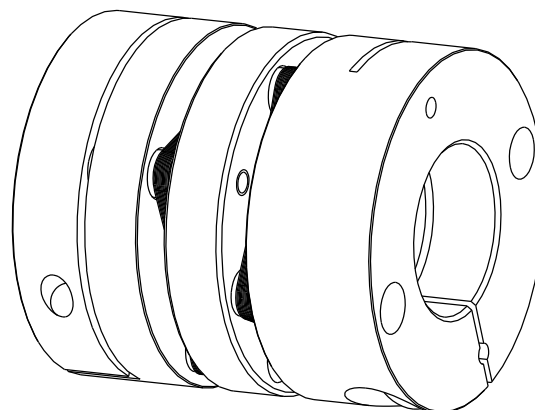


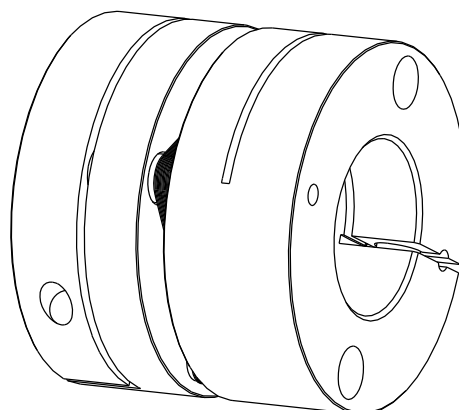
RADEX[®]-NC

Backlash-free, torsionally stiff and
 maintenance-free steel laminae
 coupling
 types DK and EK
 along with combinations

according to directive 2014/34/EU
 for finish bored, pilot bored and un-
 bored couplings








Type: DK



Type: EK

The **RADEX[®]-NC** servo lamina coupling is a backlash-free, torsionally stiff and flexible steel lamina coupling. It was specifically developed for applications in servo technology to meet the demands for high torsional stiffness (e. g. with use on indexing tables, planetary and worm gears, ball spindles, etc.).

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1 Technical data

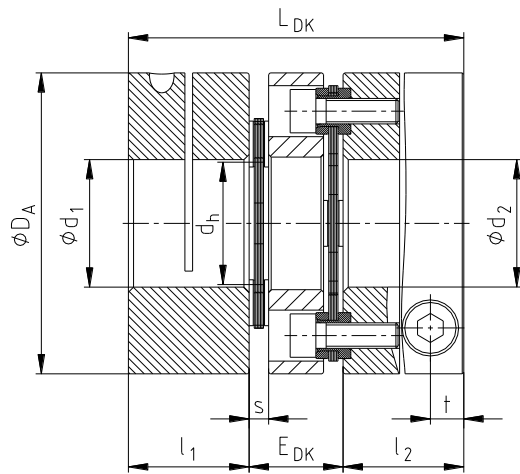


Illustration 1: RADEX®-NC type DK

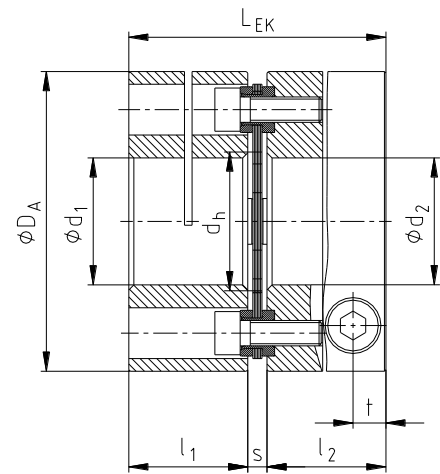


Illustration 2: RADEX®-NC type EK

Table 1: Dimensions

Size	Dimensions [mm]									Clamping screws DIN EN ISO 4762	
	Max. d1, d2	DA	l ₁ , l ₂	L _{DK}	E _{DK}	L _{EK}	d _h	s	t	M	T _A [Nm]
5	12	26	12	34	10	26.5	12	2.5	3.5	M2.5	0.8
10	15	35	16	44	12	35	14.5	3	5.0	M4	3
15	20	47	21	55	13	45	19.5	3	6.8	M6	10
20	25	59	24	67	19	52	24	4	6.5	M6	10
25	35	70	32	88	24	69	30	5	9.0	M8	25
35	42	84	35	98	28	77	38	7	10.5	M10	49
42	55	104	40	116	36	91	48	11	10.5	M10	69

