

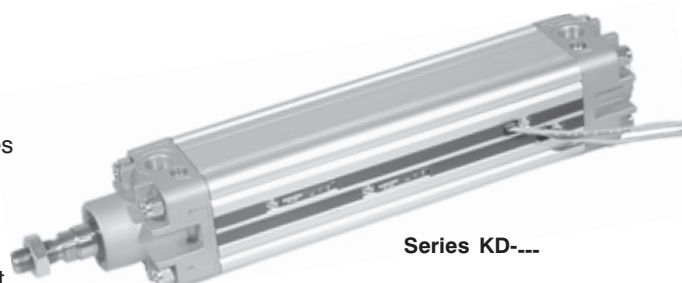
UNIVER pneumatic cylinders which comply with ISO 6431 and VDMA 24562 standards, take advantage of the improvements arising from the research of the last years; infact, they can fully satisfy the most demanding users. The operation with non-lubricated air is worth mentioning, since it allows their use in many industrial sectors while protecting the environment. The strong construction and the selected components contribute to giving them excellent operating features and a very long life.

## TECHNICAL CHARACTERISTICS

Working pressure: 1,5 ÷ 10 bar  
Ambient temperature: -20 ÷ 80°C.  
Fluid: filtered air, with or without lubrication.  
Barrel: internal/external anodised aluminium and piston rod in chromium-plated steel standard.  
Bores: series KD 32 ÷ 125 aluminium barrel with profiles for flush-mounted sensors, magnetic version standard.  
series K 32 ÷ 200 aluminium barrel;  
Ø160 ÷ 200 mm with round aluminium barrel and steel tie-rods, magnetic version upon request.



Series K-...



Series KD-...

Flush-mounted magnetic sensors DF-... series for KD series.  
Wire protection strap magnetic sensor for KD series part no. DHF-002100.  
Magnetic sensor DH-... Series for K series.  
(Section Accessories page 2)  
Accessories as from page 15.

### Upon request

- Magnetic rings in plastroferrite
- Locking units Ø 32 ÷ 125 mm to be coupled **only** with chromium-plated steel rod series KD2-... (section High-Tech page 3)
- Slide units Ø 32 ÷ 100 mm (section High-Tech page 36)
- Cylinders with rigid bushing, in tandem, multiple position and opposed version (page 13).

### Construction details

Clean line barrel produced from extruded aluminium alloy with ribbed "anti-twist" design. Internal and external surfaces anodised to 15 micron.

Die-cast end-caps in aluminium alloy mounted on the barrel holes with self-tapping steel screws.

Pneumatic adjustable cushions provide efficient piston deceleration.

Synthetic rubber shock absorbers avoid mechanical stress and reduce machinery noise (lower than 50 dB).

Die-cast aluminum alloy piston and guide shoe in acetalic resin with a permanent plastroferrite magnetic ring (upon request for the magnetic version).

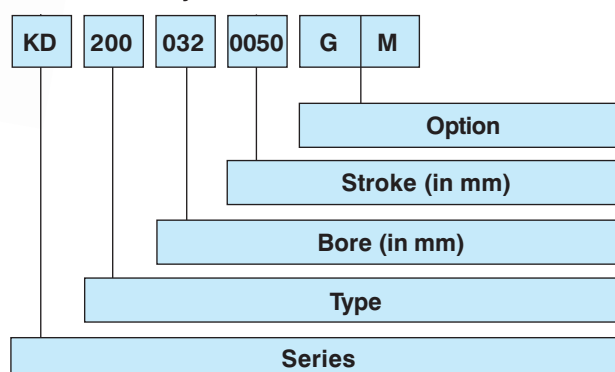
The piston and cushion seals are made of a wear-resistant nitrile rubber compound suitable for applications with or without lubrication. The double lip seal design automatically self-compensates against wear.

Hardened stainless steel rod (K-KD...100 series) or chromium-plated (K-KD...200 series) with 2 micron Ra.; supplied with nut.

UNIVER original self-lubricating and self-aligning piston rod bush. For special applications, rigid bushings are supplied upon request.

Cylinders Ø 125-160-200 with rigid piston rod bushing standard supplied.

### Codification key



### SERIES

**KD** = Ø 32 ÷ 125 mm magnetic version standard.

**K** = Ø 32 ÷ 200 mm magnetic version upon request.

### TYPE

- |       |      |                                                  |
|-------|------|--------------------------------------------------|
| 1 0 0 | D.A. | Stainless steel rod                              |
| 1 0 1 | D.A. | Stainless steel through rod                      |
| 1 6 0 | S.A. | Stainless steel retracted rod, max. stroke 50 mm |
| 1 7 0 | S.A. | Stainless steel extended rod, max. stroke 50 mm  |
| 2 0 0 | D.A. | Chromium-plated rod                              |
| 2 0 1 | D.A. | Chromium-plated through rod                      |
| 2 6 0 | S.A. | Chromium-plated retracted rod, max stroke 50 mm  |
| 2 7 0 | S.A. | Chromium-plated extended rod, max stroke 50 mm   |

### BORE

Ø 032 - 040 - 050 - 063 - 080 - 0100 - 0125 - 0160 - 0200

### STROKE

Standard strokes in mm: 0025 - 0050 - 0075 - 0080 - 0100  
0125 - 0150 - 0160 - 0175 - 0200 - 0250 - 0300 - 0320 - 0350  
0400 - 0450 - 0500 - 0600 - 0700 - 0800 - 0900 - 1000

### OPTION

- F** = For use with locking unit with "reduced dimensions"  
**G** = For use with locking unit with ISO dimensions  
**M** = Magnetic version

| Cyl. Ø |                    | Resultant forces in N at different working pressures (bar). 1 bar = 0,1 MPa |                        |                |                |                |                | Cushion     |                                   |
|--------|--------------------|-----------------------------------------------------------------------------|------------------------|----------------|----------------|----------------|----------------|-------------|-----------------------------------|
|        |                    | Working surface area (mm <sup>2</sup> )                                     | Working pressure (bar) |                |                |                |                | length (mm) | Max kinetic energy absorption (J) |
|        |                    |                                                                             | 2                      | 4              | 6              | 8              | 10             |             |                                   |
| 32     | thrust<br>traction | 804<br>691                                                                  | 161<br>138             | 322<br>276     | 482<br>414     | 643<br>553     | 804<br>691     | 18          | 1,8                               |
| 40     | thrust<br>traction | 1256<br>1056                                                                | 251<br>211             | 502<br>422     | 754<br>633     | 1005<br>844    | 1256<br>1055   | 24          | 2,5                               |
| 50     | thrust<br>traction | 1962<br>1649                                                                | 393<br>330             | 785<br>660     | 1178<br>990    | 1570<br>1320   | 1963<br>1650   | 24          | 4,5                               |
| 63     | thrust<br>traction | 3116<br>2802                                                                | 623<br>560             | 1246<br>1120   | 1869<br>1680   | 2493<br>2240   | 3116<br>2800   | 30          | 8                                 |
| 80     | thrust<br>traction | 5024<br>4533                                                                | 1005<br>907            | 2010<br>1814   | 3014<br>2722   | 4019<br>3629   | 5024<br>4536   | 30          | 12                                |
| 100    | thrust<br>traction | 7850<br>7359                                                                | 1570<br>1472           | 3140<br>2944   | 4710<br>4416   | 6280<br>5888   | 7850<br>7360   | 35          | 21                                |
| 125    | thrust<br>traction | 12266<br>11462                                                              | 2453<br>2294           | 4906<br>4588   | 7359<br>6882   | 9812<br>9176   | 12266<br>11470 | 35          | 36                                |
| 160    | thrust<br>traction | 20096<br>18840                                                              | 4019<br>3770           | 8038<br>7540   | 12058<br>11310 | 16077<br>15080 | 20096<br>18850 | 45          | 52                                |
| 200    | thrust<br>traction | 31400<br>30144                                                              | 6280<br>6029           | 12560<br>12058 | 18840<br>18086 | 25120<br>24115 | 31400<br>30144 | 45          | 95                                |

For through rod cylinders the theoretical force is equal in both directions and its value is the one given "in traction" as per table.

