

# ISO Cylinder: Standard/Non-rotating Type Double Acting, Single/Double Rod

## Series **C85**

ø8, ø10, ø12, ø16, ø20, ø25

### Features

- Conforms to CETOP RP52P and ISO 6432 standards
- Double acting models
- High speed actuation
- Auto switch sensing option
- Special rod seal gives high resistance to dust ingress
- Easy & accurate mounting
- Exceptional service life
- Non-rotating and double rod options
- Air cushioning option



### Technical Specifications

| Bore size (mm)                |                          | 8                                                                          | 10       | 12       | 16       | 20                              | 25         |
|-------------------------------|--------------------------|----------------------------------------------------------------------------|----------|----------|----------|---------------------------------|------------|
| Piston rod dia. (mm)          |                          | 4                                                                          | 4        | 6        | 6        | 8                               | 10         |
| Piston rod thread             |                          | M4                                                                         | M4       | M6       | M6       | M8                              | M10 x 1.25 |
| Port size                     |                          | M5                                                                         | M5       | M5       | M5       | G 1/8                           | G 1/8      |
| Action                        |                          | Double acting, Single/Double rod                                           |          |          |          |                                 |            |
| Fluid                         |                          | Air                                                                        |          |          |          |                                 |            |
| Proof pressure                |                          | 1.5 MPa                                                                    |          |          |          |                                 |            |
| Max. operating pressure       |                          | 1.0 MPa                                                                    |          |          |          |                                 |            |
| Min. operating pressure       | Spring return            | 0.1 MPa                                                                    | 0.08 MPa | 0.05 MPa | 0.05 MPa |                                 |            |
|                               | Spring extended          |                                                                            |          |          | 0.08 MPa |                                 |            |
| Ambient and fluid temperature |                          | -20 to 80°C (Built-in magnet: -10 to 60°C)                                 |          |          |          |                                 |            |
| Cushion                       |                          | Rubber cushion, Air cushion (Except ø8) (Non-rotating: Rubber bumper only) |          |          |          |                                 |            |
| Lubrication                   |                          | Not required. Use turbine oil Class 1 ISO VG32, if lubricated.             |          |          |          |                                 |            |
| Rod boot                      | Nylon tarpaulin          | —                                                                          |          |          |          | Max. ambient temperature 60°C   |            |
|                               | Heat resistant tarpaulin | —                                                                          |          |          |          | Max. ambient temperature 110°C* |            |
| Piston speed                  |                          | 50 to 1500 mm/s                                                            |          |          |          |                                 |            |
| Allowable kinetic energy      | Rubber cushion           | 0.02 J                                                                     | 0.03 J   | 0.04 J   | 0.09 J   | 0.27J                           | 0.4J       |
|                               | Air cushion              | —                                                                          | 0.17 J   | 0.19 J   | 0.4J     | 0.66 J                          | 0.97J      |
| Non-rotating accuracy         |                          | ±1° 30'                                                                    | ±1° 30'  | ± 1°     | ±1°      | ±0° 42'                         | ±0° 42'    |
| Stroke tolerance (mm)         |                          | 0/+1                                                                       |          |          |          | 0/+1.4                          |            |

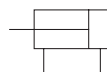
### Replacement Parts

For Standard Cylinders

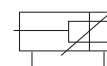
| Bore size (mm) | Part no. | Note                                                                                         |
|----------------|----------|----------------------------------------------------------------------------------------------|
| 20             | C85-20PS | Every set includes:<br>n°1 rod packing<br>n°1 packing retaining washer<br>n°1 retaining ring |
| 25             | C85-25PS |                                                                                              |

### Symbol

Double acting, Single rod

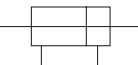


Rubber cushion

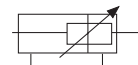


Air cushion

Double acting, Double rod

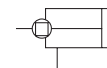


Rubber cushion



Air cushion

Non-rotating rod: Double acting, Single rod



## How to Order: ISO Cylinder

Double acting  
Single rod

C D 85

K

N

16

40

C

B

Double acting  
Double rod

C D 85W

E

16

40

C

B

Built-in magnet

|     |                 |
|-----|-----------------|
| Nil | None            |
| D   | Built-in magnet |

Type

|     |                                           |
|-----|-------------------------------------------|
| Nil | Standard                                  |
| K   | Non-rotating rod<br>(Rubber cushion only) |

Mounting style

| Symbol | Mounting                |
|--------|-------------------------|
| N      | Basic integrated clevis |
| E*     | Double end              |

\* Double acting, Double rod:  
Only double end style (E).

