

## Cable duct covers Model TRIGONA®

with BEGU® - frame

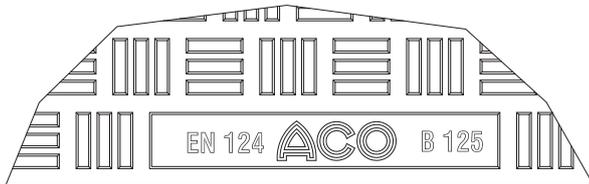
Class B125/ D400



Please hand over these installation instructions to the end user!

### General information

- All covers have a uniform surface area design.
- TRIGONA® cable duct covers comply with DIN EN 124-2. The respective load class is clearly cast in on the edge of the cover and on the frame



Example version B125

- TRIGONA® cable duct covers comply with the quality and test regulations of the quality assurance for duct casting RAL-GZ 692 ([www.fv-get.de](http://www.fv-get.de)).
- They consist of cast iron covers and BEGU® frames. (BEGU®; frame made of concrete and cast iron, the concrete is placed and compacted with special machines)
- Always inspect parts for completeness and perfect condition; never install damaged parts (transport damage).
- The covers are foldable, self-locking and removable.
- All cover coverings, including paving blocks and interlocking paving surfaces, can be connected directly to the covers. (When installing in concrete surfaces, the position of the expansion joints must be observed.)
- Install the cover according to the installation instructions. As a manufacturer of channel cast iron material, we provide generally valid instructions for the installation of cable duct covers in traffic areas. The special installation construction must always be determined by the planning authority taking into account all local circumstances and conditions.

### Cable duct covers Model TRIGONA® with BEGU® -

frame Class B125/ D400 are suitable for cable ducts Type I (Kunststoff-Klein-KSch from Mönninghoff), Type II (a, b) and type III (modular KSch) with clear internal width access openings of 700x700 mm or 1400 x 700 mm, as well as manholes manufactured on site with comparable clear internal width access openings...

TRIGONA® cable duct covers are equipped with four M 16 threaded holes on the top of the frame as an aid to displacement. They are protected against contamination by threaded pins in the delivered condition.

After removing the studs, ring bolts can be used (offset aid Art. No. 1201331 consisting of 4 ring bolts DIN 580 M16, 1 hexagon wrench 8 mm) can be screwed in as stop points for hoists. It is essential to observe:

Fully tighten all 4 ring bolts to the point where they are flush, preventing side tension (Figure 1) Use suitable chains, ropes or straps. The angle of inclination of the chains or straps when lifting the cover must not exceed 45° (Figure 2).

After moving the cover, remove the ring bolts and secure the threaded holes against dirt with threaded pins.

