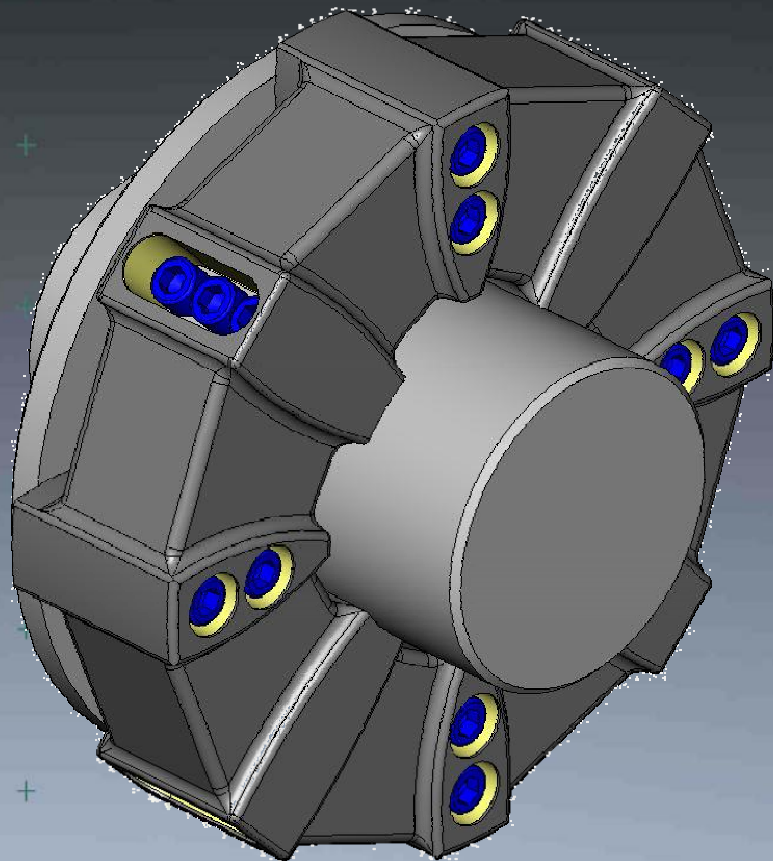




CENTAFLEX-A

Assembly and operating instructions
CF-A-800-0...3
M008-00077-EN
Rev. 1



Power Transmission
Leading by innovation



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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.

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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	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none">▪ 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 <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

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	
Rubber parts are marked where possible with their production date. From this date, they may only be stored for a maximum of 5 years.	

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

5.1 Axial alignment

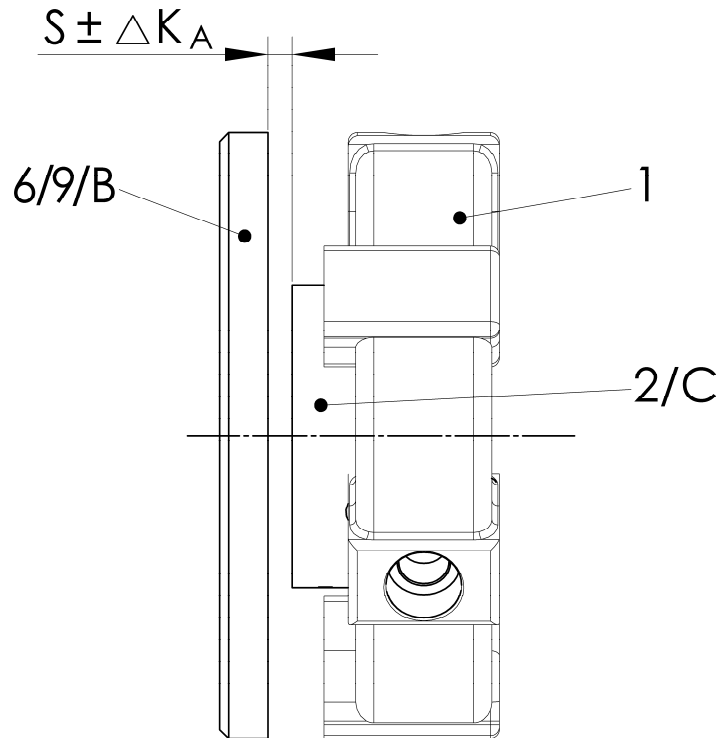


Fig. 5-1 Axial alignment

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
6/9		Flange hub/Flange	
B		Flange	Customer part
C		Hub	Customer part

- Determine the installation dimension **S** from the installation drawing.
- Align the units axially (installation dimension = **S ± ΔK_{A max}**).

Permissible axial alignment tolerance: **ΔK_{A max} = ± 1.0 mm**

5.2 Radial alignment

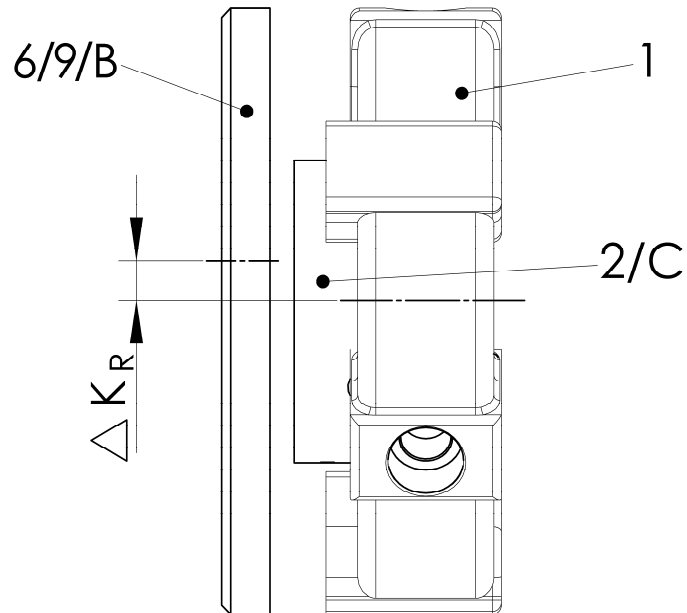


Fig. 5-2 Radial alignment

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
6/9		Flange hub/Flange	
B		Flange	Customer part
C		Hub	Customer part

- Determine the radial misalignment (see Fig 5-2).
- Align the units (calculated deviation $\leq \Delta K_{R \max}$).