Auto Switch  
Mounting Type

|   |                     |
|---|---------------------|
| - | Without auto switch |
| B | Band mounted        |

Options

|      |                                                             |
|------|-------------------------------------------------------------|
| -    | Standard ø32, ø40                                           |
| XB6  | High temperature 150° (without magnetic only)               |
| XC6A | Stainless steel piston rod and rod end nut                  |
| XC6B | Stainless steel piston rod, rod end nut<br>and mounting nut |

Cushion

|     |                                                        |
|-----|--------------------------------------------------------|
| Nil | Rubber cushion (Standard)                              |
| C   | Air cushion (Only "N" execution,<br>bores 10 to 25 mm) |

Auto Switch Specifications  
Refer to switch section.

Bore size

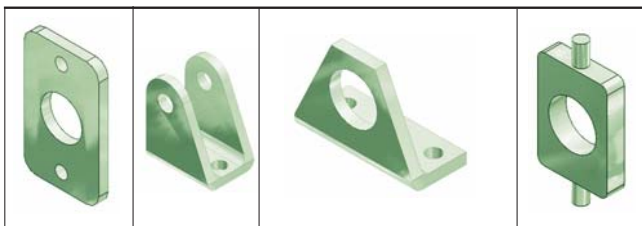
Stroke

| Bore size<br>(mm) | Standard stroke (mm)**                              | Max. stroke (mm) |              |            |  |  |  |
|-------------------|-----------------------------------------------------|------------------|--------------|------------|--|--|--|
|                   |                                                     | Standard         | Non-rotating | Double rod |  |  |  |
| 8*                | 10, 25, 40, 50, 80, 100                             | 400              | 100          | 100        |  |  |  |
| 10                |                                                     |                  | 200          | 200        |  |  |  |
| 12                |                                                     |                  |              |            |  |  |  |
| 16                | 10, 25, 40, 50, 80, 100,<br>125, 160, 200           | 1000             | 1000         | 500        |  |  |  |
| 20                | 10, 25, 40, 50, 80, 100,<br>125, 160, 200, 250, 300 |                  |              |            |  |  |  |
| 25                |                                                     |                  |              |            |  |  |  |

\* Not available with air cushion.

\*\*Other strokes available on request.

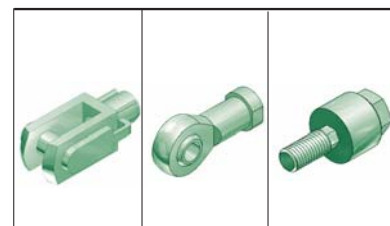
## Cylinder Mounting Accessories



| Bore size<br>(mm) | Front/<br>Rear<br>Flange | Clevis | Foot<br>(1pc) | Foot<br>(2 pcs*) | Trunnion |
|-------------------|--------------------------|--------|---------------|------------------|----------|
| 8                 | C85-F10                  | C85C10 | C85L-10A      | C85L-10B         | C85T10   |
| 10                |                          |        |               |                  |          |
| 12                |                          |        |               |                  |          |
| 16                | C85-F16                  | C85C16 | C85L-16A      | C85L-16B         | C85T16   |
| 20                | C85-F-25                 | C85C25 | C85L-25A      | C85L-25B         | C85T25   |
| 25                |                          |        |               |                  |          |

