



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX FME 15.0009X** Page 1 of 3 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2016-01-25

Applicant: **eltherm production GmbH**  
Ernst-Heinkel-Straße 6-10 57299 Burbach  
Germany

Equipment: **Electrical Resistance Mineral Insulated Heating Cable Systems**

Optional accessory:

Type of Protection: **Flameproof, Increased Safety & Protection by Enclosure**

Marking: Ex db e IIC T6...T1 Gb  
Ex tb III C T85°C...T450°C Db IP64  
Ta = -60°C to +60°C

Approved for issue on behalf of the IECEx  
Certification Body:

**Mick Gower**

Position:

**Certification Manager**

Signature:  
(for printed version)

Date:

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
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**SL4 1RS Windsor**  
**United Kingdom**





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Manufacturer: **eltherm production GmbH**  
Ernst-Heinkel-Straße 6-10 57299 Burbach  
Germany

Additional  
manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

**IEC 60079-0:2011** Explosive atmospheres - Part 0: General requirements  
Edition:6.0

**IEC 60079-1:2014-06** Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"  
Edition:7.0

**IEC 60079-30-1:2007-01** Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements  
Edition:1

**IEC 60079-31:2013** Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"  
Edition:2

**IEC 60079-7:2006-07** Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:4

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[GB/FME/EXTR15.0004/00](#)

Quality Assessment Report:

[FR/INE/QAR12.0007/02](#)



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**EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

Refer to Annex 1 Document

**SPECIFIC CONDITIONS OF USE: YES as shown below:**

Refer to Annex 1 document

**Annex:**

[Annex\\_1\\_to\\_IECEX\\_FME\\_15-0009X\\_Issue\\_0.pdf](#)

|                                  |                       |
|----------------------------------|-----------------------|
| ExTR Reference Number .....      | GB/FME/ExTR15.0004/00 |
| ExTR Free Reference Number ..... | Project ID 3052972    |
| Date of issue .....              | 13 January 2016       |

**General product information:**

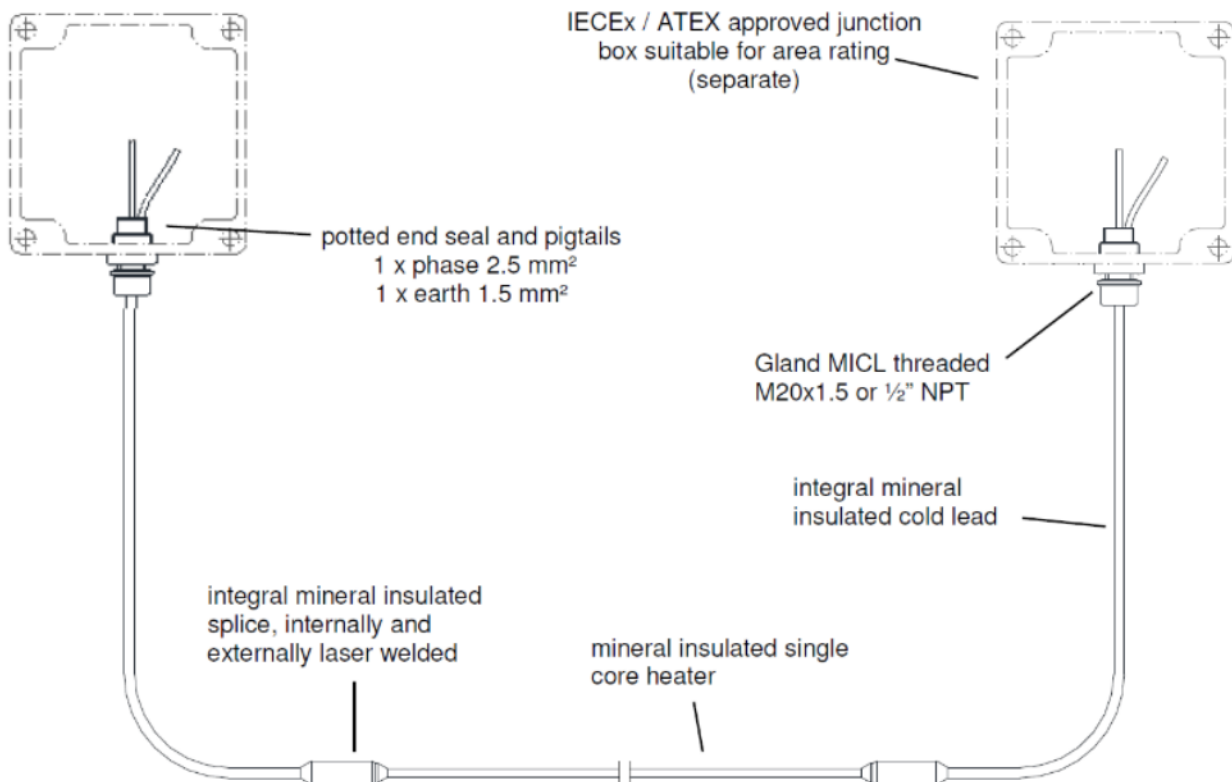
ELK-MI-VA trace heaters consist of a single core series heater (available resistances see Table 1), connected to mineral insulated cold leads (2.5 mm<sup>2</sup> copper conductor) by means of a laser welded splice. Outer materials are stainless steel 1.4541 (AISI 321). The free end of the cold lead is potted and fitted with a flexible 2.5 mm<sup>2</sup> lead for power connection and a 1.5 mm<sup>2</sup> lead for earthing and. A compression ring stainless steel gland 1.4404 (AISI 316L) threaded either M20x1.5 or ½"NPT is fitted at the end of each cold lead and prevented from possible loss by the potted end seal.

