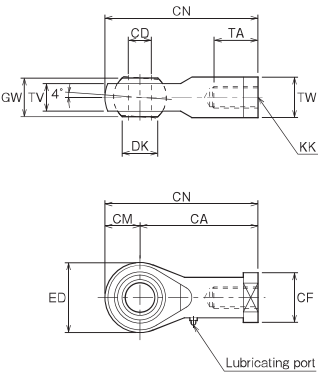


|            | Standard        | Semi-standard |       |
|------------|-----------------|---------------|-------|
| Material   | Nylon tarpaulin | Chloroprene   | Conex |
| Heat proof | 80°C            | 100°C         | 200°C |

Notes) ● Conex boots have different dimensions.  
 ● Conex is the registered trademark of Teijin Limited.  
 ● Remember that the heat proof field in the table above shows the allowable temperatures for the boots, not for the cylinder.  
 ● The boots have been mounted at our factory prior to delivery.

Rod End Attachment

- Rod eye with spherical bearing (S-end)



Dimensional Table: With boots

| Symbol<br>Bore | A  | WW              |             |       | X                            |               |
|----------------|----|-----------------|-------------|-------|------------------------------|---------------|
|                |    | Nylon tarpaulin | Chloroprene | Conex | Nylon tarpaulin, Chloroprene | Conex         |
| φ40            | 24 | φ41             | φ41         | φ61   | 50+1/3 stroke                | 50+1/2 stroke |
| φ50            | 32 | φ47             | φ47         | φ61   | 52+1/3 stroke                | 52+1/2 stroke |
| φ63            | 32 | φ47             | φ47         | φ61   | 52+1/3 stroke                | 52+1/2 stroke |
| φ80            | 40 | φ61             | φ61         | φ61   | 64+1/4 stroke                | 64+2/5 stroke |
| φ100           | 40 | φ71             | φ71         | φ71   | 64+1/4 stroke                | 64+2/5 stroke |

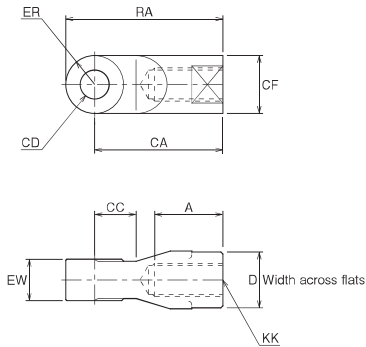
Note) If the calculated value has a fractional part, round it up.

Dimensional Table: Rod eye with spherical bearing (S-end)

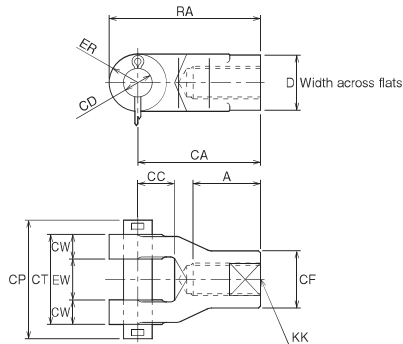
| Symbol<br>Bore | Part number | CA | CD    | CF  | CM | CN  | DK    | ED | GW                              | KK       | TA | TV     | TW |
|----------------|-------------|----|-------|-----|----|-----|-------|----|---------------------------------|----------|----|--------|----|
| φ40            | RSA-12-A    | 50 | φ12H9 | φ22 | 15 | 65  | φ15.4 | 30 | 16 <sup>0</sup> <sub>-0.1</sub> | M12X1.25 | 24 | 12±0.1 | 19 |
| φ50            | RSA-16-A    | 64 | φ16H9 | φ27 | 19 | 83  | φ19.4 | 38 | 21 <sup>0</sup> <sub>-0.1</sub> | M16X1.5  | 33 | 15±0.1 | 22 |
| φ63            |             |    |       |     |    |     |       |    |                                 |          |    |        |    |
| φ80            | RSA-20-A    | 77 | φ20H9 | φ34 | 23 | 100 | φ24.4 | 46 | 25 <sup>0</sup> <sub>-0.1</sub> | M20X1.5  | 40 | 18±0.1 | 30 |
| φ100           |             |    |       |     |    |     |       |    |                                 |          |    |        |    |