Table 2: Technical data

Size	Technical data						
	T _{KN} [Nm]	T _{K max.} [Nm]	Max. speed [rpm]	Torsional stiffness [Nm/rad]		Mass moment of inertia [kgm ²]	
				Type: DK	Type: EK	Type: DK	Type: EK
5	2.5	5	25000	1200	2400	0.000004	0.000003
10	7.5	15	20000	2800	5600	0.000016	0.000012
15	20	40	16000	6000	12000	0.000065	0.000053
20	30	60	12000	15000	30000	0.000199	0.000154
25	60	120	10000	30000	60000	0.000508	0.000393
35	100	200	9000	36000	72000	0.001153	0.000911
42	180	360	7000	60000	120000	0.007458	0.006153



RADEX®-NC couplings with attachments that may generate heat, sparks and static charging (e. g. combinations with brake drums, brake disks, overload systems like torque limiters, fans etc.) are not permitted for the use in hazardous locations. A separate analysis must be performed.


1 Technical data
Table 3: Transmittable torques of clamping hubs

Size	5	10	15	20	25	35	42
Clamping screw M	M2.5	M4	M6	M6	M8	M10	M10
Tightening torque T_A [Nm]	0.8	3	10	10	25	49	69
Bore range and the corresponding transmittable torque of clamping hubs [Nm]							
Ø 3	2.2						
Ø 5	2.3	8					
Ø 8	2.4	9					
Ø 10	2.5	10	28				
Ø 12		10	30	36			
Ø 14		11	31	37			
Ø 15		11	32	38	82		
Ø 16			32	39	83		
Ø 19			34	40	87	155	
Ø 20			35	41	88	157	
Ø 24				44	93	165	285
Ø 25				45	94	167	287
Ø 28					98	173	296
Ø 30					100	177	301
Ø 32					103	181	307
Ø 35					106	187	315
Ø 38						193	323
Ø 40						197	329
Ø 45							343
Ø 50							357
Ø 55							370



Clamping hubs without feather keyway may be used in category **3 only**.


Selection of clamping hubs

With the use in potentially explosive atmospheres, the clamping hubs have to be selected such that there is a minimum safety factor of $s = 2.0$ covering the peak torque of the machine including all operating parameters and the friction torque of the clamping hub.

2 Advice
2.1 General advice

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



The **RADEX®-NC** coupling is suitable and approved for the use in potentially explosive atmospheres. When using the coupling in potentially explosive atmospheres, please 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.

**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. Please 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".
- Please 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.
- Please secure the coupling against accidental contact. Please provide for the necessary protection devices and covers.

2.4 Intended use

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

- have carefully read through the operating/assembly instructions and understood them
- had technical training
- 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 **RADEX®-NC** described in here corresponds to the technical status at the time of printing of these operating/assembly instructions.



2 Advice

2.5 Coupling selection



For a permanent and failure-free operation of the coupling it must be selected according to the selection instructions (according to DIN 740 part 2) for the particular application (see catalogue drive technology "RADEX®-NC").

If the operating conditions (performance, speed, modifications on engine and machine) change, the coupling selection must be reviewed.

Please note that the technical data regarding torque refer to the lamina set only. The transmittable torque of the shaft-hub-connection must be reviewed by the customer and is subject to his responsibility.

For drives subject to torsional vibrations (drives with cyclic stress due to torsional vibrations) it is necessary to perform a torsional vibration calculation to ensure a reliable selection. Typical drives subject to torsional vibrations are e. g. drives with diesel engines, piston pumps, piston compressors etc. If requested, KTR will perform the coupling selection and the torsional vibration calculation.



If the coupling is used in hazardous locations, the size must be selected such that there is a minimum safety of $s = 2.0$ between the torque of the machine and the rated torque of the coupling or shaft-hub-connection.

2.6 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 please refer to the present operating/assembly instructions considering the warnings.

3 Storage, transport and packaging

3.1 Storage

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



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.

Please 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 please 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.

Please observe protection note ISO 16016.	Drawn:	2017-01-02 Shg	Replacing:	KTR-N dated 2013-05-29
	Verified:	2017-01-02 Shg	Replaced by:	



4 Assembly

Generally the coupling is supplied in mounted condition. Before assembly the coupling has to be inspected for completeness.

