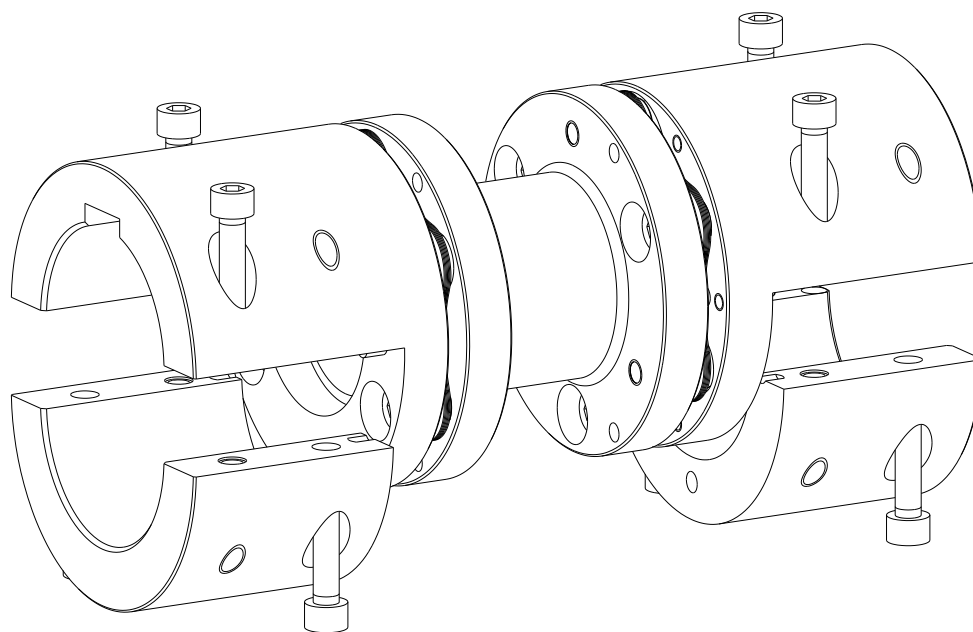




RIGIFLEX®-N

Torsionally stiff steel lamina coupling
according to directive 2014/34/EU and UK directive SI 2016 No. 1107







Type A-H

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	Operating/Assembly instructions	Sheet: 2 of 19
	Type A-H	Edition: 2

RIGIFLEX®-N is a torsionally stiff flexible steel laminae coupling. It is able to compensate for shaft misalignment, for example caused by thermal expansion, etc.
Type A-H allows to replace a coupling without having to disassemble the driving or driven machine, respectively.

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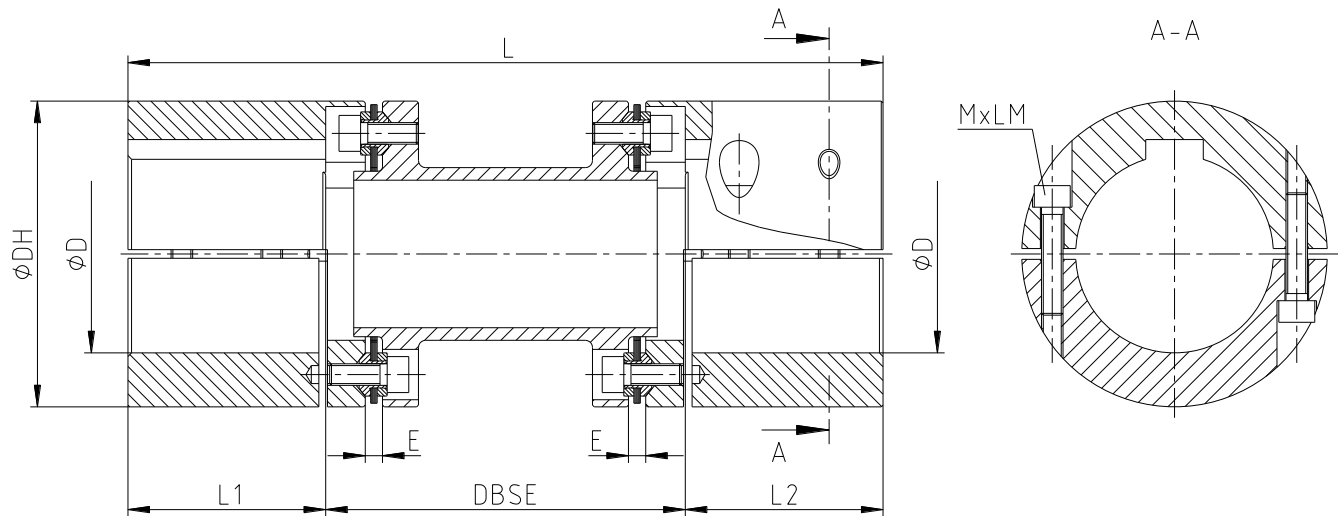

