

CENTAFLEX-A

Assembly and operating instructions
008A-00001...00600-GN, -GZ, -GB..
M008-00064-EN
Rev. 7



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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
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.

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

2.3 Intended application

WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Application not in compliance with the intended use <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.

Component	Circular openings [mm]	Rectangular openings [mm]
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**WARNING****Injury and material damage can occur as a result of:**

- Inadmissibly high torque
- Inadmissibly high or low speeds
- Exceeding the specified ambient temperature
- Inadmissible ambient medium
- Inadmissible coupling enclosure
- Exceeding the admissible overall misalignment values

Only use the coupling for the specified application.

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

CAUTION	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Incorrect transportation of couplings <p>Ensure that the coupling is correctly transported.</p>
CAUTION	
	<p>Material damage to coupling components can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Contact with sharp-edged objects <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

CAUTION	
	<p>Material damage to elastic elements and rubber parts can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Incorrect storage <p>These parts must be stored laid flat and so they cannot distort, and protected from ozone, heat, light, moisture and solvents.</p>
 IMPORTANT	
<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

RECYCLING	
	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

CENTAFLEX-A couplings are proven, extremely simple, versatile and offer good torsional flexibility.

- Simple, compact smooth-faced design.
- Low weight, low moment of inertia.
- High output, high admissible speeds, large bores permitted, rupture-proof
- Large angle of twist with almost linear curve (appr. 6-8° at nominal torque).
- High elasticity and considerable flexibility in any direction (radial, axial, angular) with low counter forces acting on shafts and bearings.
- The CENTAFLEX coupling has a shock and vibration absorbing action.
- Torque transmission is absolutely free of play, uniform, silent and electrically insulating.
- The coupling is low-maintenance. The rubber parts are not subject to wear, resulting in a long service life and no generation of dirt (rubber particles).
- The rubber element is air flushed all round, resulting in good dissipation of the generated heat. The rubber element remains cool.
- By slackening the radial screws, the drive can be conveniently separated and rotated without dismantling.
- Because of the torque, no axial reaction forces at all are applied to the shaft and bearings.
- The rubber elements are available in a number of different shore hardnesses.
- This allows the torsional stiffness to be varied within wide limits and so adjusted to the vibration-specific requirements.
- Material: Normal version: Natural rubber, capable of withstanding dynamic loads and temperature resistant.

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

- Align the units during the assembly.
- 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.
The overall misalignment is composed of the misalignment and the operating misalignment. The permissible overall misalignment values can be found in the corresponding catalogue and must not be exceeded.
- All permissible alignment tolerances apply to arrangements at operating temperatures.
If the arrangement would be aligned at a different temperature, there would be additional deviations in the arrangement, which were produced by the difference between the aligning and operating temperature.
For alignment, this has to be taken into account.
- After completion of assembly, check the alignment of the coupling again and if necessary correct.

5.1 Axial alignment

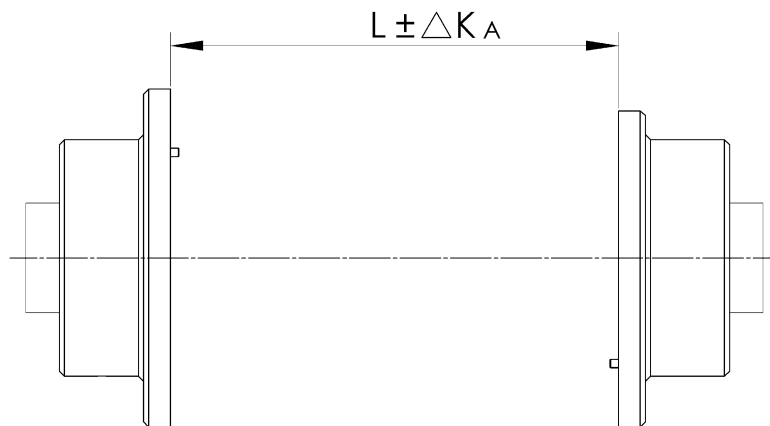


Fig. 5-1 Axial alignment

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:

$$\Delta K_{A \max} = 1.0 \text{ mm}$$

5.2 Radial alignment

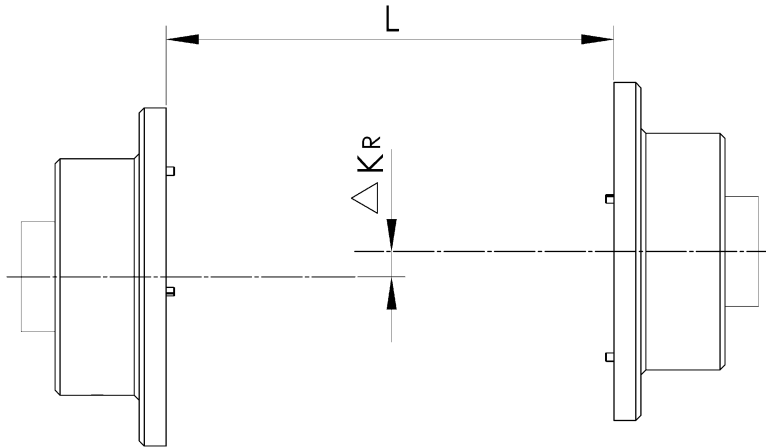


Fig. 5-2 Radial alignment

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.



L [mm]	$\Delta K_{R \max}$ [mm]
200 - 400	0.5
400 - 600	1.0
600 - 800	1.5
800 - 1000	2.1
1000 - 1200	2.6
1200 - 1400	3.1
1400 - 1600	3.6
1600 - 1800	4.2
1800 - 2000	4.7
2000 - 2200	5.2
2200 - 2400	5.7
2400 - 2600	6.3
2600 - 2800	6.8
2800 - 3000	7.3

Table 5-1 Permissible radial alignment tolerance

5.3 Angular alignment

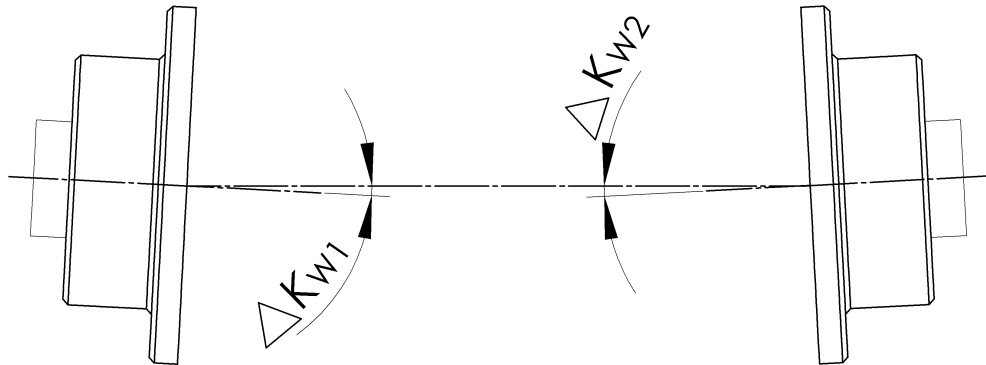


Fig. 5-3 Angular alignment

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:

$$\Delta K_{W \max} = 0.15^\circ$$

6 Mounting

6.1 General assembly 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).

WARNING	
	<p>Injuries can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Contact with rotating parts <p>Before starting work at the coupling, switch off the plant and secure against unintentional start-up.</p>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Assembly of the coupling in the wrong sequence <p>Only ever assemble the coupling in the described sequence.</p>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Falling coupling components <p>Secure coupling components against falling to the floor.</p>
CAUTION	
	<p>Material damage to coupling components can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Contact with sharp-edged objects <p>Protect coupling components for transportation. Only hoist coupling components with nylon belts or ropes. Always cushion parts when supporting them from below.</p>
CAUTION	
	<p>Material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Soiled joint surfaces <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 for screws item(s) E in accordance with CENTA data sheet D013-016 (see chapter 11.1).
- Screw preparation and tightening torque levels for screws item(s) 3, 7 in accordance with CENTA data sheet D013-019 (see chapter 11.2)
- The tightening torques for the threaded pins of hubs/flange hubs according to table 6-1 (see chapter 6.2.2).
- Use suitable lifting devices for assembly.
- Elements for connection of the coupling to customer components do not form part of the delivery.
- The following assembly stages are described for coupling 008A-00030, -00250, 00400-G1., G2. ..
- Part illustration and marking may differ slightly from installation drawing and delivery state.

 **IMPORTANT**

Use exclusively **new** screws supplied by CENTA.
These are coated with microencapsulated adhesive which serves as a screw locking medium.

 **IMPORTANT**

To ensure optimum screw locking, after tightening the curing time for the microencapsulated adhesive must be observed:

- Appr. 4-5 hours at room temperature (20°C)
- Higher temperatures will accelerate the curing time (e.g. 15 minutes at 70°C created by a hot air blower)

After 24 hours, the adhesive is completely cured.

6.2 Mounting overview

Mount the coupling as appropriate for the supplied design as well as the size and shore hardness of the rubber elements.

These informations can be found in the title block of the installation drawing.

They are explained below.

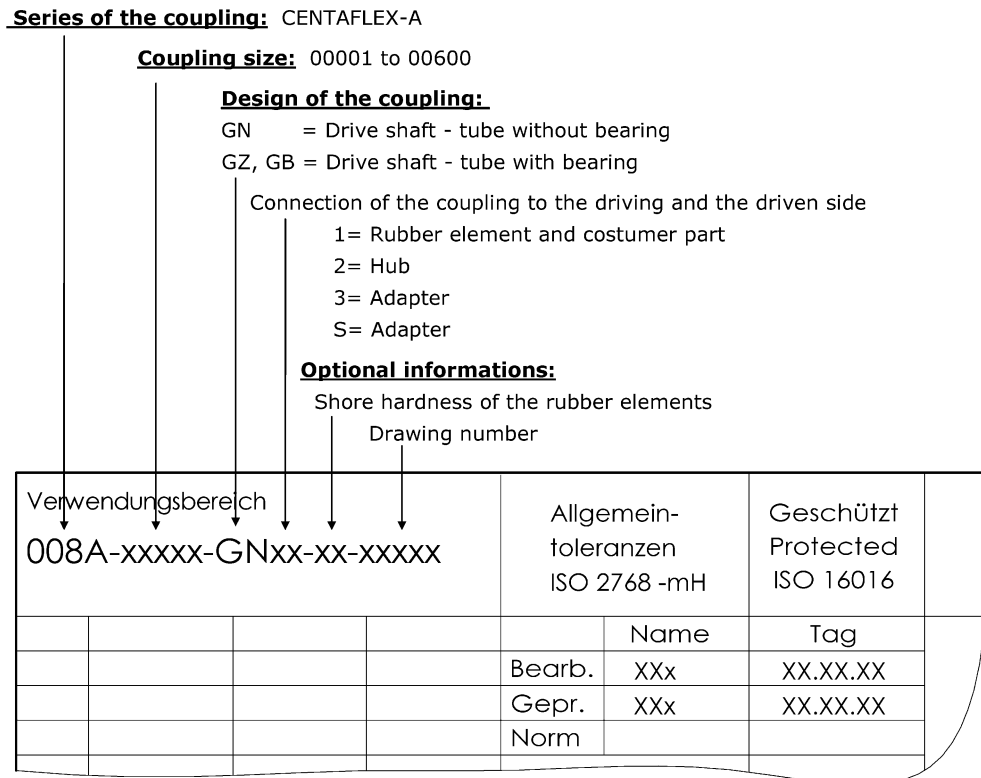


Fig. 6-1 Cutout of the title block of the installation drawing

- Examples and mounting order of possible of the drive shaft: **GN**
see chapter 6.2 design.1
- Examples and mounting order of possible design of the drive shaft: **GZ**
see chapter 6.2.2
- Examples and mounting order of possible design of the drive shaft: **GB**
see chapter 6.2.3

6.2.1 Examples and mounting order of possible design of the drive shaft: GN

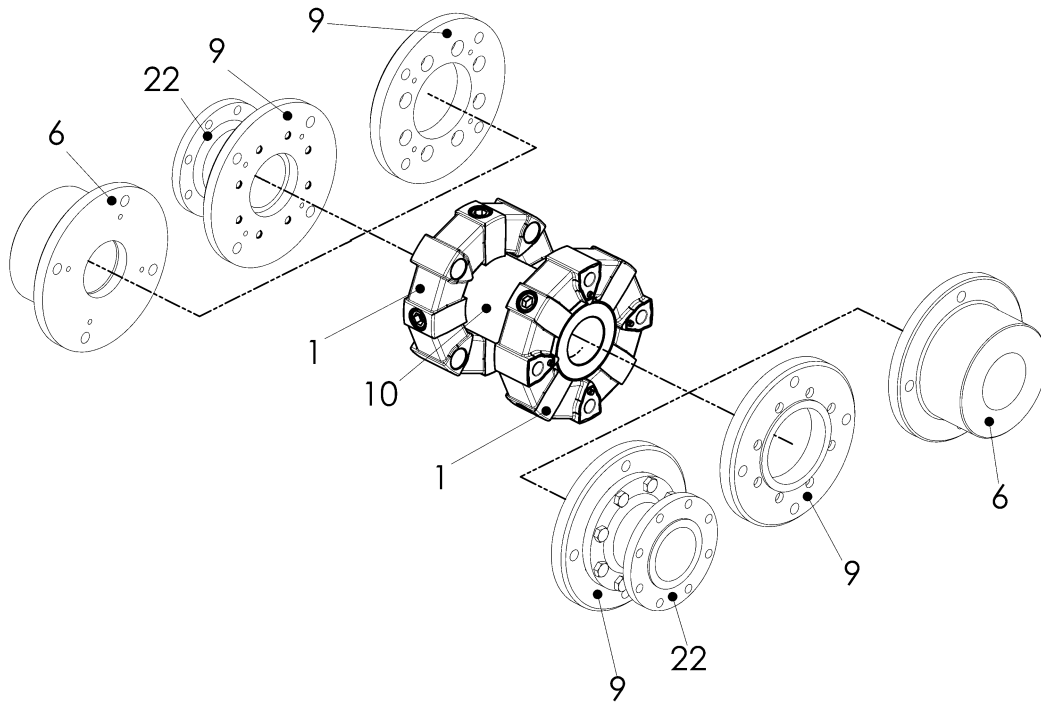


Fig. 6-2 Examples of possible design: GN

Item	Info	Designation	Remark
1		Rubber element	
6		Hub	
9		Adapter	
10		Tube	
22		Adapter	

- Mark the design of the supplied coupling by applying an „X“ in the following table.
The design supplied can be read out from the title block of the installation drawing (explanation see Fig. 6-1), or determined using Fig. 6-2.



