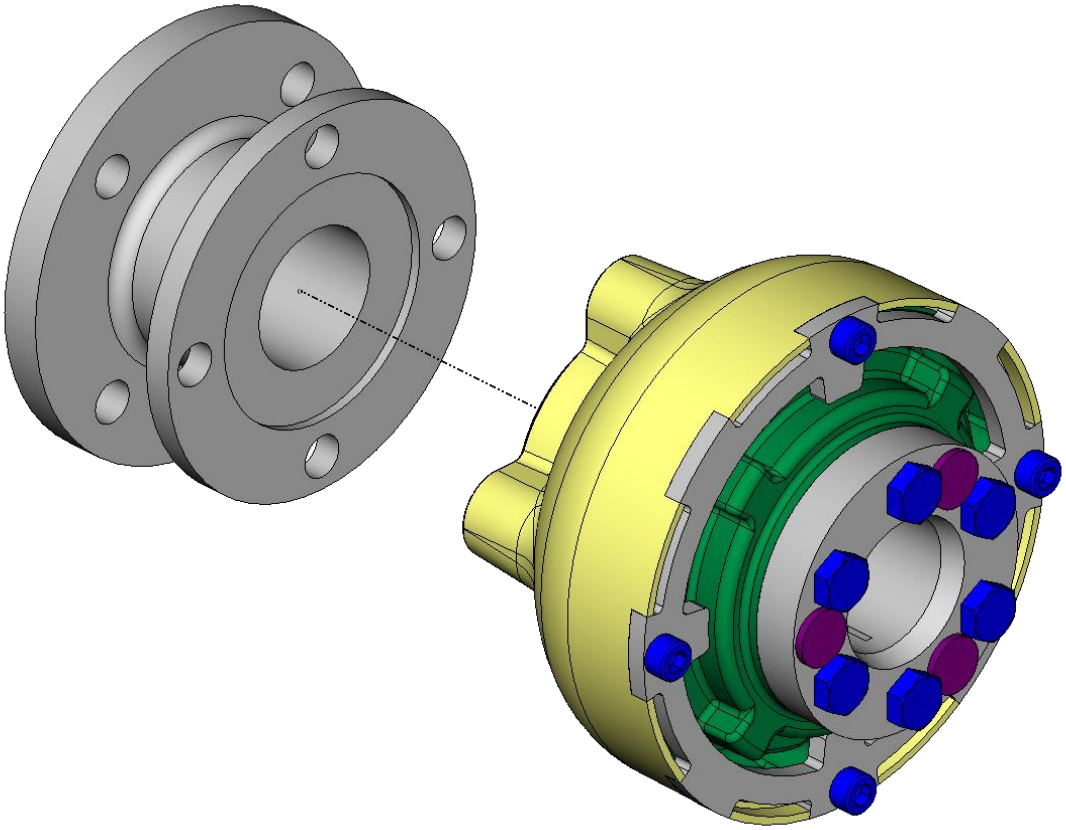
CENTA POWER TRANSMISSION
LEADING BY INNOVATION



CENTAFLEX-M

Assembly and operating instructions
003M-00127...00160-0...
M003-00003-EN
Rev. 1

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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 9001:2008.

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

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

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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 and
- 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 by the persons responsible.

2.1 Qualification of deployed personnel

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

2.2 Warning notes

In the chapters of these assembly and operating instructions warning notes are clearly indicated by **signal words and symbols**.

2.2.1 Signal words

The following signal words are used in warning notes
to warn of **personal injuries**:

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

The following signal word is used in warning notes
to warn of **material damages**:

NOTICE	Denotes a potentially dangerous situation. If not prevented, material damages can result.

2.2.2 Symbols

The following symbols are used in the warning notes:

Warning, hazardous area

Do not switch

Use protective gloves

Use protective goggles

2.3 Application tips

In addition to warning notes in this assembly and operating instructions there are also application tips and particularly useful information provided. These are marked with the signal word IMPORTANT and the symbol shown in the following example:

IMPORTANT
This is an example for an application tip.

2.4 Intended use

The coupling is intended exclusively for use in accordance with the relevant design. It may only be used under the specified conditions.

It is only allowed to perform work with the coupling which is described in this assembly and operating instructions. CENTA bears no liability for damages or operating breakdowns resulting from non-compliance with the assembly and operating instructions.

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 assembly and operating instructions.

2.5 Non-intended use

Death, (serious) injuries or material damages can occur, if the coupling is not used according to the intended use.
Intended use see chapter 2.3.

CENTA bears no liability for damages or operating breakdowns resulting from usage not according to the intended use.

Non-intended use of the coupling is, amongst others, the use of the coupling

- with inadmissibly high torque,
- with inadmissibly high or low speeds,
- with excessively high or low ambient temperature,
- in an inadmissible ambient medium,
- with an inadmissible protective enclosure,
- with exceeded admissible overall misalignment values.

NOTICE	
	**Material damage can occur as result of:** ▪ Changing plant parameters without reviewing and, where applicable, adjustment of the coupling Should there be a change of plant parameters, the coupling design must be reviewed by CENTA.

DANGER	
	**Death or serious injuries can occur as a result of:** ▪ Violation of the safety and accident prevention regulations valid at the respective application site When performing the works described in these instructions always act in compliance with the safety and accident prevention regulations valid at the respective application site.

3 Delivery, transport, storage and disposal

3.1 Delivery

NOTICE	
	**Material damage of coupling parts can occur as result of:** ▪ Corrosion after escaping of the protective atmosphere from the package The coupling is protected against corrosion by its packaging. Therefore only open the package of the coupling when the contents are to be used. Immediately reseal any damage to the package. For inspection purposes only open the wrapping briefly. Wear gloves doing this. After inspection reclose the packaging immediately, so that the protective atmosphere can regenerate itself of its own accord.

- ➢ Check the completeness and correctness of the delivery.
- ➢ Examine the coupling for possible transport damage. Transport damage must be reported immediately to the carrier.

3.2 Transport

WARNING	
	**Death or serious injuries can occur as result of:** ▪ Incorrect transportation of couplings Carefully and appropriately transport the coupling with suitable lifting devices. By doing so, protect it against falling down. Comply with applicable accident prevention regulations. After transportation check the coupling for transport damage.

CAUTION	
	**Injuries can occur as result of:** ▪ Transport damage of the coupling If the coupling has been damaged during transportation, do not use the coupling and confer with CENTA (address see chapter 1).

NOTICE	
	**Material damages can occur as result of:** ▪ Incorrect transportation, falling down or contact with sharp-edged objects Carefully and appropriately transport the coupling with suitable lifting devices. Protect coupling components for transportation. Only hoist coupling components with nylon belts or ropes. Always cushion parts when supporting them from below. Comply with applicable accident prevention regulations.

3.3 Storage

NOTICE	
	**Material damages to elastic elements and rubber parts can occur as result of:** ▪ Incorrect storage Store elastic elements and rubber parts laid flat and so they cannot distort. Store elastic elements and rubber parts protected from ozone, heat, light, moisture and solvents (see also chapter 3.3.2).

NOTICE	
	**Material damages to elastic elements and rubber parts can occur as result of** ▪ Too long storage Store elastic elements and rubber parts maximal 5 years from the production date. Elastic elements and rubber parts are marked where possible with their production date. If the production date of elastic elements and rubber parts can not be determined, confer with CENTA (address see chapter 1).

