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**KIT CATALOGUE**

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# KIT CATALOGUE

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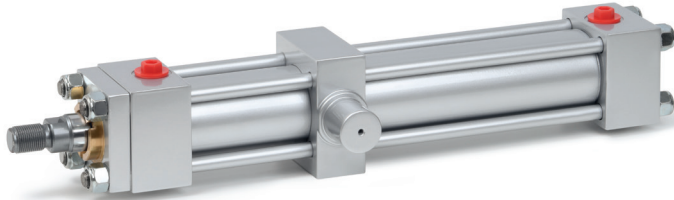
The hydraulic cylinders, compliant with ISO 6020/2, are designed with technical solutions and materials that guarantee high reliability and long lifetime for all kinds of industrial applications. They are also available for use with magnetic sensors.

The presence of counterflanges or high-strength tie rods make the cylinder very robust, compact and its maintenance is also simplified.

All the mountings required by the norm are available in a variety of seal configurations, depending on the conditions of use and the desired performance.

**TIE-RODS CYLINDERS SERIES**

|           |                      |
|-----------|----------------------|
| <b>CD</b> | Bore from 25 to 100  |
| <b>DK</b> | Bore from 125 to 200 |



|                |                                                         |                 |             |
|----------------|---------------------------------------------------------|-----------------|-------------|
| Standard       | ISO 6020/2 - DIN 24554 - tie-rods                       |                 |             |
| Bore           | mm                                                      | from 25 to 200  |             |
| Pressure       | bar                                                     | operational 160 | testing 240 |
| Maximum stroke | mm                                                      | 4000            |             |
| Fluid          | Mineral hydraulic oil<br>Phosphoric esters<br>HFC-fluid |                 |             |

**TIE-RODS CYLINDERS SERIES WITH MAGNETIC SWITCHES**

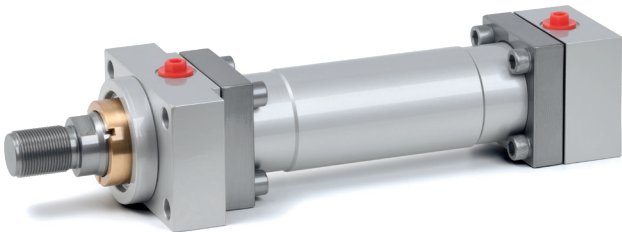
|           |                     |
|-----------|---------------------|
| <b>MD</b> | Bore from 25 to 125 |
|-----------|---------------------|



|                |                                                         |                 |             |
|----------------|---------------------------------------------------------|-----------------|-------------|
| Standard       | ISO 6020/2 - DIN 24554 - tie-rods                       |                 |             |
| Bore           | mm                                                      | from 25 to 125  |             |
| Pressure       | bar                                                     | operational 160 | testing 240 |
| Maximum stroke | mm                                                      | 4000            |             |
| Fluid          | Mineral hydraulic oil<br>Phosphoric esters<br>HFC-fluid |                 |             |

**HYDRAULIC CYLINDERS SERIES WITH COUNTERFLANGES**

|           |                      |
|-----------|----------------------|
| <b>HD</b> | Bore from 50 to 100  |
| <b>HK</b> | Bore from 125 to 200 |



|                |                                                         |                 |             |
|----------------|---------------------------------------------------------|-----------------|-------------|
| Standard       | ISO 6020/2 - DIN 24554 - with counterflanges            |                 |             |
| Bore           | mm                                                      | from 50 to 200  |             |
| Pressure       | bar                                                     | operational 210 | testing 315 |
| Maximum stroke | mm                                                      | 4000            |             |
| Fluid          | Mineral hydraulic oil<br>Phosphoric esters<br>HFC-fluid |                 |             |

For technical specifications and dimensions, refer to the documentation about complete cylinders.

**AVAILABLE SEALS**

| Seals code | Performances |              |           |         |      | Fluid         |                   |           |
|------------|--------------|--------------|-----------|---------|------|---------------|-------------------|-----------|
|            | High sealing | Low friction | Max speed | Temp °C |      | Hydraulic oil | Phosphoric esters | HFC-Fluid |
| <b>S</b>   | √            |              | 0.5 m/s   | -20     | +80  | √             |                   |           |
| <b>L</b>   |              | √            | 1 m/s     | -20     | +80  | √             |                   |           |
| <b>H</b>   |              | √            | 1 m/s     | -20     | +150 | √             | √                 |           |
| <b>G</b>   |              | √            | 1 m/s     | -20     | +80  |               |                   | √         |

For speeds and temperatures exceeding the indicated limits, please contact our technical department.



Kits for hydraulic cylinders, compliant with ISO 6020/2 with tie rods and counterflanges, also for use with magnetic sensors.

Available in all standard mountings, in several seal configurations.

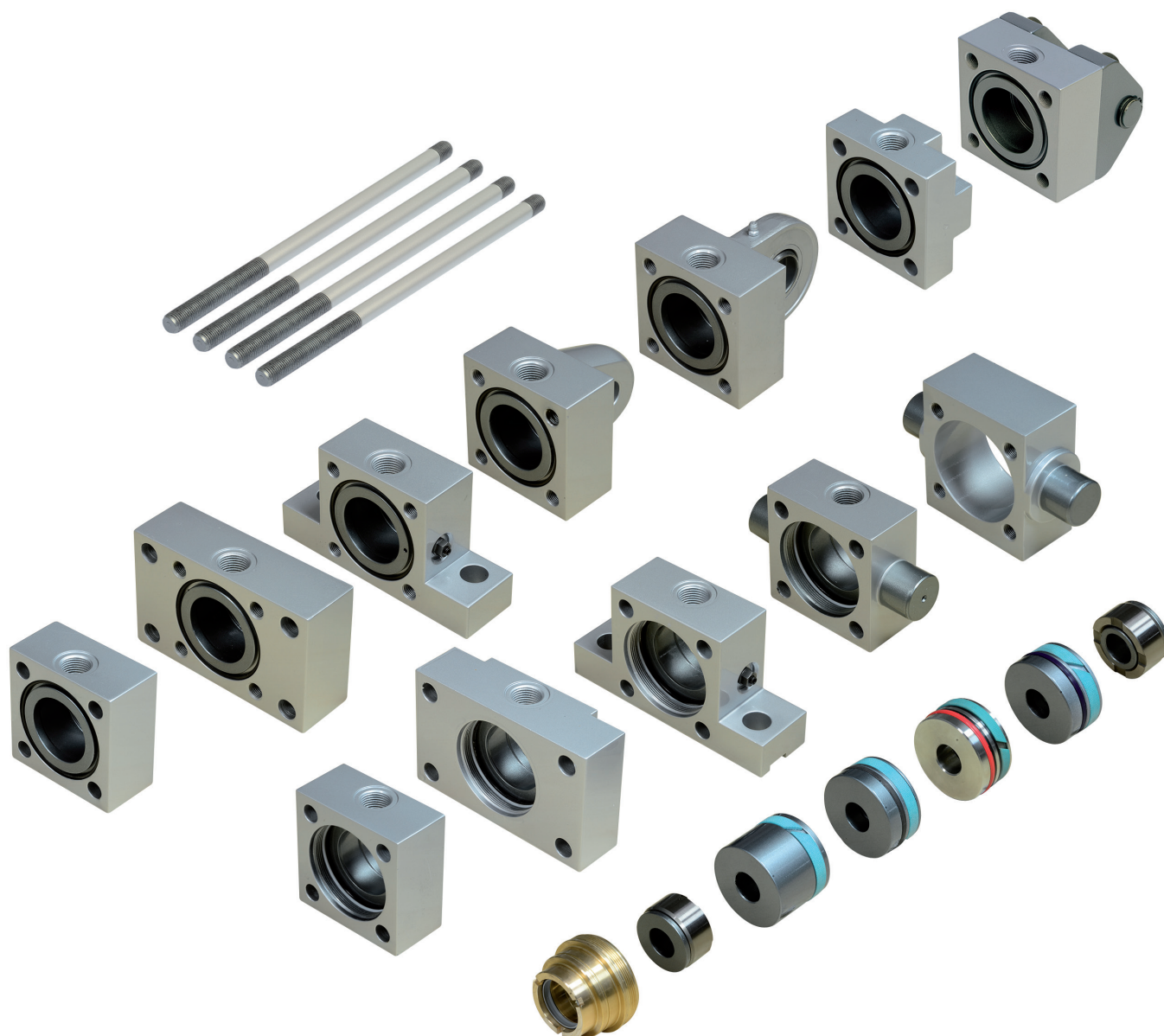
Supplied complete with seals, in sealed packages with identification labels. Very fast deliveries.

For strokes over 20 mm, it is advisable to choose the version with counterflanges.

All components from bore 25 to 100 are supplied with RAL 9005 colour burnishing treatment, while from bore 125 to 200, they are treated with protective oil.

The assembly of the kits is very simple and does not require any special tools.

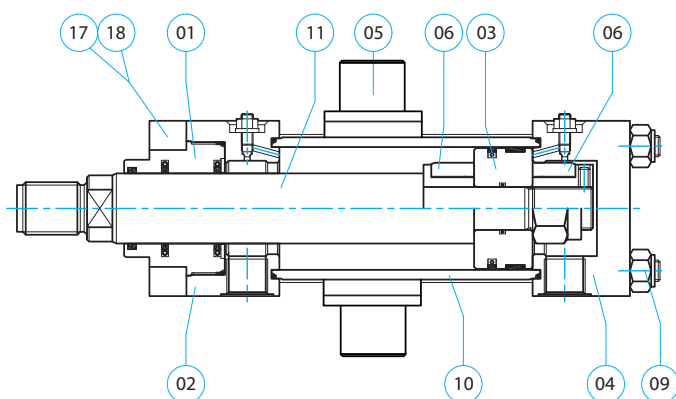
The modularity of the components allows for maximum flexibility with minimised stock requirements.



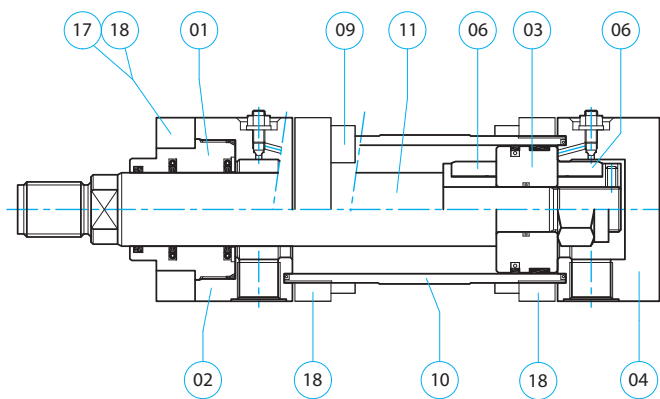
For the management, selection and ordering of kits, there is PRISMA area on our website [www.confortinet.com](http://www.confortinet.com)



## TIE-RODS CYLINDERS SERIES



## COUNTERFLANGES CYLINDERS SERIES



|    | Component                         | Material                            | Description                                                                                                                                                                                                                                                                                                                                     |
|----|-----------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01 | Guide bushing                     | Bronze                              | Available with 3 rod diameters for each bore.<br>Supplied complete with polyurethane, PTFE+NBR or Viton® seals.<br>The ISO dimensions of the seal grooves allow easy availability of spare parts.                                                                                                                                               |
| 02 | Front head                        | Steel                               | Supplied complete with seals.<br>Available with or without adjustable cushioning.<br>With burnished surface treatment up to bore 100.                                                                                                                                                                                                           |
| 03 | Piston                            | Steel                               | Supplied complete with Polyurethane, NBR-PTFE, Viton® seals, depending on application. The dimensions of the ISO seals make them easy to find on the market.<br>Also available in magnetic version.                                                                                                                                             |
| 04 | Rear head                         | Steel                               | Supplied complete with seals.<br>Available with or without adjustable cushioning.<br>With burnished surface treatment up to bore 100.                                                                                                                                                                                                           |
| 05 | Intermediate trunnions            | Steel                               | Intermediate trunnions for H mounting (ISO MT4).                                                                                                                                                                                                                                                                                                |
| 06 | Cushioning                        | Hardened steel                      | The original floating ring system guarantees perfect centering and performs the function of rapid opening in the cylinder return phase.<br>Made of tempered steel, they guarantee a long life over time, thanks to the coupling with the steel seat of the head.<br>The specific profile of the cushioning bushing allows excellent cushioning. |
| 07 | Head plug                         | Steel                               | Useful to convert a front head into a rear head.                                                                                                                                                                                                                                                                                                |
| 08 | Spacer                            | Steel                               | Mounted on the rod, in front of the piston, to reduce loads on the guides in the case of long strokes.                                                                                                                                                                                                                                          |
| 09 | Tie rods and screws (4 pcs. each) | Alloy steel                         | Made of high-strength material. Threaded by rolling.<br>Available from stock in standard lengths.                                                                                                                                                                                                                                               |
| 10 | Tube                              | E355 - AISI 304                     | In the Prisma area of our website, you can configure and download tube machining drawings according to the specifications of the cylinder.<br>Cut-to-length tubes ready for machining can be supplied on request.<br>Also available in stainless steel for magnetic cylinders.                                                                  |
| 11 | Chromeplated bar                  | CK45 - 42CrMo4<br>AISI 304 - 20MnV6 | In the Prisma area of our website, you can configure and download rod machining drawings according to the characteristics of the cylinder.<br>Several types of chrome rod cut to size ready for machining are available on request.                                                                                                             |
| 17 | Centering ring                    | Steel                               | Applied to the bushing in the case of front flange mounting, for cylinder centring (dimension RD).                                                                                                                                                                                                                                              |
| 18 | Flange                            | Steel                               | DiAvailable with unthreaded or threaded hole, depending on the required mounting.                                                                                                                                                                                                                                                               |

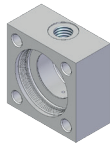
| Component            | Groove     | Material   |            |               |               |
|----------------------|------------|------------|------------|---------------|---------------|
|                      |            | S          | L          | H             | G             |
| Rod wiper            |            | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| First rod seal       | ISO 7425/2 | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| Second rod seal      | ISO 7425/2 | PU         | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| Head/bushing seal    |            | NBR + PTFE | NBR + PTFE | Viton® + PTFE | NBR + PTFE    |
| Tube seal            |            | NBR        | NBR        | Viton®        | NBR           |
| Internal piston seal |            | NBR        | NBR        | Viton®        | NBR           |
| External piston seal | ISO 7425/1 | NBR + PU   | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
| Piston guide         |            | Resin      | Resin      | Resin         | Resin         |



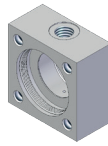
## FRONT HEAD

| Code | Description            |
|------|------------------------|
| 02S  | Through holes          |
| 02X  | Front threaded holes   |
| 02I  | Threaded through holes |
| 02A  | Flange                 |
| 02E  | Foot                   |
| 02G  | Trunnions              |

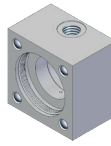
02S



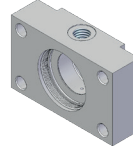
02X



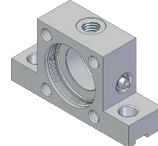
02I



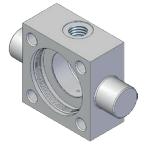
02A



02E



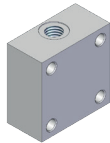
02G



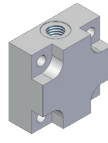
## REAR HEAD

| Code | Description         |
|------|---------------------|
| 04P  | Through holes       |
| 04K  | With nut seat       |
| 04R  | Flat rear side      |
| 04Q  | Rear threaded holes |
| 04B  | Flange              |
| 04D  | Ball jointed eye    |
| 04C  | Male clevis         |
| 04M  | Female clevis       |
| 04F  | Foot                |
| 04L  | Trunnions           |

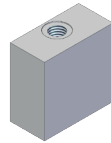
04P



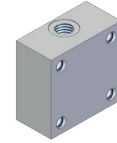
04K



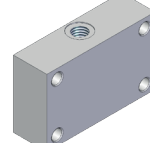
04R



04Q



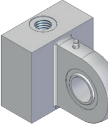
04B



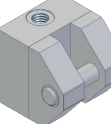
04C



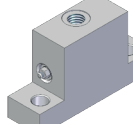
04D



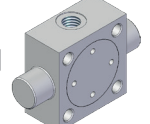
04M



04F



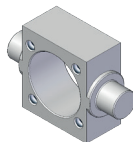
04L



## INTERMEDIATE TRUNNIONS

| Code | Description            |
|------|------------------------|
| 05H  | Intermediate trunnions |

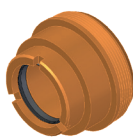
05H



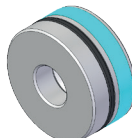
## OTHER COMPONENTS

| Code | Description                             |
|------|-----------------------------------------|
| 01   | Guide bushing                           |
| 03   | Piston                                  |
| 06V  | Front side cushioning                   |
| 06Z  | Rear side cushioning                    |
| 07T  | Head plug                               |
| 08J  | Spacer                                  |
| 09X  | Tie-rods with fixed length (4 pcs)      |
| 09S  | Tie-rods with special length (4 pcs)    |
| 09C  | Short screws for counterflanges (4 pcs) |
| 09L  | Long screws for counterflanges (4 pcs)  |
| 17R  | Centering ring                          |
| 18F  | Closing flange with through holes       |
| 18I  | Closing flange with threaded holes      |
| 18P  | Counterflange with through holes        |
| 18C  | Counterflange with threaded holes       |

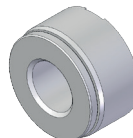
01



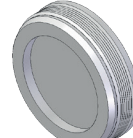
03



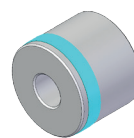
06



07



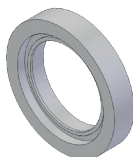
08



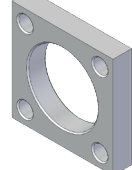
09



17



18



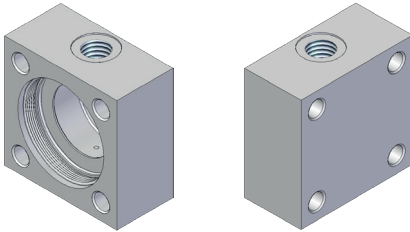
**HEADS**

Bores 25 to 100

The size of the cylinder head depends on the cylinder bore.

