



# SYSTEM COMPONENTS



**GEIGER**  
ANTRIEBSTECHNIK



## GEIGER plastic pressure piece KDS

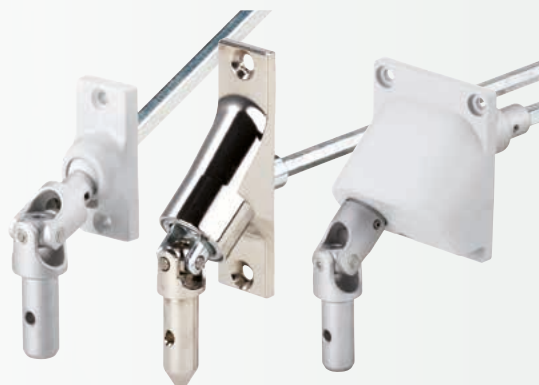
The latest generation of GEIGER aluminium crank handles are equipped with a plastic pressure piece. The plastic bearing of the crank elements prevents material abrasion at the bearing points. Damage that might be caused to wallpaper or curtains is thus prevented. At the same time, the pressure piece ensures easy operation without lubricant as well as a precise locking.



## Spherical bearing

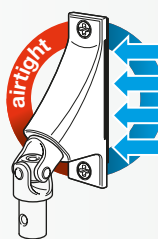
GEIGER offers a very large selection of spherical bearings in all conceivable designs and sizes. These bearings are basically differentiated by the angle of use - 45° or 90° - and the size of the universal joint. As standard, we offer universal joints with a 16 mm diameter made of steel (up to 3 Nm) and with an 18 mm diameter made of aluminium (up to 5 Nm). Our spherical bearing plates are made of high-strength plastic or die-cast zinc.

Two standard colours (white, grey) are available for the plastic panels. The die-cast zinc plates can be bright nickel-plated or powder-coated. Other colours or surfaces on request.



## Airtight spherical bearings

Saving energy and increasing comfort - the airtight spherical bearings from GEIGER fulfil this task. Many of our spherical bearing plates are offered with a special plastic seal made of rubber. These airtight spherical bearings prevent the flow of air from the inside to the outside - both at the spherical bearing plate and at the bearing point. In addition to saving energy, this also increases the service life of the gearbox. The risk of condensation forming on the gear unit is reduced to a minimum.





## SKS - Detachable crank system for Venetian blinds and rolling shutters

The detachable crank system from GEIGER has been specially developed for difficult space conditions. This system can be used where the crank handle makes it difficult to operate the window, is inconvenient for visual reasons or is undesirable.

Due to the installation situation or the rolling shutter or Venetian blind system used, it is often the case that a spherical bearing has to be installed in an area where the crank interferes. GEIGER has developed something special so that the window can still be operated, e.g., opened or tilted.



The crank handle is removed after operating the rolling shutter or Venetian blind.



Only the spherical bearing with funnel is still visible, ...



... and, thanks to its low height, does not impair operation of the window.

### Components suitable for the SKS

Rods and spherical bearing plates that are suitable for the detachable crank system or can be combined with it are marked with the "SKS" icon on the following pages.



## All available surface finishes

Many of our system components are available in various high-quality surface finishes. Below, you will find the available surface finishes of our metal parts:

### blank

smooth surface, without galvanic finishing, the parts are deburred using the vibratory finishing process and sharp edges are rounded

### bright galvanised and chromatised

without mechanical processing \*)

### galvanised and black chromatised

without mechanical processing \*)

### bright nickel-plated

with previous copper plating, without mechanical processing \*)

### anodised

natural colour anodised E6/EV1

dark bronze anodised

black anodised

### powder-coated

in various RAL colours

### wet-painted

in various RAL colours

## Corrosion protection

Good corrosion protection depends on the surface quality. Anodised aluminium parts or galvanised steel parts ensure good corrosion protection. Bright nickel-plated steel parts are not suitable for outdoor mounting.

### Important note

Plaster and various paints emit aggressive vapours when setting.

Galvanised and anodised parts may therefore only be fitted after the interior work has been completed, as the vapours will otherwise attack the surface.

\*) without surface treatment prior to electroplating, but deburred using the vibratory finishing process.

The coating of the electroplated surfaces is constantly tested for strength and adhesion.

**Bright nickel-plated surfaces** are an optical coating. They do not offer lasting corrosion protection.

**Galvanised surfaces** offer significantly better significantly better corrosion protection. The choice of aluminium joints prevents corrosion damage.

The location and the prevailing (indoor) climate as well as the intended use and the associated load profiles are crucial when selecting suitable spherical bearings and universal joints. We will be happy to advise you on the selection of suitable materials and coatings.

### Colour specifications and print presentation

The colours specified and shown in the catalogue are only reference values. RAL colours may deviate from the RAL specifications depending on the surface or base material. The colour fields shown in the tables may be displayed differently due to printing-related deviations.

### Drawings and dimensions

The technical drawings shown in this catalogue refer to a product from a series.

Dimensions from the drawings cannot be used for all items in some cases.

If required, please request exact dimensional drawings for the selected item.

### Technical changes and errors excepted

# Übersicht der Systemkomponenten

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## OPTIONS

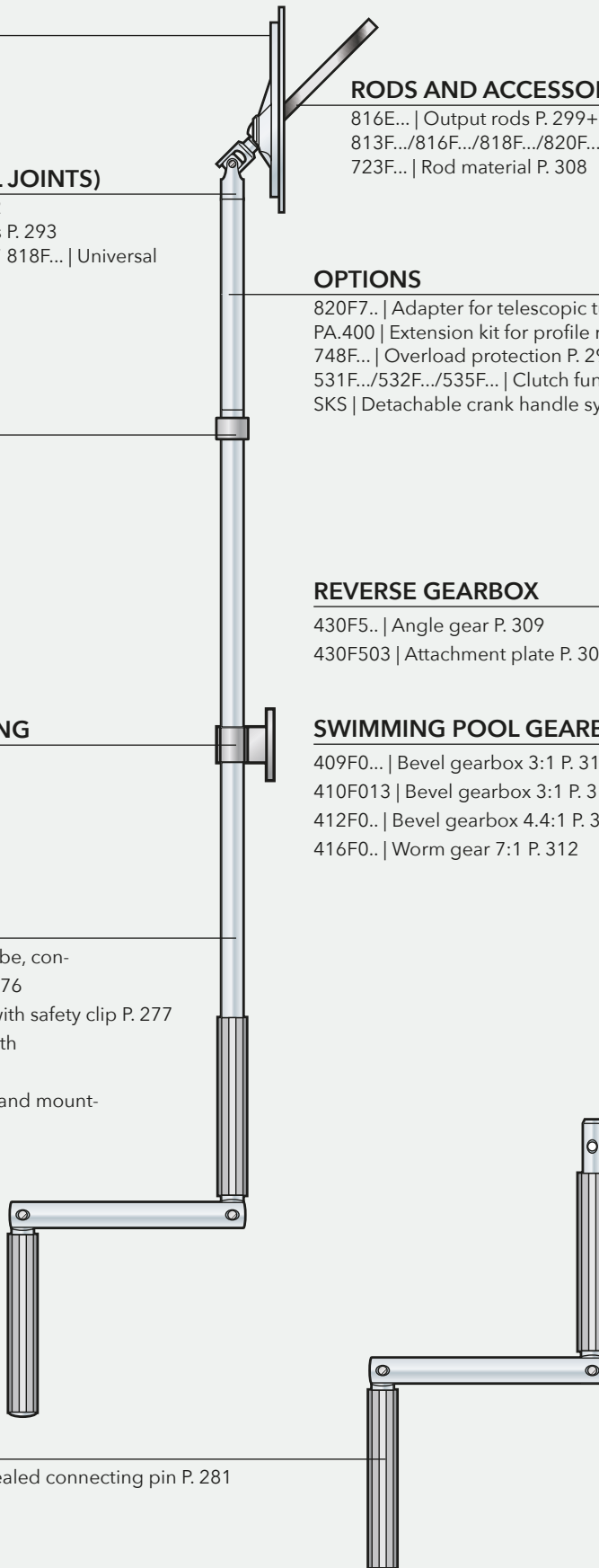
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## P... | Aluminium rod with Ø 15.5 mm profile tube, concealed connecting pin and safety clip

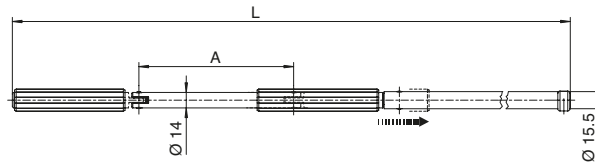


### Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Crank parts and tube made of corrosion-resistant aluminium
- No torsion of the tube even with long crank handles
- Quick and easy mounting on the spherical bearing (no tools required)
- Centre section Ø 14 mm, tube Ø 15.5 mm
- Other rod lengths, crank projections and centre section diameters on request
- Available standard colours (powder-coated): RAL 7035, RAL 9016, RAL 8019 or natural colour anodised
- Other colours and surfaces on request

### Note

- Spherical bearing with profile trunnion required



### Powder-coated centre section and tube, grey handle sleeves and safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
P011000	1000 mm	140 mm	<input type="checkbox"/> RAL 7035
P011200	1200 mm	140 mm	<input type="checkbox"/> RAL 7035
P011300	1300 mm	140 mm	<input type="checkbox"/> RAL 7035
P011400	1400 mm	140 mm	<input type="checkbox"/> RAL 7035
P011500	1500 mm	140 mm	<input type="checkbox"/> RAL 7035
P011600	1600 mm	140 mm	<input type="checkbox"/> RAL 7035
P011700	1700 mm	140 mm	<input type="checkbox"/> RAL 7035
P011800	1800 mm	140 mm	<input type="checkbox"/> RAL 7035
P011900	1900 mm	140 mm	<input type="checkbox"/> RAL 7035
P012000	2000 mm	140 mm	<input type="checkbox"/> RAL 7035

### Powder-coated centre section and tube, white grip sleeves and safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
P111000	1000 mm	140 mm	<input type="checkbox"/> RAL 9016
P111100	1100 mm	140 mm	<input type="checkbox"/> RAL 9016
P111200	1200 mm	140 mm	<input type="checkbox"/> RAL 9016
P111300	1300 mm	140 mm	<input type="checkbox"/> RAL 9016
P111400	1400 mm	140 mm	<input type="checkbox"/> RAL 9016
P111500	1500 mm	140 mm	<input type="checkbox"/> RAL 9016
P111600	1600 mm	140 mm	<input type="checkbox"/> RAL 9016
P111700	1700 mm	140 mm	<input type="checkbox"/> RAL 9016
P111800	1800 mm	140 mm	<input type="checkbox"/> RAL 9016
P111900	1900 mm	140 mm	<input type="checkbox"/> RAL 9016
P112000	2000 mm	140 mm	<input type="checkbox"/> RAL 9016

### Powder-coated centre section and tube, brown handle sleeves and safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
P211000	1000 mm	140 mm	<input type="checkbox"/> RAL 8019
P211100	1100 mm	140 mm	<input type="checkbox"/> RAL 8019
P211200	1200 mm	140 mm	<input type="checkbox"/> RAL 8019
P211300	1300 mm	140 mm	<input type="checkbox"/> RAL 8019
P211400	1400 mm	140 mm	<input type="checkbox"/> RAL 8019
P211500	1500 mm	140 mm	<input type="checkbox"/> RAL 8019
P211600	1600 mm	140 mm	<input type="checkbox"/> RAL 8019
P211800	1800 mm	140 mm	<input type="checkbox"/> RAL 8019
P211900	1900 mm	140 mm	<input type="checkbox"/> RAL 8019
P212000	2000 mm	140 mm	<input type="checkbox"/> RAL 8019

## Anodised centre section and tube, grey handle sleeves and safety clip

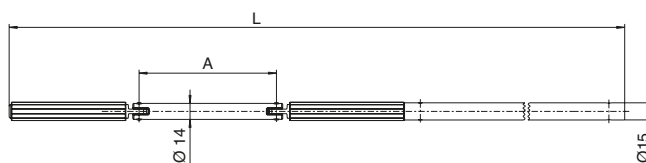
Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
P611000	1000 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611100	1100 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611200	1200 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611300	1300 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611400	1400 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611500	1500 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611600	1600 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611700	1700 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611800	1800 mm	140 mm	<input type="checkbox"/> natural colour anod.
P611900	1900 mm	140 mm	<input type="checkbox"/> natural colour anod.
P612000	2000 mm	140 mm	<input type="checkbox"/> natural colour anod.

## G... | Aluminium rods with tube 15 x 1.5 mm with safety clip



## Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Crank parts and tube made of corrosion-resistant aluminium
- Centre section  $\varnothing$  14 mm, tube  $\varnothing$  15 mm, wall thickness 1.5 mm
- With mounted safety clip for tool-free mounting on the spherical bearing
- Other rod lengths, crank working radii, centre section  $\varnothing$  on request
- Available standard colours (powder-coated): RAL 9016 or anodised in various colours
- Other colours and surfaces on request








## Anodised centre section and tube, grey grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
G011000SC	1000 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011100SC	1100 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011200SC	1200 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011300SC	1300 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011400SC	1400 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011500SC	1500 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011600SC	1600 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011700SC	1700 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011800SC	1800 mm	120 mm	<input type="checkbox"/> natural colour anod.
G011900SC	1900 mm	120 mm	<input type="checkbox"/> natural colour anod.








