

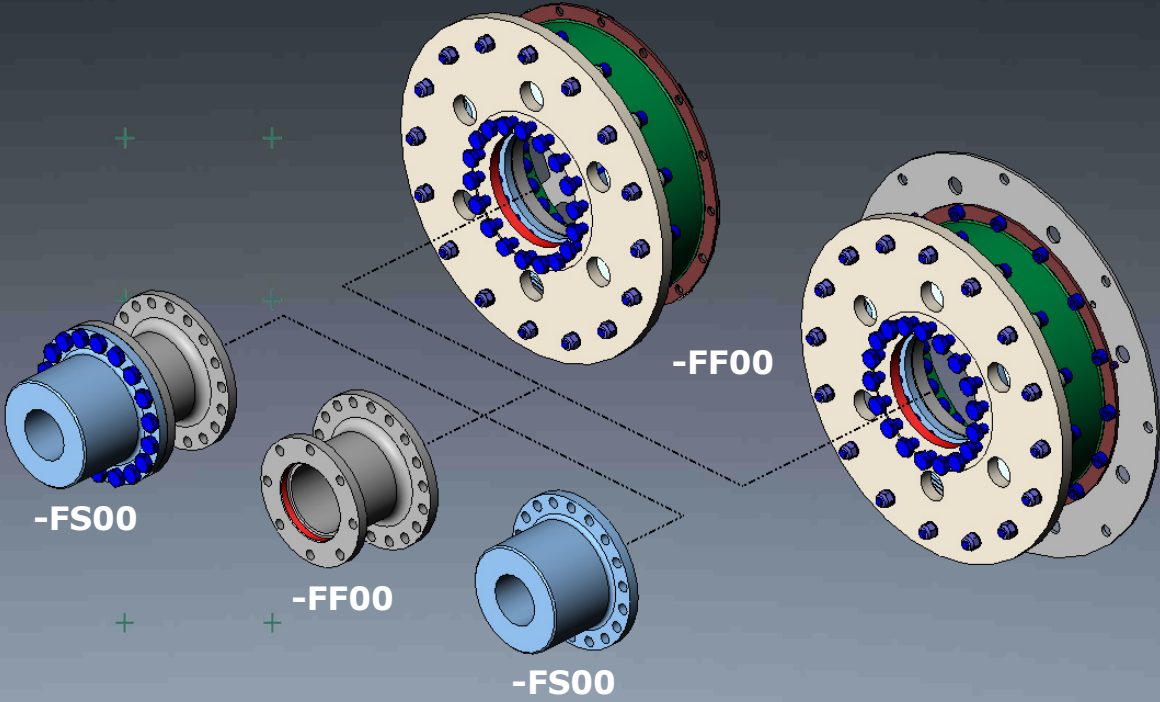
CENTAX-N

Assembly and operating instructions

033N-00035...00075-F.00

M033-00002-EN

Rev. 2



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	
	<p>Injury and material damage can occur as a result of:</p> <ul style="list-style-type: none">▪ Failure to adhere to the safety and accident prevention regulations valid at the relevant installation site <p>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.</p>

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

Important features and advantages of the CENTAX-series N and NL:

- High compensation of misalignment in radial, axial and angular direction with low reaction forces.
- High torsional flexibility with linear characteristics. Various shore hardnesses result in different torsional stiffness for optimum tuning of the torsionals and for damping of vibration and noise.
- High allowable energy loss by intensive inner and outer ventilation.
- Economical Design and well proven parts produced in series, low weight and favourable connecting dimensions.
- Low maintenance and low wear, long life expectancy, easy assembly and disassembly with radial removal of elements in-situ.
- Engine connection dimensions acc. SAE, special flanges are possible. The driven hubs made of high grade steel with connections for the various gear input shafts are available on short delivery.
- Torque range from 1.1 up to 25 kNm at the moment. For higher torques up to 650 kNm we recommend the larger sizes of the CENTAX-SEC series.

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

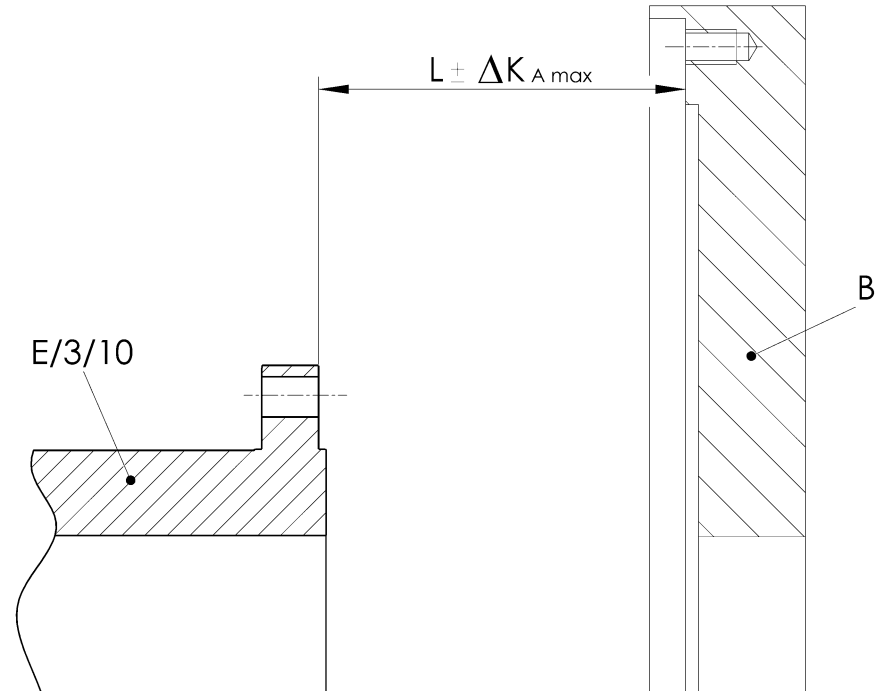


Fig. 5-1 Axial misalignment

Item	Info	Designation	Remark
3		Hub	If scope of supply
10		Adapter	If scope of supply
B		Flywheel	Customer part
E		Flange	Customer part



- 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:

