

### Order example

**MCKC — 20 — 10 — LN — □**

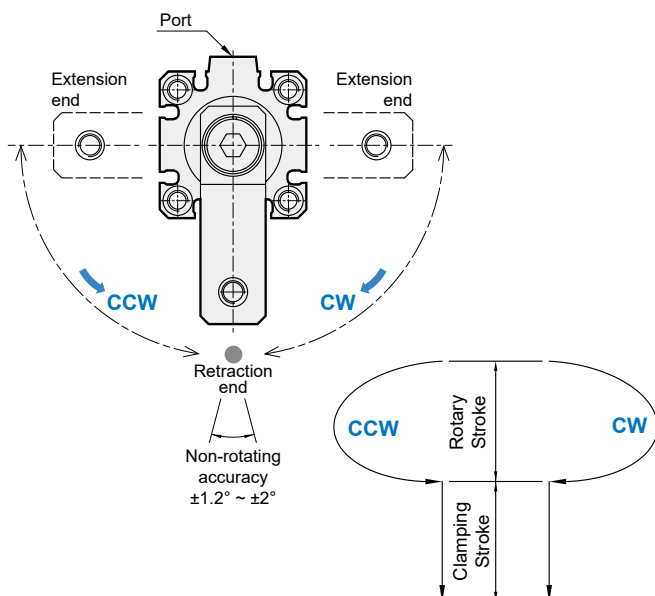
MODEL      TUBE I.D.      CLAMP STROKE      PORT THREAD

ROTARY DIRECTION  
L: Counter clockwise (CCW)  
R: Clock wise (CW)

ARM  
Blank: With  
N: Without

Blank: M5×0.8  
(for ø12~ø25)  
Blank: Rc thread  
G: G thread  
NPT: NPT thread  
(for ø32~ø63)

### Rotary direction



### Features

- Ultra compact, light weight and space saving cylinder.
- Ideal for use in machinery where space is limited and incorporating sensor groove which enables flush fitting of sensors.
- The sensor can freely mounted the four sides.
- Magnetic as standard.

### Specification

| Model                        | MCKC                     |       |                                       |    |       |    |       |         |
|------------------------------|--------------------------|-------|---------------------------------------|----|-------|----|-------|---------|
| Acting type                  | Double acting            |       |                                       |    |       |    |       |         |
| Tube I.D. (mm)               | 12                       | 16    | 20                                    | 25 | 32    | 40 | 50    | 63      |
| Port size                    | M5×0.8                   |       |                                       |    | Rc1/8 |    | Rc1/4 |         |
| Rotary angle (Extension end) | 90°±10°                  |       |                                       |    |       |    |       |         |
| Rotary direction             | CCW (L), CW (R)          |       |                                       |    |       |    |       |         |
| Rotary stroke (mm)           | 7.5                      |       | 9.5                                   |    | 15    |    | 19    |         |
| Clamp stroke (mm)            | 10, 20                   |       | 10, 20, 30, 50 (50 only for ø50, ø63) |    |       |    |       |         |
| Medium                       | Air                      |       |                                       |    |       |    |       |         |
| Operating pressure range     | 0.1~1 MPa                |       |                                       |    |       |    |       | 0.1~0.6 |
| Ambient temperature          | -5°C~+60°C (No freezing) |       |                                       |    |       |    |       |         |
| Available speed range (*1)   | 50~200 mm/sec            |       |                                       |    |       |    |       |         |
| Non-rotating accuracy (*2)   | ±2°                      | ±1.3° | ±1.2°                                 |    |       |    |       |         |
| Lubrication                  | Not required             |       |                                       |    |       |    |       |         |
| Sensor switch (*3)           | RDE                      | ●     | ●                                     | -  | -     | -  | -     | -       |
|                              | RCE,RCE1                 | -     | -                                     | ●  | ●     | ●  | ●     | ●       |
|                              | RDEP                     | -     | -                                     | -  | ●     | -  | ●     | ●       |

\*1. Keep the operating speed between 50~200mm/s with a speed controller.