\*2 pcs with mounting nut 1 pc

## Rod Accessories



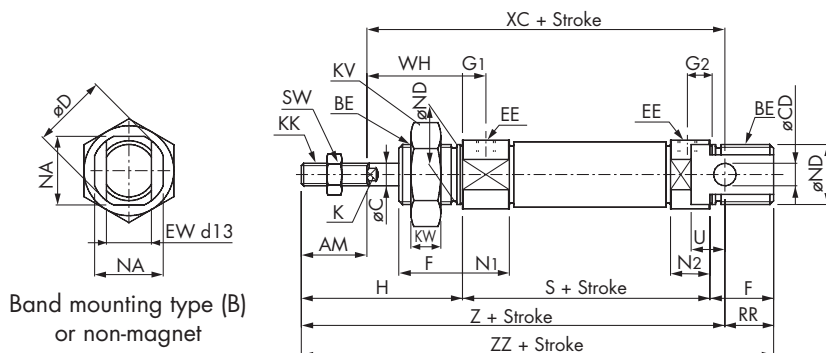
| Bore size<br>(mm) | Double<br>Knuckle<br>Joint | Single<br>Knuckle<br>Joint | Rod End<br>Nut |
|-------------------|----------------------------|----------------------------|----------------|
| 8                 | GKM4-8                     | KJ4D                       | JA10-4-070     |
| 10                |                            |                            |                |
| 12                |                            |                            |                |
| 16                | GKM6-12                    | KJ6D                       | JA15-6-100     |
| 20                | GKM8-16                    | KJ8D                       | JA20-8-125     |
| 25                | GKM10-20                   | KJ10D                      | JA30-10-125    |

## Dimensions

### Double acting, Single rod

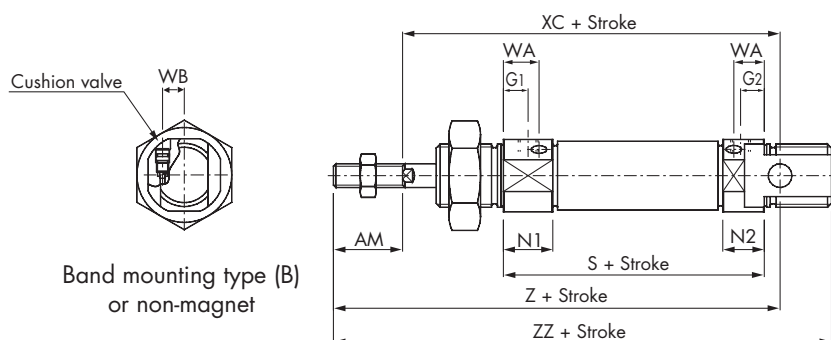
Rubber cushion: C=85N Bore — Stroke —

Without magnet, Built-in magnet



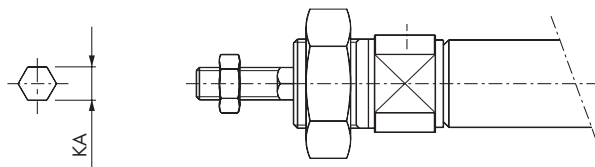
Air cushion: C□85N Bore — Stroke C-□

Without magnet, Built-in magnet



C□85KN

Non-rotating, Piston rod (Rubber cushion only)