Rod End Attachment

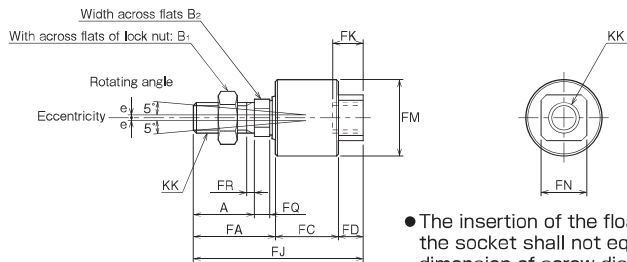
- Rod eye (T-end)



- Rod clevis (Y-end) with pin



- Floating joint (F-end)



- The insertion of the floating joint into the socket shall not equal or exceed the dimension of screw diameter. (Return the joint one or two turns after it gets into contact with the socket bottom, and fix it with a lock nut.) Excessive insertion can cause operation failure.
- Do NOT use together with CA, CB, and CC accessories.

Dimensional Table: Rod eye (T-end)

| Symbol | Part number | A  | CA | CC | CD    | CF  | D  | ER  | EW                              | KK       | RA  |
|--------|-------------|----|----|----|-------|-----|----|-----|---------------------------------|----------|-----|
| Bore   |             |    |    |    |       |     |    |     |                                 |          |     |
| φ40    | RTA-12-A    | 25 | 60 | 20 | φ14H9 | φ24 | 24 | R12 | 20 <sup>0</sup> <sub>-0.1</sub> | M12×1.25 | 72  |
| φ50    | RTA-16-A    | 33 | 60 | 20 | φ14H9 | φ28 | 27 | R14 | 20 <sup>0</sup> <sub>-0.1</sub> | M16×1.5  | 74  |
| φ63    |             |    |    |    |       |     |    |     |                                 |          |     |
| φ80    | RTA-20-A    | 41 | 85 | 30 | φ20H9 | φ36 | 36 | R19 | 32 <sup>0</sup> <sub>-0.1</sub> | M20×1.5  | 104 |
| φ100   |             |    |    |    |       |     |    |     |                                 |          |     |

Dimensional Table: Rod clevis (Y-end) with pin

| Symbol | Part number | A  | CA | CC | CD                              | CF  | CP | CT | CW | D  | ER  | EW                                 | KK       | RA  |
|--------|-------------|----|----|----|---------------------------------|-----|----|----|----|----|-----|------------------------------------|----------|-----|
| Bore   |             |    |    |    |                                 |     |    |    |    |    |     |                                    |          |     |
| φ40    | RYA-12-1-A  | 25 | 60 | 20 | φ14 <sup>H9</sup> <sub>T8</sub> | φ24 | 58 | 44 | 12 | 24 | R12 | 20 <sup>+1.5</sup> <sub>+0.5</sub> | M12×1.25 | 71  |
| φ50    | RYA-16-A    | 33 | 60 | 18 | φ14 <sup>H9</sup> <sub>T8</sub> | φ28 | 58 | 44 | 12 | 27 | R14 | 20 <sup>+1.5</sup> <sub>+0.5</sub> | M16×1.5  | 74  |
| φ63    |             |    |    |    |                                 |     |    |    |    |    |     |                                    |          |     |
| φ80    | RYA-20-A    | 41 | 85 | 28 | φ20 <sup>H9</sup> <sub>T8</sub> | φ36 | 78 | 64 | 16 | 36 | R19 | 32 <sup>+1.5</sup> <sub>+0.5</sub> | M20×1.5  | 104 |
| φ100   |             |    |    |    |                                 |     |    |    |    |    |     |                                    |          |     |

Dimensional Table: Floating joint (F-end)

| Symbol | Part number | A  | B <sub>1</sub> | B <sub>2</sub> | e   | FA | FC   | FD | FJ   | FK   | FM  | FN  | FQ | FR  | KK       |
|--------|-------------|----|----------------|----------------|-----|----|------|----|------|------|-----|-----|----|-----|----------|
| Bore   |             |    |                |                |     |    |      |    |      |      |     |     |    |     |          |
| φ40    | RFS-12T     | 24 | 19             | 13             | 1   | 33 | 25.5 | 11 | 69.5 | 13.5 | φ32 | □19 | 7  | 3.5 | M12×1.25 |
| φ50φ63 | RFS-16T     | 32 | 22             | 17             | 1.5 | 43 | 33   | 13 | 89   | 16   | φ40 | □24 | 8  | 4   | M16×1.5  |
| φ80    | RFS-20T080  | 40 | 27             | 22             | 2   | 53 | 42   | 15 | 110  | 22   | φ50 | □30 | 9  | 5   | M20×1.5  |
| φ100   | RFS-20T100  | 40 | 27             | 24             | 2.5 | 56 | 49   | 18 | 123  | 24   | φ64 | □36 | 12 | 6   | M20×1.5  |