3.3.1 Storage of couplings and/or elastic elements

- ➢ Store newly delivered parts in their packaging. Immediately reseal any damage to the packaging.
- ➢ Re-pack already unpacked parts. For prolonged periods of storage, enclose desiccant and weld into film.
- ➢ Store the parts in a suitable storage location (see chapter 3.3.2).

3.3.2 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.

3.4 Disposal

- Separate the coupling parts where possible and sort it according to material type.
- Ensure a safe, environmentally responsible disposal of operating supplies and exchange parts. Safely and environmentally friendly dispose of operating and auxiliary materials, packaging material and exchange parts using locally provided recycling facilities. By doing so, comply with the locally provided regulations.

4 Technichal description

4.1 Characteristics

The CENTA coupling series CF-M, -AM, -AGM and -ACV have the following advantages and characteristics:

- Highly torsional elasticity; backlash-free; the torsional vibrations of the drive are damped, especially at low drive speed.
- Sound is damped up to 5 dBA and more, the rubber element of the coupling does not conduct the sound vibration of the drive. Reduced vibration protects all components, especially the electronic equipment.
- The couplings compensate misalignments of any kind, especially angular misalignments, resulting in lower wear of the shaft bearing and the gear.
- The thrust of the propeller (respectively the draft of the propeller at reverse rotation) is transferred from the propeller shaft to the gear respectively to the hull (CF-AGM/ACV).
- The coupling is attached to the cylindrical propeller shaft using a safely dimensioned clamping hub, so that no complex adaption of the propeller shaft is necessary. A length adjustment is easy and the profile of the propeller shaft is not affected by a feather keyway or a bore.
- Simple mounting: The flange connection and the hub will be delivered completely finished or pre-mounted (with appropriate adapter flange).
- The couplings are electrically isolating and protect from damages resulting from electrolysis.

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

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:
$\Delta K_{A\ max}$= ±2 mm

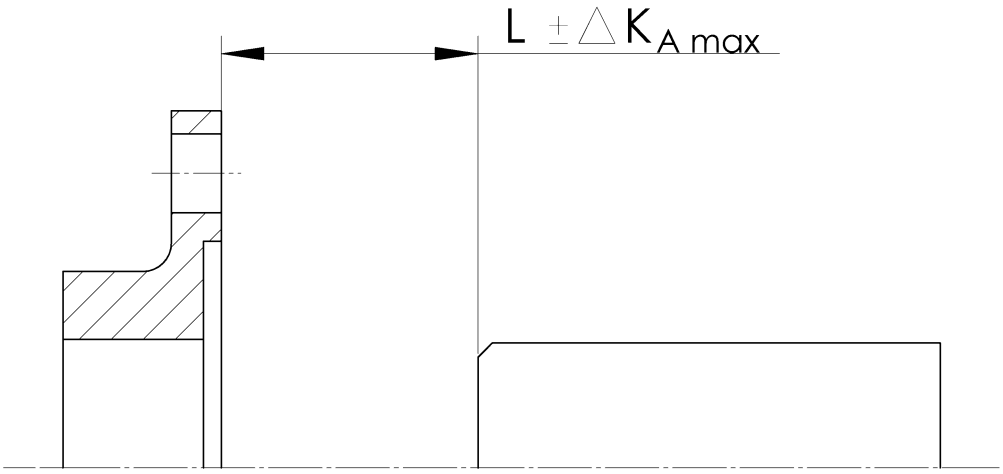

Fig. 5-1 Axial misalignment

5.2 Radial alignment

CAUTION	
	**Material damage to elastically installed engines can occur as a result of:** ▪ Disregard to which extent the engine mounts may settle during alignment During vertical alignment, take into account the extent by which the engine mounts settle. Please enquire about specifications for the degree of settling from the engine manufacturer or engine mounts manufacturer.

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

➢ Align the units (calculated deviation **≤$\Delta K_{R\,max}$**).

Permissible radial alignment tolerance:
$\Delta K_{R\,max}$= 0,1 **mm**

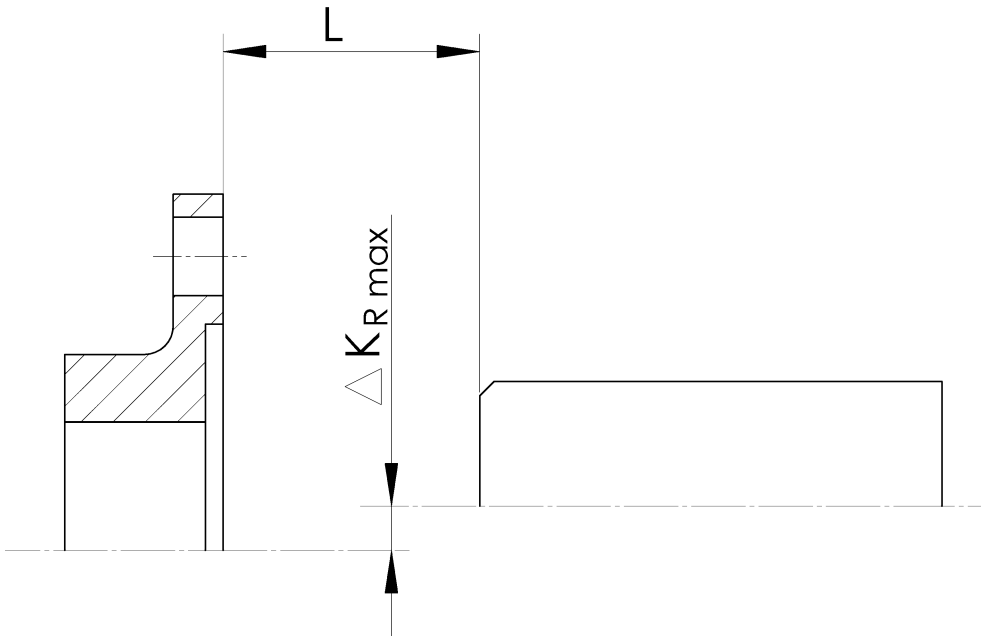

Fig. 5-2 Radial misalignment

5.3 Angular alignment

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

➢ Align the units (calculated deviation **≤$\Delta K_{W\,max}$**).

Permissible angular alignment tolerance:
$\Delta K_{W\,max}$= 0,5°

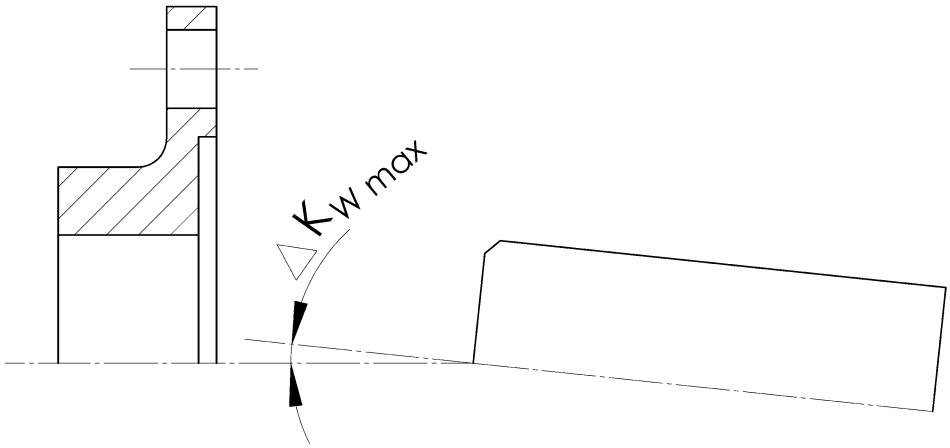

Fig. 5-3 Angular misalignment

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).