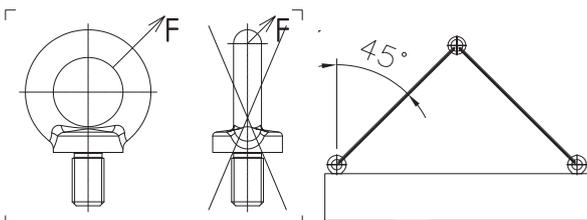
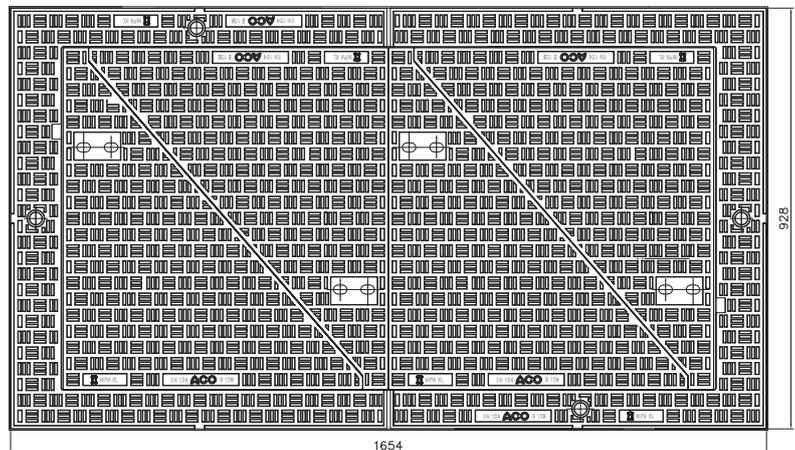
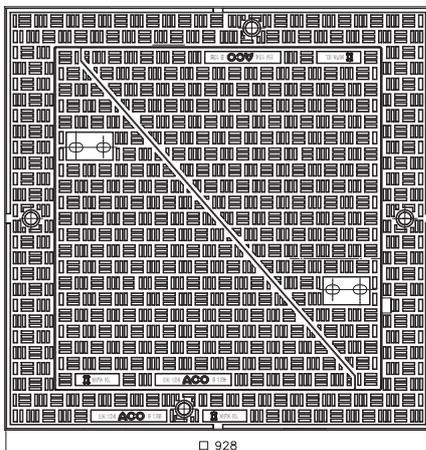
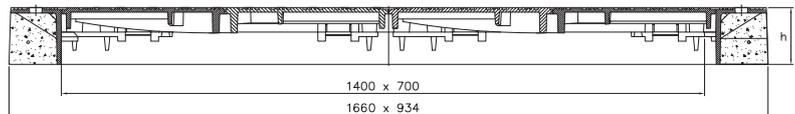
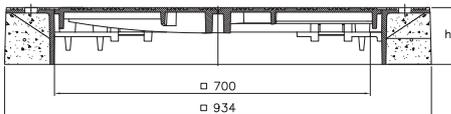


Figure 1

Figure 2

**Model overview**

Art. no.	Description	Total weight	Cover weight	Frame height (h)	Scope of supply
600622	KSA TRIGONA® B125 LF 700x700 mm, with locking device	181 kg	26 kg	125 mm	1 Frame 2 Cover Assembly Instructions
606325	KSA TRIGONA® B125 LF 700x700 mm, With cam lock	181 kg	26 kg	125 mm	1 Frame 2 Cover Assembly Instructions
600623	KSA TRIGONA® B125 LF 1400x700 mm, with locking device	298 kg	26 kg	125 mm	1 Frame 4 Cover Assembly Instructions
606326	KSA TRIGONA® B125 LF 1400x700 mm, With cam lock	298 kg	26 kg	125 mm	1 Frame 4 Cover Assembly Instructions
601035	KSA TRIGONA® D400 LF 700x700 mm, with locking device	254 kg	36 kg	175 mm	1 Frame 2 Cover Assembly Instructions
606323	KSA TRIGONA® D400 LF 700x700 mm, With cam lock	254 kg	36 kg	175 mm	1 Frame 2 Cover Assembly Instructions
601036	KSA TRIGONA® D400 LF 1400x700 mm, With locking device	407 kg	36 kg	175 mm	1 Frame 4 Cover Assembly Instructions
606324	KSA TRIGONA® D400 LF 1400x700 mm, With cam lock	407 kg	36 kg	175 mm	1 Frame 4 Cover Assembly Instructions



Images show design Class B125

## Installation

### Installation of the manhole cover by means of mortar MG III according to DIN 1053

Open the cover of the cover, lift it out of the frame and secure it laterally. Refer to "Opening the TRIGONA® covers, sequence" and "Complete removal of the TRIGONA® covers from the frame" (Page 6).

Move the shaft cover to the correct height on a full-surface mortar bed and align. The height of the mortar bed should be approx. 20 mm (when using the adjusting screws for the TRIGONA® manhole cover, please observe the following notes regarding the adjusting screws).

Do not insert the cover until the mortar has set. Then apply the road surface. Loading of the shaft cover by traffic; at the earliest after 72 hours. Use quick fasteners if necessary.