$\Delta K_{A \max} = 0.5 \text{ mm}$

5.2 Radial alignment

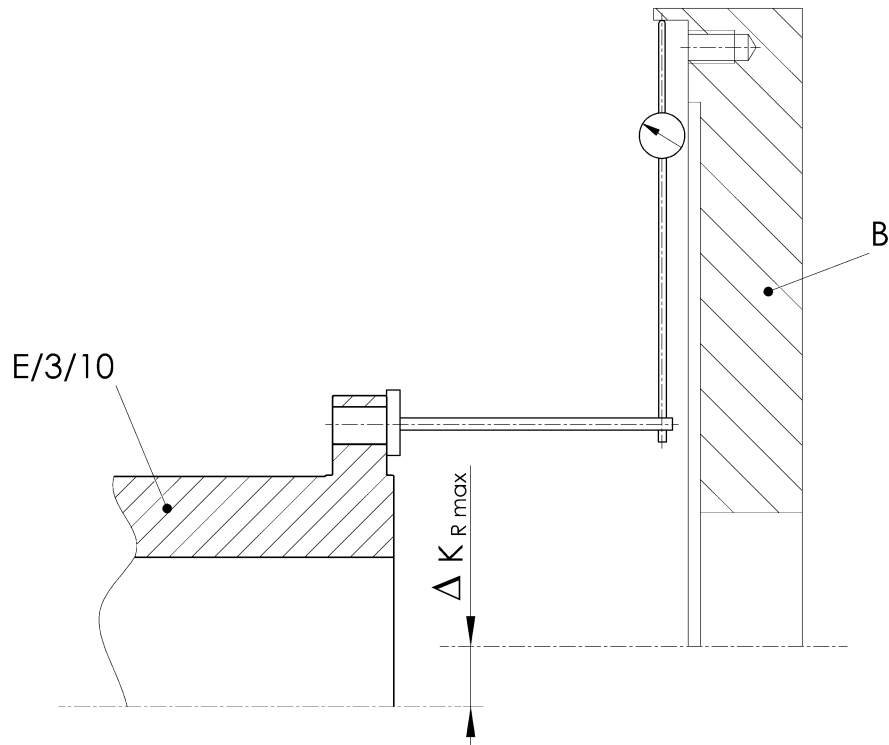


Fig. 5-2 Radial misalignment

Item	Info	Designation	Remark
3		Hub	If scope of supply
10		Adapter	If scope of supply
B		Flywheel	Customer part
E		Flange	Customer part

CAUTION



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

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

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

- Measure the radial misalignment with a dial gauge (see Fig. 5-2)
 - Attach the dial gauge to the flange/hub/adapter (E/3/10).
 - Set the sensor of the dial gauge radially against the centering.
 - Turn the flange/hub/adapter (E/3/10) with dial gauge and flywheel (B) slowly by 360°.
- 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.

Size	Shore hardness [Shore A]	$\Delta K_{R \max}$ [mm]
35; 45; 51	45 / 50	±0.45
	60	±0.30
52	45 / 50 / 60	±0.45
	70	±0.15
56	45 / 50	±0.45
	60	±0.30
	70	±0.15
64; 67	50 / 60	±0.45
	70	±0.15
66; 69; 71	50 / 60	±0.60
	70	±0.18
72	50 / 60	±0.75
	70	±0.23
75	50 / 60	±0.82
	70	±0.25

Table 5-1 Permissible radial alignment tolerance

5.3 Angular alignment

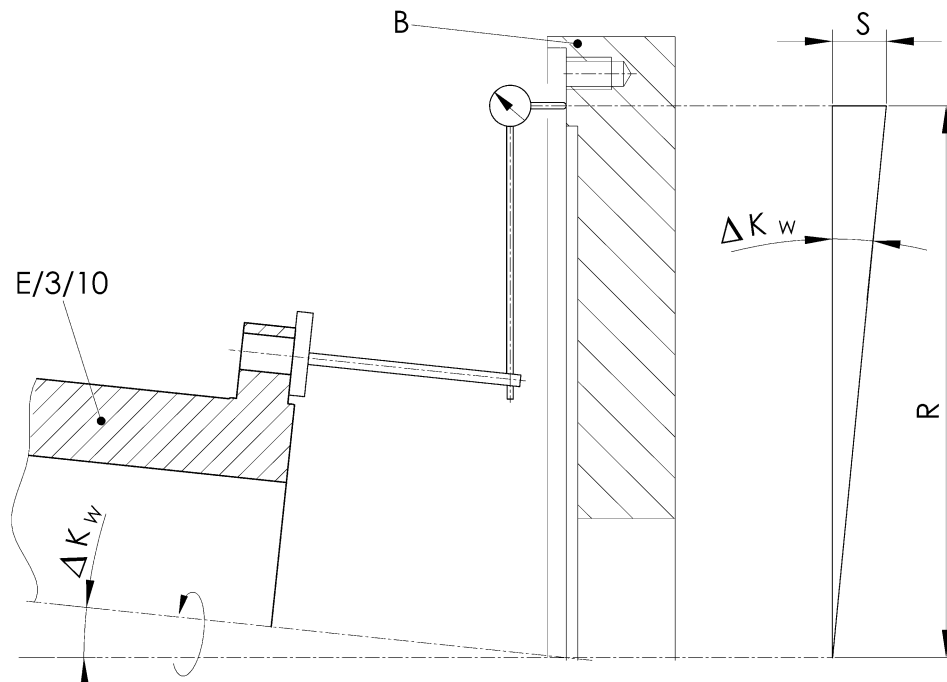


Fig. 5-3 Angular misalignment

Item	Info	Designation	Remark
3		Hub	If scope of supply
10		Adapter	If scope of supply
B		Flywheel	Customer part
E		Flange	Customer part

- Measure the angular misalignment with a dial gauge (see Fig. 5-3)
 - Attach the dial gauge to the flange/hub/adapter (E/3/10).
 - Position the sensor of the dial gauge radially against flat surface at a distance R.
 - Turn the flange/hub/adapter (E/3/10) with dial gauge and flywheel (B) slowly by 360°.

The maximum dial gauge deflection must not exceed the value $2xS_w$ at any point. The permissible tolerance $S_{w \max}$ should be taken from the table below.

- Align the units (calculated deviation $\leq \Delta K_{W \max}$).