The cylinder heads are burnished (colour RAL 9005) and provided with seals with NBR O-Rings.

For use with H seals, order the Viton O-Ring kit, as shown below.



| Version                     |          |
|-----------------------------|----------|
| Prepared for cushioning     | <b>T</b> |
| Not prepared for cushioning | <b>S</b> |

The diagram illustrates the mechanical structure of a 3D printer, showing various components and their relationships. The components are organized into several sections:

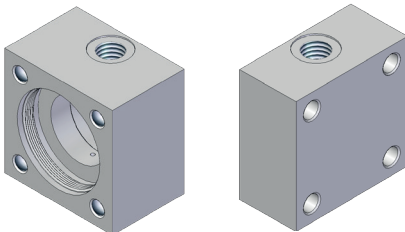
- Top Section:** A horizontal row of components labeled **D**, **T**, **02**, **S**, and **25**. Arrows point from **T** and **02** to the **Mounting** section, and from **S** to the **Bore** section.
- Mounting Section:** A grid of components labeled **S**, **X**, **A**, **E**, **G**, **H**, **P**, **Q**, **B**, **F**, **L**, **D**, **C**, **K**, **M**, and **R**. Arrows point from **T** and **02** to this section.
- Bore Section:** A vertical column of components labeled **25**, **32**, **40**, **50**, **63**, **80**, and **100**. An arrow points from **S** to this section.
- Position Section:** A table with three rows: **Front**, **Intermediate**, and **Rear**. The corresponding values are **02**, **05**, and **04**. Arrows point from these values to the **Mounting** section.

## Bores 125 to 200

The size of the cylinder head depends on the cylinder bore and rod diameter.

The cylinder heads are treated with protective oil and provided with seals with NBR O-Rings.

For use with H seals, order the Viton O-Ring kit, as shown below.



| Version                     |          |
|-----------------------------|----------|
| Prepared for cushioning     | <b>T</b> |
| Not prepared for cushioning | <b>S</b> |

The diagram illustrates the assembly of a 125cc engine. It shows a parts list with columns for Part Number, Description, and Quantity. Arrows indicate the assembly sequence: K and T are assembled into 02, which is then assembled into S. S is then assembled into the Bore and Rod components.

| Part Number | Description | Quantity |
|-------------|-------------|----------|
| K           | Mounting    | 56       |
| T           | Bore        | 70       |
| 02          | Rod         | 90       |
| S           | Mounting    | 70       |
|             | Bore        | 90       |
|             | Rod         | 110      |
|             | Mounting    | 90       |
|             | Bore        | 110      |
|             | Rod         | 140      |

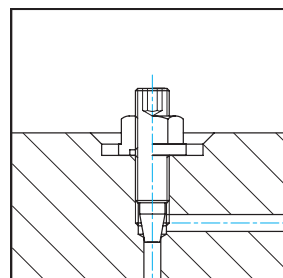
## VITON® O-RING KIT FOR HEAD

Diagram illustrating the calculation of the Bore for a 25mm caliber:

- DT (02) \* 0.25 \* H (25) = Bore
- DT (02) \* 0.25 \* H (25) = 125 / 200
- 125 / 200 corresponds to the KT position.

The head are always supplied with standard O-Ring seals. For version with Viton®, please order the Viton® O-Ring separately.

## CUSHIONING ADJUSTMENT AND AIR BLEEDING



Cylinders with cushioning have a device with screw for cushioning adjustment.

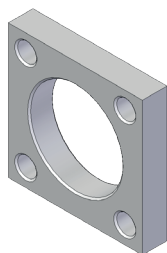
This device has a Seal-Lock® sealing nut, that must be carefully locked after cushioning adjustment.

The cushioning adjustment device can be used as air bleeder, too.

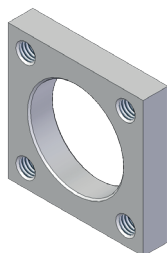


## CLOSING FLANGES

DT18F



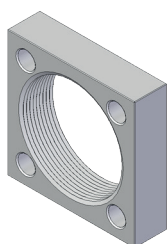
DT18I



|                        |          |   |            |
|------------------------|----------|---|------------|
| <b>DT18</b>            | <b>F</b> | - | <b>25</b>  |
|                        | ↑        |   | ↑          |
| Holes                  |          |   | Bore       |
| Through holes          | <b>F</b> |   | <b>25</b>  |
| Threaded through holes | <b>I</b> |   | <b>32</b>  |
|                        |          |   | <b>40</b>  |
|                        |          |   | <b>50</b>  |
|                        |          |   | <b>63</b>  |
|                        |          |   | <b>80</b>  |
|                        |          |   | <b>100</b> |

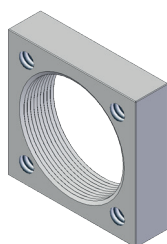
## COUNTERFLANGES

DT18P



KT18P

KT18C



|               |          |   |            |
|---------------|----------|---|------------|
| <b>DT18</b>   | <b>P</b> | - | <b>50</b>  |
|               | ↑        |   | ↑          |
| Holes         |          |   | Bore       |
| Through holes | <b>P</b> |   | <b>50</b>  |
|               |          |   | <b>63</b>  |
|               |          |   | <b>80</b>  |
|               |          |   | <b>100</b> |

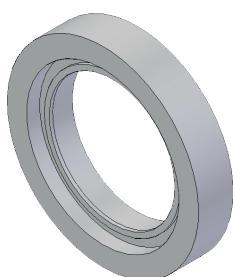
|                        |          |   |            |
|------------------------|----------|---|------------|
| <b>KT18</b>            | <b>C</b> | - | <b>125</b> |
|                        | ↑        |   | ↑          |
| Holes                  |          |   | Bore       |
| Through holes          | <b>P</b> |   | <b>125</b> |
| Threaded through holes | <b>C</b> |   | <b>160</b> |
|                        |          |   | <b>200</b> |

Only for HD and HK cylinders.

The specific OR seals for tube/head sealing in ISO 6020/2 counterflanges cylinders are supplied together with the DT18P counterflange. They replace the standard OR seals for tube/head sealing in ISO 6020/2 tie rods cylinders, supplied with the heads.

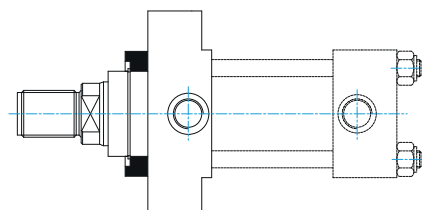
## CENTERING RING

DT17R



|              |   |             |
|--------------|---|-------------|
| <b>DT17R</b> | - | <b>25</b>   |
|              | ↑ |             |
| Bore         |   | Centering Ø |
| <b>25</b>    |   | 38 f8       |
| <b>32</b>    |   | 42 f8       |
| <b>40</b>    |   | 62 f8       |
| <b>50</b>    |   | 74 f8       |
| <b>63</b>    |   | 88 f8       |
| <b>80</b>    |   | 105 f8      |
| <b>100</b>   |   | 125 f8      |

Also available with reduced centering diameter.



|              |   |             |   |           |
|--------------|---|-------------|---|-----------|
| <b>DT17R</b> | - | <b>63</b>   | / | <b>75</b> |
|              | ↑ |             |   | ↑         |
| Bore         |   | Centering Ø |   |           |
| <b>63</b>    |   | <b>75</b>   |   |           |
| <b>80</b>    |   | <b>82</b>   |   |           |
| <b>100</b>   |   | <b>92</b>   |   |           |

**GUIDE BUSHINGS**

Made from bronze for maximum sliding performance and protection of the rod's chrome surface.

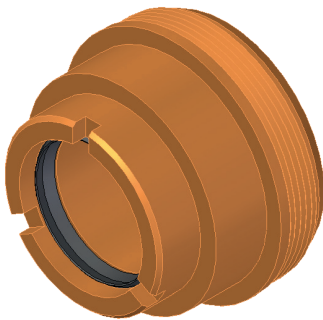
They are supplied complete with ready-to-use seals.

For more technical specifications and characteristics of available seals, see tables on pages 2 and 4.

The dimensions of the ISO seals allow them to be easily found on the market.

Up to bore 100, three different bushing sizes can be mounted on each cylinder head, depending on the bore and cylinder rod.

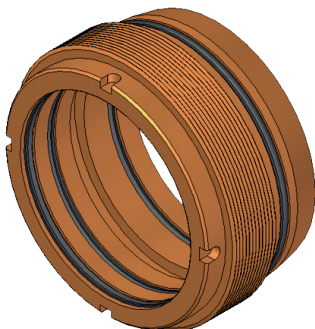
For bores 125 to 200, the bushing size depends solely on the cylinder rod and is the same for all bores.

**DT01 Bores from 25 to 100**

| DT | 01 | S | - | 25   | / | 12  |
|----|----|---|---|------|---|-----|
|    |    |   |   | Bore |   | Rod |
|    |    |   |   | 25   |   | 12  |
|    |    |   |   |      |   | 18  |
|    |    |   |   | 32   |   | 14  |
|    |    |   |   |      |   | 18  |
|    |    |   |   |      |   | 22  |
|    |    |   |   | 40   |   | 18  |
|    |    |   |   |      |   | 22  |
|    |    |   |   |      |   | 28  |
|    |    |   |   | 50   |   | 22  |
|    |    |   |   |      |   | 28  |
|    |    |   |   |      |   | 36  |
|    |    |   |   | 63   |   | 28  |
|    |    |   |   |      |   | 36  |
|    |    |   |   |      |   | 45  |
|    |    |   |   | 80   |   | 36  |
|    |    |   |   |      |   | 45  |
|    |    |   |   |      |   | 56  |
|    |    |   |   | 100  |   | 45  |
|    |    |   |   |      |   | 56  |
|    |    |   |   |      |   | 70  |

| Seals        |   |
|--------------|---|
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |

**KT01 Bores from 125 to 200**

| KT | 01 | S | - | 56   |
|----|----|---|---|------|
|    |    |   |   | Bore |
|    |    |   |   | 56   |
|    |    |   |   | 70   |
|    |    |   |   | 90   |
|    |    |   |   | 110  |
|    |    |   |   | 140  |

| Seals        |   |
|--------------|---|
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |

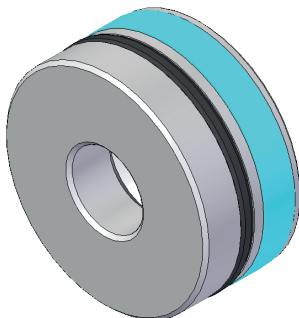


## PISTONS

Supplied complete with seals and guides, ready for use.

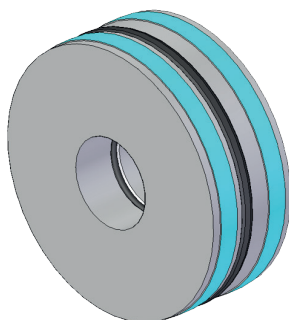
The dimensions of the ISO seals allow them to be easily found on the market.

For more technical specifications and characteristics of available seals, see tables on pages 2 and 4.

**DT03 Bores from 25 to 100**

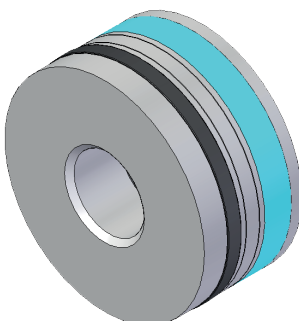
| DT | 03 | S | - | 25   |
|----|----|---|---|------|
|    |    |   |   | ↑    |
|    |    |   |   | Bore |
|    |    |   |   | 25   |
|    |    |   |   | 32   |
|    |    |   |   | 40   |
|    |    |   |   | 50   |
|    |    |   |   | 63   |
|    |    |   |   | 80   |
|    |    |   |   | 100  |

| Seals        |   |
|--------------|---|
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |

**KT03 Bores from 125 to 200**

| KT | 03 | S | - | 125  |
|----|----|---|---|------|
|    |    |   |   | ↑    |
|    |    |   |   | Bore |
|    |    |   |   | 125  |
|    |    |   |   | 160  |
|    |    |   |   | 200  |

| Seals        |   |
|--------------|---|
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |

**GT03 Magnetic version**

| GT | 03 | S | - | 25   |
|----|----|---|---|------|
|    |    |   |   | ↑    |
|    |    |   |   | Bore |
|    |    |   |   | 25   |
|    |    |   |   | 32   |
|    |    |   |   | 40   |
|    |    |   |   | 50   |
|    |    |   |   | 63   |
|    |    |   |   | 80   |
|    |    |   |   | 100  |
|    |    |   |   | 125  |

| Seals        |   |
|--------------|---|
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |

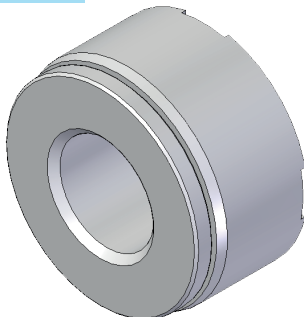
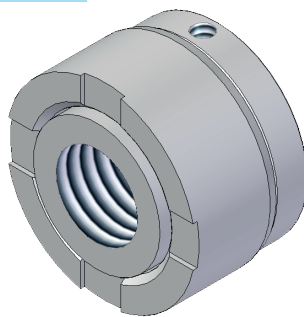
## SELF-LOCKING NUTS FOR ROD

| DA                 | DA 10/100 | DA 12125/80 | DA 1415/60 | DA 1815/50 | DA 2215/20 | DA 272/20 | DA 363/5 | DA 423/5 |
|--------------------|-----------|-------------|------------|------------|------------|-----------|----------|----------|
| Thread             | M10       | M12x1.25    | M14x1.5    | M18x1.5    | M22x1.5    | M27x2     | M36x3    | M42x3    |
| Pieces per package | 100       | 80          | 60         | 50         | 20         | 20        | 5        | 5        |
| Bore               | 25        | 32          | 40         | 50         | 63         | 80        | 100      | 125      |

**CUSHIONINGS**

The original design with a floating cushioning ring guarantees a perfect centering and allows a quick return of the piston. Made of hardened steel for a long life, working directly on the steel of the head.

The specific profile of the cushioning ring allows a perfect cushioning.