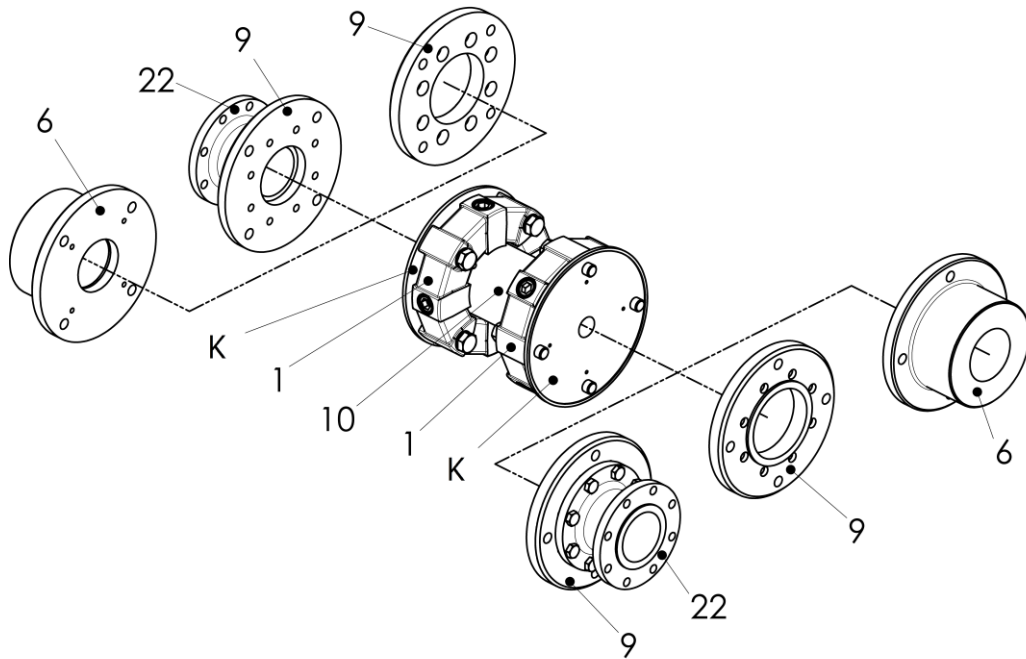
Possible design	Item-no. of scope of supply; parts to be mounted	Supplied design = X	Mounting order and chapter-no.
GN11	1+10+1		6.3 (size 00016 and larger); 6.7; 6.8
GN12	1+10+1+6		6.3 (size 00016 and larger); 6.4; 6.7; 6.8
GN13	1+10+1+9		6.3 (size 00016 and larger); 6.5; 6.7; 6.8
GNS1	22+9+1+10+1		6.3 (size 00016 and larger); 6.6; 6.7; 6.8
GN22	6+1+10+1+6		6.3 (size 00016 and larger); 6.4; 6.7; 6.8
GN23	6+1+10+1+9		6.3 (size 00016 and larger); 6.4; 6.5; 6.7; 6.8
GNS2	22+9+1+10+1+6		6.3 (size 00016 and larger); 6.4; 6.6; 6.7; 6.8
GN33	9+1+10+1+9		6.3 (size 00016 and larger); 6.5; 6.7; 6.8
GNS3	22+9+1+10+1+9		6.3 (size 00016 and larger); 6.5; 6.6; 6.7; 6.8
GNSS	22+9+1+10+1+9+22		6.3 (size 00016 and larger); 6.6; 6.7; 6.8

Table 6-1 Possible design: GN

- Mount the coupling in the mounting order as appropriate for the design in the table marked „X“.

For your information find below a list of all mounting chapters in the mounting order of possible design of the drive shaft GN:

- Chapter 6.3: Preparing the hub/adaptor/customer part (6/9/J) for mounting
- Chapter 6.4: Mounting the hub (6)
- Chapter 6.5: Mounting the adapter (9)
- Chapter 6.6: Mounting the adapters (22 and 9)
- Chapter 6.7: Aligning the units
- Chapter 6.8: Mounting the tube (10) and the rubber elements (1)

6.2.2 Examples and mounting order of possible design of the drive shaft: GZ

Fig. 6-3 Examples of possible design: GZ

Item	Info	Designation	Remark
1		Rubber element	
6		Hub	
9		Adapter	
10		Tube	
22		Adapter	
K		Centring flange	By CENTA pre-mounted assembly; with Textar-bearing

- Mark the design of the supplied coupling by applying an „X“ in the following table.
The design supplied can be read out from the title block of the installation drawing (explanation see Fig. 6-1), or determined using Fig. 6-3.



Possible design	Item-no. of scope of supply; parts to be mounted	Supplied design = X	Mounting order and chapter-no.
GZ11	K+1+10+1+K		6.7; 6.9
GZ12	K+1+10+1+K+6		6.4; 6.7; 6.9
GZ13	K+1+10+1+K+9		6.5; 6.7; 6.9
GZS1	22+9+K+1+10+1+K		6.6; 6.7; 6.9
GZ22	6+K+1+10+1+K+6		6.4; 6.7; 6.9
GZ23	6+K+1+10+1+K+9		6.4; 6.5; 6.7; 6.9
GZS2	22+9+K+1+10+1+K+6		6.4; 6.6; 6.7; 6.9
GZ33	9+K+1+10+1+K+9		6.5; 6.7; 6.9
GZS3	22+9+K+1+10+1+K+9		6.5; 6.6; 6.7; 6.9
GZSS	22+9+K+1+10+1+K+9+22		6.6; 6.7; 6.9

Table 6-2 Possible design: GZ

- Mount the coupling in the mounting order as appropriate for the design in the table marked „X“.

For your information find below a list of all mounting chapters in the mounting order of possible design of the drive shaft GZ:

- Chapter 6.4: Mounting the hub (6)
- Chapter 6.5: Mounting the adapter (9)
- Chapter 6.6: Mounting the adapters (22 and 9)
- Chapter 6.7: Aligning the units
- Chapter 6.9: Mounting the tube (10), the centring flanges (K) and the rubber elements (1)

6.2.3 Examples and mounting order of possible design of the drive shaft: GB

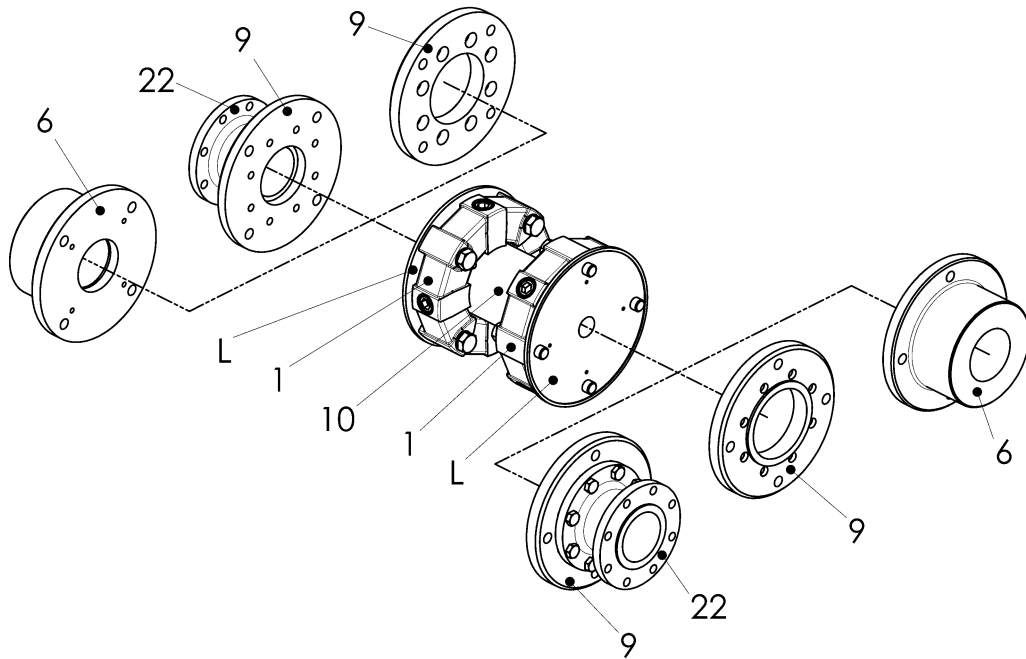


Fig. 6-4 Examples of possible design: GB

Item	Info	Designation	Remark
1		Rubber element	
6		Hub	
9		Adapter	
10		Tube	
22		Adapter	
L		Centring flange	By CENTA pre-mounted assembly; for spherical bearing; coupling size 00030 and larger

- Mark the design of the supplied coupling by applying an „X“ in the following table.
The design supplied can be read out from the title block of the installation drawing (explanation see Fig. 6-1), or determined using Fig. 6-4.



Possible design	Item-no. of scope of supply; parts to be mounted	Supplied design = X	Mounting order and chapter-no.
GB11	L+1+10+1+L		6.7; 6.9
GB12	L+1+10+1+L+6		6.4; 6.7; 6.9
GB13	L+1+10+1+L+9		6.5; 6.7; 6.9
GBS1	22+9+L+1+10+1+L		6.6; 6.7; 6.9
GB22	6+L+1+10+1+L+6		6.4; 6.7; 6.9
GB23	6+L+1+10+1+L+9		6.4; 6.5; 6.7; 6.9
GBS2	22+9+L+1+10+1+L+6		6.4; 6.6; 6.7; 6.9
GB33	9+L+1+10+1+L+9		6.5; 6.7; 6.9
GBS3	22+9+L+1+10+1+L+9		6.5; 6.6; 6.7; 6.9
GBSS	22+9+L+1+10+1+L+9+22		6.6; 6.7; 6.9

Table 6-3 Possible design: GB

- Mount the coupling in the mounting order as appropriate for the design in the table marked „X“.

For your information find below a list of all mounting chapters in the mounting order of possible design of the drive shaft GB:

- Chapter 6.4: Mounting the hub (6)
- Chapter 6.5: Mounting the adapter (9)
- Chapter 6.6: Mounting the adapters (22 and 9)
- Chapter 6.7: Aligning the units
- Chapter 6.9: Mounting the tube (10), the centring flange (L) and the rubber elements (1)

6.3 Preparing the hub/adapter/customer part (6/9/J) for mounting

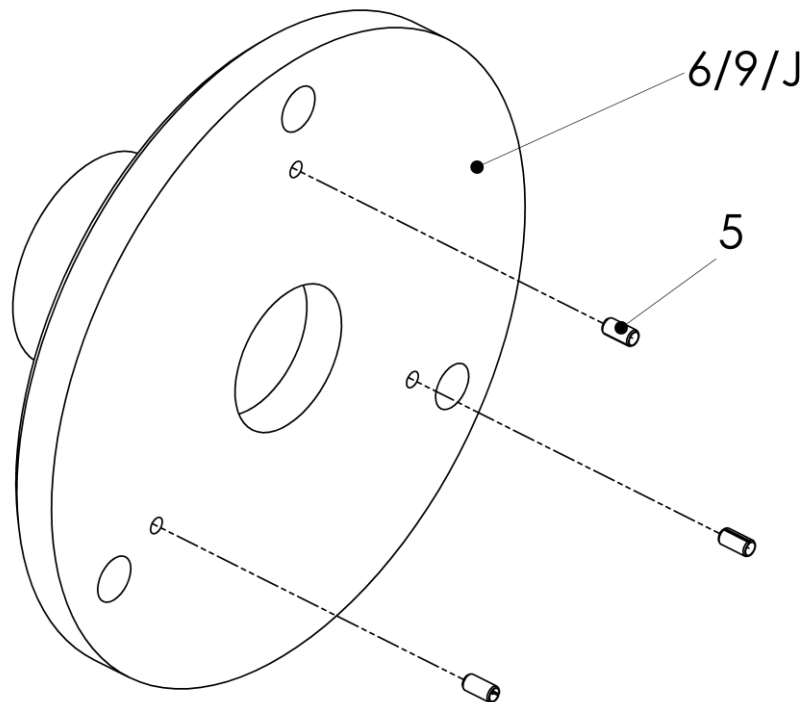


Fig. 6-5 Preparing the hub/adapter/customer part (6/9/J) for mounting

Item	Info	Designation	Remark
5		Spring pin DIN7346	Coupling size 00016 and larger
6		Hub	
9		Adapter	
J		Hub/Adapter	

Coupling sizes 00001...00012

- Not necessary to prepare the hub/adapter/customer part (6/9/J).

Coupling sizes 00016...00600

- Drive in the spring pins (5) into the hub/adapter/customer part (6/9/J).

6.4 Mounting the hub (6)

- Mount the hub as appropriate for the design supplied (see installation drawing):
- An overview of possible design of hubs and corresponding chapters of mounting are shown in the table below.

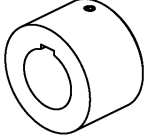
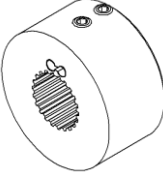
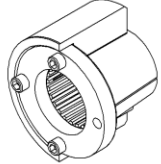
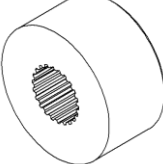
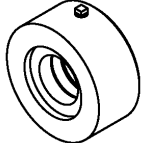
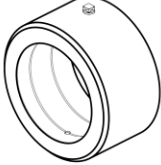
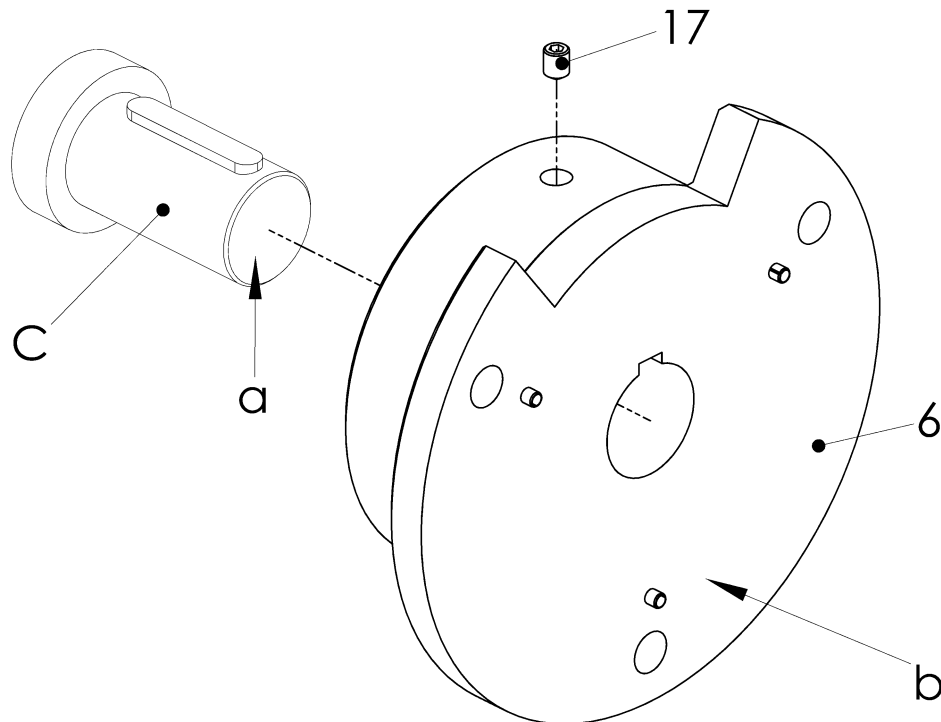
Possible design	Mounting the hub with...	See chapter
	Cylindrical bore and keyway	6.4.1
	CENTALOC clamping	6.4.2
	CENTA conical clamping	6.4.3
	Toothing	6.4.4
	Conical oil interference fit	6.4.5
	Cylindrical oil interference fit	6.4.6

Table 6-4 Overview of possible design of hubs

6.4.1 Mounting the hub with cylindrical bore and keyway

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

Item	Info	Designation	Remark
6		Hub	
17		Threaded pin DIN914	See installation drawing
C		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 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.

- Warm the hub (6) to a temperature of 80° - 100°C.
- Push the hub (6) onto the shaft (C) with feather key.



IMPORTANT

The face of the shaft must not protrude to the face of the hub / flange hub. Otherwise the operation of the coupling is not guaranteed.

