[1] # EC-TYPE EXAMINATION CERTIFICATE

according to Directive 94/9/EC, Annex III
(Translation)

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

[3] EC-Type Examination Certificate Number: **IBExU15ATEX1019 X**

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

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

[6] Address: Nordallee 1
29525 Uelzen
GERMANY

[7] The design of the equipment mentioned under [4] and any acceptable variations thereto are specified in the schedule to this EC-Type Examination Certificate.

[8] IBExU Institut für Sicherheitstechnik GmbH, Notified Body number 0637 in accordance with article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that the equipment mentioned under [4] has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The test results are recorded in the test report IB-13-3-077/1 of 19 March 2015.

[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012+A11:2013, EN 60079-1:2014, EN 60079-7:2007, EN 60079-11:2012 and EN 60079-31:2014.

[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 EC-Type Examination Certificate.

[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

[12] The marking of the equipment mentioned under [4] shall include the following:

II 2G Ex db e IIB/IIC T6...T1 Gb	or	**II 2G Ex db eb IIB/IIC T6...T1**
II 2G Ex db IIB/IIC T6...T1 Gb	or	**II 2G Ex db IIB/IIC T6...T1**
II 2G Ex db e ib IIB/IIC T6...T1 Gb	or	**II 2G Ex db eb ib IIB/IIC T6...T1**
II 2G Ex db ib IIB/IIC T6...T1 Gb	or	**II 2G Ex db ib IIB/IIC T6...T1**
II 2D Ex tb IIIC TX Db	or	**II 2D Ex tb IIIC TX**
II 2D Ex tb ib IIIC TX Db	or	**II 2D Ex tb ib IIIC TX**

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Authorised for certifications
-Explosion protection-

By order

(Dr. Wagner)

Zertifizierungsstelle Explosionsschutz IBExU Institut für Sicherheitstechnik GmbH * Kenn-Nr. 0637 *
- Seal -
(ID no. 0637)

Freiberg, 19 March 2015

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

Annex

[13] **Annex**

[14] **to the EC-TYPE EXAMINATION CERTIFICATE IBExU15ATEX1019 X**

[15] **Description of equipment**

The Heaters for gases, liquids and in a solid body type DHG..., DHF... and DHK... 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 e.g.).

The Heaters consist of a flameproof enclosure and 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.

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 current circuit

- Rated voltage:	max. 800 V
- Nominal voltage:	max. 690 V AC / DC
- Rated current:	max. 63 A (DH..B03, DH..B03St and DH..B03V) max. 35 A (DH..A01, DH..A02 and DH..B01)
- Connection cross-section:	max. 25 mm² (DH..B03, DH..B03St and DH..B03V) max. 6 mm² (DH..A01 , DH..A02 , DH..B01)

Control circuit

- Rated voltage:	440 V AC / 250 V DC
- Rated current:	max. 16 A
- Connection cross-section:	max. 6 mm²
- IP-Degree of protection acc. to EN 60529:	max. IP 66
- Property class of the fastening screws:	8.8
- 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)
- Max. service temperature in the enclosure:	+80 °C
- Surface temperature TX:	+80 °C up to +440 °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.

[16] **Test report**

The test results are recorded in the test report IB-13-3-077/1 of 19 March 2015. The test documents are listed in the annex to the test report.

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 „d" respectively flameproof enclosure „d" in combination with increased safety „e" and intrinsic safety „ib" and Category 2D, type of protection dust ignition protection by enclosure „tb".

[17] **Special conditions for safe 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. Function and reliability tested variations in accordance with the relevant rules and regulations are to use as safety device for temperature, flow, level etc.
- 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 fulfilling 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 use in explosive dust atmospheres, adequate measures must be taken to prevent dust deposits on the heated part of the heaters.
- 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 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 at use in explosion group IIC and below -20 °C.
- 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.
- 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.
- The special conditions contained in the respective certificate have to be noticed at use of certified components or devices in type of protection Ex i.

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

Confirmed by compliance with standards (see [9]).

By order

Freiberg, 19 March 2015

(Dr. Wagner)