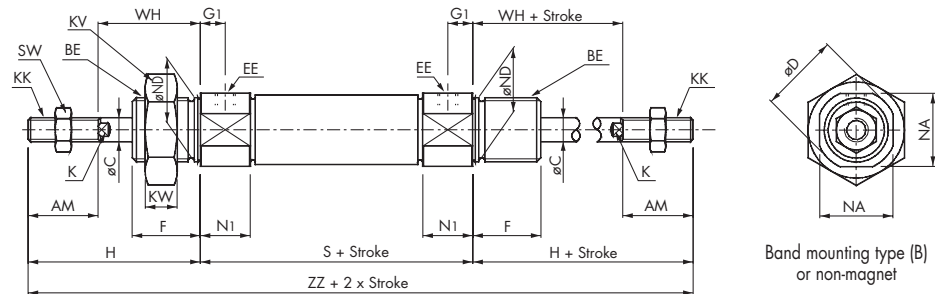


### Rod cross section

| Rod cross section |    |            |    |        |      |       |    |    |                   |                     |      |     |    |      |      |            |    |    |                         |                         |                       |      |        |    |                   |    |    |     |                   |                   |                     |  | (mm) |  |
|-------------------|----|------------|----|--------|------|-------|----|----|-------------------|---------------------|------|-----|----|------|------|------------|----|----|-------------------------|-------------------------|-----------------------|------|--------|----|-------------------|----|----|-----|-------------------|-------------------|---------------------|--|------|--|
| Bore              | AM | BE         | ØC | ØCD H9 | ØD   | EE    | EW | F  | G1                | G2                  | WA   | WB  | H  | HR   | K    | KA         | KK | KV | KW                      | N1                      | N2                    | NA   | ØND h8 | RR | S                 | SW | U  | WH  | XC                | Z                 | ZZ                  |  |      |  |
| 8                 | 12 | M12 x 1.25 | 4  | 4H9    | 16.7 | M5    | 8  | 12 | 7                 | 5                   | —    | —   | 28 | 10   | —    | 4.2        | M4 | 19 | 6                       | 11.5                    | 9.5                   | 15   | 12     | 10 | 46                | 7  | 6  | 16  | 64                | 76                | 86                  |  |      |  |
| 10                | 12 | M12 x 1.25 | 4  | 4H9    | 16.7 | M5    | 8  | 12 | $\frac{7}{(5.5)}$ | $\frac{5}{(5.5)}$   | 10.5 | 4.5 | 28 | 10.5 | —    | 4.2        | M4 | 19 | 6                       | $\frac{11.5}{(12.5)}$   | $\frac{9.5}{(13.5)}$  | 15   | 12     | 10 | $\frac{46}{(53)}$ | 7  | 6  | 16  | $\frac{64}{(71)}$ | $\frac{76}{(83)}$ | $\frac{86}{(93)}$   |  |      |  |
| 12                | 16 | M16 x 1.5  | 6  | 6H9    | 19.7 | M5    | 12 | 17 | $\frac{8}{(5.5)}$ | $\frac{6}{(5.5)}$   | 9.5  | 5.5 | 38 | 14   | 5    | 6.2        | M6 | 24 | 8                       | $\frac{12.5}{(12.5)}$   | $\frac{10.5}{(12.5)}$ | 18.3 | 16     | 14 | $\frac{50}{(54)}$ | 10 | 9  | 22  | $\frac{75}{(79)}$ | $\frac{91}{(95)}$ | $\frac{105}{(109)}$ |  |      |  |
| 16                | 16 | M16 x 1.5  | 6  | 6H9    | 19.7 | M5    | 12 | 17 | $\frac{8}{(5.5)}$ | $\frac{6}{(5.5)}$   | 9.5  | 5.5 | 38 | 14   | 5    | 6.2        | M6 | 24 | 8                       | $\frac{12.5}{(12.5)}$   | $\frac{10.5}{(12.5)}$ | 18.3 | 16     | 13 | $\frac{56}{(56)}$ | 10 | 9  | 22  | $\frac{82}{(82)}$ | $\frac{98}{(98)}$ | $\frac{111}{(111)}$ |  |      |  |
| 20                | 20 | M22 x 1.5  | 8  | 8      | 28   | G 1/8 | 16 | 20 | 8                 | $\frac{8}{(15.13)}$ | 8.5  | 4.4 | 17 | 6    | 8.2  | M8         | 32 | 11 | $\frac{15.17}{(15.17)}$ | $\frac{15.17}{(15.17)}$ | 24                    | 22   | 11     | 62 | 13                | 12 | 24 | 95  | 115               | 126               |                     |  |      |  |
| 25                | 22 | M22 x 1.5  | 10 |        | 33.5 | G 1/8 | 16 | 22 | 8                 | $\frac{8}{(15.13)}$ | 10.5 | 5.0 | 20 | 8    | 10.2 | M10 x 1.25 | 32 | 11 | $\frac{15.17}{(15.17)}$ | $\frac{15.17}{(15.17)}$ | 30                    | 22   | 11     | 65 | 17                | 12 | 28 | 104 | 126               | 137               |                     |  |      |  |

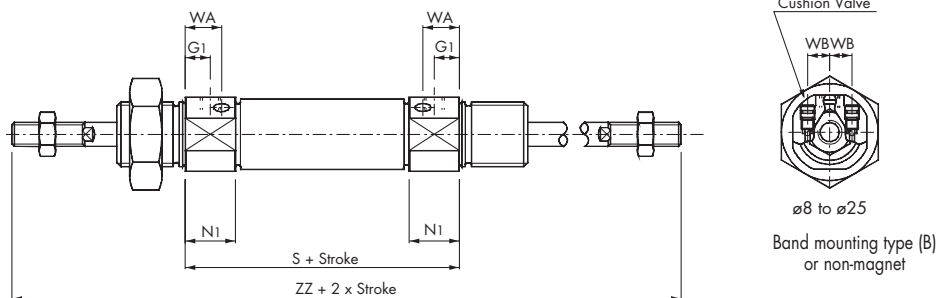
( ): In the case of air cushion.