Permissible radial alignment tolerance: $\Delta K_{R \max} = 0.5 \text{ mm}$

5.3 Angular alignment

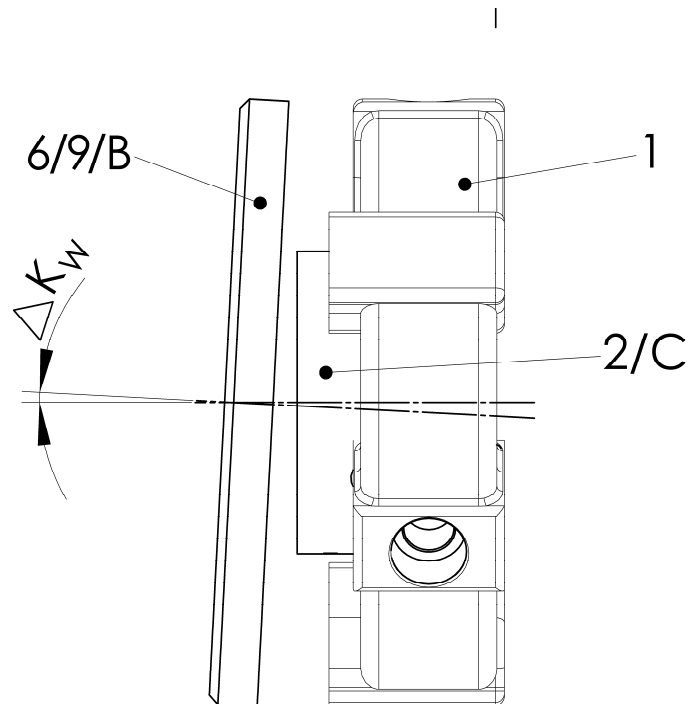


Fig. 5-3 Angular alignment

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
6/9		Flange hub/Flange	
B		Flange	Customer part
C		Hub	Customer part






- Determine the angular misalignment (see Fig. 5-3).
- Align the units (calculated deviation $\leq \Delta K_{W \max}$).

Permissible angular alignment tolerance: $\Delta K_{W \max} = 0.3^\circ$

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 in accordance with CENTA data sheet D13-019 (see chapter 11.1).
- The tightening torques for the threaded pins of hubs / flange hubs according to see installation drawing.
- 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 CF-A-800.
- Part illustration and marking may slightly differ from installation drawing and delivery state.

**IMPORTANT**

Use exclusively **new** screws supplied by CENTA.

These are coated with microencapsulated adhesive INBUS PLUS **IP** 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 the coupling according to the supplied type

- Mount the side of the coupling which is depending on the type. The supplied design is part of the couplings designation.

Example:

CF-A-800-1

└─	Type	0:	Rubber element to customer part
		1:	Hub and rubber element
		2:	Flange hub, hub and rubber element
		3:	Flange, hub and rubber element

- Mount the coupling according to the design in following order. The supplied design and the build-in parts have to be gathered from the.
 - Mounting the hub/flange hub (type 1 and 2), see chapter 6.3 .
 - Mounting the flange (type 3), see chapter 6.4 .
 - Positioning the rubber element, see chapter 6.5 .
 - Mounting the rubber element, see chapter 6.6; 6.7 and 6.8 .

6.3 Mounting the hub (type 1) and flange hub (type 2)

- Mount the hub and flange hub according to the design (see installation drawing).
- Overview of possible hubs/flange hubs and chapter of the mounting, see following table.

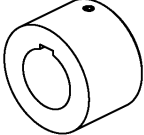
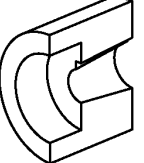
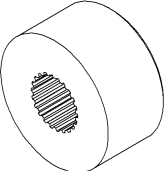
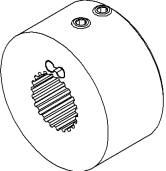
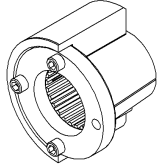
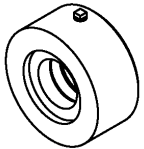
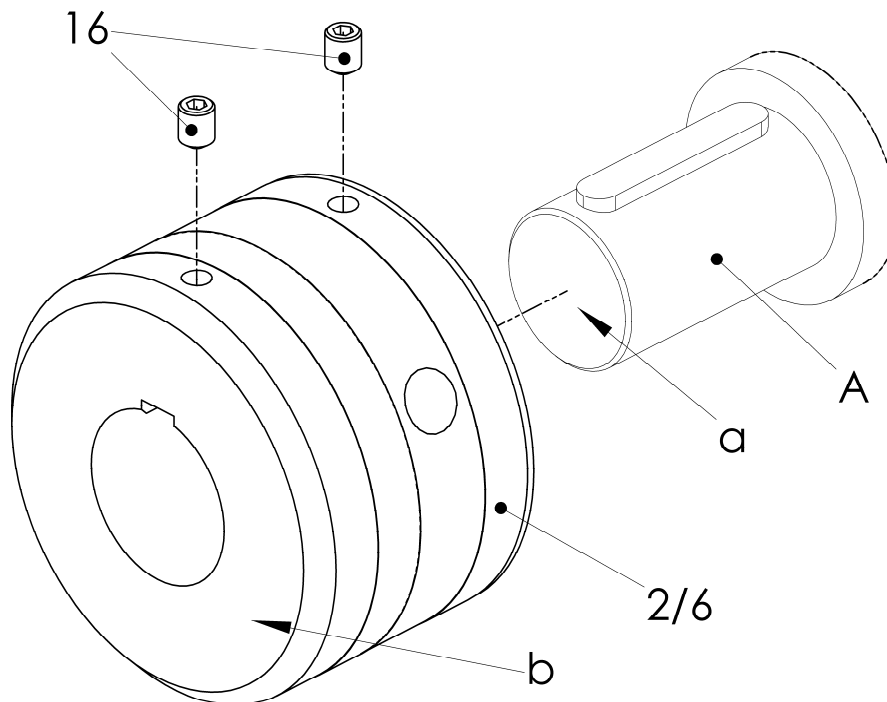
Possible design	Mounting the hub/flange hub with ...	see chapter
	cylindrical drilling and feather key	6.3.1
	conical drilling and feather key	6.3.2
	toothing	6.3.3
	CENTALOC clamping	6.3.4
	CENTA-conical clamping	6.3.5
	conical oil interference fit	6.3.6

Table 6-1 Overview of possible hub/flange hub design

6.3.1 Mounting the hub/flange hub with cylindrical drilling and feather key

Fig. 6-1 Mounting the hub/flange hub with cylindrical drilling and feather key

Item	Info	Designation	Remark
2/6		Hub/Flange hub	Shown is the hub
16		Threaded pin DIN914	See installation drawing
A		Shaft	Customer part
	a	Face of shaft	
	b	Face of hub/flange 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.

- Heat the hub/flange hub (2/6) to a temperature of 120° - 150°C.
- Push the hub/flange hub (2/6) onto the shaft (A) 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.