1 Technical data


Illustration 1: RIGIFLEX®-N, type A-H

Table 1: Dimensions

Size	Max. finish bore [mm] D	Dimensions [mm]									
		General								Clamping screws DIN EN ISO 4762	
		DH	L	L1, L2	E	DBSE ¹⁾				MxLM	T _A [Nm]
46	42	69	L = L1 + L2 + DBSE	45	5.0	100	140	180	250	M5x25	8.1
56	55	85		55	4.8	100	140	180	250	M6x30	14
66	65	105		65	8.0	100	140	180	250	M8x35	34
76	75	124		75	8.0	-	140	180	250	M10x40	67
86	85	145		85	10.0	-	140	180	250	M12x55	115
106	105	168		105	12.0	-	-	180	250	M12x55	115

1) Other shaft distance dimensions (DBSE) available on request

Table 2: Torque and speed

Size		46	56	66	76	86	106
Torque [Nm]	T _{KN}	90	255	450	975	1500	2400
	T _{K max}	180	510	900	1950	3000	4800
	T _{KW}	45	127.5	225	487	750	1200
Max. speed n [rpm]		5000	5000	5000	5000	4500	4000



Please note that the standard type of coupling has been designed for horizontal assembly only. With vertical or slanting coupling assembly vertical support may be necessary. Please consult with KTR for any other applications.



In case if a dimensional drawing was prepared for the coupling, the dimensions specified have to be primarily observed.
The operator of the machine should be provided with the dimensional drawing.



RIGIFLEX®-N couplings with attachments that can generate heat, sparks and static charging (e. g. combinations with brake drums, brake disks, overload systems such as torque limiters, fan impellers etc.) are not permitted for the use in potentially explosive atmospheres.

A separate analysis must be performed.

2 Advice

2.1 General advice

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



The **RIGIFLEX®-N** 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.

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.

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2 Advice

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
- 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 **RIGIFLEX®-N type A-H** described in here corresponds to the technical status at the time of printing of these operating/assembly instructions.

2.5 Coupling selection



For a long-lasting and failure-free operation of the coupling it must be selected according to the selection instructions for the particular application (see catalogue drive technology "RIGIFLEX®-N").

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

Make sure that the technical data regarding torque refer to the laminae 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.

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

3 Storage, transport and packaging

3.1 Storage

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



Humid storage rooms are not suitable.

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

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3 Storage, transport and packaging

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 supplied with pre-assembled half shells. Before assembly the coupling has to be inspected for completeness.

4.1 Components of the couplings

Subassembly 1: Components of RIGIFLEX®-N type A-H

Component	Quantity	Description
1.1	1	Basic body of coupling
1.2	2	Half shells
1.3	8	Clamping screws DIN EN ISO 4762

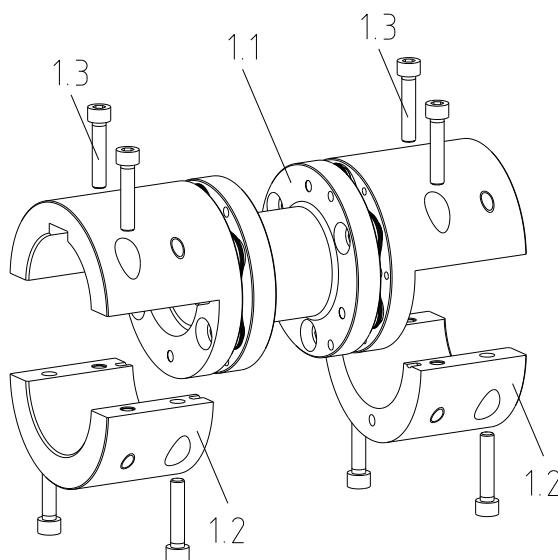


Illustration 2: RIGIFLEX®-N, type A-H



4 Assembly

4.2 Advice for finish bore



A subsequent modification of the finish bore by the customer is not permissible.



