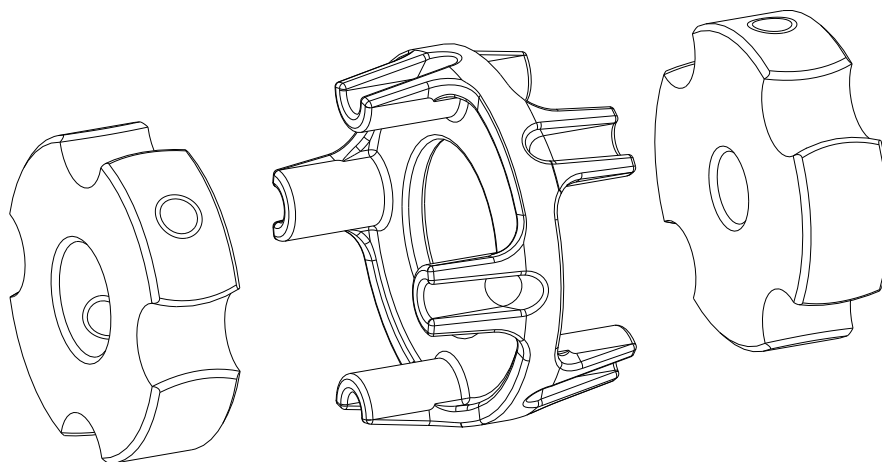


# COUNTEX®





Torsionally stiff, backlash-free shaft coupling

according to directive 2014/34/EU and UK directive SI 2016 No. 1107



**COUNTEX®** is a backlash-free shaft coupling which was specifically developed for shaft encoders. It is able to compensate for shaft misalignment, for example caused by manufacturing inaccuracies, thermal expansion, etc.

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## 1 Technical data

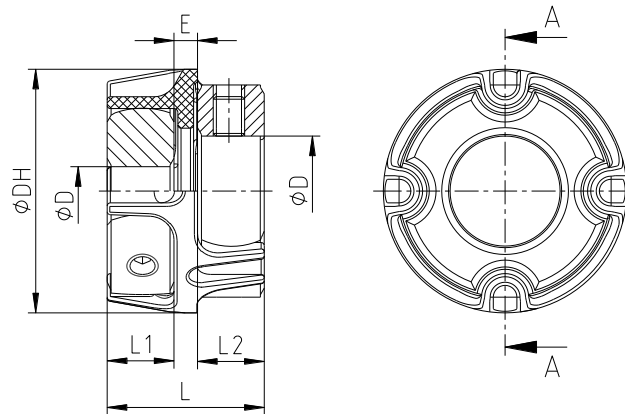


Illustration 1: COUNTEX®

**Table 1: Dimensions**

Size	Dimensions [mm]					
	Finish bore D		DH	L1, L2	E	L
	Min.	Max.				
6	2	6	15	4	4.0	12.0
12	2	12	22	6	3.5	15.5
14	5	14	31	8	4.0	20.0

**Table 2: Technical data**

Size	Torque [Nm]		Torsion spring stiffness $C_T$ [Nm/rad]	Radial stiffness $C_r$ [N/mm]	Axial restoring force $F_A$ [N]
	$T_{KN}^{1)}$	$T_{Kmax}^{2)}$			
6	0.3	0.6	48	26	10
12	0.5	1.0	120	65	25
14	1.0	2.0	235	70	27

Operating temperature -40 °C to +160 °C.

- 1)  $T_{KN}$  = Rated torque of coupling which can be permanently transmitted taking into account the permissible displacements.  
 2)  $T_{Kmax}$  = Maximum torque of the coupling which can be transmitted during the overall service life of the coupling taking into account the permissible displacements as pulsating load  $\geq 10^5$  times or as alternating load  $5 \cdot 10^4$ , respectively.

## 2 Advice

### 2.1 General advice

Please read through these operating/assembly instructions carefully before you start up the coupling.  
 Pay special attention to the safety instructions!



The **COUNTEX®** coupling is suitable and approved for the use in potentially explosive atmospheres. When using the coupling in potentially explosive atmospheres, observe the special advice and instructions regarding safety in enclosure A.

The operating/assembly instructions are part of your product. Please store them carefully and close to the coupling. The copyright for these operating/assembly instructions remains with KTR.

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## 2 Advice

### 2.2 Safety and advice symbols



**Warning of potentially explosive atmospheres**

This symbol indicates notes which may contribute to preventing bodily injuries or serious bodily injuries that may result in death caused by explosion.



**Warning of personal injury**

This symbol indicates notes which may contribute to preventing bodily injuries or serious bodily injuries that may result in death.