- Secure the hub/flange hub (2/6; if necessary) with the threaded pin (16)
Threaded pin: size acc. the 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 6-2 Tightening torques for threaded pins

6.3.2 Mounting the hub/flange hub with conical drilling and feather key

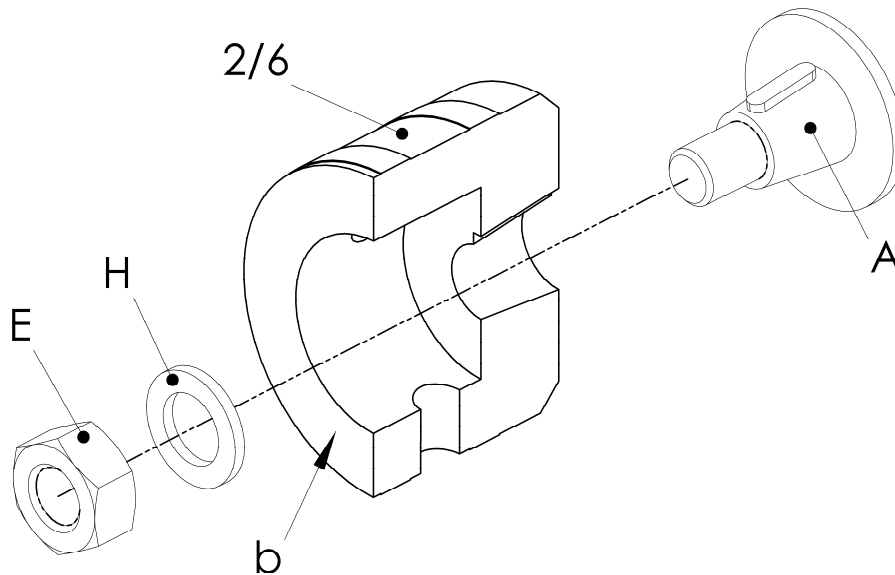


Fig. 6-2 Mounting the hub/flange hub with conical drilling and feather key

Item	Info	Designation	Remark
2/6		Hub/flange hub	Shown is the hub
A		Shaft	Customer part
E		Nut	Customer part
H		Washer	Customer part
	b	Face of hub/flange hub	

- Push the hub/flange hub (2/6) onto the shaft (A).
- Brace the hub/flange hub (2/6) against the shaft (A), using the washer (H) and the nut (E).

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.

6.3.3 Mounting the hub/flange hub with tothing

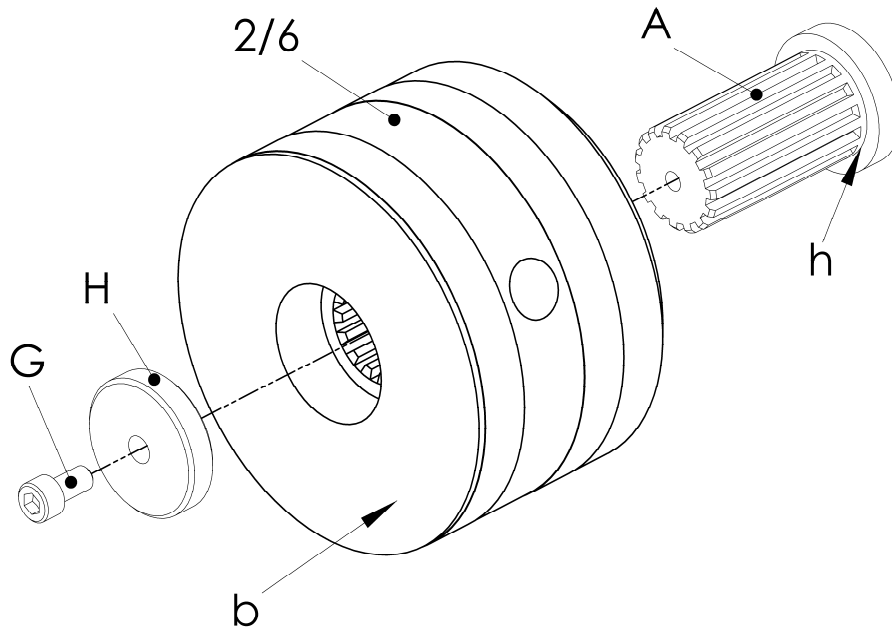


Fig. 6-3 Mounting the hub/flange hub with tothing

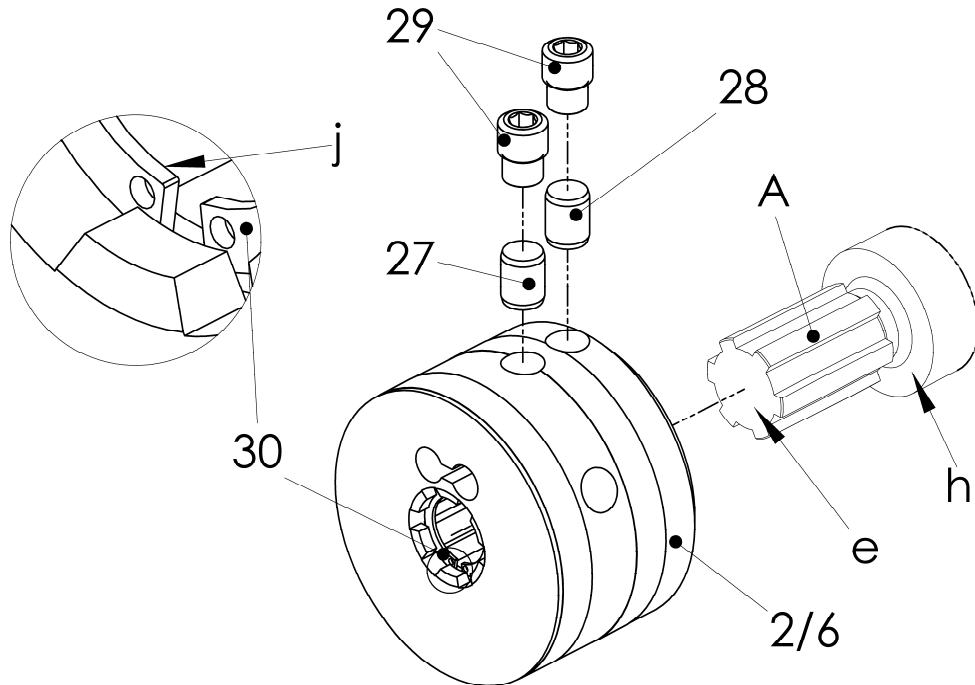
Item	Info	Designation	Remark
2/6		Hub/flange hub	Shown is the hub
A		Shaft	Customer part
G		Screw	Customer part
H		Washer	Customer part
	b	Face of hub/flange hub	
	h	Shaft shoulder	

- Push the hub/flange hub (2/6) onto the shaft (A) against the shaft shoulder (h). Take the mounting position of the hub/flange hub (2/6) from the installation drawing.
- Brace the hub/flange hub (2/6) against the shaft (A), 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.

6.3.4 Mounting the CENTALOC clamping hub/flange hub

Fig. 6-4 Mounting the CENTALOC clamping hub/flange hub

Item	Info	Designation	Remark
2/6		Hub/flange hub	Pre-mounted; Shown is the hub
27/28		Parallel pin DIN7	See installation drawing
29		Threaded pin	
30		Circlip DIN472	See installation drawing
A		Shaft	Customer part
	e	Shaft end	
	h	Shaft shoulder	
	j	Back side of circlip	

- Push the hub/flange hub (2/6) as appropriate for the supplied design **with / without** circlip (30; see installation drawing) onto the shaft (A):
 - **with** circlip (30):
Push the hub/flange hub (2/6) onto the shaft (A), until the shaft end (e) touches the back side of the circlip (j).

**IMPORTANT**

Ensure that the hub/flange 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/flange hub (2/6) onto the shaft (A) against the shaft shoulder (h).

**IMPORTANT**

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

- Secure the hub/flange hub (2/6) with the parallel pins (27/28) and the threaded pins (29, size acc. the installation drawing, tightening torque see table 6-3).

