

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

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

[2] **for non-electrical equipment**
of the equipment groups I and II, categories M2 and 2



[3] Number of the Type Examination Certificate: **IBExU03ATEXB016 X**

[4] Equipment: **NEMO® -Pumps**
Submerged Pumps BT
series NM 015 to NM 105
with the types of joints: B = Pin Joint
K = Gear Joint
F = NEMO® - Flextec Flexible Rod
V = Pin Joint with wearing bush
Z = Cross Pin Joint

[5] Manufacturer: **NETZSCH Mohnopumpen GmbH**

[6] Address: **Geretsrieder Straße 1**
D-84464 Waldkraiburg

[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 test report IB-03-4-447 of 26 June 2003.

[9] Compliance with Essential Health and Safety Requirements has been assured by compliance with EN 1127-1:1997, EN 13463-1:2001, prEN 13463-5:2002.

[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 equipment shall include the following:

 **II 2G c IIB T4**
-20 °C ≤ T_a ≤ +60 °C

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Stamp

Freiberg, 26 June 2003

Certificates without signature and stamp are not 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 IBExU03ATEXB016 X**

[15] **Description of the equipment**

The Submerged Pumps mentioned under [4] are rotary volume-displacement pumps. The main parts are the rotary part, the "rotor", and the fixed part - "stator" and furthermore, the enclosure of the pump, which is designed in form of a pipe and the drive. The rotor, which is formed as a standard thread screw, rotates in the stator. The rotor is driven by a coupling rod. The coupling rod operates in the fluid, inclusively the double-sided joints inside the enclosure of the pump. The installation position of the Submerged Pumps is vertically. The conveying direction is always from the bottom to the top (suction at the base of the pump).

The Submerged Pumps mentioned under [4] are provided for the conveying of flammable liquids of the dangerous class AI, AII, AIII and B, which are classified in the explosion group IIB and temperature class T4, from stationary or movable containers. In this case, the external surface of the enclosure of the pumps may have contact with the vapour atmosphere in the containers. This atmosphere may be classified as potentially explosive atmospheres at most in zone 1. The drive of the pumps is always outside of this area.

The special instructions mentioned in the operating- and maintenance instructions as well as the equipment of the measurement technique for the monitoring of the conveying, which are described in these instructions, consider various conditions for use.

The pumps can be used at ambient temperatures and temperatures of the conveying medium of -20°C up to $+60^{\circ}\text{C}$.

Details are contained in the documentation of the manufacturer, which are part of the test report IB-03-4-447 of 26 June 2003 and IB-02-4-340 of 11 February 2003.

[16] **Test Report**

The test results are recorded in the confidential test report IB-03-4-447 of 26 June 2003.

Summary of the Test Results:

The Submerged 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. They fulfil the requirements for use in potentially explosive atmosphere, in which explosive atmosphere can be formed by substances of the explosion group IIB and temperature class T4.

The Submerged Pumps of the series mentioned under [4] are provided for the conveying of flammable liquids (dangerous class AI, AII, AIII or B, explosion group IIB and temperature class T4) from stationary or movable containers which vapour atmosphere above the liquid level is classified in zone 1.

The pumps are suitable for use at ambient temperatures T_a of -20°C up to $+60^{\circ}\text{C}$.

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

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

The drive of the pumps has to be adjusted to the power of the actual pump. Before the delivery each pump must be checked within a pressure test regarding pressure resistance and tightness.

The pumps must not run dry.

During the operation the stationary Submerged Pumps always must be filled with conveying fluid. This is valid for the start-up operation as well as for the shut-down process. They must be equipped with measurements for the permanent monitoring of the protection against dry run as well as with a pressure relief device.

For the use of manually operated, movable Submerged Pumps must be observed the notes of the operating- and maintenance instructions.

The Submerged Pumps must be earthed.

Stationary Submerged Pumps have to be included in the compensation of potential of the plant.

For the use of manually operated, movable Submerged Pumps must be observed the notes of the operating- and maintenance instructions. Manually operated Submerged Pumps must be supplied with a permanent indication for the necessary earthing before start up.

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

Confirmed by observance of standards (see [9]).

Freiberg, 26 June 2003



(Prof. Dr. Redeker)