**Warning of product damages**

This symbol indicates notes which may contribute to preventing material or machine damage.



**General advice**

This symbol indicates notes which may contribute to preventing adverse results or conditions.



**Warning of hot surfaces**

This symbol indicates notes which may contribute to preventing burns with hot surfaces resulting in light to serious bodily injuries.

### 2.3 General hazard warnings



**With assembly, operation and maintenance of the coupling it has to be made sure that the entire drive train is secured against accidental switch-on. You may be seriously hurt by rotating parts. Make absolutely sure to read through and observe the following safety indications.**

- All operations on and with the coupling have to be performed taking into account "safety first".
- Make sure to switch off the power pack before you perform your work on the coupling.
- Secure the power pack against accidental switch-on, e. g. by providing warning signs at the place of switch-on or removing the fuse for current supply.
- Do not reach into the operating area of the coupling as long as it is in operation.
- Secure the coupling against accidental contact. Provide for the necessary protection devices and covers.

### 2.4 Proper use

You may only assemble, operate and maintain the coupling if you

- have carefully read through the operating/assembly instructions and understood them
- are technically qualified and specifically trained (e. g. safety, environment, logistics)
- are authorized by your company

The coupling may only be used in accordance with the technical data (see chapter 1). Unauthorized modifications on the coupling design are not admissible. We will not assume liability for any damage that may arise. In the interest of further development we reserve the right for technical modifications.

The **COUNTEX®** described in here corresponds to the technical status at the time of printing of these operating/assembly instructions.



**2 Advice**

**2.5 Reference to EC Machinery Directive 2006/42/EC**

The couplings supplied by KTR should be considered as components, not machines or partly completed machines according to EC Machinery Directive 2006/42/EC. Consequently KTR does not have to issue a declaration of incorporation. For details about safe assembly, start-up and safe operation refer to the present operating/assembly instructions considering the warnings.

**3 Storage, transport and packaging**

**3.1 Storage**

The coupling hubs made of steel are supplied in preserved condition and can be stored in a dry and roofed place for 6 - 9 months.

The coupling hubs made of aluminium can be stored in a dry and roofed place for 6 - 9 months.

The features of the spacer remain unchanged for up to 7 years in case of favourable storage conditions.



**The storage rooms must not include any ozone-generating devices like e. g. fluorescent light sources, mercury-vapour lamps or electrical high-voltage appliances. Humid storage rooms are not suitable.**

**Make sure that condensation is not generated. The best relative air humidity is less than 65 %.**

**3.2 Transport and packaging**



**In order to avoid any injuries and any kind of damage always make use of proper transport and lifting equipment.**

The couplings are packed differently each depending on size, number and kind of transport. Unless otherwise contractually agreed, packaging will follow the in-house packaging specifications of KTR.

## 4 Assembly

The coupling is generally supplied in individual parts. Before assembly the coupling has to be inspected for completeness.

### 4.1 Components of the couplings

#### Components of COUNTEX®, shaft coupling

Component	Quantity	Description
1	2	Hub
2	1	Spacer
3	4	Setscrews DIN EN ISO 4029

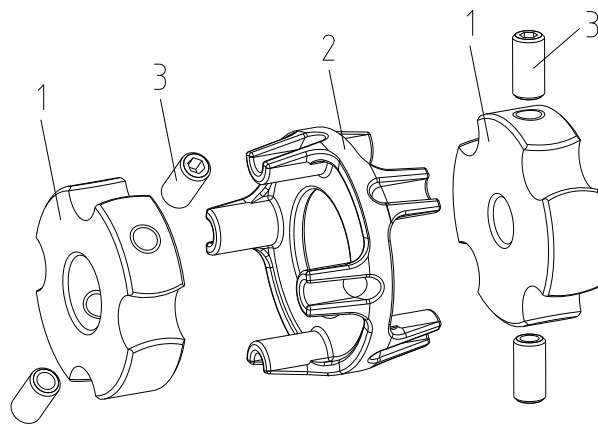


Illustration 2: COUNTEX®

### 4.2 Advice for finish bore



The maximum permissible bore diameters  $D$  (see chapter 1 - technical data) must not be exceeded. If these figures are disregarded, the coupling may tear. Rotating particles may cause danger to life.

- Hub bores machined by the customer have to observe concentricity resp. axial runout (see illustration 3).
- Make absolutely sure to observe the figures for  $\varnothing D$ .
- Carefully align the hubs when the finish bores are drilled.
- Provide for a setscrew according to DIN EN ISO 4029 with a cup point to fasten the hubs axially.