## Centre section anodised in natural colour, powder-coated tube, white handle sleeves and fitted safety clip

Part no.	Length [L]	Working radius [A]	Colour (tube)
G111000SC	1000 mm	120 mm	<input type="checkbox"/> RAL 9016
G111100SC	1100 mm	120 mm	<input type="checkbox"/> RAL 9016
G111200SC	1200 mm	120 mm	<input type="checkbox"/> RAL 9016
G111300SC	1300 mm	120 mm	<input type="checkbox"/> RAL 9016
G111400SC	1400 mm	120 mm	<input type="checkbox"/> RAL 9016
G111500SC	1500 mm	120 mm	<input type="checkbox"/> RAL 9016
G111600SC	1600 mm	120 mm	<input type="checkbox"/> RAL 9016
G111700SC	1700 mm	120 mm	<input type="checkbox"/> RAL 9016
G111800SC	1800 mm	120 mm	<input type="checkbox"/> RAL 9016
G111900SC	1900 mm	120 mm	<input type="checkbox"/> RAL 9016
G112000SC	2000 mm	120 mm	<input type="checkbox"/> RAL 9016








## Anodised centre section and tube, brown grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
G211000SC	1000 mm	120 mm	 dark bronze anodised.
G211100SC	1100 mm	120 mm	 dark bronze anodised.
G211200SC	1200 mm	120 mm	 dark bronze anodised.
G211500SC	1500 mm	120 mm	 dark bronze anodised.
G211800SC	1800 mm	120 mm	 dark bronze anodised.





## Anodised centre section and tube, grey grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
GB31000SC	1000 mm	160 mm	 natural colour anod.
GB31200SC	1200 mm	160 mm	 natural colour anod.
GB31300SC	1300 mm	160 mm	 natural colour anod.
GB31400SC	1400 mm	160 mm	 natural colour anod.
GB31500SC	1500 mm	160 mm	 natural colour anod.
GB31600SC	1600 mm	160 mm	 natural colour anod.
GB31800SC	1800 mm	160 mm	 natural colour anod.

## Centre section anodised in natural colour, powder-coated tube, white handle sleeves and fitted safety clip

Part no.	Length [L]	Working radius [A]	Colour (tube)
GB211000SC	1000 mm	160 mm	 RAL 9016
GB211200SC	1200 mm	160 mm	 RAL 9016
GB211300SC	1300 mm	160 mm	 RAL 9016
GB211400SC	1400 mm	160 mm	 RAL 9016
GB211500SC	1500 mm	160 mm	 RAL 9016
GB211600SC	1600 mm	160 mm	 RAL 9016
GB211800SC	1800 mm	160 mm	 RAL 9016

## Anodised centre section and tube, brown grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
GB41000SC	1000 mm	160 mm	 dark bronze anodised.
GB41200SC	1200 mm	160 mm	 dark bronze anodised.
GB41400SC	1400 mm	160 mm	 dark bronze anodised.
GB41800SC	1800 mm	160 mm	 dark bronze anodised.

## Variants: Aluminium crank handle with aluminium tube 15 x 1.5 mm

Working radius with crank Ø 14 mm	120 mm, 140 mm, 160 mm, 180 mm
Working radius with crank Ø 16 mm	140 mm, 180 mm
Rod length	upon request
Colour: Handle sleeves	white, grey, brown, others on request
Colour: Tube	RAL 9016, natural colour anodised, dark brown anodised, others on request

## Options

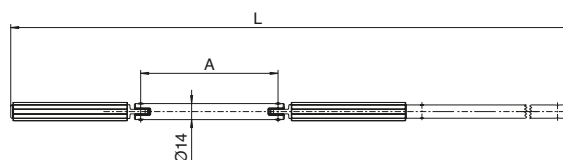
also available on request with mounted	Spherical bearing
	Connection funnel
	Crank holder
Colour: Tube	Special colours on request
Colour: Centre section	with coated or coloured anodised surface

## G... | Aluminium rod with tube 13 x 1.5 mm with mounted safety clip



### Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Crank parts and tube made of corrosion-resistant aluminium
- Centre section Ø 14 mm, tube Ø 13 mm, wall thickness 1.5 mm
- With mounted safety clip for tool-free mounting on the spherical bearing
- Other rod lengths, crank projections and centre section diameters on request
- Available standard colours (powder-coated): RAL 9016, natural colour and dark brown anodised
- Other colours and surfaces on request



Anodised centre section and tube, grey grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
G001000SC	1000 mm	120 mm	<input type="checkbox"/> natural colour anod.
G001200SC	1200 mm	120 mm	<input type="checkbox"/> natural colour anod.
G001300SC	1300 mm	120 mm	<input type="checkbox"/> natural colour anod.
G001400SC	1400 mm	120 mm	<input type="checkbox"/> natural colour anod.
G001500SC	1500 mm	120 mm	<input type="checkbox"/> natural colour anod.
G001600SC	1600 mm	120 mm	<input type="checkbox"/> natural colour anod.
G001700SC	1700 mm	120 mm	<input type="checkbox"/> natural colour anod.
G002000SC	2000 mm	120 mm	<input type="checkbox"/> natural colour anod.

Centre section anodised in natural colour, powder-coated tube, white handle sleeves and fitted safety clip

Part no.	Length [L]	Working radius [A]	Colour (tube)
G121000SC	1000 mm	120 mm	<input type="checkbox"/> RAL 9016
G121200SC	1200 mm	120 mm	<input type="checkbox"/> RAL 9016
G121300SC	1300 mm	120 mm	<input type="checkbox"/> RAL 9016

Anodised centre section and tube, grey grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centrepiece and tube)
GB11000SC	1000 mm	160 mm	<input type="checkbox"/> natural colour anod.
GB11200SC	1200 mm	160 mm	<input type="checkbox"/> natural colour anod.
GB11300SC	1300 mm	160 mm	<input type="checkbox"/> natural colour anod.
GB11400SC	1400 mm	160 mm	<input type="checkbox"/> natural colour anod.
GB11500SC	1500 mm	160 mm	<input type="checkbox"/> natural colour anod.
GB11800SC	1800 mm	160 mm	<input type="checkbox"/> natural colour anod.
GB12000SC	2000 mm	160 mm	<input type="checkbox"/> natural colour anod.

Centre section anodised in natural colour, powder-coated tube, white handle sleeves and fitted safety clip

Part no.	Length [L]	Working radius [A]	Colour (tube)
GB81000SC	1000 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81100SC	1100 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81200SC	1200 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81300SC	1300 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81400SC	1400 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81500SC	1500 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81600SC	1600 mm	160 mm	<input type="checkbox"/> RAL 9016
GB81800SC	1800 mm	160 mm	<input type="checkbox"/> RAL 9016

## Anodised centre section and tube, black grip sleeves and mounted safety clip

Part no.	Length [L]	Working radius [A]	Colour (centre piece and tube)
GB181200SC	1200 mm	160 mm	■ black anod.
GB181300SC	1300 mm	160 mm	■ black anod.
GB181500SC	1500 mm	160 mm	■ black anod.
GB182000SC	2000 mm	160 mm	■ black anod.

## Variants: Aluminium crank handle with aluminium tube 13 x 1.5 mm

Working radius with crank Ø 14 mm	120 mm, 140 mm, 160 mm
Rod length	upon request
Colour: Handle sleeves	white, grey, brown, black, others on request
Colour: Tube	RAL 9016, natural anodised, dark brown anodised, black anod.

## Options

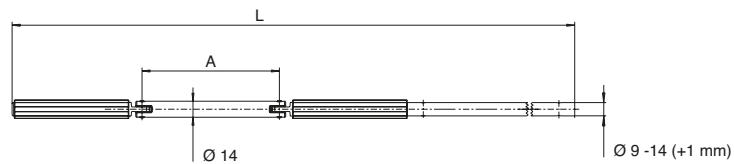
also available on request with mounted	Spherical bearing
	Connection funnel
	Crank holder
Colour: Tube	Special colours on request
Colour: Centre section	with coated or coloured anodised surface

## G... | Aluminium crank handle with steel tube and mounted safety clip



## Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Crank parts made of corrosion-resistant aluminium
- Centre section Ø 12 mm, tube Ø 12 mm plus 1 mm plastic coating, wall thickness 1.0 mm
- With mounted safety clip for tool-free mounting on the spherical bearing
- Other rod lengths, crank working radii, centre section and tube diameters on request
- Other colours and surfaces on request



Centre section (Ø 14 mm) anodised in natural colour, steel tube 12 x 1.0 mm, plastic-coated, white grip sleeves and fitted safety clip

Part no.	Length [L]	Working radius [A]	Colour (tube)
GB21200SC	1200 mm	160 mm	□ RAL 9016
GB21300SC	1300 mm	160 mm	□ RAL 9016
GB21400SC	1400 mm	160 mm	□ RAL 9016
GB21500SC	1500 mm	160 mm	□ RAL 9016
GB21600SC	1600 mm	160 mm	□ RAL 9016
GB21800SC	1800 mm	160 mm	□ RAL 9016

## Variants: Aluminium crank handle with steel tube

Working radius with crank Ø 14 mm	120 mm, 160 mm
Rod length	upon request
Colour: Handle sleeves	white, grey, brown, black
Colour: Tube	RAL 9016, others on request

## Options

also available on request with mounted	Spherical bearing
	Connection funnel
	Crank holder
Colour: Tube	Special colours on request
Colour: Centre section	with coated or coloured anodised surface

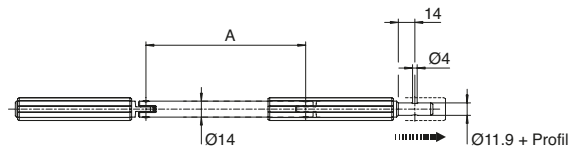
## 510F4.. | Aluminium crank handles with concealed connecting pin

### Various working radii and connection trunnions



#### Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Crank parts made of corrosion-resistant aluminium
- Upper grip sleeve covers the tube/crank connection
- Ergonomic polygonal grip sleeves made from high-quality, impact-resistant and environmentally friendly plastic
- Other crank working radii, centre section and connection pin diameters on request
- Other surfaces, colours, and colour combinations on request
- Auxiliary tool for loosening the grip sleeve 510F989



#### Aluminium crank handle with Ø 11.9 mm trunnion and concealed connecting pin

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F401	140 mm	Aluminium/14 mm	■ natural colour anod.	■ grey
510F402	140 mm	Aluminium/14 mm	■ natural colour anod.	□ white
510F403	140 mm	Aluminium/14 mm	■ dark bronze anodised.	■ brown
510F413	140 mm	Aluminium/14 mm	□ RAL 9016	□ white

#### Aluminium crank handle with profile tube trunnion and concealed connecting pin

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F451	140 mm	Aluminium/14 mm	□ RAL 7035	■ grey
510F452	140 mm	Aluminium/14 mm	□ RAL 9016	□ white
510F453	140 mm	Aluminium/14 mm	■ dark bronze anodised.	■ brown
510F454	140 mm	Aluminium/14 mm	■ natural colour anod.	■ grey
510F456	140 mm	Aluminium/14 mm	■ RAL 9005	■ black
510F652	160 mm	Aluminium/14 mm	□ RAL 9016	□ white
510F657	160 mm	Aluminium/14 mm	■ dark bronze anodised.	■ brown

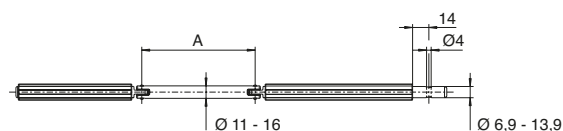
## 510F... | Aluminium crank handles

### Various working radii and connection trunnions



#### Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Crank parts made of corrosion-resistant aluminium
- Ergonomic polygonal grip sleeves made from high-quality, impact-resistant and environmentally friendly plastic
- Other crank working radii, centre section and connection pin diameters on request
- Other surfaces, colours, and colour combinations on request



#### Aluminium crank handle with Ø 9.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F101	120 mm	Aluminium/14 mm	■ natural colour anod.	■ grey
510F102	120 mm	Aluminium/14 mm	■ black anod.	■ black
510F105	120 mm	Aluminium/14 mm	■ natural colour anod.	□ white
510F115	120 mm	Aluminium/14 mm	■ RAL 8019	■ brown
510F152	120 mm	Aluminium/14 mm	■ natural colour anod.	■ black
510F299	120 mm	Aluminium/14 mm	□ RAL 9016	□ white
510F108	140 mm	Aluminium/14 mm	■ natural colour anod.	■ grey
510F156	140 mm	Aluminium/14 mm	■ natural colour anod.	□ white

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F260	140 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input checked="" type="checkbox"/> black
510F166	160 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white
510F167	160 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> dark bronze anodised.	<input checked="" type="checkbox"/> brown
510F175	160 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F258	160 mm	Aluminium/14 mm	<input type="checkbox"/> RAL 9016	<input type="checkbox"/> white
510F298	160 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> black anod.	<input checked="" type="checkbox"/> black
510F132	180 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F139	180 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white

## Aluminium crank handle with Ø 11.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F109	120 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white
510F110	120 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F111	120 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> dark bronze anodised.	<input checked="" type="checkbox"/> brown
510F112	120 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> black anod.	<input checked="" type="checkbox"/> black
510F104	140 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F121	140 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F122	140 mm	Aluminium/16 mm	<input checked="" type="checkbox"/> dark bronze anodised.	<input checked="" type="checkbox"/> brown
510F148	140 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white
510F150	140 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white
510F161	140 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> dark bronze anodised.	<input checked="" type="checkbox"/> brown
510F314	140 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> black anod.	<input checked="" type="checkbox"/> black
510F350	140 mm	Aluminium/14 mm	<input type="checkbox"/> RAL 9016	<input type="checkbox"/> white
510F157	160 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F158	160 mm	Aluminium/14 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white
510F162	160 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> dark bronze anodised.	<input checked="" type="checkbox"/> brown
510F304	160 mm	Aluminium/14 mm	<input checked="" type="checkbox"/> black anod.	<input checked="" type="checkbox"/> black
510F133	180 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F151	180 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white