6.3.5 Mounting the CENTA-conical clamping hub/flange hub

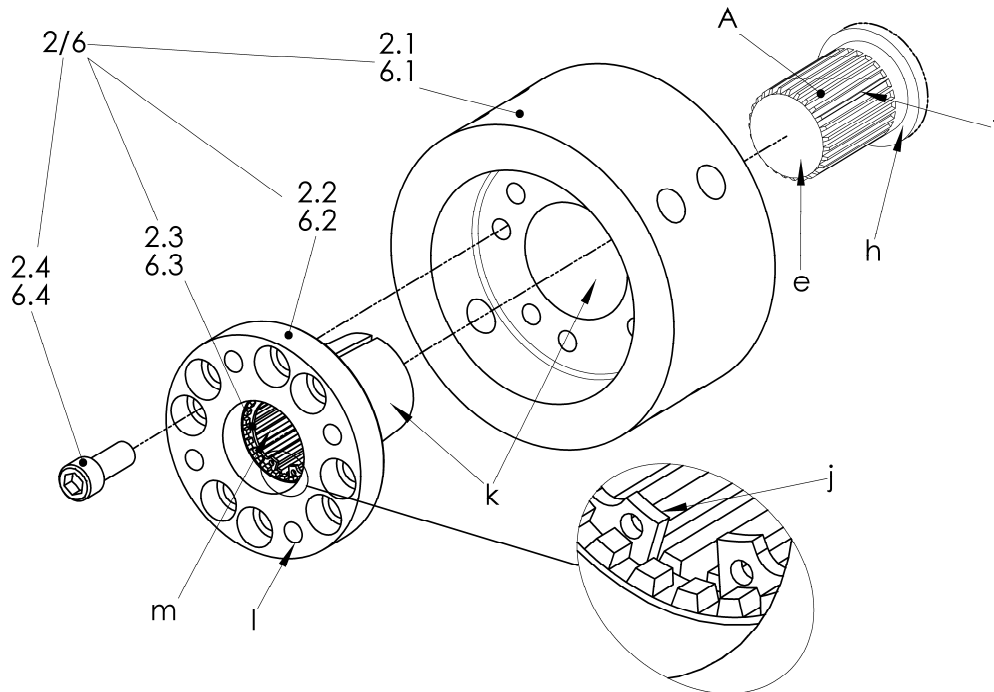


Fig. 6-5 Mounting the CENTA-conical clamping hub/flange hub

Item	Info	Designation	Remark
2/6		Hub/flange hub	Pre-mounted assembly; Shown is the hub
2.1/6.1		Hub/flange hub	Pre-mounted
2.2/6.2		Hub-taper	Pre-mounted
2.3/6.3		Circlip	Design of the hub/flange hub see installation drawing
2.4/6.4		Screw	
A		Shaft	Customer part
	e	Shaft end	
	f	Shaft extension	
	h	Shaft shoulder	
	j	Back side of circlip	
	k	Conical surface	
	l	Forcing thread	
	m	Drilling	

 **IMPORTANT**

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

- Preparing the hub/flange hub (2.1/6.1), hub-taper (2.2/6.2) and the shaft (A) for mounting:
 - Clean and degrease the drilling (m) and the conical surface (k) of the hub-taper (2.2/6.2).
 - Clean and degrease the conical surface (k) of the hub/flange hub (2.1/6.1).
 - Clean and degrease the shaft extension of the shaft (f).
- Insert the hub-taper (2.2/6.2) into the hub/flange hub (2.1/6.1).
- Screw the hub-taper (2.2/6.2) with screws (2.4/6.4) loosely into the hub/flange hub (2.1/6.1).
- Push the hub-taper (2.2/6.2) as appropriate for the supplied design **with / without** circlip (2.3/6.3; see installation drawing) onto the shaft (A):
 - **with** circlip (2.3/6.3):
Push the hub-taper (2.2/6.2) with the hub/flange hub (2.1/6.1) onto the shaft (A), until the shaft end (e) touches the back 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 (2.3/6.3):
Push the hub-taper (2.2/6.2) with the hub/flange hub (2.1/6.1) onto the shaft (A) against the shaft shoulder (h).

 **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 screws (2.4/6.4) in three steps crosswise, until the tightening torque (see installation drawing) has been achieved for all screws.
First step: 40 % of the specified tightening torque.
Second step: 60 % of the specified tightening torque.
Third step: 100 % of the specified tightening torque.
- Check the tightening torques of the screws (2.4/6.4) one after the other.

6.3.6 Mounting the hub/flange hub with conical oil interference fit**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.

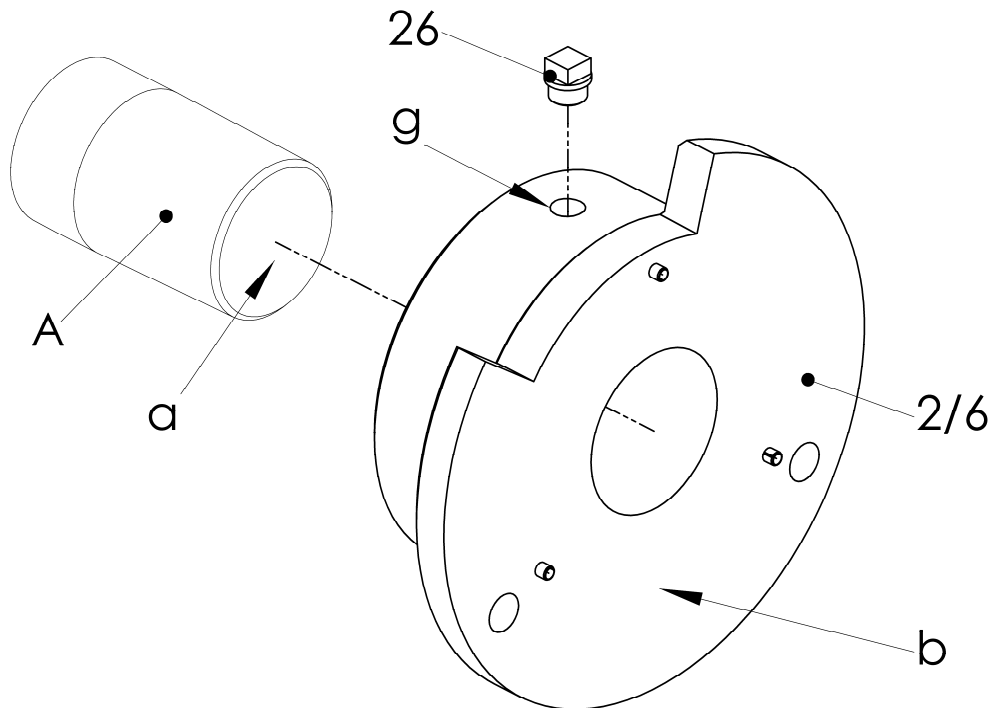


Fig. 6-6 Mounting the hub/flange hub with conical oil interference fit

Item	Info	Designation	Remark
2/6		Hub/flange hub	Shown is the flange hub
26		Screw plug	G¼; see installation drawing
A		Shaft	Customer part
	a	Face of shaft	
	b	Face of flange hub	
	g	Thread	G¼ See installation drawing


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

- Lightly oil the cone of the shaft (A).
- Push the hub/flange hub (2/6) onto the shaft (A).
- Remove the screw plug (26) from the hub/flange hub (2/6).
- Connect the pump for expanding the hub/flange hub (2/6) to the thread G ¼ (g).
- Screw the pump for pushing on the hub/flange hub to the shaft.
- Build up the oil pressure to push on the hub/flange hub.