**DT06V****DT06Z**

|           |           |           |          |   |            |
|-----------|-----------|-----------|----------|---|------------|
|           | <b>DT</b> | <b>06</b> | <b>V</b> | - | <b>25</b>  |
| Bore      |           |           |          |   | Bore       |
| 25 / 100  | <b>DT</b> |           |          |   | <b>25</b>  |
| 125 / 200 | <b>KT</b> |           |          |   | <b>32</b>  |
|           |           |           |          |   | <b>40</b>  |
|           |           |           |          |   | <b>50</b>  |
|           |           |           |          |   | <b>63</b>  |
|           |           |           |          |   | <b>80</b>  |
|           |           |           |          |   | <b>100</b> |
|           |           |           |          |   | <b>125</b> |
|           |           |           |          |   | <b>160</b> |
|           |           |           |          |   | <b>200</b> |

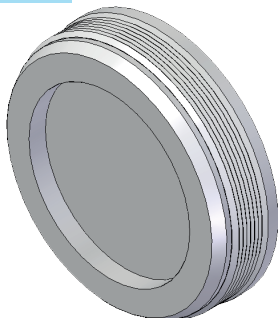
| Bore                   | 25 | 32 | 40 | 50 | 63 | 80 | 100 | 125 | 160 | 200 |
|------------------------|----|----|----|----|----|----|-----|-----|-----|-----|
| Cushioning lenght (mm) | 12 | 14 | 23 | 21 | 21 | 28 | 28  | 26  | 30  | 44  |

**HEAD PLUG**

Can be used to convert a front head 02 into a rear head 04, as shown in the table.

For bores from 25 to 100 mm, the rear end cap 02 + 07 thus obtained has the same dimensions as a standard rear head 04 and still complies with ISO 6020/2.

For bores 125, 160 and 200, the KT07T-90 cap is available to match KT02 heads for rod 90 (e.g. KT02G-125/90).

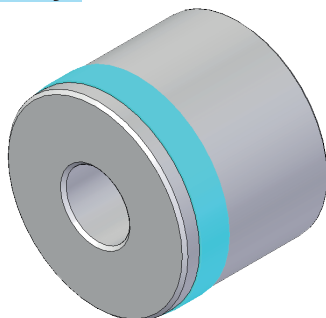
**DT07T**

|              |            |           |
|--------------|------------|-----------|
| <b>DT07T</b> | -          | <b>25</b> |
|              |            | ↑         |
|              | Bore       |           |
|              | <b>25</b>  |           |
|              | <b>32</b>  |           |
|              | <b>40</b>  |           |
|              | <b>50</b>  |           |
|              | <b>63</b>  |           |
|              | <b>80</b>  |           |
|              | <b>100</b> |           |

| Rear head to be obtained | Plug + front head to be used |
|--------------------------|------------------------------|
| 04L                      | 07T + 02G                    |
| 04P                      | 07T + 02S                    |
| 04Q                      | 07T + 02X                    |
| 04B                      | 07T + 02A                    |
| 04F                      | 07T + 02E                    |

**SPACER**

In case of long strokes, a spacer can be used to increase the distance between the guide bushing and the piston when the rod is completely extended. This increased distance improves the lever arm, reducing the radial load on the guide bushing. The length of every single spacer is 50 mm and many spacers can be used in series.

**DT08J**

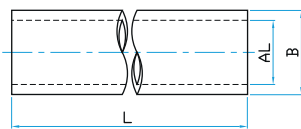
|              |            |           |
|--------------|------------|-----------|
| <b>DT08J</b> | -          | <b>25</b> |
|              |            | ↑         |
|              | Bore       |           |
|              | <b>25</b>  |           |
|              | <b>32</b>  |           |
|              | <b>40</b>  |           |
|              | <b>50</b>  |           |
|              | <b>63</b>  |           |
|              | <b>80</b>  |           |
|              | <b>100</b> |           |

|              |            |            |
|--------------|------------|------------|
| <b>KT08J</b> | -          | <b>125</b> |
|              |            | ↑          |
|              | Bore       |            |
|              | <b>125</b> |            |
|              | <b>160</b> |            |
|              | <b>200</b> |            |



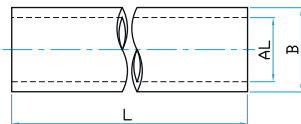
## TUBE MATERIALS

## TL Tube



|          | TLB 25   | TLB 32 | TLB 40       | TLB 50 | TLB 63               | TLB 80 | TLB 100                                            | TL 125 | TL 160 | TL 200 |
|----------|----------|--------|--------------|--------|----------------------|--------|----------------------------------------------------|--------|--------|--------|
| AL       | 25       | 32     | 40           | 50     | 63                   | 80     | 100                                                | 125    | 160    | 200    |
| B        | 35       | 40     | 50           | 60     | 73                   | 95     | 115                                                | 150    | 190    | 230    |
| L        | Max 3000 |        |              |        |                      |        |                                                    |        |        |        |
| Material | E355     |        | Tolerance H8 |        | Roughness Ra 0.40 µm |        | Burnishing treatment (TLB type) up to diameter 100 |        |        |        |

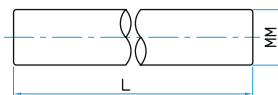
## TLX Stainless steel tube



|          | TLX 25   | TLX 32 | TLX 40       | TLX 50 | TLX 63               | TLX 80 | TLX 100 | TLX 125 |
|----------|----------|--------|--------------|--------|----------------------|--------|---------|---------|
| AL       | 25       | 32     | 40           | 50     | 63                   | 80     | 100     | 125     |
| B        | 35       | 40     | 50           | 60     | 73                   | 95     | 115     | 150     |
| L        | Max 3000 |        |              |        |                      |        |         |         |
| Material | AISI 304 |        | Tolerance H9 |        | Roughness Ra 0.40 µm |        |         |         |

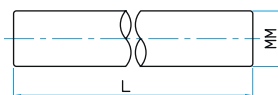
## ROD MATERIALS

## BC Chrome-plated rod



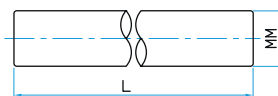
|          | BC 12    | BC 14 | BC 18                       | BC 22 | BC 28                    | BC 36 | BC 45                | BC 56 | BC 70 | BC 90 | BC 110 | BC 140 |
|----------|----------|-------|-----------------------------|-------|--------------------------|-------|----------------------|-------|-------|-------|--------|--------|
| MM       | 12       | 14    | 18                          | 22    | 28                       | 36    | 45                   | 56    | 70    | 90    | 110    | 140    |
| L        | Max 3000 |       |                             |       |                          |       |                      |       |       |       |        |        |
| Material | CK45     |       | Hard chrome thickness 20 µm |       | Tolerance on diameter f7 |       | Roughness Ra 0.20 µm |       |       |       |        |        |

## BCB Hardened and tempered chrome-plated rod



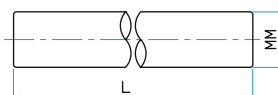
|          | BCB 28   | BCB 36 | BCB 45                      | BCB 56 | BCB 70                   | BCB 90 | BCB 110              | BCB 140 |
|----------|----------|--------|-----------------------------|--------|--------------------------|--------|----------------------|---------|
| MM       | 28       | 36     | 45                          | 56     | 70                       | 90     | 110                  | 140     |
| L        | Max 3000 |        |                             |        |                          |        |                      |         |
| Material | 42CrMo4  |        | Hard chrome thickness 20 µm |        | Tolerance on diameter f7 |        | Roughness Ra 0.20 µm |         |

## BCH Induction hardened and hard chrome-plated rod



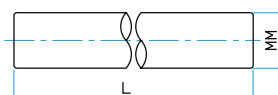
|          | BCH 28   | BCH 36 | BCH 45                      | BCH 56 | BCH 70                   | BCH 90 | BCH 110              | BCH 140 |
|----------|----------|--------|-----------------------------|--------|--------------------------|--------|----------------------|---------|
| MM       | 28       | 36     | 45                          | 56     | 70                       | 90     | 110                  | 140     |
| L        | Max 3000 |        |                             |        |                          |        |                      |         |
| Material | 42CrMo4  |        | Hard chrome thickness 20 µm |        | Tolerance on diameter f7 |        | Roughness Ra 0.20 µm |         |

## BCX Hard chrome-plated stainless steel rod



|          | BCX 12   | BCX 14 | BCX 18                      | BCX 22 | BCX 28                   | BCX 36 | BCX 45               | BCX 56 | BCX 70 |
|----------|----------|--------|-----------------------------|--------|--------------------------|--------|----------------------|--------|--------|
| MM       | 12       | 14     | 18                          | 22     | 28                       | 36     | 45                   | 56     | 70     |
| L        | Max 3000 |        |                             |        |                          |        |                      |        |        |
| Material | AISI 304 |        | Hard chrome thickness 20 µm |        | Tolerance on diameter f7 |        | Roughness Ra 0.20 µm |        |        |

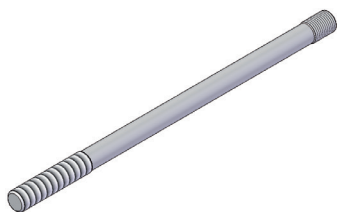
## BCK NIKROM® 500 rod



|          | BCK 28   | BCK 36 | BCK 45                                    | BCK 56 | BCK 70                   | BCK 90 | BCK 110              | BCK 140 |
|----------|----------|--------|-------------------------------------------|--------|--------------------------|--------|----------------------|---------|
| MM       | 28       | 36     | 45                                        | 56     | 70                       | 90     | 110                  | 140     |
| L        | Max 3000 |        |                                           |        |                          |        |                      |         |
| Material | 20MnV6   |        | Hard chrome thickness Ni 30 µm + Cr 20 µm |        | Tolerance on diameter f7 |        | Roughness Ra 0.20 µm |         |



## TIE RODS SET

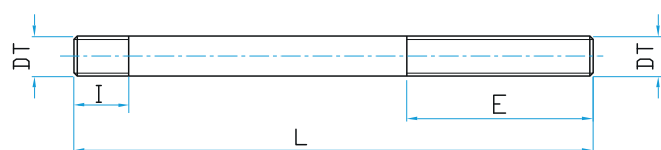


High resistance material. Threaded through rolling.  
Supplied in set of 4 pieces. The self-locking nuts have to be ordered separately.

Ready on stock in standard lengths (with steps of 50 mm) or manufactured on request.

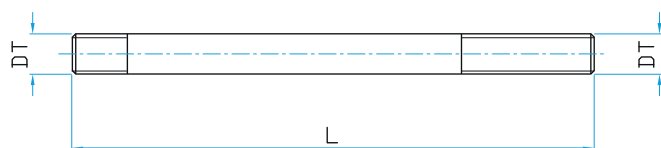
**DT09X** Standard lengths

Ready on stock, burnished, in standard lengths from 100 to 1000 mm with steps of 50 mm.  
They have a long thread, which can be cut to obtain all intermediate lengths.



| Bore | 25              | 32 | 40   | 50-63    | 80-100  |
|------|-----------------|----|------|----------|---------|
| DT   | M5              | M6 | M8x1 | M12x1.25 | M16x1.5 |
| E    | 65              | 70 | 70   | 75       | 85      |
| I    | 10              | 10 | 15   | 16       | 22      |
| L    | from 50 to 1000 |    |      |          |         |

| DT           | 09       | X | - | 5  | / | 100         |
|--------------|----------|---|---|----|---|-------------|
| Fixed length |          | X |   |    |   |             |
| Bore         | Thread   |   |   |    |   | Lenght (mm) |
| 25           | M5       |   |   | 5  |   | 100 600     |
| 32           | M6       |   |   | 6  |   | 150 650     |
| 40           | M8x1     |   |   | 8  |   | 200 700     |
| 50-63        | M12x1.25 |   |   | 12 |   | 250 750     |
| 80-100       | M16x1.5  |   |   | 16 |   | 300 800     |
|              |          |   |   |    |   | 350 850     |
|              |          |   |   |    |   | 400 900     |
|              |          |   |   |    |   | 450 950     |
|              |          |   |   |    |   | 500 1000    |
|              |          |   |   |    |   | 550         |

**DT09S** Customized lengths

| Bore | 25 | 32 | 40   | 50-63    | 80-100  | 125     | 160   | 200   |
|------|----|----|------|----------|---------|---------|-------|-------|
| DT   | M5 | M6 | M8x1 | M12x1.25 | M16x1.5 | M22x1.5 | M27x2 | M30x2 |

| DT         | 09       | S | - | 5  | / | ...         |
|------------|----------|---|---|----|---|-------------|
| Bore       |          |   |   |    |   | Lenght (mm) |
| 25 / 100   | DT       |   |   |    |   |             |
| 125 / 200  | KT       |   |   |    |   |             |
| Customized |          | S |   |    |   |             |
| Bore       | Thread   |   |   |    |   |             |
| 25         | M5       |   |   | 5  |   |             |
| 32         | M6       |   |   | 6  |   |             |
| 40         | M8x1     |   |   | 8  |   |             |
| 50-63      | M12x1.25 |   |   | 12 |   |             |
| 80-100     | M16x1.5  |   |   | 16 |   |             |
| 125        | M22x1.5  |   |   | 22 |   |             |
| 160        | M27x2    |   |   | 27 |   |             |
| 200        | M30x2    |   |   | 30 |   |             |

## SELF-LOCKING NUTS FOR TIE-RODS

| DA                      | DA 5/100 | DA 6/100 | DA 81/100 | DA 12125/80 | DA 1615/60 | DA 2215/20 | DA 272/20 | DA 302/8 |
|-------------------------|----------|----------|-----------|-------------|------------|------------|-----------|----------|
| Thread                  | M5       | M6       | M8x1      | M12x1.25    | M16x1.5    | M22x1.5    | M27x2     | M30x2    |
| Pieces per package      | 100      | 100      | 100       | 80          | 60         | 20         | 20        | 8        |
| Tightening torques (Nm) | 5        | 9        | 20        | 70          | 160        | 460        | 820       | 1150     |

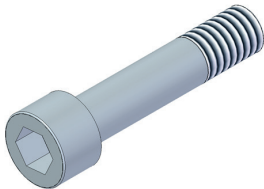


## SCREWS SET FOR COUNTERFLANGES

Supplied in package of 4 pieces

DT09C KT09C

DT09L KT09L



## Bores from 25 to 100

|             |    |   |   |               |
|-------------|----|---|---|---------------|
| DT          | 09 | C | - | 50            |
|             |    | ↑ |   | ↑             |
| Short screw |    | C |   | Cylinder bore |
| Long screw  |    | L |   | 50            |
|             |    |   |   | 63            |
|             |    |   |   | 80            |
|             |    |   |   | 100           |

## Bores from 125 to 200

|             |    |   |   |               |
|-------------|----|---|---|---------------|
| KT          | 09 | C | - | 125           |
|             |    | ↑ |   | ↑             |
| Short screw |    | C |   | Cylinder bore |
| Long screw  |    | L |   | 125           |
|             |    |   |   | 160           |
|             |    |   |   | 200           |

| Mounting | Front side | Rear side  |            |
|----------|------------|------------|------------|
|          |            | Single rod | Double rod |
| X        | 09C        | 09C        | 09L        |
| A        | 09C        | 09C        | 09L        |
| B        | 09L        | 09C        |            |
| E        | 09L        | 09C        | 09L        |
| D        | 09L        | 09C        |            |
| C        | 09L        | 09C        |            |
| M        | 09L        | 09C        |            |
| G        | 09L        | 09C        | 09L        |
| L        | 09L        | 09L + DA*  |            |
| T        | 09L        | 09C        |            |

| Mounting | Front side | Rear side  |            |
|----------|------------|------------|------------|
|          |            | Single rod | Double rod |
| X        | 09C        | 09C        | 09C        |
| A        | 09C        | 09C        | 09C        |
| B        | 09C        | 09C        |            |
| E        | 09L        | 09C        | 09L        |
| D        | 09C        | 09C        |            |
| C        | 09C        | 09C        |            |
| M        | 09C        | 09C        |            |
| G        | 09L        | 09C        | 09C        |
| L        | 09C        | 09L        |            |
| T        | 09C        | 09C        |            |

\*in this case, self locking nuts are required to lock the screws,  
as in case of tie rods (see previous page)