## Aluminium crank handle with Ø 12.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F124	140 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F138	140 mm	Aluminium/16 mm	<input checked="" type="checkbox"/> dark bronze anodised.	<input checked="" type="checkbox"/> brown
510F190	140 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white
510F131	180 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey

## Aluminium crank handle with Ø 13.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F120	140 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> grey
510F164	140 mm	Aluminium/16 mm	<input type="checkbox"/> natural colour anod.	<input type="checkbox"/> white

## 510F989 | Unlocking device



## Characteristics

- For aluminium crank handles with concealed connecting pin

Part no.	Description
510F989	Unlocking device

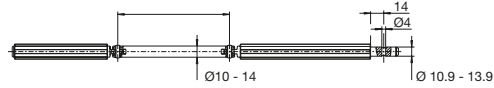
# 510F... | Steel crank handles

## Steel crank handles, various working radii and connecting pins



### Characteristics

- Abrasion-free and precise operation of the crank handle thanks to patented plastic pressure piece
- Ergonomic polygonal grip sleeves made from high-quality, impact-resistant and environmentally friendly plastic
- Other crank working radii, centre section and connection pin diameters on request
- Other surfaces, colours, and colour combinations on request



### Steel crank handle with Ø 10.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F482	140 mm	Steel/14 mm	nickel-plated	grey

### Steel crank handle with Ø 11.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510B256	180 mm	Steel/14 mm	nickel-plated	grey

### Steel crank handle with Ø 12.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510F248	140 mm	Steel/14 mm	nickel-plated	grey
510F259	140 mm	Steel/14 mm	nickel-plated	white

### Steel crank handle with Ø 13.9 mm trunnion

Part no.	Working radius [A]	Material/Ø	Colour (centre section)	Sleeve colour
510B220	140 mm	Steel/14 mm	nickel-plated	grey
510B230	180 mm	Steel/14 mm	nickel-plated	grey

## 510F0.. | Connecting tubes



### Characteristics

- Connecting tube made of aluminium or steel (length = 6000 mm)

Connecting tubes made of aluminium

Part no.	Outside-Ø	Inside Ø	Surface	Packing unit
510F039	13 mm	10 mm	■ dark bronze anodised.	240 m
510F024	13 mm	10 mm	□ natural colour anod.	240 m
510F032	13 mm	10 mm	□ RAL 9016	240 m
510F044	15 mm	12 mm	■ dark bronze anodised.	192 m
510F028	15 mm	12 mm	□ natural colour anod.	192 m
510F043	15 mm	12 mm	□ natural colour anod.	192 m
510F030	15 mm	12 mm	□ RAL 9016	192 m
510F029	15 mm	12 mm	■ black anod.	192 m
510F050	15.5 mm	Profile tube	□ natural colour anod.	180 m
510F046	15.5 mm	Profile tube	□ RAL 7035	180 m
510F048	15.5 mm	Profile tube	■ RAL 8019	180 m
510F049	15.5 mm	Profile tube	■ RAL 9005	180 m
510F047	15.5 mm	Profile tube	□ RAL 9016	180 m
510F055	15.5 mm	12 mm	□ RAL 9016	180 m
510F056	15.5 mm	12 mm	□ RAL 7035	180 m

Connecting tubes made of steel

Part no.	Outside-Ø	Inside Ø	Surface	Packing unit
510F020	12 mm	10 mm	□ RAL 7035	240 m
510F083	12 mm	10 mm	□ RAL 9016	240 m
510F022	14 mm	12 mm	□ RAL 7035	192 m
510F082	14 mm	12 mm	□ RAL 9016	192 m
510F023	16 mm	14 mm	□ RAL 7035	192 m
510F019	9 mm	7 mm	□ RAL 7035	240 m

## 506N... | Spiral pin

Application: **to secure the tube connection**



### Characteristics

- made of stainless steel or steel with galvanised surface

Part no.	Material	Outside-Ø	Length	Surface
506N410-0	Stainless steel	4 mm	10 mm	☒ blank
506N412-1	Steel	4 mm	12 mm	■ galvanised
506N413-0	Stainless steel	4 mm	13 mm	☒ blank
506N413-1	Steel	4 mm	13 mm	■ galvanised
506N414-1	Steel	4 mm	14 mm	■ galvanised
506N415-0	Stainless steel	4 mm	15 mm	☒ blank
506N415-1	Steel	4 mm	15 mm	■ galvanised
506N416-1	Steel	4 mm	16 mm	■ galvanised
506N417-1	Steel	4 mm	17 mm	■ galvanised
506N418-0	Stainless steel	4 mm	18 mm	☒ blank
506N418-1	Steel	4 mm	18 mm	■ galvanised
506N420-0	Stainless steel	4 mm	20 mm	☒ blank
506N420-1	Steel	4 mm	20 mm	■ galvanised
506N422-1	Steel	4 mm	22 mm	■ galvanised
506N424-0	Stainless steel	4 mm	24 mm	☒ blank
506N424-1	Steel	4 mm	24 mm	■ galvanised
506N430	Steel	4 mm	30 mm	☒ blank
506N430-1	Steel	4 mm	30 mm	■ galvanised

## 510F9.. | Mounting kit

Application: **For easy mounting of the crank handle to the spherical bearing**



### Characteristics

- Crank handle can be assembled and disassembled by hand without the use of tools
- Parallel pin replaces the conventional spiral pin
- Comprising stainless steel cylindrical pin (Ø 4 mm) and plastic locking sleeve (colours similar to RAL 7035, 9016 and 8019) for axial securing of the pin

Part no.	Colour	Tube outside diameter
510F992	□ RAL 7035	13 mm
510F993	■ RAL 8019	13 mm
510F996	□ RAL 9016	13 mm
510F990	□ RAL 7035	15 mm
510F995	■ RAL 8019	15 mm
510F991	□ RAL 9016	15 mm
510F997	■ RAL 9005	15 mm

## 510E7.. | Safety clip

Application: **For easy mounting of the crank handle to the spherical bearing**



### Characteristics

- Plastic safety clip with moulded stainless steel pin
- Crank handle can be assembled and disassembled by hand without the use of tools

For tubes with an outer diameter of 10 mm, pin diameter 2.5 mm

Part no.	Colour	Inside diameter
510E781	□ RAL 9016	9.8 mm
510E782	□ RAL 7035	9.8 mm

For tubes with an outside diameter of 12 and 13 mm, pin diameter 4 mm

Part no.	Colour	Inside diameter
510E751	□ RAL 9016	11.8 mm
510E752	□ RAL 7035	11.8 mm
510E753	■ RAL 8019	11.8 mm
510E754	■ RAL 9005	11.8 mm

For tubes with an outside diameter 15 to 17 mm, pin diameter 4 mm

Part no.	Colour	Inside diameter
510E701	□ RAL 9016	14.5 mm
510E702	□ RAL 7035	14.5 mm
510E703	■ RAL 8019	14.5 mm
510E704	■ RAL 9005	14.5 mm

## 510K... | Safety clip

Application: **for simple mounting of a profile tubular rod on the spherical bearing**



### Characteristics

- The tube is placed over the profile trunnion with the pre-assembled safety clip and locks into place automatically
- Crank handle can be assembled and disassembled by hand without the use of tools

Part no.	Description
510E230	□ RAL 9016
510E231	■ RAL 9005
510E232	□ RAL 7035
510E233	■ RAL 8019

## 510F930 | Drilling and sawing device



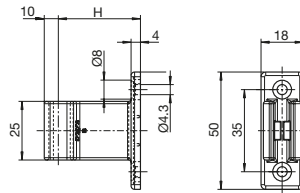
### Characteristics

- For precisely cutting the connecting tube to length and drilling the cross hole
- For connecting tubes from 13 mm to 16 mm diameter

Part no.	Description
510F930	Adjustable drilling and sawing device

## 514F... | Crank holder

Application: For all crank handles from 12 to 17 mm diameter



### Characteristics

- Available colours: similar to RAL 7035, 9016 and 8019
- High-quality plastic with elastic properties

Distance 20 mm

Part no.	Colour	Height [H]
514F123	<input type="checkbox"/> RAL 7035	20 mm
514F124	<input type="checkbox"/> RAL 8019	20 mm
514F148	<input type="checkbox"/> RAL 9016	20 mm

Distance 25 mm

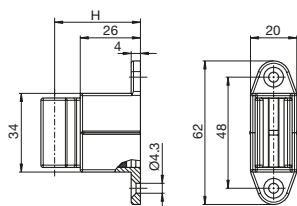
Part no.	Colour	Height [H]
514F125	<input type="checkbox"/> RAL 7035	25 mm
514F126	<input type="checkbox"/> RAL 8019	25 mm
514F127	<input type="checkbox"/> RAL 9016	25 mm
514F128	<input type="checkbox"/> RAL 9005	25 mm

Distance 35 mm

Part no.	Colour	Height [H]
514F135	<input type="checkbox"/> RAL 7035	35 mm
514F136	<input type="checkbox"/> RAL 9005	35 mm
514F137	<input type="checkbox"/> RAL 8019	35 mm
514F138	<input type="checkbox"/> RAL 9016	35 mm

## 514F... | Adjustable crank holder

Application: For all crank handles from 12 to 17 mm diameter



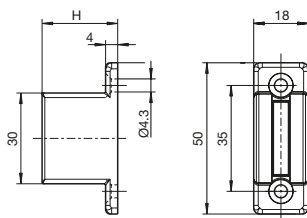
### Characteristics

- Adjustable in 6 steps (33-53 mm)
- Available colours: similar to RAL 7035, 9016 and 8019
- High-quality plastic with elastic properties

Part no.	Colour	Height [H]
514F133	RAL 7035	33-37-41-45-49-53 mm
514F134	RAL 9005	33-37-41-45-49-53 mm
514F141	RAL 9016	33-37-41-45-49-53 mm

## 514F... | Magnetic crank holder

Application: For all crank handles from 12 to 17 mm diameter



### Characteristics

- Available colours: similar to RAL 7035, 9016 and 8019
- For crank handles and/or connecting tubes made of steel

Distance 25 mm

Part no.	Colour	Height [H]
514F250	RAL 7035	25 mm
514F251	RAL 9005	25 mm
514F252	RAL 8019	25 mm
514F255	RAL 9016	25 mm

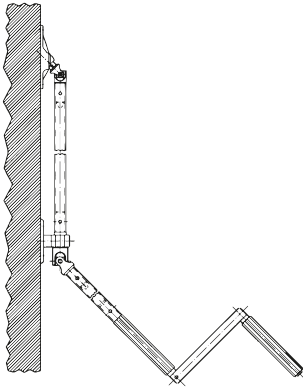
Distance 35 mm

Part no.	Colour	Height [H]
514F350	RAL 7035	35 mm
514F355	RAL 9016	35 mm

Distance 45 mm

Part no.	Colour	Height [H]
514F452	RAL 9016	45 mm

## Tubular bearing and universal joint

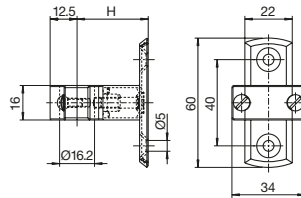


### Tubular bearing and universal joint

- Optimal handling of long rods
- Universal joint with additional shaft for mounting in the tube bearing
- Intermediate bearings for long connecting tubes (>200 cm) and deflection of the crank handle

## 514F00. | Tube bearing

### Intermediate bearings for long connecting tubes (>200 cm) and deflection of the crank handle

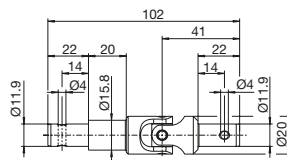


### Characteristics

- Bright nickel-plated surface
- Additional universal joint (818F033 or 820F511)

Part no.	Colour	Height
514F006	■ nickel-plated	33 mm
514F007	■ nickel-plated	41 mm

## 820F51. | Universal joints for tube bearings



### Characteristics

- For connecting the tubes when using tube bearing 514F00.