Permissible angular alignment tolerance:

$$\Delta K_{W \max} = 0.05^\circ$$








SAE J620	R [mm]	S_{w max} [mm]
11,5	155	0.13
14	209	0.18
18	261	0.23
21	311	0.27
24	337	0.29

Table 5-2 Permissible angular alignment tolerance

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 D013-013 (see chapter 11.1).
- Use suitable lifting devices for assembly.
- The following assembly stages are described for coupling 033N-00064-F.00.
- Part illustration and marking may differ slightly from installation drawing and delivery state.

6.2 Sequence of mounting

The following figure is showing examples of possible design.

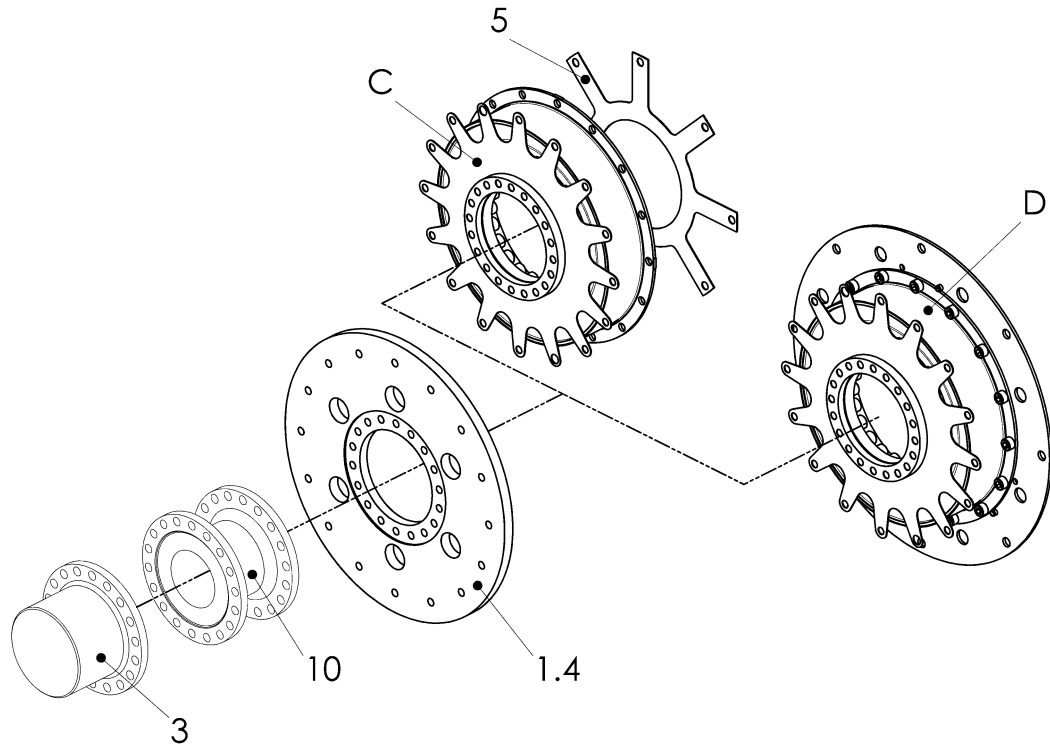


Fig. 6-1 Example: 033N-00035...00075-F.00

Item	Info	Designation	Remark
1.4		Adapter	
3		Hub	If scope of supply
5		Sheet	If scope of supply
10		Adapter	If scope of supply
C		Pre-mounted rubber element assembly	If scope of supply
D		Pre-mounted rubber element assembly	If scope of supply



IMPORTANT

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



- Mount the coupling according to the following described order as appropriate for the supplied design. For delivered design and built-in parts see installation drawing.
 - Mounting the hub (if necessary), see chapter 6.3 .
 - Mounting the adapter (10) (if necessary), see chapter 6.4 .
 - Aligning the units, see chapter 5 .
 - Mounting the pre-mounted rubber element assembly (C/D) to the flywheel, see chapter 6.6 .
 - Mounting the adapter (1.4), see chapter 6.7 .
 - Connecting the pre-mounted rubber element assembly (C/D) and the adapter (1.4), see chapter 6.8 .
 - After completed mounting, see chapter 6.9 .

6.3 Mounting the hub (if necessary)

- Mount the hub as appropriate for the supplied design (see installation drawing):
 - Mounting the hub with keyway, see chapter 6.3.1 .
 - Mounting the hub with conical oil interference fit, see chapter 6.3.2 .
 - Mounting the CENTA-conical clamping hub, see chapter 6.3.3 .

6.3.1 Mounting the hub with keyway

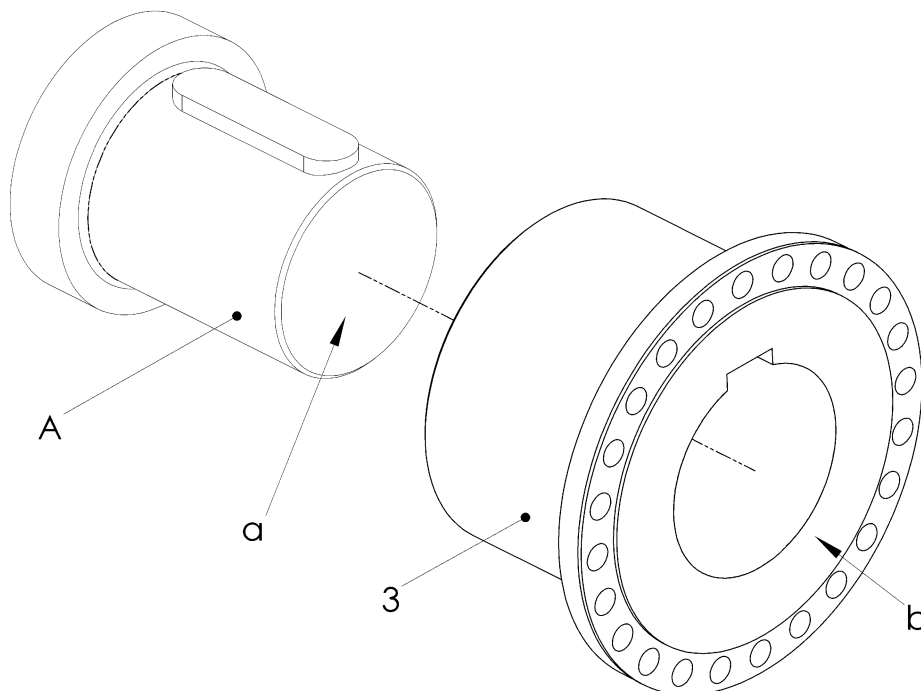


Fig. 6-2 Mounting the hub with keyway

Item	Info	Designation	Remark
3		Hub	
A		Shaft	Customer part
	a	Face of shaft	
	b	Face of hub	

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

- Incorrect heating of the hubs/flange hubs

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

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

- Hot coupling components

Use suitable protective gloves.