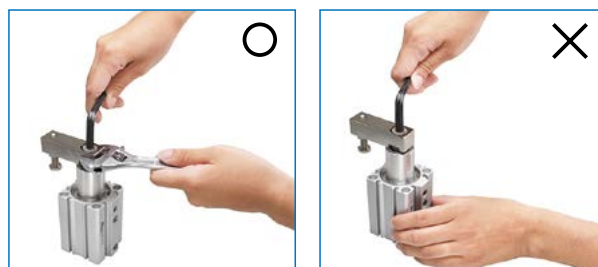
Please refer to moment of inertia.

Adjust the speed gradually from state to prevent inner parts being damaged.

\*2. Arm during clamping (Clamp part).

\*3. RCE/RDE, RCE1, RDEP specifications.

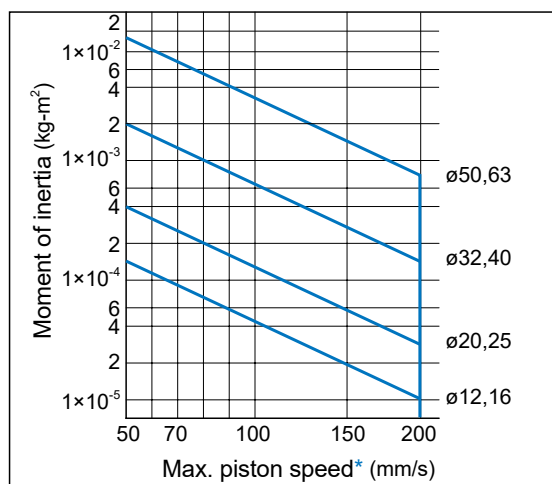
### Clamping arm mounting methods



### Clamping arm tightening torque

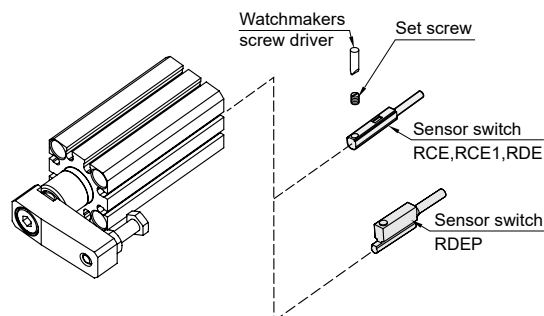
| Tube I.D. (mm) | Tightening torque (kgf·cm) |
|----------------|----------------------------|
| 12             | 5.1 ~ 7.1                  |
| 16             | 28.5 ~ 35.7                |
| 20, 25         | 117.2 ~ 142.7              |
| 32, 40         | 244.6 ~ 305.8              |
| 50, 63         | 764.5 ~ 917.4              |

### Moment of inertia

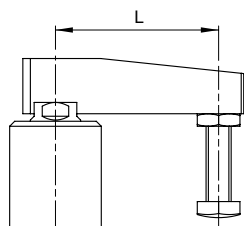
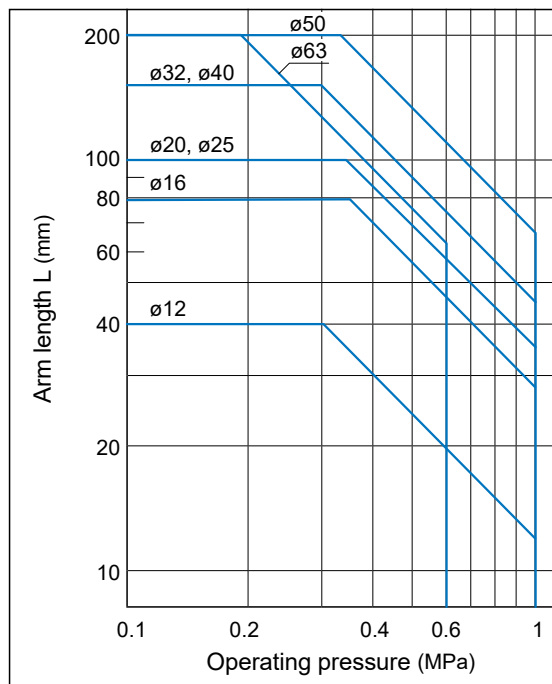


\* Max. piston speed is equivalent to approximately 1.6x the average piston speed. (Rough indication)

### Installation of sensor switch



### Allowable bending moment



### ⚠ CAUTION

Do not use the cylinder under the following environments

- Areas that contain splashing cutting oil.
- Areas that contain foreign objects such as cutting chips or heavy-dust.
- Areas that environment temperature exceeds the operating range.
- Areas that expose to direct sunlight.
- Areas that contain corrosion risk.