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

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/flange hub slowly.
- Build up the oil pressure alternately until the lift path (p up) of the hub/flange hub (2/6) is reached (for p up and reference faces, see installation drawing).
- Decrease the oil pressure for expanding the hub/flange hub.
- Remove the pump for expanding the hub/flange hub from the hub/flange hub (2/6).
- Maintain the oil pressure for pushing on the hub/flange hub for one hour.
- Decrease the oil pressure for pushing on the hub/flange hub.
- Remove the pump for pushing on the hub/flange hub from the shaft.
- Turn the hub/flange hub (2/6), allow the oil to run out of the thread G¼ (g) and dispose of it correctly.
- Screw the screw plug (26) into the hub/flange hub (2/6).

 IMPORTANT
--

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

 IMPORTANT
--

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

6.4 Mounting the flange (type 3)

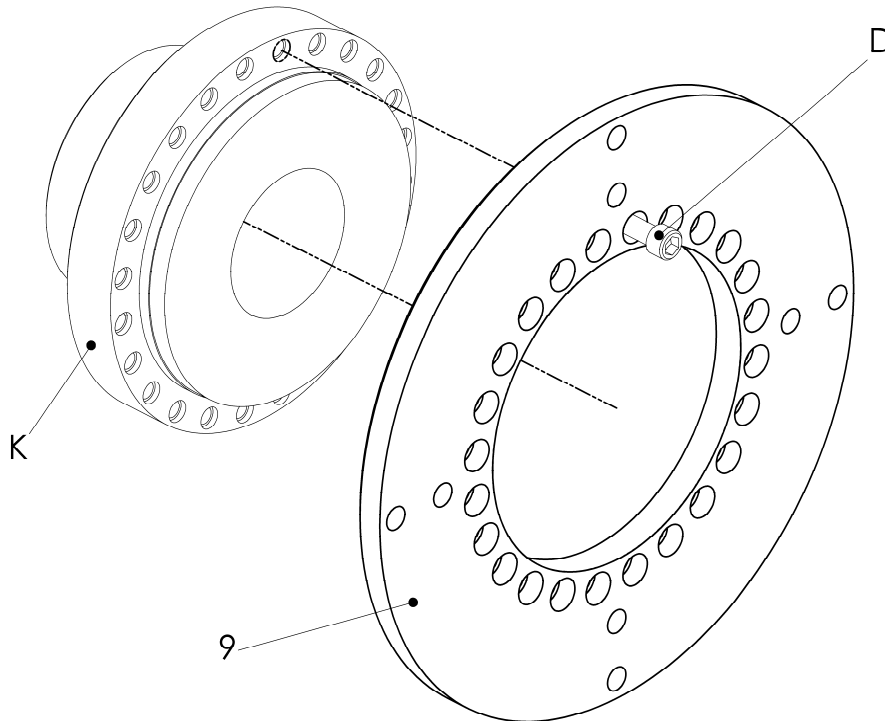


Fig. 6-7 Mounting the flange (type 3)

Item	Info	Designation	Remark
9		Flange	
D		Screw	Customer part
K		Hub	Customer part

- Push the flange (9) onto the centring of the hub (K).
- Screw the flange (9) with screws (D) to the hub (K).

6.5 Positioning the rubber element

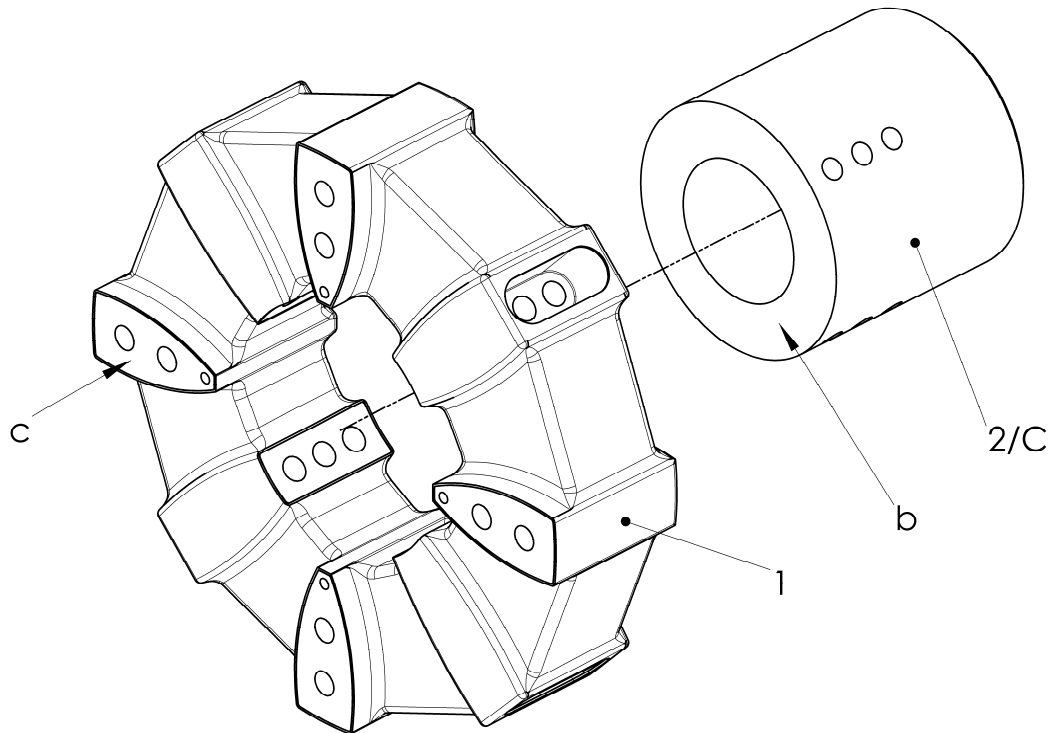


Fig. 6-8 Positioning the rubber element

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
C		Hub	Customer part
	b	Face of hub	
	c	Contact surface of rubber element	

- Push the rubber element (1) centred onto the hub (2/C). The contact surfaces of the rubber element (c) must be on the side of face of the hub (b).

6.6 Aligning the units

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

6.7 Mounting the rubber element

- Mounting the axial screws, see chapter 6.7.1 .
- Mounting the radial screws, see chapter 6.7.2 .

