



**IBExU Institut für Sicherheitstechnik GmbH**  
An-Institut der TU Bergakademie Freiberg

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[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 NEMO®-Pumps mentioned in [4] shall include the following:

 II 2G c IIB T4 resp. T3  
-20 °C ≤ T<sub>a</sub> ≤ +60 °C

**IBExU** Institut für Sicherheitstechnik GmbH  
Fuchsmühlenweg 7 - D-09599 Freiberg  
Tel.: 0049 3731 3805-0 - Fax: 0049 3731 23650

Authorized for certifications Explosion Protection

Freiberg, 26.03.2002



(Prof. Dr. Redeker)



- Seal -

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

**Schedule**

[13] **Schedule**

[14] **to TYPE EXAMINATION CERTIFICATE IBExU02ATEXB011 X**

[15] **Description**

The NEMO<sup>®</sup>-Pumps are rotary volume-displacement pumps. The main parts are the rotary part, the "rotor", and the fixed part - "stator". The rotor, which is formed as a standard thread screw, rotates in the stator. The stator has a turn of thread more than the rotor and has the double tread angle.

Thereby, interspaces remain between the stator and the inside rotating rotor, which in addition moves radially. The interspaces move continuously forwards.

The rotor is driven by a coupling rod. The coupling rod operates in the fluid, inclusively the double-sided joints.

Details are contained in the documentation of the manufacturer, which are part of the test report IB-02-4-132.

[16] **Test Report**

The test results are recorded in the confidential test report IB-02-4-132 of 26.03.2002.

**Summary of the Test Results:**

The NEMO<sup>®</sup>-Pumps of the series mentioned in [4] fulfil the requirements for non-electrical devices of the type of protection c (protection by constructional safety) of the equipment group II, category 2G and they fulfil the requirements for use in the explosion group IIB. Thus, they fulfil the requirements of the explosion group IIA. The pumps are suitable for use at ambient temperatures  $T_a$  of -20 °C up to +60 °C.

With these pumps can be conveyed fluids with temperatures above an ambient temperature of +60 °C.

The specification of the temperature class results from the allowable temperature of the conveying fluid mentioned in [17].

**Note**

The manufacturer has to guarantee, that each manufactured NEMO<sup>®</sup>-Pump 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/EC are fulfilled.

Before the delivery each pump must be undertaken a pressure test regarding the control of pressure resistance and tightness.

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

At a maximum ambient temperature of  $T_a = 60$  °C the temperature of the conveying fluid  $T_{FM}$  may amount at most (in dependence on the temperature class):

- Temperature class T4  $T_{FM} = 100$  °C
- Temperature class T3  $T_{FM} = 165$  °C

The pumps must not run dry. They must be equipped with appropriate dry running protection.

The pumps must be equipped with a pressure relief device.

The submerged pumps may be used only if their materials under the respective operation conditions resist the mechanical and/or chemical influences respectively corrosion in such a way, that the explosion protection is always guaranteed.

The drive of the pumps must be co-ordinated with the current pump.

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

Confirmed by norms (see [9]).



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