



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

Certificate No.: **IECEX FME 15.0009X** Page 1 of 4 [Certificate history:](#)
Issue 0 (2016-01-25)

Status: **Current** Issue No: 1

Date of Issue: 2018-08-22

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

Equipment: **ELK-MI Series Electrical Resistance Mineral Insulated Heating Cable Systems**

Optional accessory:

Type of Protection: **60079-30-1, Flameproof, Increased Safety & Protection by Enclosure**

Marking: Ex 60079-30-1 db eb IIC T6...T1 Gb
Ex 60079-30-1 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:

Nicholas Ludlam

Position:

Deputy 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.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

FM Approvals Ltd
1 Windsor Dials
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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

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

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

IEC 60079-7:2015 Explosive atmospheres – Part 7: Equipment protection by increased safety "e"
Edition:5.0

**IEC/IEEE
60079-30-1:2015** Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements
Edition:1.0

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 Reports:

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

[GB/FME/EXTR15.0004/01](#)

Quality Assessment Report:

[FR/INE/QAR12.0007/04](#)



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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



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

1. The additional variation of the cables with regards to different alloys.
2. Updating some of the test specification to their latest editions, especially, the use of the trace heating standard IEC/IEEE 60079-30-1 Ed. 1

Annex:

[Annex 1 to IECEx FME 15-0009X Issue 1.pdf](#)

ExTR Reference Number.....:	GB/FME/ExTR15.0004/01
ExTR Free Reference Number	3062064 (Supplement 3052972 & GB/FME/ExTR15.0004/00)
Date of issue	Refer to the Issue Date of IECEx FME 15.0009X Issue No. 1

General product information:

The ELK-MI Electrical Trace Heating System description is updated as shown below:

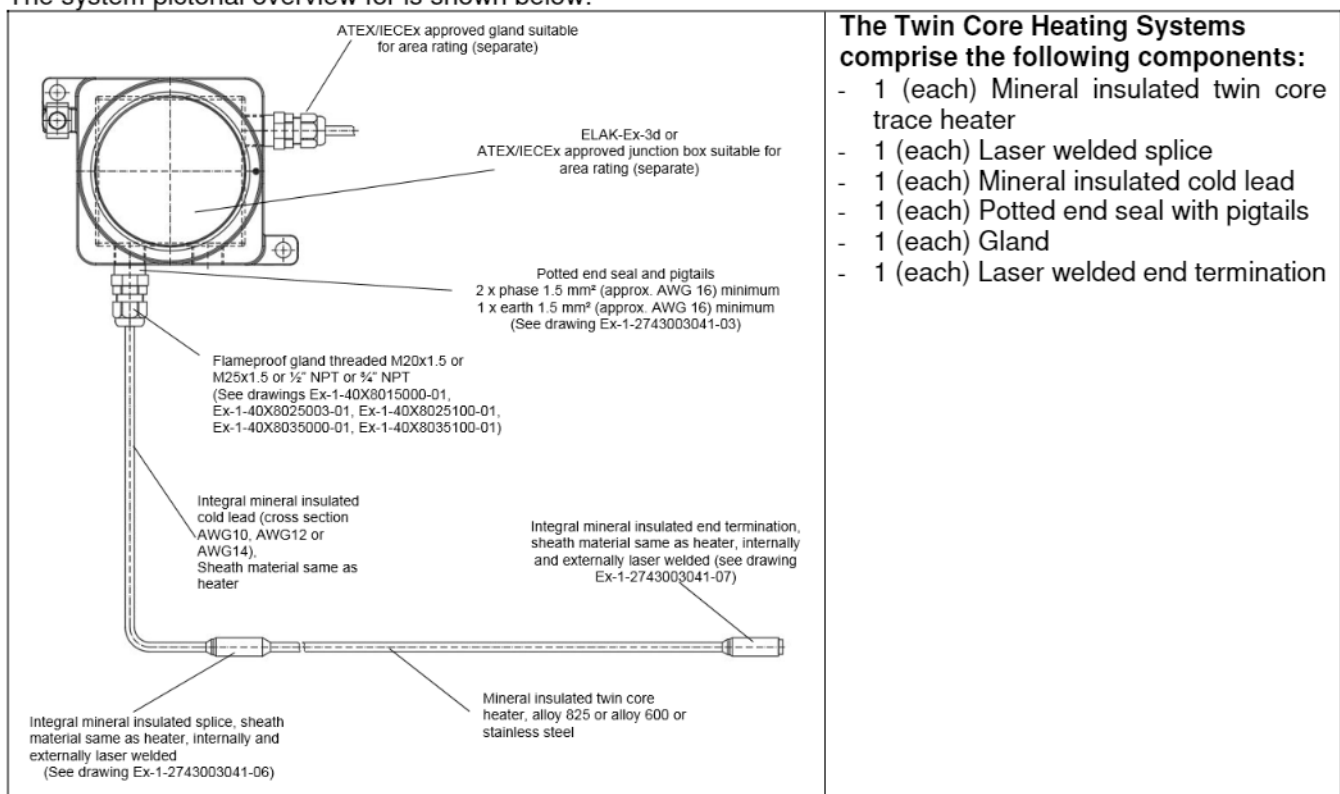
The updated ELK-MI series trace heaters consist of a single or twin core series heater, connected to mineral insulated cold leads (1.5 mm² - up to 6 mm² copper conductor) by means of a laser welded splice. Outer materials are stainless steel 1.4541 (AISI 321), alloy 600 and alloy 825. The free end of the cold lead is potted and fitted with a flexible lead for power connection and a lead for earthing; cross section is same as cold lead. A compression ring stainless steel gland 1.4404 (AISI 316L) threaded either M20x1.5, M25x1.5, ½"NPT or ¾"NPT is fitted at the end of each cold lead and prevented from possible loss by the potted end seal.