DANGER	
	**Death and serious injuries occur as result of:** ▪ Contact with rotating parts Before starting work at the coupling, switch off the plant and secure against unintentional start-up.

DANGER	
	**Death or serious injuries occur as result of:** ▪ Incorrect transportation of the coupling or of parts of the coupling during assembly/dismantling ▪ Falling down or tipping over of the coupling or of parts of the coupling during assembly/dismantling Carefully and appropriately transport the coupling or coupling parts during the assembly/dismantling with suitable lifting devices. During the assembly/dismantling also protect all parts against falling down or tipping over. Comply with applicable accident prevention regulations.

NOTICE	
	**Material damages of coupling parts can occur as result of:** ▪ Incorrect transportation, ▪ falling down, ▪ tipping over or ▪ contact with sharp-edged objects Carefully and appropriately transport the coupling and coupling parts during the assembly/dismantling with suitable lifting devices. Always protect coupling components for transportation. Only hoist coupling parts with nylon belts or ropes. During the assembly/dismantling also protect all parts against falling down or tipping over. Always cushion parts when supporting them from below. Comply with applicable accident prevention regulations.

NOTICE	
	**Material damage can occur as result of:** ▪ Assembly of the coupling in the wrong sequence Only ever assemble the coupling in the sequence described in this chapter.

NOTICE	
	**Material damages on coupling parts can occur as result of:** ▪ Wrong screw preparation and wrong tightening torque levels Screw preparation and tightening torque levels according to CENTA data sheet D013-016 (see chapter 11.1).

NOTICE	
	**Material damages on coupling parts can occur as result of:** ▪ Anaerobic adhesives (e.g. Loctite) used for screw locking Never let anaerobic adhesives come in contact with rubber parts.

NOTICE	
	**Material damages can occur as result of:** ▪ Soiled joint surfaces Keep the surfaces that are to be joined free of dirt, preservatives and lubricants.

IMPORTANT
Part illustration and marking in the assembly and operating instructions may differ from the installation drawing and delivery state.

6.2 Preparing a protective enclosure (if necessary)

DANGER	
	**Death or serious injuries occur as result of:** ▪ Contact with rotating parts or self-loosening of rotating parts In accordance with the applicable accident prevention regulations encase the coupling with a protective enclosure, if it is not already encased by the driving and the driven unit.

A protective enclosure is not part of the scope of supply.

The protective enclosure must fulfil the following functions:

- Providing protection against persons gaining access to rotating parts.
- Restraining any rotating parts which may have worked loose.
- Guaranteeing sufficient ventilation for the coupling.

The protective enclosure must have the following specifications:

- The enclosure must be made of stable steel components.
- The enclosure must be electrically conductive and be included in the equipotential bonding.
- After mounting the enclosure must be positioned a minimum of 15 mm distant from rotating parts.
- In order to ensure an adequate ventilation for the coupling, the enclosure must be fitted with regular openings. For safety reasons, these openings must not exceed the following dimensions:

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

Table 6-1 Shape and size of ventilation holes

➢ Prepare a suitable protective enclosure or let one be manufactured.

6.3 Mounting the adapter (if existent)

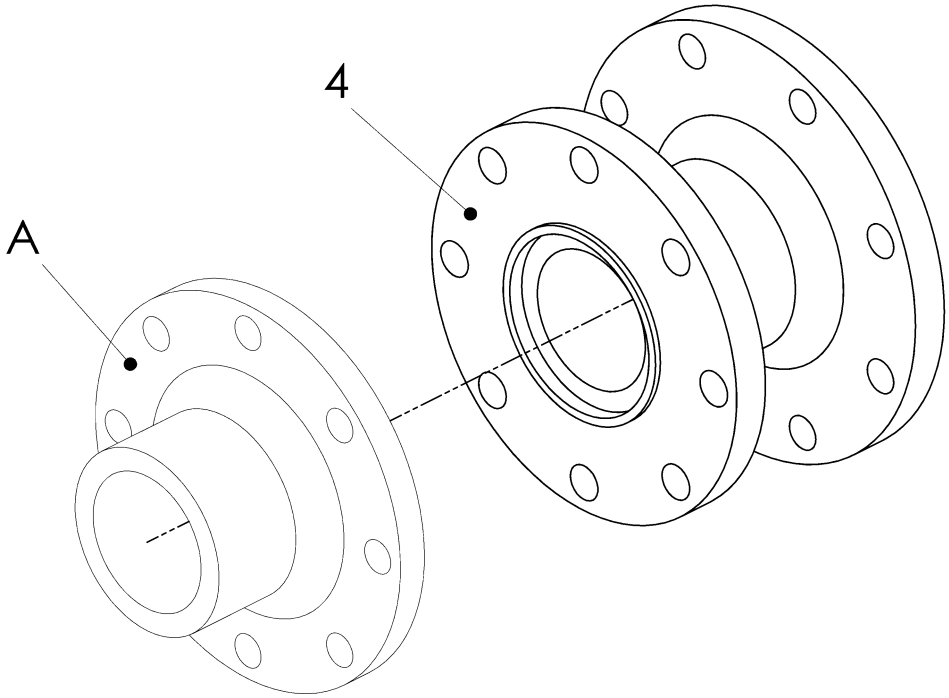

Fig. 6-1 Mounting the adapter

Item	Info	Designation	Remark
8		Adapter	If existing
A		Transmission flange	Customer part

IMPORTANT

Tightening torques for elements to connect couplings with customer parts could deviate from CENTA data sheet D013-016.
Consider specifications on installation drawing.

- Push the adapter (8) onto/into the centring of the transmission flange (A).
- Screw together the adapter (8) and the transmission flange (A).

