

## CENTALINK

Assembly and operating instructions

019L-00048...00088-..20

M019-00005-EN

Rev. 5



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## **1 General remarks**

These assembly and operating instructions form a constituent part of the coupling delivery and must be kept in an easily accessible place at all times.

CENTA products are developed and produced to quality standard DIN EN ISO 9001:2000.

In the interests of further development, CENTA reserves the right to make technical changes.



### **IMPORTANT**

CENTA is unable to accept liability for damage and operating faults caused by failure to observe the operating instructions.

These operating instructions are protected under copyright to CENTA Antriebe Kirschey GmbH.

In case of technical questions, please enquire with our head office:

**CENTA Antriebe  
Kirschey GmbH**  
Bergische Strasse 7  
42781 Haan  
GERMANY  
Phone +49-2129-912-0  
Fax +49-2129-2790  
[centa@centa.de](mailto:centa@centa.de)  
[www.centa.info](http://www.centa.info)

## 2 Safety

The purpose of these operating instructions is to enable users to:

- use the coupling safely and correctly
- maximize efficiency
- ensure that care and maintenance are carried out correctly

For this reason, these operating instructions must be thoroughly read and understood prior to work on and with the coupling.

### WARNING

**Injury and material damage can occur as a result of:**

- Failure to adhere to the safety and accident prevention regulations valid at the relevant installation site

The safety and accident prevention regulations valid at the installation site in question must be adhered to when performing any of the tasks described in these operating instructions.

### 2.1 Safety remarks

In these operating instructions, safety remarks are indicated by a pictogram and a signal word.

#### 2.1.1 Signal words

The following signal words are used in the safety remarks:

**DANGER** Denotes the immediate threat of danger.  
If not prevented, fatal or extremely serious injuries can result.

**WARNING** Denotes a potentially dangerous situation.  
If not prevented, fatal or extremely serious injuries can result.

**CAUTION** Denotes a potentially dangerous situation.  
If not prevented, minor injuries and/damage to property may result.

**IMPORTANT** Denotes application tips and particularly useful information. This is not a signal word denoting a dangerous or damaging situation.

### 2.1.2 Pictograms

Possible pictograms in the safety precautions:



Warning of a hazardous area



Do not switch



Use protective gloves



Use protective goggles

### 2.2 Qualification of deployed personnel

All the work described in these operating instructions may only be performed by authorized persons with adequate training and instruction.

<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Work at the coupling which is not described in these instructions</li> </ul> <p>Only carry out work which is described in these operating instructions.</p>

### 2.3 Intended application

<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Application not in compliance with the intended use</li> </ul> <p>The couplings are intended exclusively for use in accordance with the relevant design. They may only be used under the specified conditions.</p>

**WARNING**



**Injuries can occur as a result of:**

- Contact with rotating parts

Shield the coupling in accordance with the applicable accident prevention regulations with an enclosure.

**Exception:**

The coupling is encased by the driving and driven units.

**The scope of delivery provided by CENTA does not include a protective enclosure.**

This enclosure must fulfil the following criteria:

- Provide protection against persons gaining access to rotating parts
- Restrain any rotating parts which may be work loose
- Guarantee sufficient ventilation for the coupling

This enclosure must be made of stable steel components. In order to ensure adequate ventilation for the coupling, the enclosure must be fitted with regular openings. For safety reasons, these openings must not exceed the dimensions outlined in table 2-1.

<b>Component</b>	<b>Circular openings [mm]</b>	<b>Rectangular openings [mm]</b>
Top of the enclosure	Ø 8	□ 8
Side elements of the enclosure	Ø 8	□ 8

*Table 2-1 Shape and size of ventilation holes*

The enclosures must be positioned a minimum of 15 mm distant from rotating parts. The enclosure must be electrically conductive and be included in the equipotential bonding.

Before commencing long-term operation, the plant must successfully complete a test run.

**2.4 Application not in compliance with the intended use**

<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"><li>▪ Inadmissibly high torque</li><li>▪ Inadmissibly high or low speeds</li><li>▪ Exceeding the specified ambient temperature</li><li>▪ Inadmissible ambient medium</li><li>▪ Inadmissible coupling enclosure</li><li>▪ Exceeding the admissible overall misalignment values</li></ul> <p>Only use the coupling for the specified application.</p>

CENTA bears no liability for damage resulting from application not in compliance with the intended use of the equipment.

Should there be a change of plant parameters, the coupling design must be reviewed by CENTA (address see chapter 1).

### 3 Delivery, transport, storage and disposal

#### 3.1 Delivery

After delivery, the coupling:

- must be checked for completeness and correctness of the delivery.
- must be examined for possible transport damage (which must be reported immediately to the carrier).

#### 3.2 Transport

<b>CAUTION</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Incorrect transportation of couplings</li> </ul> <p>Ensure that the coupling is correctly transported.</p>
<b>CAUTION</b>	
	<p><b>Material damage to coupling components can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Contact with sharp-edged objects</li> </ul> <p>Protect coupling components for transportation. Only hoist coupling components with nylon belts or ropes. Always cushion parts when supporting them from below.</p>

Following transportation damage:

- Check the coupling carefully for damage.
- Consult the manufacturer (Address see chapter 1).

#### 3.3 Storage

<b>CAUTION</b>	
	<p><b>Material damage to elastic elements and rubber parts can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Incorrect storage</li> </ul> <p>These parts must be stored laid flat and so they cannot distort, and protected from ozone, heat, light, moisture and solvents.</p>
 <b>IMPORTANT</b>	
<p>Rubber parts are marked where possible with their production date. From this date, they may only be stored for a maximum of 5 years.</p>	

**3.3.1 Storage location**

Requirements imposed on the storage location:

- Moderately ventilated and low in dust
- Dry (max. 65% humidity)
- Temperature stabilized (-10°C to +25°C)
- Free of ozone-producing devices such as light sources and electric motors
- Free of UV light sources and direct sunlight
- Do not store solvents and disinfectants, fuels or lubricants, acids, chemicals etc. in the same location

For more details, refer to DIN 7716.

**3.3.2 Storage of couplings / flexible elements**

- Unpack the parts.
- Check the packaging for damage. Replace if necessary.
- Check that the wax protection on steel components is intact. If necessary, patch or renew.
- Package the parts (for prolonged periods of storage, enclose desiccant and weld into film).
- Place the parts into storage.

**3.4 Disposal**

<b>RECYCLING</b>	
	Ensure safe, environmentally responsible disposal of operating supplies and exchange parts. For this, locally provided recycling facilities and regulations must be utilized.

For disposal, the coupling parts must be separated where possible and sorted according to material type.



## **4 Technical Description**

### **4.1 Characteristics**

CENTALINK drive shafts offer the following outstanding properties:

- Compensation of major axial, radial and angular misalignment.
- Low reacting forces, linear characteristics, i.e. proportional to deflection, almost uninfluenced by transmitted torque.
- Constant velocity transmission, angular deflection of the two joints may be different.
- Silent operation, reduction of transmitted noise. The transmission of structure-borne noise is interrupted four times by the rubber bushes.
- Backlash-free, torsionally stiff. The individual joints are also torsionally stiff.
- Low maintenance, free of wear, with failsafe feature
- Radially exchangeable central section without the need to displace connected shafts
- Easy visual check of the condition of the rubber bushes, easy and fast exchange of the links is possible without special tools.
- Long shaft distances can be spanned.
- Combination with torsionally flexible CENTAX elements allows optimum tuning of the torsional situation.
- The design is protected by international patents.

### **4.2 Specifications**

The specifications can be found in the catalogue and the dimensions in the installation drawing.

## 5 Alignment of the units being connected

### IMPORTANT

- The units should be aligned during assembly.
- The overall misalignment is composed of the misalignment and the operating misalignment. The permissible overall misalignment values can be found in chapter 7.2 and must not be exceeded.  
Align the units that are to be connected as accurately as possible. In this way, a long service life for the coupling and maximum operating misalignment values can be achieved.  
After completion of assembly, check the alignment of the coupling again and if necessary correct.

### 5.1 Axial alignment

Determine the axial misalignment (see Fig. 5-1).

- Take installation length **L** from the installation drawing.
- Align the units (installation dimension =  **$L \pm \Delta K_{A \max}$** ).

Permissible axial alignment tolerance:

$$\Delta K_{A \max} = \pm 1,0 \text{ mm}$$

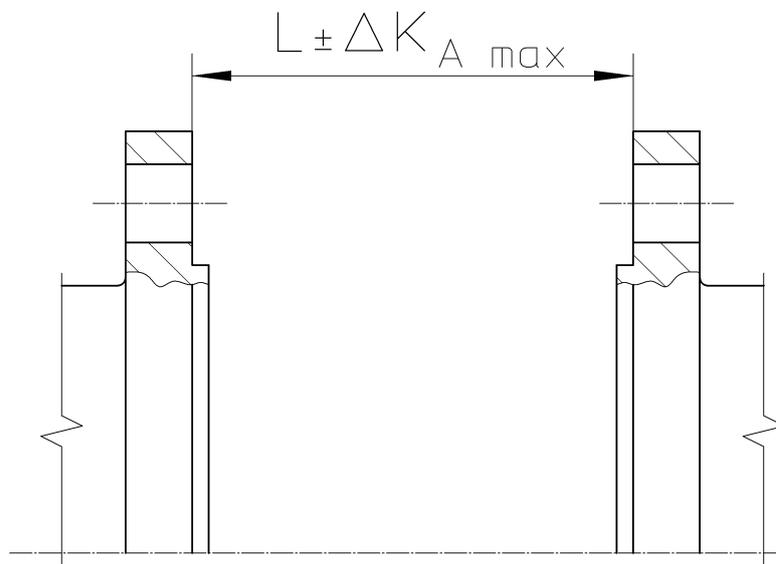


Fig. 5-1 Axial misalignment

## 5.2 Radial alignment

### CAUTION



**Material damage to elastically installed engines can occur as a result of:**

- Disregard to which extent the engine mounts may settle during alignment

During vertical alignment, take into account the extent by which the engine mounts settle. Please enquire about specifications for the degree of settling from the engine manufacturer or engine mounts manufacturer.