### Installation of the shaft cover by means of shaft grouting mortar (e.g. Ebralit)

Align the manhole cover to the height (e.g. do not use any swelling material e.g. wood) with the aid of sheet metal strips or clincher, and install and moisten the internal and external formwork. Then pour the shaft grouting mortar between the internal and external formwork (observe the manufacturer's instructions when mixing the grout).

Do not insert the cover until the mortar has set.

Then install the road surface. The manhole cover may only loaded by traffic after the appropriate curing time of the shaft grouting mortar has elapsed (observe manufacturer's instructions).

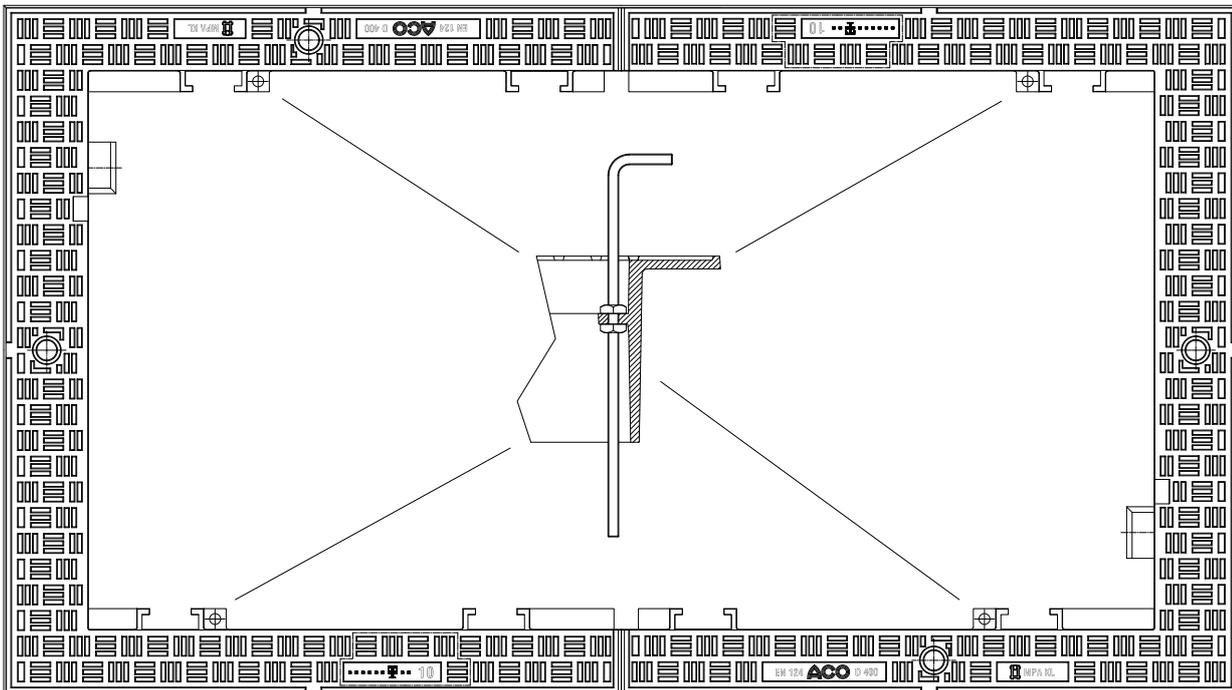
### Adjusting screws (available as accessory)

The adjusting screws are an aid for height alignment of the TRIGONA cable duct covers.®.

Position the adjusting screws in the holes provided on the frame as shown in the figure below.

The frame can be adjusted to height by turning the adjusting screws.

The adjusting screws remain mounted on the frame until the mortar has set and then must be separated and removed flush with the surface of the mortar after setting.