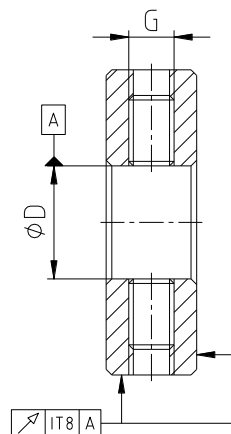


Illustration 3: Concentricity and axial runout



The customer bears the sole responsibility for all machining processes performed subsequently on unbored or pilot bored as well as finish machined coupling components and spare parts. KTR does not assume any warranty claims resulting from insufficient remachining.

## 4 Assembly

### 4.2 Advice for finish bore



KTR supplies unbored or pilot bored coupling components and spare parts only upon explicit request of the customer. These parts are additionally marked with the symbol

#### Reference to unbored resp. pilot bored coupling components with explosion protection marking:

Basically the company KTR Systems GmbH supplies couplings resp. coupling hubs with explosion protection marking as an unbored or pilot bored type only on explicit request of the customer. The prerequisite is a declaration of exemption submitted by the customer assuming any responsibility and liability for respective remachining performed on the product of KTR Systems GmbH.

**Table 3: Setscrew DIN EN ISO 4029**

Size	6	12	14
Dimension G	M2	M3	M4
Tightening torque $T_A$ [Nm]	0.2	0.6	1.5

**Table 4: Recommended fit pairs acc. to DIN 748/1**

Bore [mm]	Shaft tolerance	Bore tolerance
up to $\varnothing 14$	j6	H7 (KTR standard)

If a feather keyway is intended to be used in the hub, it should correspond to the tolerance ISO JS9 (KTR standard) with standard operating conditions or ISO P9 with sophisticated operating conditions (frequently alternating torsional direction, shock loads, etc.). The keyway should preferably be located between the recesses. With axial fastening by the setscrew the tapped hole should be located on the keyway.

The transmittable torque of the shaft-hub-connection must be reviewed by the customer and is subject to his responsibility.

### 4.3 Assembly of the coupling (general)



**We recommend to inspect bores, shaft, keyway and feather key for dimensional accuracy before assembly.**

Before starting with the assembly preserving agents have to be removed from the bores. Moreover, the shaft ends have to be cleaned carefully, too.



**Please note the manufacturer's instructions regarding the use of detergents.**



**Heating the hubs lightly (approx. 80 °C) allows for an easier mounting on the shafts.**



**Please pay attention to the ignition risk in potentially explosive atmospheres!**



**Touching the heated hubs causes burns.  
Please wear safety gloves.**

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4 Assembly

4.3 Assembly of the coupling (general)



With the assembly make sure that the distance dimension E (see table 1) is observed to allow for axial clearance of the spacer when in operation. Disregarding this advice may cause damage to the coupling.



If used in potentially explosive atmospheres the setscrews to fasten the hubs as well as all screw connections must be secured against working loose additionally, e. g. conglutinating with Loctite (average strength).

4.4 Assembly of the coupling

- Mount the hubs on the shaft of driving and driven side (see illustration 4).
- The internal sides of the hubs must be flush with the front sides of the shafts.

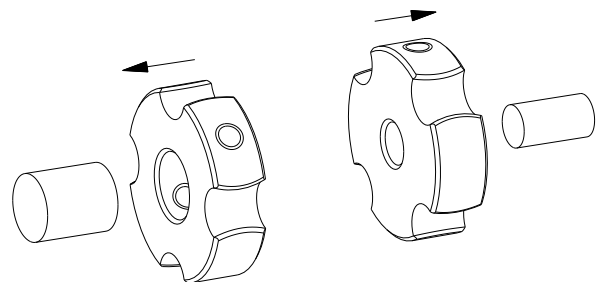


Illustration 4: Assembly of hubs

- Insert the spacer in the keyways of the driving or driven side hub (see illustration 5).

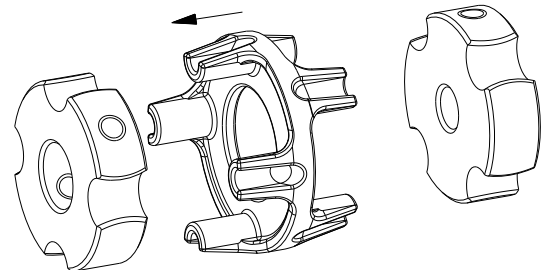


Illustration 5: Assembly of spacer

- Shift the power packs in axial direction until the distance dimension E is achieved (see illustration 6).
- If the power packs are already firmly assembled, shifting the hubs axially on the shafts allows for setting the distance dimension E.
- Fasten the hubs by even and alternating tightening of the setscrews DIN EN ISO 4029 with a cup point (tightening torque see table 3).