6.4 Positioning the propeller shaft

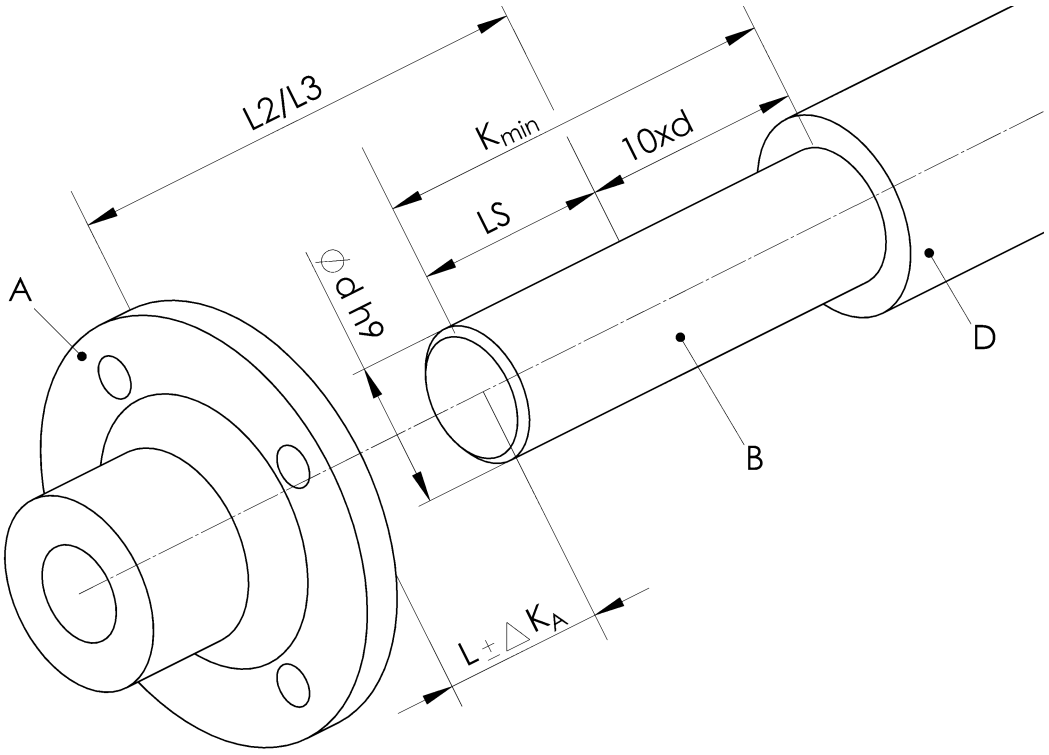

Fig. 6-2 Positioning the propeller shaft

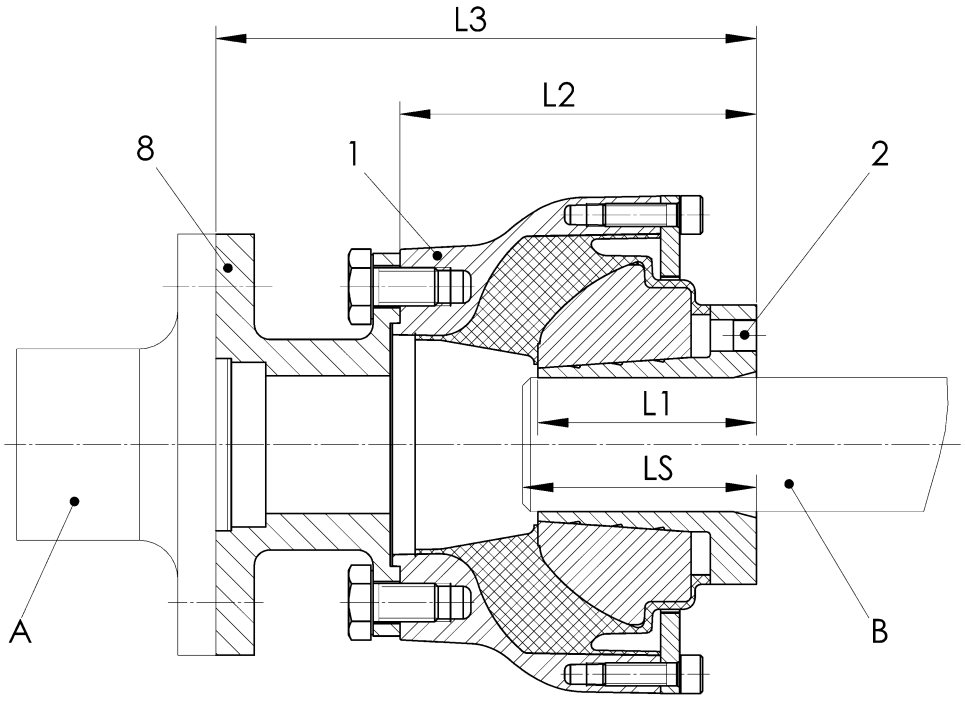

Fig. 6-3 Installation dimensions

Item	Info	Designation	Remark
2		Hub	
8		Adapter	If ordered
A		Transmission flange	Customer part
B		Propeller shaft	Customer part
D		Stern tube	Customer part
K_{min}		Minimal length by which the propeller shaft has to stick out of the stern tube	To be calculated using formula 6-1
L		Installation dimension between adapter (8)/ transmission flange (A) and propeller shaft (B)	L = L2/L3 - L1
L1		Clamping length of the hub (2)	See table 6-2
L2		Installation dimension for couplings without adapter (8)	See installation drawing or catalogue
L3		Installation dimension for couplings with adapter (8)	See installation drawing or catalogue
LS		Installation dimension of the shaft (B) after completed mounting	
	ød	Diameter of the shaft (B)	Tolerance of the shaft: h9 or better

NOTICE	
	**Material damage can occur as a result of:** ▪ Mounting the coupling onto a propeller shaft which is too short Mount the coupling only to a long enough propeller shaft. The shaft length may not be shorter than the dimension **K_{min}**.

- Take the dimensions **L2/L3** from the installation drawing or from the catalogue.
- Take the dimension **L1 and LS** from the following table:

Coupling size CF-M	**L1 [mm]**	**LS_{min} [mm]**	**LS_{max} [mm]**
00127	57	59	80
00160	74	76	110

Table 6-2 Installation dimensions L1 and LS

- Calculate the dimension **K_{min}** using the following formula:

$$K_{min} = L1 + (10 \cdot d)$$
$$K_{min} = \quad + (10 \cdot \quad)$$
$$K_{min} = \quad =======$$

Formula 6-1 Auxiliary dimension K_{min}

IMPORTANT
The dimensions L and **K_{min}** may not be altered during the mounting of the coupling!

- Place the propeller shaft (B) according to the customer instructions in the stern tube (D) and align it axially until
  - the dimension **L±2 mm** is achieved **AND**
  - the propeller shaft (B) sticks out of the stern tube (D) by dimension **K_{min}**.
- Ensure that the propeller shaft (B) does not slip out of the stern tube (D).

6.5 Aligning the driving and the driven unit

- Align the driving unit and the driven unit (see chapter 5).
- Lock the position of the driving and the driven unit using dowel pins or anything similar to make sure, that the aligned position of the driving and the driven unit will not change.