**CETOP PLATES FOR ISO 4401 VALVES**

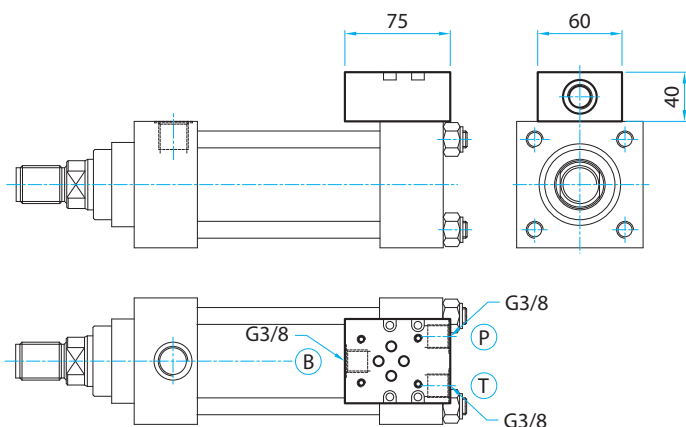
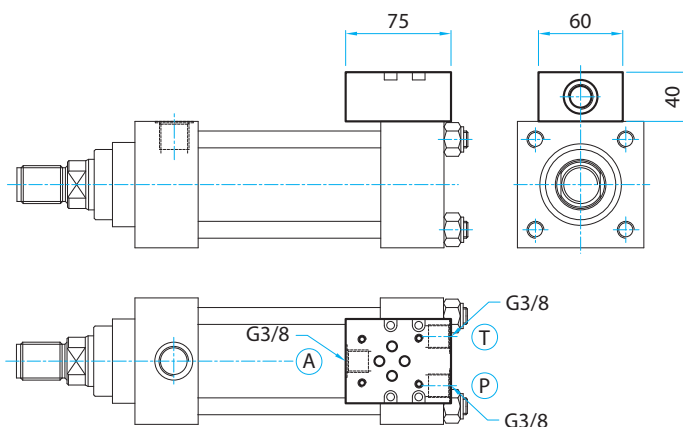
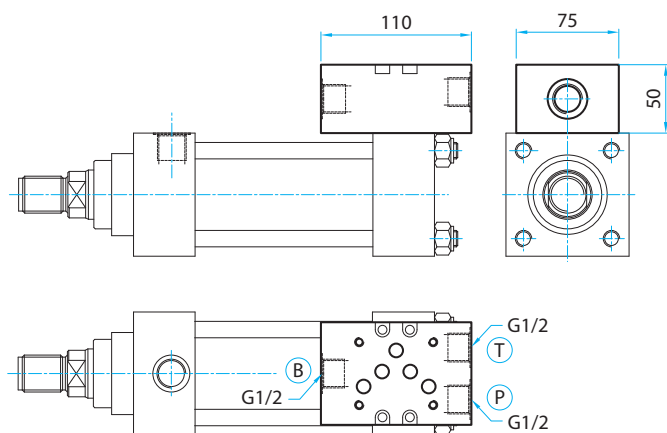
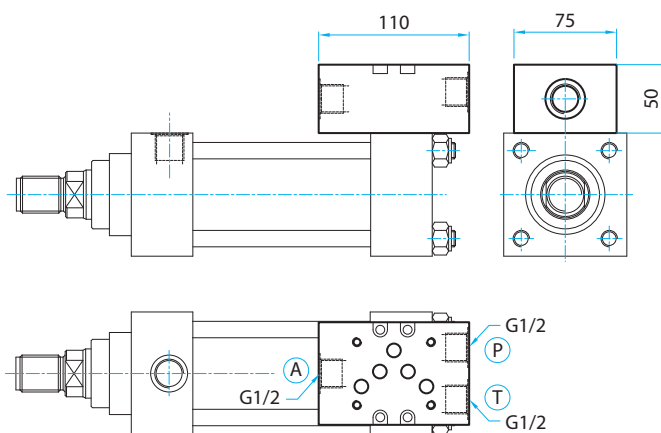
The incorporated plate allows direct mounting of a four port control valve with an ISO 4410 mounting surface.

So, as small oil volume stays between the cylinder and the valve, allowing a better control precision.

They are mounted directly on the cylinder's rear head through four screws and a nipple.

On request, the cylinder is provided with the oil pipe between the plate and the front head.

They are also available with conic threaded nipple, for small bores or other particular situations: for information, contact our technical department.

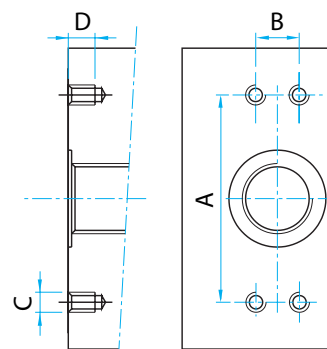
**CETOP 3 PLATES FOR ISO 4401-03 NG6 VALVES (for bores 40 to 125)****BV3-A** Rear side through port A**BV3-B** Rear side through port B**CETOP 5 PLATES FOR ISO 4401-05 NG10 VALVES (for bores 50 to 200)****BV5-A** Rear side through port A**BV5-B** Rear side through port B**BV 3 - A**

| Plate for valve            | Bore     |          | Link configuration |
|----------------------------|----------|----------|--------------------|
| CETOP 3 - ISO 4401-03 NG6  | 40 / 125 | <b>3</b> | Port A ► rear side |
| CETOP 5 - ISO 4401-05 NG10 | 50 / 200 | <b>5</b> | Port B ► rear side |

**NBV** Conic threaded nipple**NBV 38**

| Cylinder's oil port dimension |            |
|-------------------------------|------------|
| 3/8"                          | <b>38</b>  |
| 1/2"                          | <b>12</b>  |
| 3/4"                          | <b>34</b>  |
| 1"                            | <b>1</b>   |
| 1 1/4"                        | <b>114</b> |

The fields containing sample values are compulsory



|            | A  | B  | C  | D |
|------------|----|----|----|---|
| <b>BV3</b> | 51 | 20 | M5 | 7 |
| <b>BV5</b> | 64 | 20 | M6 | 8 |



## SPARE SEALS

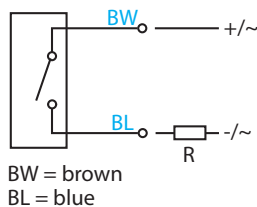
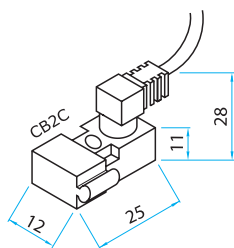
The replacement seals kit includes everything needed to renew the cylinder seals.

| Seals        | RG | S | C | 25   | / | 12         | / | CD   |
|--------------|----|---|---|------|---|------------|---|------|
| High sealing |    | S |   | Bore |   | Rod        |   | Type |
| Low friction |    | L |   |      |   | Second rod |   | CD   |
| Viton®       |    | H |   |      |   |            |   | DK   |
| HFC-fluid    |    | G |   |      |   |            |   | MD   |
|              |    |   |   |      |   |            |   | HD   |
|              |    |   |   |      |   |            |   | HK   |

## MAGNETIC SWITCHES

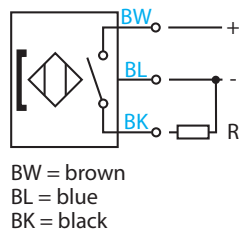
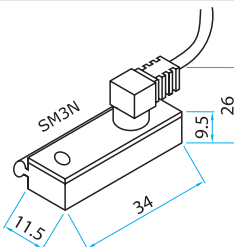
The SR and SH type switches are able to detect the passage of the magnetic piston underneath them, closing the electrical circuit. They are fastened to the tie-rods using the STA/STB/STC/STD brackets.

## SR REED switches



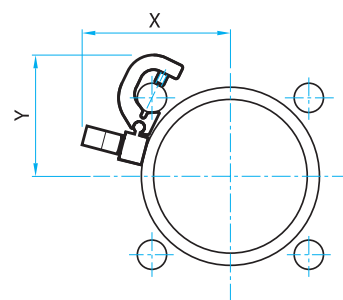
|                       |                          |
|-----------------------|--------------------------|
| Voltage               | 3-110 V AC/DC            |
| Max current (at 25°C) | 0.3 A                    |
| Switch on time        | 0.5 ms                   |
| Switch off time       | 0.5 ms                   |
| Electric life         | 10 <sup>7</sup> pulse    |
| Protecting rating     | IP 67 EN60529            |
| Operating temperature | -10 / +70 °C             |
| Visual signal         | LED                      |
| Cable                 | 2 x 0.25 mm <sup>2</sup> |
| Cable length          | 5 m                      |

## SH PNP magnetoresistive switches



|                       |                          |
|-----------------------|--------------------------|
| Voltage               | 6-30 V DC                |
| Max current (at 25°C) | 0.25 A                   |
| Switch on time        | 0.5 ms                   |
| Switch off time       | 0.5 ms                   |
| Electric life         | 10 <sup>7</sup> pulse    |
| Protecting rating     | IP 67 EN60529            |
| Operating temperature | -10 / +70 °C             |
| Visual signal         | LED                      |
| Cable                 | 3 x 0.25 mm <sup>2</sup> |
| Cable length          | 5 m                      |

| Bore | X  | Y  | Brackets for mounting SR and SH switches |  |
|------|----|----|------------------------------------------|--|
| 25   | 43 | 26 | STA                                      |  |
| 32   | 45 | 28 |                                          |  |
| 40   | 50 | 32 | STB                                      |  |
| 50   | 56 | 44 |                                          |  |
| 63   | 61 | 50 | STC                                      |  |
| 80   | 71 | 57 |                                          |  |
| 100  | 78 | 64 | STD                                      |  |
| 125  | 95 | 80 |                                          |  |



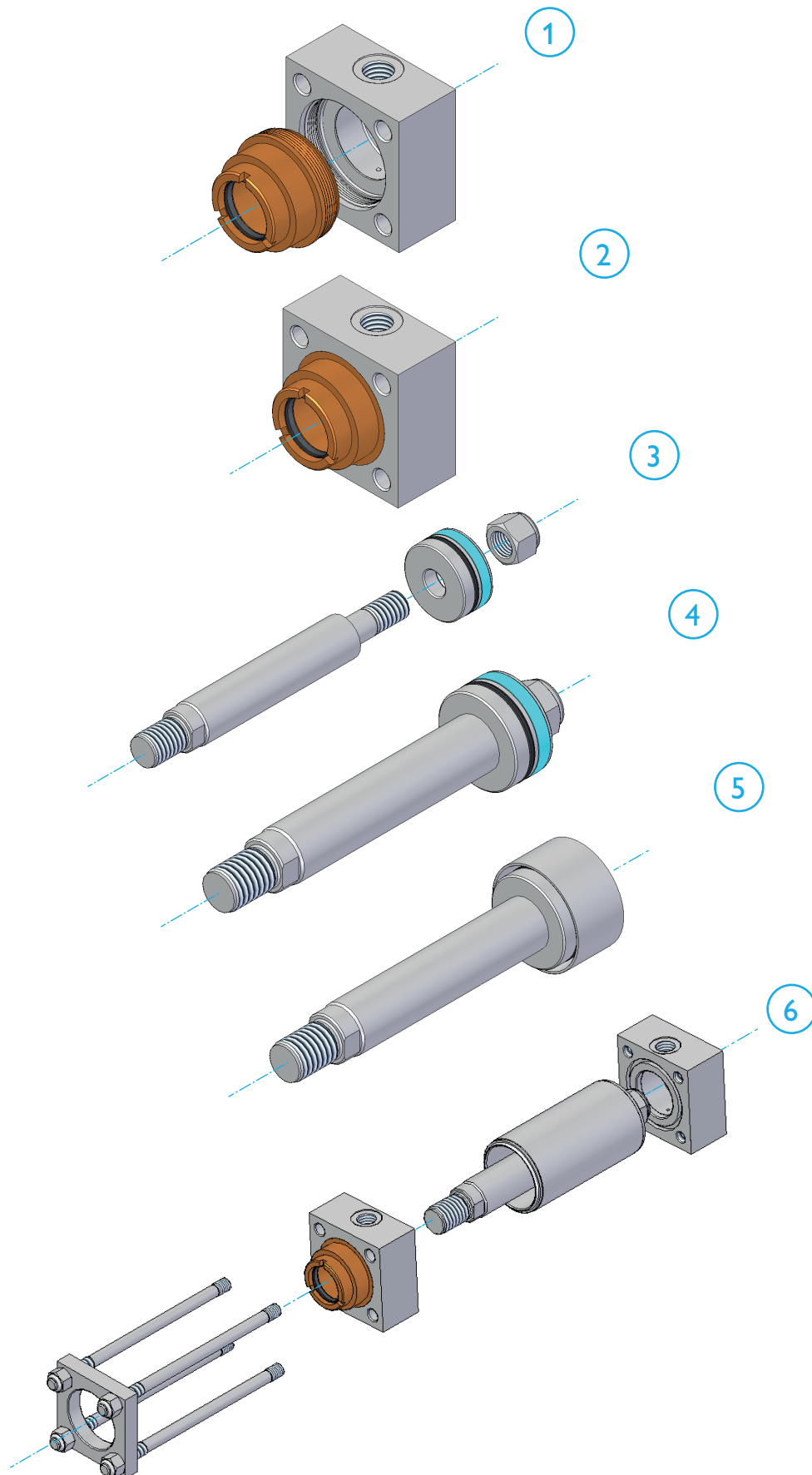
Switch + mounting bracket.  
Can also be ordered separately.

Special sensors are available on request  
by contacting our technical department.

| Type | Switch | Bracket | Bore         |
|------|--------|---------|--------------|
| REED | SR     | STA     | 25 - 32 - 40 |
|      |        | STB     | 50 - 63      |
|      |        | STC     | 80 - 100     |
| PNP  | SH     | STD     | 125          |

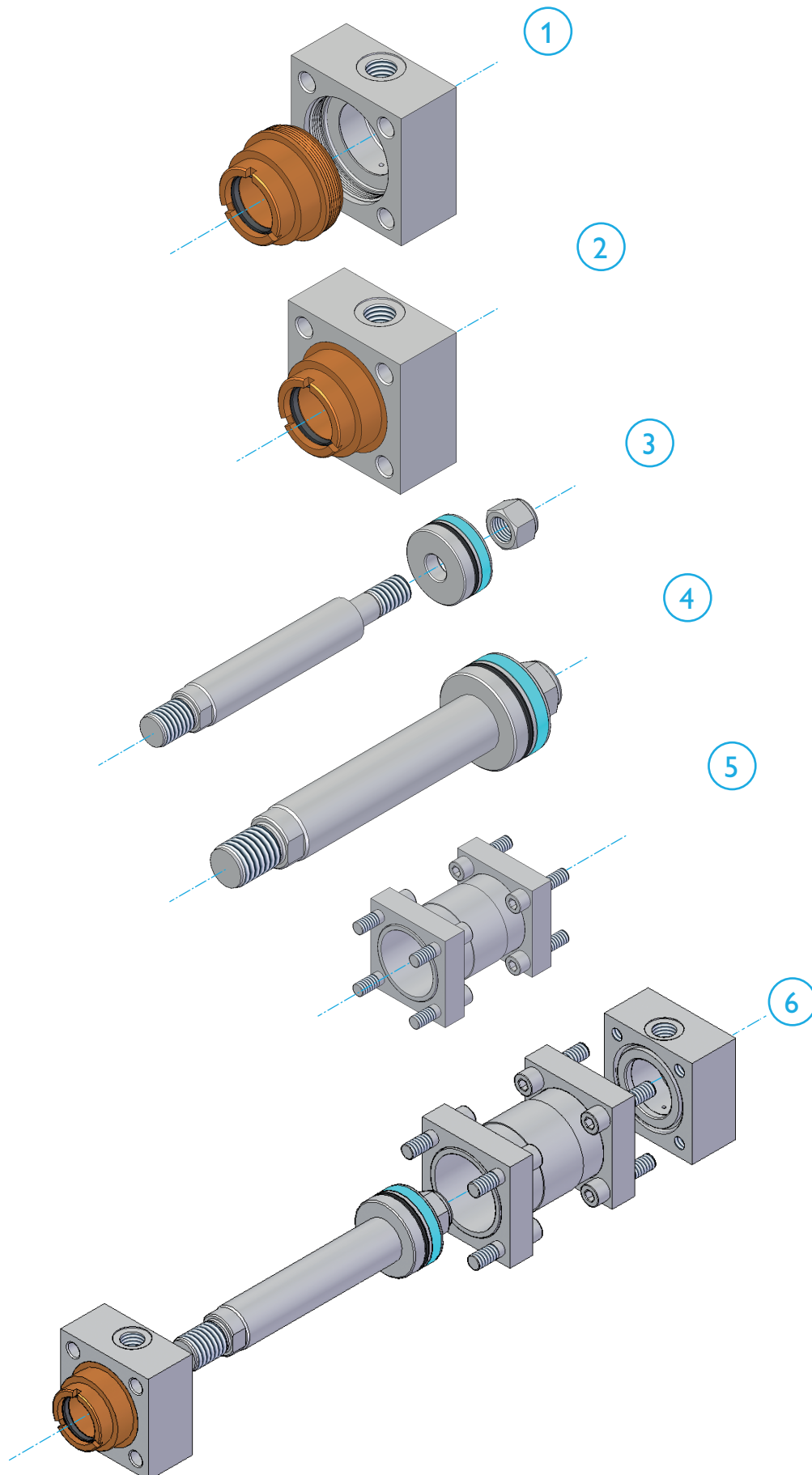


TIE-RODS VERSION





COUNTERFLANGES VERSION





ISO 6022 hydraulic cylinders are suitable for particularly heavy duty applications, in industrial applications where great robustness, high working pressures (up to 250 bar) and technical solutions that ensure durability and reliability even in difficult environments are required, thanks to the use of the best materials.