Part no.	Material	Surface	Drive $\Delta$	Output $\nabla$
820F057	Steel	■ galvanised	▼ 9.9 mm	▼ 9.9 mm
820F141	Steel	■ nickel-plated	▼ 12.9 mm	▼ 12.9 mm
820F511	Steel	■ nickel-plated	▼ 11.9 mm	▼ 11.9 mm
818F033	Aluminium	■ natural colour anod.	Profile tube	Profile tube

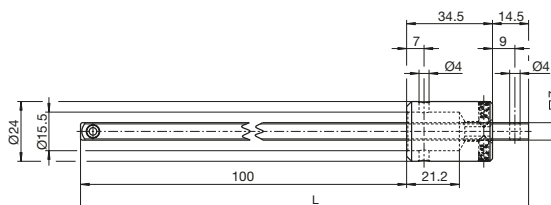
## 820F7.. | Adapter for telescopic tubes

Application: **For telescopic connecting tube**



### Characteristics

- For tube outer diameter 15.5 mm
- Telescopic dimensions 100, 200, 300, 400, and 500 mm
- With reducing sleeve from Ø 15.5 mm to 7 mm square
- Suitable for spherical bearings with 15.5 mm drive



Part no.	Material	Length [L]	Surface	Connection
820F762	Aluminium	150 mm	■ natural colour anod.	■ 7 mm
820F763	Aluminium	250 mm	■ natural colour anod.	■ 7 mm
820F764	Aluminium	350 mm	■ natural colour anod.	■ 7 mm
820F765	Aluminium	450 mm	■ natural colour anod.	■ 7 mm
820F766	Aluminium	550 mm	■ natural colour anod.	■ 7 mm

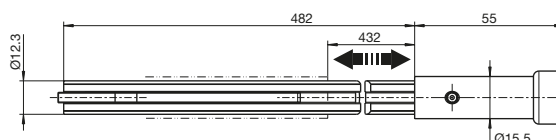
## PA.400 | Extension kit for profile rods

Application: **For telescopic connecting tube**



### Characteristics

- For profile tube
- Telescoping up to 400 mm
- Tube length at least 520 mm



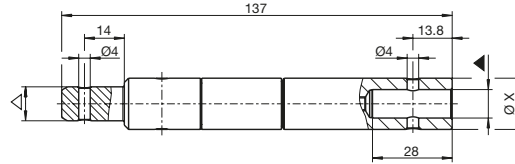
Part no.	Ø/material	Surface
PAG400	15.5 mm / aluminium	■ RAL 7035
PAN400	15.5 mm / aluminium	■ natural colour anod.
PAW400	15.5 mm / aluminium	■ RAL 9016

## 748F... | Overload protection



### Characteristics

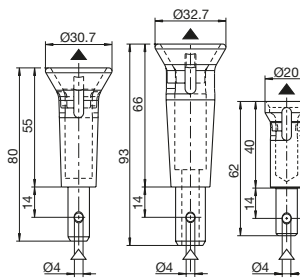
- For mounting between spherical bearing and connecting tube
- Available with different release torques
- Various drives and outputs available



Part no.	Material	Surface	Diameter [mm][x]	Release torques [Nm]	Drive $\Delta$	Output $\nabla$
748F007	Aluminium	□ natural colour anod.	20 mm	2- 2.5 Nm	† 9.9 mm	○ 10 mm
748F009	Aluminium	□ natural colour anod.	18 mm	4 Nm	† 9.9 mm	○ 10 mm
748F010	Aluminium	□ natural colour anod.	18 mm	4 Nm	† 11.9 mm	○ 10 mm

## 531F.../532F.../535F... | Clutch funnel

Application: **Removable crank handles**



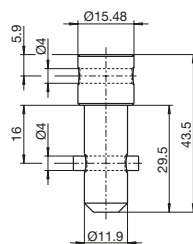
### Characteristics

- Bayonet lock: Crank handles can be securely hooked in and do not unhook themselves when turning to the right or left
- Incl. matching spiral pin for spherical bearing pin

Part no.	Surface	Holder	Trunnion
532F099	▨ nickel-plated	11.9 mm	Ø 9.9 mm
532F119	▨ nickel-plated	11.9 mm	Ø 11.9 mm
532F100	□ galvanised	11.9 mm	Ø 9.9 mm
531F150	▨ nickel-plated	13.9 mm	Ø 11.9 mm
531F139	▨ nickel-plated	13.9 mm	Ø 13.9 mm
535F502	□ galvanised	9.9 mm	Ø 9.9 mm
535F506	▨ nickel-plated	9.9 mm	Ø 9.9 mm
535F507	□ galvanised	9.9 mm	○ Ø 12 with screw
532F127	▨ nickel-plated	for profile tube	Profile tube

## 820F... | Connection trunnion

Application: **Connecting piece for spherical bearing 818F... when using the clutch funnel 532F119**



### Characteristics

- For mounting in Ø 15.5 mm hole

Part no.
820F427

## 506N4..-1 | Spiral pin



### Characteristics

- Pin for holding the clutch funnel on the spherical bearing pin
- Spiral pin 506N420-1 for funnel 531F...
- Spiral pin 506N418-1 for funnel 532F...
- Spiral pin 506N424-1 for funnel 532F... with profile trunnion
- Spiral pin 506N415-1 for funnel 535F...

Part no.	Material	Outside-Ø	Length	Surface
506N415-1	Steel	4 mm	15 mm	galvanised
506N418-1	Steel	4 mm	18 mm	galvanised
506N420-1	Steel	4 mm	20 mm	galvanised
506N424-1	Steel	4 mm	24 mm	galvanised

## SKS | Detachable crank handle system

Application: For difficult space conditions for Venetian blinds and rolling shutters

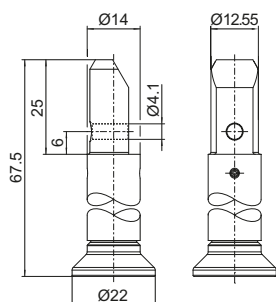


### Characteristics

- Enables easy disassembly of the rod after use
- Ideal in areas where a rod would be disruptive
- Prevents misuse of the rod by unauthorised users (schools, public buildings, etc.)

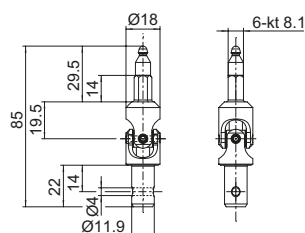
### Note

- For 45° and 90° spherical bearings
- Comprising a funnel and trunnion
- The funnel can also be permanently installed in gearboxes



### Funnel for rods

Part no.	Surface	Drive $\Delta$
532F104	natural colour anod.	Profile tube
532B001	natural colour anod.	11.9 mm



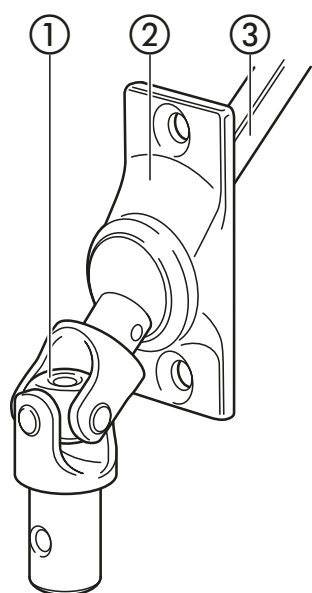
### Locking tip for rods

Part no.	Surface	Drive $\Delta$
818F090	natural colour anod.	11.9 mm
818F091	natural colour anod.	Profile tube
818F092	natural colour anod.	9.9 mm
818F094	RAL 9016	Ø 12 with screw

## 816F... | Standard spherical bearing 45°

Part no.	Item des. 1	Degrees	Plate	Trunnion	Connecting rod
816F01PR00	Spherical bearing 45° - 22x85 - Clip - SW6(300)	45°	22 x 85 mm	PROFILE	6 mm hexagon (300 mm)
816F01PR02	Spherical bearing 45° - 22x85 - Clip - 6/4(300)	45°	22 x 85 mm	PROFILE	6 mm square (300 mm)
816F011000	Spherical bearing 45° - 22x85 - 9.9 - SW6(300)	45°	22 x 85 mm	Ø 9.9	6 mm hexagon (300 mm)
816F011001	Spherical bearing 45° - 22x85 - 9.9 - SW7(300)	45°	22 x 85 mm	Ø 9.9	7 mm hexagon (300 mm)
816F011002	Spherical bearing 45° - 22x85 - 9.9 - 6/4(300)	45°	22 x 85 mm	Ø 9.9	6 mm square (300 mm)
816F011003	Spherical bearing 45° - 22x85 - 9.9 - 8/4(300)	45°	22 x 85 mm	Ø 9.9	8 mm square (300 mm)
816F011200	Spherical bearing 45° - 22x85 - 11.9 - SW6(300)	45°	22 x 85 mm	Ø 11.9	6 mm hexagon (300 mm)
816F011201	Spherical bearing 45° - 22x85 - 11.9 - SW7(300)	45°	22 x 85 mm	Ø 11.9	7 mm hexagon (300 mm)
816F011202	Spherical bearing 45° - 22x85 - 11.9 - 6/4(300)	45°	22 x 85 mm	Ø 11.9	6 mm square (300 mm)
816F011203	Spherical bearing 45° - 22x85 - 11.9 - 8/4(300)	45°	22 x 85 mm	Ø 11.9	8 mm square (300 mm)
816F011300	Spherical bearing 45° - 22x85 - 12.9 - SW6(300)	45°	22 x 85 mm	Ø 12.9	6 mm hexagon (300 mm)
816F011302	Spherical bearing 45° - 22x85 - 12.9 - 6/4(300)	45°	22 x 85 mm	Ø 12.9	6 mm square (300 mm)
816F011303	Spherical bearing 45° - 22x85 - 12.9 - 8/4(300)	45°	22 x 85 mm	Ø 12.9	8 mm square (300 mm)
816F021200	Spherical bearing 45° - 22x85 (wood) - 11.9 - SW6(300)	45°	22 x 85 mm	Ø 11.9	6 mm hexagon (300 mm)
816F021201	Spherical bearing 45° - 22x85 (wood) - 11.9 - SW7(300)	45°	22 x 85 mm	Ø 11.9	7 mm hexagon (300 mm)
816F021202	Spherical bearing 45° - 22x85 (wood) - 11.9 - 6/4(300)	45°	22 x 85 mm	Ø 11.9	6 mm square (300 mm)
816F021203	Spherical bearing 45° - 22x85 (wood) - 11.9 - 8/4(300)	45°	22 x 85 mm	Ø 11.9	8 mm square (300 mm)
816F03PR02	Spherical bearing 45° - 22x52 - Clip - 6/4(300)	45°	22 x 52 mm	PROFILE	6 mm square (300 mm)
816F031002	Spherical bearing 45° - 22x52 - 9.9 - 6/4(300)	45°	22 x 52 mm	Ø 9.9	6 mm square (300 mm)
816F031200	Spherical bearing 45° - 22x52 - 11.9 - SW6(300)	45°	22 x 52 mm	Ø 11.9	6 mm hexagon (300 mm)
816F031201	Spherical bearing 45° - 22x52 - 11.9 - SW7(300)	45°	22 x 52 mm	Ø 11.9	7 mm hexagon (300 mm)
816F031202	Spherical bearing 45° - 22x52 - 11.9 - 6/4(300)	45°	22 x 52 mm	Ø 11.9	6 mm square (300 mm)
816F031203	Spherical bearing 45° - 22x52 - 11.9 - 8/4(300)	45°	22 x 52 mm	Ø 11.9	8 mm square (300 mm)
816F031302	Spherical bearing 45° - 22x52 - 12.9 - 6/4(300)	45°	22 x 52 mm	Ø 12.9	6 mm square (300 mm)
816F041200	Spherical bearing 45° - 22x52 (wood) - 11.9 - SW6(300)	45°	22 x 52 mm	Ø 11.9	6 mm hexagon (300 mm)
816F041202	Spherical bearing 45° - 22x52 (wood) - 11.9 - 6/4(300)	45°	22 x 52 mm	Ø 11.9	6 mm square (300 mm)
816F041203	Spherical bearing 45° - 22x52 (wood) - 11.9 - 8/4(300)	45°	22 x 52 mm	Ø 11.9	8 mm square (300 mm)
816F07PR28	Spherical bearing 45° - 17x73 - Clip - 6/4(300)	45°	17 x 73 mm	PROFILE	6 mm square (300 mm)
816F071023	Spherical bearing 45° - 17x73 - 9.9 - SW6(300)	45°	17 x 73 mm	Ø 9.9	6 mm hexagon (300 mm)
816F071028	Spherical bearing 45° - 17x73 - 9.9 - 6/4(300)	45°	17 x 73 mm	Ø 9.9	6 mm square (300 mm)
816F071203	Spherical bearing 45° - 17x73 - 11.9 - 8/4(300)	45°	17 x 73 mm	Ø 11.9	8 mm square (300 mm)
816F071223	Spherical bearing 45° - 17x73 - 11.9 - 6/6(300)	45°	17 x 73 mm	Ø 11.9	6 mm hexagon (300 mm)
816F071228	Spherical bearing 45° - 17x73 - 11.9 - 6/4(300)	45°	17 x 73 mm	Ø 11.9	6 mm square (300 mm)
816F111200	Spherical bearing 45° - 27x56 - 11.9 - SW6(300)	45°	27 x 56 mm	Ø 11.9	6 mm hexagon (300 mm)
816F111202	Spherical bearing 45° - 27x56 - 11.9 - 6/4(300)	45°	27 x 56 mm	Ø 11.9	6 mm square (300 mm)
816F111203	Spherical bearing 45° - 27x56 - 11.9 - 8/4(300)	45°	27 x 56 mm	Ø 11.9	8 mm square (300 mm)
816F121200	Spherical bearing 45° - 27x45 - 11.9 - SW6(300)	45°	27 x 45 mm	Ø 11.9	6 mm hexagon (300 mm)
816F121202	Spherical bearing 45° - 27x45 - 11.9 - 6/4(300)	45°	27 x 45 mm	Ø 11.9	6 mm square (300 mm)

## Information on the spherical bearings



### How to find the right spherical bearing for your application

#### ① Universal joints

- 816F... made of steel, diameter 16 mm, max. load 3 Nm
- 818F... made of aluminium, diameter 18 mm, max. load 5 Nm

#### ② Spherical bearing plates

- With a deflection of 45° or 90°
- Made of high-strength plastic in 3 colours (white, grey, brown). Other colours on request.
- Made of die-cast zinc, nickel-plated. Powder-coated colours on request.