A cylinder could malfunction or the non-rotating accuracy could be reduced if a rotational force is applied to the piston rod. Therefore, check the particular examples below before operating the cylinder.

- 1 Make sure to mount the cylinder vertically to the ground. (Fig.1)
- 2 Do not apply external rotary force on the piston rod. (Fig.2)
- 3 Make sure that the clamping surface of the workpiece is perpendicular to the axial line of cylinder. (Fig.3)
- 4 Clamping the workpiece in the clamping stroke of cylinder only. Do not clamp the workpiece in the rotary stroke. (Fig.4)
- 5 Make sure that the workpiece is not moved by external force while clamping. (Fig.5)

- 1 Do not mount the cylinder horizontally.

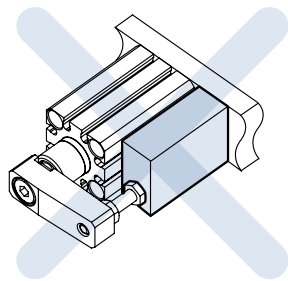


Fig.1

- 2 Do not apply external rotary force on the piston rod.

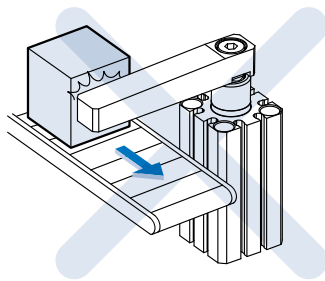


Fig.2

- 3 Do not clamp on a slope.

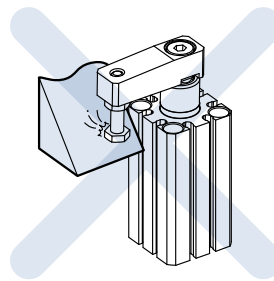


Fig.3

- 4 Do not clamp the workpiece in the rotary stroke.

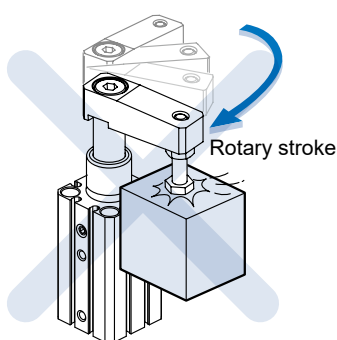
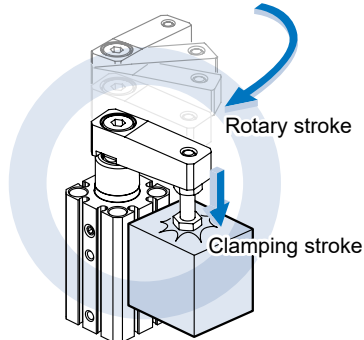


Fig.4



- 5 Make sure that the workpiece have no external force applied besides the cylinder while clamping.