6.6 Preparing the propeller shaft for mounting

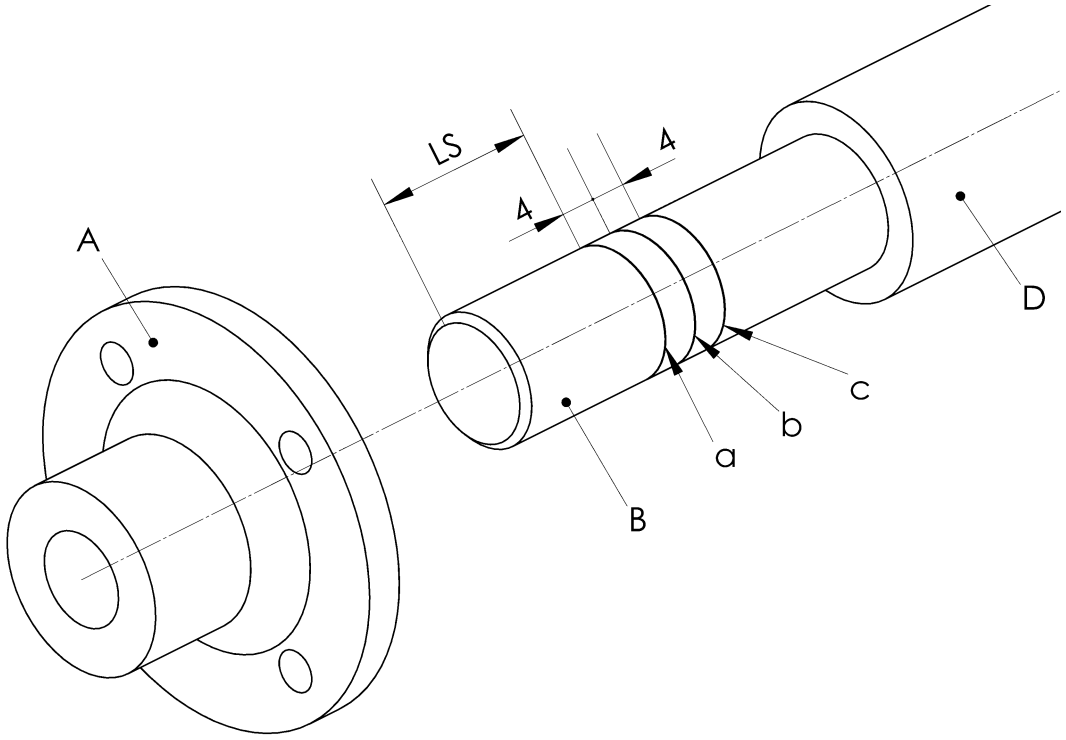

Fig. 6-4 Preparing the propeller shaft for mounting

Item	Info	Designation	Remark
A		Transmission flange	Customer part
B		Propeller shaft	Customer part
D		Stern tube	Customer part
LS		Installation dimension of the shaft (B) after completed mounting	See table 6-2
	a	Mark in transmission direction	
	b	Mark: Dimension LS	
	c	Mark in propeller direction	

- Degrease the surface of the propeller shaft (B).
- Mark the propeller shaft (B) at the distance **LS** (see table 6-2) with the mark (b) using a felt tip pen.
- Mark the propeller shaft (B) at a distance of 4 mm to the mark (b) with the marks (a and c) using a felt tip pen.
- Push the propeller shaft (B) into the stern tube (D) by the dimension **LS + 100 mm**.
- Ensure that the shaft (B) will not shift.

6.7 Mounting the coupling

- Mount the coupling as appropriate for the supplied design (see installation drawing):
  - Screwing together the coupling and the adapter (8), see chapter 6.7.1.
  - Screwing together the coupling and the transmission flange, see chapter 6.7.2.

6.7.1 Screwing together the coupling and the adapter (8)

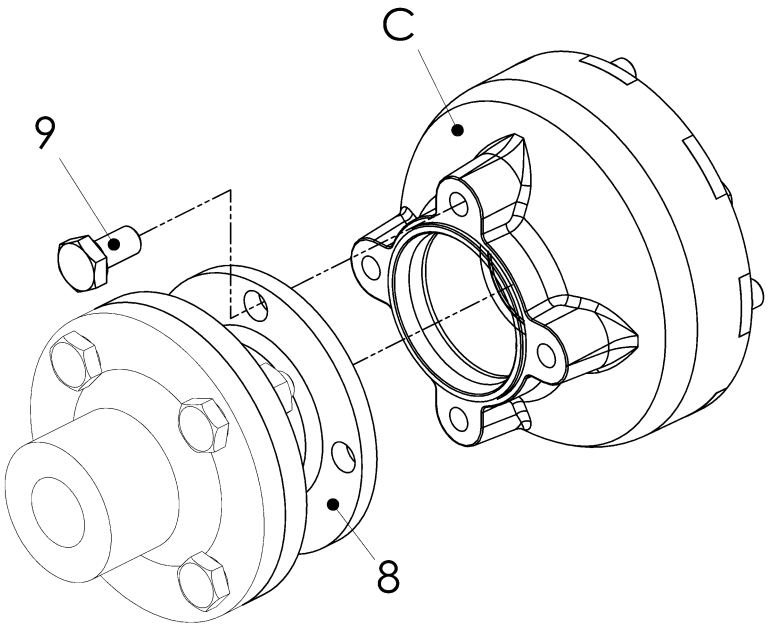

Fig. 6-5 Screwing together the coupling and the adapter (8)

Item	Info	Designation	Remark
8		Adapter	
9		Screw ISO4017 M.. 8-8	
C		Coupling	Pre-mounted by CENTA

IMPORTANT

If **the adapter (8) and the screws (9)**
are delivered with the coupling by CENTA, proceed as described in the following.

If only the adapter, but not the screws, are delivered by CENTA, first determine the permissible screw-in length of the needed screws/ stud screws. For this proceed as described in chapter 6.7.2.1. To connect the adapter (8) with the coupling (C) only use screws/ stud screws, that do not exceed or drop below the permissible screw-in length!

If the adapter and the screws are not delivered by CENTA, mount the coupling (C) to the transmission as described in chapter 6.7.2.

- Push the coupling (C) into the centring of the adapter (8).
- Screw the adapter (8) to the coupling (C) using the screws (9) and tighten the screws using a torque wrench.

6.7.2 Screwing together the coupling and the transmission flange

- Mount the coupling to the transmission flange (A) as appropriate for the supplied design (see installation drawing):
  - Determining the maximum screw-in length, see chapter 6.7.2.1.
  - Screwing the coupling to the transmission flange using screws, see chapter 6.7.2.2

    OR
  - Screwing the coupling to the transmission flange using stud screws, see chapter 6.7.2.3

6.7.2.1 Determining the maximum screw-in length

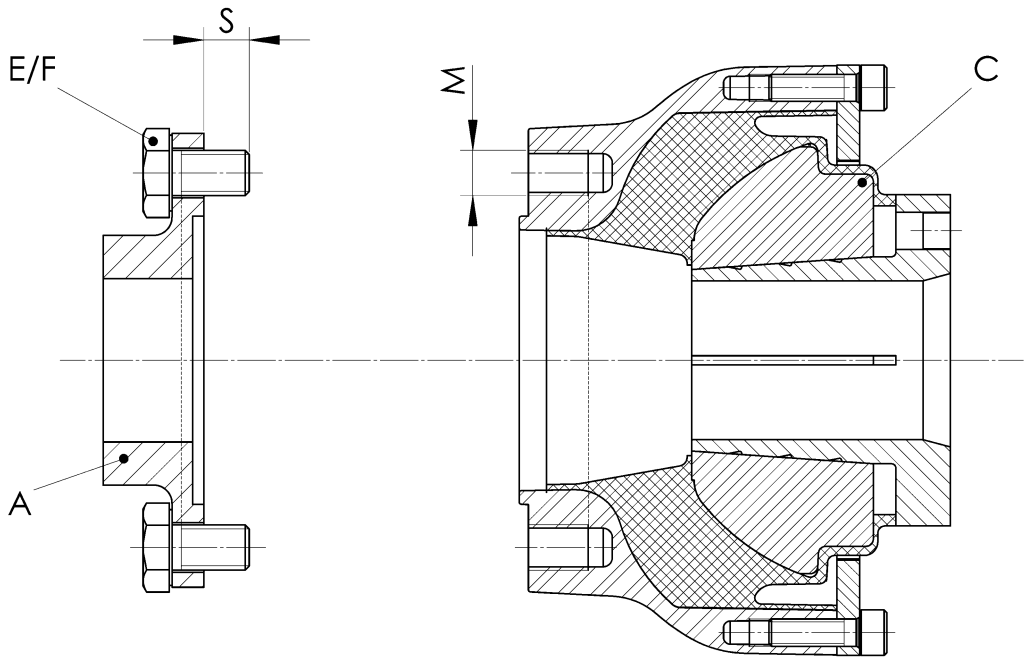

Fig. 6-6 Determining the maximum screw-in length

A		Transmission flange	Customer part
C		Coupling	Pre-mounted by CENTA
E		Screw ISO4017 M.. 8-8	Customer part
F		Stud screw	Customer part shown is the screw (E)
M		Thread diameter	
S		Permissible screw-in length	

NOTICE	
	**Material damages can occur as result of:** ▪ screws / stud screws that are screwed-in too deep into the coupling Ensure that the used screws and/or the stud screws have the correct length. If necessary, shorten the screws and/or stud screws.