- Heat the hub (3) to a temperature of 170° - 200°C.
- Push the hub (3) 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.

6.3.2 Mounting the hub with conical oil interference fit

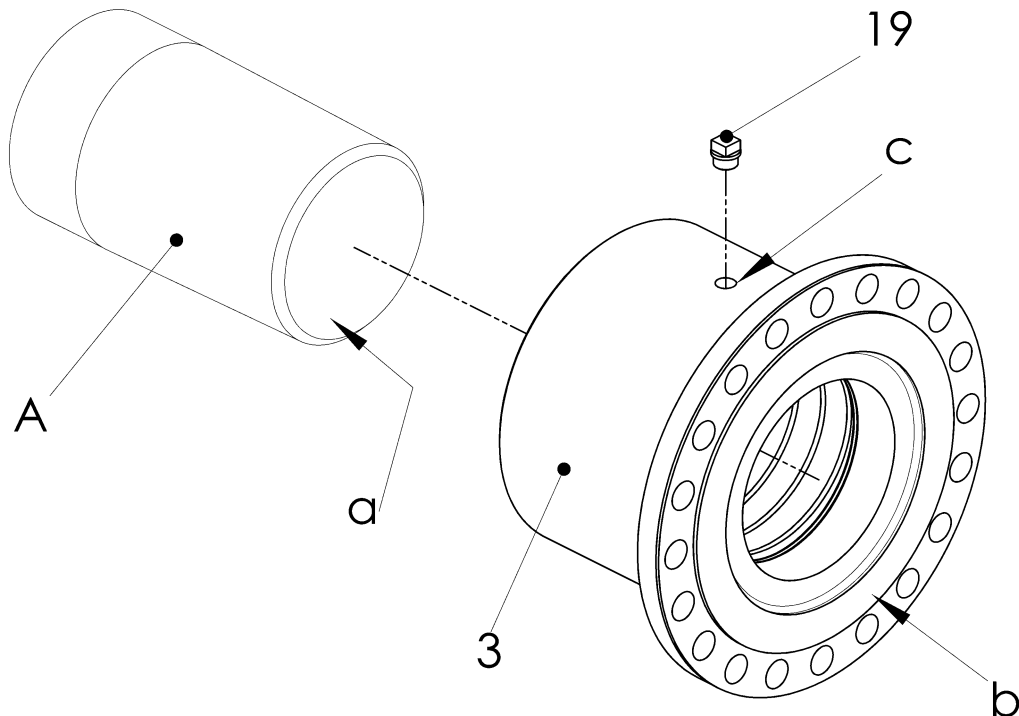


Fig. 6-3 Mounting the hub with conical oil interference fit

Item	Info	Designation	Remark
3		Hub	
19		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 (3) onto the shaft (A).
- Remove the screw plug (19) from the hub (3).

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 (3) 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:

- 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.

- Slowly build up the oil pressure for expanding the hub.
- Build up the oil pressure alternately until the lift path (p up) of the hub (3) 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 (3).
- 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 (3), drain oil out of the thread G $\frac{1}{4}$ or G $\frac{3}{4}$ (c) and dispose correctly.
- Screw the screw plug (19) into the hub (3).

 IMPORTANT
--

Do not place a load on the hub for 24 hours.
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 IMPORTANT
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Face of shaft must not protrude to face of hub. Otherwise radial replacement of other coupling parts is not guaranteed.

6.3.3 Mounting the CENTA-conical clamping hub

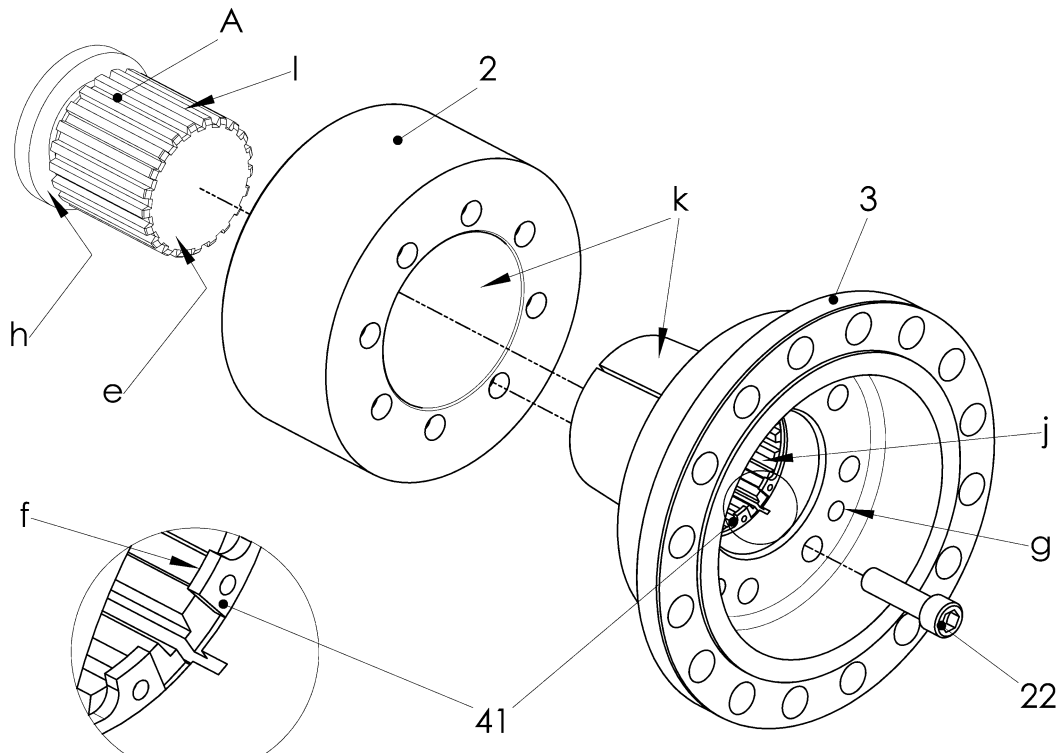


Fig. 6-4 Mounting the CENTA-conical clamping hub

Item	Info	Designation	Remark
2		Ring	
3		Hub	Pre-mounted
22		Screw	
41		Circlip	Design of the hub see installation drawing
A		Shaft	Customer part
	e	Shaft end	
	f	Back side of circlip	
	g	Forcing thread	
	h	Shaft shoulder	
	j	Drilling	
	k	Conical surface	
	l	Shaft extension	