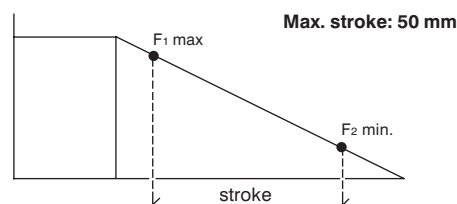
The values given are theoretical and in practice must take account of weight and friction of the moving element and may be reduced by (~10%)

### Single-acting cylinders

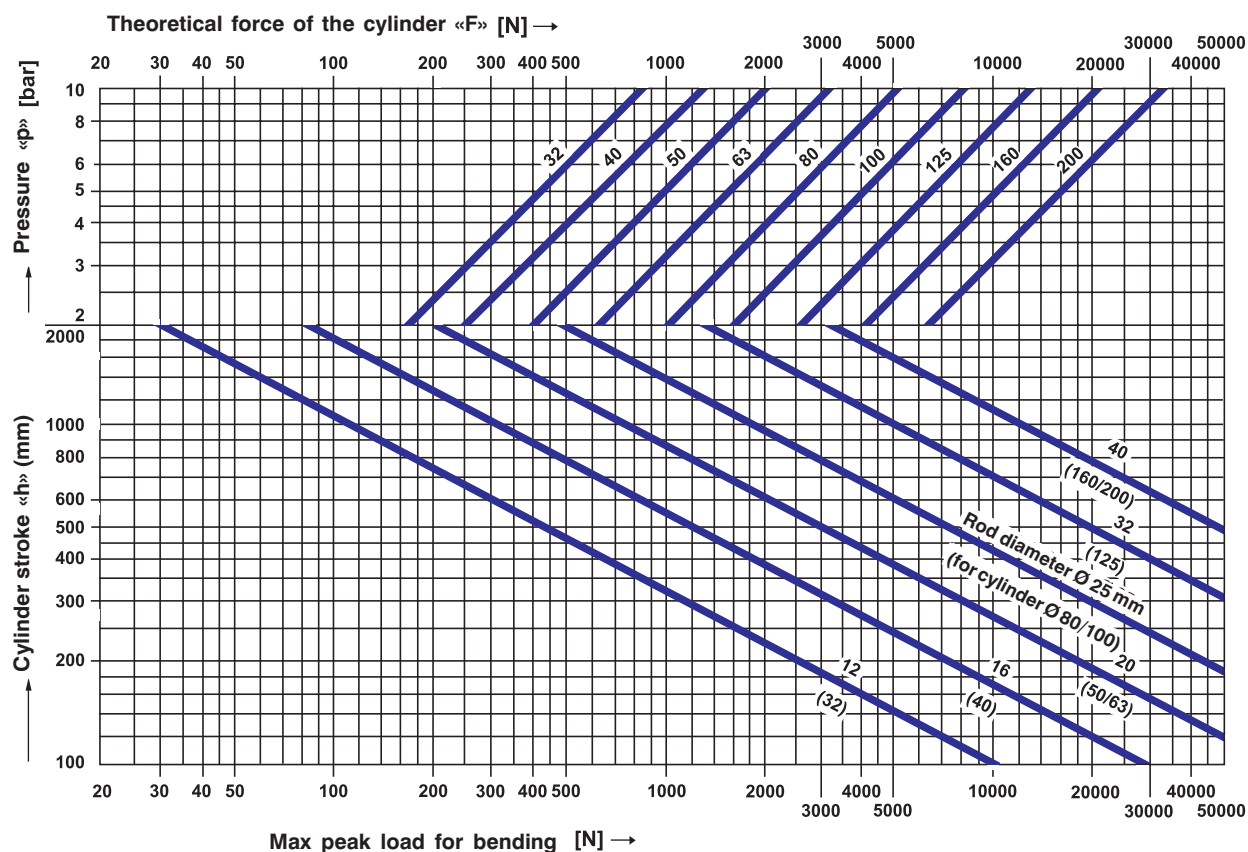


### Theoretical forces (N) for return stroke

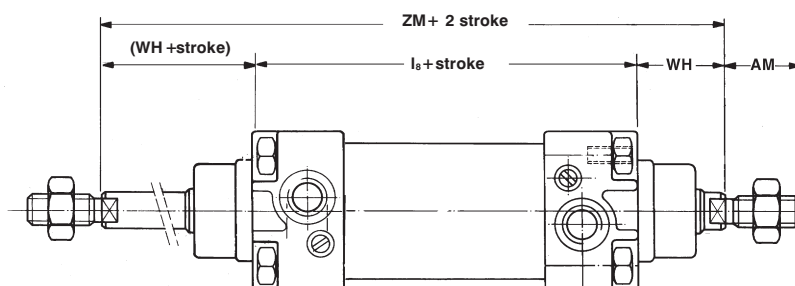
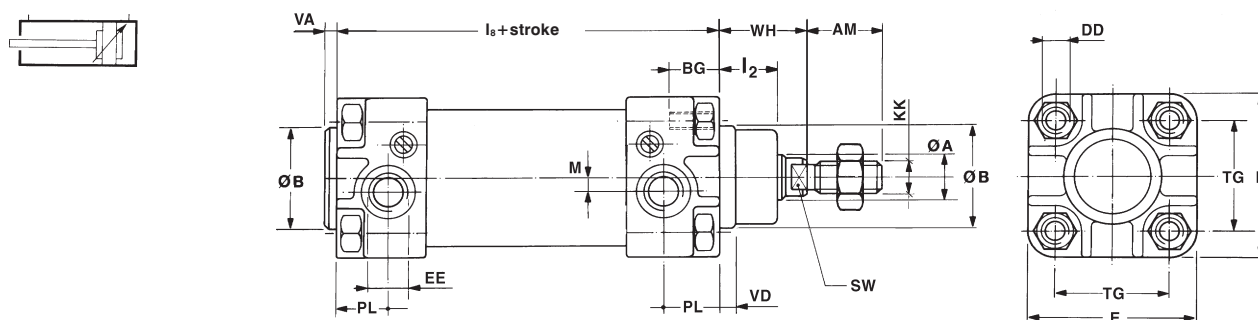
| Cyl. Ø | F <sub>1</sub> (N)<br>Max spring force at 0 stroke | F <sub>2</sub> (N)<br>Minimum spring force at stroke 50 |
|--------|----------------------------------------------------|---------------------------------------------------------|
| 32     | 52                                                 | 28                                                      |
| 40     | 70                                                 | 42,5                                                    |
| 50     | 98                                                 | 48                                                      |
| 63     | 98                                                 | 48                                                      |
| 80     | 140                                                | 80                                                      |
| 100    | 140                                                | 80                                                      |
| 125    | 235                                                | 175                                                     |



### Graph showing theoretical forces/pressures and acceptable strokes depending on maximum peak load



## Cylinder with pneumatic cushioning Ø 32 ÷ 200



## Stroke tolerances

| Cyl. Ø | Stroke (m)        |           |
|--------|-------------------|-----------|
| 32     | up to 500         | +2<br>0   |
| 40     |                   |           |
| 50     | from 501 to 1.250 | +3,2<br>0 |
| 63     | up to 500         | +2,5<br>0 |
| 80     |                   |           |
| 100    | from 501 to 1.250 | +4<br>0   |
| 125    | up to 500         | +4<br>0   |
| 160    |                   |           |
| 200    | from 501 to 1.250 | +5<br>0   |