CAUTION



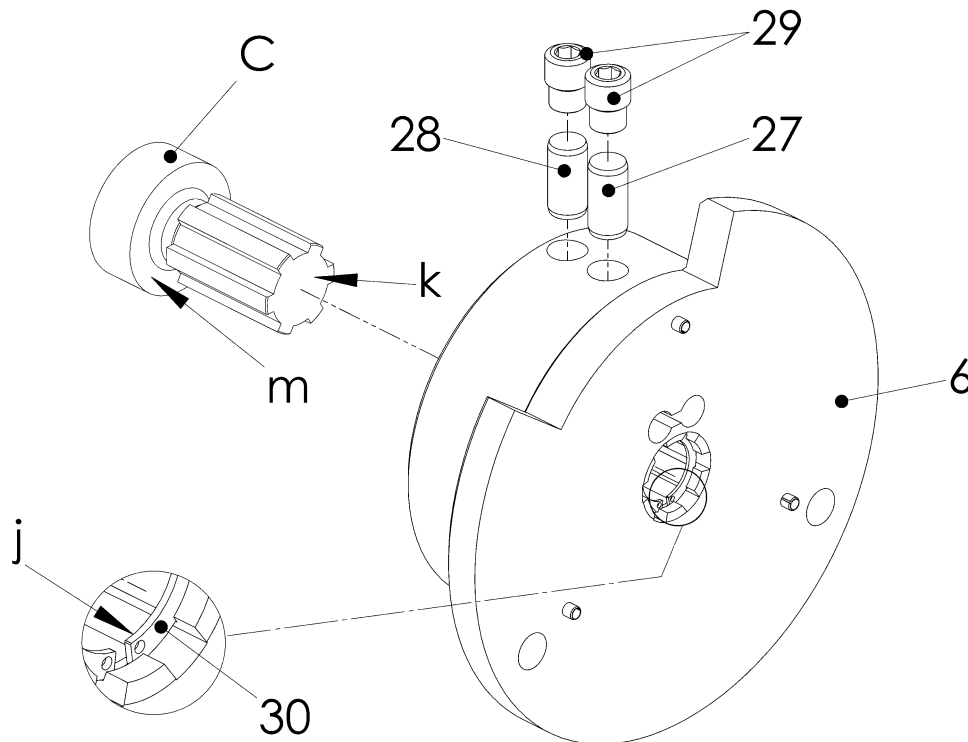
Material damage can occur as a result of:

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

- Preparing the hub (6) for mounting. Degrease the thread.
- Secure the hub (6) using the threaded pin (17).
Threaded pin: Size see installation drawing
Tightening torque see table below.

Threaded pin	M6	M8	M10	M12	M14	M16	M20
Tightening torque [Nm]	7	16	30	50	70	120	200

Table 6-5 Tightening torques for threaded pins

6.4.2 Mounting the CENTALOC clamping hub

Fig. 6-7 Mounting the CENTALOC clamping hub

Item	Info	Designation	Remark
6		Hub	Pre-mounted
27 / 28		Parallel pin DIN7	See installation drawing
29		Threaded pin	
30		Circlip DIN472	See installation drawing
C		Shaft	Customer part
	j	Rear side of circlip	
	k	End of shaft	
	m	Shaft shoulder	

- Push the hub (6) onto the shaft (C) as appropriate for the supplied design **with / without** circlip (30; see installation drawing):
 - **with** circlip (30):
Push the hub (6) onto the shaft (C) until the shaft end (k) touches the rear side of the circlip (j).

**IMPORTANT**

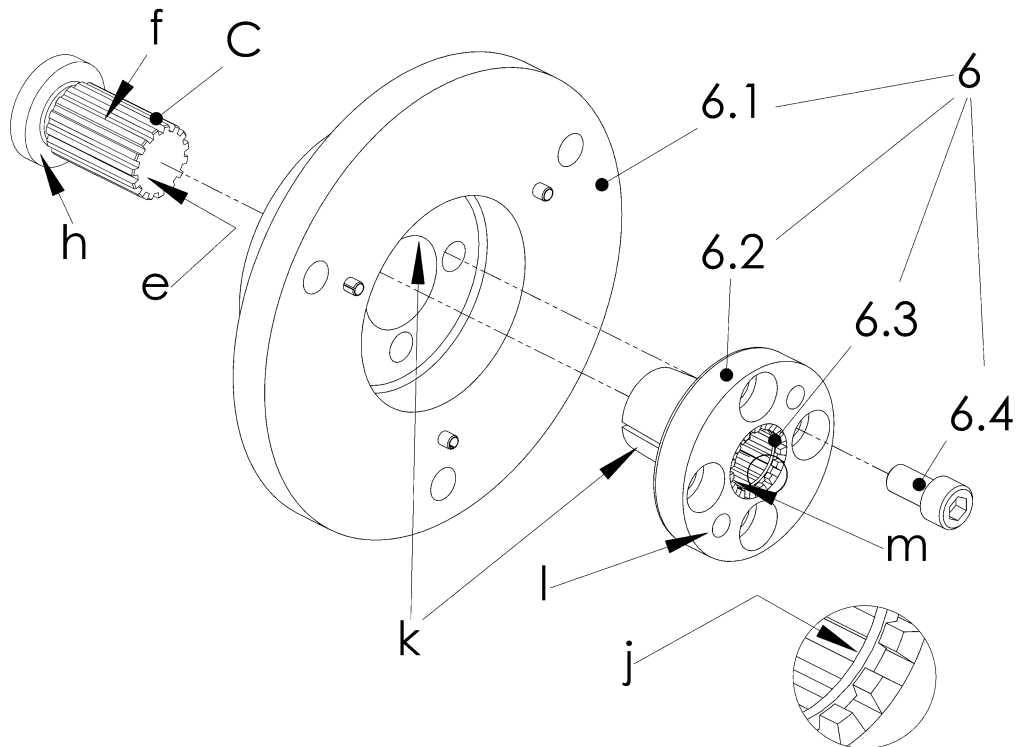
Ensure that the hub is correctly positioned on the shaft (against shaft end).
If necessary brace hub with washer against the shaft.

- **without** circlip (30):
Push the hub (6) onto the shaft (C) against the shaft shoulder (m).

**IMPORTANT**

Ensure that the hub is correctly positioned on the shaft (against shaft shoulder).
If necessary brace hub with washer against the shaft.

- Secure the hub (6) using the parallel pins (27 / 28) and the threaded pins (29; size see installation drawing; tightening torque see table 6-1).

6.4.3 Mounting the CENTA conical clamping hub

Fig. 6-8 Mounting the CENTA conical clamping hub

Item	Info	Designation	Remark
6		Hub	Pre-mounted assembly
6.1		Hub	Pre-mounted
6.2		Hub-taper	Pre-mounted
6.3		Circlip	Design of hub see installation drawing
6.4		Screw	
C		Shaft	Customer part
	e	End of shaft	
	f	Shaft extension	
	h	Shaft shoulder	
	j	Rear side of circlip	
	k	Conical surface	
	l	Forcing thread	
	m	Bore	

**IMPORTANT**

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

- Preparing the hub (6.1), the hub-taper (6.2) and the shaft (A) for mounting:
 - Clean and degrease the bore (m) and the conical surface (k) of the hub-taper (6.2).
 - Clean and degrease the conical surface (k) of the hub (6.1).
 - Clean and degrease the shaft extension (f).
- Push the hub-taper (6.2) into the hub (6.1).
- Loosely screw the hub taper (6.2) to the hub (6.1) using the screws (6.4).
- Push the hub-taper (6.2) as appropriate for the supplied design **with / without** circlip (6.3; see installation drawing) onto the shaft (A):
 - **with** circlip (6.3):
Push the hub-taper (6.2) with the hub (6.1) onto the shaft (A) until the end of shaft (e) contacts the rear side of the circlip (j).

**IMPORTANT**

Ensure that the hub-conus is correctly positioned on the shaft (against shaft end).
If necessary brace hub-conus with washer against the shaft.

- **without** circlip (6.3):
Push the hub-taper (6.2) with the hub (6.1) up to the shaft shoulder (h) onto the shaft (A).

**IMPORTANT**

Ensure that the hub-conus is correctly positioned on the shaft (against shaft shoulder).
If necessary brace hub-conus with washer against the shaft.

- Evenly tighten the screws (6.4) in three steps crosswise, until the tightening torque (see installation drawing) has been achieved for all screws.
 - Step one: 40 % of the specified tightening torque.
 - Step two: 60 % of the specified tightening torque.
 - Step three: 100 % of the specified tightening torque.
- Check the tightening torque of the screws (6.4) one after the other.

6.4.4 Mounting the hub with tothing

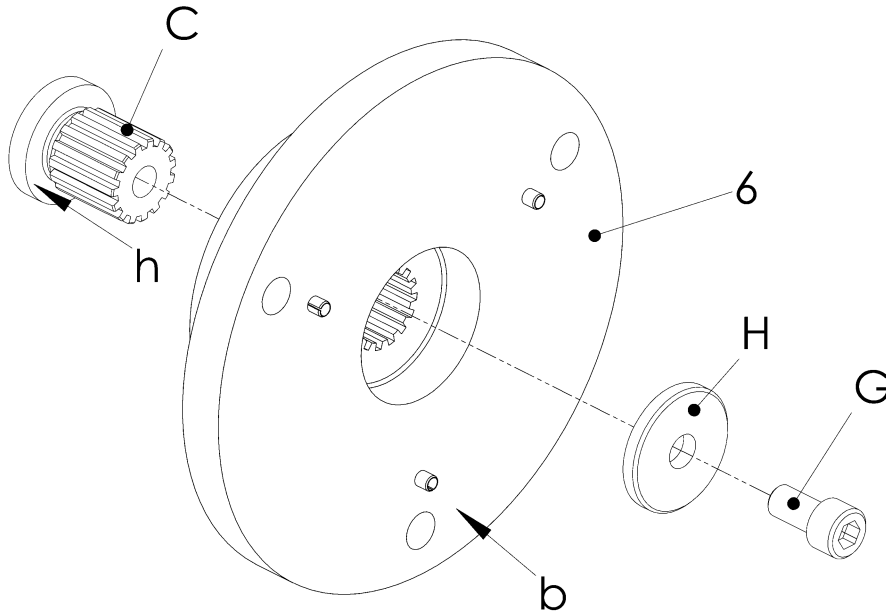


Fig. 6-9 Mounting the hub with tothing

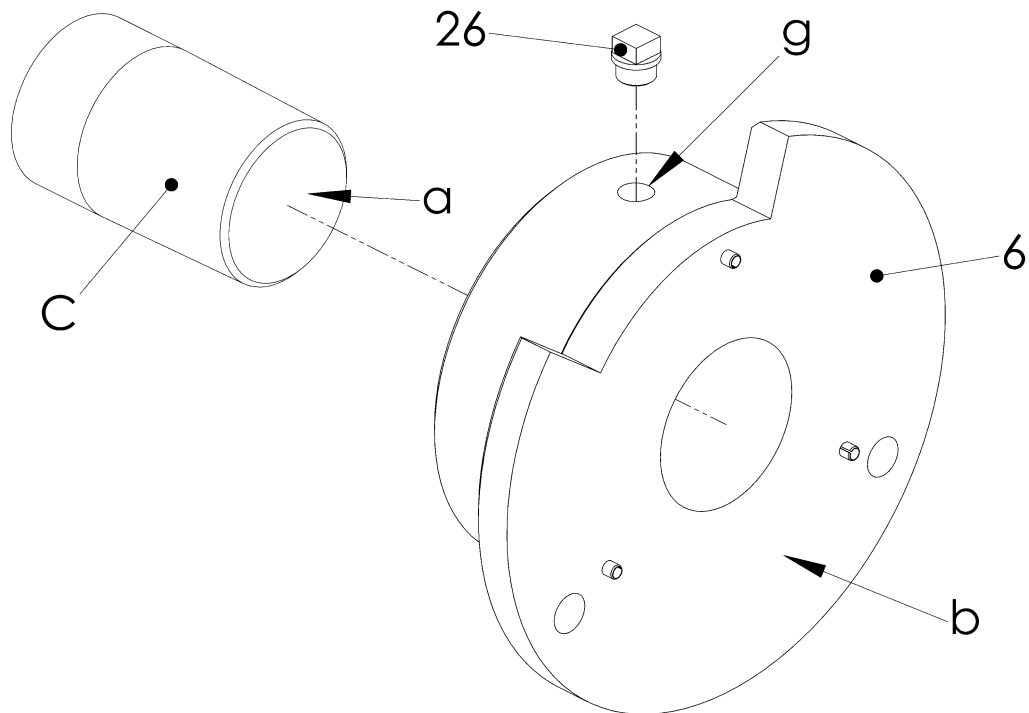
Item	Info	Designation	Remark
6		Hub	
C		Shaft	Customer part
G		Screw	Customer part
H		Washer	Customer part
	b	Face of hub	
	h	Shaft shoulder	

- Push the hub (6) up to the shaft shoulder (h) onto the shaft (C). Take the mounting position of the hub (6) from the installation drawing.
- Brace the hub (6) against the shaft (C) using the washer (H) and the screw (G).



IMPORTANT

The screw connection of the shaft must not protrude to the face of the hub/flange hub. Otherwise the operation of the coupling is not guaranteed.

6.4.5 Mounting the hub with conical oil interference fit

Fig. 6-10 Mounting the hub with conical oil interference fit

Item	Info	Designation	Remark
6		Hub	
26		Screw plug	G $\frac{1}{4}$ or G $\frac{3}{4}$ see installation drawing
A		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 (A).
- Push the hub (6) onto the shaft (A).
- Remove the screw plug (26) from the hub (6).

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 mm²/s at 20°C, e.g. SKF LHM300
- For dismantling:
Oil with a viscosity 900 mm²/s at 20°C, e.g. SKF LHDF900

- Connect the pump (**p_{max} = 3000 bar**) for expanding the hub (6) to the thread G¹/₄ or G³/₄ (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 (6) 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 (6).
- 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 (6), drain oil out of the thread G $\frac{1}{4}$ or G $\frac{3}{4}$ (c) and dispose correctly.
- Screw the screw plug (26) into the hub (6).

 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.

6.4.6 Mounting the hub with cylindrical oil interference fit

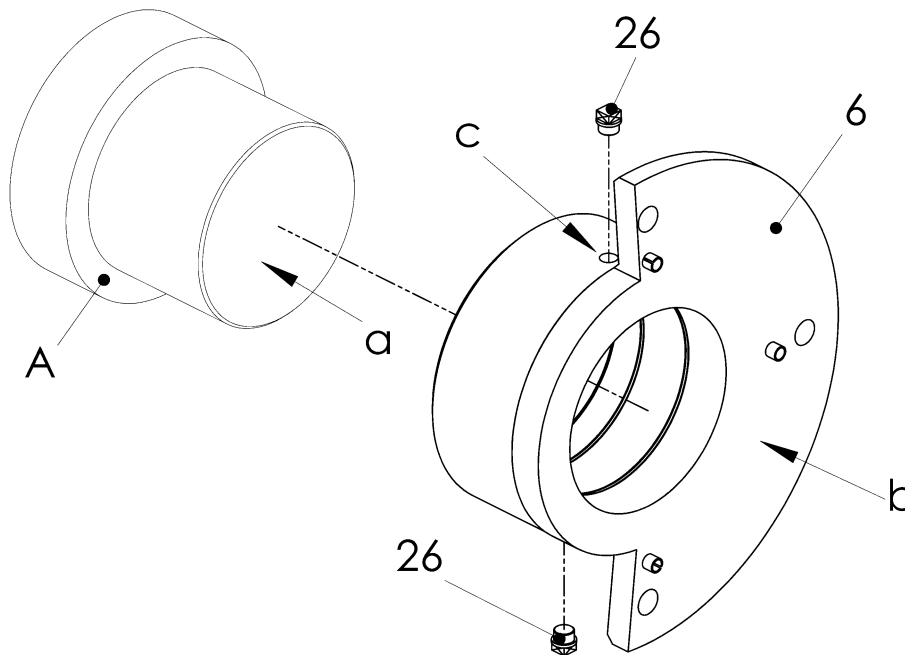


Fig. 6-11 Mounting the hub with cylindrical oil interference fit

Item	Info	Designation	Remark
6		Hub	
26		Screw plug	2 x 180° offset
A		Shaft	Customer part
	a	Face of shaft	
	b	Face of hub	
	c	Thread G $\frac{1}{4}$	2 x 180° offset

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.