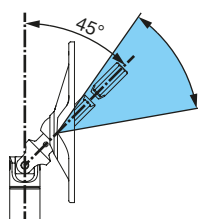
#### ③ Output rods

- According to the requirements of the gearbox. Rod length according to structural conditions.

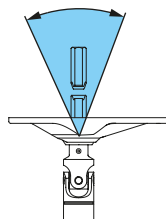
### Specification of the swivel range for spherical bearing plates

#### 45° universal

vertical installation

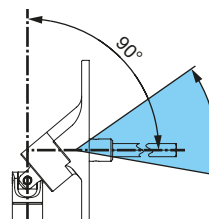


horizontal installation

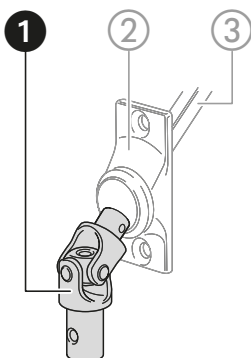


#### 90° universal

vertical installation

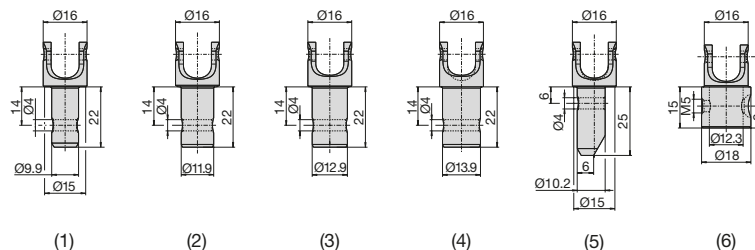


## 816F... | Universal joints for spherical bearings



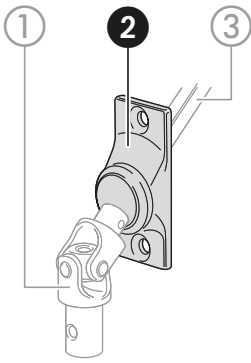
### Characteristics

- Steel universal joints with 16 mm diameter (up to 3 Nm)
- Other versions and connecting trunnions on request



Part no.	Material	Trunnion
816F... (1)	Steel	┆ 9.9 mm
816F... (2)	Steel	┆ 11.9 mm
816F... (3)	Steel	┆ 12.9 mm
816F... (4)	Steel	┆ 13.9 mm
816F... (5)	Steel	┆ PROFILE
816F... (6)	Steel	○ 12.3 mm

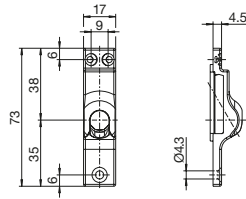
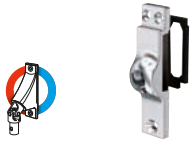
# 816F... | Spherical bearing plates 45°



## Characteristics

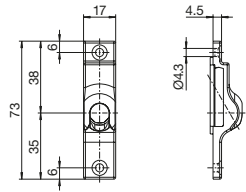
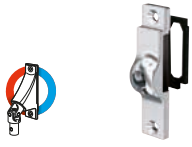
- Max. torque 3 Nm
- Steel universal joints
- Various connecting trunnions and connecting rods available
- Attachment plates made of die-cast zinc (bright nickel-plated) or plastic in 2 standard colours (white, grey)
- Swivelling range depends on the plate

## Airtight designs



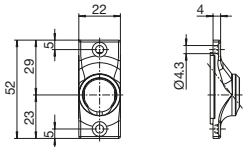
Part no.	Swivelling range	Material	Height	Width
816F205....	50°	Zinc	73.0 mm	17.0 mm

airtight design  
optimised for wooden windows



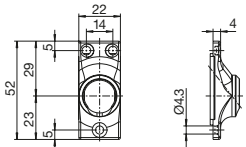
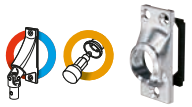
Part no.	Swivelling range	Material	Height	Width
816F204....	50°	Zinc	73.0 mm	17.0 mm

airtight design



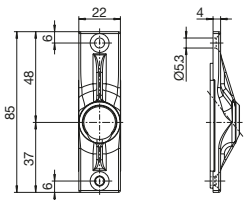
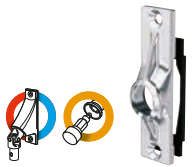
Part no.	Swivelling range	Material	Height	Width
816F202....	50°	Zinc	52.0 mm	22.0 mm

airtight design



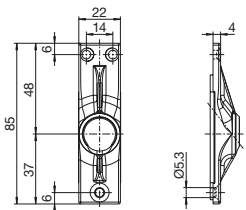
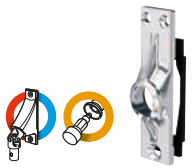
Part no.	Swivelling range	Material	Height	Width
816F203....	50°	Zinc	52.0 mm	22.0 mm

airtight design  
optimised for wooden windows



Part no.	Swivelling range	Material	Height	Width
816F200....	50°	Zinc	85.0 mm	22.0 mm

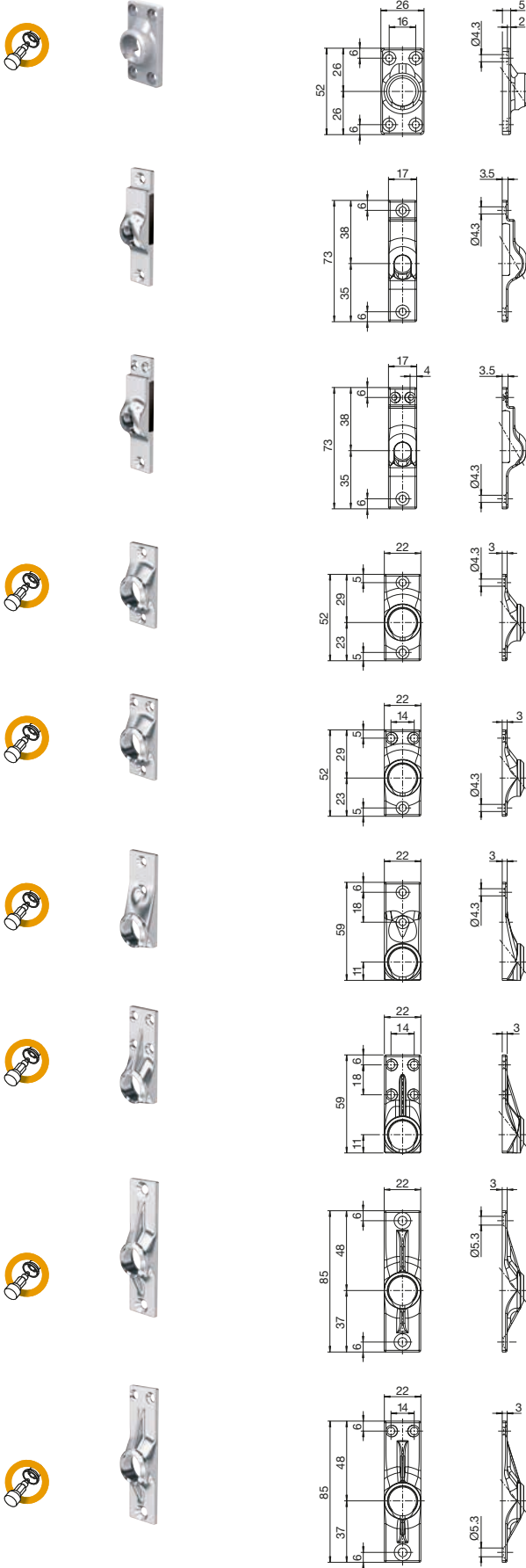
airtight design



Part no.	Swivelling range	Material	Height	Width
816F201....	50°	Zinc	85.0 mm	22.0 mm

airtight design  
optimised for wooden windows

## Standard version



Part no.	Swivelling range	Material	Height	Width
816F26....	50°	Plastic	52.0 mm	26.0 mm

Part no.	Swivelling range	Material	Height	Width
816F07....	50°	Zinc	73.0 mm	17.0 mm

Part no.	Swivelling range	Material	Height	Width
816F08....	50°	Zinc	73.0 mm	17.0 mm

optimised for wooden windows

Part no.	Swivelling range	Material	Height	Width
816F03....	50°	Zinc	52.0 mm	22.0 mm

Part no.	Swivelling range	Material	Height	Width
816F04....	50°	Zinc	52.0 mm	22.0 mm

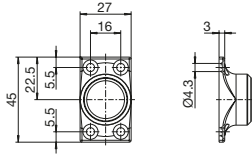
optimised for wooden windows

Part no.	Swivelling range	Material	Height	Width
816F05....	50°	Zinc	59.0 mm	22.0 mm

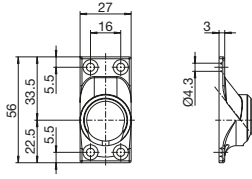
Part no.	Swivelling range	Material	Height	Width
816F06....	50°	Zinc	59.0 mm	22.0 mm

Part no.	Swivelling range	Material	Height	Width
816F(0)01....	50°	Zinc	85.0 mm	22.0 mm

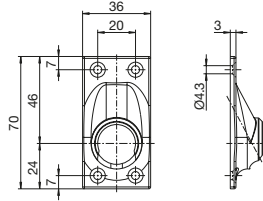
Part no.	Swivelling range	Material	Height	Width
816F02....	50°	Zinc	85.0 mm	22.0 mm



Part no.	Swivelling range	Material	Height	Width
816F12....	35°	Zinc	45.0 mm	27.0 mm



Part no.	Swivelling range	Material	Height	Width
816F11....	50°	Zinc	56.0 mm	27.0 mm

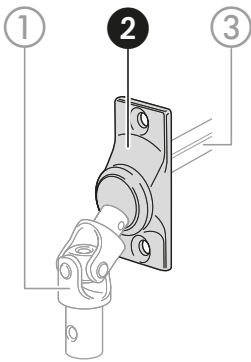


Part no.	Swivelling range	Material	Height	Width
816F13....	50°	Zinc	70.0 mm	36.0 mm

## 816F... | Standard spherical bearing 90°

Part no.	Item des. 1	Degrees	Plate	Trunnion	Connecting rod
816F16PR00	Spherical bearing 90° - 22x85 - Clip - SW6(300)	90°	22 x 85 mm	PROFILE	6 mm hexagon (300 mm)
816F16PR02	Spherical bearing 90° - 22x85 - Clip - 6/4(300)	90°	22 x 85 mm	PROFILE	6 mm square (300 mm)
816F161000	Spherical bearing 90° - 22x85 - 9.9 - SW6(300)	90°	22 x 85 mm	Ø 9.9	6 mm hexagon (300 mm)
816F161001	Spherical bearing 90° - 22x85 - 9.9 - SW7(300)	90°	22 x 85 mm	Ø 9.9	7 mm hexagon (300 mm)
816F161002	Spherical bearing 90° - 22x85 - 9.9 - 6/4(300)	90°	22 x 85 mm	Ø 9.9	6 mm square (300 mm)
816F161003	Spherical bearing 90° - 22x85 - 9.9 - 8/4(300)	90°	22 x 85 mm	Ø 9.9	8 mm square (300 mm)
816F161200	Spherical bearing 90° - 22x85 - 11.9 - SW6(300)	90°	22 x 85 mm	Ø 11.9	6 mm hexagon (300 mm)
816F161201	Spherical bearing 90° - 22x85 - 11.9 - SW7(300)	90°	22 x 85 mm	Ø 11.9	7 mm hexagon (300 mm)
816F161202	Spherical bearing 90° - 22x85 - 11.9 - 6/4(300)	90°	22 x 85 mm	Ø 11.9	6 mm square (300 mm)
816F161203	Spherical bearing 90° - 22x85 - 11.9 - 8/4(300)	90°	22 x 85 mm	Ø 11.9	8 mm square (300 mm)
816F161300	Spherical bearing 90° - 22x85 - 12.9 - SW6(300)	90°	22 x 85 mm	Ø 12.9	6 mm hexagon (300 mm)
816F161301	Spherical bearing 90° - 22x85 - 12.9 - SW7(300)	90°	22 x 85 mm	Ø 12.9	7 mm hexagon (300 mm)
816F161302	Spherical bearing 90° - 22x85 - 12.9 - 6/4(300)	90°	22 x 85 mm	Ø 12.9	6 mm square (300 mm)
816F161303	Spherical bearing 90° - 22x85 - 12.9 - 8/4(300)	90°	22 x 85 mm	Ø 12.9	8 mm square (300 mm)
816F171200	Spherical bearing 90° - 42x68 - 11.9 - SW6(300)	90°	42 x 68 mm	Ø 11.9	6 mm hexagon (300 mm)
816F171202	Spherical bearing 90° - 42x68 - 11.9 - 6/4(300)	90°	42 x 68 mm	Ø 11.9	6 mm square (300 mm)
816F401200	Spherical bearing 90° - 42x85 - 11.9 - SW6(300)	90°	42 x 85 mm	Ø 11.9	6 mm hexagon (300 mm)
816F401202	Spherical bearing 90° - 42x85 - 11.9 - 6/4(300)	90°	42 x 85 mm	Ø 11.9	6 mm square (300 mm)
816F401203	Spherical bearing 90° - 42x85 - 11.9 - 8/4(300)	90°	42 x 85 mm	Ø 11.9	8 mm square (300 mm)