6.7.1 Mounting the axial screws

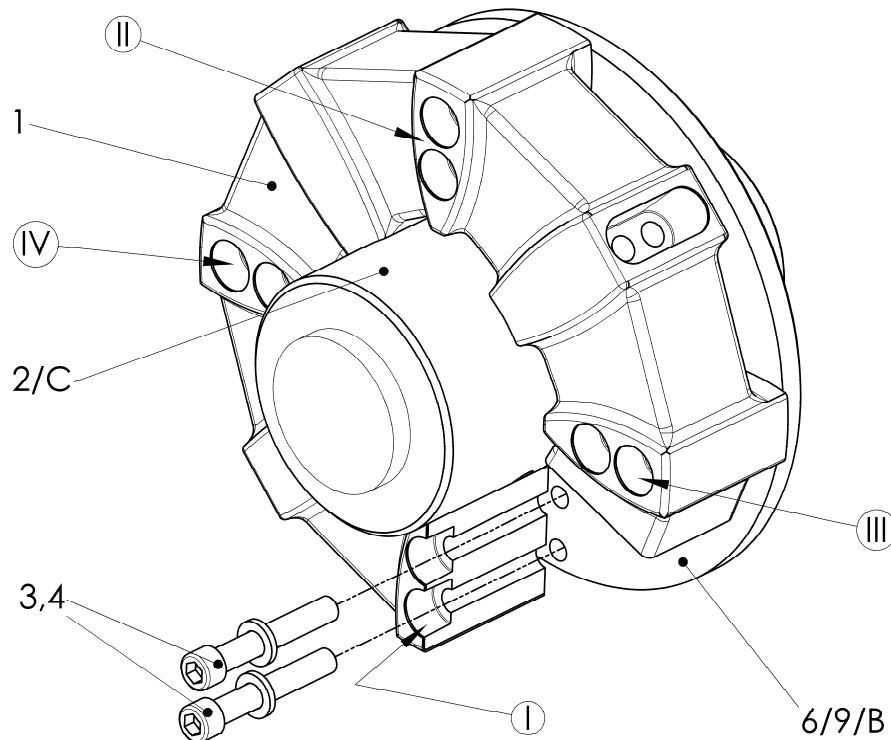


Fig. 6-9 Mounting the axial screws

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
3		Screw DIN 912-10.9 M22x140 IP	
4		Washer	
6/9		Flange hub/flange	
B		Flange	Customer part
C		Hub	Customer part
	I-IV	Order of	Mounting

- Start with I (order of mounting):
Screw by hand the rubber element (1) to the flange (customer part)/flange hub/flange hub (B/6 or 9) using two screws (3) and washers (4).

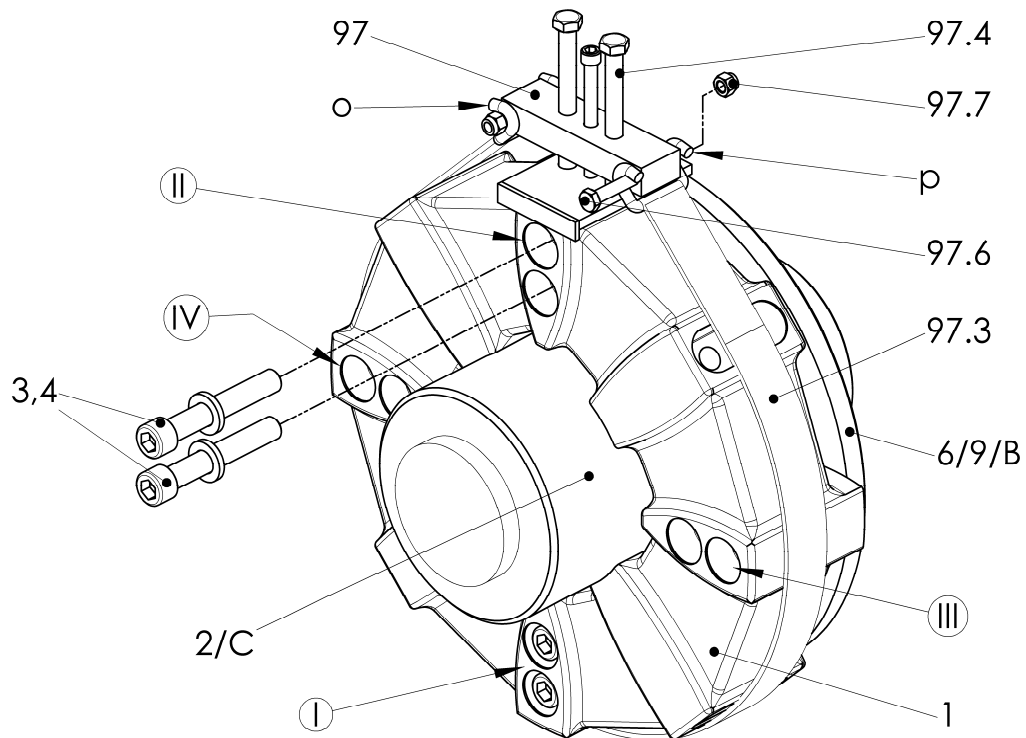


Fig. 6-10 Mounting the axial screws with the help of the mounting fixture

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
3		Screw DIN 912-10.9 M22x140 IP	
4		Washer	
6/9		Flange hub/flange	
97		Mounting fixture	11-61685-00
97.3		Lashing strap	
97.4		Screw ISO 4017-8.8 M16x150	
97.6		Screw ISO 4014-8.8 M12x90	
97.7		Nut ISO 7040-10 M12	
B		Flange	Customer part
C		Hub	Customer part
	o	First claw hook	
	p	Second claw hook	
	I - IV	Order of mounting	

- Loosen one nut (97.7) with screw (97.6) from the mounting fixture (97).
- Start with II, position the mounting fixture (97) onto the rubber element (1).
- Repeat the following mounting section in order II – IV, until the screws (3) with washers (4) are screwed by hand:
 - Suspend the first claw hook (o) of the lashing strap (97.3) in the screw (97.6) of the mounting fixture (97).
 - Wrap the lashing strap (97.3) around the rubber element (1) and push the second claw hook (p) over the mounting fixture (97).
 - Push the previously removed screw (97.6) through the claw hook (P) in the mounting fixture (97).
 - Secure the screw (97.6) with the nut (97.7).
 - Tighten the screws (97.4) of the mounting fixture (97) alternately until the axial drillings of the rubber element (1) and the threads of the flange (customer part)/flange/flange hub (B/6 or 9) are aligned.
 - Screw by hand the rubber element (1) to the flange (customer part)/flange/flange hub (B/6 or 9) using two screws (3) and washers (4).
 - Loosen the screws (97.4) of the mounting fixture (97).
 - Loosen one nut (97.7) and remove with screw (97.6) off the mounting fixture (97).
 - Unhook the lashing strap (97.3), and position the lashing strap (97.3) with mounting fixture (97) in order III or IV onto rubber element (1).
- Dismantle and remove the mounting fixture (97) off the rubber element (1).
- Tighten in turn all screws (3) until the prescribed tightening torque (see chapter 11.1) has been achieved.