Double acting, Double rod  
Rubber cushion: C □ Bore — Stroke — □  
Without magnet, Built-in magnet



Air Cushion: C□85WE   C-

Without magnet, Built-in magnet

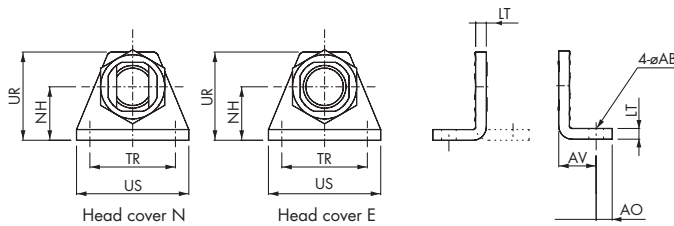


|      |    |            |    |      |       |    |        |          |      |    |      |   |            |    |    |            |      |        |        |    |    | (mm)     |  |
|------|----|------------|----|------|-------|----|--------|----------|------|----|------|---|------------|----|----|------------|------|--------|--------|----|----|----------|--|
| Bore | AM | BE         | øC | øD   | EE    | F  | G1     | WA       | WB   | H  | HR   | K | KK         | KV | KW | Ni         | NA   | øND h8 | S      | SW | WH | ZZ       |  |
| 8    | 12 | M12 x 1.25 | 4  | 16.7 | M5    | 12 | 7      | —        | —    | 28 | 10   | — | M4         | 19 | 6  | 11.5       | 15   | 12     | 48(54) | 7  | 16 | 104(110) |  |
| 10   | 12 | M12 x 1.25 | 4  | 16.7 | M5    | 12 | 7(5.5) | 10.5     | 4.5  | 28 | 10.5 | — | M4         | 19 | 6  | 11.5(13.5) | 15   | 12     | 48(53) | 7  | 16 | 104(109) |  |
| 12   | 16 | M16 x 1.5  | 6  | 19.7 | M5    | 17 | 8(5.5) | 9.5      | 5.5  | 38 | 14   | 5 | M6         | 24 | 8  | 12.5(12.5) | 18.3 | 16     | 52(54) | 10 | 22 | 128(130) |  |
| 16   | 16 | M16 x 1.5  | 6  | 19.7 | M5    | 17 | 8(5.5) | 9.5      | 5.5  | 38 | 14   | 5 | M6         | 24 | 8  | 12.5(12.5) | 18.3 | 16     | 52(54) | 10 | 22 | 128(130) |  |
| 20   | 20 | M22 x 1.5  | 8  | 28   | G 1/8 | 20 | 8      | 11.5(13) | 8.5  | 44 | 17   | 6 | M8         | 32 | 11 | 15(17)     | 24   | 22     | 62     | 13 | 24 | 150      |  |
| 25   | 22 | M22 x 1.5  | 10 | 33.5 | G 1/8 | 22 | 8      | 11.5(13) | 10.5 | 50 | 20   | 8 | M10 x 1.25 | 32 | 11 | 15(17)     | 30   | 22     | 65     | 17 | 28 | 165      |  |

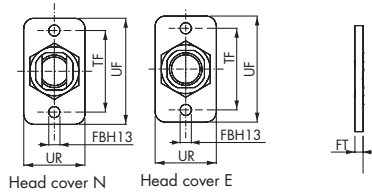
( ): In the case of air cushion. { }: In the case of built-in magnet

## Dimensions with Mounting Bracket

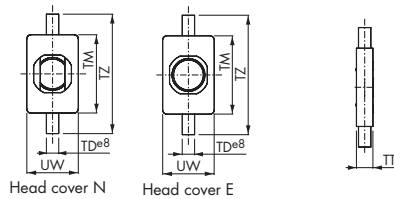
Double acting, Single rod  
Rod foot, Rod and head foot: C85L10<sup>A</sup>, C85L16<sup>A</sup>, C85L25<sup>A</sup>



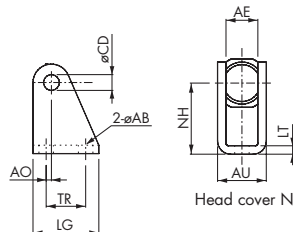
Rod flange, Head flange: C85F10, C85F16, C85F25