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

4.3 Assembly of the coupling

Before starting with the assembly preserving agents have to be removed from the hub bores and feather keyways. In addition the shaft ends of driving and driven machine have to be carefully cleaned.



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



Pay attention to the ignition risk in potentially explosive atmospheres!



With the assembly make sure that the distance dimension DBSE (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.



If used in potentially explosive atmospheres all screw connections must be secured against working loose additionally, e. g. conglomerating with Loctite (average strength).

- Align the shafts of the driving and driven side until the distance dimension DBSE has been reached (see table 1). Align the feather keyways of the shaft ends flush (see illustration 3).
- Remove the half shells from the basic body of coupling.
- Put the basic body of coupling (component 1.1) onto the shafts of the driving and driven side (see illustration 3).



Please make sure with assembly of the basic body of coupling to insert the feather keyway correctly into the keyway of the coupling hubs. If necessary, the shaft has to be lightly turned.

- Hand-tighten the basic body of coupling and the half shells (component 1.2) with the clamping screws (component 1.3) until the coupling hubs and half shells fit on the shafts.

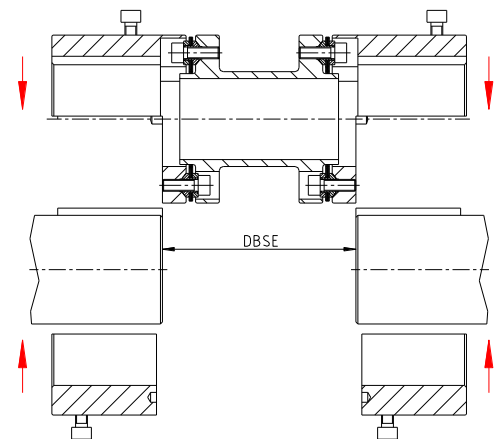


Illustration 3: Assembly of the coupling



4 Assembly

4.3 Assembly of the coupling



Make sure correct assignment of half shells with the coupling hub. Please observe marking of balancing X (Y) as per illustration 4.

- Hand-tighten the components first with the clamping screws to be assembled reciprocally (see illustration 2 and illustration 3).

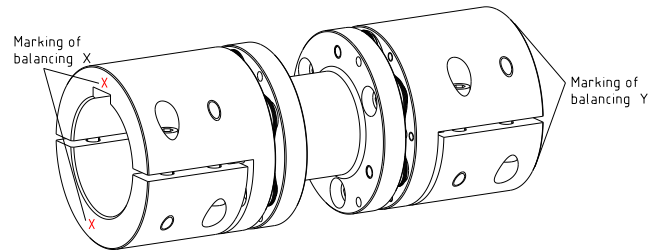


Illustration 4: Marking of coupling

- Tighten the clamping screws reciprocally and with several revolutions until all clamping screws have reached the full tightening torque T_A (see table 1).



Please make sure that the gap width S between the basic body of coupling (component 1.1) and half shell (component 1.2) is equal. If necessary, the alignment must be corrected.

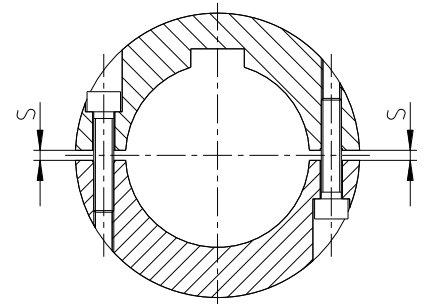


Illustration 5: Gap width



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

4.4 Disassembly of the coupling



Parts released or falling down may cause injury to persons or damage on the machine. Secure the components before disassembly.