Determine the radial misalignment (see Fig. 5-2).

- Take installation length **L** from the installation drawing.
- Align the units (calculated deviation  $\leq \Delta K_{R \max}$ ).

The permissible radial alignment tolerance  $\Delta K_{R \max}$  can be found in the following table.

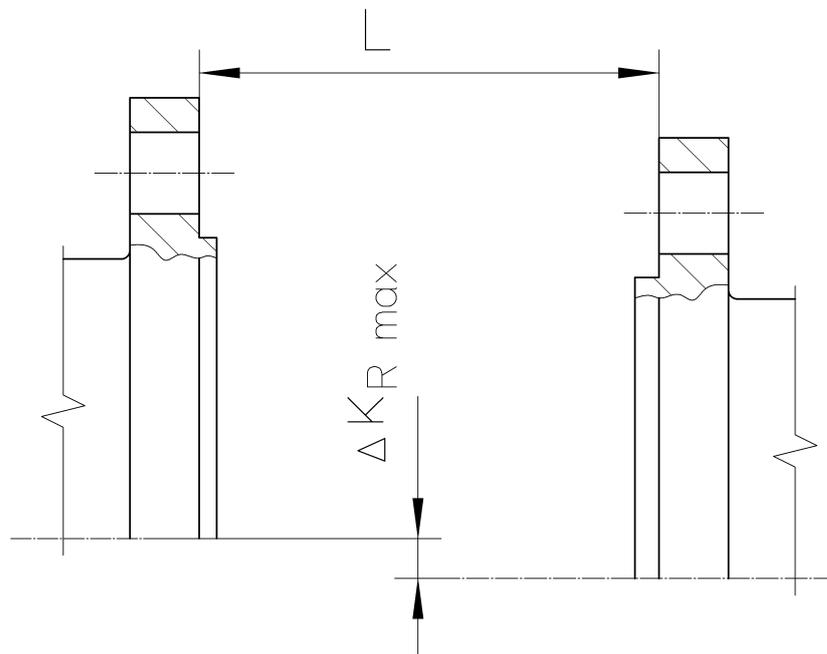


Fig. 5-2 Radial misalignment



L [mm]	$\Delta K_{R \max}$ [mm]
200 - 400	±0.3
400 - 600	±0.7
600 - 800	±1.0
800 - 1000	±1.4
1000 - 1200	±1.7
1200 - 1400	±2.1
1400 - 1600	±2.4
1600 - 1800	±2.8
1800 - 2000	±3.1
2000 - 2200	±3.5
2200 - 2400	±3.8
2400 - 2600	±4.2
2600 - 2800	±4.5
2800 - 3000	±4.8
3000 - 3200	±5.2
3200 - 3400	±5.6
3400 - 3600	±5.9
3600 - 3800	±6.3
3800 - 4000	±6.6
4000 - 4200	±7.0
4200 - 4400	±7.3
4400 - 4600	±7.7
4600 - 4800	±8.0
4800 - 5000	±8.4

Table 5-1 Permissible radial alignment tolerance

### 5.3 Angular alignment

Determine the angular misalignment (see Fig. 5-3).

- Align the units (calculated deviation  $\leq \Delta K_{W \max}$ ). The angular deflection has to be checked at each flange separately.

Permissible angular alignment tolerance:

$$\Delta K_{W \max} = \pm 0,2^\circ$$

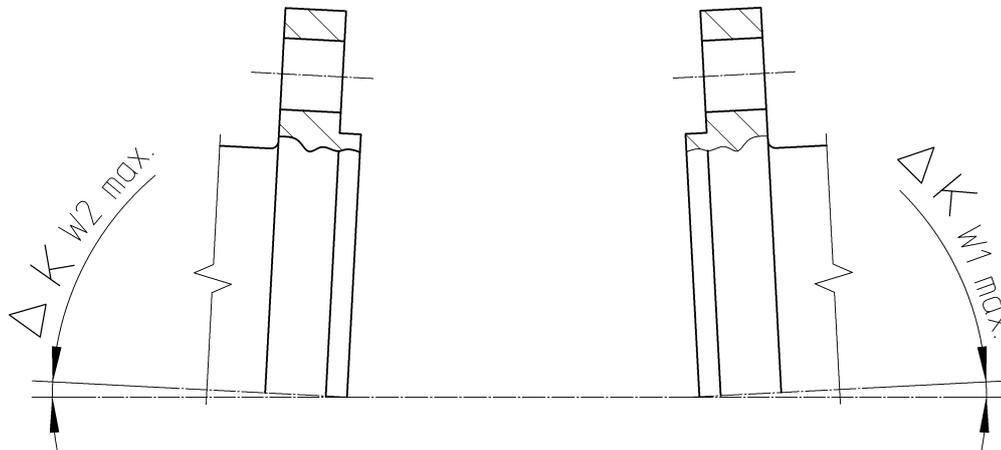


Fig. 5-3 Angular misalignment

## 6 Mounting

### 6.1 General mounting instructions

Any work method which impairs the safety of the coupling is prohibited.  
The user undertakes to notify the manufacturer immediately of any changes occurring at the coupling which could impair safety (address see chapter 1).

<b>WARNING</b>	
	<p><b>Injuries can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Contact with rotating parts</li> </ul> <p>Before starting work at the coupling, switch off the plant and secure against unintentional start-up.</p>
<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Assembly of the coupling in the wrong sequence</li> </ul> <p>Only ever assemble the coupling in the described sequence.</p>
<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Falling coupling components</li> </ul> <p>Secure coupling components against falling to the floor.</p>
<b>CAUTION</b>	
	<p><b>Material damage to coupling components can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Contact with sharp-edged objects</li> </ul> <p>Protect coupling components for transportation. Only hoist coupling components with nylon belts or ropes. Always cushion parts when supporting them from below.</p>
<b>CAUTION</b>	
	<p><b>Material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Soiled joint surfaces</li> </ul> <p>The surfaces that are to be joined must be free of dirt, preservatives and lubricants.</p>

**CAUTION**



**Material damage to coupling components can occur as a result of:**

- Anaerobic adhesives (e.g. Loctite) used for screw locking
- This type of screw locking medium may not be in contact with rubber parts.

** IMPORTANT**

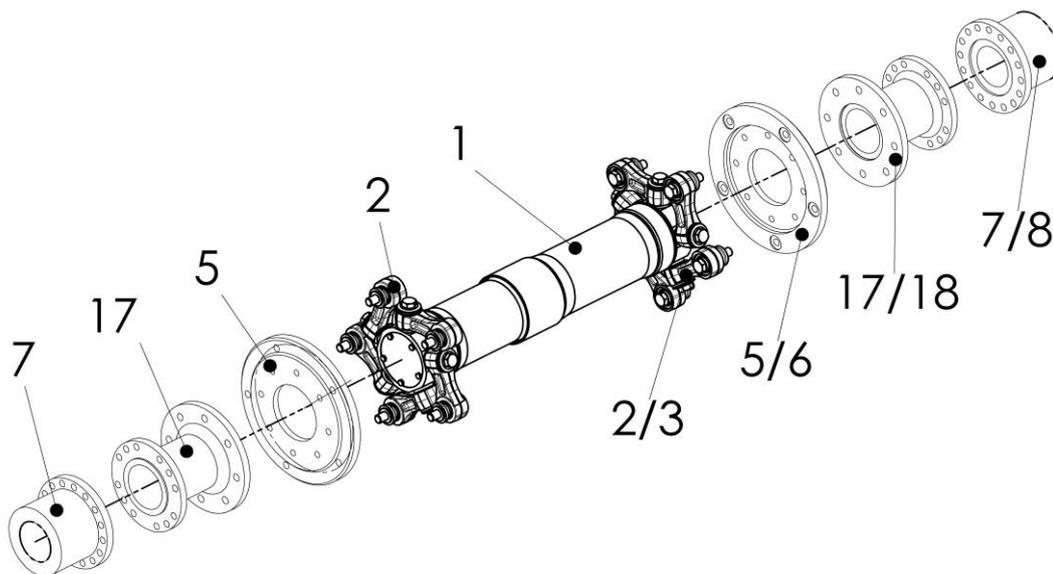
- Screw preparation and tightening torque levels in accordance with CENTA data sheet D013-013 (see chapter 11.1).
- Use suitable lifting devices for assembly.
- The following assembly stages are described for coupling 019L-00060-..20.
- Part illustration and marking may differ slightly from installation drawing and delivery state.

** IMPORTANT**

- Damages to the CFK-tubes are not accepted by classification companies.

**6.2 Mounting overview**

The following figure is showing examples of possible design.



*Fig. 6-1 Example of possible design*

Item	Info	Designation	Remark
1		Tube	
2/3		Link	
5/6		Adapter	If scope of supply
7		Hub/Clamping set assembly	If scope of supply
8		Hub/Clamping set assembly	If scope of supply
17/18		Adapter	If scope of supply

**IMPORTANT**

This assembly instruction describes the mounting of several design.  
Mount the coupling as appropriate for the supplied design (see installation drawing).