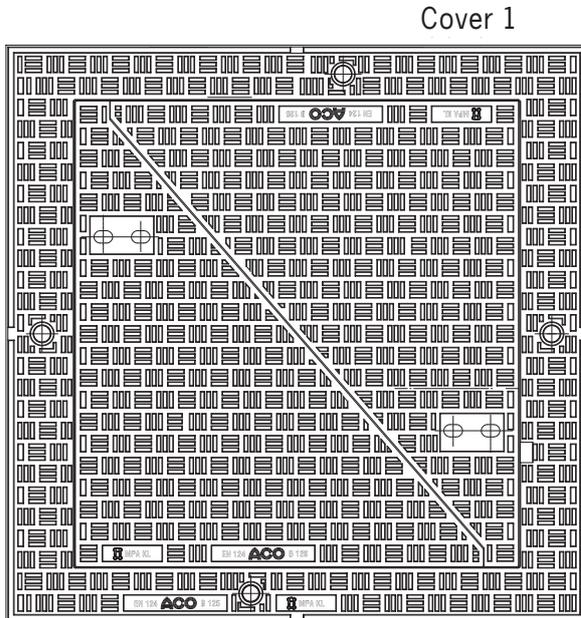


**Operation and maintenance**

**Fundamental principals**

Cable duct covers Model TRIGONA®

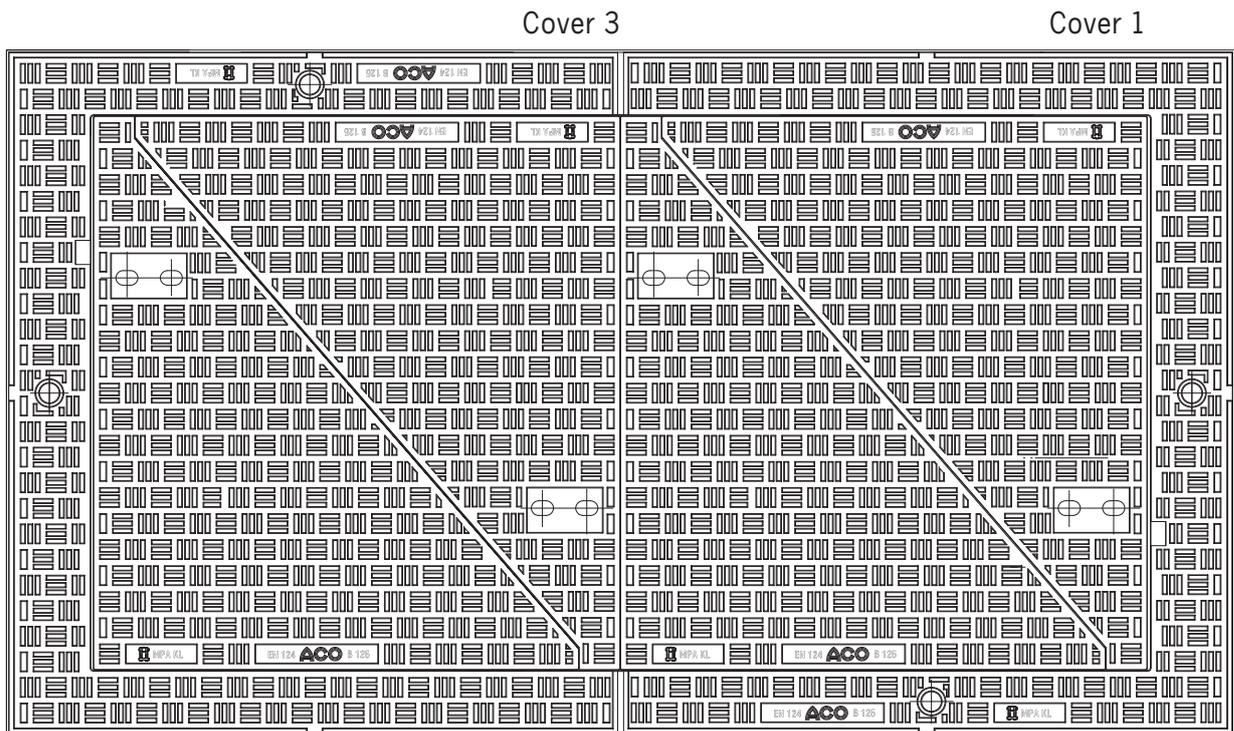
Cover clear surface area 700x700 mm, 1x Frame; 2x Cover



