[1] EU-TYPE EXAMINATION CERTIFICATE

[2] Components intended for use on/in an equipment or protective systems intended for use in potentially explosive atmospheres, Directive 2014/34/EU

[3] EU-Type Examination Certificate Number **IBExU13ATEX1155 U** | Issue 2

[4] Equipment: **Heaters**
Type: DH..A0... and DH..B0...

[5] Manufacturer: ELMESS Thermosystemtechnik GmbH & Co. KG

[6] Address: Nordallee 1
29525 Uelzen
GERMANY

[7] This product and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this product has been found to comply with the essential health and safety requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential test report IB-18-3-0022/2.

[9] Compliance with the essential health and safety requirements has been assured by compliance with:

EN IEC 60079-0:2018 EN 60079-1:2014 EN IEC 60079-7:2015/A1:2018 EN 60079-11:2012 EN 60079-31:2014

Except in respect of those requirements listed at item [18] of the annex.

[10] The sign "U" placed after the certificate number indicates that this certificate must not be mistaken for a certificate intended for an equipment or protective system. This partial certification may be used as a basis for certification of an equipment or protective system.

[11] This EU-type examination certificate relates only to the design and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this certificate.

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

Ex II 2G Ex db eb IIB Gb	or	**Ex II 2G Ex db eb IIC Gb**
Ex II 2G Ex db IIB Gb	or	**Ex II 2G Ex db IIC Gb**
Ex II 2G Ex db eb ib IIB Gb	or	**Ex II 2G Ex db eb ib IIC Gb**
Ex II 2G Ex db ib IIB Gb	or	**Ex II 2G Ex db ib IIC Gb**
Ex II 2D Ex tb IIIC Db		
Ex II 2D Ex tb ib IIIC Db		

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By order

Dipl.-Ing. (FH) Henker

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH * Kenn-Nr. 0637 *
- Seal -
(Notified Body number 0637)

Freiberg, 2019-11-04

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

[13] **Schedule**

[14] **Certificate Number IBExU13ATEX1155 U** | Issue 2

[15] **Description of product**

The Heaters type DH..A0... and DH..B0... serve for the direct or indirect heating of non-flammable fluids or non-explosive gases under operating conditions. They are intended for installation in containers (tank, flow pipe, machine, metal body etc.).

The Heaters consist of a flameproof enclosure and a terminal compartment in type of protection increased safety. The flameproof enclosures are made of grey cast iron or they consist of a welded construction from steel or stainless steel. The terminal compartment in type of protection increased safety may optionally be omitted at the welded enclosures. In this case the flameproof enclosure serves also as electric terminal compartment with direct cable entry. Protection pipes for heating cartridge and temperature sensors are welded in the enclosure bottom.

The Heater enclosures can be complemented with suitable and certified Ex e or Ex i terminal boxes, which are fixed to a holder (i. e. pipe or clamp ring) with the heater enclosure.

Technical data:

Heaters circuit

- Rated voltage:	max. 800 V
- Nominal voltage:	max. 690 V AC / DC
- Rated current:	max. 63 A or 2 x 50 A (DH..B03 and DH..B04) max. 35 A (DH..A01 - DH..A05, DH..B01, DH..B02)
- Connection cross-section:	max. 35 mm² (DH..B03 and DH..B04) max. 6 mm² (DH..A01 - DH..A05, DH..B01, DH..B02)

Control circuit

- Rated voltage:	440 V AC / 250 V DC
- Rated current:	max. 16 A AC, 0.25 A DC
- Connection cross-section:	max. 6 mm²
- IP-Degree of protection acc. to EN 60529:	max. IP66
- Property class of the fastening screws:	8.8 or A*70
- Ambient temperature range:	-20 °C up to +40 °C (standard) -40 °C up to +60 °C (special design grey cast iron) -50 °C up to +60 °C (special design steel) -60 °C up to +60 °C (special design stainless steel)
- Max. service temperature in the enclosure:	+80 °C +130 °C (special design, see operation manual)

Further details as well as special designs with higher service temperatures (max. 130 °C) are specified in the operation manual as well as in the manufacturer's documents which are part of the test report.

Variations compared to issue 1 of this certificate:

- Adaptation to the current standards
- Use of alternative cable bushing
- Use of alternative PE/PA terminal

[16] **Test report**

The examination and test results are recorded in the confidential test report IB-18-3-0022/2 of 2019-10-21. The test documents are part of the test report and they are listed there.

Summary of the test results

The Heaters type DH..A0... and DH..B0... fulfil as component the requirements of explosion protection for equipment of Group II, Category 2G, type of protection flameproof enclosure "db" or flameproof enclosure "db" in combination with increased safety "eb" and/or intrinsic safety "ib" and Category 2D, type of protection dust ignition protection by enclosure "tb", also in combination with intrinsic safety "ib".

[17] **Special conditions for use**

- The thermal parameters of the Heaters type DH..A0... and DH..B0... have to be determined by additional tests in the context of the specific installation of the Heater in accordance with the ambient conditions and as required with the corresponding temperature controllers, temperature limiters and possibly with additional monitoring devices. At this, the temperature class of the Heater has to be determined and certified separately.
- The maximum service temperature on ex-relevant components (seals, cable bushings, connection terminals) must not exceed 80 °C, with the exception of the special designs. For use in the reduced temperature range from -20 °C up to -60 °C the cable gland and the connecting cable should be suitable for the corresponding operating temperature.
- The Heater is equipped with cable gland as standard by the manufacturer. The cable gland may be used only for fixed installation; the operating company has to ensure an appropriate strain relief of the cable.
- The cables specified by the manufacturer in the operating instruction have to be used in the design with direct flameproof cable entry (without terminal compartment). At own selection of the cable glands and the connection cable the corresponding requirements in EN 60079-14, Paragraph 10.6.2 have to be noticed. When operating at minimum ambient temperatures < -20 °C also explosion pressures > 20 bar can occur in the terminal compartment of the Heater type DH..A01.. and DH..A02.., depending on the design. Relevant information is contained in the manufacturer specification for the respective Heater.
- Unused openings for cable entries have to be closed durably with suitable screw plugs, which are confirmed for explosion protection in the corresponding type of protection.
- Repairs of the flameproof joints must be made in compliance with the constructive specifications provided by the manufacturer. Repairs must not be made on the basis of values specified in tables 2 and 3 of EN 60079-1.
- The sensors of the temperature limiters shall be positioned so as to account for phase failure in three-phase systems.
- Flowing media may be monitored in addition by means of a flow controller, which will maintain a minimum throughput.
- Liquids may only be heated if an adequate cover is guaranteed. This requirement can be accounted for by providing level switches or similar safety measures.
- Safety devices, functionally or reliability tested according to the relevant requirements, have to be used as for temperature, flow, level etc.
- When use in explosive dust atmospheres, dust accumulations on the hot surfaces have to be avoided by suitable measures. Furthermore, high charging processes have to be avoided at coated enclosures.

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

In addition to the essential health and safety requirements (EHSRs) covered by the standards listed at item [9], the following are considered relevant to this product, and conformity is demonstrated in the test report:

- not applicable -

[19] **Drawings and documents**

The documents are listed in the test report.

By order

Freiberg, 2019-11-04

Dipl.-Ing. (FH) Henker