

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 ITS 22.0003X** Page 1 of 3 Certificate history:

Issue No: 0 Status: Current

Date of Issue: 2023-09-18

Applicant: **EXHEAT LIMITED**

Threxton Road Industrial Estate Watton, Thetford, Norfolk

IP25 6NG United Kingdom

Liquid, Gas or Air Immersion Heater and Temperature Sensor Type FP and RFA Equipment:

Optional accessory:

Flameproof "Ex db", Increased Safety "Ex eb" and Dust by Enclosure "Ex tb" Type of Protection:

Marking: FP:

Ex db eb* IIC T6...T1 Gb

Ex tb IIIC T85°C...T450°C Db

* Ex eb only when Ex eb component approved enclosure utilised

RFA:

Ex db IIC T6...T1 Gb

Ex tb IIIC T85°C...T450°C Db

-60°C ≤ Ta ≤ +60°C

IECEx ITS 22.0003X

Approved for issue on behalf of the IECEx

Certification Body:

R J Tunnicliffe

Position: **Certification Officer**

Signature:

(for printed version)

(for printed version)

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



Certificate issued by:

Intertek Testing & Certification Limited ITS House, Cleeve Road Leatherhead Surrey, KT22 7SA **United Kingdom**





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Manufacturer: **EXHEAT LIMITED**

Threxton Road Industrial Estate

Watton, Thetford, Norfolk

IP25 6NG United Kingdom

Manufacturing locations:

EXHEAT LIMITED

Threxton Road Industrial Estate

Watton, Thetford, Norfolk

IP25 6NG United Kingdom **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 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 Explosive atmospheres - Part 1: Equipment protection by flameproof enclosures "d"

IEC 60079-1:2014 Edition:7.0

7.0

IEC 60079-31:2022 Edition:3.0

24.101.101.0

IEC 60079-7:2017

Explosive atmospheres - Part 7: Equipment protection by increased safety "e"

Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

Edition:5.1

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/ITS/ExTR19.0008/00

Quality Assessment Report:

GB/ITS/QAR21.0009/00



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Type FP:

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 overtemperature protection.

Terminal Box:

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

Alternative arrangement allows a stand-off version of terminal box. Another alternatively arrangement allows a dummy flange.

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 (see certificate Annex for permitted Ex e enclosures)
- Ex d (FP type covered by this certificate)
- Or any terminal box with minimum IP20 when only IS transmitters or simple apparatus as part of an I.S. circuit are utilised.

Heating elements:

Heating elements enter the base of the enclosure by compression fitting or weld/braze.

Connections:

The enclosure contains terminal assemblies mounted on brackets, to provide connection to the element ends. Anti-condensation heaters may be optionally within the enclosure; these are wired in accordance with the wiring diagram mentioned in the manufacturer documentation.

Temperature control:

To maintain the temperature classification, overtemperature protection thermostats, RTDs or thermocouples are fitted, the sensing elements of which are fitted inside the heated vessel and inside the enclosure. Optional additional temperature controls may be fitted.

Variation models:

FP-G: model allows the overtemperature protection to be fitted in the process connection flange edge instead of inside the heated vessel.

FP-B: model without overtemperature protection of the enclosure based on stabilised design of the enclosure.

FP-H: model allows the area inside the vessel to be hazardous.

FP-BH: combination of models FP-B & FP-H.

FP-T: model for thermostatic control applications containing only a thermostat or RTD or thermocouple with capillary housed in a pocket.

Temperature class:

See Annex.

Type RFA:

The Type RFA is identical to the Type FP but with the following differences:

- Only one size of enclosure.
- Enclosure and Cover can be manufactured from aluminium, cast mild steel or stainless steel and the base from mild steel, stainless steel or brass

Variation models:

RFA-R: Rod type elements are used. Over temperature protection is by a manual reset thermostat within the process or of the process connection.

RFA-C: Core type elements are used. Over temperature protection is by a manual reset thermostat within the process or of the process connection.

RFA-CA: Cartridge type elements are used. Over temperature protection is by a manual reset thermostat within the process or of the process connection

RFT: model for thermostatic control applications containing only a thermostat or RTD or thermocouple with capillary housed in a pocket.

SPECIFIC CONDITIONS OF USE: YES as shown below:

See Annex.