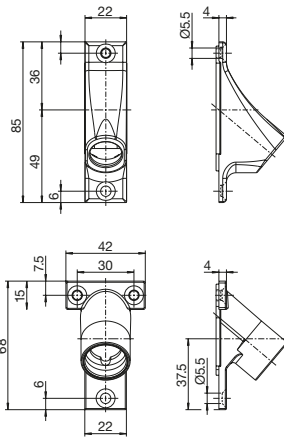
# 816F... | Spherical bearing plates 90°



## Characteristics

- Max. torque 3 Nm
- Steel universal joints
- Various connecting trunnions and connecting rods available
- Attachment plates made of die-cast zinc (bright nickel-plated) or plastic in 3 standard colours (white, grey, brown)
- Swivelling range depends on the plate

## Airtight design



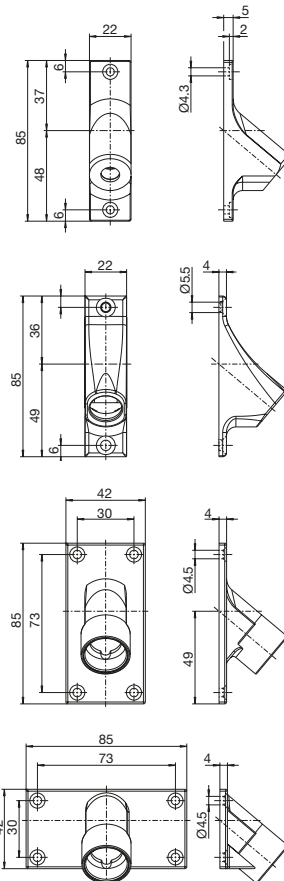
Part no.	Swivelling range	Material	Height	Width
816F206....	46°	Zinc	85.0 mm	22.0 mm

airtight design

Part no.	Swivelling range	Material	Height	Width
816F207....	46°	Zinc	68.0 mm	42.0 mm

airtight design

## Standard version



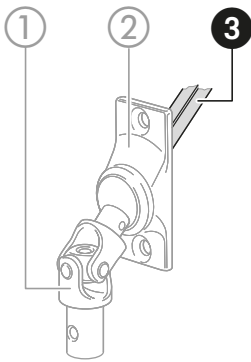
Part no.	Swivelling range	Material	Height	Width
816F2D....	46°	Plastic	85.0 mm	22.0 mm

Part no.	Swivelling range	Material	Height	Width
816F16....	46°	Zinc	85.0 mm	22.0 mm

Part no.	Swivelling range	Material	Height	Width
816F40....	46°	Zinc	85.0 mm	42.0 mm

Part no.	Swivelling range	Material	Height	Width
816F41....	46°	Zinc	42.0 mm	85.0 mm

## 816E... | Output rods



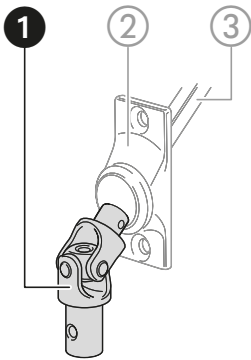
### Characteristics

- Various profiles and lengths of output rods available
- Made of steel with galvanised surface

Profile	Length 300 mm	Length 500 mm
■ 6 mm	816E062	816E274
■ 8 mm	816E064	816E067
◆ 6 mm	816E036	816E030
◆ 7 mm	816E057	816E264

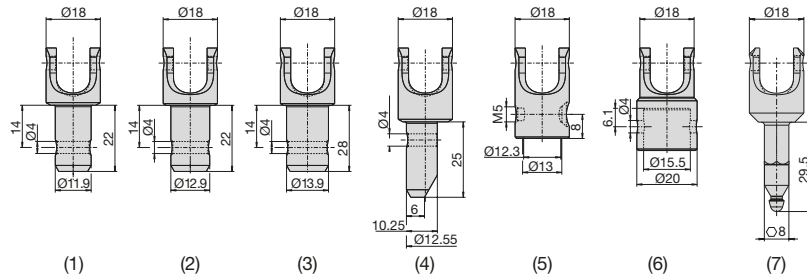


## 818F... | Universal joints for spherical bearings



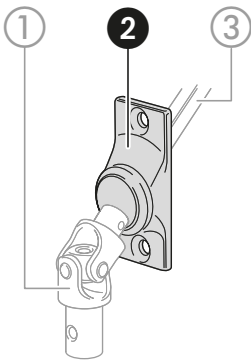
### Characteristics

- Universal joints made of aluminium with 18 mm diameter (up to 5 Nm)
- Other versions and connecting trunnions on request



Part no.	Material	Trunnion
818F... (1)	Aluminium	▼ 11.9 mm
818F... (2)	Aluminium	▼ 12.9 mm
818F... (3)	Aluminium	▼ 13.9 mm
818F... (4)	Aluminium	▼ Profile tube
818F... (5)	Aluminium	○ 12.3 mm
818F... (6)	Aluminium	○ 15.5 mm
818F... (7)	Aluminium	○ 8 mm (SKS)

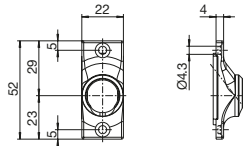
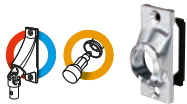
## 818F... | Spherical bearing plates 45°



### Characteristics

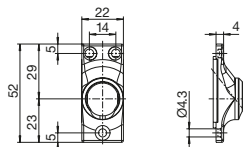
- Max. torque 5 Nm
- Universal joints made of aluminium
- Various connecting trunnions and connecting rods available
- Attachment plates made of die-cast zinc (bright nickel-plated) or plastic in 2 standard colours (white, grey)
- Swivelling range depends on the plate

### Airtight designs



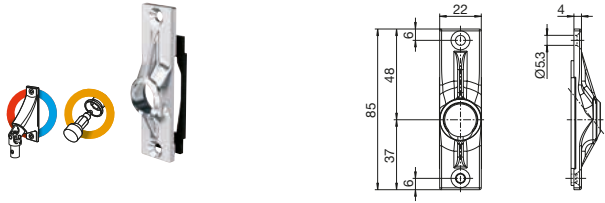
Part no.	Swivelling range	Material	Height	Width
818F202....	50°	Zinc	52.0 mm	22.0 mm

### airtight design



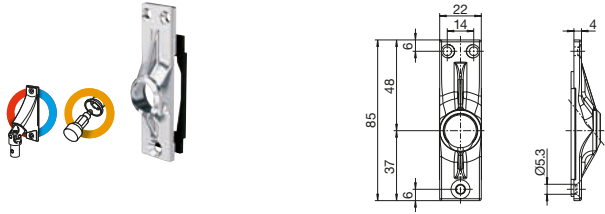
Part no.	Swivelling range	Material	Height	Width
818F203....	50°	Zinc	52.0 mm	22.0 mm

### airtight design optimised for wooden windows



Part no.	Swivelling range	Material	Height	Width
818F200....	50°	Zinc	85.0 mm	22.0 mm

airtight design



Part no.	Swivelling range	Material	Height	Width
818F201....	50°	Zinc	85.0 mm	22.0 mm

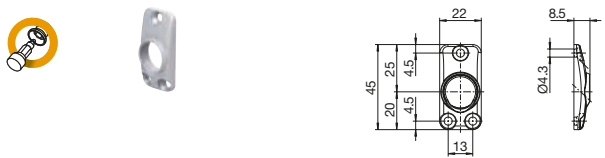
airtight design  
optimised for wooden windows

**Standard versions**



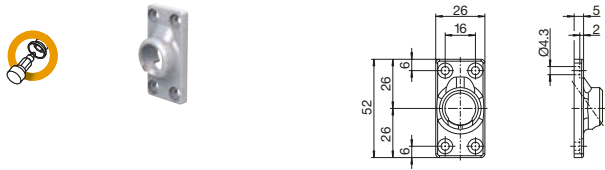
Part no.	Swivelling range	Material	Height	Width
818F113....	+ 33°/- 22°	Plastic	31.2 mm	31.2 mm

suitable for folding universal joints

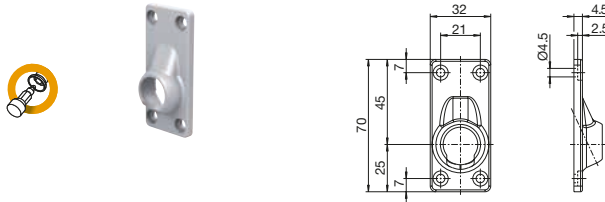


Part no.	Swivelling range	Material	Height	Width
818F114....	+ 42°/- 22°	Plastic	45.0 mm	22.0 mm

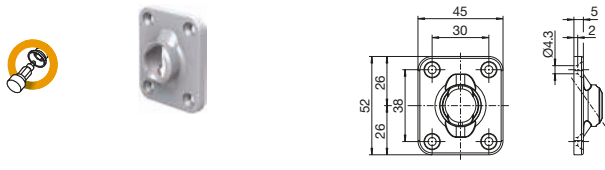
suitable for folding universal joints



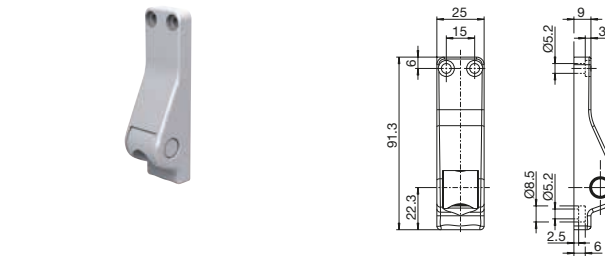
Part no.	Swivelling range	Material	Height	Width
818F26....	50°	Plastic	52.0 mm	26.0 mm



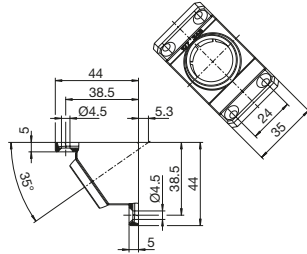
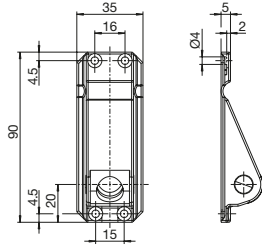
Part no.	Swivelling range	Material	Height	Width
818F1A....	65°	Plastic	70.0 mm	32.0 mm



Part no.	Swivelling range	Material	Height	Width
818F(0)25....	45°	Plastic	52.0 mm	45.0 mm

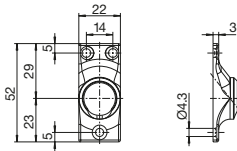
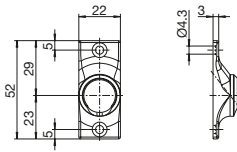


Part no.	Swivelling range	Material	Height	Width
818F37....	70°	Plastic	91.3 mm	25.0 mm



Part no.	Swivelling range	Material	Height	Width
818F2U....	70°	Plastic	90.0 mm	35.0 mm

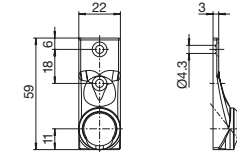
Part no.	Swivelling range	Material	Height	Width
818FWW....	25°	Plastic	44.0 mm	35.0 mm



Part no.	Swivelling range	Material	Height	Width
818F03....	50°	Zinc	52.0 mm	22.0 mm

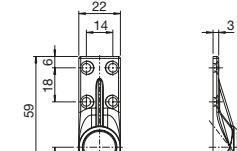
Part no.	Swivelling range	Material	Height	Width
818F04....	50°	Zinc	52.0 mm	22.0 mm

optimised for wooden windows



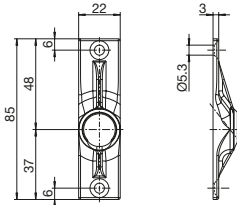
Part no.	Swivelling range	Material	Height	Width
818F05....	50°	Zinc	59.0 mm	22.0 mm

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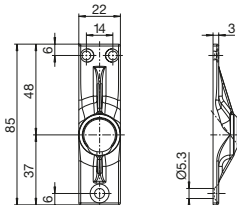


Part no.	Swivelling range	Material	Height	Width
818F67....	50°	Zinc	59.0 mm	22.0 mm

optimised for wooden windows

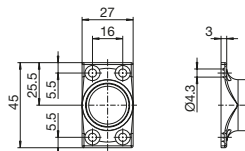


Part no.	Swivelling range	Material	Height	Width
818F01....	50°	Zinc	85.0 mm	22.0 mm

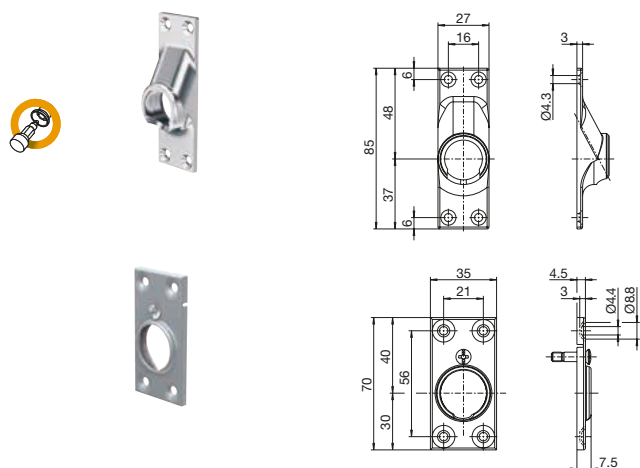


Part no.	Swivelling range	Material	Height	Width
818F02....	50°	Zinc	85.0 mm	22.0 mm

optimised for wooden windows



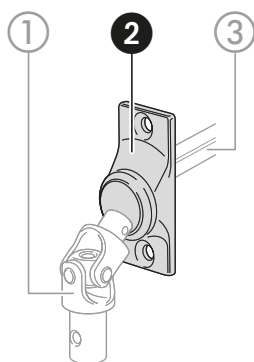
Part no.	Swivelling range	Material	Height	Width
818F12....	35°	Zinc	45.0 mm	27.0 mm