Cover 2

Cable duct covers Model TRIGONA®

Cover clear surface area 1400x700 mm, 1x Frame; 4x Cover



Cover 4

Cover 2

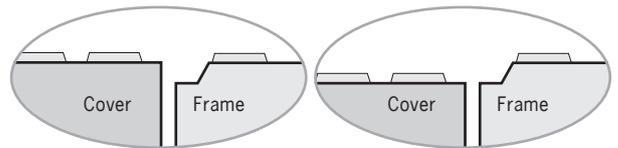
**Wear indicator**

The frames of the TRIGONA® manhole covers Class D 400 are equipped with an integrated wear indicator. Wear is recognisable and assessable with closed lids.

If the manhole cover indicates no sign of wear, then the cover and frame are positioned at the same height.

As wear progresses, the covers sink deeper into the frame.

Cover and frame are no longer at the same height. In the case of maximum wear, the upper edge of the cover is level with the lower edge of the wear indicator and the manhole cover must be completely replaced.



Condition on delivery, no wear

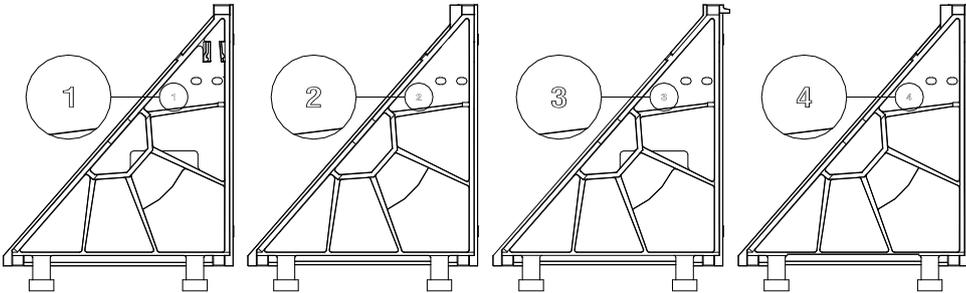
Max. permissible wear, exchange of manhole cover required

**Legend**

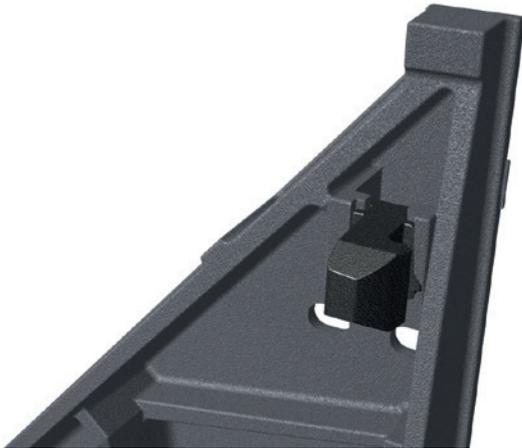
=Wear indicator

= Recess 45x85x6 mm for lettering plate in frame and Cover 1

The covers of the manhole and duct covers are numbered on the underside, in the case of the 700x700 mm clear surface area design with 1 and 2, as well as the design for the 1400 x 700 mm clear surface area design with 1, 2, 3, and 4.