6.7.2 Mounting the radial screws

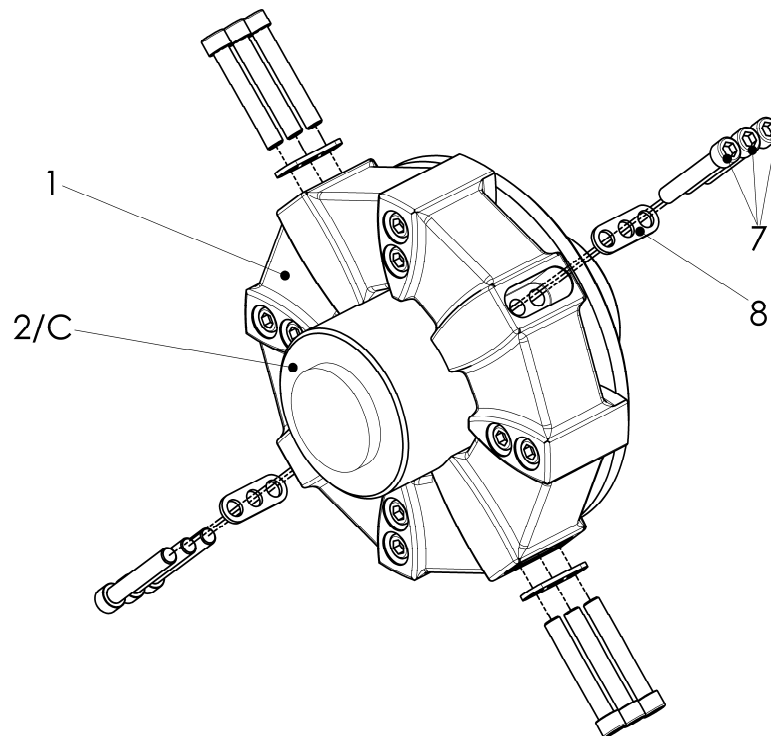


Fig. 6-11 Mounting the radial screws

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
7		Screw DIN 912-10.9 M22x140 IP	
8		Washer	
C		Hub	

- Place the washer (8) in the rubber element (1).
- Push all screws (7) into the washer (8) and rubber element (1) and screw them first four to five threads into the hub (2/C).
- Repeat the mounting section above in turn, until the screws (7) are screwed by hand.
- Fasten all screws (7) crosswise with the prescribed tightening torque (see chapter 11.1).

6.8 After completed mounting**WARNING****Injury and material damage can occur as a result of:**

- Loose screw connections

Before commissioning, the tightening torque levels of all screws must be checked and corrected if necessary.

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

- High axial forces at the axial bearings of the crank shaft

Prior to commissioning the system, ensure that the crank shaft has axial play.

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
Running noises or vibrations in the plant	Alignment error	<ol style="list-style-type: none"> 1. Switch off the plant 2. Check alignment, correct if applicable 3. Trial run
	Loose screws	<ol style="list-style-type: none"> 1. Switch off the plant 2. Check alignment, correct if applicable 3. Check screw torque levels and correct if necessary 4. Trial run
Breakage of the rubber element	Alignment error	<ol style="list-style-type: none"> 1. Switch off the plant 2. Exchange defective parts 3. Check alignment, correct if applicable 4. Trial run
	Inadmissibly high torque	<ol style="list-style-type: none"> 1. Switch off the plant 2. Exchange defective parts 3. Check alignment, correct if applicable 4. 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 drawing.

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 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.

In the event of cracks more than 3 mm deep or rubber-to-metal connections have become detached, the rubber parts must be exchanged.

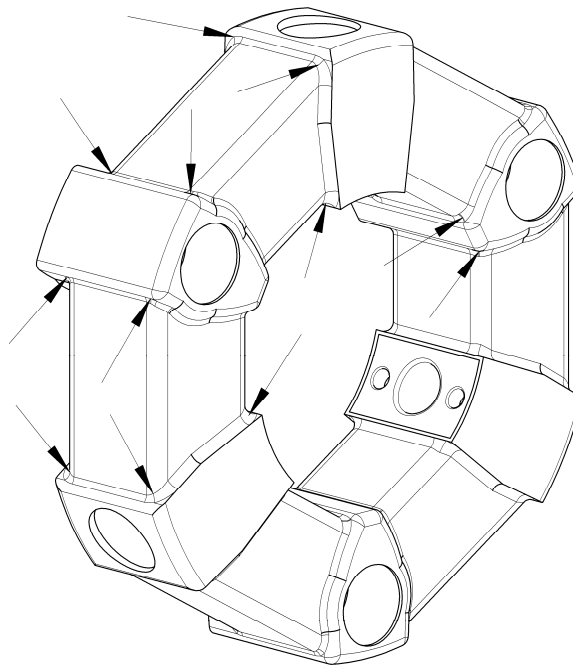


Fig. 8-1 Examples of wear zones at the CF-A rubber element indicated by arrows

8.1.4 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.

- 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 INBUS PLUS **IP** 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 rubber element

- Dismantling the radial screws, see chapter 9.2.1 .
- Dismantling the axial screws, see chapter 9.2.2 .
- Dismantling the rubber element, see chapter 9.2.3 .

9.2.1 Dismantling the radial screws

See Fig. 6-11:

- Loosen all screws (7) of the connection rubber element (1) and hub (2/C) and remove with washers (8).

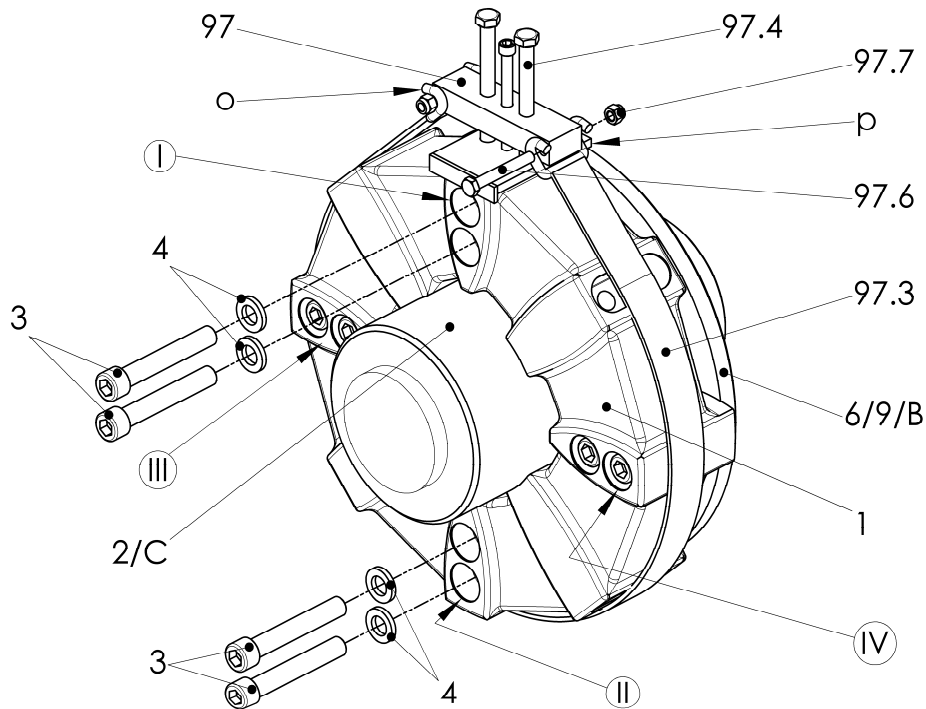
9.2.2 Dismantling the axial screws


Fig. 9-1 Dismantling the axial screws with the help of the mounting fixture

Item	Info	Designation	Remark
1		Rubber element	
2		Hub	
3		Screw DIN 912-10.9 M22x140 IP	
4		Washer	
6/9		Flange hub/Flange	
97		Mounting fixture	11-61685-00
97.3		Lashing strap	
97.4		Screw ISO 4017-8.8 M16x150	
97.6		Screw ISO 4014-8.8 M12x90	
97.7		Nut ISO 7040-10 M12	
B		Flange	Customer part
C		Hub	Customer part
	o	First claw hook	
	p	Second claw hook	
	I - IV	Order of	dismantling