Rod trunnion, Head trunnion: C85T10, C85T16, C85T25



Clevis: C85C10, C85C16, C85C25



(mm)

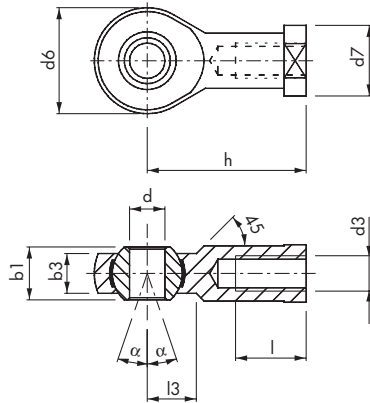
| Bore | Rod foot, Rod and head foot |    |     |     |    |         |    |    |      |    | Rod flange, Head flange |     |    |    |
|------|-----------------------------|----|-----|-----|----|---------|----|----|------|----|-------------------------|-----|----|----|
|      | AO                          | US | øAB | LT  | NH | TR JS14 | AV | UR | W    | UR | FBH13                   | FT  | TF | UF |
| 8    | 5                           | 35 | 4.5 | 3.2 | 16 | 25      | 11 | 26 | 12.8 | 22 | 4.5                     | 3.2 | 30 | 40 |
| 10   | 5                           | 35 | 4.5 | 3.2 | 16 | 25      | 11 | 26 | 12.8 | 22 | 4.5                     | 3.2 | 30 | 40 |
| 12   | 6                           | 42 | 5.5 | 4   | 20 | 32      | 14 | 33 | 18   | 30 | 5.5                     | 4   | 40 | 52 |
| 16   | 6                           | 42 | 5.5 | 4   | 20 | 32      | 14 | 33 | 18   | 30 | 5.5                     | 4   | 40 | 52 |
| 20   | 8                           | 54 | 6.6 | 5   | 25 | 40      | 17 | 42 | 19   | 40 | 6.6                     | 5   | 50 | 66 |
| 25   | 8                           | 54 | 6.6 | 5   | 25 | 40      | 17 | 42 | 23   | 40 | 6.6                     | 5   | 50 | 66 |

| Bore | Rod trunnion, Head trunnion |    |        |    |    | Clevis |      |     |     |      |      |    |    |     |
|------|-----------------------------|----|--------|----|----|--------|------|-----|-----|------|------|----|----|-----|
|      | TT                          | UW | øTD e8 | TM | TZ | øCD H9 | AE   | øAB | AO  | AU   | TR   | LG | NH | LT  |
| 8    | 6                           | 20 | 4      | 26 | 38 | 4      | 8.1  | 4.5 | 1.5 | 13.1 | 12.5 | 20 | 24 | 2.5 |
| 10   | 6                           | 20 | 4      | 26 | 38 | 4      | 8.1  | 4.5 | 1.5 | 13.1 | 12.5 | 20 | 24 | 2.5 |
| 12   | 8                           | 25 | 6      | 38 | 58 | 6      | 12.1 | 5.5 | 2   | 18.5 | 15   | 25 | 27 | 3.2 |
| 16   | 8                           | 25 | 6      | 38 | 58 | 6      | 12.1 | 5.5 | 2   | 18.5 | 15   | 25 | 27 | 3.2 |
| 20   | 8                           | 32 | 6      | 46 | 66 | 8      | 16.1 | 6.6 | 4   | 24.1 | 20   | 32 | 30 | 4   |
| 25   | 8                           | 32 | 6      | 46 | 66 |        | 16.1 | 6.6 | 4   | 24.1 | 20   | 32 | 30 | 4   |

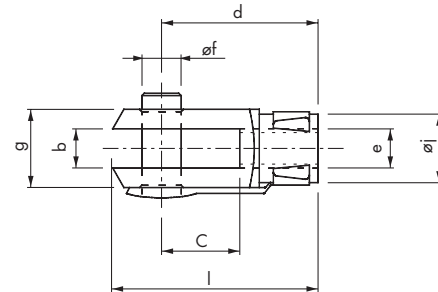
( ): In the case of air cushion.