 **IMPORTANT**

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

- Preparing the hub (3), ring (2) and the shaft (A) for mounting:
 - Clean and degrease the drilling (j) and the conical surface (k) of the hub (3).
 - Clean and degrease the conical surface (k) of the ring (2).
 - Clean and degrease the shaft extension (l) of the shaft (A).
- Insert the hub (3) into the ring (2).
- Screw the hub (3) with screws (22) loosely into the ring (2).
- Push the hub (3) as appropriate for the supplied design **with / without** circlip (41: see installation drawing) onto the shaft (A):
 - **with** circlip (41):
Push the hub (3) with the ring (2) onto the shaft (A), until the shaft end (e) touches the back side of the circlip (f).

 **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 (41):
Push the hub (3) with the ring (2) onto the shaft (A) against the shaft shoulder (h).

 **IMPORTANT**

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

- Evenly tighten screws (22) in three steps crosswise, until the tightening torque (see installation drawing) has been achieved for all screws.
 - Step 1: 40 % of the specified tightening torque.
 - Step 2: 60 % of the specified tightening torque.
 - Step 3: 100 % of the specified tightening torque.
- Check the tightening torques of the screws (22) one after the other.

6.4 Mounting the adapter (10; if necessary)

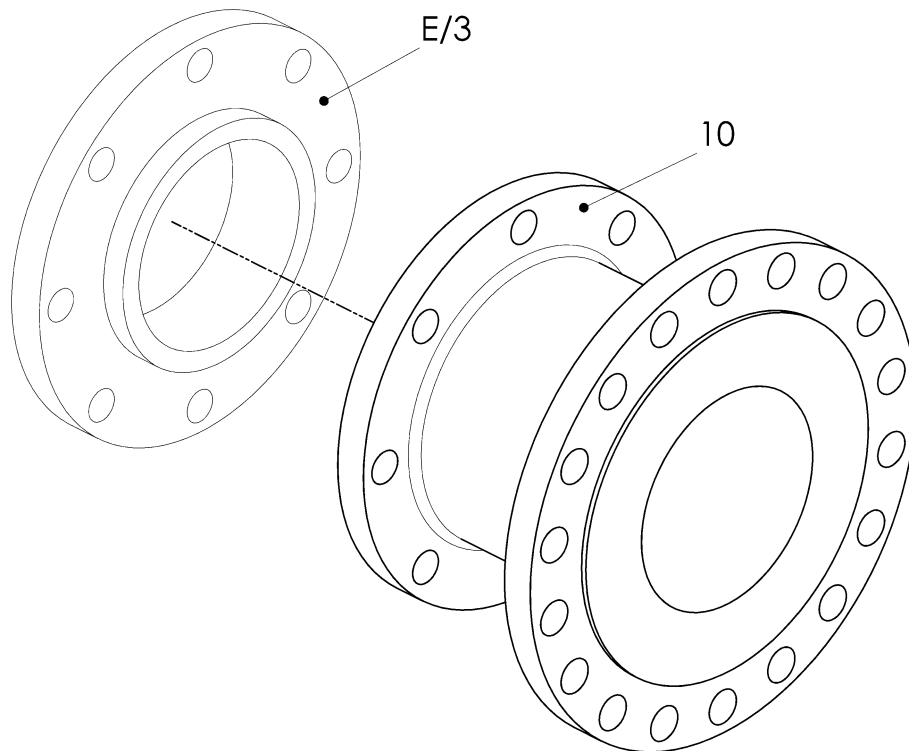


Fig. 6-5 Mounting the adapter (10)

Item	Info	Designation	Remark
3		Hub	
10		Adapter	
E		Flange	Customer part

- Push the adapter (10) onto/into the centring of the flange/hub (E/3, see installation drawing).
- Screw the adapter (10) to the flange/hub (E/3). Take the information for the necessary screw connection from the installation drawing.

 IMPORTANT

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

6.5 Aligning the units

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

6.6 Mounting the pre-mounted rubber element assembly (C/D) to the flywheel

- Mount the pre-mounted rubber element assembly (C/D) as appropriate for the supplied design (see installation drawing):
 - Mounting the pre-mounted rubber element assembly (C) and sheet to the flywheel, see chapter 6.6.1 .
 - Mounting the pre-mounted rubber element assembly (D) with adapter to the flywheel, see chapter 6.6.2 .