- Mount the coupling according to the following described order as appropriate for the supplied design. For delivered design and built-in parts, see installation drawing.
  - Mounting the hub/clamping set assembly, see chapter 6.3 .
  - Mounting the adapter (17/18), see chapter 6.4 .
  - Aligning the units, see chapter 5 .

**IMPORTANT**

Always mount the adapters after the alignment of the units being connected.

- Positioning the tube (1) in the installation space, see chapter 6.4 .
- Mounting the adapter (5/6), see chapter 6.5 .
- Mounting the links (2/3), see chapter 6. 6 .
- Removing the mounting supports, see chapter 6.7 .
- Assembling the bulkhead seal, see chapter 6.8 .
- After completed mounting, see chapter 6.9 .

### 6.3 Mounting the hub/clamping set assembly

- Mount the hub/clamping set assembly as appropriate for the type supplied (see installation drawing):
  - Mounting the hub with cylindrical bore and keyway, see chapter, 6.3.1 .
  - Mounting the hub with conical oil interference fit, see chapter 6.3.2 .
  - Mounting the clamping set assembly, see chapter 6.3.3 .

#### 6.3.1 Mounting the hub with cylindrical bore and keyway

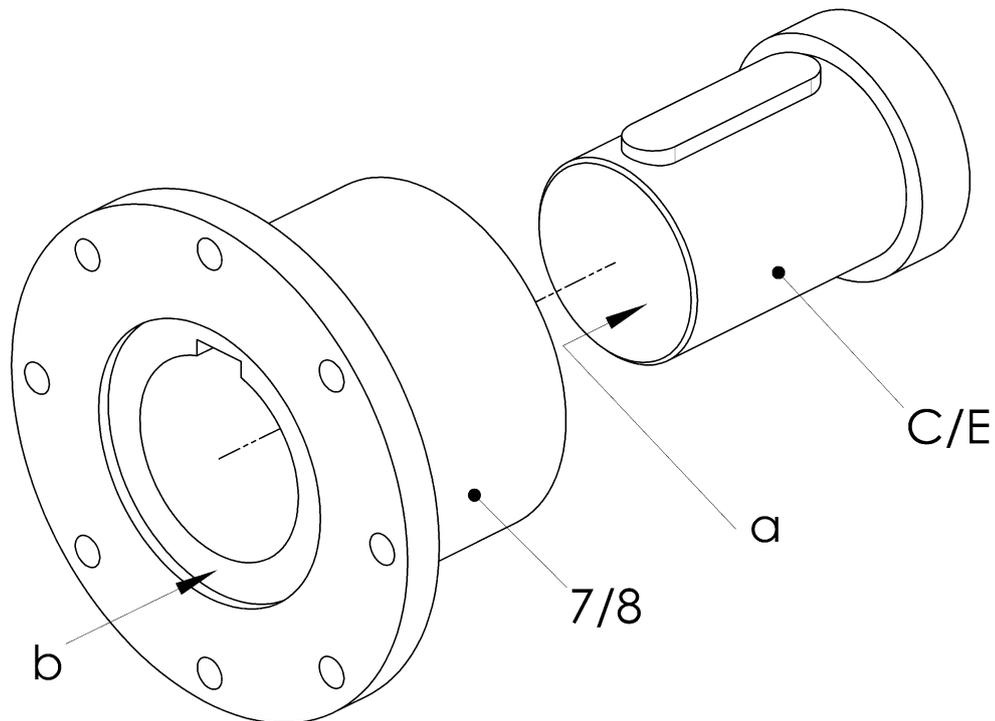


Fig. 6-2 Mounting the hub with cylindrical bore and keyway

Item	Info	Designation	Remark
7/8		Hub	
C/E		Shaft	Customer part
	a	Face of shaft	
	b	Face of hub	

**CAUTION****Material damage can occur as a result of:**

- Incorrect heating of the hubs/flange hubs

Heat the hubs/flange hubs steadily in an oil bath, a fan oven, on an electric hot plate, either inductive or with a flame (ring burner).

**CAUTION****Injuries can occur as a result of:**

- Hot coupling components

Use suitable protective gloves.

- Heat the hub (7/8) to a temperature of 170° - 200°C.
- Push the hub (7/8) onto the shaft (C/E).

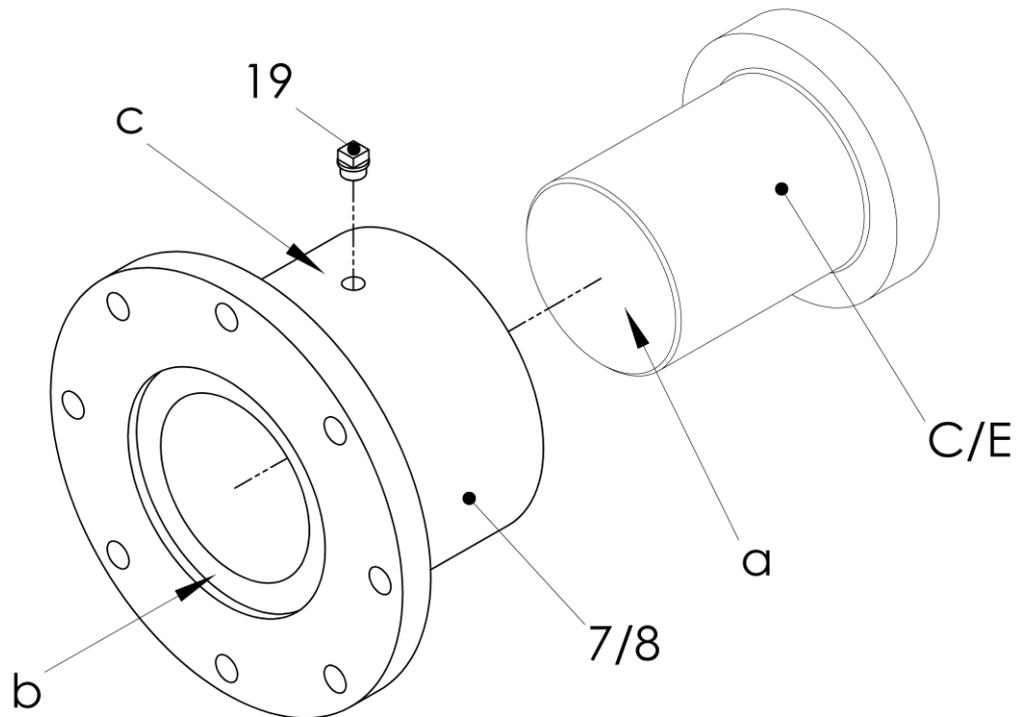
**IMPORTANT**

Face of shaft must not protrude to face of hub. Otherwise radial replacement of other coupling parts is not guaranteed.

**CAUTION****Material damage can occur as a result of:**

- Hot hubs/flange hubs

Before further mounting of hubs/flange hubs, allow them to cool to ambient temperature.

**6.3.2 Mounting the hub with conical oil interference fit**

*Fig. 6-3 Mounting the hub with conical oil interference fit*

Item	Info	Designation	Remark
7/8		Hub	
19		Screw plug	G $\frac{1}{4}$ or G $\frac{3}{4}$ see installation drawing
C/E		Shaft	Customer part
	a	Face of shaft	
	b	Face of hub	
	c	Thread	G $\frac{1}{4}$ or G $\frac{3}{4}$ see installation drawing

- Lightly oil the cone of the shaft (C/E).
- Push the hub (7/8) onto the shaft (C/E).
- Remove the screw plug (19) from the hub (7/8).

**WARNING****Injury and material damage can occur as a result of:**

- Non-compliance with the operating instructions for the hydraulic pumps

Before carrying out work with the hydraulic pumps, do not fail to read their operating instructions. Only ever work with hydraulic pumps as described in their operating instructions.

**WARNING****Injury and material damage can occur as a result of:**

- Hydraulic fluid spraying out

Use protective goggles.

**IMPORTANT**

We recommend the following mounting fluids:

- For mounting:  
Oil with a viscosity 300 mm<sup>2</sup>/s at 20°C, e.g. SKF LHM300
- For dismantling:  
Oil with a viscosity 900 mm<sup>2</sup>/s at 20°C, e.g. SKF LHDF900

- Connect the pump (**p<sub>max</sub> = 3000 bar**) for expanding the hub (7/8) to the thread G<sup>1</sup>/<sub>4</sub> or G<sup>3</sup>/<sub>4</sub> (c).
- Screw the pump for pushing on the hub to the shaft.
- Build up the oil pressure to push on the hub.

**WARNING****Material damage can occur as a result of:**

- Insufficient expanding pressure in the hub

If the expanding pressure is too low, the necessary pushing pressure is too high.

- Build up the oil pressure for expanding the hub.
- Build up the oil pressure alternately until the lift path (p up) of the hub (7/8) is reached (for p up and reference faces, see installation drawing).
- Decrease the oil pressure for expanding the hub.
- Remove the pump for expanding the hub from the hub (7/8).
- Maintain the oil pressure for pushing on the hub for one hour.
- Decrease the oil pressure for pushing on the hub.



- Remove the pump for pushing on the hub from the shaft.
- Turn the hub (7/8), drain oil out of the thread G $\frac{1}{4}$  or G $\frac{3}{4}$  (c) and dispose correctly.
- Screw the screw plug (19) into the hub (7/8).