| Cyl. Ø | A  | AM<br>(Note 1) | B<br>e11 | BG | DD  | E   | EE<br>(Note 2) | I <sub>2</sub> | I <sub>8</sub><br>Nom. TOLL. | KK<br>(Note 1) | M   | PL   | SW | TG<br>Nom. TOLL. | VD | VA | WH | ZM  |
|--------|----|----------------|----------|----|-----|-----|----------------|----------------|------------------------------|----------------|-----|------|----|------------------|----|----|----|-----|
| 32     | 12 | 22             | 30       | 14 | M6  | 48  | G 1/8          | 16             | 94 ±0,4                      | M10 x 1,25     | 4,5 | 15   | 10 | 32,5 ±0,5        | 5  | 3  | 26 | 146 |
| 40     | 16 | 24             | 35       | 14 | M6  | 54  | G 1/4          | 20             | 105 ±0,7                     | M12 x 1,25     | 5   | 18   | 13 | 38 ±0,5          | 6  | 4  | 30 | 165 |
| 50     | 20 | 32             | 40       | 16 | M8  | 67  | G 1/4          | 26             | 106 ±0,7                     | M16 x 1,5      | 6   | 18   | 17 | 46,5 ±0,6        | 6  | 4  | 37 | 180 |
| 63     | 20 | 32             | 45       | 16 | M8  | 78  | G 3/8          | 26             | 121 ±0,8                     | M16 x 1,5      | 8   | 21,5 | 17 | 56,5 ±0,7        | 6  | 4  | 37 | 195 |
| 80     | 25 | 40             | 45       | 16 | M10 | 97  | G 3/8          | 32             | 128 ±0,8                     | M20 x 1,5      | 7,5 | 21,5 | 22 | 72 ±0,7          | 8  | 5  | 46 | 220 |
| 100    | 25 | 40             | 55       | 16 | M10 | 115 | G 1/2          | 35             | 138 ±1                       | M20 x 1,5      | 9   | 21,5 | 22 | 89 ±0,7          | 8  | 6  | 51 | 240 |
| 125    | 32 | 54             | 60       | 20 | M12 | 140 | G 1/2          | 45             | 160 ±1                       | M27 x 2        | 11  | 24,5 | 27 | 110 ±1,1         | 10 | 7  | 65 | 290 |
| 160*   | 40 | 72             | 65       | 25 | M16 | 180 | G 3/4          | 50             | 180 ±1,1                     | M36 x 2        | 14  | 29   | 36 | 140 ±1,1         | 10 | 6  | 80 | 340 |
| 200*   | 40 | 72             | 75       | 25 | M16 | 220 | G 3/4          | 60             | 180 ±1,1                     | M36 x 2        | 14  | 29   | 36 | 175 ±1,1         | 12 | 6  | 95 | 370 |

NOTE 1: "KK" and "AM" dimensions correspond to ISO 4359 "long" type  
 ■ Dimensions to specifications, upon request

\* Ø 160 and Ø 200 cyl., execution with aluminum tube and steel tie-rods

NOTE 2: "EE" dimensions are in inches and are chosen according to ISO 228/1 standard

## K series cylinder mass

| Cyl. Ø | Cyl. stroke 0 (kg) | Increm. per mm stroke (g) | Moving element stroke=0 (kg) | Increm. per mm stroke (g) | Cylinder stroke 0 (kg) | Increm. per mm stroke (g) | Moving element stroke=0 (kg) | Increm. per mm stroke (g) |
|--------|--------------------|---------------------------|------------------------------|---------------------------|------------------------|---------------------------|------------------------------|---------------------------|
| 32     | 0,51               | 2,35                      | 0,13                         | 0,9                       | 0,64                   | 3,24                      | 0,20                         | 1,8                       |
| 40     | 0,77               | 3,24                      | 0,24                         | 1,6                       | 0,92                   | 4,80                      | 0,37                         | 3,2                       |
| 50     | 1,21               | 4,75                      | 0,43                         | 2,5                       | 1,51                   | 7,22                      | 0,64                         | 5,0                       |
| 63     | 1,74               | 5,78                      | 0,47                         | 2,5                       | 2,03                   | 8,25                      | 0,75                         | 5,0                       |
| 80     | 2,74               | 8,64                      | 0,95                         | 3,9                       | 3,26                   | 12,50                     | 1,37                         | 7,8                       |
| 100    | 3,78               | 10,4                      | 1,18                         | 3,9                       | 4,38                   | 14,30                     | 1,60                         | 7,8                       |
| 125    | 6,59               | 14,8                      | 2,18                         | 6,3                       | 7,80                   | 21,10                     | 3,20                         | 12,6                      |
| 160    | 14,60              | 16,9                      | 4,02                         | 9,9                       | 16,85                  | 26,80                     | 5,94                         | 19,8                      |
| 200    | 16,50              | 18,5                      | 4,78                         | 9,9                       | 19,90                  | 28,40                     | 6,80                         | 19,8                      |

## KD series cylinder mass

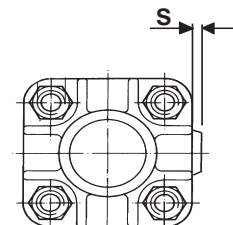
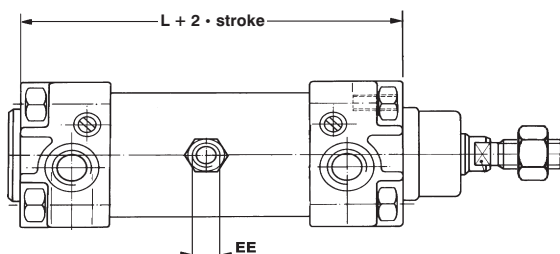
| Cyl. Ø | Cyl. stroke 0 (kg) | Increm. per mm stroke (g) | Moving element stroke=0 (kg) | Increm. per mm stroke (g) | Cylinder stroke 0 (kg) | Increm. per mm stroke (g) | Moving element stroke=0 (kg) | Increm. per mm stroke (g) |
|--------|--------------------|---------------------------|------------------------------|---------------------------|------------------------|---------------------------|------------------------------|---------------------------|
| 32     | 0,53               | 2,8                       | 0,13                         | 0,9                       | 0,66                   | 3,7                       | 0,20                         | 1,8                       |
| 40     | 0,80               | 4,0                       | 0,24                         | 1,6                       | 0,95                   | 5,5                       | 0,37                         | 3,2                       |
| 50     | 1,27               | 6,0                       | 0,43                         | 2,5                       | 1,57                   | 8,5                       | 0,64                         | 4,9                       |
| 63     | 1,76               | 6,2                       | 0,47                         | 2,5                       | 2,05                   | 8,7                       | 0,75                         | 4,9                       |
| 80     | 2,86               | 10,8                      | 0,95                         | 3,9                       | 3,38                   | 14,7                      | 1,37                         | 7,7                       |
| 100    | 3,95               | 13,4                      | 1,18                         | 3,9                       | 4,55                   | 17,3                      | 1,60                         | 7,7                       |
| 125    | 6,87               | 18,6                      | 2,18                         | 6,3                       | 8,08                   | 24,9                      | 3,20                         | 12,6                      |

### Tandem cylinder -

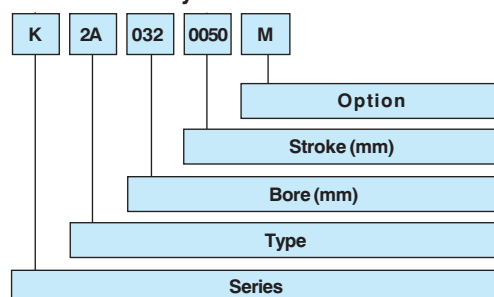


| Cyl.<br>Ø * | EE    | L<br>(mm) | S<br>(max) |
|-------------|-------|-----------|------------|
| 32          | G 1/8 | 169       | 3          |
| 40          | G 1/4 | 189       | 5          |
| 50          | G 3/8 | 175       | 4          |
| 63          | G 3/8 | 195       | 7          |
| 80          | G 1/2 | 211       | 6          |
| 100         | G 1/2 | 224       | 9          |
| 125         | G 1/2 | 251       | 9          |

Tandem cylinders are constructed using two pistons coupled together which provide double the force in forward movement compared to the traditional ISO cylinders of the same bore size (refer to tables on page 11).



