



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: IECEx LCI 06.0006X

Issue No: 6

Certificate history:

Status: **Current**

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[Issue No. 6 \(2016-06-30\)](#)

Date of Issue: **2016-06-30**

[Issue No. 5 \(2015-06-10\)](#)

Applicant: **EXHEAT Limited**
Threxton Road Industrial Estate
Watton, Thetford,
Norfolk, IP25 6NG
United Kingdom

[Issue No. 4 \(2014-01-15\)](#)

[Issue No. 3 \(2013-09-13\)](#)

[Issue No. 2 \(2008-01-02\)](#)

[Issue No. 1 \(2006-05-23\)](#)

Equipment: **Liquid, gas or air immersion heater**

Optional accessory: **FP..., FP...(A) ; FP...(G)**

Type of Protection: **'d' or 'd e' and 'tb'**

Marking:
Ex d IIC T1 to T6 Gb or Ex d e IIC T1 to T6 Gb
Ex tb IIIC T...°C Db

Detailed marking in Annex.

Approved for issue on behalf of the IECEx
Certification Body:

Julien GAUTHIER

Position:

Certification Officer

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

Laboratoire Central des Industries Electriques (LCIE)

33 Avenue du General Leclerc

FR-92260 Fontenay-aux-Roses

France[
Documents relative to LCIE
certification activities (Certificates, QARs, ExTRs) can be registered
under the references "LCI" or "LCIE".]



LCIE



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Manufacturer: **EXHEAT Limited**
Threxton Road Industrial Estate
Watton, Thetford,
Norfolk, IP25 6NG
United Kingdom

Additional Manufacturing
location(s):
EXHEAT Industrial Limited
Threxton House
Threxton Road Industrial Estate
Watton, Thetford, Norfolk
IP25 6NG
United Kingdom

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 electrical apparatus 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 Edition:6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-1 : 2007-04 Edition:6	Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"
IEC 60079-31 : 2013 Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

*This Certificate **does not** indicate compliance with electrical 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:

[FR/LCI/ExTR06.0010/00](#)
[FR/LCI/ExTR06.0010/03](#)

[FR/LCI/ExTR06.0010/01](#)
[FR/LCIE/ExTR15.0042/00](#)

[FR/LCI/ExTR06.0010/02](#)

Quality Assessment Report:

[FR/LCI/QAR06.0005/07](#)



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

This is an immersion heater for liquid, gas and solid application.

It is mainly composed of a terminal box and heating elements with temperature sensor and/or thermostat for temperature control.

Full description in Annex.

Routine tests : *see Annex*

CONDITIONS OF CERTIFICATION: YES as shown below:

See Annex



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Issue 01 :

Addition of a new model of terminal box (FP24)
Modification of the IP marking

Issue 02 :

The company name has changed : HEATEX LIMITED becomes EXHEAT Ltd.

Issue 03 :

Modification of the minimum ambient temperature
Normative update according to standards IEC 60079-0 Ed.6 ; IEC 60079-1 Ed.6 ; IEC 60079-7 Ed.4 ; IEC 60079-31 Ed.1
Addition of a manufacturing site and legal entity name
Augmentation of the maximum possible length of the junction boxes.

Issue 04 :

Additional code option 220°C
Option for using thermocouple and RTD in place of thermostat
Addition of a special condition for safe use when using paint.
Titanium removed from enclosure material

Issue 05 :

Normative update according to standards IEC 60079-1 Ed.6 ; IEC 60079-31 Ed.2
Removal of output limitation on cast heater variant and FP rod/cartridge

Issue 06 :

Addition of full markings in the Annex.

Annex:

[LCI 06.0006X - Issue 06 - Annex 01 - EXHEAT - FP Heater.pdf](#)

FULL EQUIPMENT DESCRIPTION

Terminal Box :

The heater comprises a cylindrical enclosure having a threaded detachable cover, and a welded flange, all made of stainless steel, coated mild steel. The cover is secured by a locking screw.

Alternatively arrangement allows a stand-off version of terminal box.

Alternatively arrangement with dummy flange.

Alternatively arrangement allows the assembly of a second terminal box on the main terminal box. This Terminal box allows connection for temperature sensor and/or temperature transmitter. This auxiliary terminal box can be of protection :

- Ex e (EXHEAT - IECEx LCI 06.0005X)
- Ex d (cover in this certificate)
- Or any terminal box with minimum IP 20 only when IS circuits inside.

Heating elements :

The flange can be equipped with 1 to 249 heating elements (following model) and at least one thermostat.

The heating elements have a non-heated length (cold end) of conductors which extends beyond the mounting plate into the vessel, restricting the application of heat to the heated volume only.

Connections :

The enclosure contains terminal assemblies mounted on brackets, to provide connection to the element ends and temperature sensing cut-outs set to limit the internal temperature of the enclosure to 5°C below the temperature shown in the table.