**IMPORTANT**

Do not place a load on the hub for 24 hours.



**IMPORTANT**

Face of shaft must not protrude to face of hub. Otherwise radial replacement of other coupling parts is not guaranteed.

### 6.3.3 Mounting the clamping set assembly

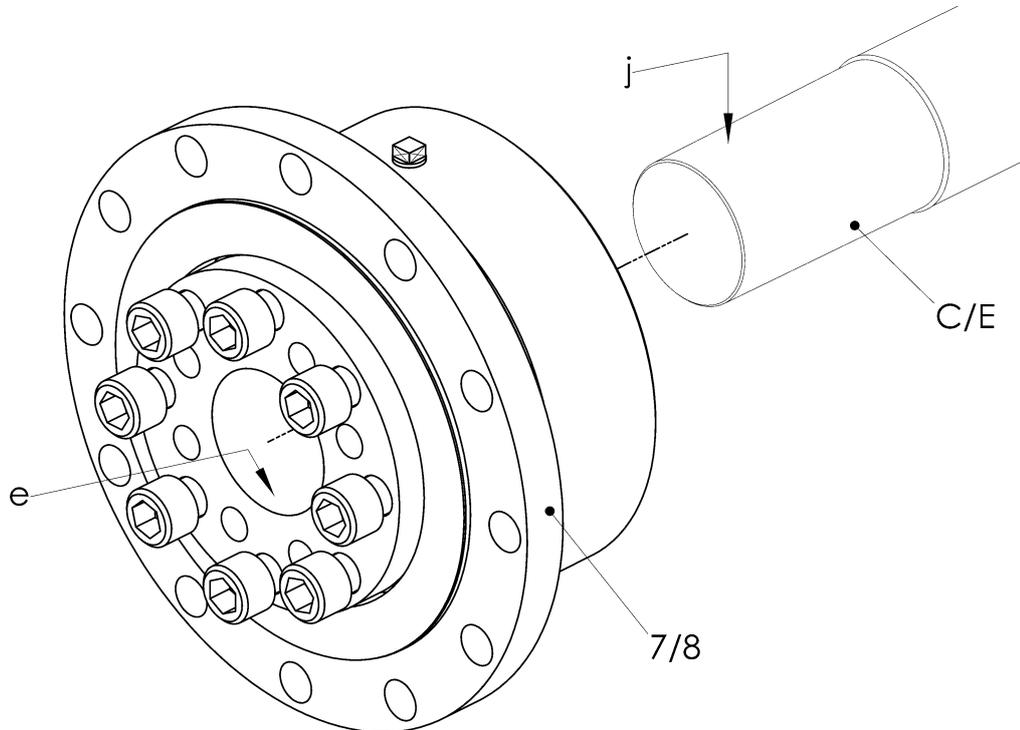


Fig. 6-4 Preparing the clamping set assembly for mounting

Item	Info	Designation	Remark
7/8		Clamping set assembly	
C/E		Shaft	Customer part
	e	Drilling of clamping set assembly	
	j	Surface of shaft	

** IMPORTANT**

The clamping set is delivered ready for installation. Do not dismantle any part.

** IMPORTANT**

The surfaces of the conical clamping connection and the hub-shaft connection must be free of oil, grease and dirt.

- Clean and degrease the surface of the drilling of clamping set assembly (e) and the surface of the shaft (j).

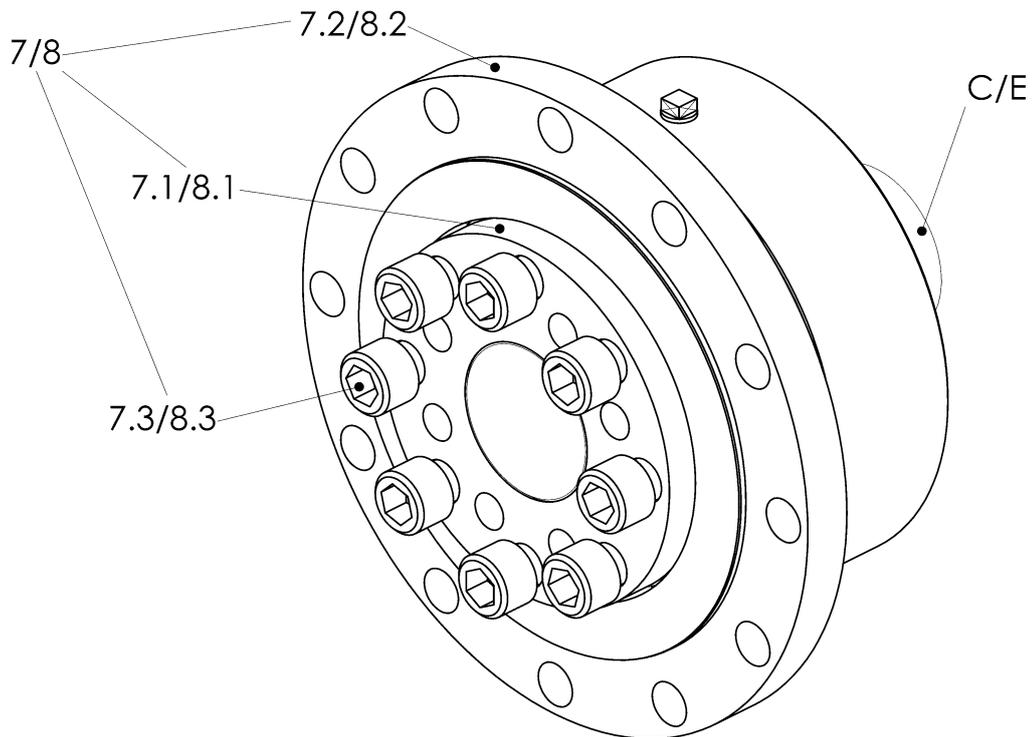


Fig. 6-5 Mounting the clamping set assembly

Item	Info	Designation	Remark
7/8		Clamping set assembly	
7.1/8.1		Inner part	
7.2/8.2		Hub	
7.3/8.3		Screw ISO4762-10.9 M..	
C/E		Shaft	Customer part

- Push the clamping set assembly (7/8) onto the shaft (C/E).
- Loosely screw the inner part (7.1/8.1) to the hub (7.2/8.2) using the screws (7.3/8.3). By doing so, position the parts axially (axial position see installation drawing).

 **IMPORTANT**

Ensure the axial alignment of the clamping set



**Mounting procedure:**

- Evenly tighten the screws (7.3/8.3) crosswise in three steps, until the tightening torque (see installation drawing) has been achieved for all screws (7.3/8.3).
  - Step 1: 40 % of the specified tightening torque.
  - Step 2: 60 % of the specified tightening torque.
  - Step 3: 100 % of the specified tightening torque.
- Check the tightening torque of the screws (7.3/8.3) one after the other.

#### 6.4 Mounting the adapter (17/18)

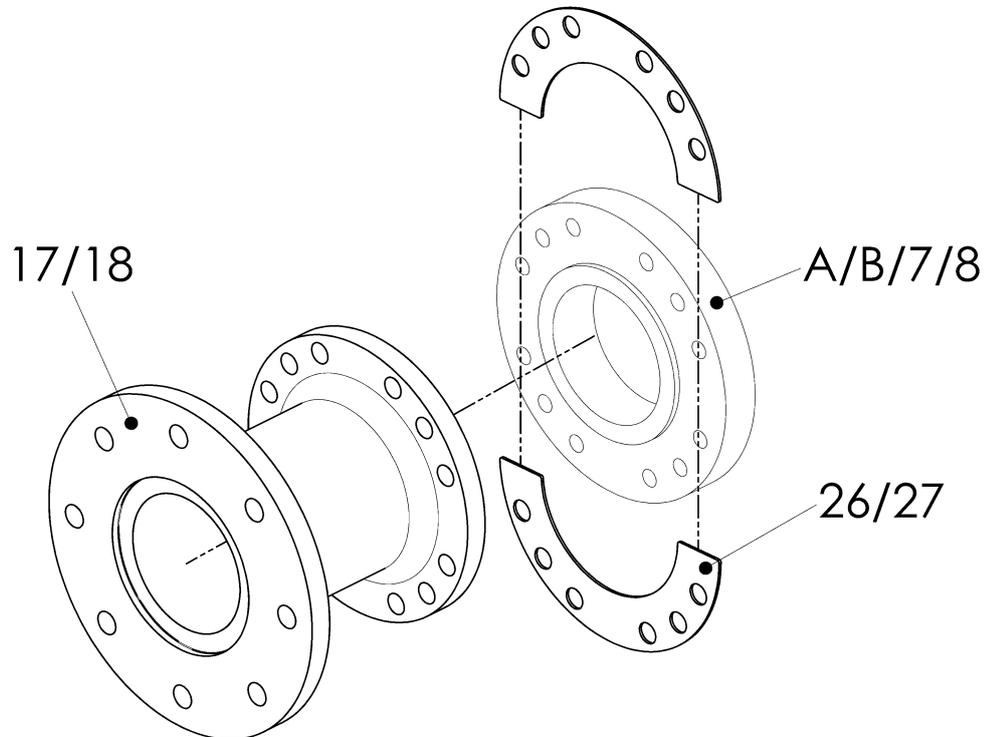


Fig. 6-6 Mounting the adapter (17/18)

Item	Info	Designation	Remark
7		Hub/Clamping set assembly	
8		Hub/Clamping set assembly	
17/18		Adapter	
26/27		Sheet	If existing; see installation drawing
A/B		Adapter	Customer part

### IMPORTANT

Tightening torques for elements to connect couplings with customer parts could deviate from CENTA data sheet D013-013.  
Consider specifications on installation drawing.