#### Codification key



#### SERIES

**K** = pneumatic cylinders ISO 6431 and VDMA 24562 standard

**KD** = pneumatic cylinders ISO 6431 and VDMA 24562 magnetic version standard

#### TYPE

##### Stainless steel rod

**1A** double thrust only for forward movement

**1D** double thrust only for reverse movement

##### Chromium-plated rod

**2A** double thrust only for forward movement

**2D** double thrust only for reverse movement

#### OPTION

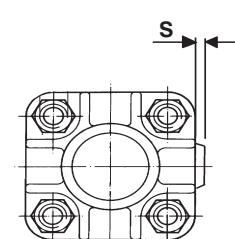
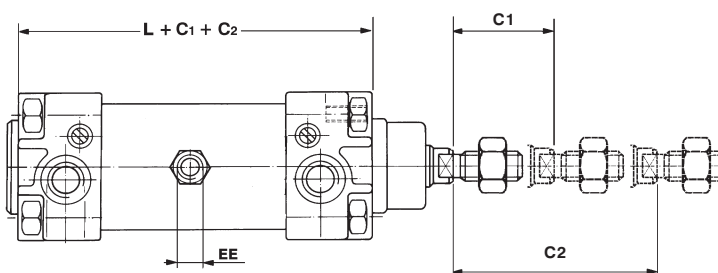
**M** = magnetic version upon request for K series

### Two-position tandem cylinder -

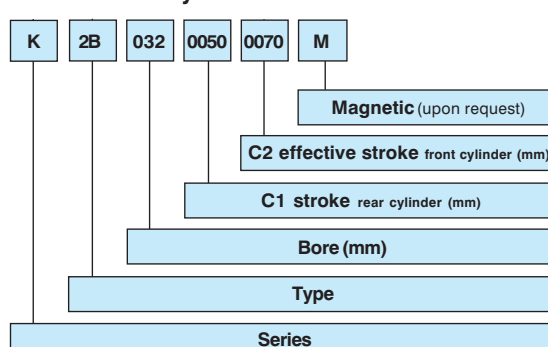


Two-position cylinders with two independent piston-rod which allow to realize a double positioning in which the thrust forces are the same as those of an ISO cylinder of the same bore (see tables on page 11).

| Cyl.<br>Ø * | EE    | L<br>(mm) | S<br>(max) |
|-------------|-------|-----------|------------|
| 32          | G 1/8 | 166       | 3          |
| 40          | G 1/4 | 186       | 5          |
| 50          | G 1/4 | 172       | 4          |
| 63          | G 3/8 | 192       | 7          |
| 80          | G 3/8 | 208       | 6          |
| 100         | G 1/2 | 221       | 9          |
| 125         | G 1/2 | 248       | 9          |



#### Codification key



#### SERIES

**K** = pneumatic cylinders ISO 6431 and VDMA 24562 standard

**KD** = pneumatic cylinders ISO 6431 and VDMA 24562 magnetic version standard

#### TYPE

**1B** double-acting two position tandem cylinder male rod in stainless steel

**2B** double-acting two position tandem cylinder male rod in chromium-plated steel

#### OPTION

**M** = magnetic version upon request for K series

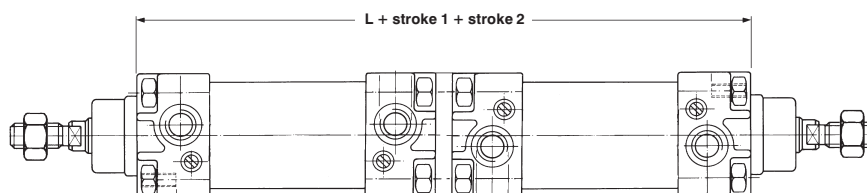
## Opposed cylinder -



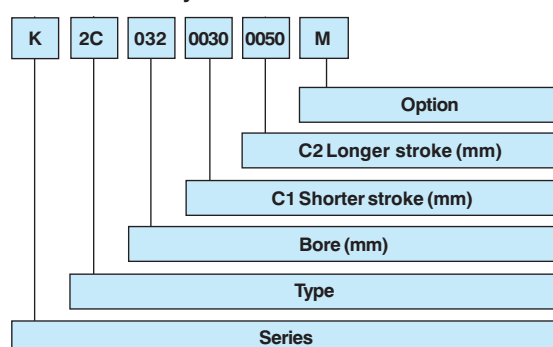
K-C

Type of cylinder characterized by the coupling of two and whose piston rods move in opposite directions. The values of the thrust force are the same as those of the traditional cylinders (see tables on page 11).

| Cyl.<br>Ø* | L   |
|------------|-----|
| 32         | 194 |
| 40         | 220 |
| 50         | 222 |
| 63         | 252 |
| 80         | 266 |
| 100        | 288 |
| 125        | 334 |
| 160        | 378 |
| 200        | 382 |



### Codification key



### SERIES

**K** = pneumatic cylinder ISO 6431 and VDMA 24562 standard  
**KD** = pneumatic cylinder ISO 6431 and VDMA 24562 magnetic version standard

### TYPE

**1C** Double-acting opposed cylinder male rod in stainless steel  
**2C** Double-acting opposed cylinder male rod in chromium-plated steel

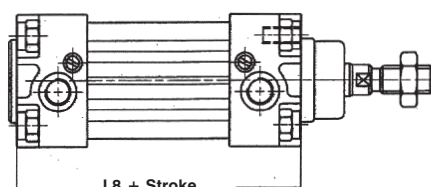
### OPTION

**M** = magnetic version upon request for K series

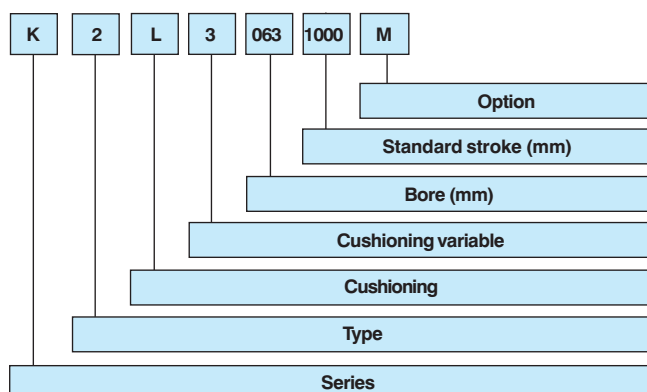
## Pneumatic cylinders - with long cushioning

Type of cylinders Ø 40-50-63 mm deriving from K and KD series supplied with long internal cushionings to be used for opening and closing bulkheads or in those sectors in which is needed, at the end of the stroke, a gradual and constant deceleration with a higher control than that of a traditional cylinder. Dimensions (except those indicated) and accessories don't change.

| Ø  | Cushioning length |     |     |     |
|----|-------------------|-----|-----|-----|
|    | 75                | 100 | 150 | 200 |
|    | L8 + Stroke       |     |     |     |
| 40 | 182               | 232 | 332 | 432 |
| 50 | 178               | 228 | 328 | 428 |
| 63 | 185               | 235 | 335 | 435 |
| 80 | 190               | 240 | 340 | 440 |



### Codification key



### TYPE

**1** = double-acting stainless steel rod  
**2** = double-acting chromium-plated steel rod

### CUSHIONING

**L** = Long

### CUSHIONING VARIABLE

**1** = 075 mm  
**2** = 100 mm  
**3** = 150 mm  
**4** = 200 mm

### BORE

040-050-063-080 mm

### STROKE

A minimum stroke three times the length of the cushioning indicated in the table is recommended.