**Locking systems of TRIGONA® manhole covers:**



Highly wear-resistant locking cams



Screw forward driver

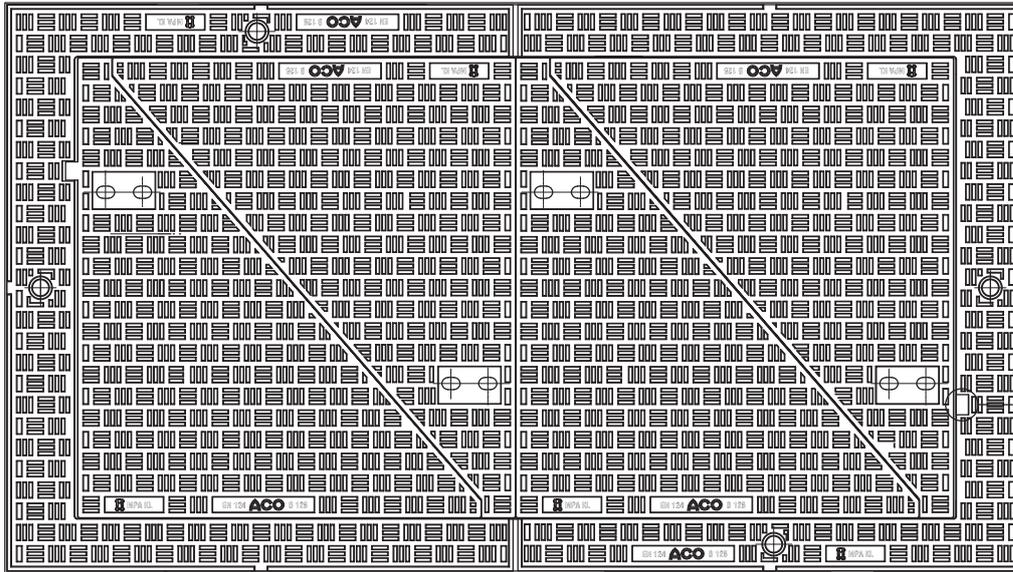
**Note:**

The Cover No.1 with locking cams can be exchanged for a cover with a turnbuckle driver (and vice versa). Further closure variants on request.

**Opening the cable manhole cover TRIGONA®**

- 1.1. 1.1. Versions with locking cams: Loosen Cover No.1 with the aid of the operating key Art. No. 600643 (attach the operating key to the provided opening in the frame and loosen cover with lever movement), open as far as possible, lift slightly and engage.

Cover No.1 is always located in the frame on the side with the accessible opening for loosening the cover (refer to following figure), it is also easily recognisable by the sign recess.



Position Cover 1:  
 The opening for loosening the cover is accessible.

- 1.2. Versions with turnbuckle: Loosen turnbuckle with the aid of the operating key Art. No. 88141 and unscrew completely (counterclockwise). When the turnbuckle is fully open, hook the operating key into the openings provided (first remove the plastic caps from the openings) and open the cover to the end stop, lift it slightly and lock it in place.
- 2. Lift Cover No.2 slightly until it stops and engage.
- 3. Only for versions with clear surface area 1400 x 700 mm: Repeat the procedure for the remaining covers, paying attention to the sequence.

Sequence for covers for 700 x 700 mm clear surface area versions: 1→2  
 Sequence for covers for 1400 x 700 mm clear surface area versions: 1→2→3→4

**Complete removal of the TRIGONA® cover from the frame**

- 1. Refer to above: Point 1.1 or 1.2 under "Opening the TRIGONA® cable duct cover".
- 2. Lift cover into vertical position.
- 3. Repeat the procedure for the remaining covers, taking care to follow the sequence.

Sequence for covers for 700 x 700 mm clear surface area versions: 1→2  
 Sequence for covers for 1400 x 700 mm clear surface area versions: 1→2→3→4

## **Installation of the TRIGONA cover in the frame**

1. Insert Cover No.2 (for versions with clear surface area 1400x700 mm, Cover No.4) vertically to the intended hinge position. If the cover is to remain open, then lean the cover outwards (angle 100°). If the cover is to be closed, then refer to below "Closing the cable duct cover TRIGONA®". The opening direction of the TRIGONA® cable duct cover can be changed by changing the positions of the covers. In the 700 x 700 mm clear surface area version, the Covers No.1 and No.2 exchange places. In the 1400 x 700 mm clear surface area version, the Covers No.1 and No.4 as well as Covers No.2 and No.3 exchange places.
2. Repeat the procedure for the remaining covers, taking care to follow the sequence