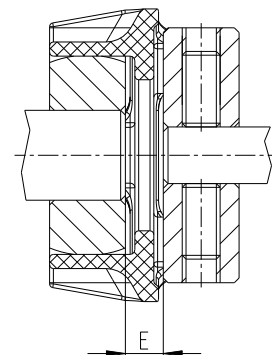


Illustration 6: Assembly of coupling



Having started up the coupling, the wear of the spacer has to be inspected at regular maintenance intervals and it has to be replaced, if necessary.

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**4 Assembly**

**4.5 Displacements - alignment of the couplings**

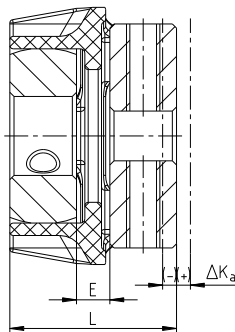
The displacement figures specified in table 4 provide for sufficient safety to compensate for external influences like, for example, thermal expansion or foundation settling.



**In order to ensure a long service life of the coupling and avoid hazards with the use in potentially explosive atmospheres, the shaft ends must be accurately aligned. Please absolutely observe the displacement figures specified (see table 4). If the figures are exceeded, the coupling will be damaged. The more accurate the alignment of the coupling, the longer is its service life.**

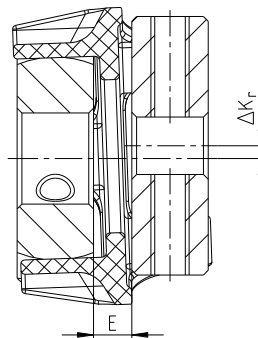
**Please note:**

- The displacement figures specified in table 4 are maximum figures which must not arise in parallel. If radial and angular displacements arise simultaneously, the permissible displacement figures may only be used proportionally (see illustration 7).
- Inspect with a dial gauge, ruler or feeler gauge whether the permissible displacement figures specified in table 4 can be observed.

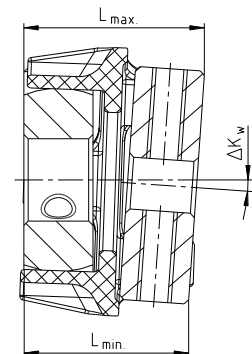


Axial displacements

$$L_{max.} = L + \Delta K_a \text{ [mm]}$$



Radial displacements



Angular displacements

$$\Delta K_w = L_{max.} - L_{min.} \text{ [mm]}$$

Illustration 7: Displacements

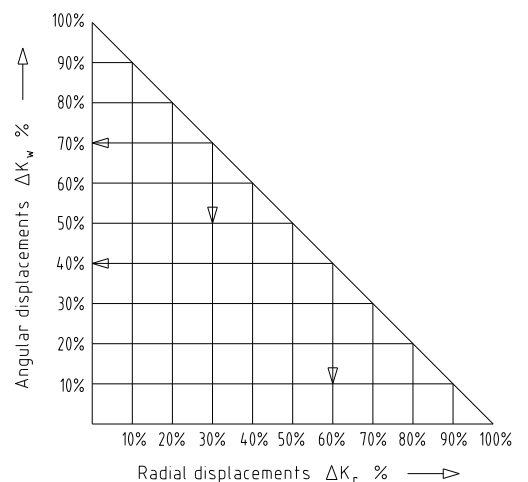
Examples of the displacement combinations specified in illustration 8:

Example 1:  
 $\Delta K_r = 30 \%$   
 $\Delta K_w = 70 \%$

Example 2:  
 $\Delta K_r = 60 \%$   
 $\Delta K_w = 40 \%$

$$\Delta K_{total} = \Delta K_r + \Delta K_w \leq 100 \%$$

Illustration 8:  
Combinations of displacement





## 4 Assembly

### 4.5 Displacements - alignment of the couplings

**Table 4: Displacement figures**

Size	6	12	14
Max. axial displacement $\Delta K_a$ [mm]	-0.3 +0.6	-0.5 +1.0	-0.5 +1.0
Max. radial displacement $\Delta K_r$ [mm]	0.05	0.10	0.12
Max. angular displacement $\Delta K_w$ [degree]	0.36	0.45	0.57
Max. angular displacement $\Delta K_w$ [mm]	0.15	0.30	0.50

## 5 Start-up

Before start-up of the coupling, inspect the tightening of the setscrews in the hubs, the alignment and the distance dimension E and adjust, if necessary, and also inspect all screw connections for the tightening torques specified.