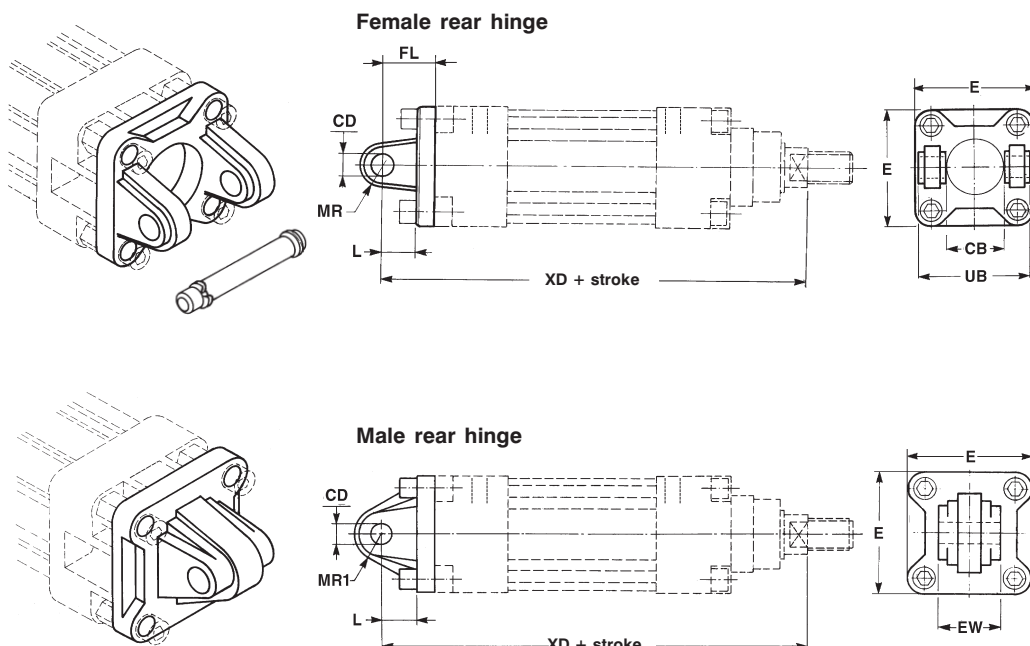
### OPTION

**M** = magnetic version upon request for K series

### SERIES

**K** = pneumatic cylinders ISO 6431 and VDMA 24562 standard  
**KD** = pneumatic cylinders ISO 6431 and VDMA 24562 magnetic version standard

# Hinge (female) in die-cast aluminium ISO MP2 with pin, MP4 (male) without pin



| Cyl. Ø | Part number | Mass kg |
|--------|-------------|---------|
| 32     | KF-10032A   | 0,06    |
| 40     | KF-10040A   | 0,08    |
| 50     | KF-10050A   | 0,15    |
| 63     | KF-10063A   | 0,25    |
| 80     | KF-10080A   | 0,36    |
| 100    | KF-10100A   | 0,6     |
| 125    | KF-10125A   | 1,8     |
| 160    | KF-10160A   | 2,4     |
| 200    | KF-10200A   | 3,5     |

| Cyl. Ø | Part number | Mass kg |
|--------|-------------|---------|
| 32     | KF-11032    | 0,08    |
| 40     | KF-11040    | 0,1     |
| 50     | KF-11050    | 0,17    |
| 63     | KF-11063    | 0,25    |
| 80     | KF-11080    | 0,42    |
| 100    | KF-11100    | 0,66    |
| 125    | KF-11125    | 1,5     |
| 160    | KF-11160    | 2,3     |
| 200    | KF-11200    | 3,5     |

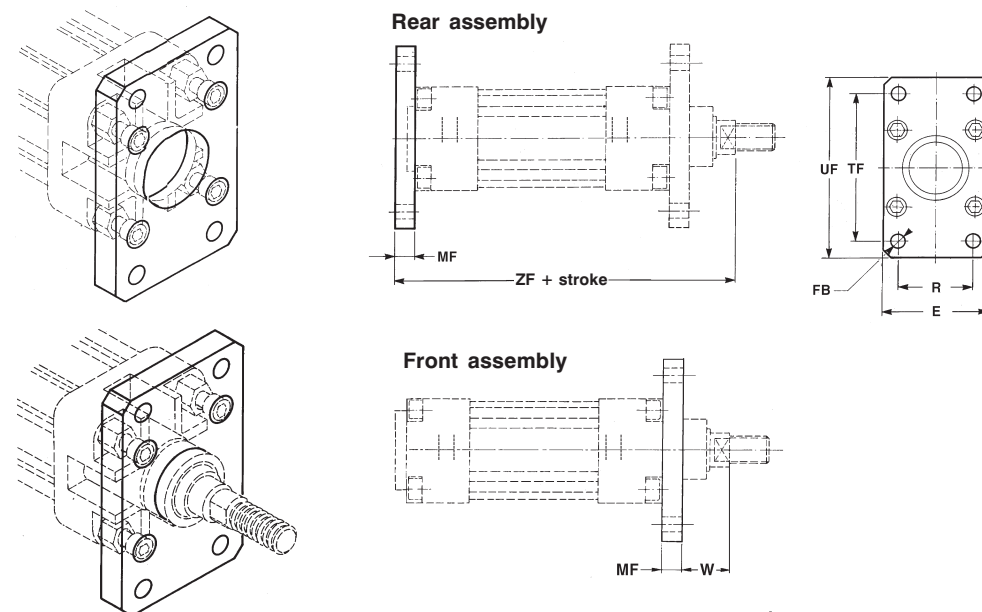
Pin see page 18-I.

Fixing screws see page 18



6431  
VDMA  
24562

## Front/rear flange in zinc-plated steel, ISO MF1-MF2 (VDMA standard upon request)



| Cyl. Ø | Part number | Mass kg |
|--------|-------------|---------|
| 32     | KF-12032    | 0,2     |
| 40     | KF-12040    | 0,25    |
| 50     | KF-12050    | 0,5     |
| 63     | KF-12063    | 0,65    |
| 80     | KF-12080    | 1,5     |
| 100    | KF-12100    | 2,2     |
| 125    | KF-12125    | 4,1     |
| 160    | KF-12160    | 7       |
| 200    | KF-12200    | 12,4    |

Dimensions of ISO MP2 - MP4 hinge

Dimensions of ISO MF1-MF2 flange

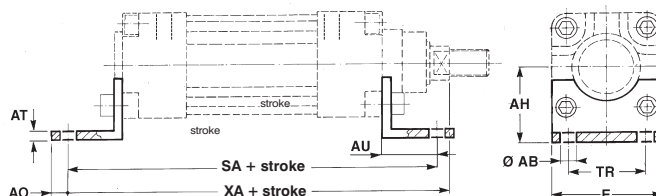
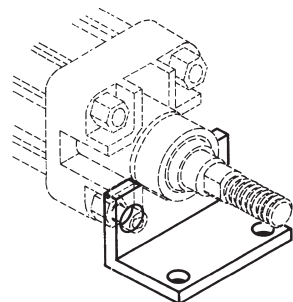
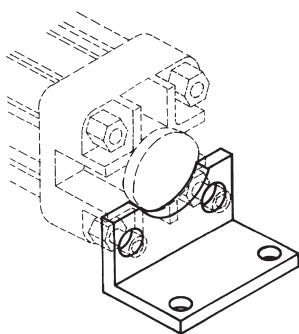
| Cyl. Ø | CB H14 | CD H9 | E   | EW   |              | FL ±0,2 | L (min) | MR (max) | MR1*  | UB h14 | XD   |       | E   | FB H13 | MF ±0,2 | R JS14 | TF JS14 | UF  | W    |      | ZF   |       |
|--------|--------|-------|-----|------|--------------|---------|---------|----------|-------|--------|------|-------|-----|--------|---------|--------|---------|-----|------|------|------|-------|
|        |        |       |     | Nom. | Tol.         |         |         |          |       |        | Nom. | Tol.  |     |        |         |        |         |     | Nom. | Tol. | Nom. | Tol.  |
| 32     | 26     | 10    | 48  | 26   | -0,2<br>-0,6 | 22      | 12      | 11       | 15*   | 45     | 142  | ±1,25 | 45  | 7      | 10      | 32     | 64      | 80  | 16   | ±1,6 | 130  | ±1,25 |
| 40     | 28     | 12    | 54  | 28   |              | 25      | 15      | 13       | 18*   | 52     | 160  | ±1,25 | 52  | 9      | 10      | 36     | 72      | 90  | 20   | ±1,6 | 145  | ±1,25 |
| 50     | 32     | 12    | 65  | 32   |              | 27      | 15      | 13       | 20*   | 60     | 170  | ±1,25 | 65  | 9      | 12      | 45     | 90      | 110 | 25   | ±1,6 | 155  | ±1,25 |
| 63     | 40     | 16    | 75  | 40   |              | 32      | 20      | 17       | 23*   | 70     | 190  | ±1,6  | 75  | 9      | 12      | 50     | 100     | 120 | 25   | ±2   | 170  | ±1,6  |
| 80     | 50     | 16    | 95  | 50   |              | 36      | 20      | 17       | 27*   | 90     | 210  | ±1,6  | 95  | 12     | 16      | 63     | 126     | 150 | 30   | ±2   | 190  | ±1,6  |
| 100    | 60     | 20    | 115 | 60   | -0,5<br>-1,2 | 41      | 25      | 21       | 29,5* | 110    | 230  | ±1,6  | 115 | 14     | 16      | 75     | 150     | 170 | 35   | ±2   | 205  | ±1,6  |
| 125    | 70     | 25    | 140 | 70   |              | 50      | 30      | 26       | 26    | 130    | 275  | ±2    | 140 | 16     | 20      | 90     | 180     | 205 | 45   | ±2,5 | 245  | ±2    |
| 160    | 90     | 30    | 180 | 90   |              | 55      | 35      | 31       | 30*   | 170    | 315  | ±2    | 180 | 18     | 20      | 115    | 230     | 260 | 60   | ±2,5 | 280  | ±2    |
| 200    | 90     | 30    | 220 | 90   |              | 60      | 35      | 31       | 30*   | 170    | 335  | ±2    | 220 | 22     | 25      | 135    | 270     | 300 | 70   | ±2,5 | 300  | ±2    |

