

## CENTAFLEX-KF

Assembly and operating instructions

014F-00094...00098

M014-00004-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 9001:2000.

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



### **IMPORTANT**

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

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

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

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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



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

- Work at the coupling which is not described in these instructions
- Only carry out work which is described in these operating instructions.

### 2.3 Intended application

#### WARNING



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

- Application not in compliance with the intended use
- The couplings are intended exclusively for use in accordance with the relevant design. They may only be used under the specified conditions.

**WARNING**



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

- Contact with rotating parts

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

**Exception:**

The coupling is encased by the driving and driven units.

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

This enclosure must fulfil the following criteria:

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

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


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

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

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

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

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

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

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

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





### 3 Delivery, transport, storage and disposal

#### 3.1 Delivery

After delivery, the coupling:

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


#### 3.2 Transport

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

Following transportation damage:

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

### 3.3 Storage

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

#### 3.3.1 Storage location

Requirements imposed on the storage location:


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

For more details, refer to DIN 7716.

#### 3.3.2 Storage of couplings / flexible elements

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

### 3.4 Disposal

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

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



## **4 Technical description**

### **4.1 Characteristics**

CENTAFLEX-KF – a very cost efficient torsionally stiff and light weight coupling for the application in diesel hydraulic drives. A good choice where compensation of radial misalignments of up to 0.7 mm and temperature resistance up to a short-termed maximum of 120°C – specially in sealed machines – are an issue.

High torsional stiffness for subcritical operation. Axially short build, a special advantage for flywheel connections. Easy adaption to many flywheel and hub connections ensure flexibility of your drive.






### **4.2 Specifications**

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

## 5 Mounting

### 5.1 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).

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

**CAUTION**

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

- Anaerobic adhesives (e.g. Loctite) used for screw locking

This type of screw locking medium may not be in contact with rubber parts.

**IMPORTANT**

- Screw preparation and tightening torque levels in accordance with CENTA data sheet D013-017 (see chapter 10.1).
- Use suitable lifting devices for assembly.
- Elements for connection of the coupling to customer components do not form part of the delivery.
- Part illustration and marking may differ slightly from installation drawing and delivery state.

## 5.2 Mounting the coupling to the flywheel

 **IMPORTANT**

Ensure during installation on the right mounting position. The right position is shown in the installation drawing.