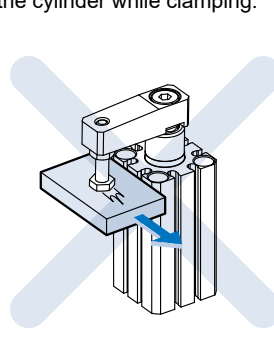
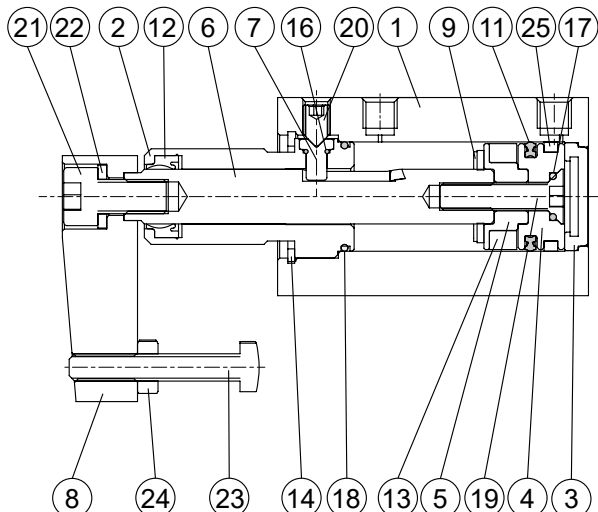
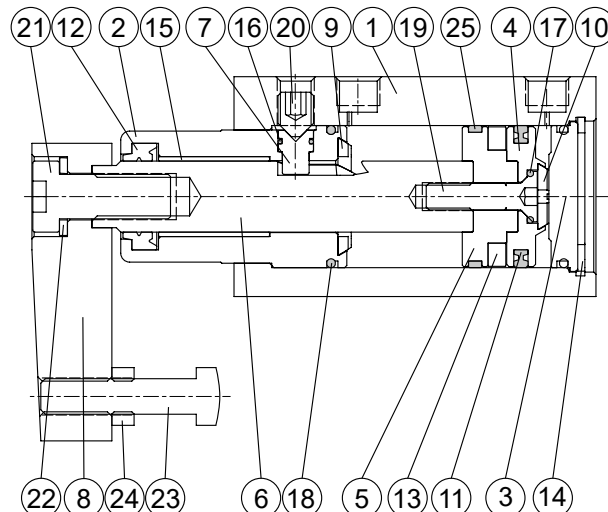


Fig.5

ø12, ø16, ø40, ø50, ø63



ø20, ø25, ø32



### Material

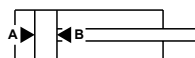
| No. | Part name              | Material        | Note        |
|-----|------------------------|-----------------|-------------|
| 1   | Body                   | Aluminum alloy  |             |
| 2   | Rod cover              | Aluminum alloy  |             |
| 3   | End cover              | Aluminum alloy  |             |
| 4   | Piston                 | Aluminum alloy  |             |
| 5   | Piston for magnet ring | Aluminum alloy  |             |
| 6   | Piston rod             | SCM             |             |
| 7   | Guide pin              | SCM             |             |
| 8   | Arm                    | Carbon steel    |             |
| 9   | Rod cushion            | NBR             |             |
| 10  | End cushion            | NBR             | For ø20~ø63 |
| 11  | Piston packing         | NBR             |             |
| 12  | Rod packing            | NBR             |             |
| 13  | Magnet ring            | Magnet material |             |

| No. | Part name     | Material        | Note        |
|-----|---------------|-----------------|-------------|
| 14  | Snap ring     | Carbon steel    | *1          |
| 15  | Bush          | Copper          | For ø32~ø63 |
| 16  | O-ring        | NBR             |             |
| 17  | O-ring        | NBR             |             |
| 18  | O-ring        | NBR             |             |
| 19  | Bolt          | Stainless steel | *2          |
| 20  | Set screw     | SCM             |             |
| 21  | Bolt          | SCM             |             |
| 22  | Spring washer | Spring steel    |             |
| 23  | Bolt          | SCM             |             |
| 24  | Nut           | Carbon steel    |             |
| 25  | Wear ring     | Resin           |             |