\* Non-standard dimension



# Angle bracket in zinc-plated steel ISO MS1

Fixing screws see page 18

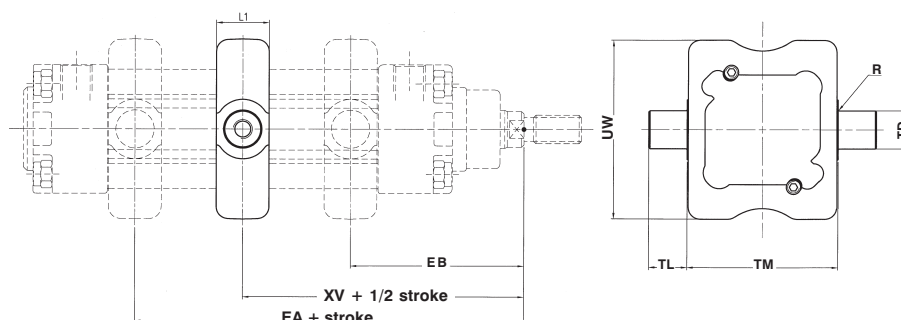


| Cyl. Ø | Part number | Mass kg |
|--------|-------------|---------|
| 32     | KF-13032    | 0,2     |
| 40     | KF-13040    | 0,25    |
| 50     | KF-13050    | 0,5     |
| 63     | KF-13063    | 0,65    |
| 80     | KF-13080    | 1,5     |
| 100    | KF-13100    | 2,2     |
| 125    | KF-13125    | 4,1     |
| 160    | KF-13160    | 7       |
| 200    | KF-13200    | 12,4    |



6431  
VDMA  
24562

# Intermediate hinge ISO MT4 with fixing grub screws only for "K" cylinders (bores 160/200 assembled on tie-rods)



| Cyl. Ø | Part number | Mass kg |
|--------|-------------|---------|
| 32     | KF-14032    | 0,13    |
| 40     | KF-14040    | 0,24    |
| 50     | KF-14050    | 0,32    |
| 63     | KF-14063    | 0,61    |
| 80     | KF-14080    | 0,93    |
| 100    | KF-14100    | 1,6     |
| 125    | KF-14125    | 2,2     |
| 160    | KF-14160    | 4,3     |
| 200    | KF-14200    | 7,5     |

NOTE: the dimension XV + 1/2 stroke indicates the position of the hinge between the end-caps of the cylinder.

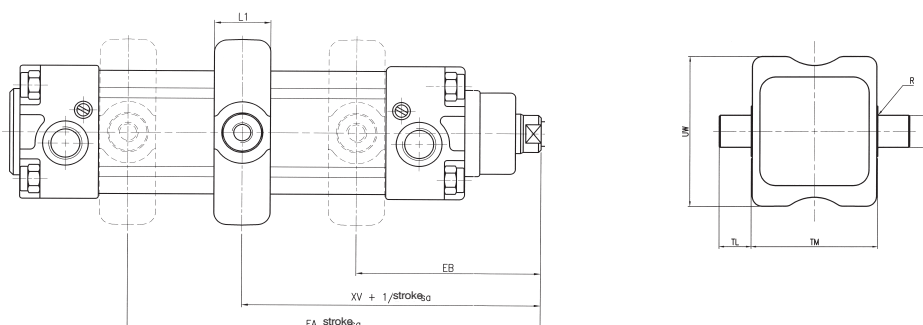
Dimensions of ISO MS1 angle bracket

Dimensions of ISO MT4 hinge for K series

| Cyl. Ø | AB H13 | AH JS15 | AO | AT | AU ±0,2 | E   | SA   |       | TR JS14 | XA   |       | EA (max) | EB (min) | I1 (max) | R (max) | TD e9 | TL h14 | TM h14 | UW (max) | XV   |      |
|--------|--------|---------|----|----|---------|-----|------|-------|---------|------|-------|----------|----------|----------|---------|-------|--------|--------|----------|------|------|
|        |        |         |    |    |         |     | Nom. | Tol.  |         | Nom. | Tol.  |          |          |          |         |       |        |        |          | Nom. | Tol. |
| 32     | 7      | 32      | 6  | 4  | 24      | 45  | 142  | ±1,25 | 32      | 144  | ±1,25 | 84       | 62       | 18       | 1       | 12    | 12     | 50     | 48,5     | 73   | ±2   |
| 40     | 9*     | 36      | 8  | 4  | 28      | 52  | 161  | ±1,25 | 36      | 163  | ±1,25 | 94       | 71       | 20       | 1,5     | 16    | 16     | 63     | 59       | 82,5 | ±2   |
| 50     | 9*     | 45      | 10 | 5  | 32      | 64  | 170  | ±1,25 | 45      | 175  | ±1,25 | 102      | 78       | 20       | 1,6     | 16    | 16     | 75     | 71       | 90   | ±2   |
| 63     | 9*     | 50      | 12 | 5  | 32      | 74  | 185  | ±1,6  | 50      | 190  | ±1,6  | 108      | 87       | 26       | 1,6     | 20    | 20     | 90     | 84       | 97,5 | ±2   |
| 80     | 12     | 63      | 15 | 6  | 41      | 94  | 210  | ±1,6  | 63      | 215  | ±1,6  | 124      | 96       | 26       | 1,6     | 20    | 20     | 110    | 105      | 110  | ±2   |
| 100    | 14*    | 71      | 20 | 6  | 41      | 114 | 220  | ±1,6  | 75      | 230  | ±1,6  | 132      | 108      | 32       | 2       | 25    | 25     | 132    | 129      | 120  | ±2   |
| 125    | 16*    | 90      | 15 | 8  | 45      | 140 | 250  | ±2    | 90      | 270  | ±2    | 165      | 125      | 33       | 2       | 25    | 25     | 160    | 154      | 145  | ±2,5 |
| 160    | 18*    | 115     | 20 | 10 | 60      | 180 | 300  | ±2    | 115     | 320  | ±2    | 190      | 150      | 40       | 2,5     | 32    | 32     | 200    | 190      | 170  | ±2,5 |
| 200    | 22*    | 135     | 30 | 10 | 70      | 220 | 320  | ±2    | 135     | 345  | ±2    | 205      | 165      | 40       | 2,5     | 32    | 32     | 250    | 240      | 185  | ±2,5 |