ELK-MI 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 IECEx CoC reference number of the integrated cable gland is IECEx IBE 14.0073X with certification ratings, Ex db e IIC Gb & Ex tb IIIC Db.

Technical Data

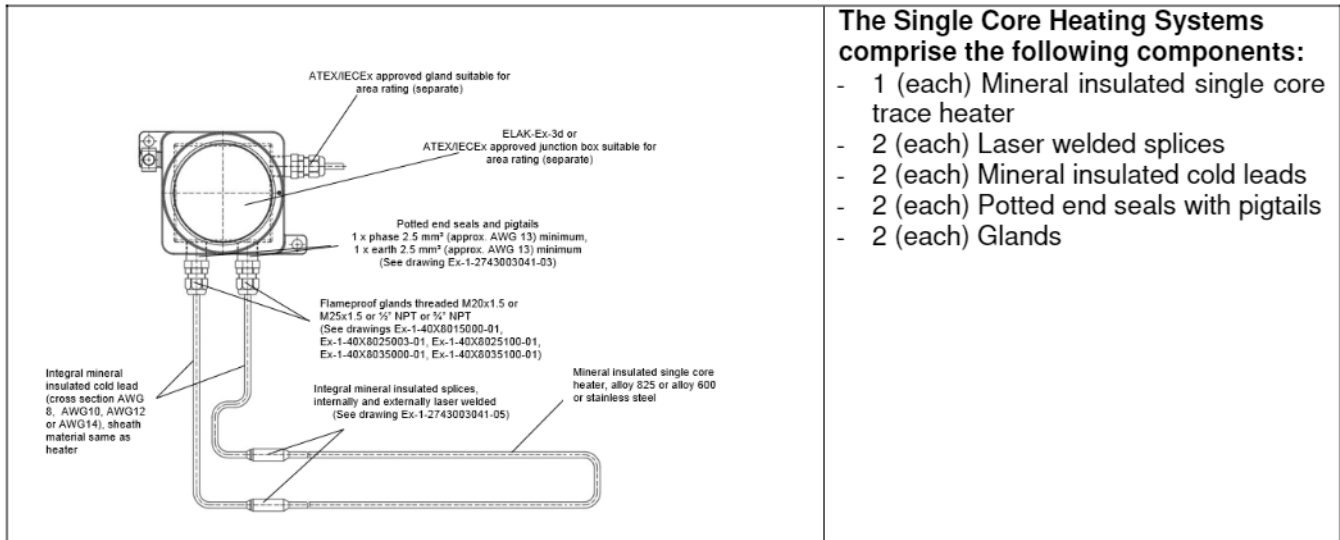
Sheath material	VA / VA-T: stainless steel 1.4541 (AISI 321) AY600 / AY600-T: Mat. 2.4816 (Alloy 600) AY825 / AY825-T: Mat. 2.4858 (Alloy 825)
Gland material	stainless steel 1.4404 (AISI 316L)
Min. bend radius	6 x cable diameter
Max. voltage	600VAC (AY600 / VA / AY825 / AY825-T; refer to type plate) 500VAC (AY600; refer to type plate) 400VAC (AY600-T / VA-T; refer to type plate) 300VAC (AY825-T; refer to type plate)
Max. exposure temp.	700°C (AY825 / AY825-T) ; 565°C (VA/VA-T, AY600/AY600-T); 80°C / 176°F (potted end seals)
Max. operating temp.	refer to type plate
Min. installation temp.	-60°C
Min. start up temp.	-60°C

The system pictorial overview for is shown below:



The Twin Core Heating Systems comprise the following components:

- 1 (each) Mineral insulated twin core trace heater
- 1 (each) Laser welded splice
- 1 (each) Mineral insulated cold lead
- 1 (each) Potted end seal with pigtails
- 1 (each) Gland
- 1 (each) Laser welded end termination



The changes associated with this ExTR includes the following listed below:

- a. The additional variation of the cables with regards to different alloys.
- b. Updating some of the test specification to their latest editions, especially, the use of the trace heating standard IEC/IEEE 60079-30-1 Ed. 1

The model structure of the heating cable is shown below:

ELK-MI-a-b-c mineral insulated heating cable ELK-MI series

a = sheath material VA or AY600 or AY825

b = no of cables (blank or T for twin)

c = resistance (up to 36.1 ohm/m)

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 series trace heating cables and integral splices shall have a minimum and maximum operating temperature range of -60°C to $+700^{\circ}\text{C}$ (for AY825/AY825-T); -60°C to $+565^{\circ}\text{C}$ (for VA/VA-T, AY600/AY600-T). The potted end seals shall have a minimum and maximum operating temperature range of -60°C to $+80^{\circ}\text{C}$.
2. The maximum surface temperature in or on the ELK-MI series Trace Heating System is limited to the maximum allowed values by means of controlled design or stabilized design in accordance with IEC/IEEE 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 85°C ... 450°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 4.5.3.1.a) of IEC/IEEE 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 series Trace heaters shall be installed in accordance with the manufacturer's instructions and connected using a suitably rated IECEx Certified junction box.
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.