Temperature control :

To maintain the temperature classification, flange temperature and process liquid temperature thermostats are fitted, the sensing elements of which are fitted in the thermostat pockets inside the heated vessel. The flange temperature thermostat is set at 5°C below the flange temperature shown in the table.

Anti-condensation heaters may be optionally within the enclosure; these are wired in accordance with the wiring diagram mentioned in the manufacturer documentation.

Variation models :

Alternative arrangement of the immersion heater to allow the substitution of the thermostats by thermocouples or RTDs mounted off support pillars inside the heated vessel. The free end of the temperature devices can be connected to internal elements of terminal box or (alternative arrangement) to internal elements of second terminal box certified for the considered using.

In this form the units are designated : type FP....(A)

A variation allows the alternative positioning of the thermocouples or RTDs into the flange plate. In this form the unit is designated type FP...(G).

Temperature class :

Model	Temperature Class	Terminal Box Flange plate clearance (mm)	Maximum terminal box temperature (°C)	Flange plate fluid temperature (°C)
Stand off version	T6	40	70	75
	T5	40	80	90
	T4	40	80	125
	T3	100	130	190
	220°C	100	130	210
	T2	150	130	290
	T1	200	130	440
Non stand-off version	T1 – T6	0	80	80



Annex 01 to Certificate IECEx LCI 06.0006 issue 06



MARKING

EXHEAT Limited or
EXHEAT Industrial Limited
Address :
Type : FP..., FP...(A), FP...(G)
Model :
Serial number :
Year of construction :

Ex d IIC T* Gb or Ex d e IIC T* Gb
Ex tb IIIC T* Db
IP66
IECEx LCI 06.0006 X

$-60^{\circ}\text{C} \leq T_{\text{amb}} \leq +60^{\circ}\text{C}$

$U_n = \dots$; $P_n = \dots$

WARNING - DO NOT OPEN WHILE ENERGIZED

WARNING - IF THE TEMPERATURE AT THE CABLE ENTRY EXCEEDS 70°C , HIGH TEMPERATURE CABLE SHALL BE USED

WARNING - DO NOT OPEN IN PRESENCE OF EXPLOSIVE ATMOSPHERE

RATINGS

$U_n = 690 \text{ VAC}$

FULL CONDITIONS OF CERTIFICATION (ou FULL SCHEDULE OF LIMITATIONS)

1. All safety devices shall operate independently of any measurement or control devices required for operation. Resetting the safety devices shall only be manual.
2. The temperature classification is based on the flange temperature. This certificate does not cover the temperature of any part of the heating element inside the vessel or the heated vessel itself. Safety with regard to ignition risks due to hot surfaces inside and outside the vessel is a matter for the manufacturer, installer and/or user as appropriate.
3. The anti-condensation heaters must be wired in accordance with the manufacturer drawings.
4. The temperature classification may be invalidated unless the elements are completely immersed in the fluid. It is the responsibility of the manufacturer, installer and/or user, as appropriate, to ensure that an explosive atmosphere does not occur inside the vessel.
5. The installer and user must ensure that the terminal enclosure and its associated stand-off are not lagged.
6. Over temperature thermostats shall be contained within the main certified flameproof terminal box only "d".
7. Alternative arrangement, the terminal box can be equipped of a separated terminal box (minimum distance 75 mm) for the connection of thermocouple or RTD's. This box must be a certified type for considered using (flameproof enclosure'd', or increased safety 'e' or intrinsically safe 'I').
8. The elements ensuring the safety temperature shall be mounted within the main certified flameproof terminal box "d".
9. Supplementary special conditions for safe use for the FP...(A) and FP...(G) :
 - The free ends of the temperature devices are to be suitably mechanically protected and terminated within suitable terminal or junction facility.
 - The RTD/thermocouple assembly of FP...(A) or FP...(G) shall operate independently of any measurement or control devices required for operation, and comply with the EN 50495. Resetting the safety devices shall only be manual.
10. In the case of assembly with dummy flange, the assembly must be according to manufacturer's specifications mentioned in



Annex 01 to Certificate IECEx LCI 06.0006 issue 06



his technical file.

11. When equipment is painted, potential electrostatic charging hazard. Clean only with a wet cloth (or see instructions).

12. The flamepaths are specified in the manufacturer drawings.

ROUTINE TESTS

Alternative arrangement with supplementary terminal box: the alternative terminal box shall be submitted to routine tests defined in its certificate.

According to clause 16.1 of standard IEC 60079-1 each welded thermostat pocket shall be submitted to an overpressure test of 30 bars during minimum 10 seconds.

According to clause 16.1 of standard IEC 60079-1 each apparatus shall be submitted to an overpressure test during minimum 10 seconds.

Model	Value (bars)
FP4 – FP12	18,0
FP14 – FP24	21,5