\*1. ø20~ø32: Stainless steel

\*2. ø32~ø63: Carbon steel

### Theoretical force

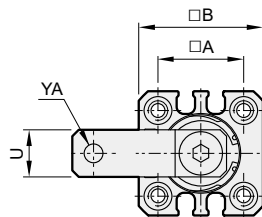


| Tube I.D. (mm) | Piston rod (mm) | Operating direction | Piston area (mm²) | Operating pressure (MPa) |       |       |       |       |        |        |        |        |
|----------------|-----------------|---------------------|-------------------|--------------------------|-------|-------|-------|-------|--------|--------|--------|--------|
|                |                 |                     |                   | 0.1                      | 0.2   | 0.3   | 0.4   | 0.5   | 0.6    | 0.7    | 0.8    | 0.9    |
| 12             | 6               | A                   | 113               | 11.3                     | 22.6  | 33.9  | 45.2  | 56.5  | 67.8   | 79.1   | 90.4   | 101.7  |
|                |                 | B                   | 85                | 8.5                      | 17.0  | 25.5  | 34.0  | 42.5  | 51.0   | 59.5   | 68.0   | 76.5   |
| 16             | 8               | A                   | 201               | 20.1                     | 40.2  | 60.3  | 80.4  | 100.5 | 120.6  | 140.7  | 160.8  | 181.0  |
|                |                 | B                   | 151               | 15.1                     | 30.2  | 45.2  | 60.3  | 75.4  | 90.5   | 105.6  | 120.6  | 135.7  |
| 20             | 12              | A                   | 314               | 31.4                     | 62.8  | 94.2  | 125.7 | 157.1 | 188.5  | 219.9  | 251.3  | 282.7  |
|                |                 | B                   | 201               | 20.1                     | 40.2  | 60.3  | 80.4  | 100.5 | 120.6  | 140.7  | 160.8  | 181.0  |
| 25             | 12              | A                   | 491               | 49.1                     | 98.2  | 147.3 | 196.4 | 245.4 | 294.5  | 343.6  | 392.7  | 441.8  |
|                |                 | B                   | 378               | 37.8                     | 75.6  | 113.3 | 151.1 | 188.9 | 226.7  | 264.4  | 302.2  | 340.0  |
| 32             | 16              | A                   | 804               | 80.4                     | 160.8 | 241.3 | 321.7 | 402.1 | 482.5  | 563.0  | 643.4  | 723.8  |
|                |                 | B                   | 603               | 60.3                     | 120.6 | 181.0 | 241.3 | 301.6 | 361.9  | 422.2  | 482.5  | 542.9  |
| 40             | 16              | A                   | 1257              | 125.7                    | 251.4 | 377.1 | 502.8 | 628.5 | 754.2  | 879.9  | 1005.6 | 1131.3 |
|                |                 | B                   | 1056              | 105.6                    | 211.2 | 316.8 | 422.4 | 528.0 | 633.6  | 739.2  | 844.8  | 950.4  |
| 50             | 20              | A                   | 1964              | 196.3                    | 392.5 | 588.9 | 785.2 | 981.6 | 1177.9 | 1374.2 | 1570.6 | 1766.9 |
|                |                 | B                   | 1649              | 164.9                    | 329.7 | 494.7 | 659.6 | 824.5 | 989.5  | 1154.4 | 1319.3 | 1484.2 |
| 63             | 20              | A                   | 3117              | 312                      | 623   | 935   | 1247  | 1559  | 1870   | 2182   | 2494   | 2805   |
|                |                 | B                   | 2803              | 280                      | 561   | 841   | 1121  | 1402  | 1682   | 1962   | 2242   | 2523   |

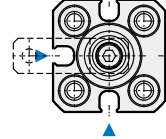
### Cylinder weight

| Model     | Basic weight MCKC                                                                     | Basic weight MCKC-N                                                                   | Stroke 10 mm MCKC                                                                     |
|-----------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Tube I.D. |  |  |  |
| ø12       | 66                                                                                    | 52                                                                                    | 16                                                                                    |
| ø16       | 100                                                                                   | 66                                                                                    | 23                                                                                    |
| ø20       | 266                                                                                   | 176                                                                                   | 38                                                                                    |
| ø25       | 319                                                                                   | 229                                                                                   | 46                                                                                    |
| ø32       | 573                                                                                   | 382                                                                                   | 69                                                                                    |
| ø40       | 652                                                                                   | 461                                                                                   | 74                                                                                    |
| ø50       | 1170                                                                                  | 820                                                                                   | 109                                                                                   |
| ø63       | 1455                                                                                  | 1105                                                                                  | 143                                                                                   |