6.6.1 Mounting the pre-mounted rubber element assembly (C) and sheet to the flywheel

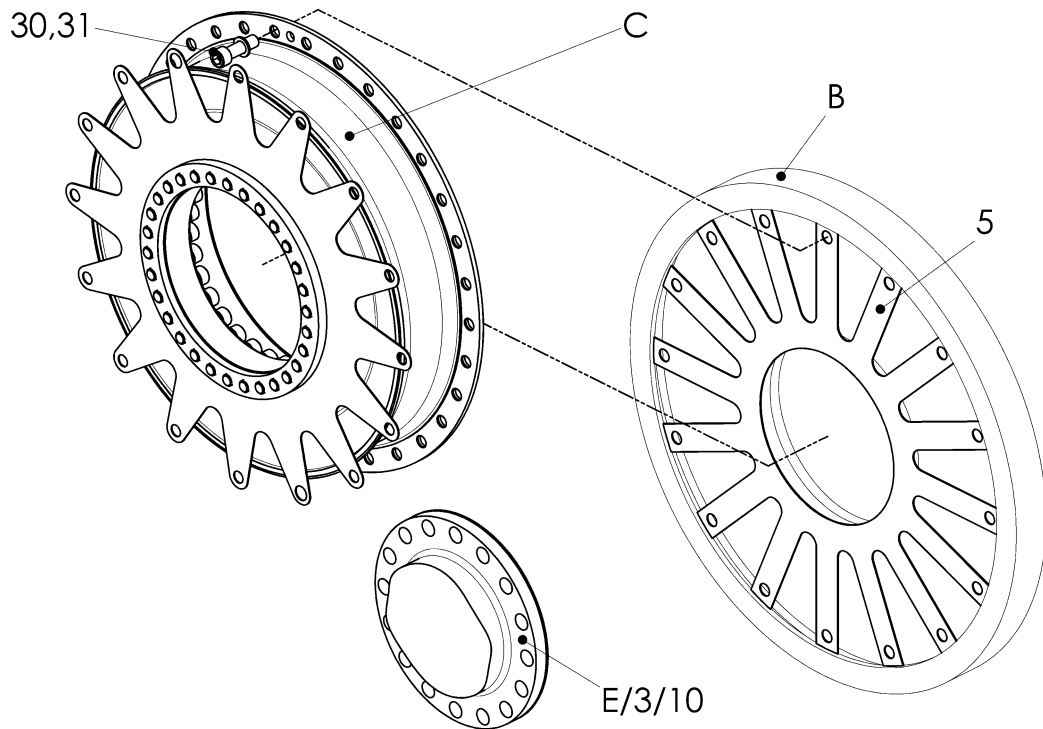


Fig. 6-6 Mounting the pre-mounted rubber element assembly (C) and sheet to the flywheel



Item	Info	Designation	Remark
3		Hub	
5		Sheet	
10		Adapter	
30		Screw	If ordered
31		Washer	If ordered
B		Flywheel	Customer part
C		Pre-mounted rubber element assembly	
E		Flange	Customer part

- Push the sheet (5) into the centring of the flywheel (B).
- Push the pre-mounted rubber element assembly (C) into the centring of the flywheel (B).
- Screw the pre-mounted rubber element assembly (C) and the sheet (5) to the flywheel (B) using the screws (30) and washers (31).



IMPORTANT

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

6.6.2 Mounting the pre-mounted rubber element assembly (D) with adapter to the flywheel

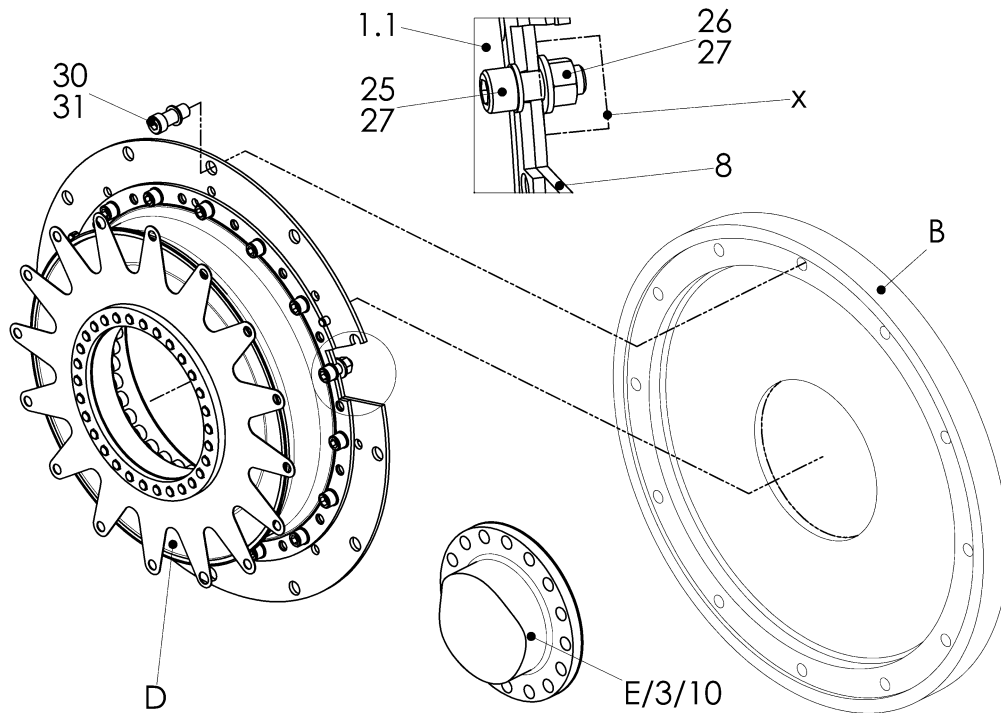


Fig. 6-7 Mounting the pre-mounted rubber element assembly (D) with adapter to the flywheel

Item	Info	Designation	Remark
1.1		Rubber element assembly	
3		Hub	
8		Adapter	
10		Adapter	
25		Screw ISO4762-10.5 M..	
26		Nut ISO4032-10 M..	
27		Washer ISO7092 ..-300HV	
30		Screw	If ordered
31		Washer	If ordered
B		Flywheel	Customer part
D		Pre-mounted rubber element assembly	
E		Flange	Customer part
	X	Required space for screw connections	