\* Non-standard dimension

### Intermediate hinge ISO MT4 with grub screws for cylinders KD series



Dimensions ISO MT4 hinge for KD Series

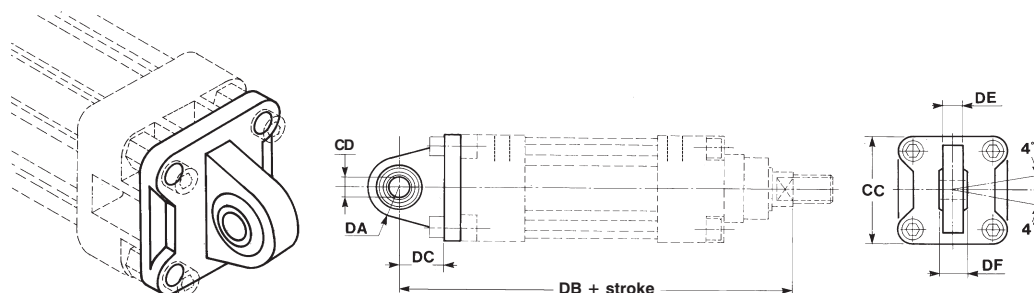
| Cyl.<br>ø | EA<br>(max) | EB<br>(min) | I1<br>(max) | R<br>(max) | TD<br>(e9) | TL<br>(h14) | TM<br>(h14) | UW<br>(max) | XV   |      |
|-----------|-------------|-------------|-------------|------------|------------|-------------|-------------|-------------|------|------|
|           |             |             |             |            |            |             |             |             | Nom. | Tol. |
| 32        | 82          | 64          | 22          | 0,5        | 12         | 12          | 50          | 65          | 73   | ±2   |
| 40        | 93          | 72          | 22          | 0,5        | 16         | 16          | 63          | 75          | 82,5 | ±2   |
| 50        | 101         | 79          | 22          | 1          | 16         | 16          | 75          | 95          | 90   | ±2   |
| 63        | 107         | 88          | 28          | 1          | 20         | 20          | 90          | 105         | 97,5 | ±2   |
| 80        | 123         | 97          | 28          | 1          | 20         | 20          | 110         | 130         | 110  | ±2   |
| 100       | 131         | 109         | 34          | 1          | 25         | 25          | 132         | 145         | 120  | ±2   |
| 125       | 164         | 126         | 34          | 1,5        | 25         | 25          | 160         | 175         | 145  | ±2,5 |

| Cyl.<br>ø | Part<br>number | Mass<br>Kg |
|-----------|----------------|------------|
| 32        | KDF-14032      | 0,12       |
| 40        | KDF-14040      | 0,24       |
| 50        | KDF-14050      | 0,32       |
| 63        | KDF-14063      | 0,47       |
| 80        | KDF-14080      | 0,80       |
| 100       | KDF-14100      | 1,50       |
| 125       | KDF-14125      | 1,92       |

Min. stroke of the cylinder: 10 mm

XV+1/2 stroke: hinge between cylinder end-caps.

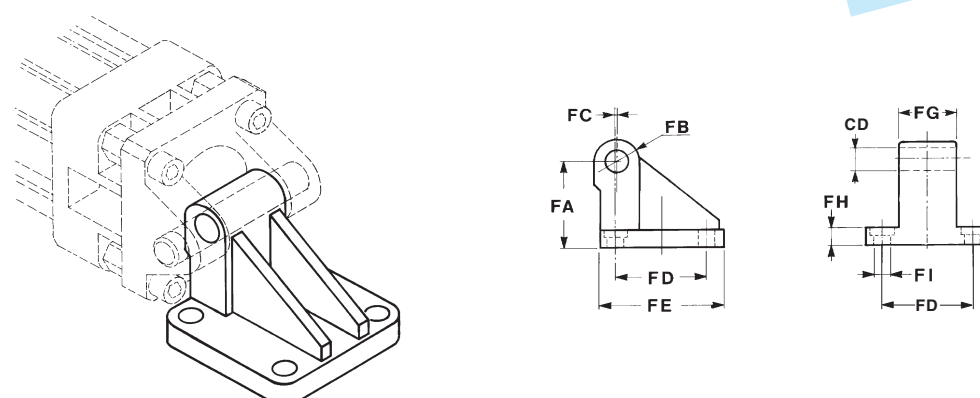
### Articulated rear hinge in die-cast aluminum



| Cyl.<br>ø | Part<br>number | Mass<br>kg |
|-----------|----------------|------------|
| 32        | KF-11032S      | 0,1        |
| 40        | KF-11040S      | 0,2        |
| 50        | KF-11050S      | 0,3        |
| 63        | KF-11063S      | 0,35       |
| 80        | KF-11080S      | 1,6        |
| 100       | KF-11100S      | 0,7        |

### Counter-hinge 90° in die-cast aluminium

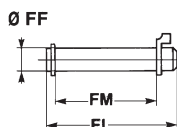
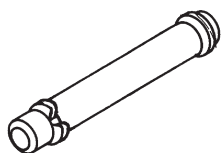
Fixing screws see page 18



| Cyl.<br>ø | Part<br>number | Mass<br>kg |
|-----------|----------------|------------|
| 32        | KF-19032       | 0,09       |
| 40        | KF-19040       | 0,12       |
| 50        | KF-19050       | 0,20       |
| 63        | KF-19063       | 0,32       |
| 80        | KF-19080       | 0,58       |
| 100       | KF-19100       | 0,91       |



## Pin in zinc-plated steel with 2 circlips

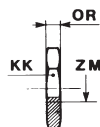
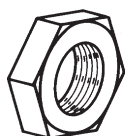


| Cyl. Ø    | Part number | Mass kg |
|-----------|-------------|---------|
| 32        | KF-18032    | 0,03    |
| 40        | KF-18040    | 0,05    |
| 50        | KF-18050    | 0,05    |
| 63        | KF-18063    | 0,12    |
| 80        | KF-18080    | 0,15    |
| 100       | KF-18100    | 0,29    |
| 125*      | KF-18125    | 1,53    |
| 160*-200* | KF-18160    | 1       |

\* Pin for part nos. KF10...

| Dimension of articulated male hinge |     |       |      |     |      |      |    | Dimension of 90° counter-hinge |    |    |     |      |     |    |    |      | Dimension of pin |       |     |
|-------------------------------------|-----|-------|------|-----|------|------|----|--------------------------------|----|----|-----|------|-----|----|----|------|------------------|-------|-----|
| Cyl. Ø                              | CC  | CD H9 | DA   | DB  | DC   | DE   | DF | CD H9                          | FA | FB | FC  | FD   | FE  | FG | FH | FI   | FF f8            | FL    | FM  |
| 32                                  | 48  | 10    | 15   | 142 | 14   | 10,5 | 14 | 10                             | 32 | 10 | 1,2 | 32,5 | 49  | 26 | 10 | 6,4  | 10               | 53    | 46  |
| 40                                  | 54  | 12    | 18   | 160 | 16,5 | 12   | 16 | 12                             | 36 | 12 | 2,6 | 38   | 55  | 28 | 10 | 6,4  | 12               | 61,3  | 53  |
| 50                                  | 65  | 12    | 20   | 170 | 17,5 | 12   | 16 | 12                             | 45 | 12 | 0,3 | 46,5 | 67  | 32 | 12 | 8,4  | 12               | 69    | 61  |
| 63                                  | 75  | 16    | 21   | 190 | 21,5 | 15   | 21 | 16                             | 50 | 16 | 3,3 | 56,5 | 73  | 40 | 12 | 8,4  | 16               | 80,5  | 71  |
| 80                                  | 95  | 16    | 27   | 210 | 24   | 15   | 21 | 16                             | 63 | 16 | 1,0 | 72   | 97  | 50 | 14 | 10,5 | 16               | 100,5 | 91  |
| 100                                 | 115 | 20    | 29,5 | 230 | 28   | 18   | 25 | 20                             | 73 | 20 | 2,5 | 89   | 115 | 60 | 16 | 10,5 | 20               | 122,5 | 111 |
| 125                                 |     |       |      |     |      |      |    |                                |    |    |     |      |     |    |    |      | 25               | 140   | 131 |
| 160                                 |     |       |      |     |      |      |    |                                |    |    |     |      |     |    |    |      | 30               | 205   | 171 |
| 200                                 |     |       |      |     |      |      |    |                                |    |    |     |      |     |    |    |      | 30               | 205   | 171 |