- Remove all screw plugs (26) from the hub (6).
- Warm the hub (6) to a temperature of 280°C - 320°C.
- Push the hub (6) onto the shaft (A).

**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.

- Screw all screw plugs (26) into the hub (6).

6.5 Mounting the adapter (9)

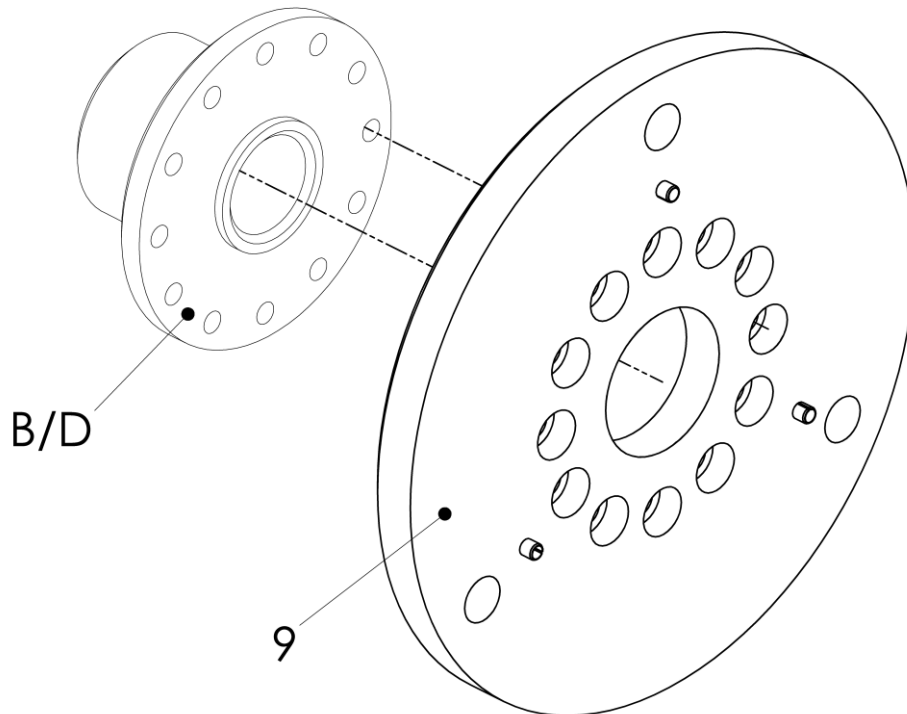


Fig. 6-12 Mounting the adapter (9)

Item	Info	Designation	Remark
9		Adapter	
B		Flange	Customer part
D		Hub	Customer part

- Push the adapter (9) onto/into the centring of the flange/hub (B/D)
- Screw the adapter (9) to the flange/hub (B/D).

6.6 Mounting the adapters (22 and 9)

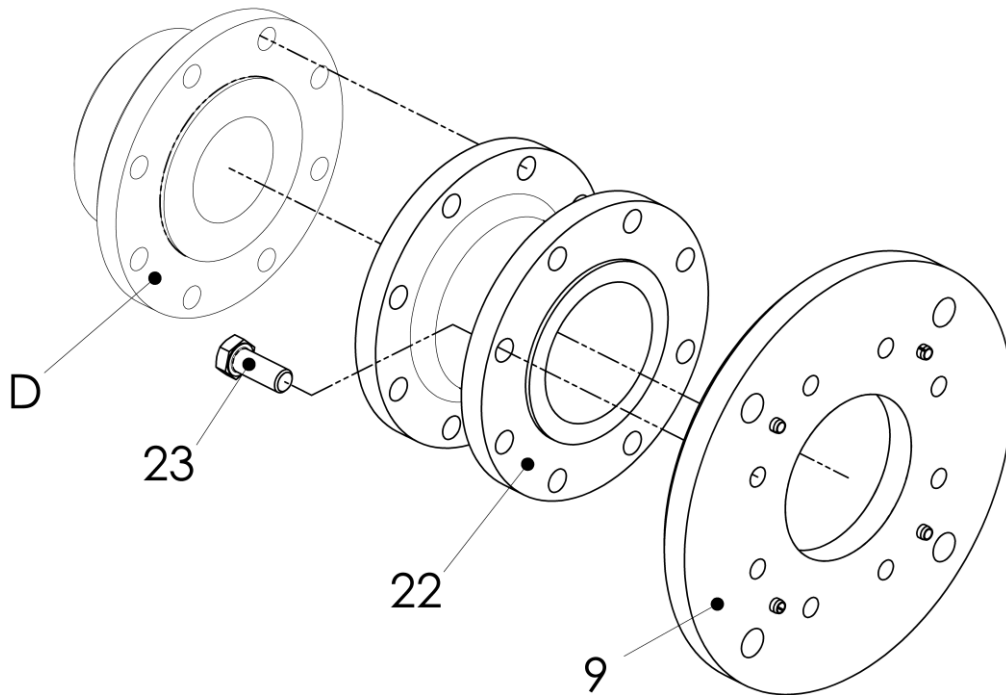


Fig. 6-13 Mounting the adapters (22 and 9)

Item	Info	Designation	Remark
9/22		Adapter	
23		Screw	
D		Hub	Customer part

- Push the adapter (22) onto the centring of the hub (D).
- Screw the adapter (22) to the hub (D).
- Push the adapter (9) onto the centring of the adapter (22).
- Screw the adapter (22) with screws (23) to the adapter (9).

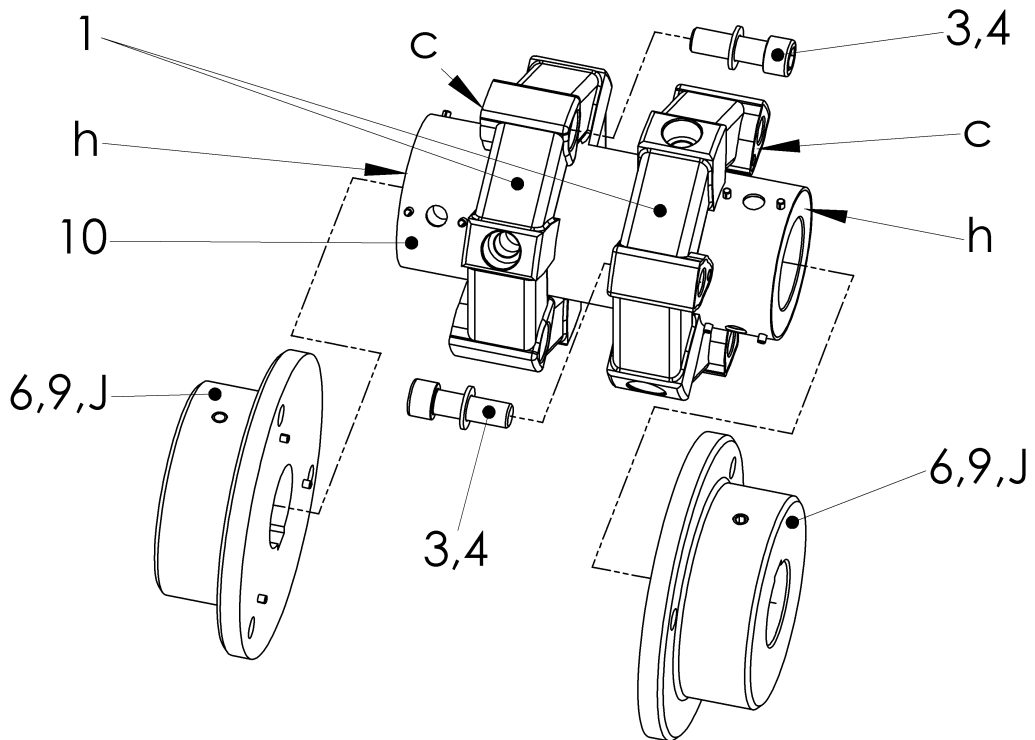
6.7 Aligning the units

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



6.8 Mounting the tube and the rubber elements (design GN)

- Mount the tube and the rubber elements in following order:
- Positioning the tube and the rubber elements, see chapter 6.8.1 .
- Mounting the tube and the rubber elements as appropriate to the delivered size (see installation drawing).
 - Mounting the rubber elements (coupling sizes **00001...00012**), see chapter 6.8.2 .
 - Mounting the rubber elements (coupling sizes **00016...00028**), see chapter 6.8.3 .
 - Mounting the rubber elements (coupling sizes **00030...00200**), see chapter 6.8.4 .
 - Mounting the rubber elements (coupling size **00250**), see chapter 6.8.5 .
 - Mounting the rubber elements (coupling sizes **00400...00600**), see chapter 6.8.6 .
- Removing the mounting supports, see chapter 6.8.7 .
- After completed mounting, see chapter 6.8.8. .

6.8.1 Positioning the tube and the rubber elements

Fig. 6-14 Positioning the tube and the rubber elements

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
4		Washer	Coupling size 00400 and larger
6		Hub	
9		Adapter	
10		Tube	
12		Bush	
J		Hub/Adapter	Customer part
	c	Contact surface of rubber element	
	h	Face of tube	



- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):
 - Push the screws (3) and the washers (4, coupling size 00400 and larger) into the first rubber element (1).
 - Push the first rubber element (1) centred onto the tube (10). The contact surfaces of the rubber element (c) must be on the side of face of the tube (h).
- Place the tube (10) with the rubber elements (1) in the installation space and support.

6.8.2 Mounting the rubber elements (coupling sizes 00001...00012)

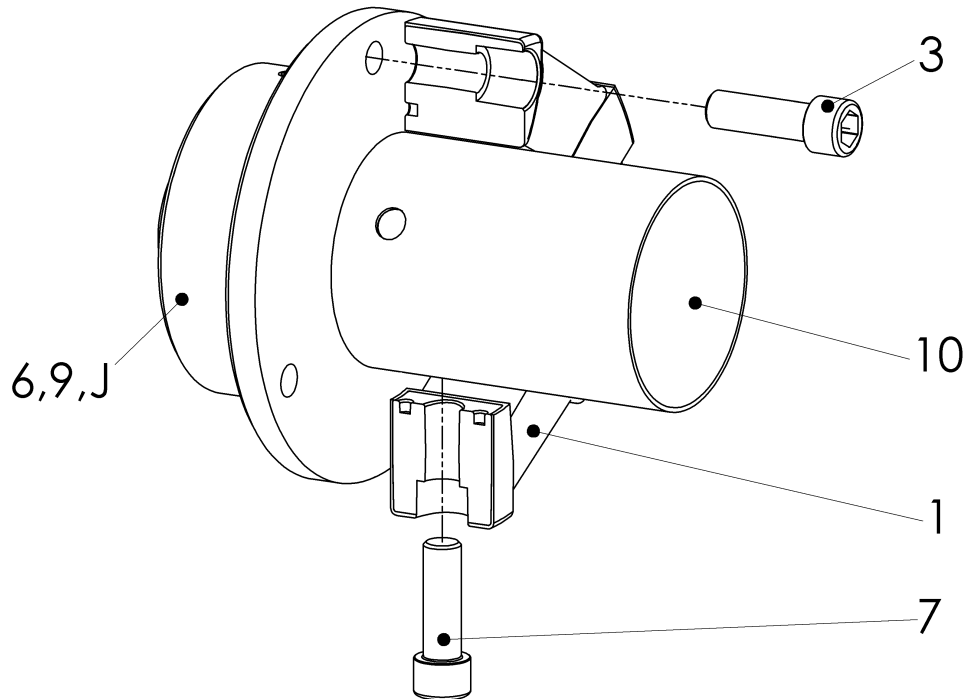


Fig. 6-15 Mounting the rubber elements (coupling sizes 00001...00012)

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
J		Hub/Adapter	Customer part

CAUTION



Material damage to rubber part can occur as a result of:

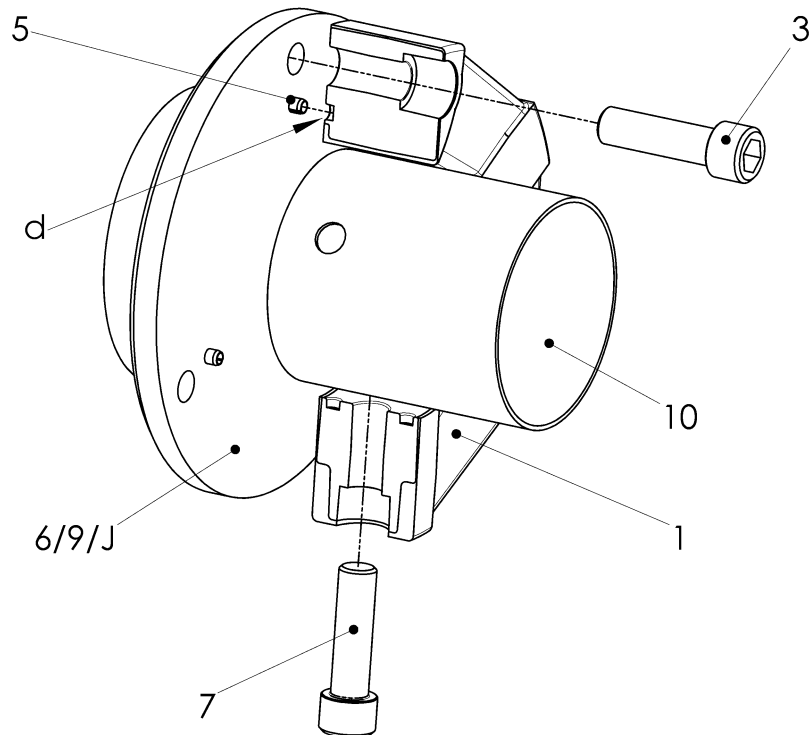
- Twisted rubber element mounted by friction between screw head and vulcanized aluminium part

Use a suitable tool for applying counter pressure on the rubber element to prevent twisting of the rubber element during tightening of the screws.



- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):
 - Turn the first rubber element (1) towards the hub/adaptor (6/9/J) until the drillings for the screws (3) are aligned.
 - Screw the rubber element (1) to the hub/adaptor (6/9/J) using the screws (3). While tightening screws (3) apply counter pressure on the rubber element (1) to prevent twisting.
 - Push the screws (7) into the rubber element (1) and turn them first two to three threads into the tube (10).

- Tighten all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved. While tightening screws (7) apply counter pressure on the rubber element (1) to prevent twisting.