4.1 Components of the couplings

Components of RADEX®-NC, type DK

Component	Quantity	Component assembly	Component	Quantity	Component assembly
1	2	Clamping hub	4	8	Cap screw DIN EN ISO 4762
2	2	Lamina set	5	2	Cap screw DIN EN ISO 4762
3	1	Spacer			

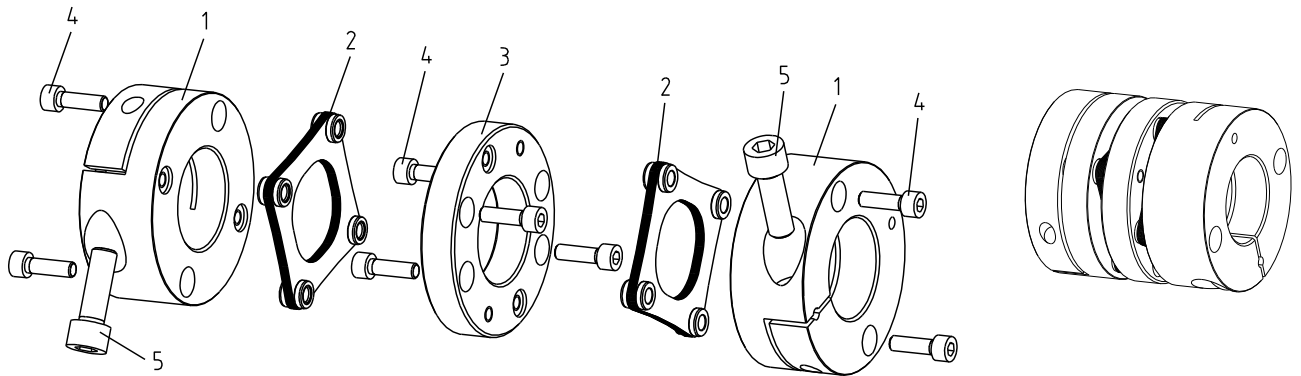


Illustration 3: RADEX®-NC, type DK

Components of RADEX®-NC, type EK

Component	Quantity	Component assembly	Component	Quantity	Component assembly
1	2	Clamping hub	3	4	Cap screw DIN EN ISO 4762
2	1	Lamina set	4	2	Cap screw DIN EN ISO 4762

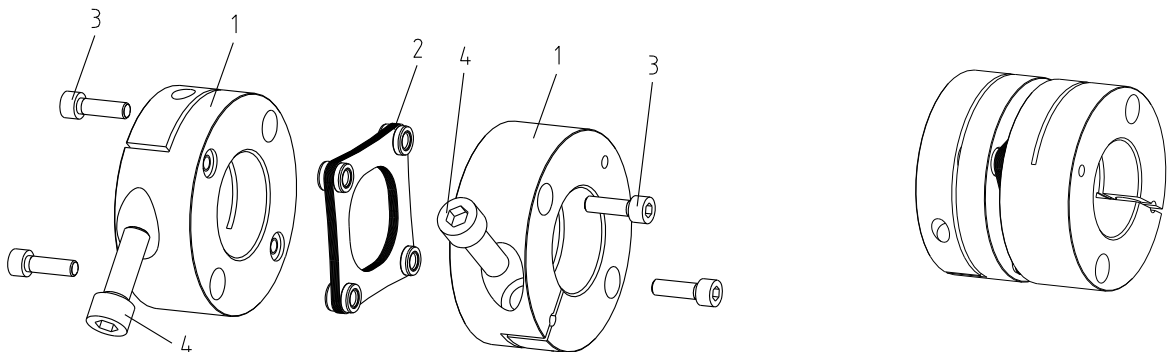


Illustration 4: RADEX®-NC, type EK



4 Assembly

4.2 Advice for finish bore



The maximum permissible bore diameters d (see table 1 to 3 in chapter 1 - technical data) must not be exceeded. If these figures are disregarded, the coupling may tear. Rotating particles may cause danger to life.

- Bores of clamping hubs machined by the customer have to observe concentricity or axial runout, respectively (see illustration 5).
- Please make absolutely sure to observe the figures for d_{max} .
- Carefully align the clamping hubs when the finish bores are drilled.

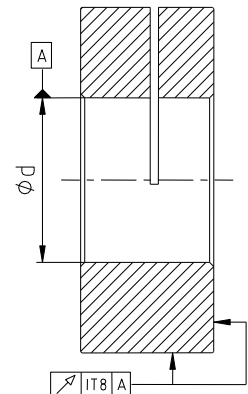


Illustration 5: Concentricity and axial runout



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 re-machining.



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

4.3 Assembly of the hubs



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

Heating the hubs lightly (approx. 80 °C) allows for easier mounting onto the shaft.



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



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



With the assembly please make sure that the dimension E_{DK} or dimension s (see table 1) is observed so that the coupling components are not in contact with each other during the operation. Disregarding this advice may cause damage to the coupling.

The power transmission of the **RADEX®-NC** coupling is frictionally engaged via clamping hubs.