- Unscrew and remove the clamping screws (component 1.3) and the half shells (component 1.2).
- Lift the coupling from the shaft ends.



4 Assembly

4.5 Displacements - alignment of the coupling

The displacement figures specified in table 3 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 3). 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 explosion group IIC, only half of the displacement figures (see table 3) are permissible.

Please note:

- The displacement figures specified in table 3 are maximum figures which must not arise in parallel. If radial, axial and angular displacement arises in parallel, these values must be reduced (see illustration 7).
- Please inspect with a dial gauge, ruler or feeler gauge whether the permissible displacement figures specified in table 3 can be observed.

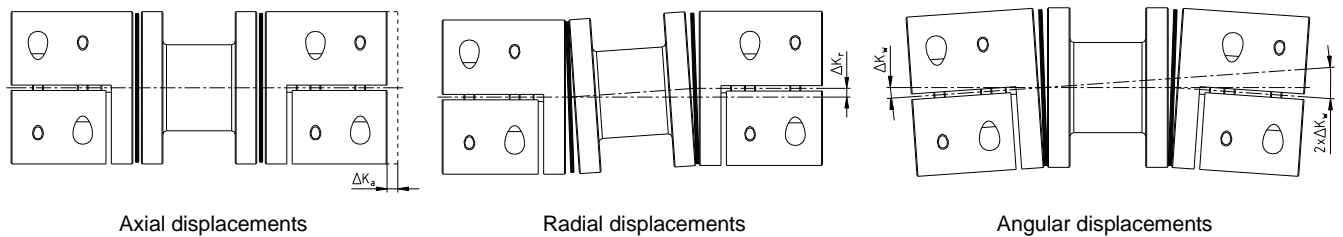


Illustration 6: Displacements

Examples of the displacement combinations specified in illustration 7:

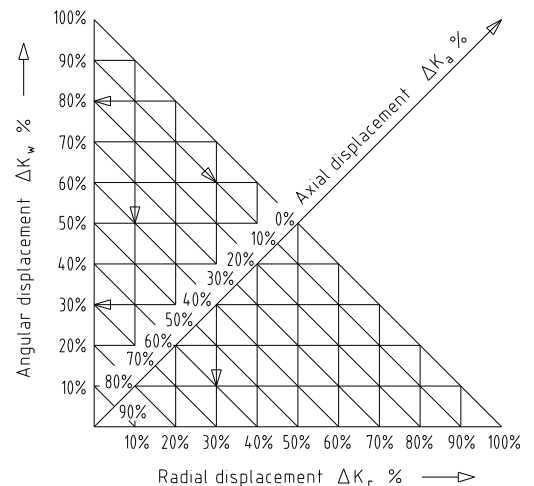
Example 1:

- $\Delta K_r = 10\%$
- $\Delta K_w = 80\%$
- $\Delta K_a = 10\%$

Example 2:

- $\Delta K_r = 30\%$
- $\Delta K_w = 30\%$
- $\Delta K_a = 40\%$

Illustration 7: Combinations of displacement



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

Table 3: Displacement figures

Size	Axial displacement ΔK_a [mm]	Radial displacement ΔK_r [mm]					Angular displacement ¹⁾ ΔK_w [°]
		DBSE = 100	DBSE = 140	DBSE = 180	DBSE = 250	DBSE = X	
46	±1.4	1.27	1.97	2.67	3.89	$\Delta K_r = [X-2 \cdot (l_3 - l_1) - E_1] \cdot \tan(K_w)$	1.0
56	±1.2	0.85	1.33	1.82	2.68		0.7
66	±1.6	0.73	1.22	1.71	2.57		0.7
76	±1.8	-	1.15	1.64	2.49		0.7
86	±2.2	-	1.12	1.61	2.47		0.7
106	±2.4	-	-	1.44	2.30		0.7

1) each laminae set

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5 Start-up

Before start-up of the coupling, inspect the alignment and the distance dimension DBSE and adjust, if necessary, and also inspect the screw connections of the half shells for the tightening torques specified.