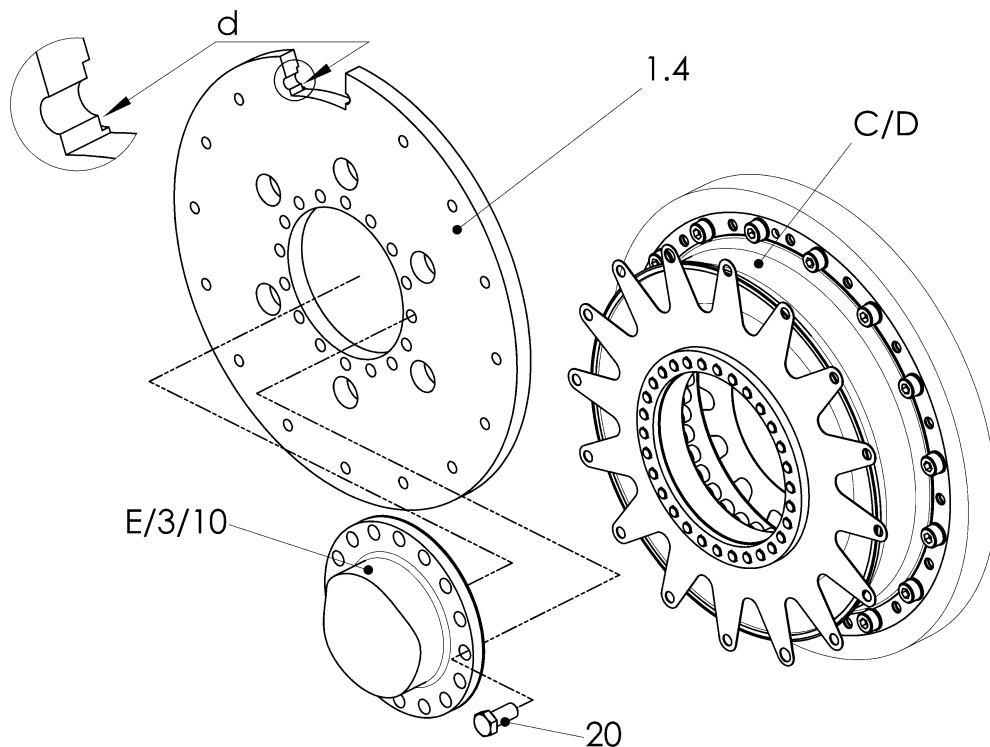
- Push the pre-mounted rubber element assembly (D) into the centring of the flywheel (B).
- Screw the pre-mounted rubber element assembly (D) to the flywheel (B) using the screws (30) and the washers (31).

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

- Mounting the rubber element assembly with adapter to the flywheel, which does **NOT** match the SAE J620 standard by 100 %.
- Only mount the rubber element assembly with adapter to another flywheel, if the required space (X) for screw connections (25, 26 and 27; see installation drawing) is existing.

**IMPORTANT**

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

6.7 Mounting the adapter (1.4)

Fig. 6-8 Mounting the adapter (1.4)

Item	Info	Designation	Remark
3		Hub	
1.4		Adapter	
10		Adapter	
20		Screw ISO4762-10.9 M..	
C/D		Pre-mounted rubber element assembly	
E		Flange	Customer part
	d	Drilling for the bush	2x180°

- Push the adapter (1.4) onto the centring of the flange/hub/adapter (E/3/10). The drillings for the bushes (d) must be directed to the pre-mounted rubber element assembly (C/D).
- Screw the flange/hub/adapter (E/3/10) to the adapter (1.4) using the screws (20).

6.8 Connecting the pre-mounted rubber element assembly (C/D) and the adapter (1.4)

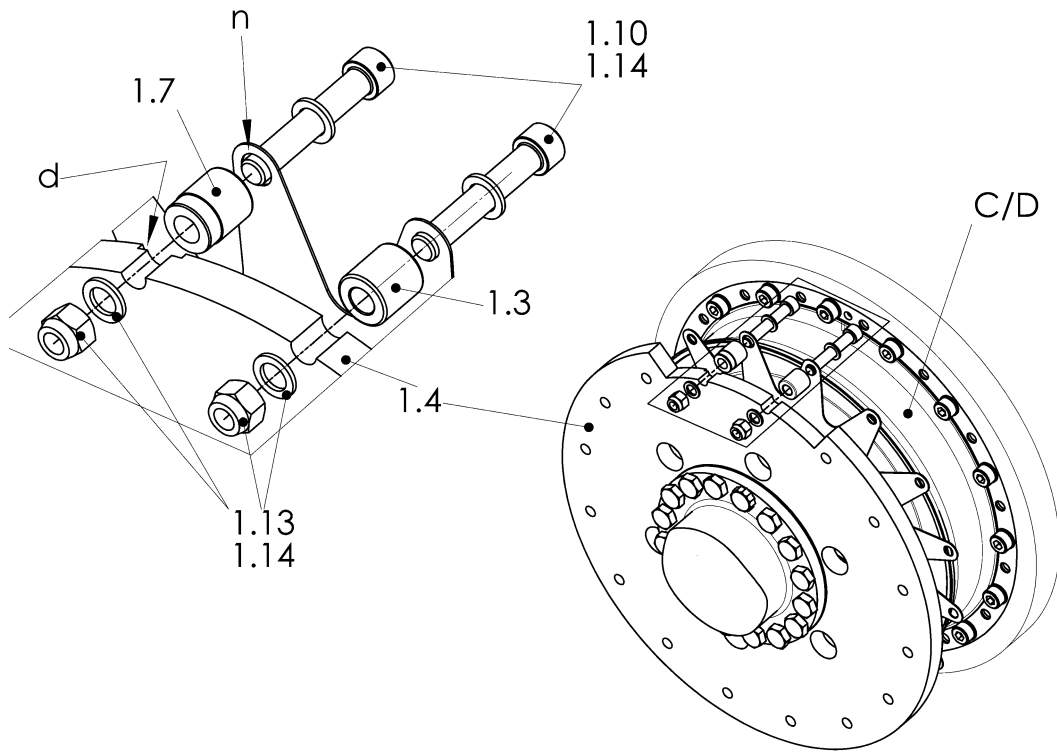


Fig. 6-9 Connecting the pre-mounted rubber element assembly (C/D) and the adapter (1.4)

Item	Info	Designation	Remark
1.3		Ring	
1.4		Adapter	
1.7		Bush	
1.10		Screw ISO4762-10.9 M..	
1.13		Nut ISO7040-10 M..	
1.14		Washer ISO7092 ..-300HV	
C/D		Pre-mounted rubber element assembly	
	d	Drilling for the bush	2x180°
	n	Drilling for the bush	2x180°

 **IMPORTANT**

Ensure during installation that the bushes are in the right position.
Consider following table.