- Push the adapter (17/18) onto/into the centring of the adapter/hub/clamping set assembly (A/B/7/8; see installation drawing).
- Screw the adapter (17/18) and the adapter/hub/clamping set assembly (A/B/7/8).  
By doing so, place the sheets (26/27; if existing) between the adapter (17/18) and the adapter/hub/clamping set assembly (A/B/7/8).

### 6.5 Aligning the units

- Align the units to be connected (see chapter 5).

### 6.6 Positioning the tube in the installation space

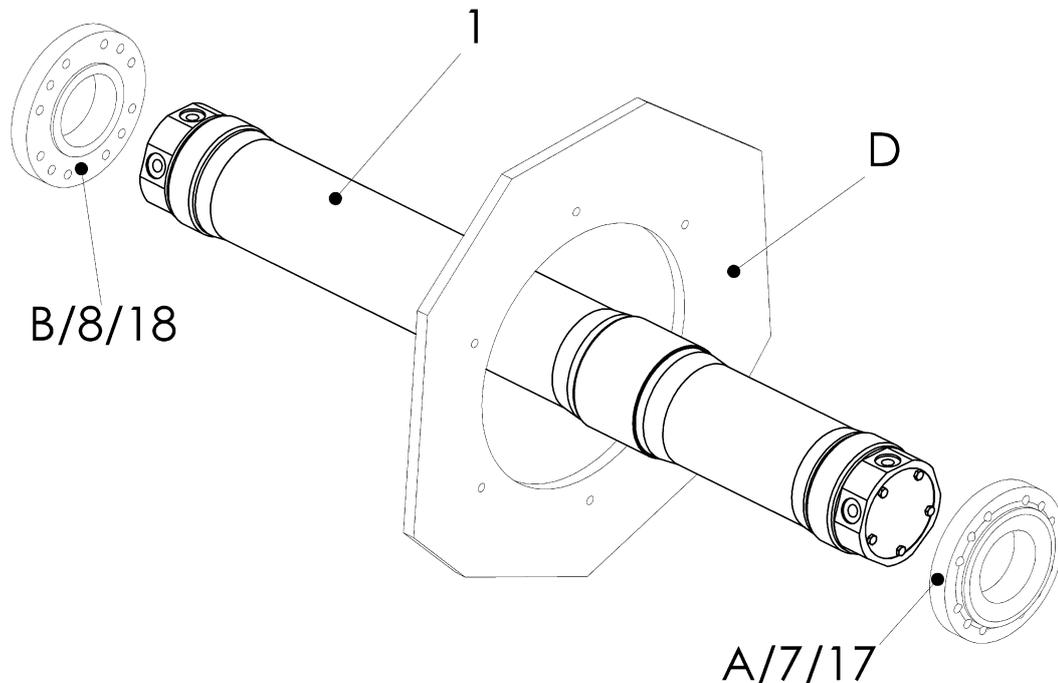


Fig. 6-7 Positioning the tube in the installation space

Item	Info	Designation	Remark
1		Tube	
7		Hub/Clamping set assembly	
8		Hub/Clamping set assembly	
17/18		Adapter	
A/B		Adapter	Customer part
D		Bulkhead	Customer part (if existing)

- Position and support the tube (1) in the installation space.

### 6.7 Mounting the adapter (5/6)

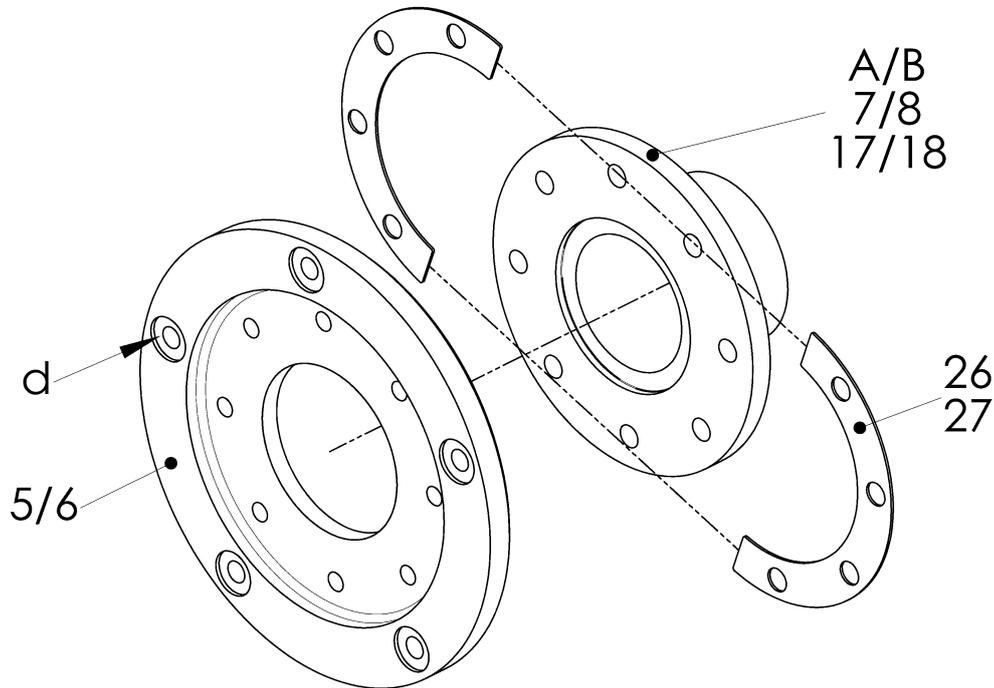


Fig. 6-8 Mounting the adapter (5/6)

Item	Info	Designation	Remark
5/6		Adapter	
7/8		Hub/Clamping set assembly	
17/18		Adapter	
26/27		Sheet	If existing; see installation drawing
A/B		Adapter	Customer part
	d	Centring for link	

**IMPORTANT**

Ensure that the centring for the links point to the right direction.

**IMPORTANT**

Tightening torques for elements to connect couplings with customer parts could deviate from CENTA data sheet D013-013.  
Consider specifications on installation drawing.



- Push the adapter (5/6) onto/into the centring of the hub/clamping set assembly/adapter (7/8/17/18/A/B; see installation drawing).
- Screw the adapter (5/6) and the hub/clamping set assembly/adapter (7/8/17/18/A/B).  
By doing so, place the sheets (26; if existing) between the adapter (20) and the hub/clamping set assembly/adapter (7/8/17/18/A/B).

## 6.8 Mounting the links

 **IMPORTANT**

- The links must be mounted in such a way that they are subjected to tensile load. A differentiation is made between the direction of rotation left (**ccw**) and right (**cw**), looking towards the driving end.
- Links are packaged in sets.
- All links of a link set are the same weight.
- Only mount links in complete sets "crosswise".
- Instructions on how to mount **one** link are provided following. Item numbers and the part illustrations may differ slightly from the delivery state.

The following table gives an overview of the number of size of the links used.

CENTALINK Size	Link Size	Quantity
48/50	2	3
55		4
60/65/67		5
68		6
69		7
71		8
70	3	4
72		5
75		6
76		7
77		8
78	4	4
80/81		5
82/84/85		6
86		7
88		8
90		9

Table 6-1 Guide to links

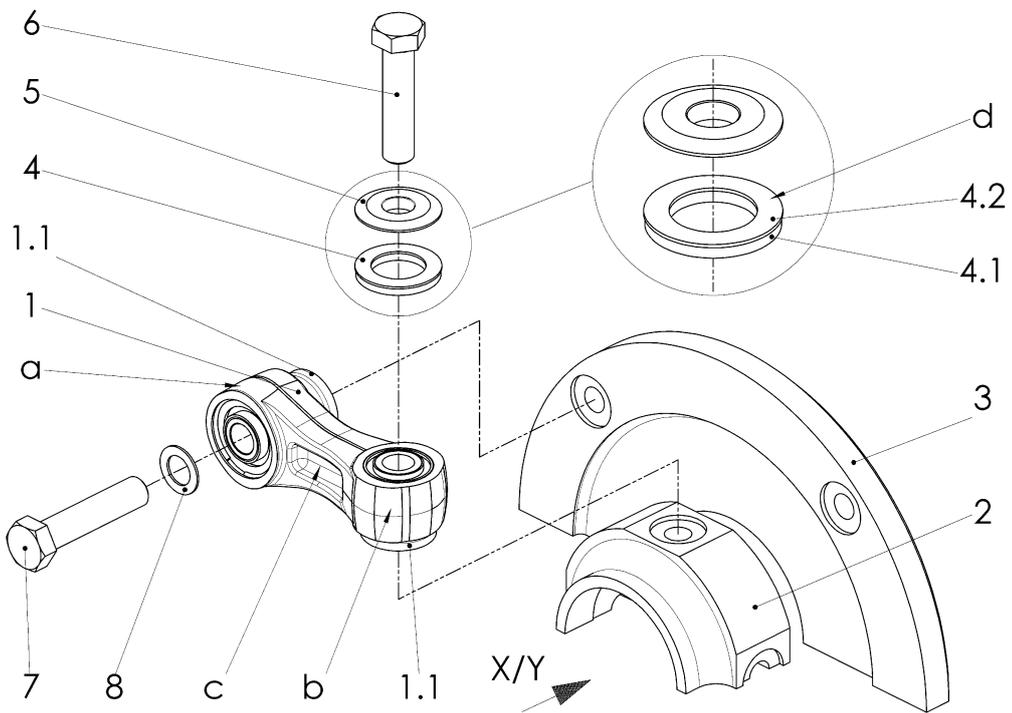


Fig. 6-9 Mounting the links ("ccw" counterclockwise rotation)