If used in potentially explosive atmospheres 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 the 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. Depending on the outside diameter DH of the coupling, we recommend the following minimum distance:
 $\varnothing DH$ to 120 mm = 10 mm, $\varnothing DH$ from 120 mm = 15 mm.

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.

During operation of the coupling, please 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.

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5 Start-up

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 laminae set 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 can result in an improper use of the **RIGIFLEX®-N** coupling. 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.



The coupling can become a source of ignition by improper use.
EU directive 2014/34/EU requires 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.
- 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.
- No original KTR components (purchased parts) are used.
- Maintenance intervals are not observed.

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6 Breakdowns, causes and elimination

Breakdowns	Causes	Hazard notes for potentially explosive atmospheres	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, fracture of the engine mount, heat expansion of unit components, modification of the installation dimension DBSE of the coupling) 3) For inspection of wear see chapter 10.2
	Cap screws working loose, low micro friction under the screw head and on the steel laminae set	Danger of ignition due to hot surfaces	1) Set the unit out of operation 2) Inspect coupling components and replace coupling components that have been damaged 3) Tighten the clamping screws to the tightening torque specified 4) Inspect alignment, adjust if necessary
Fracture of steel laminae set	Fracture of steel laminae 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 laminae sets 3) Inspect coupling components and replace coupling components that are damaged 4) 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 spacer 3) Inspect coupling components and replace coupling components that are damaged 4) Assemble coupling components 5) Instruct and train the service staff
Cracks in/fracture of the steel laminae sets/fastening screws	Vibrations of drive		1) Set the unit out of operation 2) Disassemble the coupling and remove remainders of the spacer 3) Inspect coupling components and replace coupling components that are damaged 4) Inspect alignment, adjust if necessary 5) Assemble coupling components 6) Find out the reason for vibrations



When operating with a faulty laminae set (see chapter 10.2), 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.

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8 Maintenance and service

Monitoring of the general condition of the coupling can be done both at standstill and during operation. If the coupling is tested during operation, the operator must ensure an appropriate and proven test procedure (e. g. stroboscopic lamp, high-speed camera, etc.) which is definitely comparable to testing at standstill. If any distinctive features occur, an inspection must be made with the machine stopped.

RIGIFLEX®-N 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 laminae sets, 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 some individual laminas are broken, the laminae sets of the coupling have 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.




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:

Type A-H

RIGIFLEX®-N with spacer made of steel only.

10.1 Intended use in  potentially explosive atmospheres

Conditions of operation in  potentially explosive atmospheres

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

- Protection against hazards arising from 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.

The couplings may only be used if their materials are resistant to mechanical and/or chemical influences with different operating conditions in a way that the explosion protection is not 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 ¹⁾	Max. surface temperature ²⁾
T2	-40 °C to +230 °C	+250 °C
T3	-40 °C to +175 °C	+195 °C
T4	-40 °C to +110 °C	+130 °C
T5	-40 °C to +75 °C	+95 °C
T6	-40 °C to +60 °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 ΔT of 20 K to be considered. For the temperature classes T6 to T3 (≤ 200 °C) a safety margin subject to standard of 5 K and from temperature class T3 (≥ 200 °C) a safety margin subject to standard of 10 K is added.

- 1) The ambient or operating temperature T_a is limited to +250 °C due to the permissible permanent operating temperature (surface temperature).
- 2) The maximum surface temperature of +230 °C applies for the use in locations which are potentially subject to dust explosion.

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.



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

10.1 Intended use in  potentially explosive atmospheres

2. Mining

Equipment group I of category M2 (*coupling is not approved/not suitable for equipment group M1*).
Permissible ambient temperature -40 °C to +130 °C.

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 No gases and vapours of explosion group IIC	An inspection of the torsional backlash and a visual inspection of the laminae sets must be performed after 3,000 operating hours for the first time, at the latest 6 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 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 laminae sets, find out the cause according to the table „Breakdowns“, if possible. The maintenance intervals must be adjusted to the modified operating parameters without fail.
2G 2D Gases and vapours of explosion group IIC	An inspection of the torsional backlash and a visual inspection of the laminae sets must be performed after 2,000 operating hours for the first time, at the latest 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 laminae sets, find out the cause according to the table „Breakdowns“, if possible. The maintenance intervals must be adjusted to the modified operating parameters without fail.