## Accessory Dimensions

### Piston Rod Ball Joint/DIN648-DIN24335



### Double Knuckle Joint/ISO8140-DIN71752



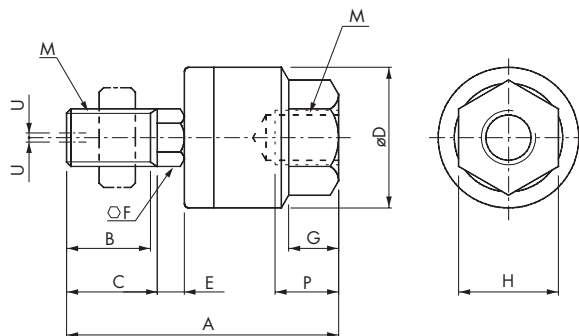
(mm)

| Bore | Model | Thread     | d3 | dh7 | h  | d6   | b3 | b1 | l  | d7  | $\alpha^\circ$ | l3 |
|------|-------|------------|----|-----|----|------|----|----|----|-----|----------------|----|
| 8    | KJ4D  | M4         | 5  | 27  | 18 | 6.0  | 8  | 10 | 11 | 7.5 | 10             |    |
| 10   | KJ4D  | M4         | 5  | 27  | 18 | 6.0  | 8  | 10 | 11 | 7.5 | 10             |    |
| 12   | KJ6D  | M6         | 6  | 30  | 20 | 6.75 | 9  | 12 | 13 | 6.5 | 10             |    |
| 16   | KJ6D  | M6         | 6  | 30  | 20 | 6.75 | 9  | 12 | 13 | 6.5 | 10             |    |
| 20   | KJ8D  | M8         | 8  | 36  | 24 | 9    | 12 | 16 | 16 | 13  | 12             |    |
| 25   | KJ10D | M10 x 1.25 | 10 | 43  | 28 | 10.5 | 14 | 20 | 19 | 13  | 14             |    |

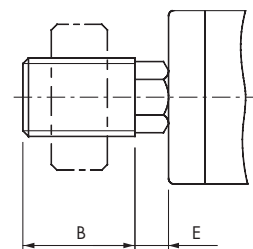
(mm)

| Bore | Model    | Thread     | e  | b  | d  | f  | g  | c  | i  | a |
|------|----------|------------|----|----|----|----|----|----|----|---|
| 8    | GKM4-8   | M4         | 4  | 16 | 4  | 8  | 8  | 6  | 8  |   |
| 10   | GKM4-8   | M4         | 4  | 16 | 4  | 8  | 8  | 6  | 8  |   |
| 12   | GKM6-12  | M6         | 6  | 24 | 6  | 10 | 12 | 8  | 12 |   |
| 16   | GKM6-12  | M6         | 6  | 24 | 6  | 10 | 12 | 8  | 12 |   |
| 20   | GKM8-16  | M8         | 8  | 32 | 8  | 12 | 16 | 10 | 16 |   |
| 25   | GKM10-20 | M10 x 1.25 | 10 | 40 | 10 | 18 | 20 | 12 | 20 |   |

### Floating joint: Series JA



### In the case of dimension without C



(mm)

| Bore   | Model       | M                      |       | A    | B    | C  | D  | E   | F | G | H  | Maximum<br>screw depth P | Allowable<br>eccentricity U | Max. operating<br>tension and<br>compression<br>power (kN) |
|--------|-------------|------------------------|-------|------|------|----|----|-----|---|---|----|--------------------------|-----------------------------|------------------------------------------------------------|
|        |             | Nominal<br>thread dia. | Pitch |      |      |    |    |     |   |   |    |                          |                             |                                                            |
| 8, 10  | JA10-4070   | 4                      | 0.7   | 26   | 9    | 10 | 12 | 1.5 | 4 | 4 | 7  | 5.5                      | 0.5                         | 0.054                                                      |
| 12, 16 | JA15-6-100  | 6                      | 1     | 34.5 | 12.5 | 14 | 16 | 2   | 6 | 5 | 10 | 7                        | 0.5                         | 0.123                                                      |
| 20     | JA20-8-125  | 8                      | 1.25  | 44   | 17.5 | —  | 21 | 4.5 | 7 | 7 | 13 | 8                        | 0.5                         | 1.1                                                        |
| 25     | JA30-10-125 | 10                     | 1.25  | 49.5 | 19.5 | —  | 24 | 5   | 8 | 8 | 17 | 9                        | 0.5                         | 2.5                                                        |