**If used in potentially explosive atmospheres the setscrews to fasten the hubs as well as all screw connections must be secured against working loose additionally, e. g. conglomerating with Loctite (average strength).**

Finally the coupling protection against accidental contact must be fitted. It is required in accordance with DIN EN ISO 12100 (Safety of Machinery) and directives 2014/34/EU and SI 2016 No. 1107 and must protect against

- access with a little finger
- falling down of solid foreign objects.

The coupling protection is not part of KTR's scope of delivery and is the customer's responsibility. It must have sufficient distance to the rotating components to avoid contact safely. We recommend a minimum distance of 5 mm from the outside diameter DH of the coupling.

Please check if a proper enclosure (ignition protection, coupling protection, contact protection) has been mounted and the operation of the coupling is not affected by the enclosure. The same applies for test runs and rotational direction inspections.

The cover may provide for openings intended for necessary heat dissipation. These openings have to comply with DIN EN ISO 13857.

The cover must be electrically conductive and included in the equipotential bonding. Bellhousings (magnesium share below 7.5 %) made of aluminium and damping rings (NBR) can be used as connecting element between pump and electric motor. The cover may only be taken off with standstill of the unit.



**If the couplings are used in locations subject to dust explosion and in mining the user must make sure that there is no accumulation of dust in a dangerous volume between the cover and the coupling. The coupling must not operate in an accumulation of dust.**

**For covers with unlocked openings on the top face no light metals must be used if the couplings are used as equipment of equipment group II (*if possible, from stainless steel*). If the couplings are used in mining (equipment group I M2), the cover must not be made of light metal. In addition, it must be resistant to higher mechanical loads than with use as equipment of equipment group II.**



## 5 Start-up

During operation of the coupling, pay attention to

- different operating noise
- vibrations occurring.



If you note any irregularities with the coupling during operation, the drive unit must be switched off immediately. The cause of the breakdown must be specified by means of the table „Breakdowns“ and, if possible, be eliminated according to the proposals. The potential breakdowns specified can be hints only. To find out the cause all operating factors and machine components must be considered.

### Coating of coupling:



If coated (priming, paintings, etc.) couplings are used in potentially explosive atmospheres, the requirements on conductivity and coating thickness must be considered. With paintings up to 200 µm electrostatic load does not have to be expected. If thicker paintings resp. coatings up to a layer thickness of a maximum of 2.0 mm are applied, the couplings are not permissible for gases and vapours of category IIC in potentially explosive areas, but only for gases and vapours of category IIA and IIB.

This also applies for multiple coatings exceeding an overall thickness of 200 µm. Make sure with painting or coating that the coupling components are conductively connected with the device/devices to be connected so that the equipotential bonding is not impeded by the paint or coat applied. Basically painting of the spacer is not admitted to ensure an equipotential bonding.

In addition, make sure that the marking of the coupling remains legible.

## 6 Breakdowns, causes and elimination

The below-mentioned failures may result in a use of the **COUNTEX®** coupling other than intended. In addition to the specifications given in these operating/assembly instructions make sure to avoid such failures.

The errors listed can only be clues to search for the failures. When searching for the failure the adjacent components must generally be considered.



**If used other than intended the coupling can become a source of ignition.**  
 Directive 2014/34/EU and UK directive SI 2016 No. 1107 require special care by the manufacturer and the user.

### General failures with improper use:

- Important data for the coupling selection are not forwarded.
- The calculation of the shaft-hub-connection is not considered.
- Coupling components with damage occurred during transport are assembled.
- If the heated hubs are assembled, the permissible temperature is exceeded.
- The clearance of the components to be assembled is not coordinated with one another.
- Tightening torques are fallen below/exceeded.
- Components are mixed up by mistake/assembled incorrectly.
- A wrong or no spacer is inserted in the coupling.
- No original **KTR** components (purchased parts) are used.
- Maintenance intervals are not observed.