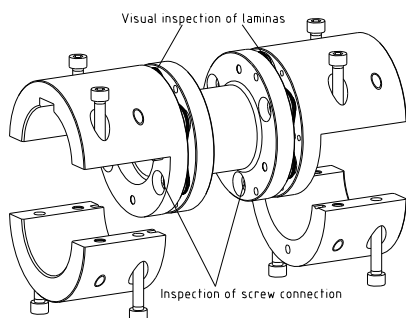


Illustration 8: RIGIFLEX®-N, type A-H

During the visual inspection the laminae sets must be inspected for cracks and screws working loose. Screws working loose must be tightened at the screw tightening torque specified (consult with KTR). If the laminae sets are damaged or have cracks they must be replaced by a new coupling immediately regardless of the inspection intervals.



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres



10.3  marking of coupling for potentially explosive atmospheres

The explosion protection marking of the RIGIFLEX®-N coupling is applied on the outer sheath or on the front side. The laminae sets are not marked.



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

Marking is as follows:

- Marking for unpainted res. coated or painted couplings with a layer thickness < 200 µm

		I M2 Ex h I	Mb X	-40 °C ≤ T _a ≤ +130 °C
		II 2G Ex h IIC T6 ... T2	Gb X	
		II 2D Ex h IIIC T80 °C ... T250 °C	Db X	
<Year>		-40 °C ≤ T _a ≤ +60 °C ... +230 °C		
KTR Systems GmbH, Carl-Zeiss-Str. 25, D-48432 Rheine				

- Marking for painted couplings with a layer thickness of 0.2 mm to max. 2.0 mm

		I M2 Ex h I	Mb X	-40 °C ≤ T _a ≤ +130 °C
		II 2G Ex h IIB T6 ... T2	Gb X	
		II 2D Ex h IIIC T80 °C ... T250 °C	Db X	
<Year>		-40 °C ≤ T _a ≤ +60 °C ... +230 °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.)

RIGIFLEX®-N
<Year>

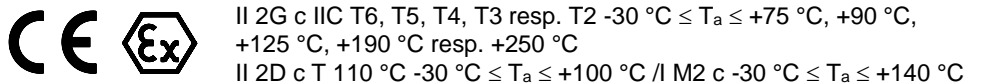


Deviating marking applied until 31st October 2019:

Short marking:




Complete marking:



Please observe protection note ISO 16016.	Drawn: 2022-07-06 Pz/Wb	Replacing: KTR-N dated 2019-06-24
	Verified: 2022-08-09 Pz	Replaced by:

**10 Enclosure A**


Advice and instructions regarding the use in  potentially explosive atmospheres

10.3  marking of coupling for potentially explosive atmospheres**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 2D	Equipment ensuring a high level of safety, suitable for zone 21
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
IIB	Gases and vapours of class IIB (including IIA)
IIC	Gases and vapours of class IIC (including IIA and IIB)
IIIC	Electrically conductive dusts of class IIIC (including IIIA and IIIB)
T6 ... T2	Temperature class to be considered, depending on the ambient temperature
T80 °C ... T250 °C	Maximum surface temperature to be considered, depending on the ambient temperature
-40 °C ≤ T _a ≤ +60 °C ... +230 °C, -40 °C ≤ T _a ≤ +230 °C or -40 °C ≤ T _a ≤ +130 °C	Permissible ambient temperature from -40 °C to +60 °C resp. -40 °C to +230 °C or -40 °C to +130 °C
Gb, Db, Mb	Equipment protection level, analogous to the equipment category
X	For a safe use of the couplings particular conditions apply



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

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 regulations adopted for its implementation

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

RIGIFLEX®-N Steel Lamina 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 RIGIFLEX®-N is in accordance with the specifications of 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 IBExU07ATEXB004 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. 
Reiner Banemann
Product Manager



10 Enclosure A

Advice and instructions regarding the use in  potentially explosive atmospheres

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

RIGIFLEX®-N Steel Lamina 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 RIGIFLEX®-N is in accordance 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. 
Reiner Banemann
Product Manager