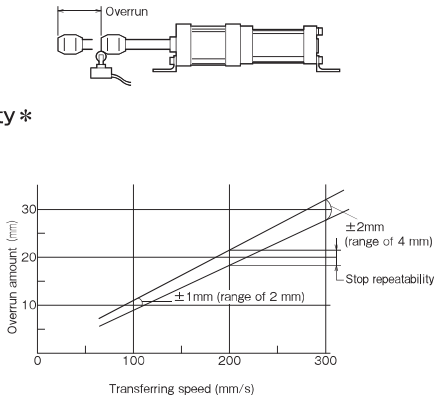
Handling Instructions

Stop repeatability and overrun amount

Since the brake is actuated by the movement of the brake piston, the load cannot be stopped immediately when a stop signal is given. It is stopped with a little delay. This delay is in proportion to the cylinder speed. The difference between the max. and min. overrun amounts is the stop repeatability.

\* Notes on overrun and stop repeatability \*

- 1. Set the limit sensor the overrun amount ahead of the desired position.
- 2. The overrun amount may be larger than the operating range of our sensors. Use the sensor self-holding the signal.
- 3. The graph shown right shows the experimental values obtained by us with the maximum load weight at a speed of 300 mm/s. The actual overrun amount and stop repeatability may slightly vary depending on the working conditions.
- 4. The stroke speed is unstable in the cushion stroke and in the deceleration range after the start of operation. Therefore, the stop accuracy shown in the right graph may not be obtained. Set the distance between the stop positions to 50 mm or more. If the distance between the stop positions is short, make control to return the piston rod largely.



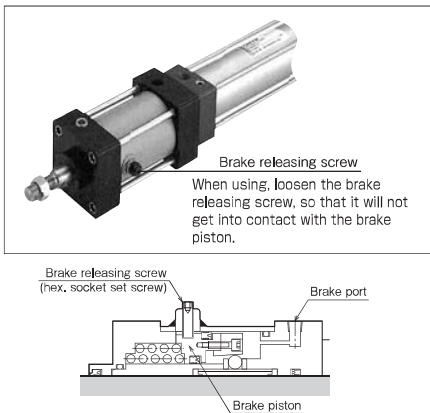
Precautions for use

⚠ WARNING

- 1. When starting the cylinder (releasing the brake), ensure that pressure is applied to the exhaust side of the cylinder. If the exhaust side is under atmospheric pressure, the piston rod may jump out, thereby causing an accident. Figs. 3, 4 and 5 shows recommended circuits.
- 2. The brake unit contains a strong spring. Never disassemble the unit. It is dangerous. If it is necessary to overhaul the unit, contact us.

⚠ CAUTION

- 1. When the cylinder is delivered, the brake piston is secured at the brake releasing position with the brake releasing screw (Single type: 2 places, Double type: 4 places). The brake does not operate.
- 2. After performing stroke operation of the cylinder for piping and positioning, supply a pressure (compressed air) of 0.35 MPa or more (0.4 MPa or more only for the 50 mm bore cylinder) to the brake port when checking the brake operation (to release the brake), and give four turns or more (2.5 turns only for the 40 mm bore cylinder) to the brake releasing screw to release the piston. Then, discharge the pressure applied to the brake port to enable the brake. Never turn the brake releasing screw when the pressure applied to the brake port has been discharged. Doing so may damage the brake unit parts.
- 3. If the brake releasing screw is turned excessively, it will come off. Stop loosening the screw after loosening it 5 or 6 turns (3 or 4 turns only for the 40 mm bore cylinder) to prevent entry of dirt into the brake unit, and secure the screw with the supplied lock nut. Tighten the lock nut firmly so that it will not be loosened. If it is loosened, dirt may enter the unit, or the brake releasing screw may get into contact with the brake piston, and the screw may be damaged, thereby causing operation failure.