The following process should be observed with the assembly:

- Clean and degrease hub bores and shaft ends.
- Lightly detach the clamping screws.
- Insert the shaft ends of driving and driven machine into the hubs of the **RADEX®-NC** coupling.
- Shift the driving and driven machine in axial direction until the dimension E_{DK} or s is reached. If the power packs have already been fixed, adjust the dimension E_{DK} or s by shifting the hubs axially on the shafts.


4 Assembly
4.3 Assembly of the hubs


Please make absolutely sure that the lamina sets are mounted as shown in illustration 7. The bushes of the set have to be inserted in the indentations of the hub or spacer, respectively. The screw head is located on the disks of the set. For tightening torques T_A of the lamina set screws see table 4.

Table 4: Tightening torques of the screws of lamina set

Size	5	10	15	20	25	35	42
Screw size	M2.5	M3	M4	M5	M6	M6	M8
Tightening torque T_A [Nm]	1.1	1.9	4.1	8.5	14	14	35

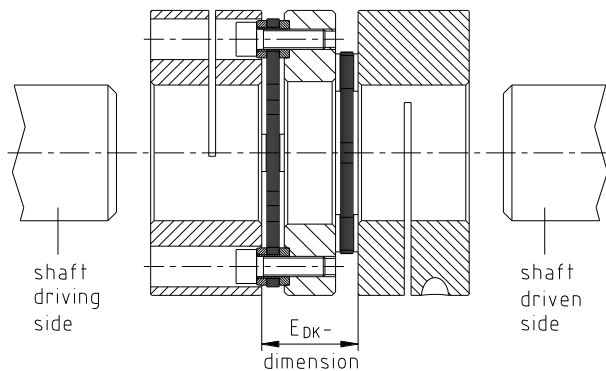


Illustration 6: Assembly of the coupling

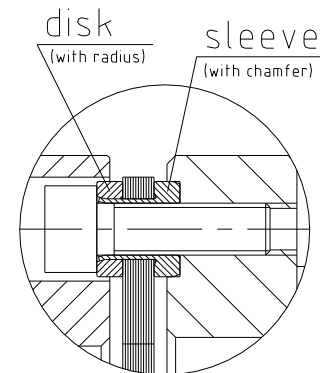


Illustration 7: Assembly of the lamina sets

Table 5: Assembly drawings

Size	Assembly drawings		Size	Assembly drawings	
	Type: DK	Type: EK		Type: DK	Type: EK
5	Z 409445	Z 409456	25	Z 390312	Z 391674
10	Z 391668	Z 391671	35	Z 391670	Z 391675
15	Z 390408	Z 391672	42	Z 388611	Z 388610
20	Z 391669	Z 391673			



With the assembly please make sure that the dimension E_{DK} or s is observed so that the coupling is installed free from distortion in axial direction. Disregarding this advice may cause damage to the coupling.

- Tighten the clamping screws of the hub at the tightening torque T_A specified in table 1.



The torques of the clamping hubs of the coupling transmitted via frictional locking are dependent on the bore diameter (see table 3).



Clamping hubs without feather keyway may be used in category 3 only.


Selection of clamping hubs

With the use in potentially explosive atmospheres the clamping hubs have to be selected such that there is a minimum safety factor of $s = 2$ covering the peak torque of the machine including all operating parameters and the friction torque of the clamping hub.

4 Assembly

4.4 Displacements - alignment of the coupling

The displacement figures specified in table 6 provide for sufficient safety to compensate for external influences like, for example, thermal expansion or foundation settling.



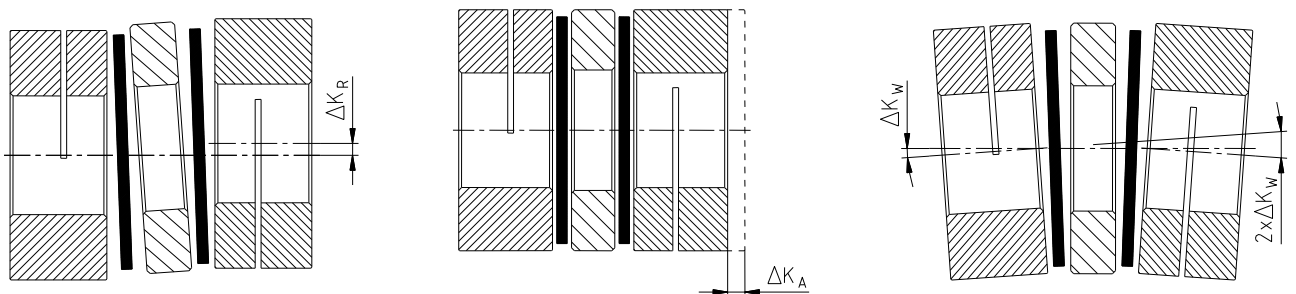
In order to ensure a long service life of the coupling and avoid dangers with the use in potentially explosive atmospheres, the shaft ends must be accurately aligned. Please absolutely observe the displacement figures specified (see table 6). If the figures are exceeded, the coupling will be damaged.