Sequence for covers for 700 x 700 mm clear surface area versions: 1→2

Sequence for covers for 1400 x 700 mm clear surface area versions: 1→2→3→4

## **Closing the cable manhole cover TRIGONA®**

1. For covers, clear internal size width 700 x 700, Cover No.2, for versions 1400 x 700 mm, slightly lift and close Cover No.4.
2. Repeat the procedure for the remaining covers, taking care to follow the sequence
3. 3.1. Locking cams: If all lids are inserted and closed, then close cover 1 with forced pressing with the foot in the area of the lock (the locking cam engages).
- 3.2. Turnbuckle: If all covers are inserted, then lock the turnbuckle with the aid of the operating key Art. No. 88141 (turn clockwise) and tighten firmly.

Sequence for covers for 700 x 700 mm clear surface area versions: 2→1

Sequence for covers for 1400 x 700 mm clear surface area versions: 4→3→2→1

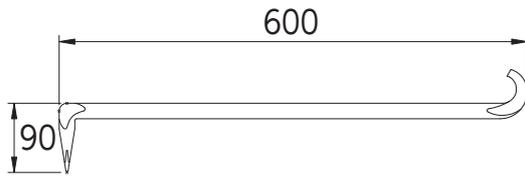
## **Maintenance**

The maintenance of the cover can be executed within the scope of normal use.

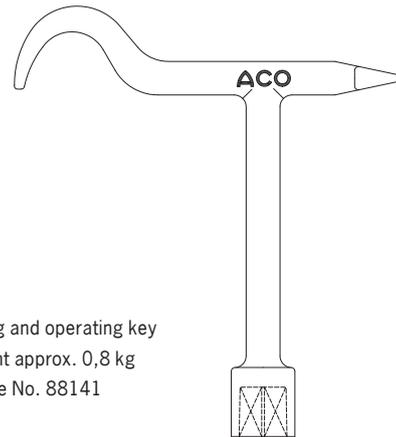
Covers in heavily trafficked roads must be inspected at intervals of maximum 3 years with regard to their traffic and operational safety. The cover must not show any strong deformations, cracks or defective locking devices.

Before closing the cover, always inspect the cover for damage and clean it from coarse dirt. Damaged parts must be replaced.

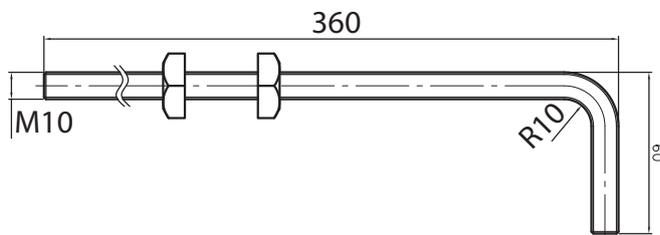
**Accessories**



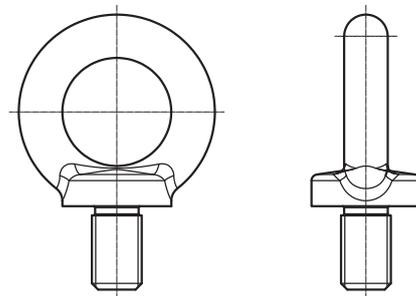
Lifting and operating key  
Weight approx. 1,5 kg  
Article No. 600643



Lifting and operating key  
Weight approx. 0,8 kg  
Article No. 88141



Adjusting screw  
(1x bolt, 2x nuts)  
Weight approx. 0,25 kg  
Article No. 604613



Offset aid  
(4x ring bolt DIN 580 M16, 1x hexagon socket head wrench 8 mm)  
Weight approx. 1,5 kg  
Article No. 1201331