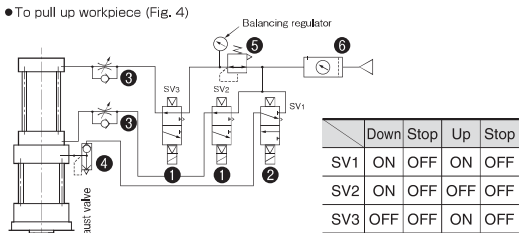
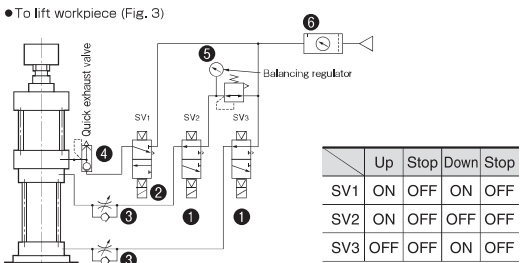


Usage

If the cylinder chamber on the exhaust side is under atmospheric pressure when the brake cylinder is started, the piston rod may jump out, thereby causing an accident. To ensure that the cylinder is started in the state where pressure is on the exhaust side, design the circuit referring to the recommended circuits.

● Recommended circuit

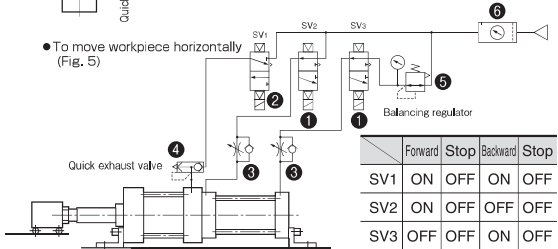
- 1. As shown right, fit a balancing regulator on the pneumatic cylinder operating circuit of the brake cylinder, so that the load does not move vertically or horizontally and is kept in balance while the brake is in the released state.
  - 2. When the brake cylinder using a pressure center type solenoid valve is used, it is difficult to control the stopping position. Particularly in the case where the brake is operated in the middle of ascending, the load may ascend after once descending when the brake is released, and the limit sensor may be turned on twice. Be sure to use a balancing circuit.
- The balancing operation will be performed at the same time when the brake is applied, and the cylinder will be restarted at the same time when the brake is released. (On a standard circuit, the cylinder stops when all operating valves are turned off.)



● Stop distance

Set the distance between the stopping positions to 50 mm or more if possible. In many cases, the speed of pneumatic cylinder is unstable at the start. If the distance between the stop positions is short, keep a distance of 50 mm or more, for example, by returning the piston rod once to the origin.

(Caution)  
The brake unit contains a strong spring. Never disassemble the brake unit. For overhauling, consult us.



Brake cylinders and peripheral devices

| Symbol<br>Name | ①              |          | ②              |          | ③                | ④                   | ⑤         | ⑥                | —              |
|----------------|----------------|----------|----------------|----------|------------------|---------------------|-----------|------------------|----------------|
|                | Solenoid valve | Silencer | Solenoid valve | Silencer | Speed controller | Quick exhaust valve | Regulator | Air control unit | Floating joint |
| Bore           |                |          |                |          |                  |                     |           |                  |                |
| φ40            | 3EP-08E        | SA-8     | 3EC-08E        | SA-8     | SC502            | QV2-8               | ERV-08    | EFRL08           | RFS-12T        |
| φ50            | 3EP-08E        | SA-8     | 3EC-08E        | SA-8     | SC502            | QV2-8               | ERV-08    | EFRL08           | RFS-16T        |
| φ63            | 3HP-10E        | SA-10    | 3EC-08E        | SA-8     | SC503            | QV2-8               | ERV-10    | EFRL10           | RFS-16T        |
| φ80            | 3HP-10E        | SA-10    | 3HC-10E        | SA-10    | SC503            | QV2-10              | ERV-10    | EFRL10           | RFS-20T080     |
| φ100           | 3HP-15E        | SA-15    | 3HC-10E        | SA-10    | SC504            | QV2-10              | MRV-15    | MFRL15           | RFS-20T100     |

● Various kinds of joints and tubes are available.