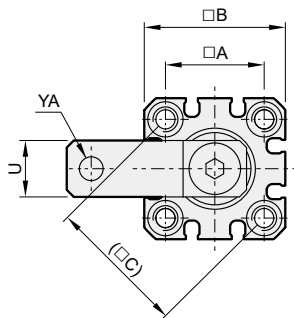
$\phi 12, \phi 16$



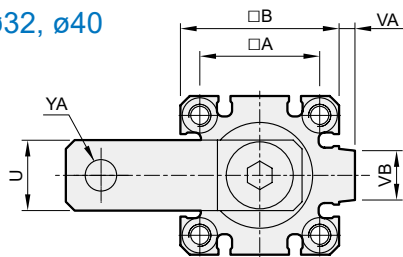
Installation of sensor switch  
 $\phi 12$



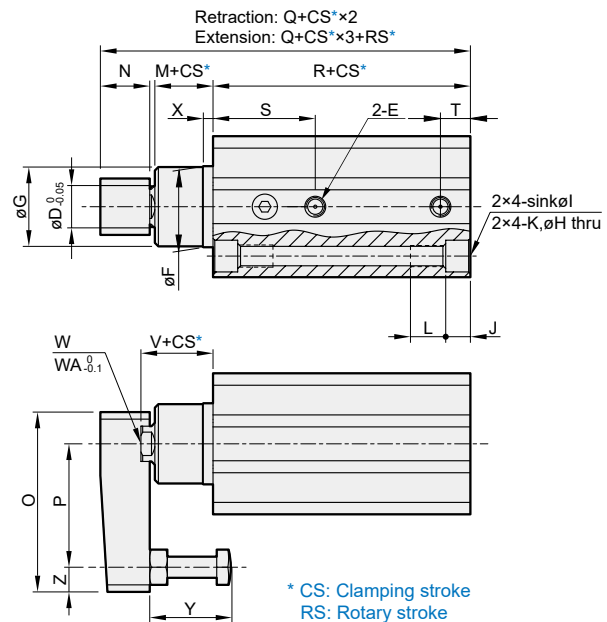
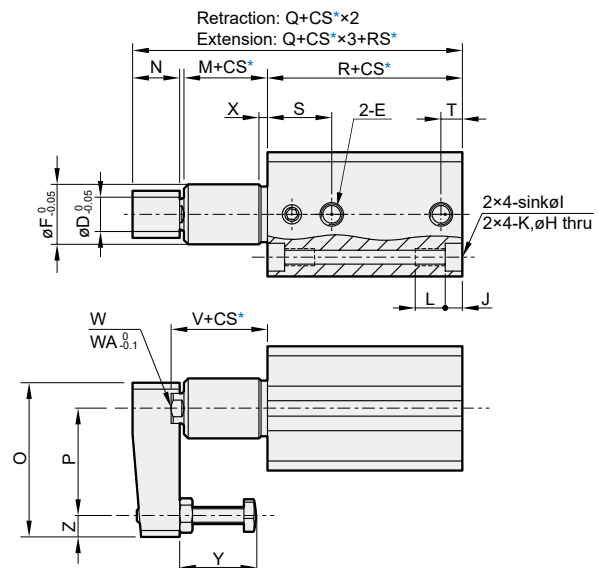
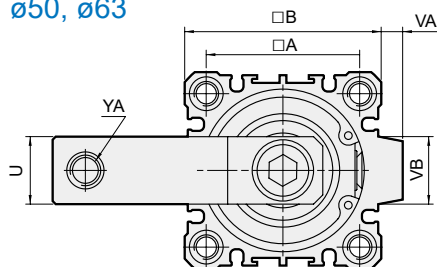
$\phi 20, \phi 25$