The more accurate the alignment of the coupling, the longer is its service life. If used in potentially explosive atmospheres for the explosion group IIC (marking II 2GD c IIC T X), only half of the displacement figures (see table 6) are permissible.

Please note:

- The displacement figures specified in table 6 are maximum figures which must not arise in parallel. If radial and angular displacements arise at the same time, the permissible displacement values may only be used proportionally (see illustration 9).
- Please inspect with a dial gauge, ruler or feeler gauge whether the permissible displacement figures specified in table 6 can be observed.



Radial displacements

Axial displacements

Angular displacements

Illustration 8: Displacements

Table 6: Displacement figures

Size	Type: DK			Type: EK		
	Max. radial displacement ΔK_r [mm]	Max. axial displacement ΔK_a [mm]	Max. angular displacement ΔK_w 1) [degree]	Max. radial displacement ΔK_r [mm]	Max. axial displacement ΔK_a [mm]	Max. angular displacement ΔK_w 1) [degree]
5	0.10	0.4	1	-	0.2	1
10	0.14	0.8	1	-	0.4	1
15	0.16	1.0	1	-	0.5	1
20	0.25	1.2	1	-	0.6	1
25	0.30	1.6	1	-	0.8	1
35	0.40	2.0	1	-	1.0	1
42	0.50	2.8	1	-	1.4	1

1) each lamina set

4 Assembly

4.4 Displacements - alignment of the coupling

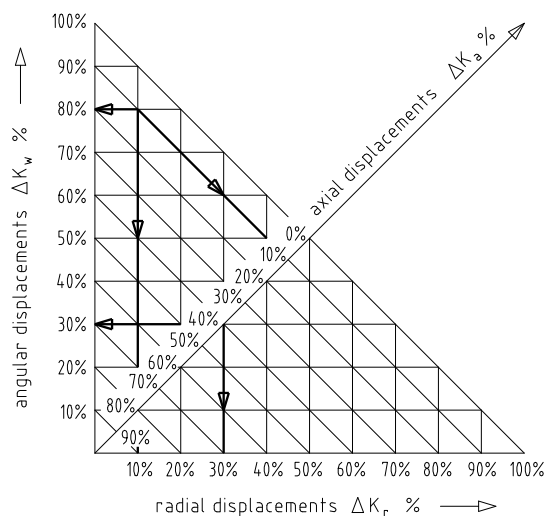
Examples of the displacement combinations specified in illustration 15:

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 9: Combinations of displacement



5 Start-up

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

Finally the coupling protection against accidental contact must be fitted.

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.

During operation of the coupling, please pay attention to

- different operating noise
- vibrations occurring.



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 if it is used as equipment of equipment group II.

The minimum distance „Sr“ between the protective device and the rotating parts must at least correspond to the figures specified below.

Please observe protection note ISO 16016.	Drawn: 2017-01-02 Shg	Replacing: KTR-N dated 2013-05-29
	Verified: 2017-01-02 Shg	Replaced by:



5 Start-up

If the protective device is used as cover, regular openings can be arranged from the point of view explosion protection that must not exceed the following dimensions:

Openings	Cover [mm]		
	Top side	Lateral components	Distance „S _r “
Circular - max. diameter	4	8	≥ 10
Rectangular - max. lateral length	4	8	≥ 10
Straight or curved slot - max. lateral length/height	not permissible	8	≥ 20



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 mentioned 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. In case of paintings up to 200 µm electrostatic load does not have to be expected. Multiple coatings exceeding 200 µm are prohibited for explosion group IIC.

6 Breakdowns, causes and elimination

The below-mentioned failures can result in a use of the **RADEX®-NC** coupling other than intended. In addition to the specifications given in these operating and assembly instructions please 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. EU directive 2014/34/EU requires special care by the manufacturer and the user.