➢ Take the permissible screw-in lengths S from the following table and choose appropriate screws (E)/stud screws (F) for further mounting:

Coupling size CF-M	**Thread diameter**	**Smallest permissible screw-in length S_{min} [mm]**	**Largest permissible screw-in length S_{max} [mm]**
00127	M8	8	12
	M10	10	
00160	M8	8	14
	M10	10	
	M12	12	

Table 6-3 Permissible screw-in lengths of screws and stud screws

6.7.2.2 Screwing the coupling to the transmission flange using screws

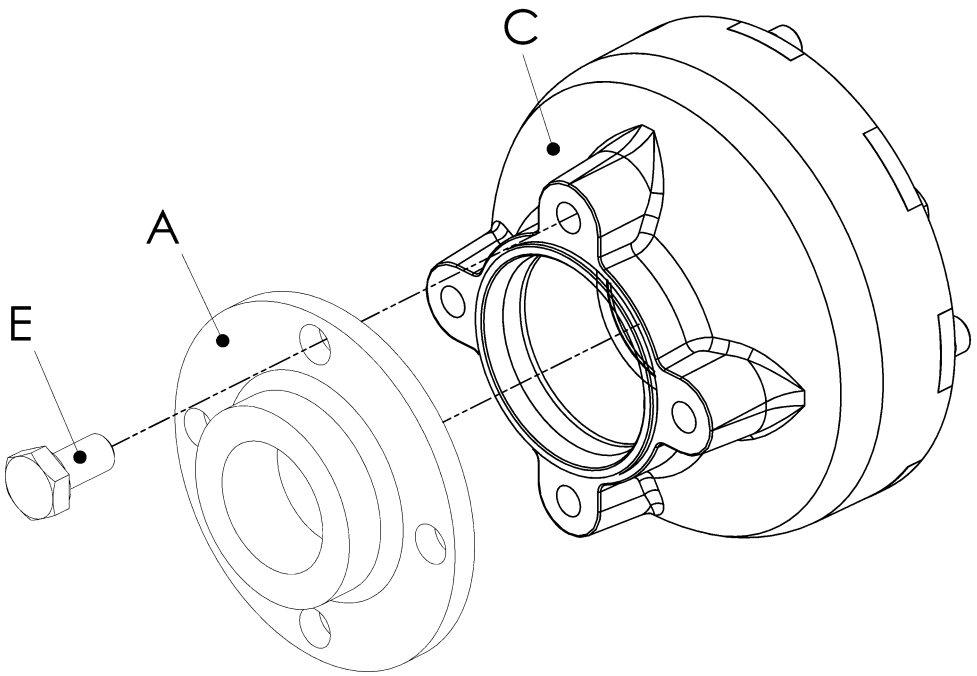

Fig. 6-7 Screwing the coupling to the transmission flange using screws

Item	Info	Designation	Remark
A		Transmission flange	Customer part
C		Coupling	Pre-mounted by CENTA
E		Screw ISO4017 M.. 8-8	Customer part

NOTICE

Material damages can occur as result of:

- screws that are screwed-in too deep into the coupling

Ensure that the used screws have the correct length, see chapter 6.7.2.1. If necessary, shorten the screws.

- ➢ Push the coupling (C) into the centring of the transmission flange (A).
- ➢ Screw the transmission flange (A) to the coupling (C) using the screws (E) and tighten the screws using a torque wrench.

6.7.2.3 Screwing the coupling to the transmission flange using stud screws

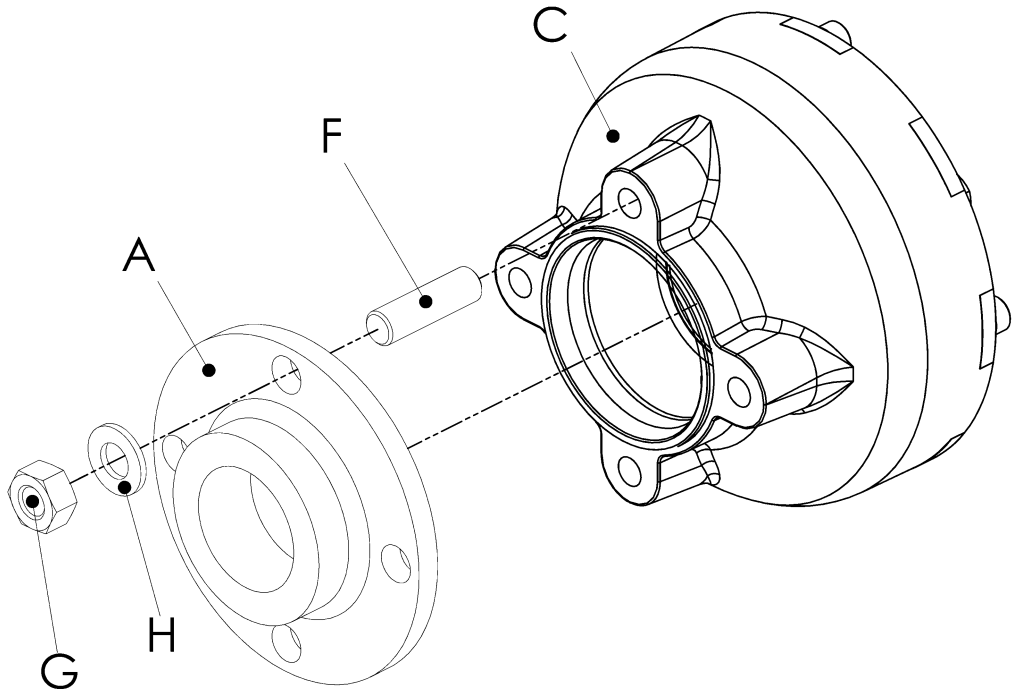

Fig. 6-8 Screwing the coupling to the transmission flange using stud screws

Item	Info	Designation	Remark
A		Transmission flange	Customer part
C		Coupling	Pre-mounted by CENTA
G		Nut	Customer part
H		Washer	Customer part
F		Stud screw	Customer part Length of the short threaded end = 1x thread diameter of the stud screw

NOTICE	
	**Material damages can occur as result of:** ▪ stud screws that are screwed-in too deep into the coupling Ensure that the used stud screws have the correct length, see chapter 6.7.2.1. If necessary, shorten the stud screws.