6.8.3 Mounting the rubber elements (coupling sizes 00016...00028)

Fig. 6-16 Mounting the rubber elements (coupling sizes 00016...00028)

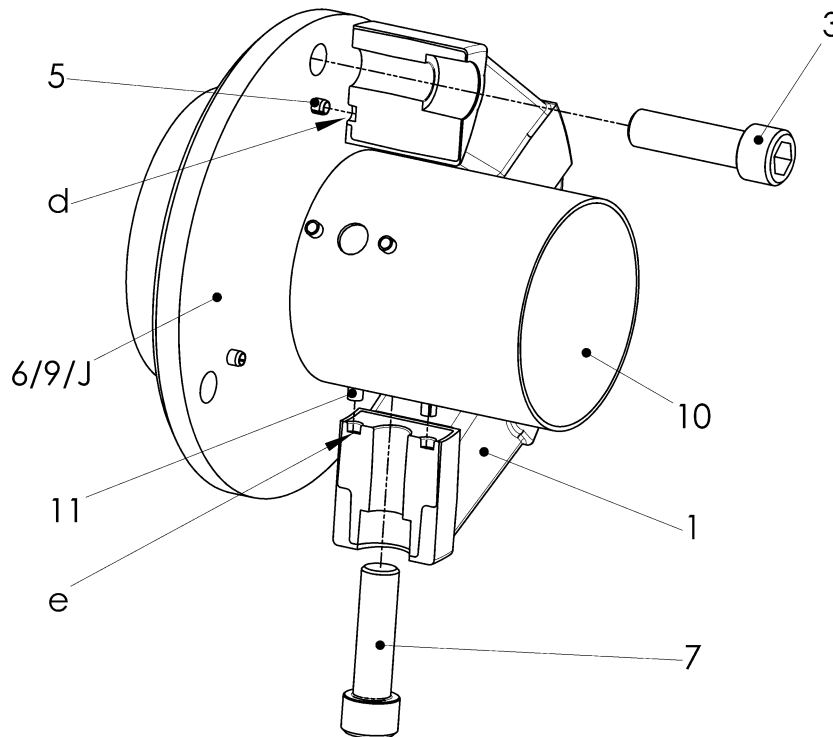
Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
J		Hub/Adapter	Customer part
	d	Drilling for spring pin	

CAUTION**Material damage to rubber part can occur as a result of:**

- Twisted rubber element mounted by friction between screw head and vulcanized aluminium part

Use a suitable tool for applying counter pressure on the rubber element to prevent twisting of the rubber element during tightening of the screws.

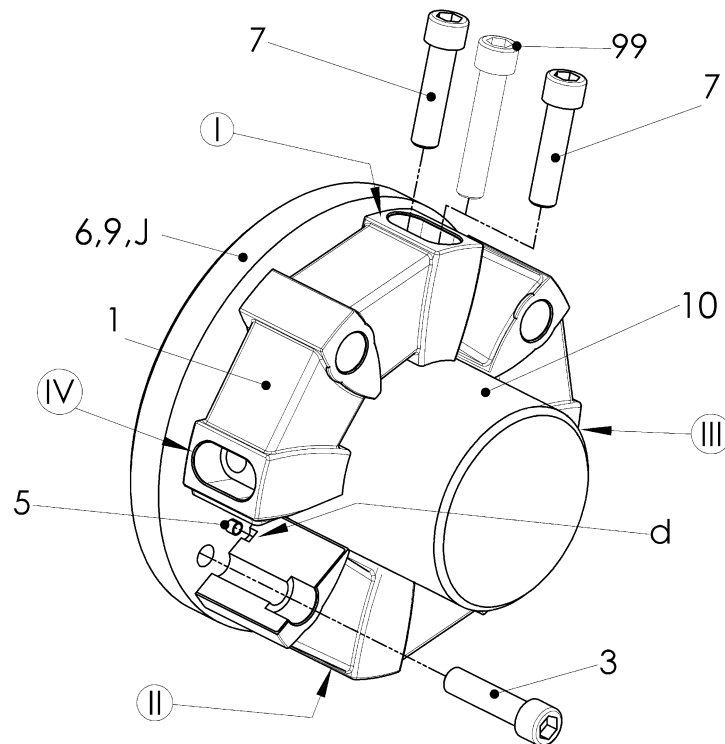
- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):
 - Turn the first rubber element (1) towards the hub/adaptor (6/9/J) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) to the hub/adaptor (6/9/J) using the screws (3).
 - Push the screws (7) into the rubber element (1) and turn them first two to three threads into the tube (10).
- Tighten all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved. While tightening screws (7) apply counter pressure on the rubber element (1) to prevent twisting.

6.8.4 Mounting the rubber elements (coupling sizes 00030...00200)

Fig. 6-17 Mounting the rubber elements (coupling sizes 00030...00200)

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
11		Spring pin DIN7346	
J		Hub/Adapter	Customer part
	d	Drilling for spring pin	
	e	Drilling for spring pin	



- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):
 - Turn the first rubber element (1) towards the hub/adapter (6/9/J) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) to the hub/adapter (6/9/J) using the screws (3).
 - Turn the tube (10) towards the rubber element (1) until the drillings (e) and the spring pins (11) are aligned.
 - Push the screws (7) into the rubber element (1) and turn them first two to three threads into the tube (10).
- Tighten all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved.
By this ensure the correct fit of the spring pins (11).

6.8.5 Mounting the rubber elements (coupling size 00250)

Fig. 6-18 Mounting the rubber elements (coupling size 00250)

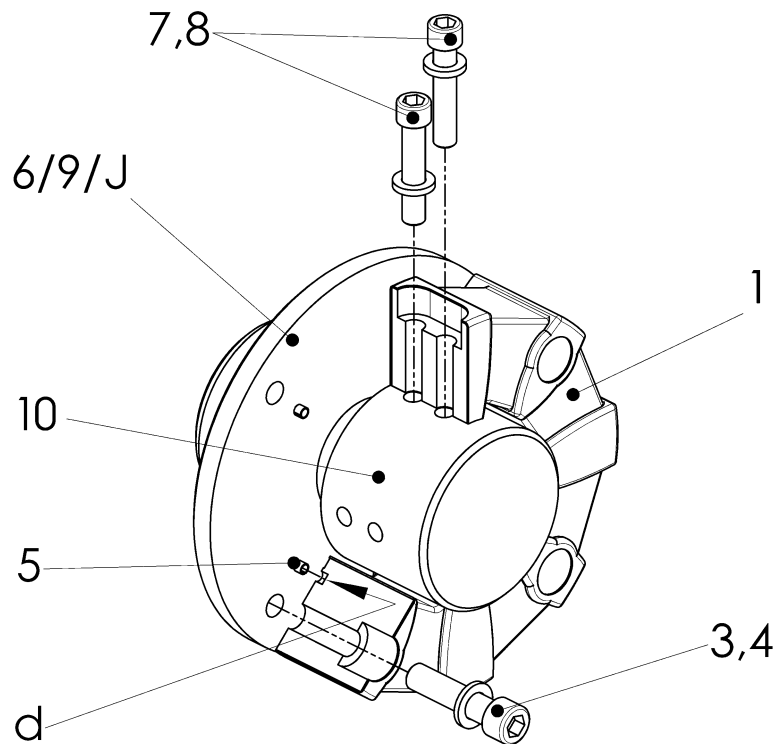
Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
99		Screw ISO4762-10.9 M20x90	1 pc. for mounting
J		Hub/Adapter	Customer part
	d	Drilling for spring pin	
	I - IV	Order of mounting	



- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):

- Turn the first rubber element (1) towards the hub/adaptor (6/9/J) until the drillings (d) and the spring pins (5) are aligned.
- Screw the rubber element (1) to the hub/adaptor (6/9/J) using screws (3).
- Repeat the following mounting section in order I – IV, until all screws (7) are screwed in two to three threads:
 - Pull up the rubber element (1) with screw (99) to the tube (10) and screw in next to this a screw (7) two to three threads.
 - Remove the screw (99) and replace it by another screw (7), at first screw it two to three threads in the tube (10).

- Tighten in order I – IV all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved.

6.8.6 Mounting the rubber elements (coupling sizes 00400...00600)

Fig. 6-19 Mounting the rubber elements (coupling sizes 00400...00600)



Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
4		Washer	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
8		Washer	
9		Adapter	
10		Tube	
J		Hub/Adapter	Customer part
	d	Drilling for spring pin	

- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):
 - Turn the first rubber element (1) towards the hub/adapter (6/9/J) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) to the hub/adapter (6/9/J) using the screws (14) and the washers (4).
 - Push the screws (7) and the washers (8) into the rubber element (1) and turn them first two to three threads into the tube (10).
- Tighten all screws (7) crosswise until the prescribed tightening torque (see chapter 11.2) has been achieved.

6.8.7 Removing the mounting supports

- Remove all mounting supports.

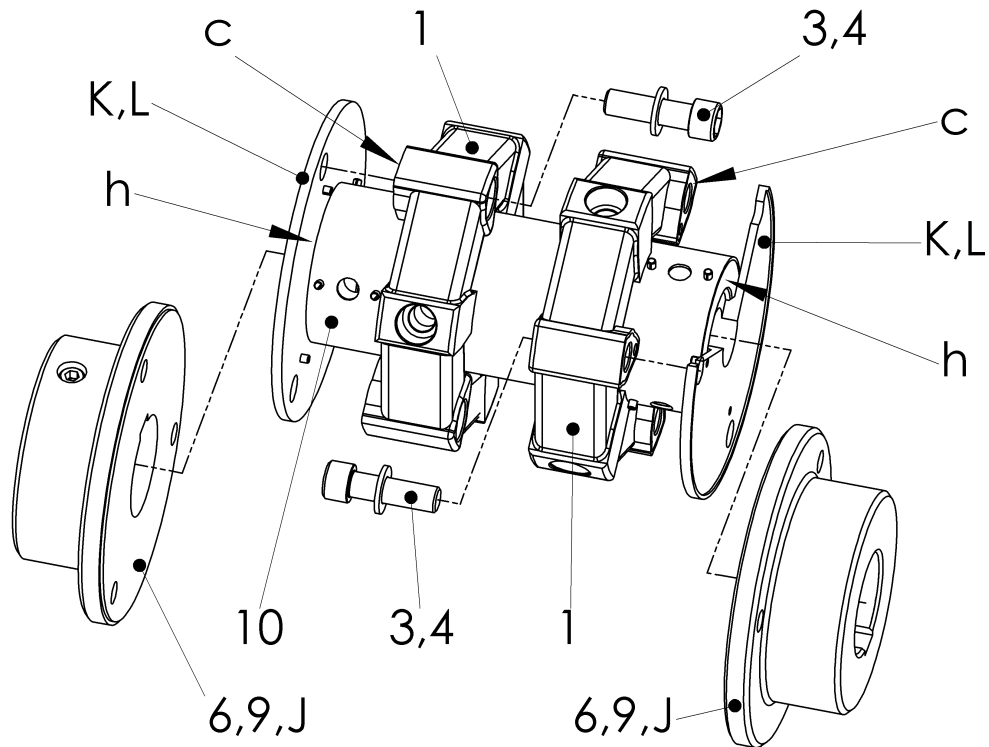
6.8.8 After completed mounting

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

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

6.9 Mounting the tube, the centring flanges and the rubber elements (Design GZ and GB)

- Mount the tube, the centring flanges and the rubber elements in following order:
- Positioning the tube, the centring flanges and the rubber elements, see chapter 6.9.1 .
- Mounting the tube, the centring flanges and the rubber elements as appropriate to the delivered size (see installation drawing).
 - Mounting the tube, the centring flanges and the rubber elements (coupling sizes **00001...00012**), see chapter 6.9.2 .
 - Mounting the tube, the centring flanges and the rubber elements (coupling sizes **00016...00028**), see chapter 6.9.3 .
 - Mounting the tube, the centring flanges and the rubber elements (coupling sizes **00030...00200**), see chapter 6.9.4 .
 - Mounting the tube, the centring flanges and the rubber elements (coupling size **00250**), see chapter 6.9.5 .
 - Mounting the tube, the centring flanges and the rubber elements (coupling sizes **00400...00600**), see chapter 6.9.6 .
- Removing the mounting supports, see chapter 6.9.7 .
- After completed mounting, see chapter 6.9.8. .

6.9.1 Positioning the tube, the centring flanges and the rubber elements

Fig. 6-20 Positioning the tube, the centring flanges and the rubber elements

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
4		Washer	Coupling size 00400 and larger
6/9		Hub/Adapter	
10		Tube	
J		Hub/Adapter	Customer part
K		Centring flange	Assembly, pre-mounted by CENTA; design GZ; with Textar-Bearing
L		Centring flange	Assembly, pre-mounted by CENTA; design GB; with spherical bearing; Coupling size 00030 and larger
	c	Contact surface of rubber element	
	h	Face of tube	

- Repeat the following described mounting of the first rubber element (1) also for mounting the second rubber element (1):
 - Push the screws (3) and the washers (4, coupling size 00400 and larger) into the first rubber element (1).
 - Push the rubber element (1) centred onto the tube (10). The contact surfaces of the rubber element (c) must be on the side of face of the tube (h).
 - Push the pre-mounted centring flange assembly (K/L) into the centring of the tube (10) until the face of the tube (h) touches the surface of the pre-mounted centring flange assembly (K/L).
- Repeat the mounting section above at the second rubber element (1).
- Place the tube (10) with the pre-mounted centring flange assemblies (K/L) and the rubber elements (1) in the installation space and support.

6.9.2 Mounting the tube, the centring flanges and the rubber elements (coupling sizes 00001...00012)

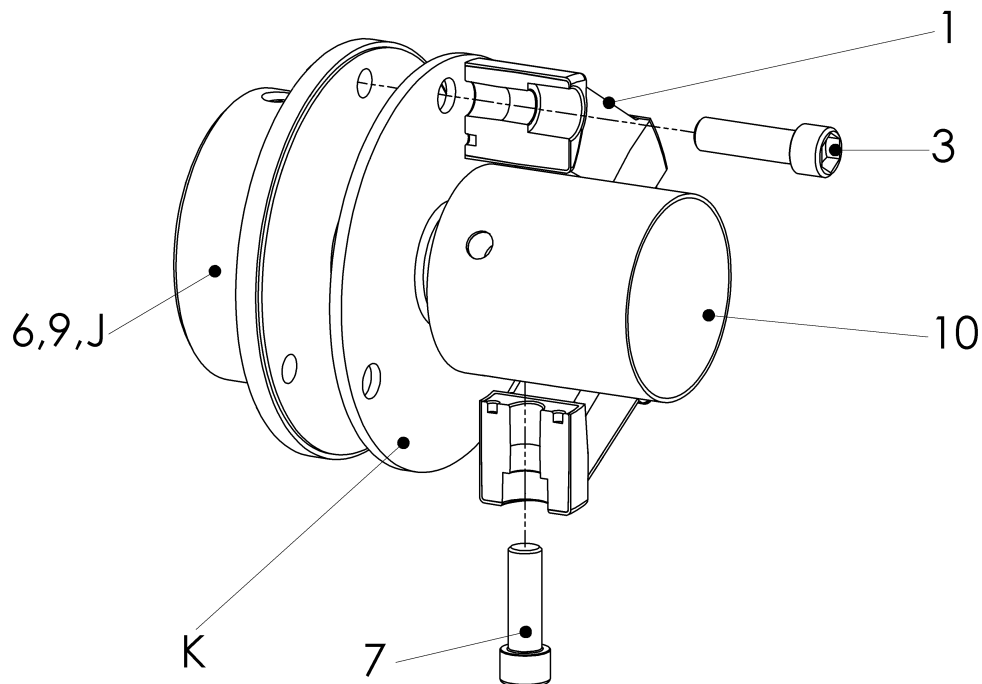


Fig. 6-21 Mounting the tube, the centring flanges and the rubber elements (coupling sizes 00001...00012)

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
J		Hub/Adapter	Customer part
K		Centring flange	Assembly, pre-mounted by CENTA; with Textar-bearing

CAUTION

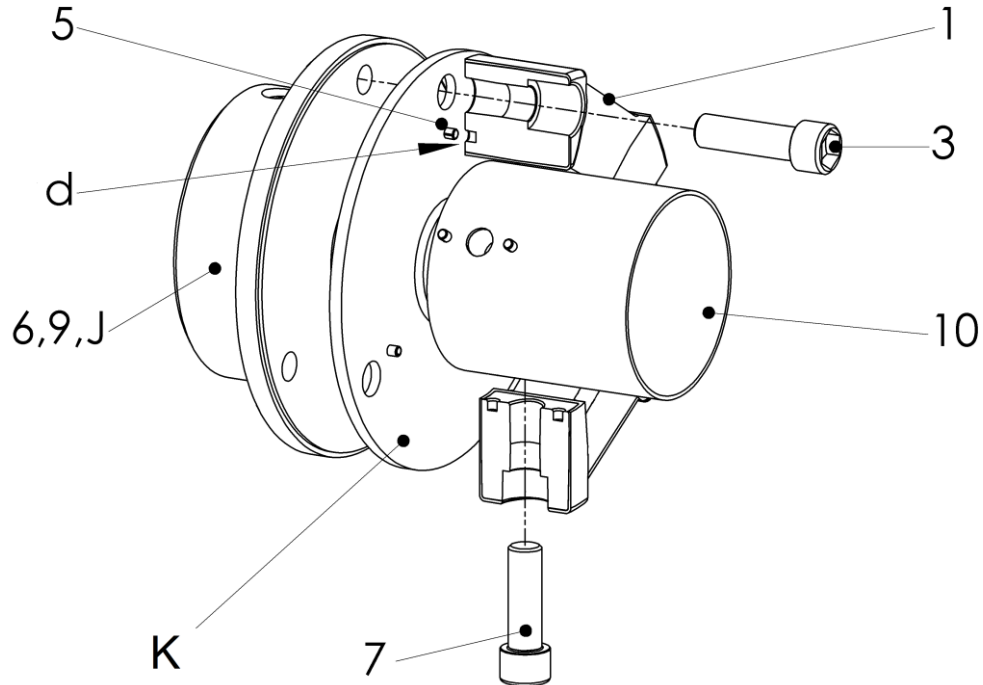


Material damage to rubber part can occur as a result of:

- Twisted rubber element mounted by friction between screw head and vulcanized aluminium part

Use a suitable tool for applying counter pressure on the rubber element to prevent twisting of the rubber element during tightening of the screws.