Size CX-...-NFS	Drilling diameter [mm]	Centring diameter H7 [mm]
35 / 45 / 51	10.3	13
52 / 56 / 64 / 66 / 67 / 69 / 71	12.3	15
72	16.3	21
75	18.3	21

- Turn the adapter (1.4) towards the pre-mounted rubber element assembly (C/D), so that the drillings for the bushes (d and n) are aligned in the both parts (see previous table).
- Push the bushes (1.7; 2x180°) into the drillings (d) of the adapter (1.4) and the drillings (n) of the pre-mounted rubber element assembly (C/D).
- Screw together the pre-mounted rubber element assembly (C/D), the bushes (1.7) and the adapter (1.4) with screws (1.10), washers (1.14) and nuts (1.13).
- Screw together the pre-mounted rubber element assembly (C/D) and the adapter (1.4) with screws (1.7), washers (1.14), rings (1.3) and nuts (1.13).

6.9 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.

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 bolts	<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
Membran or rubber element / rubber segment damaged	Alignment error	<ol style="list-style-type: none"> 1. Switch off the plant 2. Replace 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. Replace 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 catalogue.

8 Care and maintenance

WARNING

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

- Contact with rotating parts

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

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

8.1 Work to be performed

8.1.1 Cleaning the coupling

- Remove any loose dirt from the coupling.

8.1.2 Visual inspection of the coupling

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

8.1.3 Visual inspection of the rubber elements / rubber segments



IMPORTANT

Exchange the rubber elements / rubber segments in the event that:

- The wear specifications given in W000-00002 are exceeded

- Assess the rubber elements / rubber segments as described in CENTA guidelines W000-00002.

8.1.4 Inspection of the screw connections

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

8.2 Replacing defective parts

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

9 Dismantling

9.1 General dismantling instructions

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

IMPORTANT

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

WARNING

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

- Contact with rotating parts

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

WARNING

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

- Dismantling of the coupling in the wrong sequence

Only ever dismantle the coupling in the described sequence.

WARNING

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

- Falling coupling components

Secure coupling components against falling to the floor.

CAUTION

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

- Contact with sharp-edged objects

Protect coupling components for transportation.

Only hoist coupling components with nylon belts or ropes.

Always cushion parts when supporting them from below.

IMPORTANT

Use suitable lifting devices for dismantling.

9.2 Disconnecting the pre-mounted rubber element assembly (C/D) and the adapter (1.4)

See Fig. 6-9:

- Loosen the screws (1.10) of the connection pre-mounted rubber element assembly (C/D) and adapter (1.4) and remove together with the rings/bushes (1.3/1.7) and washers (1.14).

9.3 Dismantling the adapter (1.4; if necessary)

See Fig. 6-8:

- Loosen and remove the screws (20) of the connection flange/hub/adapter (E/3/10) and adapter (1.4).
- Pull the adapter (1.4) off the centring of the flange/hub/adapter (E/3/10) and remove.

9.4 Dismantling the pre-mounted rubber element assembly (C/D) from the flywheel

- Dismantle the pre-mounted rubber element assembly (C/D) as appropriate for the supplied design:
 - Dismantling the pre-mounted rubber element assembly (C) and the sheet from the flywheel; see chapter 9.4.1 .
 - Dismantling the pre-mounted rubber element assembly (D) with the adapter from the flywheel; see chapter 9.4.2 .

9.4.1 Dismantling the pre-mounted rubber element assembly (C) and the sheet from the flywheel

See Fig. 6-6:

- Loosen the screws (30) of the connection pre-mounted rubber element assembly (C), sheet (5) and flywheel (B) and remove with washers (31).
- Pull the pre-mounted rubber element assembly (C) out of the centring of the flywheel (B) and remove.
- Pull the sheet (5) out of the centring of the flywheel (B) and remove.

9.4.2 Dismantling the pre-mounted rubber element assembly (D) with the adapter from the flywheel

See Fig. 6-7:

- Loosen the screws (30) of the connection pre-mounted rubber element assembly (D) and flywheel (B) and remove with washers (31).
- Pull the pre-mounted rubber element assembly (D) out of the centring of the flywheel (B) and remove.

9.5 Dismantling the hub (if necessary)

- Dismantle the hub as appropriate for the supplied design (see installation drawing):
 - Dismantling the hub with keyway, see chapter 9.5.1 .
 - Dismantling the hub with conical oil interference fit, see chapter 9.5.2 .
 - Dismantling the CENTA-conical clamping hub, see chapter 9.5.3 .





9.5.1 Dismantling the hub with keyway

See Fig. 6-2:

- Remove the hub (3) from the shaft (A).

9.5.2 Dismantling the hub with conical oil interference fit

See Fig. 6-3:

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 	

- Remove the screw plug (19) from the hub (3).
- Connect the pump (**p_{max} = 3000 bar**) to the thread G¹/₄ or G³/₄ (c) of hub (3) to expand the hub.
- Screw the pump to the shaft (A), in order to hold the hub.
- Build up oil pressure in order to hold the 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 (**p_{max} = 1500 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 (A).
- Remove pump for expanding the hub from the hub (3).
- Turn the hub (3), drain oil out of the thread G¹/₄ or G³/₄ (c) and dispose correctly.
- Screw the screw plug (19) into the hub (6).
- Remove the hub (3) from the shaft (A).

9.5.3 Dismantling the CENTA-conical clamping hub**See Fig. 6-4:**

- Loosen the screws (22) and screw them out equally about 10mm.
- For each forcing thread (g) screw out a screw (22) and screw them loose into the forcing thread (g).
- Force away the ring (2) by screws (22) of the forcing threads.
- Remove the screw (22).
- Remove the ring (2) with hub (3) off the shaft (A).

9.6 Reassembling the coupling

- Reassemble the coupling as described in chapter 6.

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

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

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

We only provide a warranty for CENTA original parts.

Wearing parts of this coupling:

- Rubber element

When exchanging, all screw connections must be renewed. These must be ordered separately.

When ordering a spare, specify:

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



11 Annex

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

Validity:

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

Preparation of parts that are to be screwed together:

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

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

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

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

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

Screw tightening method:

Screw in (by hand with torque wrench).

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



11.2 CENTA data sheet D033-900

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 CENTAX-N

Model / series code: CX-N / 033N

Installation size: 35...75

Design: all

Serial number: according to shipping documents, if applicable

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

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

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

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

Authorised representative for the compilation of the relevant technical documents:

i.A. J. Anderseck

by order of Gunnar Anderseck
(Authorised Person Documentation)

Declaration of incorporation was issued:

i.v. J. Exner

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

Haan, 14.12.2009