## 6 Breakdowns, causes and elimination

Breakdowns	Causes	Hazard notes for potentially explosive atmospheres	Elimination
Different operating noise and/or vibrations occurring	Misalignment	Increased temperature on the spacer surface; ignition risk by hot surfaces	<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Eliminate the reason for the misalignment (e. g. loose foundation bolts, fracture of the engine mount, heat expansion of unit components, modification of the installation dimension E of the coupling)</li> </ol>
	Screws for axial fastening of hubs working loose	Ignition risk due to hot surfaces and sparking	<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Inspect alignment of coupling</li> <li>3) Tighten the screws to fasten the hubs and secure against working loose</li> </ol>
Fracture of drivers of spacer	Fracture of drivers due to high impact energy/overload	Danger by rotating spacer fragments	<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Replace complete coupling</li> <li>3) Inspect alignment</li> <li>4) Find out the reason for overload</li> </ol>
	Operating parameters do not meet with the performance of the coupling		<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Review the operating parameters and select a bigger coupling (consider mounting space)</li> <li>3) Assemble new coupling size</li> <li>4) Inspect alignment</li> </ol>
	Operating error of the unit		<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Replace complete coupling</li> <li>3) Inspect alignment</li> <li>4) Instruct and train the service staff</li> </ol>
Early wear of spacer	Misalignment	Increased temperature on the spacer surface; ignition risk by hot surfaces	<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Eliminate the reason for the misalignment (e. g. loose foundation bolts, fracture of the engine mount, heat expansion of unit components, modification of the installation dimension E of the coupling)</li> </ol>
	e. g. contact with aggressive liquids/oils, ozone influence, too high/low ambient temperatures etc. causing a physical change of the spacer	Danger by rotating spacer fragments	<ol style="list-style-type: none"> <li>1) Set the unit out of operation</li> <li>2) Disassemble the coupling and remove remainders of the spacer</li> <li>3) Inspect coupling components and replace coupling components that have been damaged</li> <li>4) Mount coupling components, insert spacer</li> <li>5) Inspect alignment, adjust if necessary</li> <li>6) Make sure that further physical modifications of the spacer are excluded</li> </ol>



**When operating with a faulty spacer proper operation is not assured.**

## 7 Disposal

In respect of environmental protection we would ask you to dispose of the packaging resp. products on termination of their service life in accordance with the legal regulations resp. standards that apply.

- **Metal**  
Any metal components have to be cleaned and disposed of by scrap metal.
- **Nylon materials**  
Nylon materials have to be collected and disposed of by a waste disposal company.



**8 Maintenance and service**

**COUNTEX®** is a low-maintenance coupling. We recommend to perform a visual inspection on the coupling **at least once a year**. Pay special attention to the condition of the spacer as well as the alignment and screw connection of the coupling.

- Since the flexible machine bearings of the driving and driven side settle during the course of load, inspect the alignment of the coupling and re-align the coupling, if necessary.
- If the drivers of the spacer are broken, the spacer of the coupling needs to be replaced. The coupling components have to be inspected for damages.
- The screw connections have to be inspected visually.



**With the use in potentially explosive atmospheres observe chapter 10.2 "Inspection intervals for couplings in Ⓜ potentially explosive atmospheres".**

**9 Spares inventory, customer service addresses**

We recommend to store major spare parts on site to ensure the readiness for use of the machine in case if a coupling fails.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage at [www.ktr.com](http://www.ktr.com).



**KTR does not assume any liability or warranty for the use of spare parts and accessories which are not provided by KTR and for the damages which may incur as a result.**

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**10 Enclosure A**

Advice and instructions regarding the use in  potentially explosive atmospheres

**Types available:****a) Hubs that may be used in group II, category 2 and 3:  
(hubs with feather keyway)**


- 1.0 Hub with feather keyway and setscrew
- 1.3 Hub with spline (spline D)

**b) Hubs which may be used in group II, category 3 only:  
hubs without feather keyway**

- 1.1 Hub without feather keyway, with setscrew
- 1.2 Hub without feather keyway, without setscrews (for interference fit or adhesive bonding)



Hubs without feather keyway may be used in category 3 only and are marked with category 3 accordingly.

**10.1 Proper use in  potentially explosive atmospheres****Conditions of operation in  potentially explosive atmospheres**

The **COUNTEX®** couplings are suitable for the use according to directives 2014/34/EU and SI 2016 No. 1107.

- Protection against hazards generated by lightning must follow the lightning protection concept of the machine or plant. The relevant regulations and policy for lightning protection must be observed.
- The equipotential bonding of the couplings is made by metal contact between coupling hub and shaft. This equipotential bonding must not be affected.

**1. Industry (with the exception of mining)**

- Equipment group II of category 2 and 3 (*coupling is not approved/not suitable for equipment group 1*)
- Substance group G (*gases, fogs, vapours*), zone 1 and 2 (*coupling is not approved/not suitable for zone 0*)
- Substance group D (*dusts*), zone 21 and 22 (*coupling is not approved/not suitable for zone 20*)
- Explosion group IIC (*gases, fogs, vapours*) (*explosion groups IIA and IIB are included in IIC*) and explosion group IIIC (*dusts*) (*explosion groups IIIA and IIIB are included in IIIC*)

**Temperature class:**

Temperature class	Ambient or operating temperature $T_a$ <sup>1)</sup>	Max. surface temperature <sup>2)</sup>
T3	-40 °C to +160 °C	+190 °C
T4	-40 °C to +100 °C	+130 °C
T5	-40 °C to +65 °C	+95 °C
T6	-40 °C to +50 °C	+80 °C

Explanation:

The maximum surface temperatures each result from the maximum permissible ambient or operating temperature  $T_a$  plus the maximum temperature increase  $\Delta T$  of 30 K to be considered. For the temperature class a safety margin subject to standard of 5 K is added.