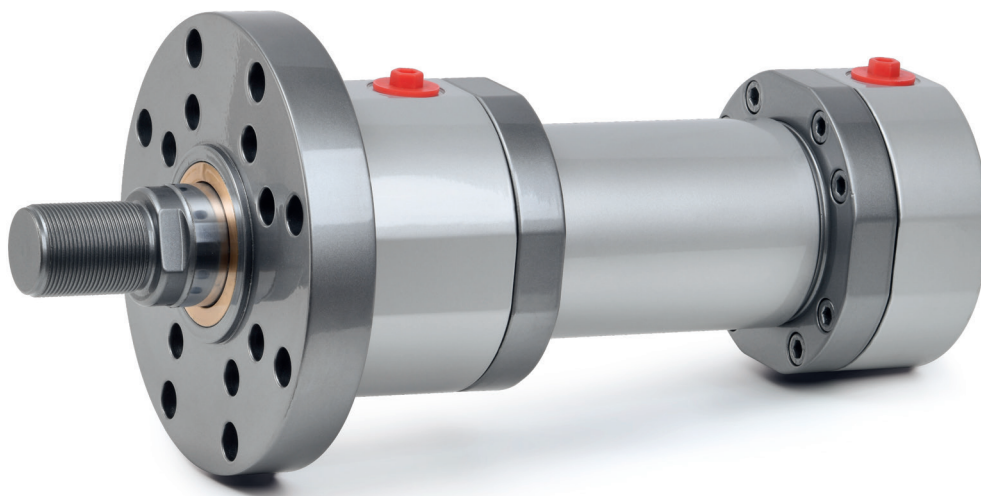
The overall dimensions and the mounting configurations comply with ISO 6022. The cylinder can be provided with reliable end-of-stroke cushioning, equipped with a quick restart system and adjustable to suit the needs and loads to be cushioned.

The cylinder is equipped with a long bronze rod guide bushing and double bronze guides on the piston to offer the best performance even under unexpected radial loads.

Available in various sealing configurations to suit the desired operating conditions and performance.

## HEAVY DUTY CYLINDER SERIES

**DP** Bore from 50 to 200



|                |                                                         |                 |             |
|----------------|---------------------------------------------------------|-----------------|-------------|
| Standard       | ISO 6022 - DIN 24333                                    |                 |             |
| Bore           | mm                                                      | from 50 to 200  |             |
| Pressure       | bar                                                     | operational 250 | testing 375 |
| Maximum stroke | mm                                                      | 6000            |             |
| Fluid          | Mineral hydraulic oil<br>Phosphoric esters<br>HFC-fluid |                 |             |

For technical specifications and dimensions, refer to the documentation about complete cylinders.

## AVAILABLE SEALS

| Seal code | Performance  |              |           |         |      | Fluid         |                   |           |
|-----------|--------------|--------------|-----------|---------|------|---------------|-------------------|-----------|
|           | High sealing | Low friction | Max speed | Temp °C |      | Hydraulic oil | Phosphoric esters | HFC-fluid |
|           |              |              |           | Min     | Max  |               |                   |           |
| <b>S</b>  | √            |              | 0.5 m/s   | -20     | +80  | √             |                   |           |
| <b>L</b>  |              | √            | 1 m/s     | -20     | +80  | √             |                   |           |
| <b>H</b>  |              | √            | 1 m/s     | -20     | +150 | √             | √                 |           |
| <b>G</b>  |              | √            | 1 m/s     | -20     | +80  |               |                   | √         |

For speeds and temperatures exceeding the indicated limits, please contact our technical department.



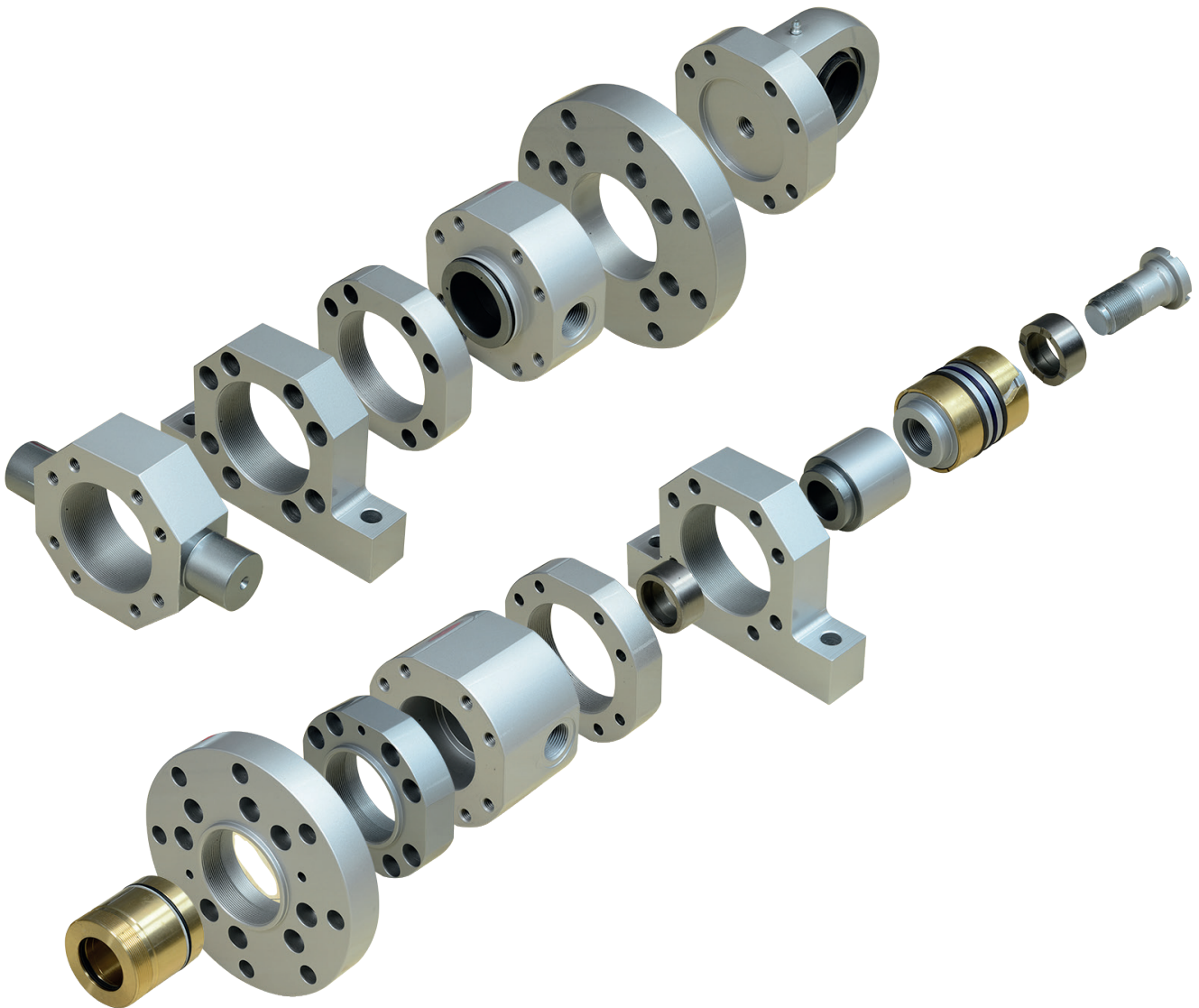
Heavy-duty hydraulic cylinder kit, compliant with ISO 6022.

They are supplied complete with seals. Very fast deliveries.

The assembly of the kits is very simple and does not require any special tools.

They are available in all the mountings required by the standard and in multiple seal configurations, depending on the conditions of use and the desired performance.

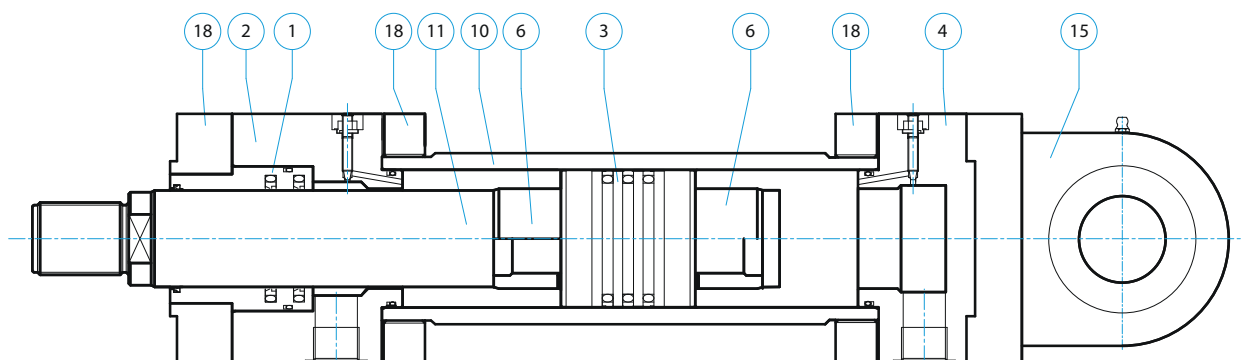
The use of bronze guides for the rod and piston guarantees high performance and durability.



For the management, selection and ordering of kits, there is PRISMA area on our website [www.confortinet.com](http://www.confortinet.com)



## HEAVY DUTY CYLINDER SERIES



|    | Component                          | Material                            | Description                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----|------------------------------------|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  | Bushing                            | Bronze                              | For each head, two different rod diameters are available.<br>Supplied with polyurethane, PTFE+NBR or Viton® seals.<br>The ISO dimensions of the seal grooves allow easy availability of spare parts.                                                                                                                                                                                                                           |
| 2  | Front head                         | Steel                               | Prepared for adjustable cushioning by means of a non-removable screw, which can also be used for air bleeding.<br>Equipped with flats every 90 degrees to facilitate additional oil ports or SAE flange connections. Supplied complete with seals.<br>The ISO dimensions of the seal grooves allow easy availability of spare parts.                                                                                           |
| 3  | Piston                             | Steel                               | With large bronze guides, for high performance even with radial loads.<br>Supplied complete with Polyurethane, PTFE+NBR or Viton® seals, depending on the application.<br>The ISO dimensions of the seal grooves allow easy availability of spare parts.                                                                                                                                                                       |
| 4  | Rear head                          | Steel                               | Predisposta per frenatura regolabile tramite grano non accidentalmente rimuovibile, Prepared for adjustable cushioning by means of a non-removable screw, which can also be used for air bleeding. Equipped with flats every 90 degrees to facilitate additional oil ports or SAE flange connections. Supplied complete with seals.<br>The ISO dimensions of the seal grooves allow easy availability of spare parts.          |
| 6  | Cushioning                         | Hardened steel                      | The original floating ring system guarantees perfect centring between the cylinder head and the cushioning ring and performs the function of a rapid opening in the cylinder return phase. Made of tempered steel, they guarantee a long life over time, thanks to the coupling with the steel seat of the head.<br>The specific profile of the cushioning bushing allows excellent cushioning.                                |
| 08 | Spacer                             | Steel                               | Mounted on the rod, in front of the piston, to reduce loads on the guides in the case of long strokes.                                                                                                                                                                                                                                                                                                                         |
| 10 | Tube                               | E355                                | In the Prisma area of our website, you can configure and download tube machining drawings according to the specifications of the cylinder.<br>Cut-to-length tubes ready for machining can be supplied on request.                                                                                                                                                                                                              |
| 11 | Chromeplated bar                   | CK45 - 42CrMo4<br>AISI 304 - 20MnV6 | In the Prisma area of our website, you can configure and download rod machining drawings according to the specifications of the cylinder. Several types of cut-to-length chrome bars ready for machining are available on request.                                                                                                                                                                                             |
| 15 | Mountings                          | Steel                               | Flange, ball jointed eye, feet, intermediate trunnions, depending on the desired cylinder's mounting. The components for cylinder's mounting are supplied with the necessary screws to assemble them to the cylinder head. All components are realized from a solid steel block in one piece, with the exception of the extended version of the ball jointed eye or male clevis, which are welded directly onto the rear head. |
| 18 | Closing flanges and counterflanges | Steel                               | Supplied with the required screws to close on the cylinder head.<br>The closing flange is equipped with holes to remove the bushing from the cylinder head.                                                                                                                                                                                                                                                                    |

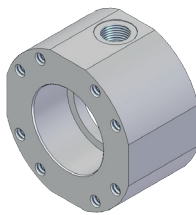
|  | Component             | Groove     | Material        |            |               |               |
|--|-----------------------|------------|-----------------|------------|---------------|---------------|
|  |                       |            | S               | L          | H             | G             |
|  | Rod wiper             |            | NBR + PTFE      | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
|  | First rod seal        | ISO 7425/2 | PU              | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
|  | Head/bushing seal     |            | NBR + PTFE      | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
|  | Second rod seal       | ISO 7425/2 | NBR + PTFE      | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
|  | Tube seal             |            | NBR             | NBR        | Viton®        | NBR           |
|  | External piston seals | ISO 7425/1 | NBR + PTFE + PU | NBR + PTFE | Viton® + PTFE | NBR + PTFE CG |
|  | Piston guide          |            | Bronze          | Bronze     | Bronze        | Bronze        |



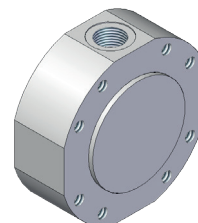
## HEADS

| Code | Description              |
|------|--------------------------|
| 02X  | Front head               |
| 04Q  | With rear threaded holes |
| 04R  | Flat rear side           |
| 18F  | Closing flange           |
| 18L  | Counterflange            |

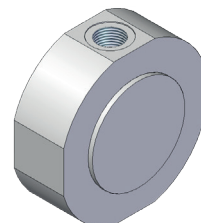
02X



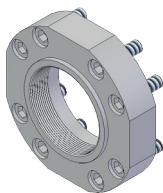
04Q



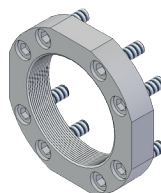
04R



18F



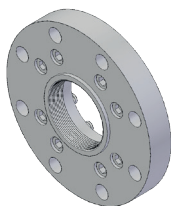
18L



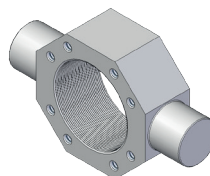
## MOUNTINGS

| Code | Description                      |
|------|----------------------------------|
| 15A  | Front flange                     |
| 15B  | Rear flange                      |
| 15D  | Dismountable ball jointed eye    |
| 15C  | Dismountable clevis              |
| 15S  | Extended welded ball jointed eye |
| 15R  | Extended welded clevis           |
| 15H  | Intermediate trunnion            |
| 15E  | Foot                             |

