



[1] **EU-TYPE EXAMINATION CERTIFICATE - TRANSLATION**

[2] Equipment and protective systems intended for use in potentially explosive atmospheres, directive 2014/34/EU

[3] EU-Type Examination Certificate Number **IBExU15ATEX1019 X** | Issue 1

[4] Equipment: **Heater for gases** type DHG... and EHG...  
**Heater for liquids** type DHF... and EHF...  
**Heater in a solid body** type DHK... and EHK...

[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.

[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 schedule.

[10] If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of use specified in the schedule to this certificate.

[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:

Heater type DH..A0... and DH..B0...

II 2G Ex db eb IIC or IIB T6...T1 Gb

II 2G Ex db eb ib IIC or IIB T6...T1 Gb

II 2D Ex tb IIC T80 °C...T440 °C Db

II 2G Ex db IIC or IIB T6...T1 Gb

II 2G Ex db ib IIC or IIB T6...T1 Gb

II 2D Ex tb ib IIC T80 °C...T440 °C Db

Heater type DH..C1...

II 2G Ex db eb IIB+H<sub>2</sub> or IIB T6...T1 Gb

II 2G Ex db eb ib IIB+H<sub>2</sub> or IIB T6...T1 Gb

II 2D Ex tb IIC T80 °C...T440 °C Db

II 2G Ex db IIB+H<sub>2</sub> or IIB T6...T1 Gb

II 2G Ex db ib IIB+H<sub>2</sub> or IIB T6...T1 Gb

II 2D Ex tb ib IIC T80 °C...T440 °C Db

Heater type DH..L0...

II 2G Ex db IIC or IIB T6...T1 Gb

I M2 Ex db I Mb

II 2D Ex tb ib IIC T80 °C...T440 °C Db

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

Heater type DH..M0...

⊕ II 2G Ex db IIC or IIB T6...T1 Gb

⊕ II 2D Ex tb ib IIIC T80 °C...T440 °C Db

Heater type EH....

⊕ II 2G Ex eb IIC or IIB T6...T1 Gb

⊕ II 2G Ex db eb IIC or IIB T6...T1 Gb

⊕ II 2G Ex eb ib IIC or IIB T6...T1 Gb

⊕ II 2G Ex db eb ib IIC or IIB T6...T1 Gb

⊕ II 2D Ex tb IIIC T80 °C...T440 °C Db

⊕ II 2D Ex tb ib IIIC T80 °C...T440 °C Db

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By order



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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.

Freiberg, 2020-05-18

[13] **Schedule**

[14] **Certificate Number IBExU15ATEX1019 X | Issue 1**

[15] **Description of product**

The heaters for gases, liquids and in a solid body type DHG..., DHF... and DHK... as well as EHG..., EHF... and EHK... are used for direct or indirect heating of liquids or gases which are not explosive during operation. They are intended for installation in containers (tank, flow pipe, machine, metal body, etc.).

The heaters type DHG..., DHF... and DHK... 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 brass or they consist of a welded construction made of 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. It can be equipped with temperature limiting and temperature control devices as well as with switching and control devices or measuring sensors.

The heaters type EHG..., EHF... and EHK... consist of a terminal enclosure in increased safety with attached pipe heater/s or tubular heating elements.

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:

Heating circuit	AC / DC
- Rated voltage:	max. 690 V or 800 V
- Nominal voltage:	max. 690 V
- Rated current:	20 up to 630 A (acc. to enclosure size)
- Connection cross-section:	2.5 up to 400 mm <sup>2</sup> (acc. to enclosure size)
Control circuit	AC / DC
- Rated voltage:	max. 500 V AC / 250 V DC
- Rated current:	max. 16 A AC / max. 0.25 A DC
- Connection cross-section:	max. 6 mm <sup>2</sup>
- IP-Degree of protection acc. to EN 60529:	max. IP66
- Property class of the fastening screws (type DH...):	8.8 or A*-70
- Ambient temperature range:	-20 °C up to +40 °C (standard) -40 °C up to +60 °C (special version grey cast iron) -50 °C up to +60 °C (special version steel) -60 °C up to +60 °C (special version stainless steel, brass)
- Max. service temperature in the enclosure:	+80 °C

Further details are specified in the operation manual as well as in the documents of the manufacturer which are part of the test report.