## Piston rod locknut (zinc-plated steel)



| Cyl. Ø    | ZM         | KK | OR | Part number |
|-----------|------------|----|----|-------------|
| 32        | M10 x 1,25 | 17 | 6  | KF - 16032  |
| 40        | M12 x 1,25 | 19 | 7  | KF - 16040  |
| 50 ÷ 63   | M16 x 1,5  | 24 | 8  | KF - 16050  |
| 80 ÷ 100  | M20 x 1,5  | 30 | 9  | KF - 16080  |
| 125       | M27 x 2    | 41 | 12 | KF - 16125  |
| 160 ÷ 200 | M36 x 2    | 55 | 14 | KF - 16160  |

## Fixing screws for accessories

**Cylindrical screw UNI 5931**  
Part n. AZ4-VN... suitable for  
mounting elements  
series KF-10.../ KF-11...  
KF-11...S

| Cyl. Ø | Screw    | Part number |
|--------|----------|-------------|
| 32-40  | M6 x 18  | AZ4-VN0618  |
| 50-63  | M8 x 22  | AZ4-VN0822  |
| 80-100 | M10 x 25 | AZ4-VN1025  |
| 125    | M12 x 35 | AZ4-VN1235  |

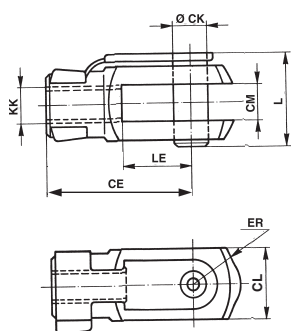
**Cylindrical screw UNI 5931 and DIN 7984** Part n. AZ4-VN.../AZ4-VPA... suitable for mounting elements series KF-19...

| Cyl. Ø | Screw 2 pcs. each type | Part number |
|--------|------------------------|-------------|
| 32-40  | M6 x 14                | AZ4-VN0614  |
|        | M6 x 18                | AZ4-VN0618  |
| 50-63  | M8 x 16                | AZ4-VPA0816 |
|        | M8 x 22                | AZ4-VPA0822 |
| 80-100 | M10 x 20               | AZ4-VPA1020 |
|        | M10 x 25               | AZ4-VPA1025 |

**Cylindrical screw UNI 5931**  
Part n. AZ4-VN... suitable for  
mounting elements  
Series KF-12.../KF-13...

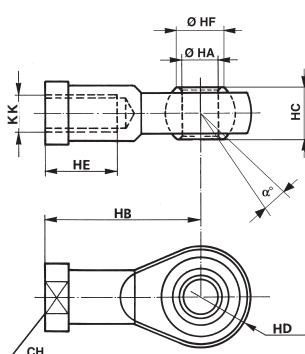
| Cyl. Ø | Screw    | Part number |
|--------|----------|-------------|
| 32-40  | M6 x 14  | AZ4-VN0614  |
| 50-63  | M8 x 16  | AZ4-VN0816  |
| 80-100 | M10 x 20 | AZ4-VN1020  |
| 125    | M12 x 25 | AZ4-VN1225  |

## Female fork with clips in zinc-plated steel for piston rod according to ISO 8140 standard with pin



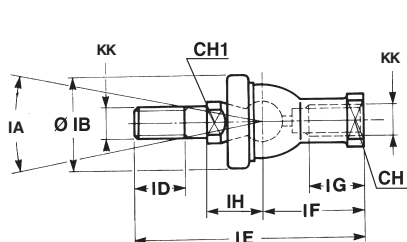
| Cyl. Ø  | CE  | CK | CL | CM B12 B12 | ER | KK         | L  | LE | Mass kg | Part number |
|---------|-----|----|----|------------|----|------------|----|----|---------|-------------|
| 32      | 40  | 10 | 20 | 10         | 16 | M10 x 1,25 | 26 | 20 | 0,09    | KF - 15032  |
| 40      | 48  | 12 | 24 | 12         | 19 | M12 x 1,25 | 32 | 24 | 0,015   | KF - 15040  |
| 50-63   | 64  | 16 | 32 | 16         | 25 | M16 x 1,5  | 40 | 32 | 0,34    | KF - 15050  |
| 80-100  | 80  | 20 | 40 | 20         | 32 | M20 x 1,5  | 50 | 40 | 0,67    | KF - 15080  |
| 125     | 110 | 30 | 55 | 30         | 45 | M27 x 2    | 65 | 54 | 1,79    | KF - 15125  |
| 160-200 | 144 | 35 | 70 | 35         | 57 | M36 x 2    | 81 | 72 | 3,87    | KF - 15160  |

## Articulated self-lubricating fork in zinc plated steel



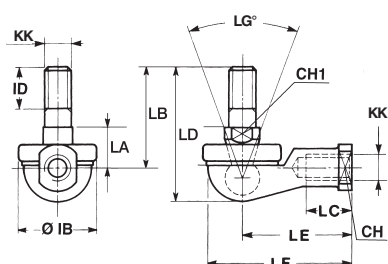
| Cyl. Ø | a   | CH | KK         | HA | HB | HC | HD      | HE | HF   | Mass kg | Part number |
|--------|-----|----|------------|----|----|----|---------|----|------|---------|-------------|
|        |     |    |            | H7 |    |    | 0 -0,12 |    |      |         |             |
| 32     | 13° | 17 | M10 x 1,25 | 10 | 43 | 14 | 14      | 20 | 12,9 | 0,076   | KF - 17032  |
| 40     | 13° | 19 | M12 x 1,25 | 12 | 50 | 16 | 16      | 22 | 15,4 | 0,11    | KF - 17040  |
| 50-63  | 15° | 22 | M16 x 1,5  | 16 | 64 | 21 | 21      | 28 | 19,3 | 0,22    | KF - 17050  |
| 80-100 | 14° | 30 | M20 x 1,5  | 20 | 77 | 25 | 25      | 33 | 24,3 | 0,4     | KF - 17080  |

## Fork with axially mounted articulated pin



| Cyl. Ø | CH | CH1 | IA  | KK         | IH   | IB | ID | IE   | IF | IG | Mass kg | Part number |
|--------|----|-----|-----|------------|------|----|----|------|----|----|---------|-------------|
|        |    |     |     |            | ±0,3 |    |    |      |    |    |         |             |
| 32     | 17 | 11  | 30° | M10 x 1,25 | 19,5 | 32 | 15 | 74,5 | 35 | 18 | 0,12    | KF - 22025  |
| 40     | 19 | 17  | 30° | M12 x 1,25 | 22   | 36 | 17 | 84   | 40 | 20 | 0,185   | KF - 22040  |
| 50-63  | 22 | 19  | 22° | M16 x 1,5  | 27,5 | 47 | 23 | 112  | 50 | 27 | 0,36    | KF - 22050  |
| 80-100 | 30 | 24  | 15° | M20 x 1,5  | 31,5 | 58 | 25 | 133  | 63 | 38 | 0,57    | KF - 22080  |

## Fork with angle-mounted articulated pin



| Cyl. Ø | CH | CH1 | LG  | KK         | IB | ID | LA   | LB | LC | LD   | LE | LF | Mass kg | Part number |
|--------|----|-----|-----|------------|----|----|------|----|----|------|----|----|---------|-------------|
|        |    |     |     |            |    |    | ±0,3 |    |    |      |    |    |         |             |
| 32     | 17 | 11  | 50° | M10 x 1,25 | 32 | 15 | 17   | 37 | 21 | 50,5 | 43 | 57 | 0,11    | KF - 23025  |
| 40     | 19 | 17  | 50° | M12 x 1,25 | 36 | 17 | 19   | 42 | 27 | 57,5 | 50 | 66 | 0,165   | KF - 23040  |
| 50-63  | 22 | 19  | 40° | M16 x 1,5  | 47 | 23 | 23,5 | 60 | 33 | 79,5 | 64 | 84 | 0,33    | KF - 23050  |
| 80-100 | 30 | 24  | 32° | M20 x 1,5  | 58 | 25 | 27   | 68 | 40 | 90   | 77 | 99 | 0,54    | KF - 23080  |