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.:3

Status: **Current**

Date of Issue: **2013-09-13** Page 1 of 4

Certificate history:
Issue No. 3 (2013-9-13)
Issue No. 2 (2008-1-2)
Issue No. 1 (2006-5-23)

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

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

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

Marking:
EXHEAT Limited or
EXHEAT Industrial Limited
Address : ...
Type : FP..., FP...(A) ; FP...(G)
Serial Number : ...
Year of construction : ...
Ex d IIC T1 to T6 Gb or Ex d e IIC T1 to T6 Gb
Ex tb IIIC T...℃ Db
IP 66
IECEx LCI 06.0006 X
-60℃ ≤ Tamb ≤ +60℃
Un = ... ; Pn = ...
WARNING - DO NOT OPEN WHILE ENERGIZED
WARNING - IF THE TEMPERATURE AT THE CABLE ENTRY EXCEEDS 70℃
HIGH TEMPERATURE CABLE SHALL BE USED
WARNING - DO NOT OPEN IN PRESENCE OF EXPLOSIVE ATMOSPHERE

Approved for issue on behalf of the IECEx Certification Body: Julien GAUTHIER

Position: Certification Officer

Signature:
(for printed version)

Date: 2013-09-13

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.

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 activites (Certificates, QARs, ExTRs) can be registered under the references "LCI" or "LCIE".

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Manufacturer:

EXHEAT Limited
Threxton House
Threxton Road Industrial Estate
Watton, Thetford,
Norfolk, IP25 6NG
United Kingdom

Additional Manufacturing location (s):

EXHEAT Industrial Limited
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 : 2008 Edition: 1	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/ExTR06.0010/02

Quality Assessment Report:

FR/LCI/QAR06.0005/06

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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.
See Attachment for a description more detailled.

Routine tests : See attachment

CONDITIONS OF CERTIFICATION: YES as shown below:

See Attachment

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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 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 posible length of the junction boxes.

Annex: LCI 06.0006 X - Issue 03 - Attachment 01 - EXHEAT - FP Heater.pdf

IECEx LCI 06.0006 X issue 03
Attachment n°01

Description of the equipment :

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 or titanium. 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 temperature plate fluid temperature (°C)
Stand off version	T6	40	70	75
	T5	40	80	90
	T4	40	80	125
	T3	100	80	190
	T2	150	80	290
	T1	200	80	440
Non stand-off version	T1 – T6	0	80	80

This Annex is valid only in combination with certificate IECEx LCI 06.0006 X issue 03 and may only be reproduced in its entirety and without any change.

Conditions of certification :

1. All safety devices 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.

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 his technical file.

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