1) The ambient or operating temperature  $T_a$  is limited to +160 °C due to the permissible permanent operating temperature.

2) The maximum surface temperature of +190 °C applies for the use in locations which are potentially subject to dust explosion.



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

10.1 Proper use in  potentially explosive atmospheres

In potentially explosive atmospheres


- the ignition temperature of dusts generated must at least be 1.5 times the surface temperature to be considered
- the glow temperature must at least be the surface temperature to be considered plus a safety distance of 75 K.
- the gases and vapours generated must amount to the temperature class specified.

2. Mining

Equipment group I of category M2 (*coupling is not approved/not suitable for equipment group M1*).

Permissible ambient temperature -40 °C to +120 °C.

Only COUNTEX® couplings with hubs made of steel or stainless steel may be used.

10.2 Inspection intervals for couplings in  potentially explosive atmospheres

Equipment category	Inspection intervals
3G 3D	For couplings operated in zone 2 or zone 22 the inspection and maintenance intervals of the usual operating/assembly instructions for standard operation apply. During the standard operation which has to be taken as a basis of the ignition risk analysis the couplings are free from any ignition source. For gases, vapours and dusts generated the permissible glow and ignition temperatures specified in chapter 10.1 have to be considered and observed.
M2 2G 2D Gases and vapours of explosion group IIC	An inspection of the torsional backlash and a visual inspection of the coupling must be performed after 2,000 operating hours for the first time, at the latest after 3 months after start-up of the coupling. If you note insignificant or no wear on the spacer upon this initial inspection, further inspections can each be performed after 4,000 operating hours or at the latest after 12 months, provided that the operating parameters remain the same. If you note significant wear during the initial inspection so that it would be recommendable to replace the spacer, find out the cause according to the table „Breakdowns“, if possible. The maintenance intervals must be adjusted to the modified operating parameters without fail.



Hubs without feather keyway may be used in category 3 only and are marked with category 3 accordingly.

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### 10.3 marking of coupling for potentially explosive atmospheres

The explosion protection marking of the COUNTEX® coupling is applied on the outer sheath or on the front side. The spacer is not marked.



For the complete marking refer to the operating/assembly instructions and/or the delivery note/package.

**The following marking applies for the products:**



- Type without aluminium, with feather keyway (Category 2)

		I M2 Ex h I	Mb X	-40 °C ≤ T <sub>a</sub> ≤ +120 °C
		II 2G Ex h IIC T6 ... T3	Gb X	
		II 2D Ex h IIIC T80 °C ... T190 °C	Db X	
<Year>		-40 °C ≤ T <sub>a</sub> ≤ +50 °C ... +160 °C		
KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine				



- Type without aluminium, without feather keyway (Category 3)

		I M2 Ex h I	Mb X	-40 °C ≤ T <sub>a</sub> ≤ +120 °C
		II 3G Ex h IIC T6 ... T3	Gc X	
		II 3D Ex h IIIC T80 °C ... T190 °C	Dc X	
<Year>		-40 °C ≤ T <sub>a</sub> ≤ +50 °C ... +160 °C		
KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine				

- Type with aluminium, with feather keyway (Category 2)

		II 2G Ex h IIC T6 ... T3	Gb X	
		II 2D Ex h IIIC T80 °C ... T190 °C	Db X	
		<Year>		-40 °C ≤ T <sub>a</sub> ≤ +50 °C ... +160 °C
KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine				

- Type with aluminium, without feather keyway (Category 3)

		II 3G Ex h IIC T6 ... T3	Gc X	
		II 3D Ex h IIIC T80 °C ... T190 °C	Dc X	
		<Year>		-40 °C ≤ T <sub>a</sub> ≤ +50 °C ... +160 °C
KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine				

**Short marking:**

(A short marking is only made if not possible differently for reason of space or functioning.)