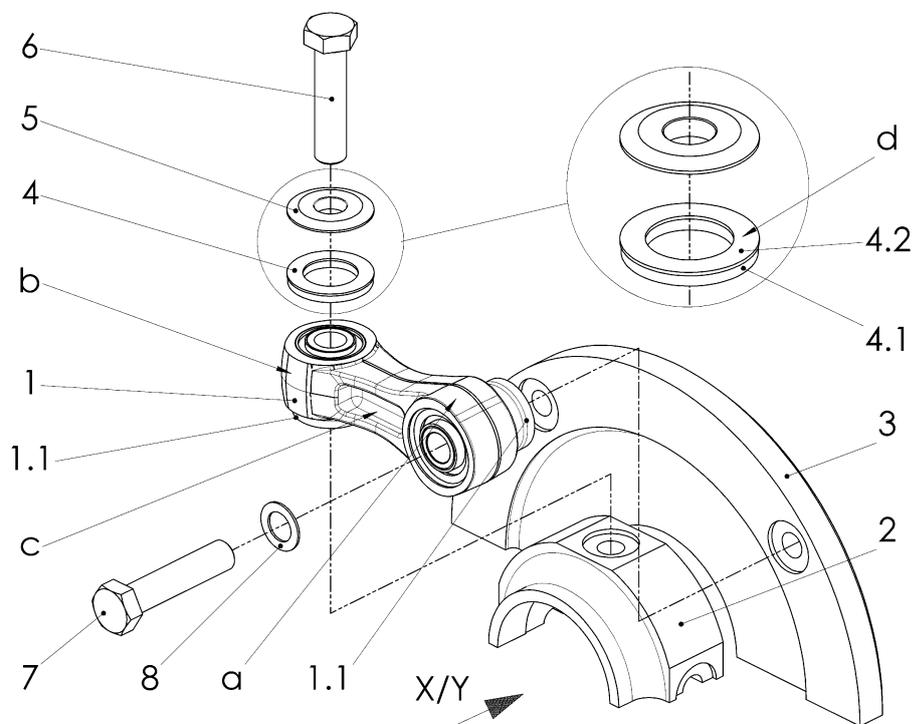


Fig. 6-10 Mounting the links ("cw" clockwise rotation)



Item	Info	Designation	Remark
	X/Y	Looking	at the flange
1		Link unit	
	a	Label "Flange"	
	b	Label "Hub"	
	c	The recess must be pointing towards the flange	
1.1		Collar sleeve	
2		Hub/Tube	
3		Flange	
4		Bearing unit comprising:	
4.1		PU bearing	
4.2		Sliding bearing	
	d	PTFE coating must be at the top	
5		Washer for centrifugal bearing	
6		Screw ISO4014-10.9 M..	Dimensions as shown in parts list
7		Screw ISO4014-10.9 M..	Dimensions as shown in parts list
8		Washer	Only at size 3 and 4

- Set the link unit (1) marked "Flange" on the centring fixture of the flange (3).
- Position the link side with the inscription "Hub" against the centring fixture of the hub/tube (2).
- Tighten the screw (7; "Flange") with the washer (8; only at size 3 and 4) and the screw (6; "Hub"), washer for centrifugal bearing (5) and the bearing unit (4; PTFE coating must be at the top) alternately by hand until the centring fixtures of the collar sleeves (1.1) are seated in the centring fixtures of the hub/tube (2) / flange (3).
- Repeat the mounting section above until all links are mounted (for quantity of the links, please see the table guide to links).
- Fasten the screws (6 and 7) of the link unit (1) by required tightening torque "crosswise".

**6.9 Removing the mounting supports**

- Remove all mounting supports.

**6.10 Assembling the bulkhead seal (if existing)**

<b>CAUTION</b>	
	<p><b>Injuries and material damages can occur as a result of:</b></p> <ul style="list-style-type: none"><li>▪ Exceeding the maximum allowable radial displacements shown in the manufacturer's instructions of the bulkhead seal.</li></ul> <p>Ensure that the radial displacement of the coupling does not exceed the maximum allowable radial displacement of the bulkhead seal during the operation.</p>

- Assemble the bulkhead seal, as described in the manufacturer's instructions.

**6.11 After completed mounting**

<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"><li>▪ Loose screw connections</li></ul> <p>Before commissioning, the tightening torque levels of all screws must be checked and corrected if necessary.</p>

Before commencing long-term operation, the plant must successfully complete a test run.

## 7 Operation

### WARNING



**Injury and material damage can occur as a result of:**

- Worn coupling components

If the running noises change and/or vibrations occur turn the plant off immediately.

Determine the fault and its root cause, and remedy.  
The troubleshooting process is simplified by the table in the next chapter.  
On principle in case of a fault, an analysis of the entire plant should be performed.

### 7.1 Operating faults, root causes and remedy

Faults	Possible root causes	Remedy
Prior to all kinds of remedies		<ul style="list-style-type: none"> <li>• Switch off the plant</li> </ul>
Running noises or vibrations in the unit	Alignment error	<ul style="list-style-type: none"> <li>• Check alignment and correct</li> <li>• Check screw torque levels and correct</li> </ul>
	Loose screws	
	Defective rubber bushes of the links	<ul style="list-style-type: none"> <li>• Replace the links</li> <li>• Check alignment and correct</li> </ul>
After all remedies		<ul style="list-style-type: none"> <li>• Trial run</li> </ul>

*Table 7-1 Troubleshooting table*

In case of uncertainty or if you have questions, please contact our head office (address see chapter 1).

### 7.2 Admissible overall misalignment of the coupling

The overall misalignment values can be found in the catalogue.

## 8 Care and maintenance

### WARNING

**Injuries can occur as a result of:**

- Contact with rotating parts

Before starting work at the coupling, switch off the plant and secure against unintentional start-up.

The coupling requires low maintenance. It is possible to perform a visual inspection during the regular scheduled maintenance intervals for the complete unit. Every 12 months a visual inspection is strictly required.

### 8.1 Work to be performed

#### 8.1.1 Cleaning the coupling

- Remove any loose dirt from the coupling.

#### 8.1.2 Visual inspection of the coupling

- Inspect the coupling for cracks, chips or missing parts.
- Replace faulty and missing parts.

#### 8.1.3 Visual inspection of links

- Make a visual inspection of the links every **12** months.

Pay particular attention to the rubber bushes of the links. Squash folds and small cracks of up to 1 mm may be considered normal.

In the case of crack depths in excess of 1 mm, or detachment of the rubber-to-metal bond, the links must be exchanged.

### IMPORTANT

Exchange the links:

- In the event of damage, but after 15.000 operating hours at the latest.

### IMPORTANT

- Links are packaged in sets.
- All links of a link set are the same weight.
- Only mount or replace links in complete sets.



**8.1.4 Inspection of the bulkhead seal  
(if supplied, see installation drawing)**

- Inspect the bulkhead seal for cracks, chips or missing parts.
- Replace faulty and missing parts.
- Inspection of bulkhead seal, as described in the manufacturers operating and maintenance instructions.

**8.1.5 Inspection of the screw connections**

- Check the tightening torque levels of all screws and if necessary, correct.

**8.2 Replacing defective parts**

- Remove the coupling as described in chapter 9.
- Replace wearing parts.
- Mount the coupling as described in chapter 6.

## 9 Dismantling

### 9.1 General dismantling instructions

Any work method which impairs the safety of the coupling is prohibited.  
The user undertakes to notify the manufacturer immediately of any changes occurring at the coupling which could impair safety (address see chapter 1).



#### **IMPORTANT**

The coupling is dismantled in reverse order to the assembly process.  
Please refer to the illustrations in chapter 6.

#### **WARNING**



##### **Injuries can occur as a result of:**

- Contact with rotating parts

Before starting work at the coupling, switch off the plant and secure against unintentional start-up.

#### **WARNING**



##### **Injury and material damage can occur as a result of:**

- Dismantling of the coupling in the wrong sequence

Only ever dismantle the coupling in the described sequence.

#### **WARNING**



##### **Injury and material damage can occur as a result of:**

- Falling coupling components

Secure coupling components against falling to the floor.

#### **CAUTION**



##### **Material damage to coupling components can occur as a result of:**

- Contact with sharp-edged objects

Protect coupling components for transportation.

Only hoist coupling components with nylon belts or ropes.

Always cushion parts when supporting them from below.



#### **IMPORTANT**

Use suitable lifting devices for dismantling.

## **9.2 Dismantling the bulkhead seal (if existing, see installation drawing)**

- Dismantle the bulkhead seal, as described in the assembly instruction of the manufacturer.

## **9.3 Dismantling the links**

**See Fig. 6-9 or 6-10:**

- Support the tube in the installation space.
- Loosen the screws (6 and 7) of the links (1) alternately ("Flange"/"Hub") and remove with washers (8; with link size 3 and 4 only), bearing unit (4) and washers for centrifugal bearing (5).
- Remove the links (1).

## **9.4 Dismantling the adapter (5/6; if necessary)**

**See Fig. 6-8:**

- Loosen and remove the screws of the connection adapter (5/6) and hub/clamping set assembly/adapter (7/8/17/18/A/B).
- Pull the adapter (5/6) out of/off the centring of the hub/clamping set assembly/adapter (7/8/17/18/A/B) and remove together with the sheets (26/27; if existing).