- Repeat the following described mounting of the first centring flange (K) and rubber element (1) also for mounting the second centring flange (K) and rubber element (1):
 - Push the centring flange (K) onto the centring of the hub/adapter (J/6/9).
 - Turn the rubber element (1) towards the centring flange (K) until the drillings (d) for the screws (3) are aligned.
 - Screw the rubber element (1) and the centring flange (K) to the hub/adapter (J/6/9) using the screws (3). While tightening screws (3) apply counter pressure on the rubber element (1) to avoid twisting.
 - Push the screws (7) into the rubber element (1) and screw them first two to three threads into the tube (10).
- Tighten all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved. While tightening screws (7) apply counter pressure on the rubber element (1) to avoid twisting.

**6.9.3 Mounting the tube, the centring flanges and the rubber elements
(coupling sizes 00016...00028)**


*Fig. 6-22 Mounting the tube, the centring flanges and the rubber elements
(coupling sizes 00016...00028)*

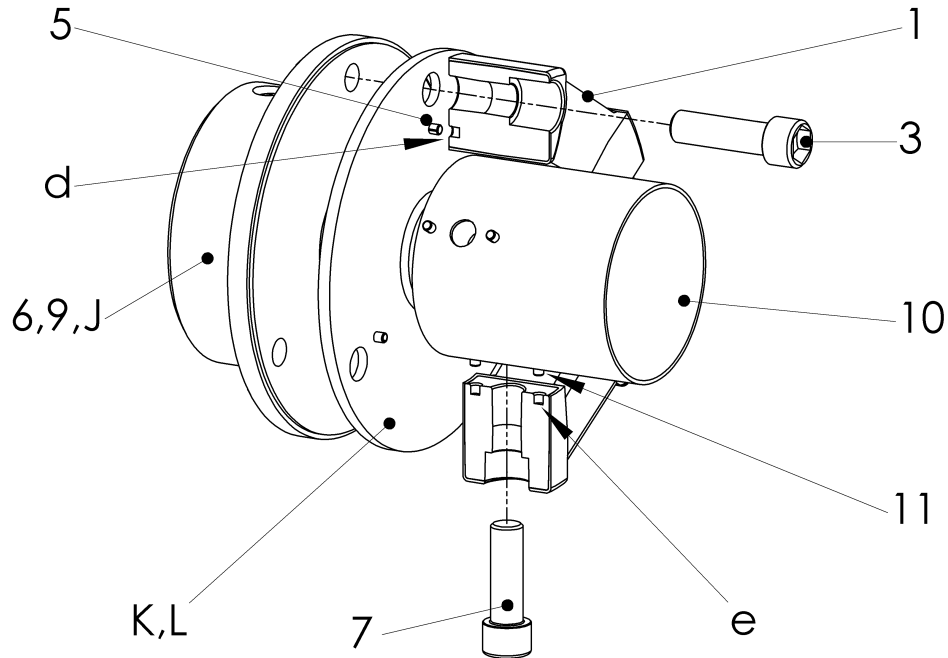
Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
9		Adapter	
10		Hub	
J		Hub/Flange	Customer part
K		Centring flange	Assembly, pre-mounted by CENTA; with Textar-bearing
	d	Drilling for spring pin	

CAUTION**Material damage to rubber part can occur as a result of:**

- Twisted rubber element mounted by friction between screw head and vulcanized aluminium part

Use a suitable tool for applying counter pressure on the rubber element to prevent twisting of the rubber element during tightening of the screws.

- Repeat the following described mounting of the first centring flange (K) and rubber element (1) also for mounting the second centring flange (K) and rubber element (1):
 - Push the centring flange (K) onto the centring of the hub/adapter (J/6/9).
 - Turn the first rubber element (1) towards the centring flange (K) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) and the centring flange (K) to the hub/adapter (J/6/9) using the screws (3).
 - Push the screws (7) into the rubber element (1) and screw them first two to three threads into the tube (10).
- Tighten all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved. While tightening screws (7) apply counter pressure on the rubber element (1) to avoid twisting.

**6.9.4 Mounting the tube, the centring flanges and the rubber elements
(coupling sizes 00030...00200)**


*Fig. 6-23 Mounting the tube, the centring flanges and the rubber elements
(coupling sizes 00030...00200)*

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
11		Spring pin DIN7346	
J		Hub/Adapter	Customer part
K		Centring flange	Assembly, pre-mounted by CENTA; with Textar-bearing
L		Centring flange	Assembly, pre-mounted by CENTA; for spherical bearing
	d	Drilling for spring pin	
	e	Drilling for spring pin	



- Repeat the following described mounting of the first centring flange (K/L) and rubber element (1) also for mounting the second centring flange (K/L) and rubber element (1):
 - Push the centring flange (K/L) onto the centring of the hub/adapter (J/6/9).
 - Turn the first rubber element (1) towards the centring flange (K/L) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) and the centring flange (K/L) to the hub/adapter (J/6/9) using the screws (3).
 - Push the screws (7) into the rubber element (1) and screw them first two to three threads into the tube (10).
- Tighten all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved. By this ensure the correct fit of the spring pins (11).

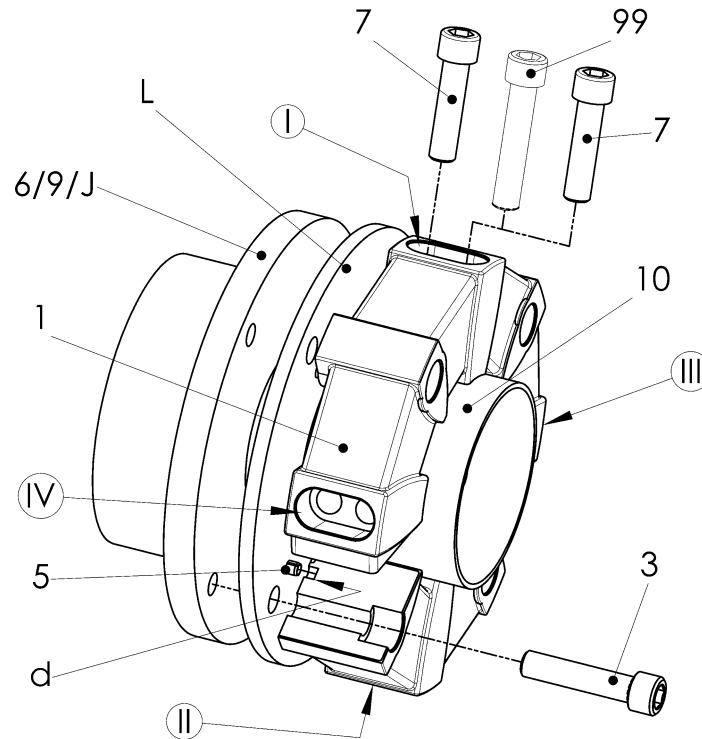
**6.9.5 Mounting the tube, the centring flanges and the rubber elements
(coupling size 00250)**


Fig. 6-24 Mounting the tube, the centring flanges and the rubber elements
(coupling size 00250)

Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
9		Adapter	
10		Tube	
99		Screw ISO4762-10.9 M20x90	1 pc. for mounting
J		Hub/Adapter	Customer part
L		Centring flange	Assembly, pre-mounted by CENTA; for spherical bearing
	d	Drilling for spring pin	
	I - IV	Order of mounting	



- Repeat the following described mounting of the first centring flange (L) and rubber element (1) also for mounting the second centring flange (L) and rubber element (1):
 - Push the centring flange (L) onto the centring of the hub/adaptor (J/6/9).
 - Turn the rubber element (1) towards the centring flange (L) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) and the centring flange (L) to the hub/adaptor (J/6/9) using the screws (3).
 - Repeat the following mounting section in order I – IV, until all screws (7) are screwed in two to three threads:
 - Pull up the rubber element (1) with screw (99) to the tube (10) and screw in next to this a screw (7) two to three threads.
 - Remove the screw (99) and replace it by another screw (7), at first screw it two to three threads in the tube (10).
- Tighten in order I – IV all screws (7) until the prescribed tightening torque (see chapter 11.2) has been achieved.

6.9.6 Mounting the tube, the centring flanges and the rubber elements (coupling sizes 00400...00600)

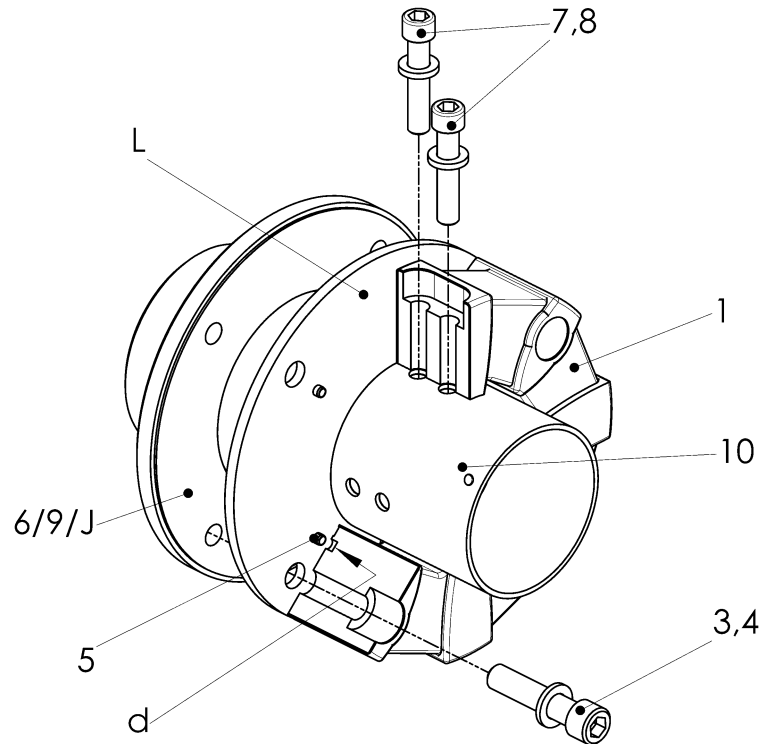


Fig. 6-25 Mounting the tube, the centring flanges and the rubber elements
(coupling sizes 00400...00600)



Item	Info	Designation	Remark
1		Rubber element	
3		Screw	
4		Washer	
5		Spring pin DIN7346	
6		Hub	
7		Screw	
8		Washer	
9		Adapter	
10		Tube	
J		Hub/Adapter	Customer part
L		Centring flange	Assembly, pre-mounted by CENTA; for spherical bearing
	d	Drilling for spring pin	

- Repeat the following described mounting of the first centring flange (L) and rubber element (1) also for mounting the second centring flange (L) and rubber element (1):
 - Push the centring flange (L) onto the centring of the hub/adaptor (J/6/9).
 - Turn the first rubber element (1) towards the centring flange (L) until the drillings (d) and the spring pins (5) are aligned.
 - Screw the rubber element (1) and the centring flange (L) to the hub/adaptor (J/6/9) using the screws (3) and washers (4).
 - Push the screws (7) and the washers (8) into the rubber element (1) and screw them first two to three threads into the tube (10).
- Tighten all screws (7) crosswise until the prescribed tightening torque (see chapter 11.2) has been achieved.

6.9.7 Removing the mounting supports

- Remove all mounting supports.

6.9.8 After completed mounting

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

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"> • Switch off the plant
Running noises or vibrations in the unit	Alignment error	<ul style="list-style-type: none"> • Check alignment and correct • Check screw torque levels and correct
	Loose screws	
Only at design -GZ and -GB Radial run- out of rubber element	Wear of the bearing	<ul style="list-style-type: none"> • Replace defective parts • Check alignment and correct
Rubber element damaged	Alignment error	<ul style="list-style-type: none"> • Replace defective parts • Check alignment and correct • Eliminate the cause for inadmissibly high torque
	Inadmissibly high torque	
After all remedies		<ul style="list-style-type: none"> • Trial run

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. We recommend a visual inspection at the regular scheduled maintenance intervals for the whole unit.

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 the rubber element

Visual inspection of the CENTAFLEX-A rubber element (see fig. below). Pay particular attention to cracks or to the adhesion of rubber and metal parts in the zones indicated by the arrows. Pressure folds (creasing) in these zones may be considered normal.

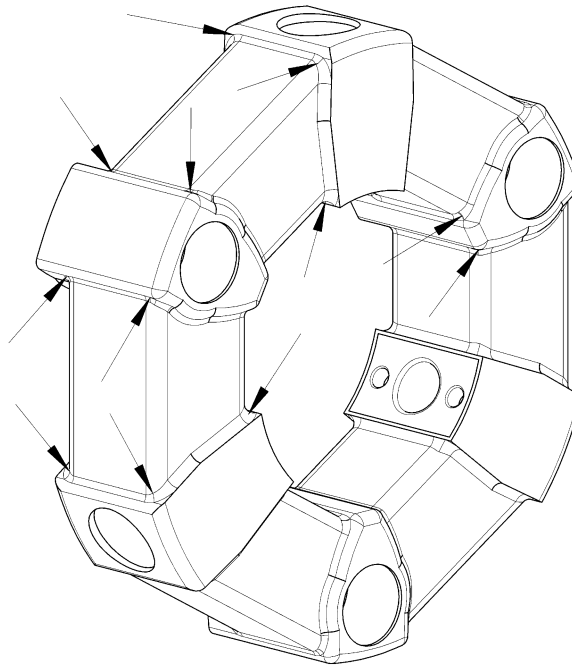


Fig. 8-1 Examples of wear zones at the CENTAFLEX-A rubber element indicated by arrows

In the event of cracks, deeper than permissible (see table below) or rubber-to-metal connections have become detached, the rubber parts must be exchanged.