General failures with use other than intended:

- Important data for the coupling selection were not forwarded.
- The calculation of the shaft-hub-connection was 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 have been fallen below/exceeded.
- Components are mixed up by mistake/assembled incorrectly.
- A wrong or no lamina set is inserted in the coupling.
- No original **KTR** components (purchased parts) are used.
- : The coupling used/the coupling protection used is not suitable for the operation in hazardous locations and does not correspond to EU directive 2014/34/EU, respectively.
- Maintenance intervals are not observed.



6 Breakdowns, causes and elimination

Breakdowns	Causes	Hazard notes for hazardous locations	Elimination
Different operating noise and / or vibrations occurring	Misalignment	none	1) Set the unit out of operation 2) Eliminate the reason for the misalignment (e. g. loose foundation bolts, breaking of the engine mount, heat expansion of unit components, modification of the installation dimension E of the coupling) 3) For inspection of wear see item inspection
	Fit bolts working loose, low micro friction under the screw head and on the steel lamina set	Danger of ignition due to hot surfaces	1) Set the unit out of operation 2) Inspect coupling components and replace coupling components that are damaged 3) Tighten the fit bolts until the permissible tightening torque has been reached 4) Inspect alignment, adjust if necessary
	Screws for axial fastening of flange hubs working loose	none	1) Set the unit out of operation 2) Inspect alignment of coupling 3) Tighten the screws to fasten the flange hubs and secure against working loose 4) For inspection of wear see item inspection
Breaking of steel lamina set	Breaking of the steel lamina set due to high impact energy/overload	Ignition risk due to sparking	1) Set the unit out of operation 2) Disassemble the coupling and remove remainders of the steel lamina sets 3) Inspect coupling components and replace coupling components that are damaged 4) Insert steel lamina sets, assemble coupling components 5) Find out the reason for overload
	Operating parameters do not meet with the performance of the coupling		1) Set the unit out of operation 2) Review the operating parameters and select a bigger coupling (consider mounting space) 3) Assemble new coupling size 4) Inspect alignment
	Operating error of the unit		1) Set the unit out of operation 2) Disassemble the coupling and remove remainders of the steel lamina sets 3) Inspect coupling components and replace coupling components that are damaged 4) Insert steel lamina sets, assemble coupling components 5) Instruct and train the service staff
Cracks in / fracture of the steel lamina set / locking screws	Vibrations of drive		1) Set the unit out of operation 2) Disassemble the coupling and remove remainders of the steel lamina sets 3) Inspect coupling components and replace coupling components that are damaged 4) Insert steel lamina sets, assemble coupling components 5) Inspect alignment, adjust if necessary 6) Find out the reason for vibrations



If you operate with a faulty lamina set (see chapter 5.2) and with the subsequent contact of metal parts a proper operation meeting the explosion protection requirements and acc. to directive 2014/34/EU is not ensured.



7 Disposal

In respect of environmental protection we would ask you to dispose of the packaging or products on termination of their service life in accordance with the legal regulations and standards that apply, respectively.
All coupling components consist of metal. Any metal components have to be cleaned and disposed of by scrap metal.

8 Maintenance and service

RADEX®-NC is a low-maintenance coupling. We recommend to perform a visual inspection on the coupling **at least once a year**. Please pay special attention to the condition of the lamina sets 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, please inspect the alignment of the coupling and re-align the coupling, if necessary.
- If some individual laminas are broken, the lamina sets of the coupling have to be replaced. The coupling parts have to be inspected for damages.
- The screw connections have to be inspected visually.



After start-up of the coupling the tightening torques of the screws of the lamina sets have to be inspected during usual maintenance intervals.



With the use in potentially explosive atmospheres please observe chapter 10.2 Inspection intervals for couplings in  potentially explosive atmospheres.

9 Spares inventory, customer service addresses

A basic requirement to ensure the readiness for use of the coupling is a stock of the most important spare parts on site.

Contact addresses of the KTR partners for spare parts and orders can be obtained from the KTR homepage at 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.

Please observe protection note ISO 16016.	Drawn: 2017-01-02 Shg	Replacing: KTR-N dated 2013-05-29
	Verified: 2017-01-02 Shg	Replaced by:

**10 Enclosure A**

Advice and instructions regarding the use in  potentially explosive atmospheres

Type DK: clamping hub / lamina set / spacer / lamina set / clamping hub

Type EK: clamping hub / lamina set / clamping hub

10.1 Intended use in  potentially explosive atmospheres

Conditions of operation in  potentially explosive atmospheres

RADEX®-NC couplings are suitable for the use according to EU directive 2014/34/EU.