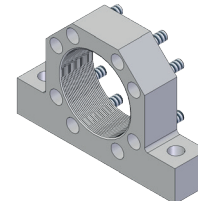
15A



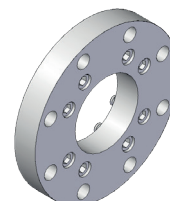
15H



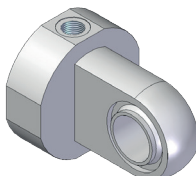
15E



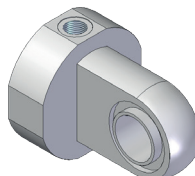
15B



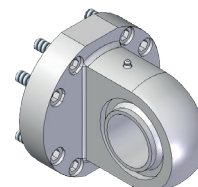
15S



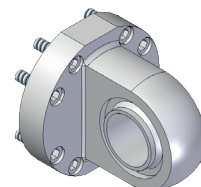
15R



15D



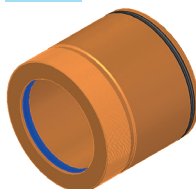
15C



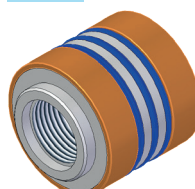
## OTHER COMPONENTS

| Code | Description           |
|------|-----------------------|
| 01   | Bushing               |
| 03   | Piston                |
| 06V  | Front side cushioning |
| 06Z  | Rear side cushioning  |
| 08J  | Spacer                |

01



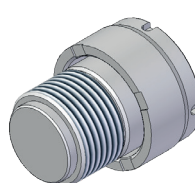
03



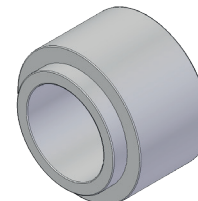
06V



06Z

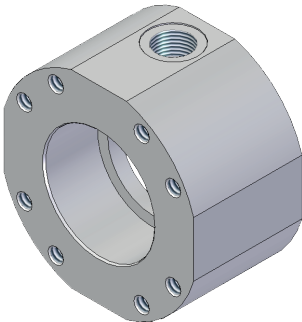


08J



FRONT AND REAR HEADS

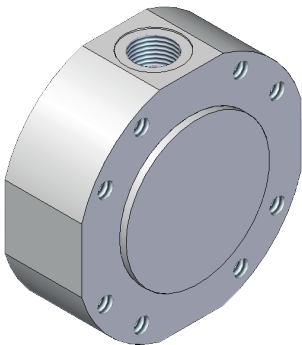
PH02X



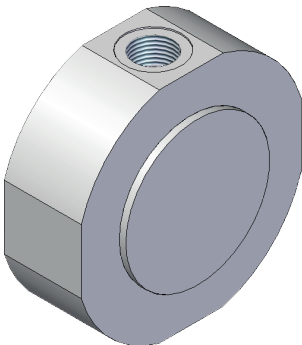
Supplied with seals.

|                                  |    |     |   |      |
|----------------------------------|----|-----|---|------|
|                                  | PH | 02X | - | 50   |
|                                  |    | ↑   |   | ↑    |
|                                  |    |     |   | Bore |
| Head                             |    |     |   | 50   |
| Front                            |    | 02X |   | 63   |
|                                  |    |     |   | 80   |
| Rear with threaded through holes |    | 04Q |   | 100  |
|                                  |    |     |   | 125  |
|                                  |    |     |   | 140  |
| Rear                             |    | 04R |   | 160  |
|                                  |    |     |   | 200  |

PH04Q



PH04R

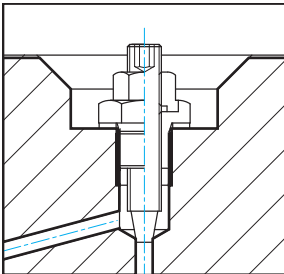


VITON® O-RING KIT FOR HEAD

|    |    |       |   |      |
|----|----|-------|---|------|
| PH | 02 | H     | - | 50   |
|    | ↑  |       |   | ↑    |
|    |    |       |   | Bore |
|    |    | Head  |   |      |
| 02 |    | Front |   |      |
| 04 |    | Rear  |   |      |

The head are always supplied with standard O-Ring seals. For version with Viton®, please order the Viton® O-Ring separately.

CUSHIONING ADJUSTMENT AND AIR BLEEDING



Cylinders with cushioning have a device with screw for cushioning adjustment.

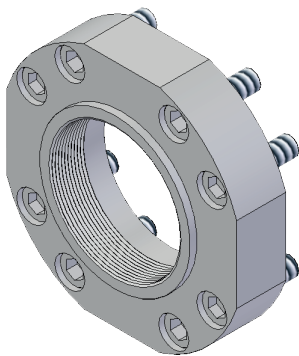
This device has a Seal-Lock® sealing nut, that must be carefully locked after cushioning adjustment.

The cushioning adjustment device can be used as air bleeder, too.

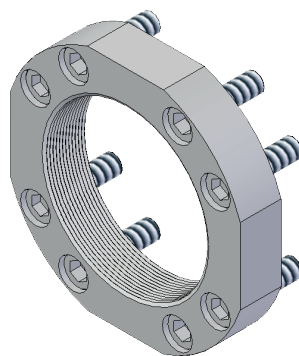


## FLANGES

PH18F



PH18L

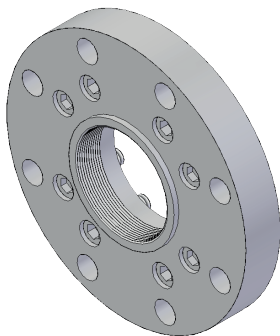


Supplied with screws.

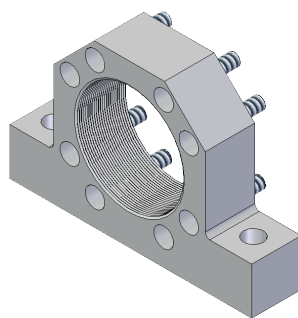
|    |     |   |      |
|----|-----|---|------|
| PH | 18F | - | 50   |
|    |     |   | Bore |
|    |     |   | 50   |
|    |     |   | 63   |
|    |     |   | 80   |
|    |     |   | 100  |
|    |     |   | 125  |
|    |     |   | 140  |
|    |     |   | 160  |
|    |     |   | 200  |

## MOUNTINGS

PH15A



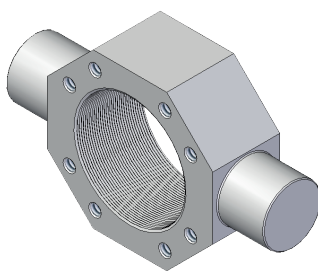
PH15E



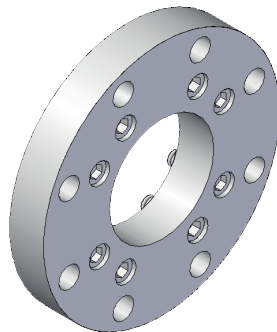
All mountings are supplied with necessary seals and screws..

|    |     |   |      |
|----|-----|---|------|
| PH | 15A | - | 50   |
|    |     |   | Bore |
|    |     |   | 50   |
|    |     |   | 63   |
|    |     |   | 80   |
|    |     |   | 100  |
|    |     |   | 125  |
|    |     |   | 140  |
|    |     |   | 160  |
|    |     |   | 200  |

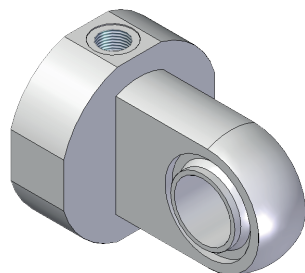
PH15H



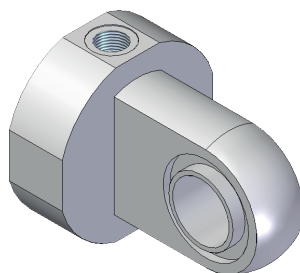
PH15B



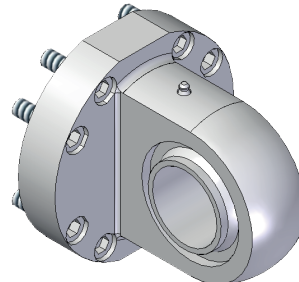
PH15S



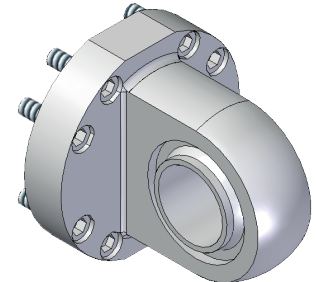
PH15R



PH15D

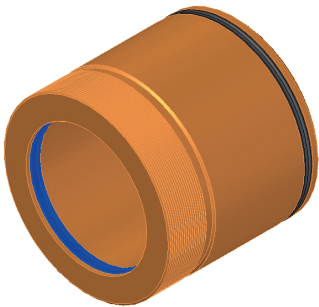


PH15C



ROD GUIDE BUSHINGS

PH01

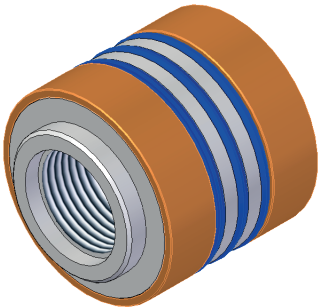


|      |   |   |      |   |     |
|------|---|---|------|---|-----|
| PH01 | S | - | 50   | / | 32  |
|      |   |   | ↑    |   | ↑   |
|      |   |   | Bore |   | Rod |
|      |   |   | 50   |   | 32  |
|      |   |   | 63   |   | 36  |
|      |   |   | 80   |   | 40  |
|      |   |   | 100  |   | 45  |
|      |   |   | 125  |   | 50  |
|      |   |   | 140  |   | 56  |
|      |   |   | 160  |   | 63  |
|      |   |   | 200  |   | 70  |
|      |   |   |      |   | 80  |
|      |   |   |      |   | 90  |
|      |   |   |      |   | 90  |
|      |   |   |      |   | 100 |
|      |   |   |      |   | 100 |
|      |   |   |      |   | 110 |
|      |   |   |      |   | 125 |
|      |   |   |      |   | 140 |

|              |   |
|--------------|---|
| Seals        |   |
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |

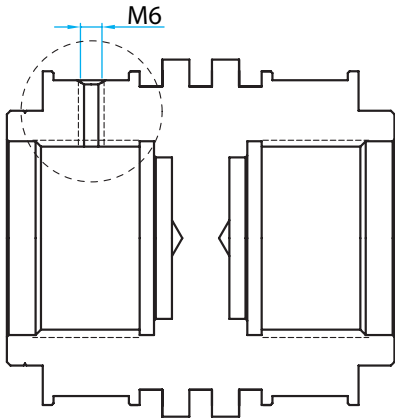
PISTONS

PH03



|      |   |   |      |
|------|---|---|------|
| PH03 | S | - | 50   |
|      |   |   | ↑    |
|      |   |   | Bore |
|      |   |   | 50   |
|      |   |   | 63   |
|      |   |   | 80   |
|      |   |   | 100  |
|      |   |   | 125  |
|      |   |   | 140  |
|      |   |   | 160  |
|      |   |   | 200  |

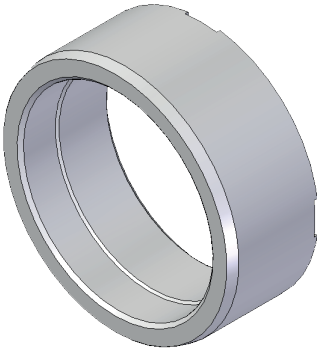
|              |   |
|--------------|---|
| Seals        |   |
| High sealing | S |
| Low friction | L |
| Viton®       | H |
| HFC-fluid    | G |



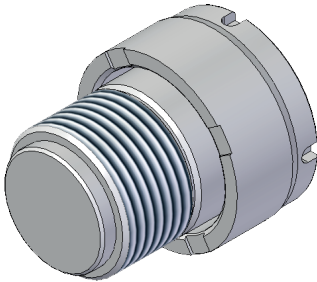
Use the hardened pin or the screw, provided with the piston, to lock the rod thread.

CUSHIONINGS

PH06V



PH06Z



|      |   |   |      |
|------|---|---|------|
| PH06 | V | - | 50   |
|      |   |   | Bore |
|      |   |   | 50   |
|      |   |   | 63   |
|      |   |   | 80   |
|      |   |   | 100  |
|      |   |   | 125  |
|      |   |   | 140  |
|      |   |   | 160  |
|      |   |   | 200  |

|          |   |
|----------|---|
| Position |   |
| Front    | V |
| Rear     | Z |

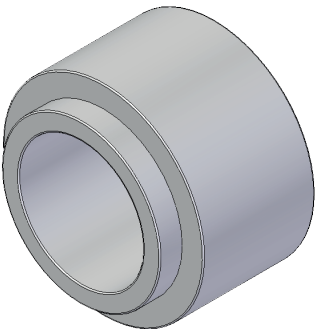
|                        |    |    |    |     |     |     |     |     |
|------------------------|----|----|----|-----|-----|-----|-----|-----|
|                        | 50 | 63 | 80 | 100 | 125 | 140 | 160 | 200 |
| Cushioning lenght (mm) | 32 | 32 | 40 | 40  | 40  | 46  | 46  | 65  |

SPACER

In case of long strokes, a spacer can be used to increase the distance between the guide bushing and the piston when the rod is completely extended. This increased distance improves the lever arm, reducing the radial load on the guide bushing.

The length of every single spacer is 50 mm and many spaces can be used in series.

PH08J



|       |   |      |
|-------|---|------|
| PH08J | - | 50   |
|       |   | Bore |
|       |   | 50   |
|       |   | 63   |
|       |   | 80   |
|       |   | 100  |
|       |   | 125  |
|       |   | 140  |
|       |   | 160  |
|       |   | 200  |

**CETOP PLATES FOR ISO 4401 VALVES**

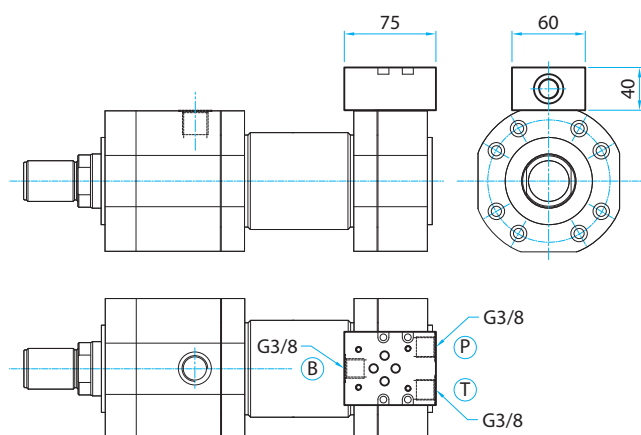
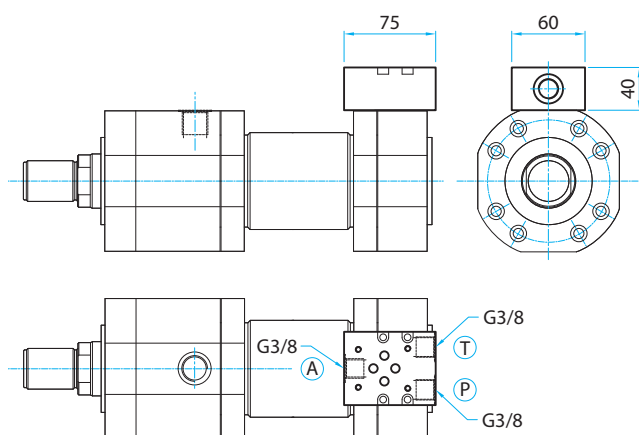
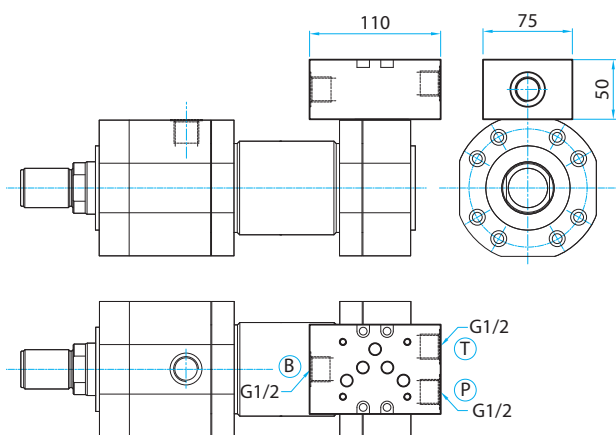
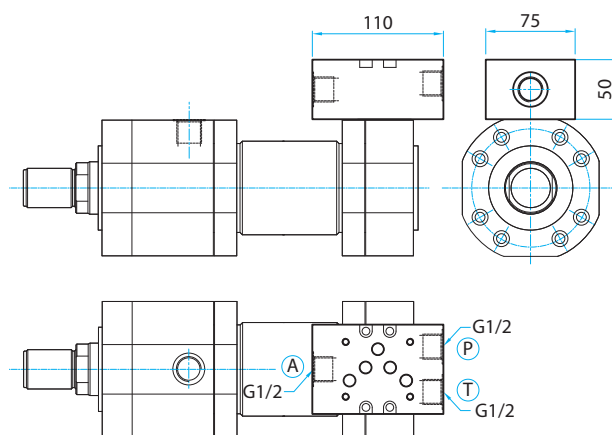
The incorporated plate allows direct mounting of a four port control valve with an ISO 4410 mounting surface.