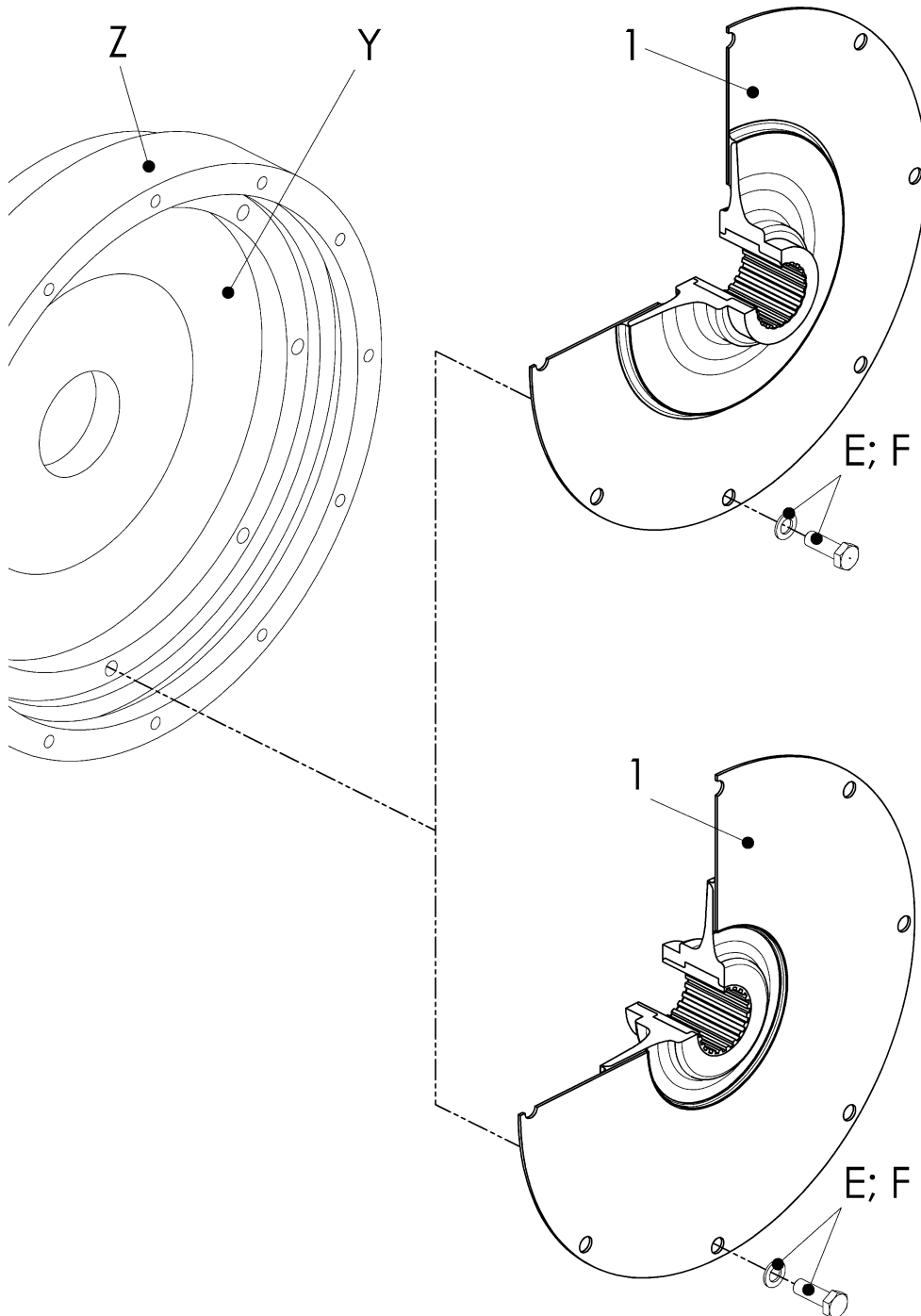


Fig. 5-1 Mounting the coupling to the flywheel

Item	Info	Designation	Remark
1		Coupling	
E		Screw	Customer part
F		Washer ISO7092	Customer part; is not absolutely necessary
Y		Flywheel	Customer part
Z		Flywheel housing	Customer part

### WARNING


**Injuries and material damages can occur as a result of:**

- Incorrect screw firmness and tightening torque at screw connections on SAE flywheels

Screws and tightening torques according to CENTA data sheet D013-017 (see Annex).

- Push the coupling (1) according to the mounting position (**see installation drawing**) into the centring of the flywheel (Y).
- Screw the coupling (1) to the flywheel (Y) using the screws (E) and washers (F; if existing).

### 5.3 Connecting the driving and the driven units

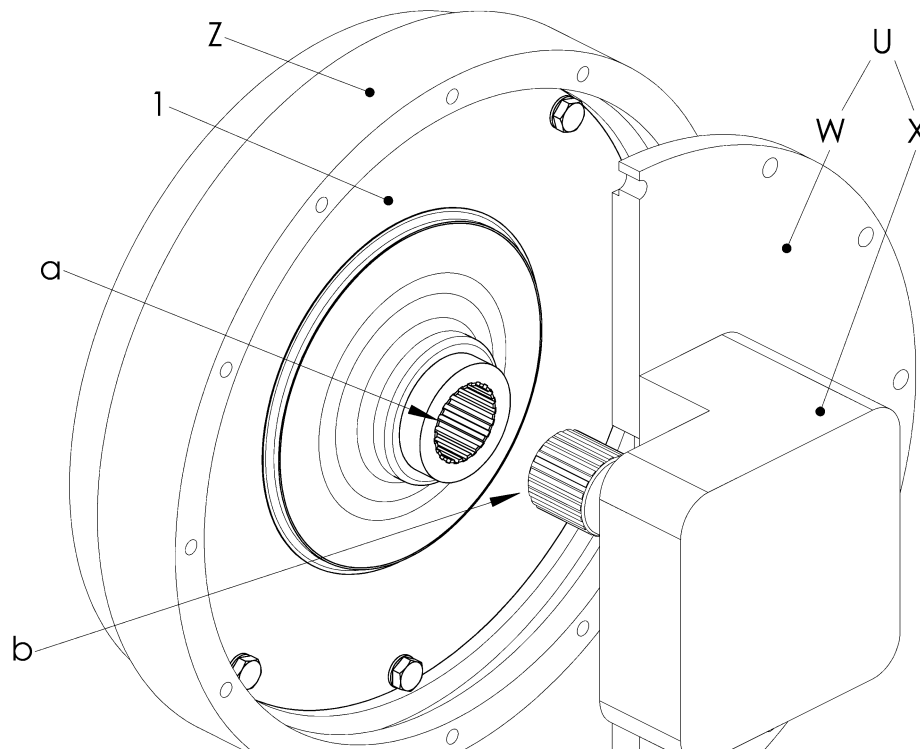


Fig. 5-2 Correctly fitted tothing of design

Item	Info	Designation	Remark
1		Coupling	
Z		Flywheel housing	Costumer part
W		Adapter	Pump side; costumer part
X		Shaft of pump	Costumer part
U		Pre-mounted driven side	Costumer parts
	a	Tothing of the coupling	
	b	Tothing of the pump shaft	costumer part

- Turn the driven side (U) towards the coupling (1) until it is possible to push the tothing of the pump shaft (b) into the tothing of the coupling (a).
- Push together the pre-mounted driven side (U) and the flywheel housing (Z). By doing so, push the tothing of the pump shaft (b) of the pump into the tothing of the coupling (a).
- Connect the adapter (W) of the pre-mounted driven side (U) and the flywheel housing (Z) according to the instructions of the manufacturer.