- Loosen one nut (97.7) with screw (97.6) from the mounting fixture (97).
- Start with I, position the mounting fixture (97) onto the rubber element (1).
- Repeat the following mounting section in order I – III, until the screws (3) with washers (4) are dismantled:
 - Suspend the first claw hook (o) of the lashing strap (97.3) in the screw (97.6) of the mounting fixture (97).
 - Wrap the lashing strap (97.3) around the rubber element (1) and push the second claw hook (p) over the mounting fixture (97).
 - Push the previously removed screw (97.6) through the claw hook (P) in the mounting fixture (97).
 - Secure the screw (97.6) with the nut (97.7).
 - Tighten the screws (97.4) of the mounting fixture (97) alternately until tensed the lashing strap (97.3).
 - Loosen the screw (3) under the mounting fixture (97) and remove with washers (4).
 - Loosen the screws (97.4) of the mounting fixture (97).
 - Loosen one nut (97.7) and remove with screw (97.6) off the mounting fixture (97).
 - Unhook the lashing strap (97.3), and position the lashing strap (97.3) with mounting fixture (97) in order II and III on rubber element (1).
- Dismantle and remove the mounting fixture (97) off the rubber element (1).
- At sequence IV, loosen the last screws (3) and remove with washers (4).

9.2.3 Dismantling the rubber element

See Fig. 6-8:

- Pull driving and driven units apart (if necessary).
- Remove the rubber element (1) from the hub (2/C).

9.3 Dismantling the flange (if necessary)

See Fig. 6-7:

- Loosen and remove the screws (D) of the connection flange (9) and hub (K).
- Pull the flange (9) off the centring of the hub (K) and remove.

9.4 Dismantling the hub/flange hub (if necessary)

- Dismantle the hub and flange hub as appropriate for the type supplied (see installation drawing).
 - Dismantling the hub/flange hub with cylindrical drilling and feather key, see chapter 9.4.1
 - Dismantling the hub/flange hub with conical drilling and feather key, see chapter 9.4.2
 - Dismantling the hub/flange hub with tothing, see chapter 9.4.3 .
 - Dismantling the CENTALOC clamping hub/flange hub, see chapter 9.4.4 .
 - Dismantling the CENTA-conical clamping hub/flange hub, see chapter 9.4.5 .
 - Dismantling the hub/flange hub with conical oil interference fit, see chapter 9.4.6 .

9.4.1 Dismantling the hub/flange hub with cylindrical drilling and feather key

See Fig. 6-1:

- Loosen the threaded pins (16; if existing) and remove off the hub/flange hub (2/6).
- Remove the hub/flange hub (2/6) from the shaft (A).

9.4.2 Dismantling the hub/flange hub with conical drilling and feather key

See Fig. 6-2:

- Loosen the nut (E) and remove with the washer (H).
- Remove the hub/flange hub (2/6) from the shaft (A).

9.4.3 Dismantling the hub/flange hub with tothing

See Fig. 6-3:

- Loosen the screw (G) and remove with the washer (H).
- Remove the hub/flange hub (2/6) from the shaft (A).

9.4.4 Dismantling the CENTALOC clamping hub/flange hub

See Fig. 6-4:





- Loosen the threaded pins (29).
- Remove the hub/flange hub (2/6) from the shaft (A).

9.4.5 Dismantling the CENTA-conical clamping hub/flange hub

See Fig. 6-5:

- Loosen the screws (2.4/6.4) and screw them out equally about 10mm.
- For each forcing thread screw out a screw (2.4/6.4) and screw them loose into the forcing thread (I).
- Push the hub/flange hub (2.1/6.1) off hub-taper (2.2/6.2) with the help of the screws (2.4/6.4) in forcing threads.
- Remove the screws (2.4/6.4).
- Remove the hub-taper (2.2/6.2) with hub/flange hub (2.1/6.1) off the shaft (A).

9.4.6 Dismantling the hub/flange hub 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. 6-6:

- Remove screw plug (26) from hub/flange hub (2/6).
- Connect the pump to the thread G $\frac{1}{4}$ (g) of hub/flange hub (2/6) to expand the hub.
- Screw the pump to the shaft (A), in order to hold the hub/flange hub.
- Build up oil pressure in order to hold the hub/flange hub.

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**.

- Slowly build up oil pressure to expand the hub/flange hub (**p_{max} = 1500 bar**).
- Slowly reduce the oil pressure for holding the hub/flange hub.
- Slowly reduce the oil pressure for expanding the hub/flange hub.
- Repeat the above mounting section until the hub/flange hub is completely released from the shaft.
- Remove the pump for holding the hub/flange hub from the shaft (A).
- Remove pump for expanding the hub from the hub/flange hub (2/6).
- Turn the hub/flange hub (2/6), drain oil out of the thread G $\frac{1}{4}$ (g) and dispose correctly.
- Screw the screw plug (26) into the hub/flange hub (2/6).

9.5 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 part of this coupling:

- Rubber element

**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 INBUS PLUS **IP** 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 D13-019 (IP-screw connections)

Validity:

For all non-dynamically stressed screw connections with **IP*-screws** in accordance with ISO 4014, ISO 4017 and ISO 4762 (DIN 912) with metric standard thread in accordance with DIN ISO 262 and **IP*-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 adhesive INBUS-PLUS (**IP**) which serves as a 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 IP-screws:

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

Screw tightening method:

Screw in (by hand with torque wrench).

Curing time for the microencapsulated adhesive:

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.

CENTAFLEX			Thread size d	Strength class	Tightening torques	
A Size	H Size	X Size			[Nm] ±5%	[in lbs] ±5%
1	--	1	M6	8.8	10	90
2/4	--	2/4	M8		25	220
8/12	8	8	M10		50	440
16/22	16	16	M12		85	750
25/28	25	25	M14		140	1250
30/50/80	30/50	30/90	M16		220	1950
--	110	--	M18	10.9	300	2650
90/140/ 200/250	140	--	M20		500	4450
400	--	--	M20		610	5400
	--	--	M24		1050	9300
600	--	--	M24		1050	9300
	--	--	M27		1550	13700
800	--	--	M22	820	7250	



**11.2 CENTA data sheet D008-900,
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: Highly elastic coupling 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, subchapter 1.1.2, 1.1.3, 1.1.5, 1.3.2, 1.3.3, 1.3.4 und 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, 19.11.2009