1. Industry (with the exception of mining)

- Equipment group II of category 2 and 3 (*coupling is not approved for equipment group 1*)
- Media class G (*gases, fogs, steams*), zone 1 and 2 (*coupling is not approved for zone 0*)
- Media class D (*dusts*), zone 21 and 22 (*coupling is not approved for zone 20*)
- Explosion group IIC (*explosion class IIA and IIB are included in IIC*)

Temperature class:

Temperature class	Ambient or operating temperature T _a	Max. surface temperature
T2, T1	- 30 °C to + 200 °C ¹⁾	+ 210 °C ²⁾
T3	- 30 °C to + 190 °C	+ 200 °C ²⁾
T4	- 30 °C to + 125 °C	+ 135 °C ²⁾
T5	- 30 °C to + 90 °C	+ 100 °C
T6	- 30 °C to + 75 °C	+ 85 °C

Explanation:

The maximum surface temperatures each result from the maximum permissible ambient or operating temperature T_a plus the maximum temperature increase ΔT of 10 K which has to be taken into account.

1) The ambient or operating temperature T_a is limited to + 200 °C due to the permissible permanent operating temperature.

2) The maximum surface temperature of + 110 °C applies for the use in locations which are potentially subject to dust explosion, too.

2. MiningEquipment group I of category M2 (coupling is not approved for equipment group M1).

Permissible ambient temperature - 30 °C to + 140 °C.



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

10.2 Inspection intervals for couplings in  potentially explosive atmospheres

Explosion group	Inspection intervals
3G 3D	For couplings which are classified in category 3G or 3D the operating and assembly instructions that are usual for standard operation apply. During the standard operation which has to be subject to the ignition risk analysis the couplings are free from any ignition source. Merely the temperature increase generated by self-heating and depending on the coupling type has to be considered: for RADEX®-NC: DT = 10 K
II 2GD c IIB T2, T3, T4, T5, T6	An inspection of the torsional backlash and a visual inspection of the lamina set must be performed after 3,000 operating hours for the first time, at the latest after 6 months after start-up of the coupling. If you note insignificant or no wear on the lamina set upon this initial inspection, further inspections can each be performed after 6,000 operating hours or at the latest after 18 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 lamina sets, please find out the cause according to the table „Breakdowns“, if possible. The maintenance intervals must be adjusted to the modified operating parameters without fail.
II 2GD c IIC T2, T3, T4, T5, T6	An inspection of the torsional backlash and a visual inspection of the lamina set 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 lamina sets 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 lamina sets, please find out the cause according to the table „Breakdowns“, if possible. The maintenance intervals must be adjusted to the modified operating parameters without fail.

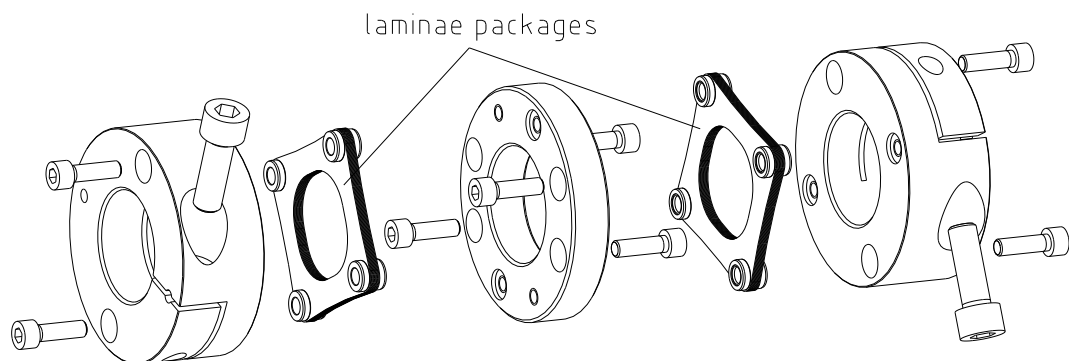


Illustration 10 RADEX®-NC

Please observe protection note ISO 16016.	Drawn: 2017-01-02 Shg	Replacing: KTR-N dated 2013-05-29
	Verified: 2017-01-02 Shg	Replaced by:



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

10.3 Visual inspection and measures

During the visual inspection the lamina sets must be inspected for cracks and screws working loose. Screws working loose have to be tightened at the screw tightening torque specified (see table 10). Lamina sets and screws showing cracks must be replaced immediately, irrespective of the inspection intervals.



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).