## **9.5 Removing the tube out of the installation space**

**See Fig. 6-7:**

- Remove the tube (1) out of the installation space.

## **9.6 Removing the mounting supports**

- Remove all mounting supports.

## **9.7 Dismantling the adapter (17/18; if necessary)**

**See Fig. 6-6:**

- Loosen and remove the screws of the connection adapter/hub/clamping set assembly (A/B/7/8) and adapter (17/18).
- Pull the adapter (17/18) out of/off the centring of the adapter/hub/clamping set assembly (A/B/7/8) and remove together with the sheets (26/27; if existing).

**9.8 Dismantling the hub/clamping set assembly (if necessary)**

- Dismantle the hub/clamping set assembly as appropriate for the type supplied (see installation drawing):
  - Dismantling the hub with cylindrical bore and keyway, see chapter 9.8.1 .
  - Dismantling the hub with conical oil interference fit, see chapter 9.8.2 .
  - Dismantling the clamping set assembly with help of forcing screws, see chapter 9.8.3 .
  - Dismantling the clamping set assembly with help of oil pressure, see chapter 9.8.4
  - Preparing the clamping set assembly for remounting, see chapter 9.8.5 .

**9.8.1 Dismantling the hub with cylindrical bore and keyway**

**See Fig. 6-2:**

- Remove the hub (7/8) from the shaft (C/E).

**9.8.2 Dismantling the hub with conical oil interference fit**

**See Fig. 6-3:**

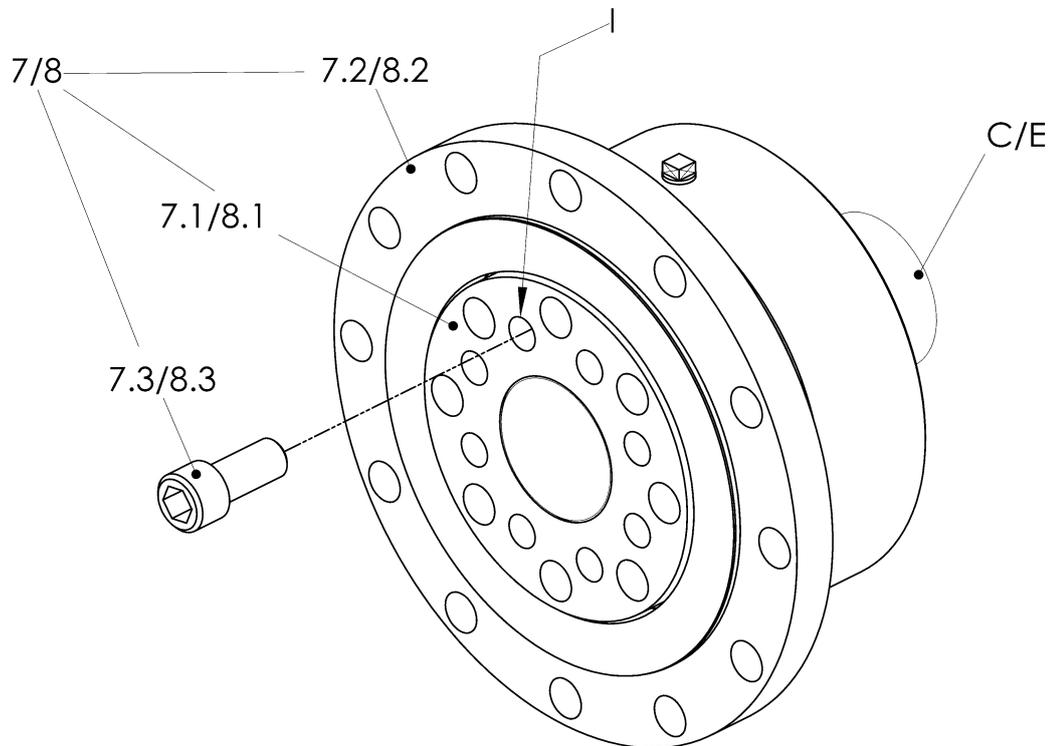
<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Non-compliance with the operating instructions for the hydraulic pumps</li> </ul> <p>Before carrying out work with the hydraulic pumps, do not fail to read their operating instructions. Only ever work with hydraulic pumps as described in their operating instructions.</p>
<b>WARNING</b>	
	<p><b>Injury and material damage can occur as a result of:</b></p> <ul style="list-style-type: none"> <li>▪ Hydraulic fluid spraying out</li> </ul> <p>Use protective goggles.</p>
<b>WARNING</b>	
	<p><b>Injuries and material damages can occur by:</b></p> <ul style="list-style-type: none"> <li>▪ Suddenly loosening hubs</li> </ul> <p>Secure the hub with a hydraulic tool against sudden axial loosening.</p>

**IMPORTANT**

We recommend the following mounting fluids:

- For mounting:  
Oil with a viscosity 300 mm<sup>2</sup>/s at 20°C, e.g. SKF LHM300
- For dismantling:  
Oil with a viscosity 900 mm<sup>2</sup>/s at 20°C, e.g. SKF LHDF900

- Remove the screw plug (19) from the hub (7/8).
- Connect the pump (**p<sub>max</sub> = 3000 bar**) to the thread G<sup>1</sup>/<sub>4</sub> or G<sup>3</sup>/<sub>4</sub> (c) of hub (7/8) to expand the hub.
- Screw the pump to the shaft (C/E), in order to hold the hub.
- Build up oil pressure in order to hold the hub.
- Build up oil pressure to expand the hub (**p<sub>max</sub> = 2000 bar**).
  - Slowly reduce the oil pressure for holding the hub.
  - Reduce the oil pressure for expanding the hub.
- Repeat the above mounting section until the hub is completely released from the shaft.
- Remove the pump for holding the hub from the shaft (C/E).
- Remove pump for expanding the hub from the hub (7/8).
- Turn the hub (7/8), drain oil out of the thread G<sup>1</sup>/<sub>4</sub> or G<sup>3</sup>/<sub>4</sub> (c) and dispose correctly.
- Screw the screw plug (19) into the hub (7/8).
- Remove the hub (7/8) from the shaft (C/E).

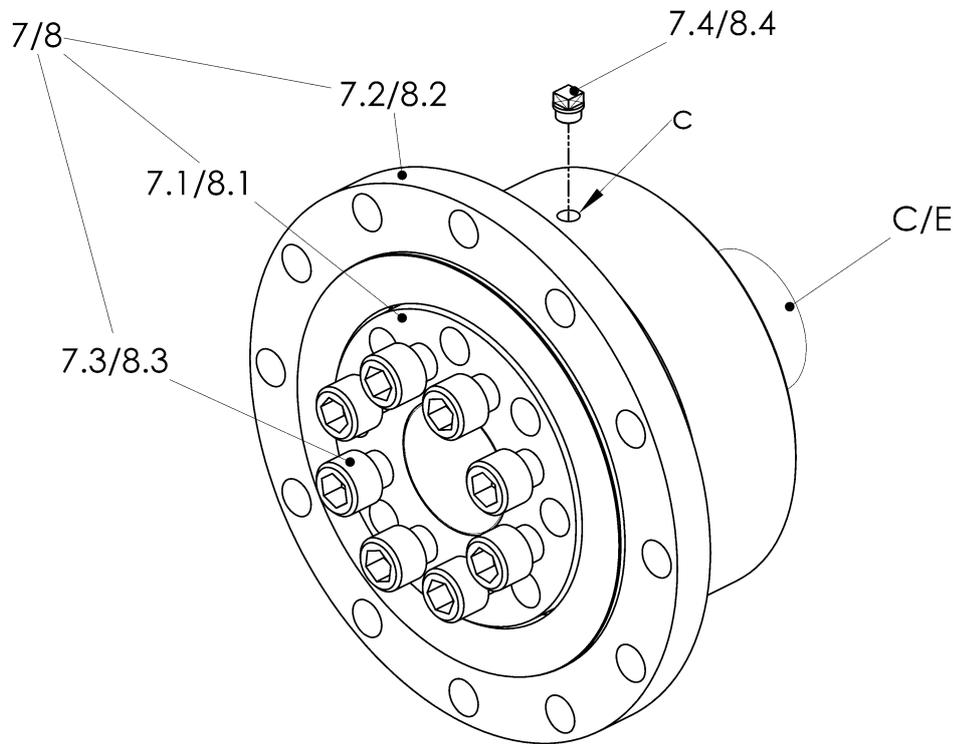
**9.8.3 Dismantling the clamping set assembly with help of forcing screws**


*Fig. 9-1 Dismantling the clamping set assembly with help of forcing screws*

Item	Info	Designation	Remark
7/8		Clamping set assembly	
7.1/8.1		Inner part	
7.2/8.2		Hub	
7.3/8.3		Screw ISO4762-10.9	
C/E		Shaft	Customer part
	I	Forcing thread	

- Loosen and remove the screws (7.3/8.3).
- Loosely screw one screw (7.3/8.3) into each forcing thread (I).
- By the aid of the screws (7.3/8.3) in the forcing threads (I) force the hub (7.2/8.2) off the inner part (7.1/8.1) of the clamping set.
- Remove the clamping set assembly (7/8) from the shaft (C/E).