ELK-MI-VA trace heaters are supplied prefabricated and ready for installation. Each unit comes with an attached type plate bearing all required information / marking. Maximum permitted maintain temperatures are derived from a maximum sheath temperature determination by eltherm based on the calculation tool "eltherm designer" and are indicated on the type plate.

The technical data is shown below:

**Technical Data**

|                         |   |
|-------------------------|---|
| Conductor               | NiCr 8020 (heater); E-Cu (cold lead)                                    |
| Insulation              | MgO, thickness $\geq 0.9$ mm  |
| Sheath                  | Stainless steel 1.4541 (AISI 321), thickness $\geq 1/10$ cable diameter |
| Min. bend radius        | 6 x cable diameter  |
| Max. voltage            | 500 VAC   |
| Resistance of sheath:   | < 0.3 Ohm/m   |
| Max. exposure temp.     | 700°C (MI cable and integral splice); 80°C (potted end seals)           |
| Min. installation temp. | -60°C   |

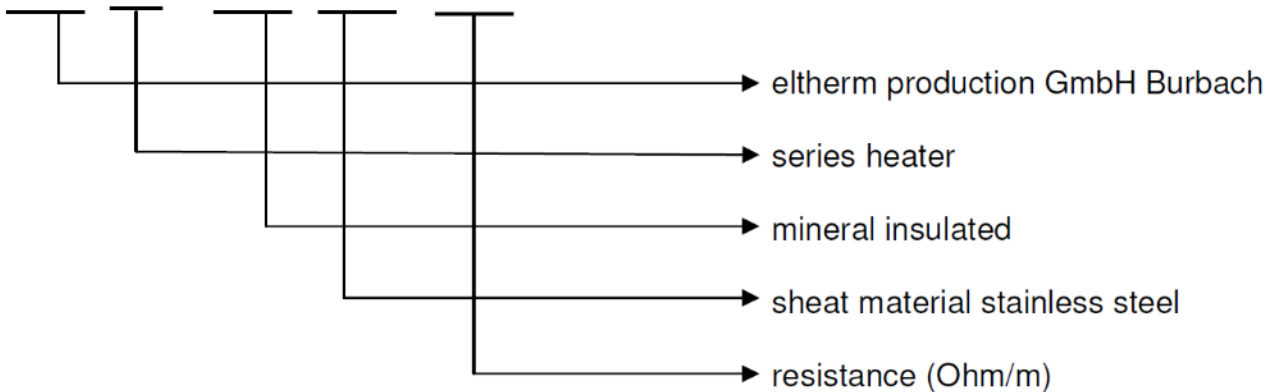
**Pictorial view of Typical ELK-MI-VA Cable System Model**

The model structure of the heating cable is shown below:

**ELK-MI-VA-a mineral insulated heating cable ELK-MI-VA series**

a = resistance (up to 10 ohm/m)

**E L K - M I - V A . .**



example: „ELK-MI-VA 0,4“

**Routine tests:**

1. On 100% of production, the thermal output rating for each shipped length of electric heating cable shall be verified by measurement of the dc resistance, conductance or current at a given voltage and temperature.
2. On 100% of production, each shipped length of heating cable shall be subjected to an a.c. potential equal to  $2(E) + 1000$  volts [or with a d.c. potential of  $1.414(2E + 1000)$  volts] for a one minute duration, where 'E' equals the rated voltage. As an alternative to these tests, the heating cables may be subjected to a dry spark test at a minimum of 6000 Vac.

**Specific Conditions for Safe Use**

1. The ELK-MI-VA trace heating cables and integral splices shall have a minimum and maximum operating temperature range of  $-60^{\circ}\text{C}$  to  $+700^{\circ}\text{C}$ . The potted end seals shall have a minimum and maximum operating temperature range of  $-60^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ .
2. The maximum surface temperature in or on the ELK-MI-VA Trace Heating System is limited to the maximum allowed values by means of controlled design or stabilized design in accordance with IEC 60079-30-1.
  - a. For Stabilized Design -  
The design information from eltherm GmbH and the calculation tool "eltherm designer version 2.0" shall be such that they ensure temperature stabilization at lower values than the specified maximum surface temperature class selected, T6...T1 or the auto-ignition temperature of the specific gas for EPL Gb, or  $T85^{\circ}\text{C}$ ... $T450^{\circ}\text{C}$  or the auto-ignition temperature of the specific dust or fiber for EPL Db.
  - b. For Control design -  
The device applied as a temperature limiter for the controlled temperature design shall comply with the requirements of Clause 4.4.3.a) of IEC 60079-30-1. The temperature sensors for temperature control or limitation shall be IECEx Certified and comply with the types of protections listed in Clause 1 of IEC 60079-0 as EPL Gb or Db equipment.
3. The ELK-MI-VA Trace heaters shall be installed in accordance with the manufacturer's instructions and connected in accordance with IEC 60079-14. The connections shall be made using a suitably rated IECEx Certified flameproof enclosure "d" or in the case of dust installations using an IECEx Certified and suitably rated "tb" enclosure.
4. Notification shall be given that the design information shall be retained as a record of system documentation for each controlled design system for as long as the system is in use. The set point in the system documentation shall be checked during commissioning of the system.
5. A ground fault protection device must be used with this heating device.