- Apply a liquid screw locking medium onto the short threaded end of the stud screws (F; length of the short threaded end = 1x thread diameter of the stud screw).
- Screw the stud screws (F) with the short threaded ends into the coupling (C).
- Push the coupling (C) into the centring of the transmission flange (A).
- Screw together the transmission flange (A) and the coupling (C) using the stud screws (F), washers (G) and nuts (H).

6.8 Mounting the propeller shaft

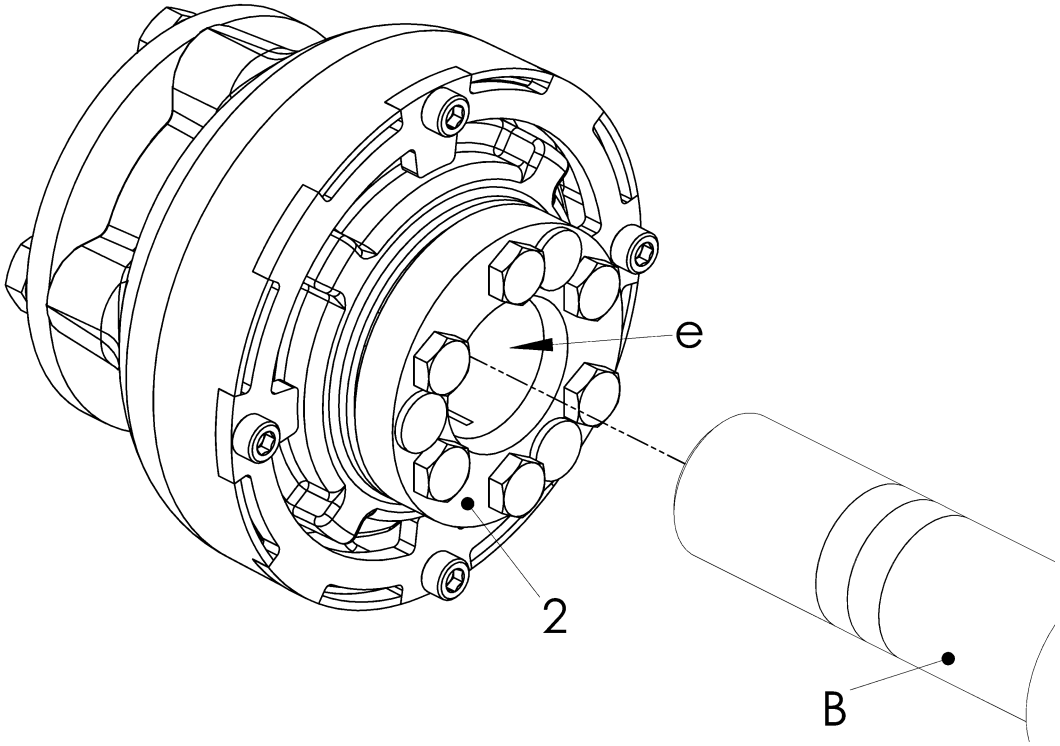

Fig. 6-9 Degreasing the hub (2)

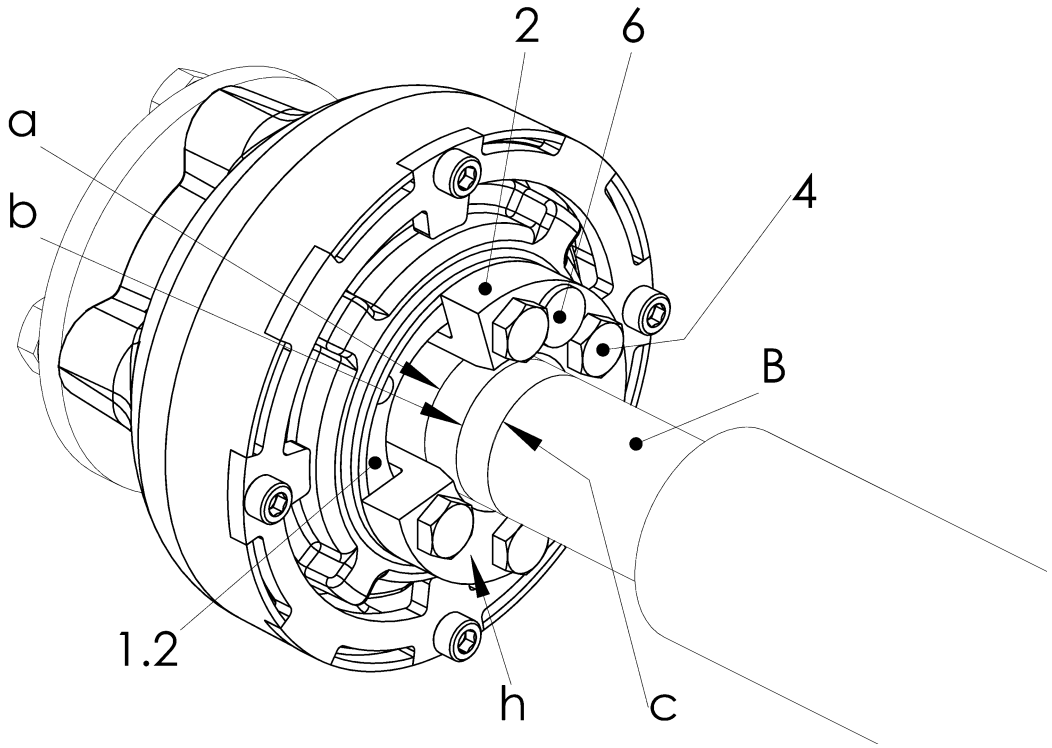

Fig. 6-10 Position of the propeller shaft in the hub (2)

Item	Info	Designation	Remark
1.2		Hub	
2		Hub	
4		Screw ISO4017 M.. 8-8	
B		Propeller shaft	
		Plug	in the forcing threads
	a	Mark in transmission direction	
	b	Mark for dimension LS	See Fig. 6-2 and 6-3
	c	Mark in propeller direction	
	e	Bore of the hub (2)	
	h	Face of the hub (2)	

- Clean and degrease the bore (e) of the hub (2).
- Push the propeller shaft (B) into the hub (2), until the mark (b) and the face of the hub (h) are aligned.
- Evenly tighten screws (4) in three steps crosswise using a torque wrench, 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 torque of all screws (4) one after the other and correct it, if necessary.
- Check the position of the propeller shaft (B): The face (h) of the hub (2) has to be positioned between the marks (a and c).

If the face (h) of the hub (2) is not positioned between the marks (a and c):

- Loosen the screws (4) and unscrew them evenly approximately 10 mm.
- Remove the plugs (6) from the forcing threads.
- Unscrew one screw (4) for each forcing thread and screw it loosely into a forcing thread.
- Push the hub (2) out of the hub (1.2) using the screws (4) in the forcing threads.
- Reposition the propeller shaft (B) in the hub (2): Push the propeller shaft (B) into the hub (2) up to the mark (b). If necessary adjust the axial position of the shaft (B).
- Tighten the screws (4) using a torque wrench as described above.
- Check the position of the propeller shaft (B) again: If the face (h) of the hub (2) is not positioned between the marks (a und c), repeat the procedure described in this section.

6.9 After completed mounting

WARNING	
	**Death, serious injuries or material damages can occur as result of:** ▪ Loose screw connections Before commissioning, check the tightening torque level of all screws and correct it, if necessary.

6.10 Mounting the protective enclosure (if necessary)

➢ Mount the prepared protective enclosure.