So, as small oil volume stays between the cylinder and the valve, allowing a better control precision.

They are mounted directly on the cylinder's rear head through four screws and a nipple.

On request, the cylinder is provided with the oil pipe between the plate and the front head.

They are also available with conic threaded nipple, for small bores or other particular situations: for information, contact our technical department.

**CETOP 3 PLATES FOR ISO 4401-03 NG6 VALVES (for bores 80 to 125)****BV3-A** Rear side through port A**BV3-B** Rear side through port B**CETOP 5 PLATES FOR ISO 4401-05 NG10 VALVES (for bores 100 to 200)****BV5-A** Rear side through port A**BV5-B** Rear side through port B

It cannot be fitted on cylinders with B mounting (ISO MF4 rear flange)

**BV 3 - A**

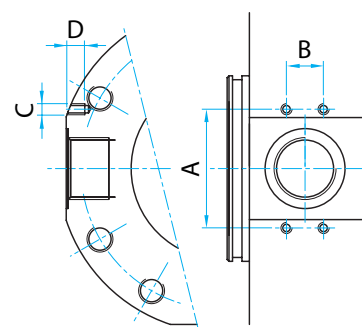
| Plate for valve            | Bore      |          | Link configuration          |
|----------------------------|-----------|----------|-----------------------------|
| CETOP 3 - ISO 4401-03 NG6  | 80 / 125  | <b>3</b> | <b>A</b> Port A ► rear side |
| CETOP 5 - ISO 4401-05 NG10 | 100 / 200 | <b>5</b> | <b>B</b> Port B ► rear side |

**NBV** Conic threaded nipple

**NBV 38**

| Cylinder's oil port dimension |            |
|-------------------------------|------------|
| 3/8"                          | <b>38</b>  |
| 1/2"                          | <b>12</b>  |
| 3/4"                          | <b>34</b>  |
| 1"                            | <b>1</b>   |
| 1 1/4"                        | <b>114</b> |

The fields containing sample values are compulsory

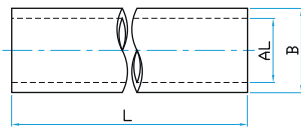


|            | A  | B  | C  | D |
|------------|----|----|----|---|
| <b>BV3</b> | 51 | 20 | M5 | 7 |
| <b>BV5</b> | 64 | 20 | M6 | 8 |



## TUBE MATERIALS

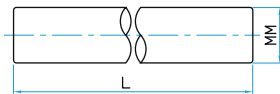
## TLP Tube



|          | TLP 50   | TLP 63 | TLP 80    | TLP 100 | TLP 125 | TLP 140    | TLP 160 | TLP 200 |
|----------|----------|--------|-----------|---------|---------|------------|---------|---------|
| AL       | 50       | 63     | 80        | 100     | 125     | 140        | 160     | 200     |
| B        | 65       | 83     | 100       | 125     | 155     | 180        | 200     | 245     |
| L        | Max 3000 |        |           |         |         |            |         |         |
| Material |          |        | Tolerance |         |         | Roughness  |         |         |
| E355     |          |        | H8        |         |         | Ra 0.40 µm |         |         |

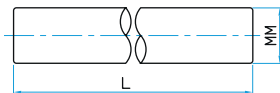
## ROD MATERIALS

## BC Chrome-plated rod



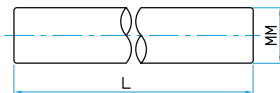
|          | BC 36    | BC 45                 | BC 56 | BC 70                 | BC 90 | BC 110     | BC 140 |
|----------|----------|-----------------------|-------|-----------------------|-------|------------|--------|
| MM       | 36       | 45                    | 56    | 70                    | 90    | 110        | 140    |
| L        | Max 3000 |                       |       |                       |       |            |        |
| Material |          | Hard chrome thickness |       | Tolerance on diameter |       | Roughness  |        |
| CK45     |          | 20 µm                 |       | f7                    |       | Ra 0.20 µm |        |

## BCB Hardened and tempered chrome-plated rod



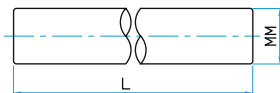
|          | BCB 32   | BCB 36                | BCB 40 | BCB 45                | BCB 50 | BCB 56     | BCB 63 | BCB 70 | BCB 80 | BCB 90 | BCB 100 | BCB 110 | BCB 125 | BCB 140 |
|----------|----------|-----------------------|--------|-----------------------|--------|------------|--------|--------|--------|--------|---------|---------|---------|---------|
| MM       | 32       | 36                    | 40     | 45                    | 50     | 56         | 63     | 70     | 80     | 90     | 100     | 110     | 125     | 140     |
| L        | Max 3000 |                       |        |                       |        |            |        |        |        |        |         |         |         |         |
| Material |          | Hard chrome thickness |        | Tolerance on diameter |        | Roughness  |        |        |        |        |         |         |         |         |
| 42CrMo4  |          | 20 µm                 |        | f7                    |        | Ra 0.20 µm |        |        |        |        |         |         |         |         |

## BCH Induction hardened and hard chrome-plated rod



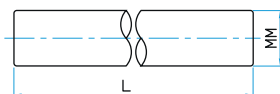
|          | BCH 32   | BCH 36                | BCH 40 | BCH 45                | BCH 50 | BCH 56     | BCH 63 | BCH 70 | BCH 80 | BCH 90 | BCH 100 | BCH 110 | BCH 125 | BCH 140 |
|----------|----------|-----------------------|--------|-----------------------|--------|------------|--------|--------|--------|--------|---------|---------|---------|---------|
| MM       | 32       | 36                    | 40     | 45                    | 50     | 56         | 63     | 70     | 80     | 90     | 100     | 110     | 125     | 140     |
| L        | Max 3000 |                       |        |                       |        |            |        |        |        |        |         |         |         |         |
| Material |          | Hard chrome thickness |        | Tolerance on diameter |        | Roughness  |        |        |        |        |         |         |         |         |
| 42CrMo4  |          | 20 µm                 |        | f7                    |        | Ra 0.20 µm |        |        |        |        |         |         |         |         |

## BCX Hard chrome-plated stainless steel rod

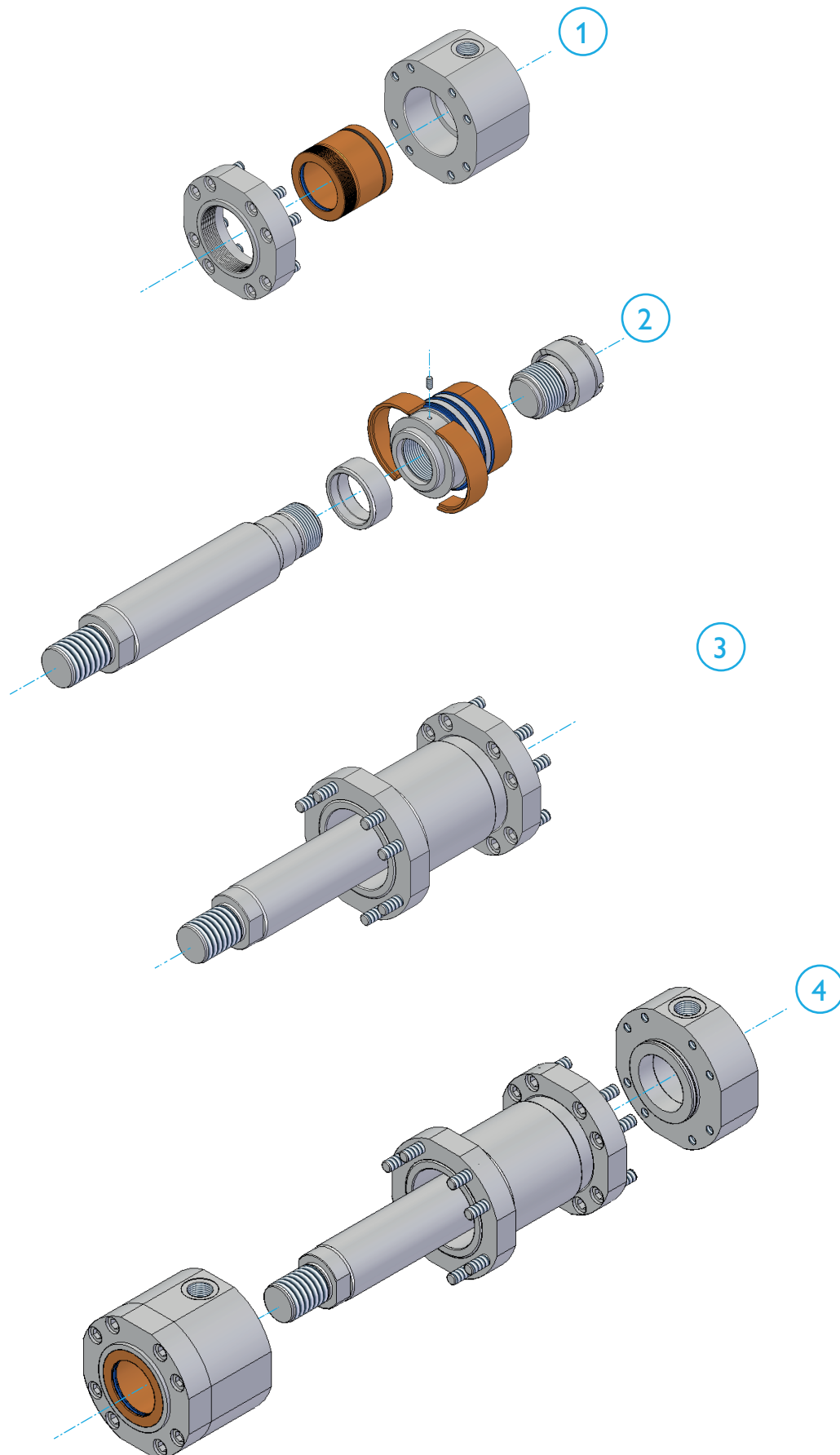


|          | BCX 32   | BCX 36                | BCX 40 | BCX 45                | BCX 50 | BCX 56     | BCX 63 | BCX 70 | BCX 80 |
|----------|----------|-----------------------|--------|-----------------------|--------|------------|--------|--------|--------|
| MM       | 32       | 36                    | 40     | 45                    | 50     | 56         | 63     | 70     | 80     |
| L        | Max 3000 |                       |        |                       |        |            |        |        |        |
| Material |          | Hard chrome thickness |        | Tolerance on diameter |        | Roughness  |        |        |        |
| AISI 304 |          | 20 µm                 |        | f7                    |        | Ra 0.20 µm |        |        |        |

## BCK NIKROM® 500 rod

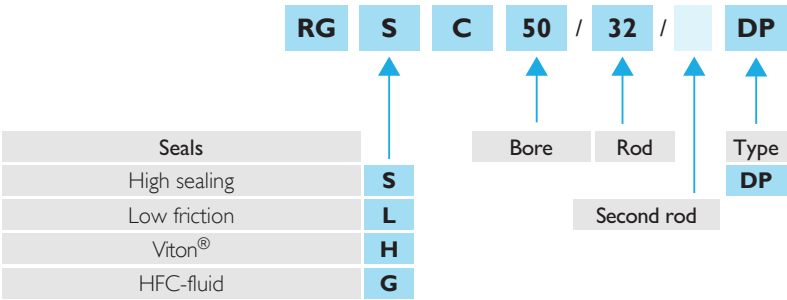


|          | BCK 32   | BCK 36                | BCK 40 | BCK 45                | BCK 50 | BCK 56     | BCK 63 | BCK 70 | BCK 80 | BCK 90 | BCK 100 | BCK 110 | BCK 125 | BCK 140 |
|----------|----------|-----------------------|--------|-----------------------|--------|------------|--------|--------|--------|--------|---------|---------|---------|---------|
| MM       | 32       | 36                    | 40     | 45                    | 50     | 56         | 63     | 70     | 80     | 90     | 100     | 110     | 125     | 140     |
| L        | Max 3000 |                       |        |                       |        |            |        |        |        |        |         |         |         |         |
| Material |          | Hard chrome thickness |        | Tolerance on diameter |        | Roughness  |        |        |        |        |         |         |         |         |
| 20MnV6   |          | Ni 30 µm + Cr 20 µm   |        | f7                    |        | Ra 0.20 µm |        |        |        |        |         |         |         |         |



SPARE SEALS

The replacement seals kit includes everything needed to renew the cylinder seals.



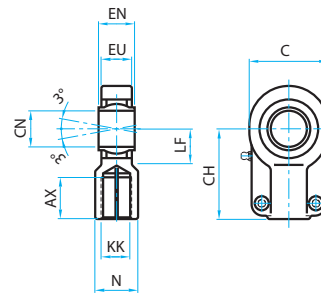
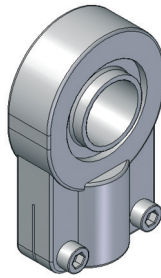


## ROD END ACCESSORIES

**CS** Rod end with spherical eye

ISO 6982 - ISO 8132

Suitable for cylinders with standard rod end.



| Code        | CS 12125 | CS 1415 | CS 1615 | CS 2015 | CS 272 | CS 332 | CS 422 | CS 482 | CS 643 | CS 723 | CS 803 | CS 1003 | CS 1254 | CS 1604 |
|-------------|----------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| AX          | 17       | 19      | 23      | 29      | 37     | 46     | 57     | 64     | 86     | 91     | 96     | 113     | 126     | 161     |
| C           | 32       | 40      | 47      | 58      | 70     | 89     | 108    | 132    | 168    | 185    | 212    | 264     | 326     | 418     |
| CH          | 38       | 44      | 52      | 65      | 80     | 97     | 120    | 140    | 180    | 195    | 210    | 260     | 310     | 390     |
| CN          | 12       | 16      | 20      | 25      | 32     | 40     | 50     | 63     | 80     | 90     | 100    | 125     | 160     | 200     |
| EN          | 12       | 16      | 20      | 25      | 32     | 40     | 50     | 63     | 80     | 90     | 100    | 125     | 160     | 200     |
| EU          | 10.5     | 13      | 17      | 21      | 27     | 32     | 40     | 52     | 66     | 72     | 85     | 103     | 130     | 167     |
| KK          | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2  | M33x2  | M42x2  | M48x2  | M64x3  | M72x3  | M80x3  | M100x3  | M125x4  | M160x4  |
| LF          | 14       | 18      | 22      | 27      | 32     | 41     | 50     | 62     | 78     | 85     | 98     | 120     | 150     | 195     |
| N           | 16       | 21      | 25      | 30      | 38     | 47     | 58     | 70     | 90     | 100    | 110    | 135     | 165     | 215     |
| Weight (Kg) | 0.11     | 0.20    | 0.36    | 0.62    | 1.16   | 2.16   | 3.84   | 7.24   | 13.20  | 17.50  | 28     | 46.40   | 81      | 174     |

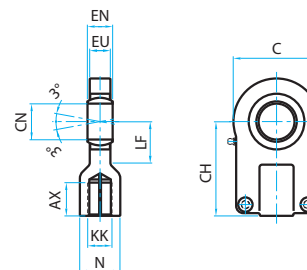
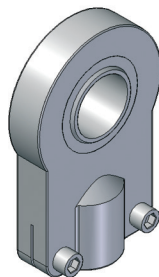
**Load**

|              |      |      |    |    |     |     |     |     |     |     |      |      |      |      |
|--------------|------|------|----|----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Static (KN)  | 24.5 | 36.5 | 48 | 78 | 114 | 204 | 310 | 430 | 695 | 750 | 1060 | 1430 | 2200 | 3650 |
| Dynamic (KN) | 10.8 | 17.6 | 30 | 48 | 67  | 100 | 156 | 255 | 400 | 490 | 610  | 950  | 1370 | 2120 |

**TS** Rod end with spherical eye

ISO 8133 - DIN 24555

Suitable for cylinders with standard rod end.