Annex:

IECEx ITS 22.0003X - Annex for IECEx Certificate of Conformity.pdf



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Temperature class:

Stand Off version:

T CLASS	MINIMUM, STANDOFF 'X'	FLANGE/PROCESS THERMOSTAT SET POINT (MAX.)	T'BOX THERMOSTAT CUT-OUT SET POINT (MAX.)	RTD/	T'BOX RTD/ THERMOCOUPLE CUT-OUT SET POINT (MAX.)
T6/T85°C T5/T100°C T4/T135°C T3/T200°C T2/T300°C T1/450°C	40mm 100mm	75°C 90°C 125°C 190°C 285°C 4 35°C	75°C 90°C 125°C 125°C 125°C 125°C	80°C 95°C 130°C 195°C 290°C 440°C	80°C 95°C 130°C 130°C 130°C 130°C
220°C	100mm	205°C	125°C	210°C	130°C

Non-Stand Off version:

T CLASS	FLANGE/PROCESS THERMOSTAT SET POINT (MAX.)	CUT-OUT SET POINT (MAX.)	RTD/ THERMOCOUPLE	T'BOX RTD/ THERMOCOUPLE CUT-OUT SET POINT (MAX.)
T6/T85°C	75°C	75°C	80.C	80.C
T5/T100°C	1 80°C	80°C	80°C	80°C

Version without Thermostats:

T-CLASS	HEATER ORIENTATION	MINIMUM STAND-OFF	MIN QTY DF HEATSHEILDS
T1/450°C	HORIZONTAL	300mm	3
T2/300°C	VERTICAL*	300mm	3
T2/200°C	HORIZONTAL	200mm	2
TEMPERATURE CLASS W		ITH 150mm S	TAND-OFF
T6/85°C-T3/200°C	ANY	150mm	0
TEMPERAT	URE CLASS W	ITH ZERO STA	ND-OFF
T6/85°C-T5/100°C	ANY	0	0

Max Flange Sensor Setpoint - See tables above (Stand Off version & Non-Stand Off version) for RTD/TC and Thermostat set temperatures.





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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
FP:			
Schedule of Temperature Transmitters, Breathers / Drains,	2004.01.13	2	20.07.2023
Buttons & Switches – FP Series Heaters (2 Pages)			
Schedule of Terminals and Insulators – FP Series Heaters (2	2004.01.14	1	06.03.2023
Pages)			
7/16" Bore Tubing Nut, Olives and Hole Drilling Details	2004-01-79	6	07.03.23
ATEX & IECEx & UKEX Certified			
10mm Bore Tubing Nut, Olive and Hole Drilling Details.	2004-02-97	6	07.03.23
ATEX & IECEx & UKEX Approved			
3/8" Bore Tubing Nut , Olive and Hole Drilling Details, ATEX	2004-02-98	6	07.03.23
& IECEX & UKEX Approved			
8mm Bore Tubing Nut, Olive and Hole Drilling Details. ATEX	2004-02-99	4	07.03.23
& IECEx & UKEX Approved			
12mm Bore Tubing Nut, Olive and Hole Drilling Details.	2004-08-89	6	07.02.23
ATEX & IECEx & UKEX Approved			
FP Type Solid Heater (Cast In Elements Variant) General	2004-21-01	17	20/07/23
Arrangement ATEX & IECEx & UKEX Certified			
Typical Cut-Out Wiring Diagram for ATEX & IECEx & UKEX	2004-21-03	4	13.09.22
FP & FP-G Type Heater Range Overtemperature Protection			
(2 Pages)			
16mm Bore Tubing Nut, Olive and Hole Drilling Details.	2004-21-04	5	07.03.23
ATEX, IECEx & UKEX Approved			
FP-H Hazardous Air Type Heater General Arrangement	2004-21-70	01	20.07.23
ATEX & IECEx & UKEX Certified			
FP-B or BH Hazardous Type Heater No Stats General	2004-21-71	01	20.07.23
Arrangement ATEX & IECEx & UKEX Certified			
12.5mm Bore Tubing Nut, Olive and Hole Drilling Details.	2004-21-86	5	07.03.23
ATEX & IECEx & UKEX Approved			
FP Type Heater Range Alternative Terminal Box Lid/Base	2004-21-87	8	13.09.22
ATEX & IECEx & UKEX Certified			
ATEX & IECEx & UKEX Certified Alternative Cast Terminal	2004-21-88	7	13.09.22
Box Lid FP Type Heater Range			
FP Type Heater Range Alternative Terminal Box Range	2004-21-89	10	13.09.22
ATEX & IECEx & UKEX Certified			
FP Type Heater General Arrangement ATEX & IECEx &	2004-21-90	18	12.09.23
UKEX Certified			
FP Type Heater Ex d II C Detail Drawing ATEX & IECEx &	2004-21-91	8	13.09.22
UKEX Certified (3 Pages)			
FP Type Heater Range ATEX / IECEX / UKEX Label Details	2004-21-92	13	20.07.23
FP Type Heater Range Terminal Box Detail Apparatus	2004-21-93	11	14.09.22



