

[1] **TYPE EXAMINATION CERTIFICATE**
- Translation -



[2] Equipment intended for use in Potentially Explosive Atmospheres,
Directive 94/9/EC

[3] Type Examination Certificate Number: **IBExU02ATEXB005 X**

[4] Equipment: **RADEX® - N Steel lamina couplings**
of the design NN, NANA 1 up to 4, NENA 1 and 2, NENE 1, NNZ, NNW of the dimensions of the design in each case from 20 up to 220 as well as in each case with standard flange hub

[5] Manufacturer: **KTR Kupplungstechnik GmbH**

[6] Address: **Rodder Damm 170
D-48432 Rheine**

[7] This equipment as well as any acceptable variation thereto is specified in the schedule to this Type Examination Certificate.


[8] IBExU Institut für Sicherheitstechnik GmbH certifies that this equipment has been found to comply with the Essential Health and Safety Requirements of the Annex II of the Directive relating to the design and construction of equipment intended for use in potentially explosive atmospheres.
The test results are recorded in the confidential test report IB-02-4-124/2 of 07.03.2002.

[9] Compliance with Essential Health and Safety Requirements has been assured by compliance with EN 1127-1:1997, prEN 13463-1:2001, prEN 13463-5:2000.

[10] If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this Type Examination Certificate.

[11] This Type Examination Certificate relates only to the design and construction of the specified equipment. Further requirements of this Directive apply to the manufacture and supply of this equipment.

[12] The marking of the RADEX® - N Steel lamina couplings mentioned in [4] shall include the following assignments:

 **II 2G EEx c IIC T6 resp. T5**
-20 °C ≤ T_a ≤ +65 °C resp. +80 °C

IBExU Institut für Sicherheitstechnik GmbH
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Authorised for certifications Explosion Protection

(Prof. Dr. Redeker)



- Seal -

Freiberg, 07.03.2002

Certificates without signature and seal aren't valid.
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Schedule

[13] **Schedule**

[14] **to TYPE EXAMINATION CERTIFICATE IBExU02ATEXB005 X**

[15] **Description**

RADEX[®] - N Steel lamina couplings are backlash-free and torsionally stiff couplings. A lamella pile, made from stainless spring steel, is fixed between two flanges in such way, that axial, radial and angular misalignment between gear and distillate can be compensated within provided limits.

The several designs of the couplings are different particularly by the number of the hinges (single and/or double cardanic), as well as by the configuration of various connecting pieces.

Details are contained in the documentation of the manufacturer, which are part of the test report IB-02-4-124/2 of 07.03.2002.

[16] **Test Report**

The test results are recorded in the confidential test report IB-02-4-124/2 of 07.03.2002.

Summary of the Test Results:

The RADEX[®] - N Steel lamina couplings of the in [4] mentioned design fulfil the requirements for non-electrical devices of the type of protection c (protection by constructional safety) of the equipment group II, category 2G, temperature class T6 (for an ambient temperature T_a of -20 °C up to $+65\text{ °C}$) as well as temperature class T5 (for an ambient temperature T_a of -20 °C up to $+80\text{ °C}$) and fulfil the requirements for use in the explosion group IIC. Thus, they fulfil the requirements of the temperature class T4 up to T1 as well as the explosion group IIB and IIA.

Note

The manufacturer has to guarantee, that each manufactured RADEX[®] - N Steel lamina coupling corresponds to the conditions, which are lied down in the Type Examination Certificate.

The manufacturer has to guarantee, that the appropriate requirements of the directive 94/9/EC are fulfilled.

[17] **Special Conditions for safe use**

At the assembly of screw connections screws provided by the manufacturer only have to be used.

The torque stipulated by the manufacturer has to be adhered at the tighten of the screws.

The screws have to be secured against self disengaging, provided that not alone self securing screws are used.

The RADEX[®] - N Steel lamina couplings may be used only if their materials under the respective operation conditions resist the mechanical and/or chemical influences respectively corrosion in such way, that the explosion protection is always guaranteed.

The RADEX® - N Steel lamina couplings have to be equipped with stable covers. The covers have to protect the couplings from the impact of falling objects.
In the covers may be arranged regular openings, which may not exceed the following measurements:

	Circular openings, diameter in mm	Rectangular openings, lateral length in mm
Top side of the cover	4	4
Side part of the cover	8	8

The distance between the cover and rotating parts must be at least 5 mm.

The cover must be electrically conductive and must be included in the compensation of potential.
The removing of the cover is only allowed in standstill.

All screw connections for the fixing of the hub on the wheels have to be protected against self-loosening.

The user is obliged to observe the specifications of the installation instructions and maintenance instructions for each coupling. This is valid especially for the indications for use of the couplings in explosive atmospheres.

[18] Essential Health and Safety Requirements

Confirmed by norms (see [9]).



(Prof. Dr. Redeker)

Freiberg, 07.03.2002

1st addition to the

TYPE EXAMINATION CERTIFICATE IBExU02ATEXB005 X

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- [1] Equipment: **RADEX® - N Steel lamina couplings**
of the design NN, NANA 1 up to 4, NENA 1 and 2, NENE 1, NNZ, NNW
of the dimensions of the design in each case from 20 up to 220 as well as
in each case with standard flange hub
- [2] Manufacturer: KTR Kupplungstechnik GmbH
- [3] Address: Rodder Damm 170
D-48432 Rheine
- [4] **Additions/Modifications**
- [4.1] The RADEX® - N Steel lamina couplings of the design mentioned in [1] fulfil the requirements for non-electrical devices of the type of protection "c" of the **equipment group II, category 2D**, maximum surface temperature $T \leq 110 \text{ °C}$ at a maximum temperature of ambient $T_a \leq 80 \text{ °C}$, as well as **group I, category M2**.
The test results are recorded in the confidential test report IB-02-4-602 of 30.11.2002.
- [4.2] The notes for safety and the "Special Conditions for safe use" [17], which are given in the Type Examination Certificate IBExU02ATEXB005 X are changed and completed as follows:
- a) Modification of the break 5, sentence 2, according to test report IB-02-4-602/1 of 05.12.2002:
The materials of the safety devices have to be selected according to EN 13463-1:2001. Light metal should not be used for covers with unsealed openings on the top.
- b) Completion:
When using the couplings
- the user has to make sure, that no dust accumulates between the cover and the coupling. The coupling must not operate in a dust layer.
 - in plants of the mining industry the cover must withstand greater mechanical loads than at the use as equipment group II.
- [5] The marking of the RADEX® - N Steel lamina couplings mentioned in [1], shall include the following assignments according to equipment group and category:



II 2G c IIC T5 resp. T6
 $-20 \text{ °C} \leq T_a \leq +80 \text{ °C}$ resp. 65 °C



II 2D c T 110 °C
 $-20 \text{ °C} \leq T_a \leq +80 \text{ °C}$



I M2 c
 $-20 \text{ °C} \leq T_a \leq +80 \text{ °C}$

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