CENTAFLEX-A Sizes	permissible crack depth [mm]
00001 / 00002 / 00004 / 00008 / 00012	1.5
00016 / 00022 / 00025 / 00028 / 00030 / 00050	2.0
00080 / 00090 / 00140 / 00200 / 00250	3.0
00400 / 00600	5.0

*Table 8-1 Permissible crack depth at the CENTAFLEX-A-rubber element
(Sizes 00001 to 00600)*

8.1.4 Checking the wearout of the Textar-bearing (design GZ)

- Dismantling the tube, the centring flanges and the rubber elements.
- General dismantling instructions, see chapter 9.1 .
- Dismantling the tube, the centring flanges and the rubber elements (design GB and GZ), see chapter 9.2.2 .

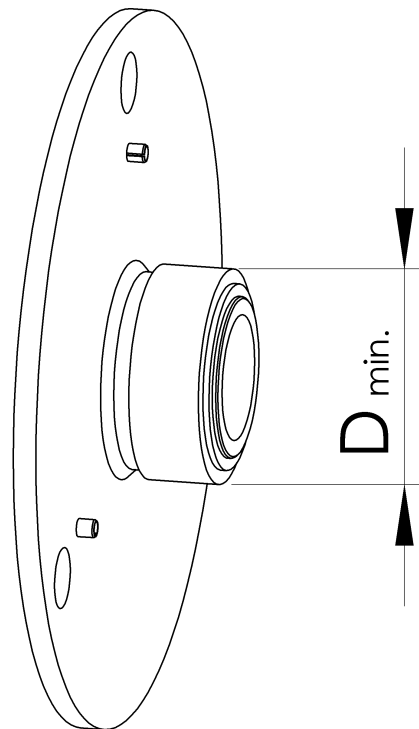


Fig. 8-2 Check the outer diameter of the Textar-bearing (design GZ)

- Measure the outer diameter (D) of the Textar-bearing.
If the outer diameter (D) is below the limit D_{\min} (see table 8-2), the Textar-bearing has to be changed (see chapter 9.2.3).

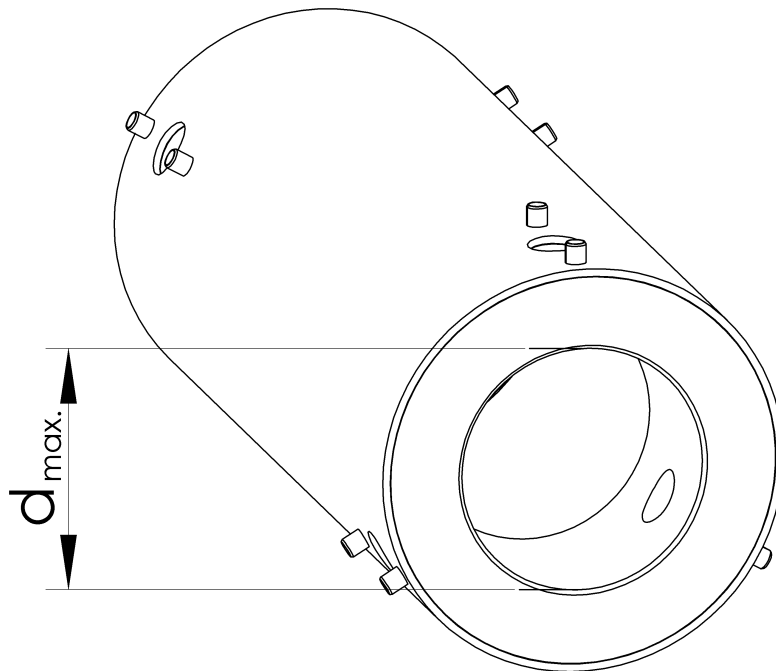


Fig. 8-3 Check the inner diameter of the tube (design GZ)

- Measure the inner diameter (d) of the tube.
If the inner diameter (d) exceeds the limit d_{max} (see Table 8-2), the tube and the Textar-bearing have to be changed.

Design GZ Sizes	Inner diameter of the tube d_{max} [mm]	Outer diameter of the bearing D_{min} [mm]
00001	$19^{+0,3}$	$19_{-0,3}$
00002	$24^{+0,3}$	$24_{-0,3}$
00004	$28^{+0,3}$	$28_{-0,3}$
000008 / 00012	$38^{+0,3}$	$38_{-0,3}$
00016 / 00022	$42^{+0,3}$	$42_{-0,3}$
00025 / 00028	$55^{+0,5}$	$55_{-0,5}$
00030 / 00050 00080	$60^{+0,5}$	$60_{-0,5}$
00090 / 00140 00200 / 00250	$75^{+0,5}$	$75_{-0,5}$
00400 / 00600	$116^{+0,5}$	$116_{-0,5}$

Table 8-2 Permissible inner diameter of the tube and outer diameter bearing (design GZ)

8.1.5 Checking the wearout of the spherical bearings (design GB)

- Dismantling the tube, the centring flanges and the rubber elements.
 - General dismantling instructions, see chapter 9.1 .
 - Dismantling the tube, the centring flanges and the rubber elements (design GB and GZ), see chapter 9.2.2 .

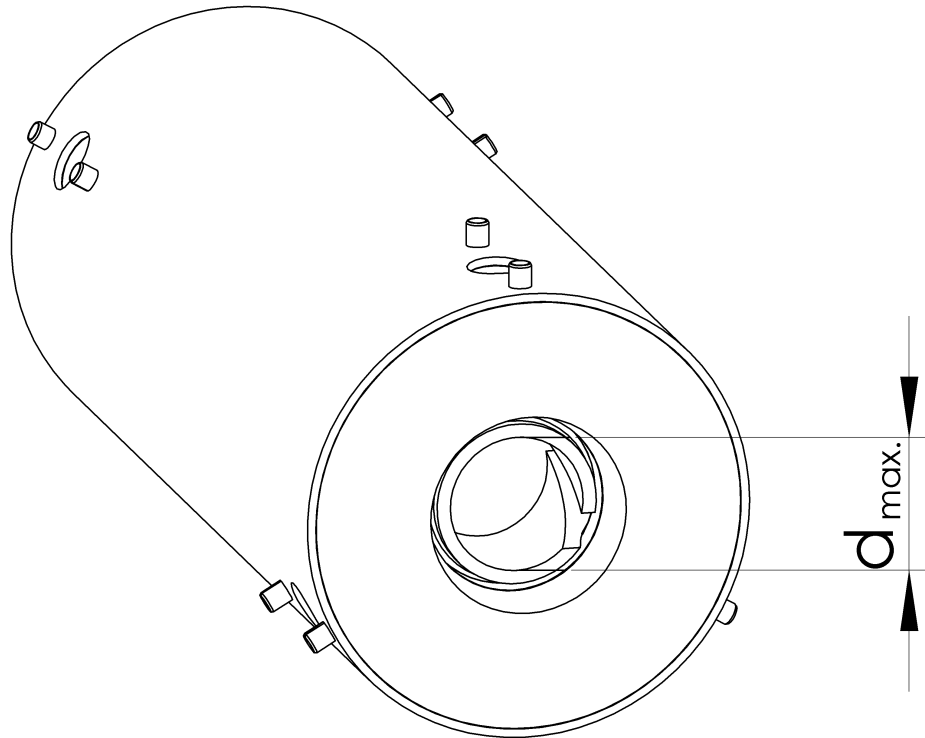


Fig. 8-4 Check the inner diameter of the tube (design GB)

- Check the inner diameter (d) of spherical bearings.
Exceeds the permissible inner diameter (d) of the spherical bearing the value d_{max} (see table 8-3), the spherical bearing has to be dismantled and exchanged.

Design GB Sizes	Inner diameter of the spherical bearing d_{max} [mm]
00030 / 00050 / 00080	$30^{+0.3}$
00090 / 00140 / 00200	$39^{+0.3}$
00250 / 00400 / 00600	$57^{+0.5}$

Table 8-3 Permissible inner diameter of the spherical bearing (design GB)

8.1.6 Inspection of the screw connections

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

8.2 Replace defective parts **IMPORTANT**

Exchange the rubber elements in the event of damage.

 **IMPORTANT**

For design GZ (Textar-bearing), exchange the Textar-bearing if the outer diameter Textar-bearing is below the value D_{\min} (see table 8-2).

 **IMPORTANT**

For design GZ (Textar-bearing), exchange of the tube when exceeding the inner diameter tube (d_{\max} , see table 8-2).
When the tube is replaced, the Textar-bearing must also be replaced.

 **IMPORTANT**

For design GB (spherical bearing), exchange of the spherical bearing when exceeding the inner diameter of spherical bearings (d_{\max} , see table 8-3).

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

 **IMPORTANT**






Use exclusively **new** screws supplied by CENTA.
These are coated with microencapsulated adhesive which serves as a screw locking medium.

- 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).

WARNING	
	<p>Injuries can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Contact with rotating parts <p>Before starting work at the coupling, switch off the plant and secure against unintentional start-up.</p>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Dismantling of the coupling in the wrong sequence <p>Only ever dismantle the coupling in the described sequence.</p>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Falling coupling components <p>Secure coupling components against falling to the floor.</p>
CAUTION	
	<p>Material damage to coupling components can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Contact with sharp-edged objects <p>Protect coupling components for transportation. Only hoist coupling components with nylon belts or ropes. Always cushion parts when supporting them from below.</p>
 IMPORTANT	
Use suitable lifting devices for dismantling.	

9.2 Dismantling the tube and the rubber elements

- Dismantling the tube and rubber elements as appropriate for the delivered design.
 - Dismantling the tube and the rubber elements (design GN), see chapter 9.2.1 .
 - Dismantling the tube, centring flanges and rubber elements, (design GB and GZ), see chapter 9.2.2 .

9.2.1 Dismantling the tube and the rubber elements (design GN)

See Fig. 6-15, 6-16, 6-17, 6-18 or 6-19:

- Support the tube (10) in the installation space.
- Loosen the screws (7) of the connection rubber elements (1) and tube (10) and remove together with washers (8, coupling size 400 and larger).
- Loosen the screws (3) of the connection rubber elements (1) and hub/adapter (6/9/J).
- Pull the rubber elements (1) about 20 mm off the hub/adapter (6/9/J).

See Fig. 6-14:

- Remove the tube (10) with the rubber elements (1) and all supports out of the installation space.
- Remove the rubber elements (1) off the tube (10).
- Remove the screws (3) and the washers (4, coupling size 400 and larger) out of the rubber elements (1).

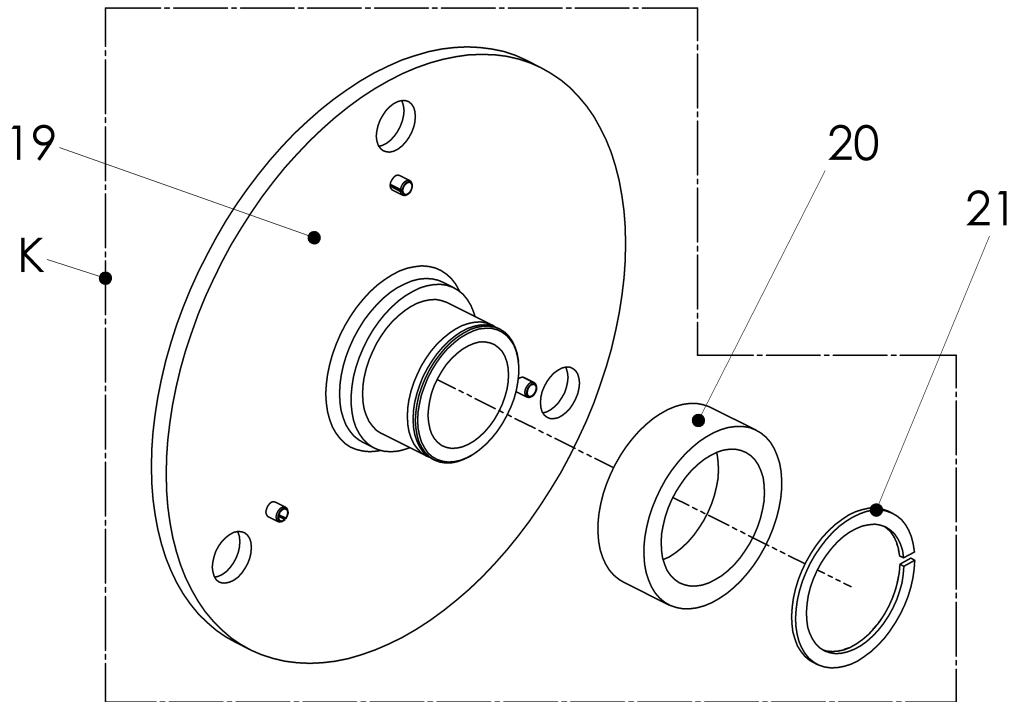
9.2.2 Dismantling the tube, the centring flanges and the rubber elements (design GB and GZ)

See Fig. 6-21, 6-22, 6-23, 6-24 or 6-25:

- Support the tube (10) in the installation space.
- Loosen the screws (7) of the connection rubber elements (1) and tube (10) and remove together with washers (8, coupling size 400 and larger).
- Loosen the screws (3) of the connection rubber elements (1), centring flanges (K/L) and hub/adapter (6/9/J).

See Fig. 6-20:

- Remove the tube (10) together with the centring flanges (K/L), rubber elements (1) and all supports out of the installation space.
- Pull the rubber elements (1) about 20 mm off the centring flanges (K/L).
- Remove the centring flanges (K/L) off the centring of the tube (1).
- Remove the rubber elements (1) off the tube (10).
- Remove the screws (3) and the washers (4, coupling size 400 and larger) out of the rubber elements (1).

9.2.3 Replace the Textar-bearing (design GZ)

Fig. 9-1 Replace the Textar-bearing (design GZ)

Item	Info	Designation	Remark
19		Centring flange	
20		Textar-bearing	
21		Seeger V Ring	
K		Centring flange assembly	By CENTA pre-mounted assembly; with Textar-bearing

- Dismantle and remove the Seeger-V-Ring (21) off the centring flange (19).
- Remove the worn out Textar-bearing (20).
- Bond a new Textar-bearing (20) with adhesive (eg Loctite) on the centring (19) and secure with Seeger-V-Ring (21).