The respective operating parameters for the design of the heaters have to be taken from the name plate and the supplementary documentation.

*Variations compared to issue 0 of this certificate:*

- Addition of the enclosures EH\* \*\*\*\*\*-\*, DH..M0..., DH..C1... and DH..L0...
- Addition of anti-condensation heater
- Adaption of the type key
- Conformity with current standards

**[16] Test report**

The examination and test results are recorded in the confidential test report IB-18-3-0022 of 2020-05-18. The test documents are part of the test report and they are listed there.

*Summary of the test results*

The heaters for gases, liquids and in a solid body type DHG..., DHF... and DHK... fulfil 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 intrinsic safety "ib" and Category 2D, type of protection dust ignition protection by enclosure "tb".

The heaters for gases, liquids and in a solid body type DH..L0... fulfil furthermore the requirements of explosion protection for equipment of Group I, Category M2, type of protection Flameproof enclosure "db".

The heaters for gases, liquids and in a solid body type EHG..., EHF... and EHK... fulfil the requirements of explosion protection for equipment of Group II, Category 2G, type of protection increased safety "eb" or increased safety "eb" in combination with flameproof enclosure "db" and intrinsic safety "ib" and Category 2D, type of protection dust ignition protection by enclosure "tb".

**[17] Special conditions for use**

- The heater must be operated in the specified mounting position and under the specified ambient temperature conditions. It should be ensured that the heat emission is evenly distributed and not obstructed operation of the heater.
- The heater may only be operated in conjunction with a protective system. All safety devices for temperature, flow, level etc. must be used in accordance with the relevant rules and regulations and has to be ex-certified equipment in accordance with the relevant provisions and harmonised standards according to Directive 2014/34/EU, e.g. EN 50495.
- If no protection temperature limiter is used by the manufacturer of the heater, the potential-free shutdown of the heater is the responsibility of the operator if the maximum temperature specified in the specification is exceeded.
- The position of the temperature sensors of the temperature limiters required for the explosion protection must include the changed operating conditions caused by a phase failure in three-phase systems.
- Heating of liquids is only allowed with enough liquid overlap. That can be fulfilled by level monitoring device or comparable protective measures.
- For flushing medium, additionally a flow monitoring device may be necessary to secure a minimum flow.
- When used in explosive dust atmospheres, adequate measures must be taken to prevent dust deposits on the heated part of the heaters and, in the case of coated enclosures, highly charging processes must be avoided.
- Repairs of the flameproof joints must be made in compliance with the constructive specifications provided by the manufacturer. A repair according to the values specified in tables 2 and 3 of EN 60079-1 is not permitted.
- The heater is equipped as standard with cable gland by the manufacturer. The cable gland may be used only for fixed installation; the operating company has to ensure to ensure an appropriate clamping method.
- Cables specified by the manufacturer in the operating instructions have to be used in the heater design with direct Ex d cable entry (without Ex e connection box). If the supplied cable glands and cables are not being used the corresponding requirements in EN 60079-14, Paragraph 10.6.2 have to be noticed. The direct cable glands in the heater enclosure DH..A0... have to be tested with 45 bar at minimum when used in explosion group IIC and below -20 °C.
- Unused openings for cable entries must be closed durably with suitable screw plugs, which are certified for explosion protection in the corresponding type of protection, EN 60079-14 must be observed.

- For devices for category M2, appropriate cable glands and connecting cables must be used; EN 50628 must be observed.
- The maximum operating temperature on ex-relevant components (seals, cable bushings, connection terminals) must not exceed 80 °C. At operation with lower ambient temperature less than -20 °C down to -60 °C the cable gland and the connection cables must be suitable for the appropriate operating temperature.
- When using certified components or devices in type of protection intrinsic safety the special conditions contained in the respective certificate must be observed.
- The integration in the external potential equalization is made via the Ex e potential equalization terminal. If this is not available, potential equalization is carried out via the inlet connector, flange or adapter sleeve.
- The heaters can be used with an anti-condensation heater in the enclosure. This may only be operated when the (main) heater is not in operation.
- Only the screws specified by the manufacturer with a strength class of 8.8 or A\*-70 may be used for closing the flameproof enclosures.
- The heaters can also be marked with the maximum surface temperature in °C instead of or in addition to the temperature class.

**[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



Dipl.-Ing. (FH) Henker

Freiberg, 2020-05-18