

IBExU Institut für Sicherheitstechnik GmbH

An-Institut der TU Bergakademie Freiberg

[1] TYPE EXAMINATION CERTIFICATE

- Translation -



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

[3] Type Examination Certificate Number: **IBExU01ATEXB004**

[4] Equipment: **BoWex ELASTIC® Highly flexible flange coupling**
Types HE 42, 48, 65, 80, G80
HEW 42, 48, 65, 80, G80

[5] Manufacturer: KTR Kupplungstechnik GmbH

[6] Address: Postfach 1763
D-48407 Rheine

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

[8] IBExU Institut für Sicherheitstechnik GmbH certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the construction of other equipment of the category 2 resp. category 3 intended for use in potentially explosive atmospheres. These fundamental requirements for safety and protection of health are given in Annex II to the Directive 94/9/EC of 23 March 1994.


The test results are recorded in the confidential test report IB-01-325 of 13.11.2001.

[9] Compliance with Essential Health and Safety Requirements has been assured by compliance with:
- DIN 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 conception, examination and tests of the specified equipment in accordance with the Directive 94/9/EC. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment. They are not included in this present certificate.

[12] The marking of the equipment shall include the following:

 **II 2G IIB T4**
-20 °C ≤ T_a ≤ +80 °C

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D-09599 Freiberg

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Authorised for certifications
- Explosion Protection -

By order

(Dr. Lösch)



- Seal -

Freiberg, 14.11.2001

Certificates without signature and seal aren't valid. This certificate may only be duplicated completely and unchanged. In case of dispute, the German text shall prevail.

Schedule

[13] **Schedule**

[14] **to TYPE EXAMINATION CERTIFICATE IBExU01ATEXB004**

[15] **Description of the equipment**

The highly flexible flange couplings BoWex ELASTIC® for compensation for misalignments and reduction of torsional vibrations consist of:

- hub from sintered metal
- flange hub from sintered metal
- elastomer part BoWex ELASTIC® from Ultramid and natural rubber

The mechanical stress is carried out on torsional thrust force. The reduction of vibrations is carried out in a torsional damper, which consists of natural rubber.

The elastomer package is durable screwed with the motor-hub.

The hub is inserted in the coupling sleeve axially via the external curved-tooth.

In this area results a little tolerance in the connection, which serves to the above mentioned compensation for misalignments.

Technical Data

Operating temperature range:	-20 °C up to +80 °C
Explosion group:	IIB
Temperature class:	T4

[16] **Test Report**

The test results are recorded in the confidential test report IB-01-325 of 13.11.2001.

Summary of the Test Results:

The highly flexible flange couplings BoWex ELASTIC® for compensation for misalignments and reduction of torsional vibrations fulfil the requirements for a non-electrical device of the equipment group II, category 2G, temperature class T4 (for an ambient temperature T_a of -20 °C up to +80 °C).

Note for safety:

The manufacturer has to guarantee, that each manufactured BoWex ELASTIC® coupling corresponds to the conditions, which are laid down in the Type Examination Certificate.

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

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

The BoWex ELASTIC® 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 BoWex ELASTIC® 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 cover	4	4
Side part of 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 for potential. Light metal should not be used for the cover.

The removing of the cover is only allowed at standstill and outside of explosion atmosphere.

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

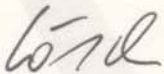
When the natural rubber-disc of the elastomer part breaks / loses the gear must put out of operation so fast as possible.

[18] **Essential Health and Safety Requirements**

not required

Freiberg, 14.11.2001

By order



(Dr. Lösch)

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1st addition to the
TYPE EXAMINATION CERTIFICATE IBExU01ATEXB004
- Translation -



- [1] Equipment: **BoWex-ELASTIC® coupling**
of the types HE 42, 48, 65, 80, G80
HEW 42, 48, 65, 80, G80
- [2] Manufacturer: KTR Kupplungstechnik GmbH
- [3] Address: Rodder Damm 170
D-48407 Rheine

[4] **Addition/Modification**

The curved-tooth gear couplings BoWex-ELASTIC® of the designs mentioned in [1] meet also the requirements of the equipment group II, category 2D, maximum surface temperature T 130 °C at a maximum ambient temperature T_a +80 °C.