| Code        | TS 10125 | TS 12125 | TS 1415 | TS 1615 | TS 2015 | TS 272 | TS 332 | TS 422 | TS 482 | TS 643 |
|-------------|----------|----------|---------|---------|---------|--------|--------|--------|--------|--------|
| AX          | 15       | 17       | 19      | 23      | 29      | 37     | 46     | 57     | 64     | 86     |
| C           | 32       | 42       | 50      | 62      | 76      | 96     | 116    | 150    | 195    | 235    |
| CH          | 42       | 48       | 58      | 68      | 85      | 105    | 130    | 150    | 185    | 240    |
| CN          | 12       | 16       | 20      | 25      | 30      | 40     | 50     | 60     | 80     | 100    |
| EN          | 10       | 14       | 16      | 20      | 22      | 28     | 35     | 44     | 55     | 70     |
| EU          | 8        | 11       | 13      | 17      | 19      | 23     | 30     | 38     | 47     | 57     |
| KK          | M10x1.25 | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2  | M33x2  | M42x2  | M48x2  | M64x3  |
| LF          | 18       | 22       | 28      | 34      | 38      | 48     | 62     | 74     | 98     | 122    |
| N           | 17       | 21       | 25      | 30      | 36      | 45     | 55     | 68     | 78     | 100    |
| Weight (Kg) | 0.13     | 0.23     | 0.39    | 0.70    | 1.22    | 2.14   | 3.96   | 7.26   | 14.60  | 25.40  |

**Load**

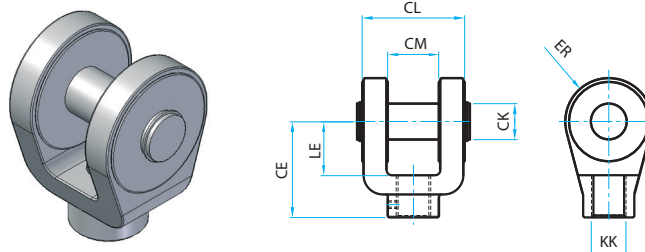
|              |      |      |      |    |     |     |     |     |     |     |
|--------------|------|------|------|----|-----|-----|-----|-----|-----|-----|
| Static (KN)  | 17   | 28.5 | 42.5 | 67 | 108 | 156 | 245 | 380 | 585 | 865 |
| Dynamic (KN) | 10.8 | 21.1 | 30   | 48 | 62  | 100 | 156 | 245 | 400 | 610 |



## ROD END ACCESSORIES

**CF** Rod end with clevis and pin

ISO 8133



| Code        | CF 10125 | CF 12125 | CF 1415 | CF 1615 | CF 2015 | CF 272 | CF 332 | CF 422 | CF 482 | CF 643 | CF 803 |
|-------------|----------|----------|---------|---------|---------|--------|--------|--------|--------|--------|--------|
| CE          | 32       | 36       | 38      | 54      | 60      | 75     | 99     | 113    | 126    | 168    | 168    |
| CK H9/f8    | 10       | 12       | 14      | 20      | 20      | 28     | 36     | 45     | 56     | 70     | 70     |
| CL          | 24       | 32       | 40      | 60      | 60      | 80     | 100    | 120    | 140    | 160    | 160    |
| CM          | 12       | 16       | 20      | 30      | 30      | 40     | 50     | 60     | 70     | 80     | 80     |
| ER          | 12       | 17       | 17      | 29      | 29      | 34     | 50     | 53     | 59     | 78     | 78     |
| KK          | M10x1.25 | M12x1.25 | M14x1.5 | M16x1.5 | M20x1.5 | M27x2  | M33x2  | M42x2  | M48x2  | M64x3  | M80x3  |
| LE          | 13       | 19       | 19      | 32      | 32      | 39     | 54     | 57     | 63     | 83     | 83     |
| Weight (Kg) | 0.10     | 0.18     | 0.25    | 0.88    | 0.92    | 1.90   | 4.92   | 6.52   | 10.04  | 19.50  | 19.50  |

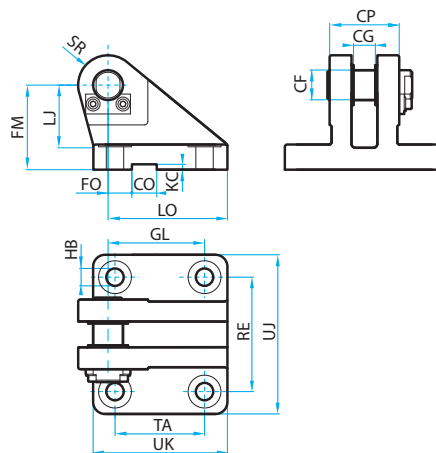
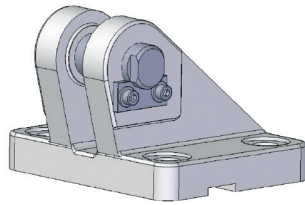
| Load        |    |      |    |    |    |    |     |     |     |     |     |
|-------------|----|------|----|----|----|----|-----|-----|-----|-----|-----|
| Static (KN) | 10 | 12.5 | 20 | 32 | 50 | 80 | 125 | 200 | 320 | 500 | 500 |



## ACCESSORIES FOR CYLINDER MOUNTING

**LD** Female clevis bracket in angle

ISO 8133 - DIN 24556



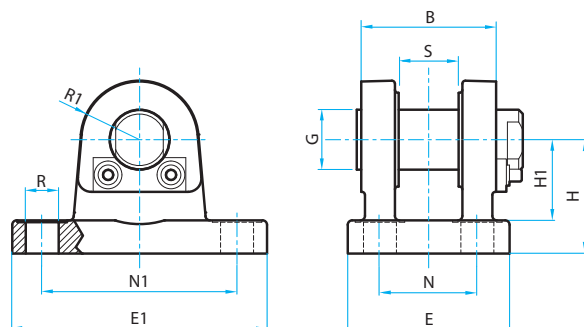
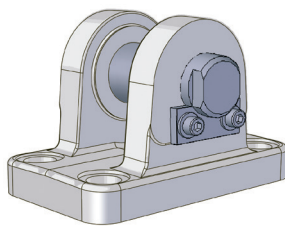
Suitable for cylinders ISO 6020/2 with D mounting.

| Code     | LD 25 | LD 32 | LD 40 | LD 50 | LD 63 | LD 80 | LD 100 | LD 125 | LD 160 | LD 200 |
|----------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| CF K7/f6 | 12    | 16    | 20    | 25    | 30    | 40    | 50     | 60     | 80     | 100    |
| CG       | 10    | 14    | 16    | 20    | 22    | 28    | 35     | 44     | 55     | 70     |
| CO N9    | 10    | 16    | 16    | 25    | 25    | 36    | 36     | 50     | 50     | 63     |
| CP h14   | 30    | 40    | 50    | 60    | 70    | 80    | 100    | 120    | 160    | 200    |
| FM js11  | 40    | 50    | 55    | 65    | 85    | 100   | 125    | 150    | 190    | 210    |
| FO js14  | 16    | 18    | 20    | 22    | 24    | 24    | 35     | 35     | 35     | 35     |
| GL js13  | 46    | 61    | 64    | 78    | 97    | 123   | 155    | 187    | 255    | 285    |
| HB       | 9     | 11    | 13.5  | 15.5  | 17.5  | 22    | 30     | 39     | 45     | 48     |
| KC       | 3.3   | 4.3   | 4.3   | 5.4   | 5.4   | 8.4   | 8.4    | 11.4   | 11.4   | 12.4   |
| LJ       | 29    | 38    | 40    | 49    | 63    | 73    | 92     | 110    | 142    | 152    |
| LO       | 56    | 74    | 80    | 98    | 120   | 148   | 190    | 225    | 295    | 335    |
| RE js13  | 55    | 70    | 85    | 100   | 115   | 135   | 170    | 200    | 240    | 300    |
| SR       | 12    | 16    | 20    | 25    | 30    | 40    | 50     | 60     | 80     | 100    |
| TA js13  | 40    | 55    | 58    | 70    | 90    | 120   | 145    | 185    | 260    | 300    |
| UJ       | 75    | 95    | 120   | 140   | 160   | 190   | 240    | 270    | 320    | 400    |
| UK       | 60    | 80    | 90    | 110   | 135   | 170   | 215    | 260    | 340    | 400    |

| Load        |   |      |    |    |    |    |     |     |     |     |
|-------------|---|------|----|----|----|----|-----|-----|-----|-----|
| Static (KN) | 8 | 12.5 | 20 | 32 | 50 | 80 | 125 | 200 | 320 | 500 |

**FD** Female straight clevis bracket

ISO 8132



Suitable for cylinders ISO 6022 with C, D, K, S mountings.

| Code    | FD 50 | FD 63 | FD 80 | FD 100 | FD 125 | FD 160 |
|---------|-------|-------|-------|--------|--------|--------|
| B       | 70    | 90    | 110   | 140    | 170    | 210    |
| E       | 85    | 108   | 130   | 160    | 210    | 260    |
| E1      | 143   | 170   | 220   | 270    | 320    | 400    |
| G H9/f8 | 32    | 40    | 50    | 63     | 80     | 100    |
| H       | 65    | 76    | 95    | 112    | 140    | 180    |
| H1      | 43    | 52    | 65    | 75     | 95     | 120    |
| N       | 50    | 65    | 80    | 100    | 125    | 160    |
| N1      | 110   | 130   | 170   | 210    | 250    | 315    |
| R       | 17.5  | 22    | 26    | 33     | 39     | 45     |
| R1      | 32    | 40    | 50    | 63     | 80     | 100    |
| S       | 32    | 40    | 50    | 63     | 80     | 100    |

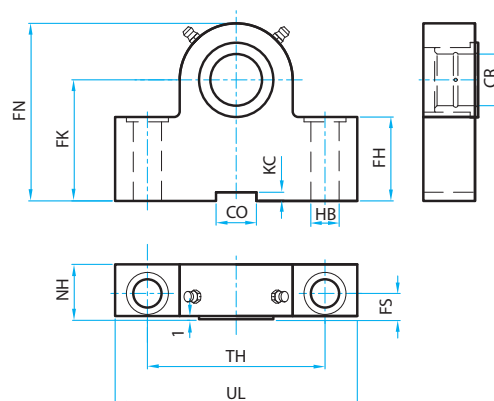
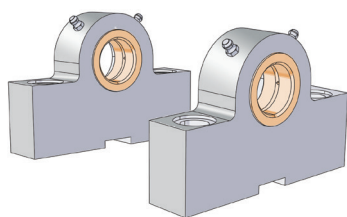
| Load        |    |    |     |     |     |     |
|-------------|----|----|-----|-----|-----|-----|
| Static (KN) | 50 | 80 | 125 | 200 | 320 | 500 |



## ACCESSORIES FOR CYLINDER MOUNTING

**LK** Pair of trunnion brackets

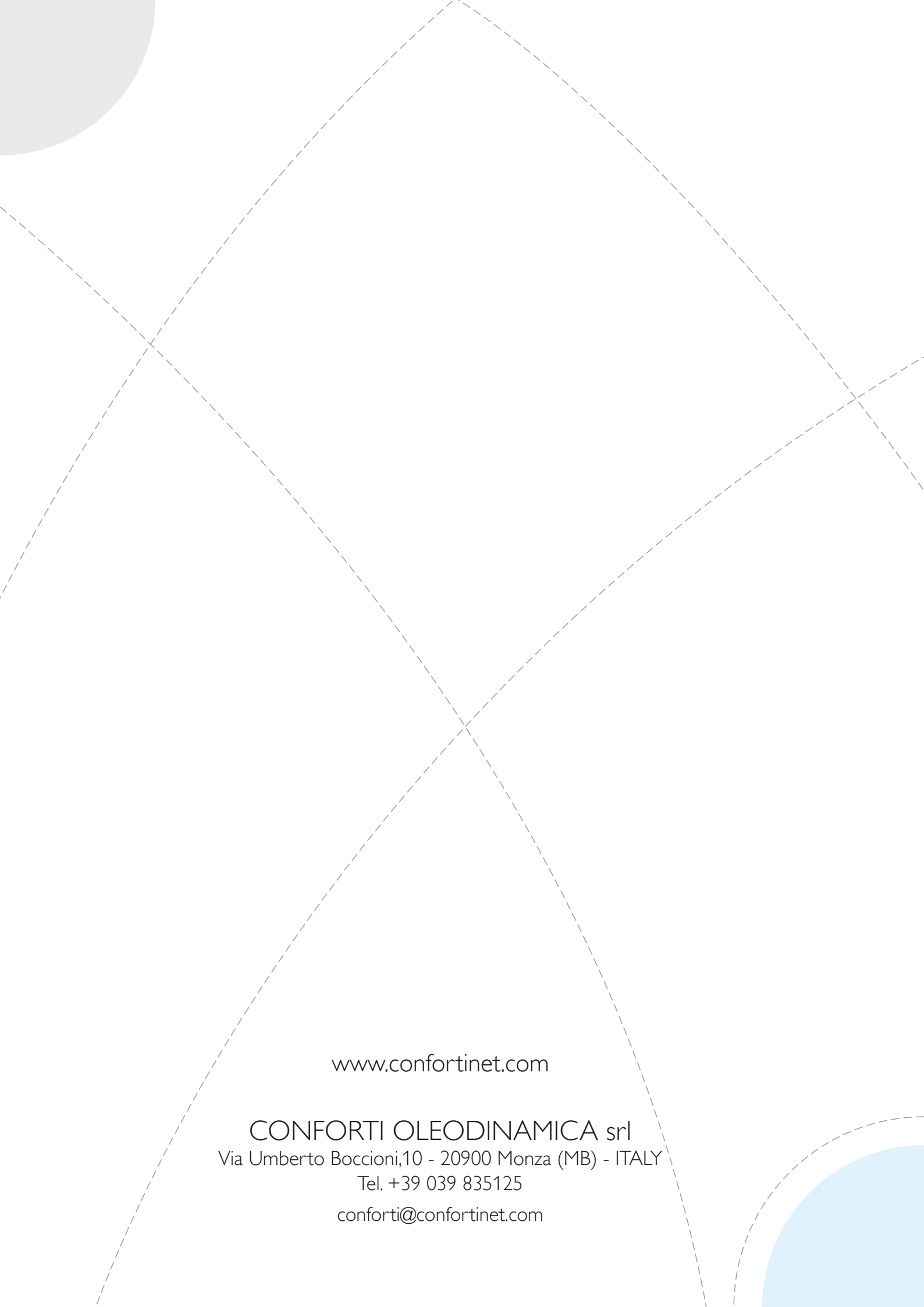
ISO 8132



Suitable for cylinders ISO 6020/2 with G, H, L mounting  
and for cylinders ISO 6022 with H mounting.

| Code    | LK 25 | LK 32 | LK 40 | LK 50 | LK 63 | LK 80 | LK 100 | LK 125 | LK 160 |
|---------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
| CO N9   | 10    | 16    | 16    | 25    | 25    | 36    | 36     | 50     | 50     |
| CR H7   | 12    | 16    | 20    | 25    | 32    | 40    | 50     | 63     | 80     |
| FH      | 25    | 30    | 38    | 45    | 52    | 60    | 75     | 85     | 112    |
| FK js12 | 34    | 40    | 45    | 55    | 65    | 76    | 95     | 112    | 140    |
| FN      | 49    | 59    | 69    | 80    | 100   | 120   | 140    | 177    | 220    |
| FS js14 | 8     | 10    | 10    | 12    | 15    | 16    | 20     | 25     | 31     |
| HB      | 9     | 11    | 11    | 13.5  | 17.5  | 22    | 26     | 33     | 39     |
| KC      | 3.3   | 4.3   | 4.3   | 5.4   | 5.4   | 8.4   | 8.4    | 11.4   | 11.4   |
| NH      | 17    | 21    | 21    | 26    | 33    | 41    | 51     | 61     | 81     |
| TH js14 | 40    | 50    | 60    | 80    | 110   | 125   | 160    | 200    | 250    |
| UL      | 63    | 80    | 90    | 110   | 150   | 170   | 210    | 265    | 325    |

| Load        |   |      |    |    |    |    |     |     |     |
|-------------|---|------|----|----|----|----|-----|-----|-----|
| Static (kN) | 8 | 12.5 | 20 | 32 | 50 | 80 | 125 | 200 | 320 |



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