$D = d$	$-0,02 / -0,06$
$D =$	$\text{_____} -0,02 / -0,06 \text{ mm}$

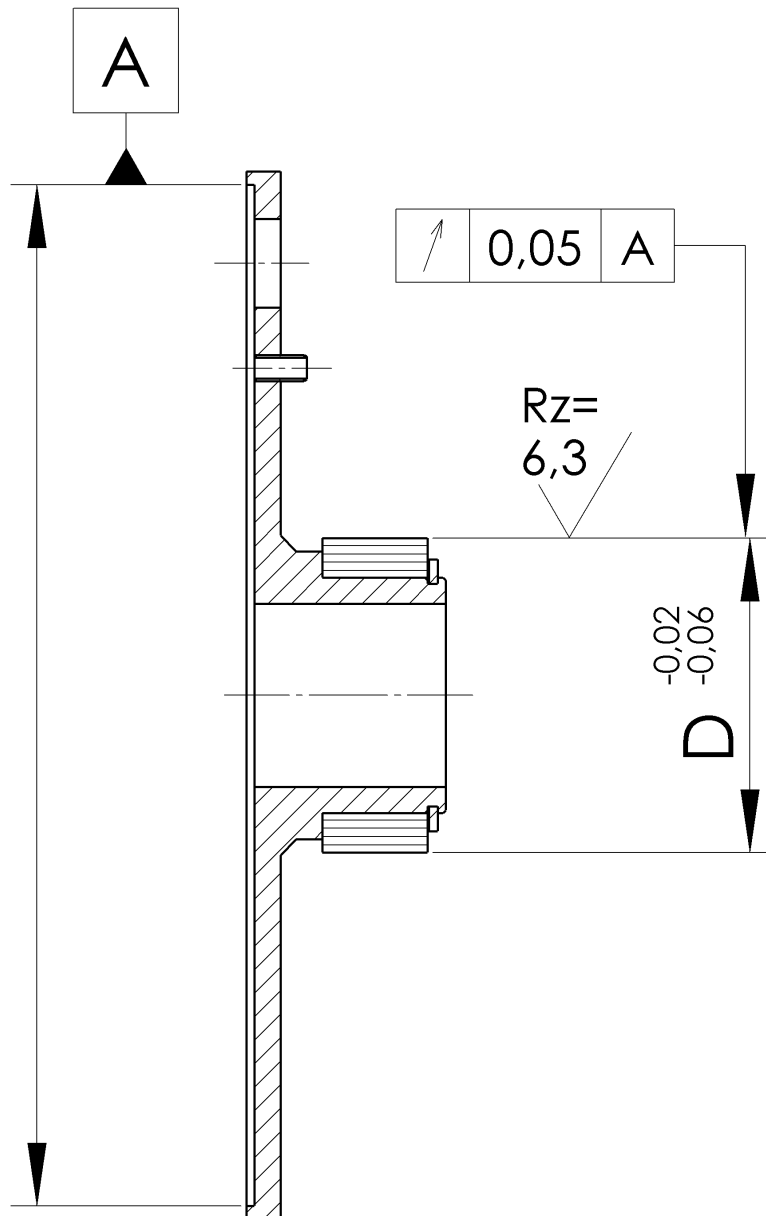


Fig. 9-2 Fitting the Textar-bearing (design GZ)

- Measure the inner diameter of the tube „d“ (see fig. 8-3).
- Machine the outer diameter of the bearing „D“. $D=d(\text{measured}) -0,02 / -0,06$

9.2.4 Replacing the spherical bearing (design GB)

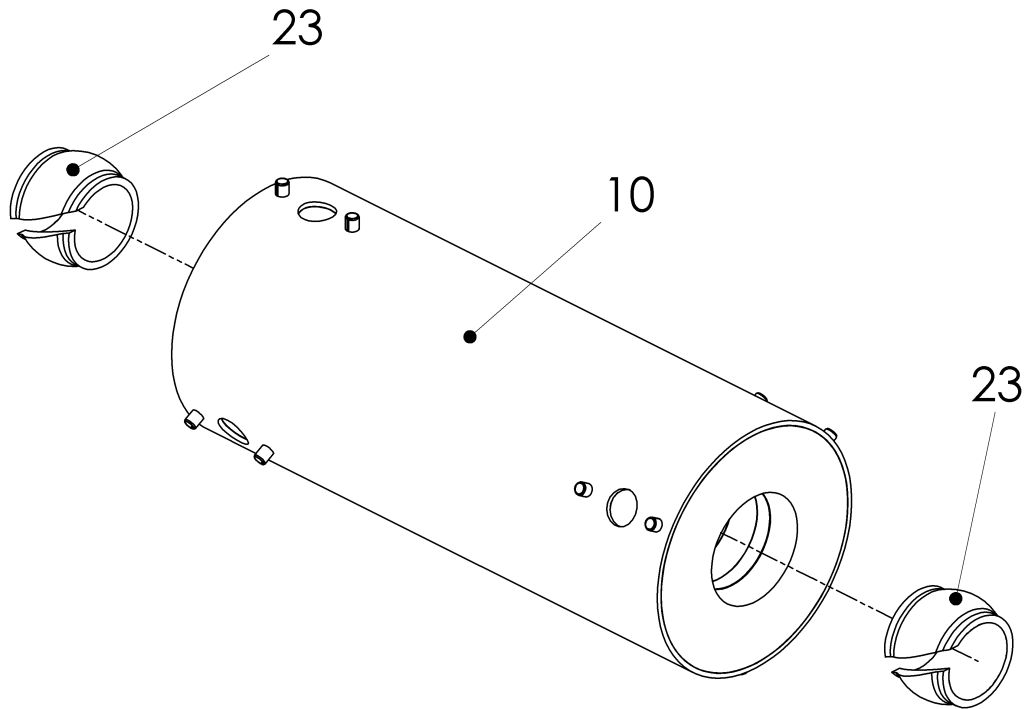


Fig. 9-3 Replacing the spherical bearing (design GB)

Item	Info	Designation	Remark
10		Tube	
23		Spherical bearing	

- Push the worn out spherical bearing (23) out off the centring of the tube (10).
- Push the new spherical bearing (23) into the centring of the tube (10).

9.3 Dismantling the driving and the driven side (if necessary)

- Dismantle the driving and the driven side as appropriate for the supplied design.
 - Dismantling the hub (6) with cylindrical bore and keyway, see chapter 9.3.1 .
 - Dismantling the CENTALOC clamping hub (6), see chapter 9.3.2 .
 - Dismantling CENTA-conical clamping hub (6), see chapter 9.3.3 .
 - Dismantling the hub (6) with toothing, see chapter 9.3.4 .
 - Dismantling the hub (6) with conical oil interference fit, see chapter 9.3.5 .
 - Dismantling the hub (6) with cylindrical oil interference fit, see chapter 9.3.6 .
 - Dismantling the adapter (9), see chapter 9.3.7 .
 - Dismantling the adapter (22 and 9), see chapter 9.3.8 .

9.3.1 Dismantling the hub (6) with cylindrical bore and keyway

See Fig. 6-6:

- Loosen the threaded pins (17; if existing) and remove out of the hub (6).
- Remove the hub (6) from the shaft (C).

9.3.2 Dismantling the CENTALOC clamping hub

See Fig. 6-7:

- Loosen the threaded pins (29).
- Remove the hub (6) from the shaft (C).

9.3.3 Dismantling the CENTA-conical clamping hub

See Fig. 6-8:





- Loosen the screws (6.4) and screw them out equally about 10mm.
- For each forcing thread screw out a screw (6.4) and screw them loose into the forcing thread (I).
- Push the hub (6.1) off the hub-taper (6.2) with the help of the screws (6.4) in forcing threads.
- Remove the screws (6.4).
- Remove the hub-taper (6.2) with hub (6.1) off the shaft (C).

9.3.4 Dismantling the hub (6) with toothing

See Fig. 6-9:

- Loosen the screw (G) and remove with the washer (H).
- Remove the hub (6) from the shaft (C).

9.3.5 Dismantling the hub (6) with conical oil interference fit





WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Non-compliance with the operating instructions for the hydraulic pumps <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>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Hydraulic fluid spraying out <p>Use protective goggles.</p>
WARNING	
	<p>Injuries and material damages can occur by:</p> <ul style="list-style-type: none"> ▪ Suddenly loosening hubs <p>Secure the hub with a hydraulic tool against sudden axial loosening.</p>
 IMPORTANT	
<p>We recommend the following mounting fluids:</p> <ul style="list-style-type: none"> • For mounting: Oil with a viscosity 300 mm²/s at 20°C, e.g. SKF LHM300 • For dismantling: Oil with a viscosity 900 mm²/s at 20°C, e.g. SKF LHDF900 	

See Fig. 6-10:

- Remove screw plug (26) from the hub (6).
- Connect the pump to the thread G¼ (g) of hub (6) to expand the hub.
- Screw the pump to the shaft (C), in order to hold the hub.
- Build up oil pressure in order to hold the hub.

- Slowly build up oil pressure to expand the hub ($p_{\max} = 1500 \text{ bar}$).
- Slowly reduce the oil pressure for holding the hub.
- Slowly 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).
- Remove the pump for expanding the hub from the hub (6).
- Turn the hub (6), drain oil out of the thread G $\frac{1}{4}$ (g) and dispose correctly.
- Screw the screw plug (26) into the hub (6).

9.3.6 Dismantling the hub (6) with cylindrical oil interference fit

WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Non-compliance with the operating instructions for the hydraulic pumps <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>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Hydraulic fluid spraying out <p>Use protective goggles.</p>
WARNING	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none"> ▪ Large quantity of hydraulic fluid spraying out <p>Close the hub with a cover. Take up leaked hydraulic fluid.</p>
 IMPORTANT	
<p>We recommend the following mounting fluids:</p> <ul style="list-style-type: none"> • For mounting: Oil with a viscosity 300 mm²/s at 20°C, e.g. SKF LHM300 • For dismantling: Oil with a viscosity 900 mm²/s at 20°C, e.g. SKF LHDF900 	

- Remove the screw plugs (26) from the hub (6) (see Fig. 9-4).

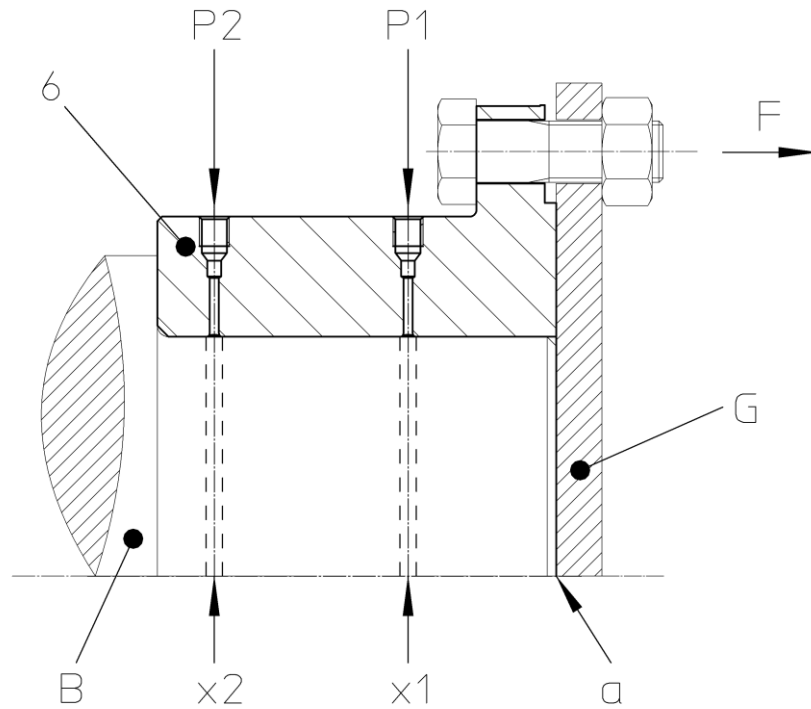


Fig. 9-4 Dismantling the hub with cylindrical oil interference fit

Item	Info	Designation	Remark
6		Hub	
A		Shaft	Customer part
F		Force in tensile direction	
G		Cover with fasteners	Customer part
P		Connection for hydraulic pump	P1, P2
	a	Face of shaft	
	x	Oilgroove	x1, x2

- Mount the cover (G) to the hub (6).
- Connect the high-pressure pumps with the connections (P1 and P2).
- Slowly build up the oil pressure for expanding the hub (**$p_{\max} = 1500 \text{ bar}$**).
- Pull the hub (6) with force (F) continuously in shown direction, until the hub (6) is dismantled.
- Remove the high-pressure pumps from the hub (6).
- Dismantle the cover (G) from the hub (6).
- Pick up leaked hydraulic fluid and dispose properly.
- Screw the screw plugs (26) into the hub (6, see fig. 9-4).

9.3.7 Dismantling the adapter (9)

See Fig. 6-12:

- Loosen and remove the screws of the connection adapter (9) and flange/hub (B/D).
- Pull the adapter (9) off/out of the centring of the flange/hub (B/D) and remove.

9.3.8 Dismantling the adapters (22 and 9)

See Fig. 6-13:

- Loosen and remove the screws (23) of the connection adapter (22) and adapter (9).
- Pull the adapter (9) off the centring of the adapter (22) and remove.
- Loosen and remove the screws of the connection adapter (22) and hub (D).
- Pull the adapter (22) off the centring of the hub (D) and remove.

9.4 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 depending on the design of the coupling:

- **Design GN**
Rubber elements
- **Design GZ**
Rubber elements
Textar-bearings
Tube (if necessary)
- **Design GB**
Rubber elements
Spherical bearings

**IMPORTANT**

When exchanging, all screw connections of the rubber elements must be renewed. These must be ordered separately.

**IMPORTANT**

Use exclusively **new** screws supplied by CENTA. These are coated with microencapsulated adhesive which serves as a screw locking medium.

When ordering a spare, specify:

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



11 Annex

11.1 CENTA data sheet D013-016 (unlubricated screw connections)

Validity:

For all non-dynamically stressed screw connections with **not 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:

Use screws as delivered.

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

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%			[Nm] ±5%	[in lbs] ±5%
M6	8.8	10	90	M22	8.8	470	4160
	10.9	14	125		10.9	670	5930
	12.9	17	150		12.9	780	6900
M8	8.8	23	205	M24	8.8	600	5310
	10.9	34	300		10.9	850	7520
	12.9	40	350		12.9	1000	8850
M10	8.8	46	410	M27	8.8	750	6640
	10.9	68	600		10.9	1070	9470
	12.9	79	700		12.9	1250	11060
M12	8.8	79	700	M30	8.8	1000	8850
	10.9	117	1050		10.9	1450	12830
	12.9	135	1200		12.9	1700	15050
M14	8.8	125	1100	M33	8.8	1400	12400
	10.9	185	1650		10.9	1950	17250
	12.9	215	1900		12.9	2300	20350
M16	8.8	195	1725	M36	8.8	1750	15500
	10.9	280	2500		10.9	2500	22150
	12.9	330	2900		12.9	3000	26550
M18	8.8	245	2200	M39	8.8	2300	20350
	10.9	350	3100		10.9	3300	29200
	12.9	410	3600		12.9	3800	33650
M20	8.8	350	3100				
	10.9	490	4350				
	12.9	580	5150				



11.2 CENTA data sheet D013-019 (screw connections with microencapsulated screw locking medium)

Validity:

For all non-dynamically stressed screw connections with **screws*** in accordance with ISO 4014, ISO 4017, ISO 4762 (DIN 912) and ISO 6912 with metric standard thread in accordance with DIN ISO 262 and **socket bolts*** with metric standard thread in accordance with DIN ISO 262, unless other specifications are given on CENTA documents.

* The threads are coated with microencapsulated screw locking medium.

Preparation of parts that are to be screwed together:

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

Preparation of screws with microencapsulated screw locking medium:

Give the screws extra lubrication with grease under the screw head.

Screw tightening method:

Screw in (by hand with torque wrench).

Curing time for the microencapsulated screw locking medium:

To ensure optimum screw locking, after tightening the curing time for the microencapsulated screw locking medium must be observed:

- Appr. 4-5 hours at room temperature (20°C)
- Higher temperatures will accelerate the curing time (e.g. 15 minutes at 70°C created by a hot air blower)

After 24 hours, the microencapsulated screw locking medium is completely cured.

Thread size	Strength class	Tightening torques		Thread size	Strength class	Tightening torques			
		[Nm] ±5%	[in Ibs] ±5%			[Nm] ±5%	[in Ibs] ±5%		
M6	8.8	10	90	M18	10.9	300	2650		
M8		25	220			M20	500	4450	
M10		50	440				610**	5400**	
M12		85	750				M22	820	7250
M14		140	1250				M24	1050	9300
M16		220	1950				M27	1550	13700

** only for: CENTAFLEX-A size 400
CENTAFLEX-T size 36x/46x



11.3 CENTA data sheet D008-901

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: Highly elastic drive shaft CENTAFLEX-A

Model / series code: CF-A / 008A

Installation size: 1...800

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, 01.12.2009