**5.4 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.

## 6 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.

### 6.1 Operating faults, root causes and remedy

Faults	Possible root causes	Remedy
Prior to all kinds of remedies		<ul style="list-style-type: none"> <li>• Switch off the plant</li> <li>• Disconnect the driving and the driven units</li> </ul>
Running noises or vibrations in the unit	Loose screws	<ul style="list-style-type: none"> <li>• Check screw torque levels and correct</li> </ul>
Fracture of elastic element(s)	Inadmissibly high torque	<ul style="list-style-type: none"> <li>• Replace defective parts</li> <li>• Eliminate the cause for inadmissibly high torque</li> </ul>
After all remedies		<ul style="list-style-type: none"> <li>• Connect the driving and the driven units</li> <li>• Trial run</li> </ul>

*Table 6-1 Troubleshooting table*

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

### 6.2 Admissible overall misalignment of the coupling

The overall misalignment values can be found in the catalogue.

## 7 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.

### 7.1 Work to be performed

#### 7.1.1 Cleaning the coupling

- Remove any loose dirt from the coupling.

#### 7.1.2 Visual inspection of the coupling

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

#### 7.1.3 Visual inspection of the elastic element/-s

**IMPORTANT**

Exchange the elastic element/-s in the event of damage.

- Check the elastic element/-s for cracks.

#### 7.1.4 Inspection of the screw connections

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

### 7.2 Replacing defective parts

- Remove the coupling as described in chapter 8.
- Replace wearing parts.
- Mount the coupling as described in chapter 5.

## 8 Dismantling

### 8.1 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 5.

#### **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.

## **8.2 Disconnecting the driving and driven units**

**See fig. 5-2:**

- Loosen and remove the screws of the connection adapter (W) of the pre-mounted driven side (U) and the flywheel housing (Z).
- Pull the pre-mounted driven side (U) and the flywheel housing (Z) apart.

## **8.3 Dismantling the coupling**

**See fig. 5-1:**

- Loosen and remove the screwing of the connection coupling (1) and the flywheel (Y).
- Pull and remove the coupling (1) out of the centring of the flywheel (Y).

## **8.4 Reassembling the coupling**

- Reassemble the coupling as described in chapter 5.

## 9 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:

- The Coupling It is delivered ready for installation.

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.



## 10 Annex

### 10.1 CENTA data sheet D013-017 (SAE flywheel screw connection)

**Validity:**

For all dynamically non-stressed screw connections on SAE flywheels with headless screws according to ISO 4014, ISO 4017 and ISO 4762 (DIN 912) with standard metric thread according to DIN ISO 262 and further threads indicated in the following table, if no deviating data are specified in CENTA documents.

**Preparation of components to be screwed**

Joining areas must be free of dirt, preservative and lubricant agents.

**Preparation of oiled screws:**

Additionally lubricate screws under the screw head and on the thread with motor oil.

Use tightening torque for **oiled** screws.

**Preparation of non-oiled screws:**

Use screws as delivered.

Use tightening torque for **non-oiled** screws.

**Screw tightening procedure:**

rotating (by hand with torque wrench).

Flywheel SAE J620c		Thread size	Strength class	Tightening torques for			
				non-oiled screws		oiled screws	
				[Nm] ±5%	[in lbs] ±5%	[Nm] ±5%	[in lbs] ±5%
165	6 ½	M8	DIN 8.8 or 10.9	23	205	21	185
		5/16-18	SAE 5 or 8	24	212	18	160
190	7 ½	M8	DIN 8.8 or 10.9	23	205	21	185
		5/16-18	SAE 5 or 8	24	212	18	160
200	8	M10	DIN 8.8 or 10.9	46	410	41	360
		3/8-16	SAE 5 or 8	42	370	31	275
255	10	M10	DIN 8.8 or 10.9	46	410	41	360
		3/8-16	SAE 5 or 8	42	370	31	275
290	11 ½	M10	DIN 8.8 or 10.9	46	410	41	360
		3/8-16	SAE 5 or 8	42	370	31	275
355	14	M12	DIN 8.8 or 10.9	79	700	71	630
		1/2-13	SAE 5 or 8	100	885	77	680
405	16	M12	DIN 8.8 or 10.9	79	700	71	630
		1/2-13	SAE 5 or 8	100	885	77	680
460	18	M16	DIN 8.8 or 10.9	195	1725	170	1500
		5/8-11	SAE 5 or 8	205	1820	155	1370
530	21	M16	DIN 8.8 or 10.9	195	1725	170	1500
		5/8-11	SAE 5 or 8	205	1820	155	1370
610	24	M18	DIN 8.8 or 10.9	245	2170	245	2170
		3/4-10	SAE 5 or 8	360	3200	270	2400



**10.2 CENTA data sheet D014-902**

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

Manufacturer:

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centa@centa.de  
www.centa.info

We herewith declare that the **incomplete** machine

Product: Torsionally stiff coupling CENTAFLEX-KF

Model / series code: CF-KF / 014F

Installation size: 089...098

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, 05.10.2015