Part no.	Swivelling range	Material	Height	Width
818F15....	65°	Zinc	85.0 mm	27.0 mm

Part no.	Swivelling range	Material	Height	Width
818F(0)13	50°	INOX	70.0 mm	35.0 mm

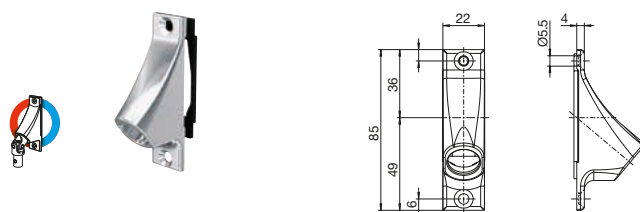
## 818F... | Spherical bearing plates 90°



### Characteristics

- Max. torque 5 Nm
- Universal joints made of aluminium
- Various connecting trunnions and connecting rods available
- Attachment plates made of die-cast zinc (bright nickel-plated) or plastic in 3 standard colours (white, grey, brown)
- Swivelling range depends on the plate

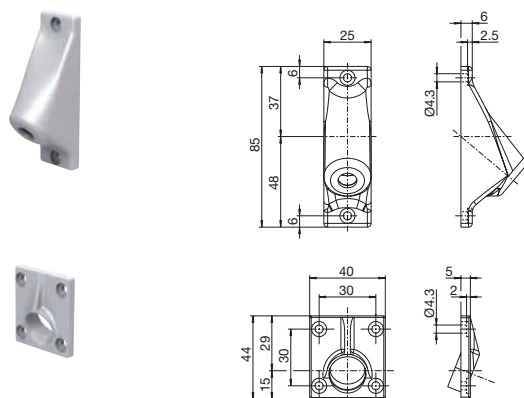
### Airtight designs



Part no.	Swivelling range	Material	Height	Width
818F46....	46°	Zinc	85.0 mm	22.0 mm

airtight design

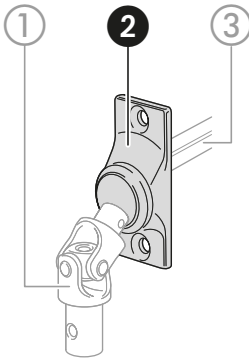
### Standard versions



Part no.	Swivelling range	Material	Height	Width
818F(0)44....	46°	Plastic	85.0 mm	22.0 mm

Part no.	Swivelling range	Material	Height	Width
818F1B....	46°	Plastic	44.0 mm	40.0 mm

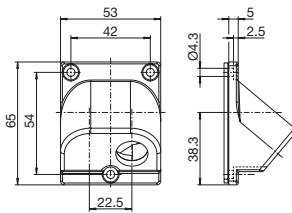
## 818F... | Offset spherical bearing 90°



### Characteristics

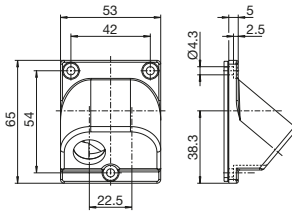
- To compensate for misalignment between gear and crank or in hard-to-reach spaces
- Max. torque 5 Nm
- Universal joints made of aluminium
- Various connecting trunnions and connecting rods available
- Housing made of plastic in 3 different colour (white, grey, brown)

### Offset spherical bearing (airtight design)



Part no.	Swivelling range	Material	Height	Width
818F562	60°	Plastic	65.0 mm	53.0 mm

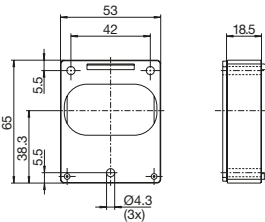
airtight design



Part no.	Swivelling range	Material	Height	Width
818F563	60°	Plastic	65.0 mm	53.0 mm

airtight design

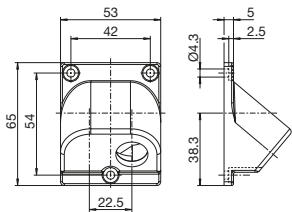
### Extension plate for offset spherical bearing (airtight version)



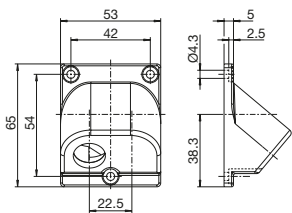
Part no.	Swivelling range	Material	Height	Width
818F568	-	Plastic	65.0 mm	53.0 mm

airtight design

### Offset spherical bearing (normal version)

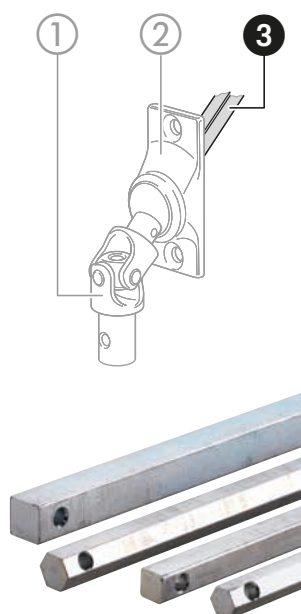


Part no.	Swivelling range	Material	Height	Width
818F501....	60°	Plastic	65.0 mm	53.0 mm



Part no.	Swivelling range	Material	Height	Width
818F500....	60°	Plastic	65.0 mm	53.0 mm

## 816E... | Output rods



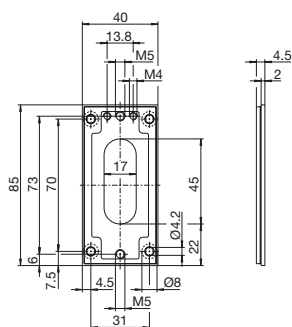
### Characteristics

- Various profiles and lengths of output rods available
- Made of steel with galvanised surface

Profile	Length 300 mm	Length 500 mm
■ 6 mm	816E062	816E274
■ 8 mm	816E064	816E067
● 6 mm	816E036	816E030
● 7 mm	816E057	816E264

## 740F.. | Spacers 40x85 mm / 85x85 mm

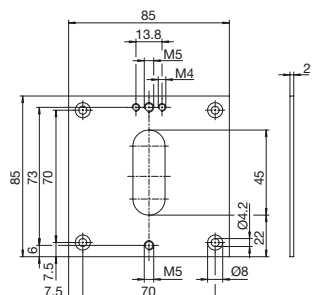
Application: **Covering of large wall openings**



### Characteristics

- Suitable for all spherical bearings with 22 x 85 mm base plate
- Made of steel
- Bright nickel-plated or powder-coated surface
- Also available in an airtight version

Part no.	Colour	Description	Material thickness	Outer dimension
740F002	■ nickel-plated	airtight	2 mm	40X85 mm
740F003	■ nickel-plated	-	2 mm	40X85 mm
740F008	□ RAL 9016	-	2 mm	40X85 mm



### Characteristics

- Suitable for all spherical bearings with 22 x 85 mm base plate
- Made of steel
- Bright nickel-plated or powder-coated surface
- Also available in an airtight version

Part no.	Colour	Description	Material thickness	Outer dimension
740F001	■ nickel-plated	-	2 mm	85X85 mm
740F006	■ nickel-plated	airtight	2 mm	85X85 mm
740F007	□ RAL 9016	-	2 mm	85X85 mm

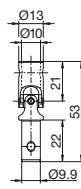
# 813F.../816F.../818F.../820F... | Universal joints

Application: **Connection of coupled systems with angular offset**

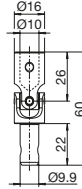


## Characteristics

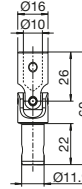
- Max. torque: 813F... 2 Nm, 816F... 3 Nm, 818F... 5 Nm, 820F... 6 Nm
- Steel universal joints, hardened version on request
- Various connection dimensions available
- Surface finish galvanised or bright nickel-plated
- Max. deflection 45°



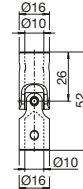
813F131



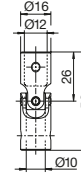
816F001



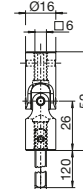
816F002



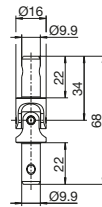
816F029



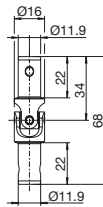
816F008



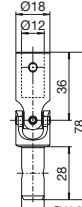
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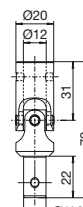
816F017



816F021



818F200



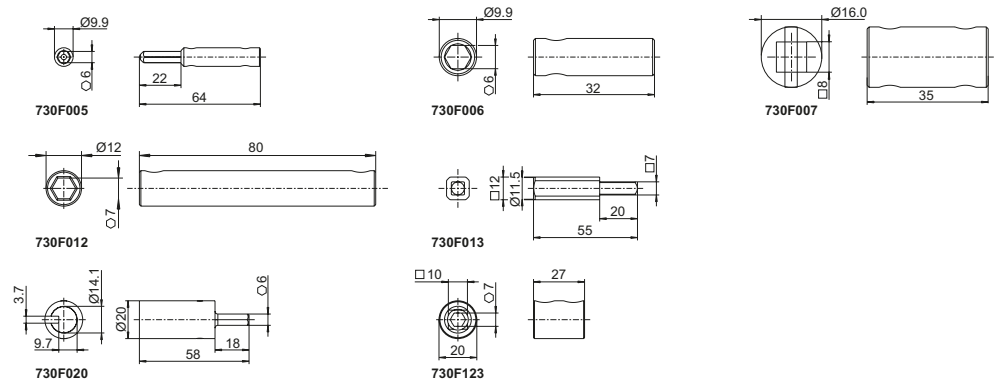
820F068

Part no.	Material	Surface	Drive	Output
813F131	Steel	galvanised	9.9 mm	10 mm
816F001	Steel	nickel-plated	9.9 mm	10 mm
816F002	Steel	nickel-plated	11.9 mm	10 mm
816F029	Steel	nickel-plated	10 mm	10 mm
816F008	Steel	nickel-plated	10 mm	12 mm
816F061	Steel	galvanised	6 mm	6 mm
816F017	Steel	nickel-plated	9.9 mm	9.9 mm
816F021	Steel	nickel-plated	11.9 mm	11.9 mm
818F200	Aluminium	natural colour anod.	11.9 mm	12 mm
820F068	Steel	nickel-plated	11.9 mm	12 mm

# 730F... | Coupling pieces

## Characteristics

- Various connection dimensions available
- Surface finish galvanised or bright nickel-plated



Part no.	Drive	Output
730F005	● 6 mm	∅10 mm
730F006	○ 6 mm	○ 6 mm
730F007	○ 8 mm	○ 8 mm
730F012	○ 7 mm	○ 7 mm
730F013	■ 12 mm	■ 7 mm
730F020	● 6 mm	○ for 14 mm grooved tube
730F123	○ 7 mm	○ 10 mm

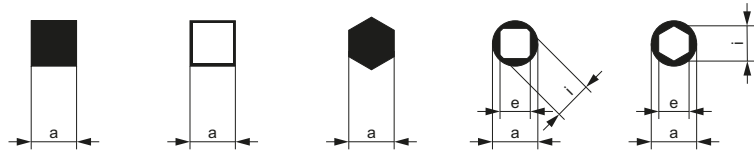
## 723F... | Rod material

### Characteristics

- Square rod
- Square brass tube
- Hexagonal rod
- Steel tube with internal square
- Steel tube with internal hexagon

### Note

- Part no. and current delivery lengths on request.
- Dimensions e and i on request



Part no.	Material	Surface	Length	External dimension [a]	Profiles
723F002	Steel	□ galvanised	5000 mm	6 mm	■ 6 mm
723F004	Steel	□ galvanised	5000 mm	6 mm	● 6 mm
723F006	Steel	⊠ blank	5700 mm	8 mm	■ 8 mm
723F016	Steel	⊠ blank	3000 mm	7 mm	● 7 mm
816E030	Steel	□ galvanised	526 mm	6 mm	● 6 mm
816E067	Steel	□ galvanised	526 mm	8 mm	■ 8 mm
816E274	Steel	□ galvanised	526 mm	6 mm	■ 6 mm
723F007	Steel	□ galvanised	500 mm	12 mm	○ 6 mm
723F008	Steel	⊠ blank	4500 mm	12 mm	○ 6 mm
723F009	Steel	□ galvanised	500 mm	14 mm	○ 8 mm
723F010	Steel	⊠ blank	2700 mm	14 mm	○ 8 mm
723F011	Steel	□ galvanised	500 mm	16 mm	○ 8 mm
723F012	Steel	⊠ blank	3000 mm	16 mm	○ 8 mm
723F013	Brass	▨ nickel-plated	500 mm	16 mm	□ 14 mm
723F018	Steel	⊠ blank	3000 mm	10 mm	○ 6 mm
723F020	Steel	⊠ blank	3000 mm	12 mm	○ 7 mm
723F024	Steel	⊠ blank	3000 mm	10 mm	○ 7 mm
723F025	Steel	□ galvanised	500 mm	10 mm	○ 5 mm
723F026	Steel	⊠ blank	3000 mm	10 mm	○ 5 mm
723F031	Aluminium	⊠ blank	500 mm	12 mm	○ 7 mm