COUNTEX®  
<Year>





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### 10.3 marking of coupling for potentially explosive atmospheres

#### Deviating marking applied until 31st October 2019:

Short marking:



  II 2GD c IIC T X/I M2 c X

Complete marking:

  II 2G c IIC T6, T5, T4 resp. T3 -40 °C ≤ T<sub>a</sub> ≤ +55 °C, +70 °C, +105 °C resp. +160 °C  
II 2D c T 190 °C/I M2 c -40 °C ≤ T<sub>a</sub> ≤ +115 °C


#### Comments on marking

Equipment group I	Mining
Equipment group II	Non-mining
Equipment category 2G	Equipment ensuring a high level of safety, suitable for zone 1
Equipment category 3G	Equipment ensuring a normal level of safety, suitable for zone 2
Equipment category 2D	Equipment ensuring a high level of safety, suitable for zone 21
Equipment category 3D	Equipment ensuring a normal level of safety, suitable for zone 22
Equipment category M2	Equipment ensuring a high level of safety must be able to be switched off when an explosive atmosphere occurs
D	Dust
G	Gases and vapours
Ex h	Nonelectrical explosion protection
IIC	Gases and vapours of class IIC (including IIA and IIB)
IIIC	Electrically conductive dusts of class IIIC (including IIIA and IIIB)
T6 ... T3	Temperature class to be considered, depending on the ambient temperature
T80 °C ... T190 °C	Maximum surface temperature to be considered, depending on the ambient temperature
-40 °C ≤ T <sub>a</sub> ≤ +50 °C ... +160 °C or -40 °C ≤ T <sub>a</sub> ≤ +160 °C	Permissible ambient temperature from -40 °C to +50 °C resp. -40 °C to +160 °C
Gb, Db, Mb	Equipment protection level, high level of safety, analogous to the equipment category
Gc, Dc	Equipment protection level, normal level of safety, analogous to the equipment category
X	For a safe use of the couplings particular conditions apply

If the symbol  was punched in addition to marking , the coupling component was supplied by KTR as an unbored or pilot bored version (see chapter 4.2 of the present operating/assembly instructions).



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10.4 EU Declaration of conformity

### EU Declaration of Conformity resp. Certificate of Conformity

corresponding to EU directive 2014/34/EU dated 26 February 2014  
and to the legal provisions adopted for its implementation

The manufacturer - KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine - states that the

#### COUNTEX® backlash-free shaft encoder couplings

in an explosion-proof design described in these assembly instructions are equipment resp. components corresponding to article 2, 1. of directive 2014/34/EU and comply with the general safety and health specifications according to enclosure II of directive 2014/34/EU.

This declaration of conformity is issued under the sole responsibility of the manufacturers KTR Systems GmbH.

The coupling described in here complies with the specifications of the following standards/rules:

- EN ISO 80079-36:2016-12
- EN ISO 80079-37:2016-12
- EN ISO/IEC 80079-38:2017-10
- IEC/TS 60079-32-1:2020-01-24


The COUNTEX® is in accordance with the specifications of the directive 2014/34/EU.

According to article 13 (1) b) ii) of directive 2014/34/EU the technical documentation is deposited with the notified body (type examination certificate IBExU14ATEXB014 X):

IBExU  
Institut für Sicherheitstechnik GmbH  
Identification number: 0637  
Fuchsmühlenweg 7  
  
09599 Freiberg

Rheine,  
Place


2022-07-06  
Date

i. V.   
Reinhard Wibbeling  
Engineering/R&D

i. V.   
Johannes Deister  
Product Manager



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10.5 UK Declaration of conformity

### UK Declaration of Conformity resp. Certificate of Conformity

corresponding to UK directive SI 2016 No. 1107 dated 26 February 2014  
and to the legal provisions adopted for its implementation

The manufacturer - KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine - states that the

#### COUNTEX® backlash-free shaft encoder couplings

in an explosion-proof design described in these assembly instructions are equipment resp. components corresponding to directive SI 2016 No. 1107 and comply with the general safety and health requirements according to directive SI 2016 No. 1107.

This declaration of conformity resp. certificate of conformity is issued under the sole responsibility of the manufacturer KTR Systems GmbH.

The coupling described in here complies with the specifications of the following standards/rules:

- EN ISO 80079-36:2016-12
- EN ISO 80079-37:2016-12
- EN ISO/IEC 80079-38:2017-10
- IEC/TS 60079-32-1:2020-01-24


The COUNTEX® complies with the specifications respectively the applicable specifications of directive SI 2016 No. 1107.

According to directive SI 2016 No. 1107 the technical documentation is deposited with the notified body:

Eurofins CML  
Identification number: 2503

Rheine,  
Place

2022-07-06  
Date

i. V.   
Reinhard Wibbeling  
Engineering/R&D

i. V.   
Johannes Deister  
Product Manager