6.11 Test run

➢ Before commencing long-term operation, carry out a test run of the plant.

7 Operation

NOTICE	
	**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		• Switch off the plant
Running noises or vibrations in the unit	Alignment error	• Check alignment and correct • Check screw torque levels and correct
	Loose screws	
Rubber element damaged	Alignment error	• Replace defective parts • Check alignment and correct • Eliminate the cause for inadmissibly high torque
	Inadmissibly high torque	
After all remedies		• 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

DANGER	
	**Death and serious injuries occur as 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 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).

DANGER	
	**Death and serious injuries occur as result of:** ▪ Contact with rotating parts Before starting work at the coupling, switch off the plant and secure against unintentional start-up.

DANGER	
	**Death or serious injuries occur as result of:** ▪ Incorrect transportation of the coupling or of parts of the coupling during assembly/dismantling ▪ Falling down or tipping over of the coupling or of parts of the coupling during assembly/dismantling Carefully and appropriately transport the coupling or coupling parts during the assembly/dismantling with suitable lifting devices. During the assembly/dismantling also protect all parts against falling down or tipping over. Comply with applicable accident prevention regulations.

NOTICE	
	**Material damages of coupling parts can occur as result of:** ▪ Incorrect transportation, ▪ falling down, ▪ tipping over or ▪ contact with sharp-edged objects Carefully and appropriately transport the coupling and coupling parts during the assembly/dismantling with suitable lifting devices. Always protect coupling components for transportation. Only hoist coupling parts with nylon belts or ropes. During the assembly/dismantling also protect all parts against falling down or tipping over. Always cushion parts when supporting them from below. Comply with applicable accident prevention regulations.

NOTICE	
	**Material damage can occur as result of:** ▪ Dismantling of the coupling in the wrong sequence Only ever assemble the coupling in the sequence described in this chapter.

9.2 Dismantling the propeller shaft

See Fig. 6-10 and 6-9:

- ➢ Loosen the screws (4) and unscrew them evenly approximately 10 mm.
- ➢ Remove the plugs (6) from the forcing threads.
- ➢ Unscrew one screw (4) for each forcing thread and screw it loosely into a forcing thread.
- ➢ Push the hub (2) out of the hub (1.2) using the screws (4) in the forcing threads.
- ➢ Pull the propeller shaft (B) out of the hub (2).

9.3 Dismantling the coupling

- ➢ Dismantle the coupling as appropriate for the supplied design (see installation drawing):
  - ➢ Dismantling the coupling from the adapter (8), see chapter 9.3.1.
  - ➢ Dismantling the coupling from the transmission flange (A), see chapter 9.3.2.

9.3.1 Dismantling the coupling from the adapter (8)

See fig. 6-5:

- ➢ Loosen and remove the screws (9) of the connection adapter (8) and coupling (C).
- ➢ Pull the coupling (C) from the centring of the adapter (8) and remove it.

9.3.2 Dismantling the coupling from the transmission flange (A)

See fig. 6-8 or 6-7:

- ➢ Loosen and remove the screwing of the connection transmission flange (A) and coupling (C).
- ➢ Pull the coupling (C) from the centring of the transmission flange (A) and remove it.

9.4 Preparing the coupling for re-mounting

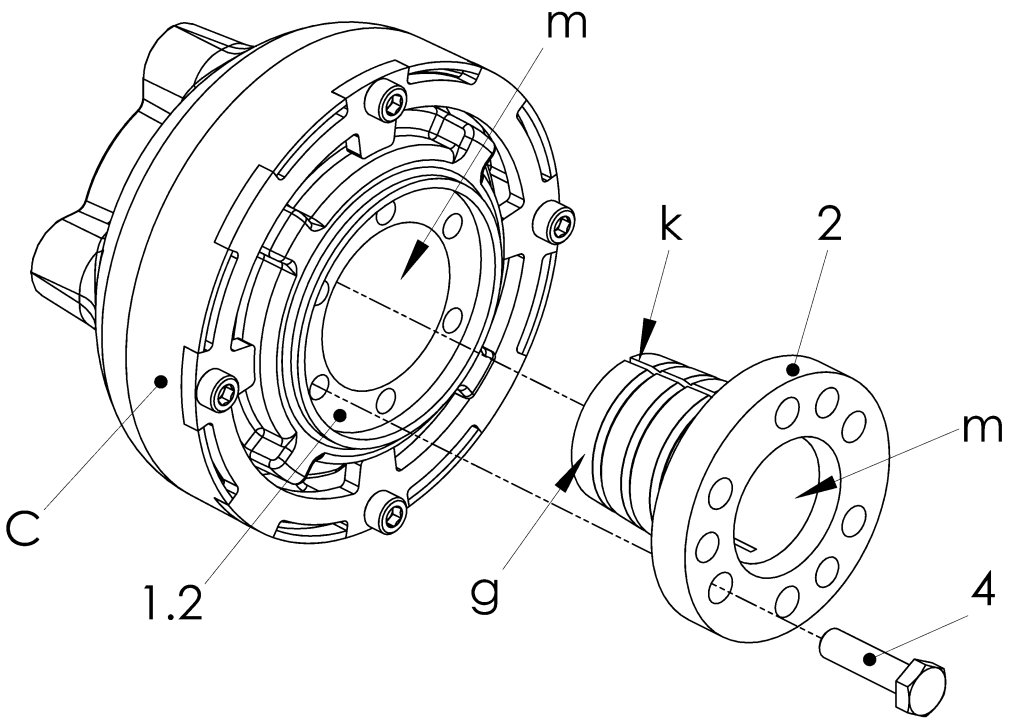

Fig. 9-1 Preparing the coupling for re-mounting

Item	Info	Designation	Remark
1.2		Hub	
2		Hub	
4		Screw ISO4017 M.. 8.8 VC	
C		Coupling	
	g	Conical surface	
	k	Area around the slots	
	m	Inner surface	

- Loosen and remove the screws (4).
- Pull the hub (2) out of the hub (1.2).
- Clean and degrease the conical surface (g) of the hub (2).
- Clean and degrease the inner surface (m) of both hubs (1.2 and 2).
- Lightly oil the conical surface (g) of the hub (2). By doing this, avoid the areas around the slots (k).
- Push the hub (2) into the hub (1.2) and screw both parts hand-tight together using new screws (4).

9.5 Dismantling the adapter (if existent)

See fig. 6-1:

- Loosen and remove the screws of the connection transmission flange (A) and adapter (8).
- Pull the adapter (8) off/from the centring of the transmission flange (A) and remove it.

9.6 Reassembling the coupling

- Reassemble the coupling as described in chapter 6.

10 Wearing and spare parts

WARNING	
	**Serious injuries and material damages can occur as result of:** ▪ Mounting and/or utilization of non-original CENTA parts Only use CENTA original 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:

- Coupling

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).

Thread size				Thread size			
d	Strength class	Tightening torques [Nm] ±5%	Tightening torques [in lbs] ±5%	d	Strength class	Tightening torques [Nm] ±5%	Tightening torques [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 D003-900 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-M
Model / series code:	CF-M / 003M
Installation size:	127...160
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 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. S. Anderseck

by order of Gunnar Anderseck
(Authorised Person Documentation)

Declaration of incorporation was issued:

i.V. J. Exner

Haan, 11.12.2009

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