## 430F5.. | Angle gear

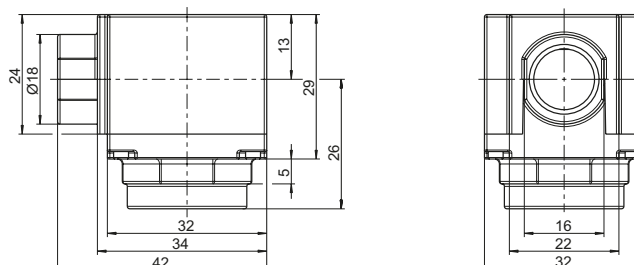
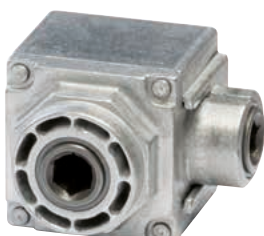
max. output torque	<b>6 Nm</b>
Transmission	<b>1:1 1.5:1 1:1.5</b>
Efficiency	<b>0.83</b>

### Characteristics

- Housing made of die-cast zinc, toothing made of steel
- Bearing points are filled with plastic
- With one drive and one output

### Note

- Other drive/output combinations on request
- Also available as angle gear for emergency operation (max. 10 Nm)

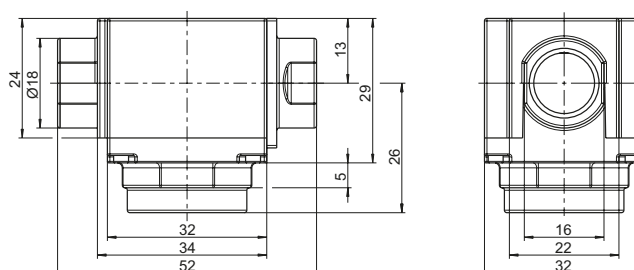


Part no.	Drive/output profile	Transmission	Drive/output(s)
430F550	○ 7 mm	1 : 1	2
430F551	○ 7 mm	1.5 : 1	2
430F552	○ 7 mm	1 : 1.5	2



### Characteristics

- As before, but with one drive and two outputs or two drives and one output

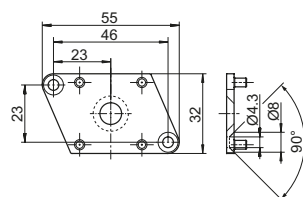
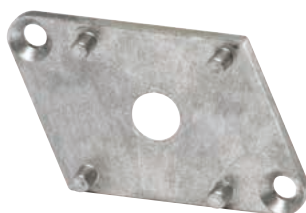


Part no.	Drive/output profile	Transmission	Drive/output(s)
430F553	○ 7 mm	1 : 1	3
430F554	○ 7 mm	1.5 : 1	3
430F555	○ 7 mm	1 : 1.5	3

## 430F503 | Attachment plate

### Characteristics

- Incl. countersunk screw (M6 x 16 mm, galvanised, with screw lock) for fixation to the gearbox
- For horizontal and vertical mounting
- Suitable for angle gears 430F5..



Part no.	Part no.
430F503	

# GEIGER SWIMMING POOL GEARBOXES

## FOR RELIABLE OPERATION OF SWIMMING POOL COVERS

### Why are swimming pool covers used?

- **Safety:** One of the most important functions of swimming pool covers is to increase safety. They can prevent children or pets from accidentally falling into the water, which can often cause serious injury or even death.
- **Cleanliness:** A cover can keep the pool clean by preventing dirt, leaves, twigs, and other impurities from getting into the water. This reduces the need for cleaning agents and equipment, which saves time and money.
- **Energy efficiency:** A pool cover can also help to improve the energy efficiency of the pool by reducing heat loss. The heat remains in the pool and less energy is required to heat the water when the cover is closed. This can reduce heating costs.

### Handling of swimming pool covers

The GEIGER swimming pool gearbox is probably the easiest way to operate flexible swimming pool covers. The cover can be easily rolled up into a bale and unrolled again with the gearbox and the long crank. After use, the gearbox can be removed and stored in a safe and dry place.

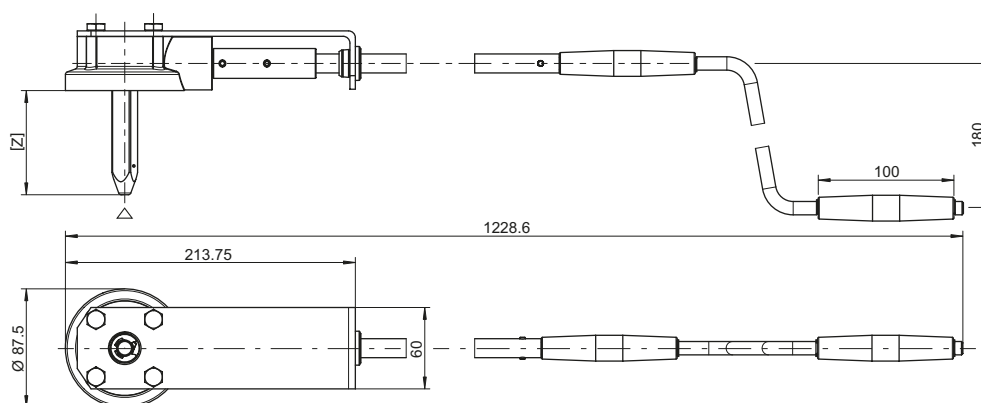
The gearbox is designed for a long service life and for simple and safe operation. The materials and surfaces used are weather and moisture resistant.

## 409F0... | Bevel gearbox 3:1

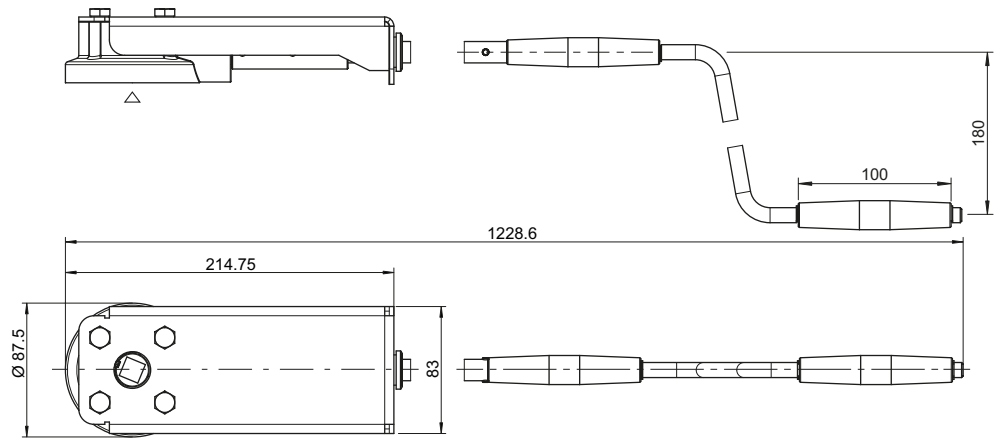
max. output torque	<b>12 Nm</b>
Gear reduction	<b>3:1</b>
Efficiency	<b>0.66</b>

### Characteristics

- Gearbox housing made of die-cast zinc
- Without end stop
- With or without stainless steel trunnion
- Gearbox holder made of galvanised and blue passivated sheet steel
- Galvanised steel rods (mounted or loose)



Part no.	Output $\Delta$	Trunnion [Z]	Gearbox holder	Crank handle
409F013	13.1 mm	■ 15 mm x 76.8 mm, stainless steel	galvanised and blue passivated, open	mounted
409F014	13.1 mm	■ 15 mm x 116.8 mm, stainless steel	galvanised and blue passivated, open	mounted
409F026	13.1 mm	without trunnion	galvanised and blue passivated, open	mounted
409F027	13.1 mm	without trunnion	galvanised and blue passivated, open	loose



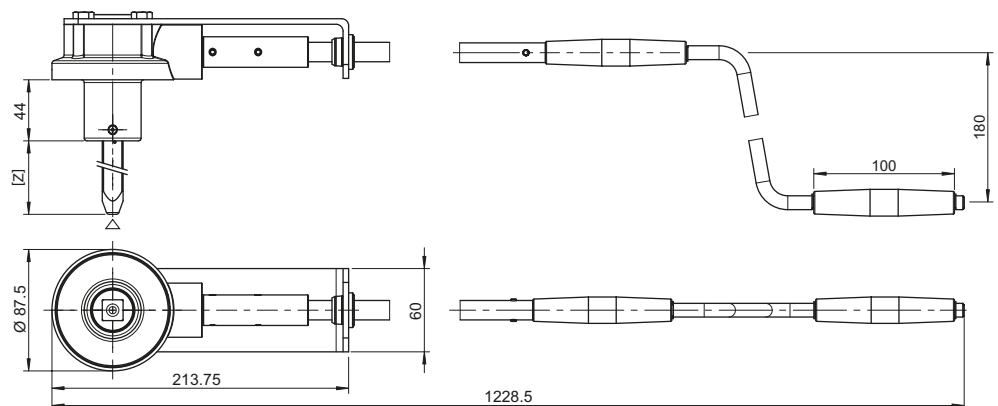
Part no.	Output $\Delta$	Trunnion [Z]	Gearbox holder	Crank handle
409F025	$\bigcirc$ 13.1 mm	without trunnion	made of stainless steel, reinforced	mounted

## 410F013 | Bevel gearbox 3:1

max. output torque	<b>12 Nm</b>
Gear reduction	<b>3:1</b>
Efficiency	<b>0.68</b>

### Characteristics

- Gearbox housing made of die-cast zinc
- Additional guidance through collar on the gearbox
- Without end stop
- Gearbox holder made of galvanised and blue passivated sheet steel
- Galvanised steel rods (assembled)



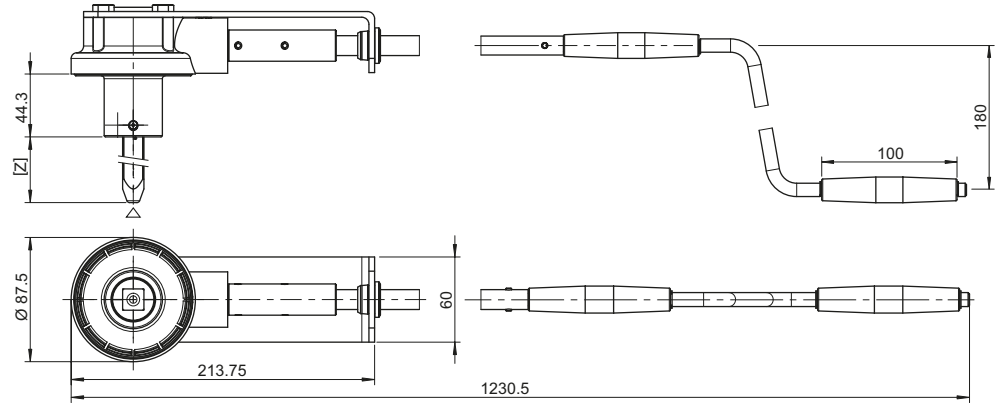
Part no.	Output $\Delta$	Trunnion [Z]	Gearbox holder	Crank handle
410F013PN	$\bigcirc$ 17 mm, pinned (6 mm)	$\blacksquare$ 15 mm x 78 mm, stainless steel	galvanised and blue passivated, open	mounted

## 412F0.. | Bevel gearbox 4.4:1

max. output torque	<b>16 Nm</b>
Gear reduction	<b>4.4:1</b>
Efficiency	<b>0.66</b>

### Characteristics

- Gearbox housing made of die-cast zinc
- Without end stop
- Gearbox holder made of galvanised and blue passivated sheet steel or stainless steel
- Galvanised steel rods (assembled)



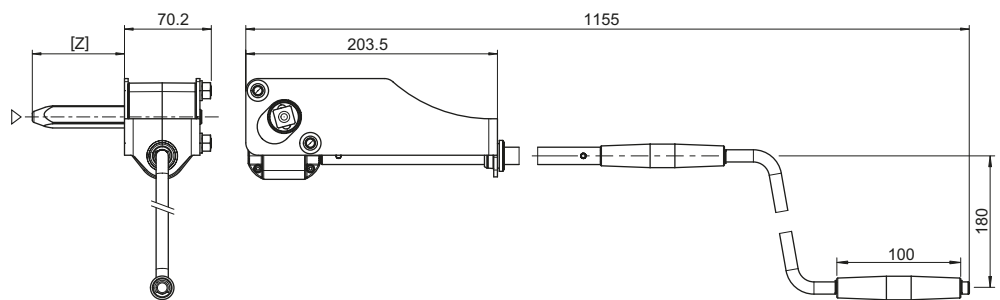
Part no.	Output $\Delta$	Trunnion [Z]	Gearbox holder	Crank handle
412F011	15 mm	■ 15 mm x 78 mm, stainless steel	galvanised and blue passivated, open	mounted
412F040	15 mm	■ 15 mm x 78 mm, stainless steel	made of stainless steel, reinforced	mounted

## 416F0.. | Worm gear 7:1

max. output torque	<b>20 Nm</b>
Gear reduction	<b>7:1</b>
Efficiency	<b>0.44</b>

### Characteristics

- Gearbox housing made of die-cast zinc
- Without end stop
- With or without stainless steel trunnion
- Gearbox holder made of galvanised and blue passivated sheet steel
- Galvanised steel rods (assembled)



Part no.	Output $\Delta$	Trunnion [Z]	Gearbox holder	Crank handle
416F044	13.1 mm	■ 15 mm x 74.5 mm, stainless steel	galvanised and blue passivated, reinforced	mounted
416F058	13.1 mm	without trunnion	galvanised and blue passivated, reinforced	mounted