**9.8.4 Dismantling the clamping set assembly with help of oil pressure**



*Fig. 9-2 Dismantling the clamping set assembly with help of oil pressure*

Item	Info	Designation	Remark
7/8		Clamping set assembly	
7.1/8.1		Inner part	
7.2/8.2		Hub	
7.3/8.3		Screw ISO4762-10.9	
7.4/8.4		Screw plug	
C/E		Shaft	Customer part
	c	Thread	

**WARNING**



**Injury and material damage can occur as a result of:**

- Non-compliance with the operating instructions for the hydraulic pumps

Before carrying out work with the hydraulic pumps, do not fail to read their operating instructions. Only ever work with hydraulic pumps as described in their operating instructions.

**WARNING****Injury and material damage can occur as a result of:**

- Hydraulic fluid spraying out
- Use protective goggles.

**IMPORTANT**

We recommend the following mounting fluids:

- For mounting:  
Oil with a viscosity 300 mm<sup>2</sup>/s at 20°C, e.g. SKF LHM300
- For dismantling:  
Oil with a viscosity 900 mm<sup>2</sup>/s at 20°C, e.g. SKF LHDF900

- Loosen the screws (7.3/8.3) alternately approx. 10 mm.
- Remove the screw plug (7.4/8.4) from the hub (7.2/8.2) of the clamping set assembly.
- Connect the pump for expanding the hub (7.2/8.2) to the thread (c) of the clamping set assembly.

**WARNING****Material damage can occur as a result of:**

- Too fast increase of the expanding pressure in the hub
- The increase of the expanding pressure may not exceed **35 bar/minute**.

**WARNING****Injuries and material damages can occur by:**

- Suddenly loosening hubs
- Secure the hub with a hydraulic tool against sudden axial loosening.

- Slowly build up the oil pressure (**p<sub>max</sub> = 1500 bar**) for expanding the hub (7.2/8.2), until the hub (7.2/8.2) is completely released from the inner part (7.1/8.1) of the clamping set assembly.
- Remove the pump for expanding from the thread (c).
- Turn the hub (7.2/8.2) allow the oil running out of the thread (c) and dispose of it correctly.
- Screw the plug (7.4/8.4) into the clamping set assembly (7/8).
- Remove the clamping set assembly (7/8) from the shaft (C/E).

### 9.8.5 Preparing the clamping set assembly for remounting

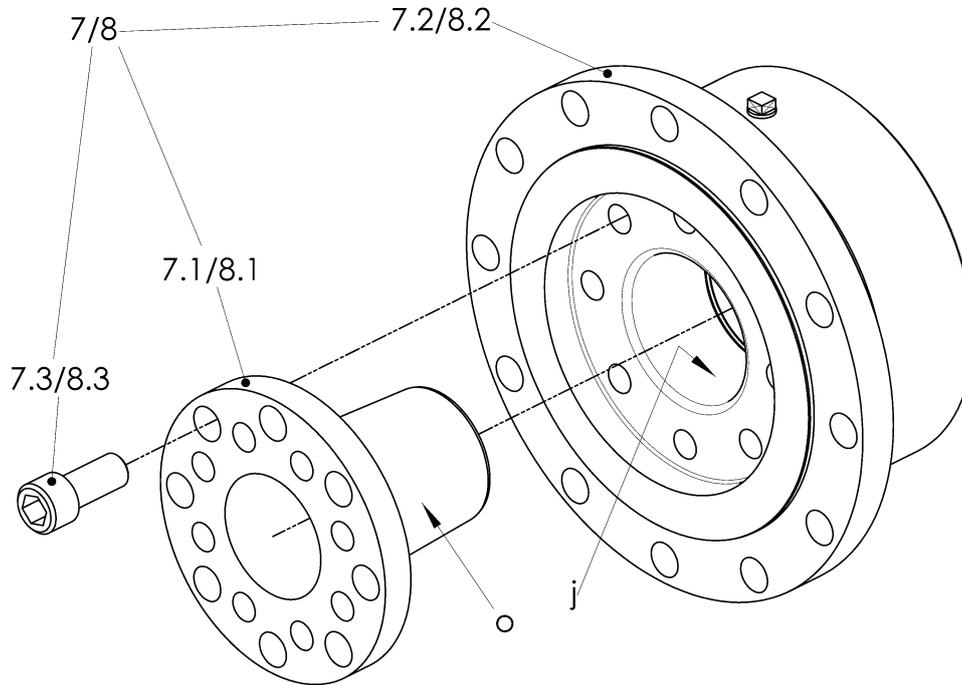


Fig. 9-3 Preparing the clamping set assembly for remounting

Item	Info	Designation	Remark
7/8		Clamping set assembly	
7.1/8.1		Inner part	
7.2/8.2		Hub	
7.3/8.3		Screw ISO4762-10.9	
	j	Inner face of hub	
	o	conical surface of inner part	

- Loosen and remove the screws (7.3/8.3).
- Pull the hub (7.2/8.2) from the inner part (7.1/8.1) of the clamping set assembly.
- Clean and degrease the inner face (j) of the hub (7.2/8.2) as well as the conical surface (o) of the inner part (7.1/8.1) of the clamping set assembly.
- Oil the inner face (j) of the hub (7.2/8.2) thinly.
- Push the hub (7.2/8.2) onto the inner part (7.1/8.1) of the clamping set assembly.
- Hand-screw the inner part (7.1/8.1) to the hub (7.2/8.2) using new screws (7.3/8.3).

### 9.9 Reassembling the coupling

- Reassemble the coupling as described in chapter 6.

**10 Wearing and spare parts****WARNING****Injury and material damage can occur as a result of:**

- Mounting and/or utilization of non-original CENTA parts  
Never use parts from other manufacturers.

A stock of the most important wearing and spare parts is the most important condition to ensure that the coupling is functional and ready for operation at all times.

We only provide a warranty for CENTA original parts.

Wearing parts of this coupling:

- The link kits. These contain all screws, washers and bearing units. In the event that links or rubber bushes of the link are faulty, they must be replaced as a complete set.
- The wear parts of the bulkhead seal, to manufacturer instruction.

**IMPORTANT**

- Links are packaged in sets.
- All links of a link set are the same weight.
- Only mount or replace links in complete sets.

When ordering a spare, specify:

- Order no.
- Coupling order no.
- Drawing no.



## 11 Annex

### 11.1 CENTA data sheet D013-013 (lubricated screw connections)

**Validity:**

For all non-dynamically stressed screw connections with **lubricated** shank bolts in accordance with ISO 4014, ISO 4017 and ISO 4762 (DIN 912) with metric standard thread in accordance with DIN ISO 262, unless other specifications are given on CENTA documents.

**Preparation of parts that are to be screwed together:**

The joining areas must be free of dirt, preservatives and lubricants.

**Preparation of screws that ARE NOT secured with liquid screw locking medium:**

Give the screws extra lubrication with motor oil under the screw head and in the thread.

**Preparation of screws that ARE secured with liquid screw locking medium:**

Give the screws extra lubrication with motor oil under the screw head. Remove all grease from the thread.

**Screw tightening method:**

Screw in (by hand with torque wrench).

d	Thread size		d	Thread size	
	Strength class	Tightening torques		Strength class	Tightening torques
		[Nm] ±5%			[in lbs] ±5%
M6	8.8	9	M22	8.8	470
	10.9	13		10.9	670
	12.9	15		12.9	780
M8	8.8	21	M24	8.8	600
	10.9	30		10.9	850
	12.9	35		12.9	1000
M10	8.8	41	M27	8.8	750
	10.9	60		10.9	1070
	12.9	71		12.9	1250
M12	8.8	71	M30	8.8	1000
	10.9	104		10.9	1450
	12.9	121		12.9	1700
M14	8.8	113	M33	8.8	1400
	10.9	165		10.9	1950
	12.9	195		12.9	2300
M16	8.8	170	M36	8.8	1750
	10.9	250		10.9	2500
	12.9	300		12.9	3000
M18	8.8	245	M39	8.8	2300
	10.9	350		10.9	3300
	12.9	410		12.9	3800
M20	8.8	350			
	10.9	490			
	12.9	580			



**11.2 CENTA data sheet D019-900**

**Declaration of incorporation according to the EC Machinery Directive 2006/42/EC, Appendix II B**

Manufacturer:

**CENTA Antriebe  
Kirschey GmbH**

Bergische Strasse 7  
42781 Haan / GERMANY

Contact:

Phone +49-2129-912-0

Fax +49-2129-2790

centa@centa.de

www.centa.info

We herewith declare that the **incomplete** machine

Product: Elastic drive shaft CENTALINK

Model / series code: CL / 019L

Installation size: 48...88

Design: all

Serial number: according to shipping documents, if applicable

- provided this is possible as far as the scope of supply is concerned - complies with the following basic requirements of the **Machinery Directive 2006/42/EC** Appendix I, subchapters 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.3, 1.3.4 and 1.5.4.

In addition, we declare that the special technical documents for this incomplete machine were compiled according to Appendix VII Part B and undertake to forward these to the market monitoring authorities by request via our "Documentation Department".

Commissioning of the incomplete machine is interdicted until the incomplete machine has been incorporated in a machine and the latter complies with the provisions of the EC Machinery Directive and the EC Declaration of Conformity according to Appendix II A is on hand.

The declaration is invalidated by every modification to the delivered parts.

Authorised representative for the compilation of the relevant technical documents:

*i.A. J. Anderseck*

by order of Gunnar Anderseck  
(Authorised Person Documentation)

Declaration of incorporation was issued:

*i.v. J. Exner*

by proxy Dipl.-Ing. Jochen Exner  
(Design Management)

Haan, 14.12.2009