$\phi 32, \phi 40$



$\phi 50, \phi 63$



\* CS: Clamping stroke  
RS: Rotary stroke

| Code<br>Tube I.D. | A    | B  | C    | D  | E      | F                                 | G    | H   | I   | J    | K       | L  | M    |
|-------------------|------|----|------|----|--------|-----------------------------------|------|-----|-----|------|---------|----|------|
| 12                | 15.5 | 25 | —    | 6  | M5×0.8 | 11 <sup>0</sup> <sub>-0.05</sub>  | —    | 3.5 | 6.5 | 4    | M4×0.7  | 7  | 9.5  |
| 16                | 20   | 29 | —    | 8  | M5×0.8 | 14 <sup>0</sup> <sub>-0.05</sub>  | —    | 3.5 | 6.5 | 4    | M4×0.7  | 7  | 9.5  |
| 20                | 25.5 | 36 | 36   | 12 | M5×0.8 | 18 <sup>0</sup> <sub>-0.05</sub>  | 17.9 | 5.4 | 9   | 7    | M6×1.0  | 10 | 6.5  |
| 25                | 28   | 40 | 39.6 | 12 | M5×0.8 | 23 <sup>0</sup> <sub>-0.05</sub>  | 22.5 | 5.4 | 9   | 7    | M6×1.0  | 10 | 6.5  |
| 32                | 34   | 45 | —    | 16 | Rc1/8  | 30 <sup>0</sup> <sub>-0.05</sub>  | 29.5 | 5.5 | 9   | 7    | M6×1.0  | 10 | 15.5 |
| 40                | 40   | 52 | —    | 16 | Rc1/8  | 30 <sup>0</sup> <sub>-0.05</sub>  | 29.5 | 5.5 | 9   | 7    | M6×1.0  | 10 | 23.0 |
| 50                | 50   | 64 | —    | 20 | Rc1/4  | 37 <sup>0</sup> <sub>-0.05</sub>  | 36.5 | 6.6 | 11  | 8    | M8×1.25 | 14 | 28.0 |
| 63                | 60   | 77 | —    | 20 | Rc1/4  | 48 <sup>0</sup> <sub>-0.062</sub> | 47.5 | 9   | 14  | 10.5 | M10×1.5 | 18 | 27.5 |

| Code<br>Tube I.D. | N  | O  | P  | Q     | R    | RS  | S  | T    | U  | V    | VA  | VB | W (ROD thread) | WA                   | X   | Y     | YA      | Z  |
|-------------------|----|----|----|-------|------|-----|----|------|----|------|-----|----|----------------|----------------------|-----|-------|---------|----|
| 12                | 8  | 29 | 20 | 54    | 35.5 | 7.5 | 15 | 5    | 8  | 12.5 | —   | —  | M3×0.5×5.5L    | Across flats 5×2.5L  | 2   | 7~18  | M3×0.5  | 4  |
| 16                | 11 | 36 | 25 | 57    | 35.5 | 7.5 | 15 | 5    | 11 | 12.5 | —   | —  | M5×0.8×6.5L    | Across flats 7×2.5L  | 2   | 7~20  | M4×0.7  | 5  |
| 20                | 14 | 51 | 35 | 84    | 62   | 9.5 | 28 | 8.7  | 16 | 10.5 | —   | —  | M8×1.25×14L    | Across flats 10×3L   | 3   | 12~25 | M6×1.0  | 7  |
| 25                | 14 | 51 | 35 | 85    | 63   | 9.5 | 29 | 8.5  | 16 | 10.5 | —   | —  | M8×1.25×14L    | Across flats 10×3L   | 3   | 12~25 | M6×1.0  | 7  |
| 32                | 18 | 67 | 45 | 107   | 71.5 | 15  | 28 | 11   | 20 | 22   | 4.5 | 14 | M10×1.5×19L    | Across flats 14×5.5L | 3   | 12~25 | M8×1.25 | 10 |
| 40                | 18 | 67 | 45 | 108   | 65   | 15  | 27 | 8    | 20 | 29.5 | 5   | 14 | M10×1.5×19L    | Across flats 14×5.5L | 3   | 12~25 | M8×1.25 | 10 |
| 50                | 22 | 88 | 65 | 129.5 | 76.5 | 19  | 34 | 11.5 | 22 | 35.5 | 7   | 19 | M12×1.75×20L   | Across flats 17×5.5L | 3.5 | 30~40 | M10×1.5 | 10 |
| 63                | 22 | 88 | 65 | 132.5 | 80   | 19  | 34 | 10.5 | 22 | 35   | 7   | 22 | M12×1.75×25L   | Across flats 17×5.5L | 3.5 | 30~40 | M10×1.5 | 10 |