The test results are recorded in the test report IB-04-4-001 of 15 January 2004.

The safety notes mentioned in the Type Examination Certificate IBExU01ATEXB004 under [16] are supplemented by the following notes:

When using the couplings in potentially explosive atmospheres 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.

- [5] The marking of the equipment shall include the following:

II 2D c T 130 °C X

Instead of the marking specified in the Type Examination Certificate IBExU01ATEXB004 of 14 November 2001 and the above mentioned additional marking, the couplings can be marked in the following concentrated form:

II 2GD c IIB T 130 °C X

It is confirmed that the documents for the non-electrical equipment mentioned in [4] are deposited with NOTIFIED BODY IBExU (EC-Identification No. 0637) under the number IB-01-325 and IB-04-4-001 according to Annex VIII of Directive 94/9/EG, appropriate to the commitments of the Directive 94/9/EC, Article 8 (1) b ii).

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(Prof. Dr. Redeker)

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- Stamp -

Freiberg, 15 January 2004

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[1] **1st Addition to
TYPE EXAMINATION CERTIFICATE IBExU01ATEXB004_05 X
(Translation)**



- [2] Equipment / Component: **BoWex - ELASTIC® - highly elastic couplings**
of the designs
- a) Previous types: **Flange couplings HE No 055** (type HE 1 and HE 2)
Sizes 42, 48, 65, 80 and G80
Shaft couplings HEW No 065 (type HEW 1 and HEW 2)
Sizes 42, 48, 65, 80 and G80
- b) Supplemented types: **Flange couplings HE No 055** (type HE 3 and HE 4)
Sizes 100, 125, G125 and 150
Shaft couplings HEW No 065 (type HEW 1 and HEW 2)
Sizes 100, 125, G125 and 150
- [3] Manufacturer: KTR Kupplungstechnik GmbH
- [4] Address: Rodder Damm 170
48432 Rheine
Germany

[5] **Addition/Modification**

The highly elastic couplings BoWex - ELASTIC® mentioned in [2] a) are supplemented with the types and sizes mentioned in [2] b). The additional types are only different in size. The constructive differences have no influence on the explosion protection. The used materials are identical with the materials of the types certified till now.

[6] **Test report**

The test results are recorded in the Test Report IB-09-4-013 of 10 August 2009. The test documents are part of the Test Report and listed there.

[7] **Test result**

IBExU certifies that the equipment/components mentioned in [2] b) have been found to comply with the Essential Health and Safety Requirements given in Annex II of the Directive 94/9/EC by compliance with EN 1127-1:2007, EN 13463-1:2009 and EN 13463-5:2003.

The marking of the equipment/components mentioned in [2] b) can be as follows:



II 2GD c IIB T X

The following marking also can be used under reference to the maximum permissible ambient temperatures and/or operating temperatures T_a and temperature classes or maximum surface temperatures under consideration of the temperature rise $\Delta T = 35$ K explained in [16]:



II 2G c IIB T6, T5 resp. T4 X
 $-30\text{ °C} \leq T_a \leq +50\text{ °C}, +65\text{ °C resp. }+80\text{ °C}$



II 2D c T 115 °C X
 $-30\text{ °C} \leq T_a \leq +80\text{ °C}$

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[8] **Special conditions for safe use**

The special conditions for safe use specified in the schedule to the Type Examination Certificate IBExU01ATEXB004_05 X are also valid for the types mentioned in [2] b).

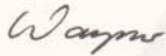
This addition is only valid in combination with the Type Examination Certificate IBExU01ATEXB004_05 X of 18 April 2006.

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Authorised for certifications
- Explosion protection -

Freiberg, 11 August 2009

By order



(Dr. Wagner)

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