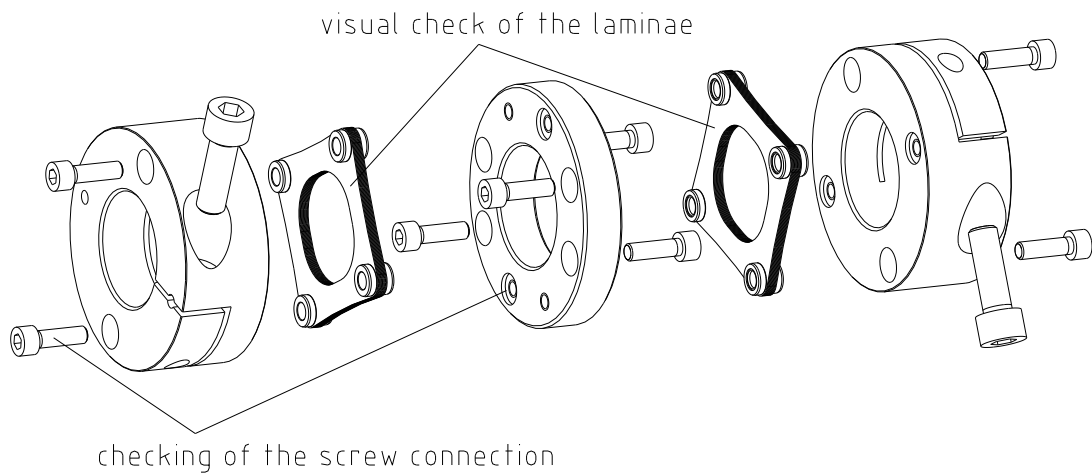



Illustration 11 RADEX®-NC



In order to ensure a long service life of the coupling and avoid dangers with the use in potentially explosive atmospheres, the shaft ends must be accurately aligned. Please absolutely observe the displacement figures specified (see table 11). If the figures are exceeded, the coupling will be damaged. Faulty components have to be replaced.

10.4 Permissible coupling materials in  potentially explosive atmospheres

In the explosion groups IIA, IIB and IIC the following materials may be combined:
Steel
Stainless steel

Semifinished products made of aluminium with a magnesium share of up to 7.5% and a yield point of $R_{p0.2} \geq 250 \text{ N/mm}^2$ are permitted for the use in potentially explosive atmospheres. **Aluminium diecast** is generally excluded for potentially explosive atmospheres.


Please observe protection note ISO 16016.	Drawn:	2017-01-02 Shg	Replacing:	KTR-N dated 2013-05-29
	Verified:	2017-01-02 Shg	Replaced by:	





10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres



10.5 marking of coupling for potentially explosive atmospheres

Couplings for the use in potentially explosive atmospheres are marked on at least one component completely and on the remaining components by an  label on the outside diameter of the hub or on the front side each for the operating conditions permitted. The lamina sets are not marked.



Short labelling:
(standard)

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

Complete labelling:

  II 2G c IIC T6, T5, T4, T3 resp. T2 - 30 °C ≤ T_a ≤ + 75 °C, + 90 °C, + 125 °C, + 190 °C resp. + 200 °C
II 2D c T 110 °C - 30 °C ≤ T_a ≤ + 100 °C/I M2 c - 30 °C ≤ T_a ≤ + 140 °C

The labelling with explosion group IIC includes the explosion groups IIA and IIB.


If the symbol  was stamped in addition to , the coupling component was supplied unbored or pilot bored by KTR.



**Any mechanical remachining on couplings that are used in potentially explosive atmospheres must be explicitly released by KTR.
The customer has to send a production drawing to KTR which the production is based on.
KTR will investigate this drawing and return it to the customer along with a note of approval.**



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

10.6 EU Certificate of conformity

EU Certificate of conformity

corresponding to EU directive 2014/34/EU dated 26 February 2014
and to the legal regulations

The manufacturer - KTR Systems GmbH, D-48432 Rheine - states that the

RADEX®-NC servo lamina couplings

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

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

- DIN EN 1127-1
- DIN EN 13463-1
- DIN EN 13463-5

The RADEX®-NC is in accordance with the specifications of the directive 2014/34/EU. One or several standards specified in the corresponding type examination certificate IBExU05ATEXB002 X were in part replaced by updated versions.

KTR Systems GmbH being the manufacturer confirms that the product mentioned above is in accordance with the specifications of the new directives, too.

According to article 13 (1) b) ii) of directive 2014/34/EU the technical documentation is deposited with the institution:

IBExU
Institut für Sicherheitstechnik GmbH
Fuchsmühlenweg 7

09599 Freiberg

Rheine,
Place

2017-01-02
Date

i. V.
Reinhard Wibbeling
Engineering/R&D

i. V.
Johannes Deister
Product Manager