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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
Group IIXC ATEX & IECEx & UKEX Certified			
FP Type Heater Range Terminal Box Lid Detail ATEX &	2004-21-94	7	14.09.22
IECEx & UKEX Certified			
FP (G) Type Heater General Arrangement ATEX & IECEx &	2004-21-96	17	12.09.23
UKEX Certified			
Thermostat Pocket for Flameproof Heaters ATEX & IECEx &	2004-21-97	8	20.07.23
UKEX Approved (2 Pages)			
FP Type Heater General Arrangement Drawing Apparatus	2004-21-99	10	20.07.23
Group IIC ATEX & IECEx & UKEX Certified with Dummy			
Flange			
Installation, Operation & Maintenance Instructions Manual	Cert 005	0	04 th October
Appendix X IOM Ex Heater Annex (22 Pages)			2022
RFA:			
RFA-C Core Type Non Stand Off Verson General	2004.16.01	06	18.07.23
Arrangement Drawing ATEX , IECEx & UKEX Page 1 of 2			
RFA-C Core Type Stand Off Version General Arrangement	2004.16.01	06	18.07.23
Drawing ATEX , IECEx & UKEX Page 2 of 2			
RFA-CA Cartridge Type Non Stand Off Verson General	2004.16.02	02	18.07.23
Arrangement Drawing ATEX, IECEx & UKEX Page 1 of 2			
RFA-CA Cartridge Type Stand Off Version General	2004.16.02	02	18.07.23
Arrangement Drawing ATEX, IECEx & UKEX Page 2 of 2			
RFA Rod Type Non Stand Off Verson General Arrangement	2004.16.03	01	18.07.23
Drawing ATEX, IECEx & UKEX Page 1 of 2			
RFA Rod Type Stand Off Version General Arrangement	2004.16.03	01	18.07.23
Drawing ATEX, IECEx UKEX Page 2 of 2			
RFA & FP*-T Thermostat, RTD or TC Option General	2004.16.04	01	18.07.23
Arrangement Drawing ATEX, IECEx & UKEX			
RF** Type Terminal Box Body ATEX, IECEx & UKEX	2004.16.12	04	18.07.23
RF** Type Base Machining Parameters and Layout ATEX,	2004.16.22	05	18.07.23
ECEx & UKEX (3 Pages)			
RFA-R, RFA-C & RFA-CA Immersion Heater Nameplates &	2004.16.41	05	18.07.23
Warning Labels (2 Pages)			
RFT and FP*-T Thermostat Only Option Nameplates &	2004.16.42	02	18.07.23
Warning Labels ATEX & IECEx Approved Page 1 of 2			
RFT and FP*-T Thermostat Only Option Nameplates &	2004.16.42	02	18.07.23
Warning Labels ATEX, IECEx & UKEX Page 2 of 2			
RFA-R, RFA-C & RFA-CA Wiring Diagrams General	2004.16.43	03	09.09.22
Arrangement Drawing ATEX, IECEx & UKEX			
RF** Type Immersion Heater Terminal Box Lid ATEX, IECEx	2004.16.90	04	18.07.23
& UKEX			
RFA-C Fixing Boss Variant Base Assembly Detail ATEX, IECEX	2004.16.95	05	18.07.23



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Technical Documents				
Title:	Drawing No.:	Rev. Level:	Date:	
& UKEX Page 1 of 2				
RFA-C Flange Fixing Variant Base Assembly Detail ATEX, IECEx & UKEX Page 2 of 2	2004.16.95	05	18.07.23	
RFA-CA Fixing Boss Variant Base Assembly Detail ATEX, IECEx & UKEX Page 1 of 2	2004.16.96	02	18.07.23	
RFA-C Flange Fixing Variant Base Assembly Detail ATEX, IECEx & UKEX Page 2 of 2	2004.16.96	02	18.07.23	
RFA-R Fixing Boss Variant Base Assembly Detail ATEX, IECex & UKEX Page 1 of 2	2004-16-97	01	18.07.23	
RFA-R Flange Fixing Variant Base Assembly Detail ATEX, IECEx & UKEX Page 2 of 2	2004.16.97	01	18.07.23	
RF** Typ Thermostat Pockets General Arrangement Industrial Product ATEX & IECEx Approved	2004.16.98	04	18.07.23	
Installation, Operation & Maintenance Instructions Manual FP & RFA Type Flameproof Immersion Heaters and Thermostats (43 Pages)	-	2 nd Edition	SEPT 2023	

IECE	IECEx Certified Components on Which Conformance Depends				
Item	Description	Manufacturer	Certificate No.	Standards*	Coding
1	Empty enclosure Klippon® STB	Weidmüller Interface GmbH & Co. KG	IECEx IBE 09.0018U	IEC 60079-0:2017 Ed 7, IEC 60079-7:2017 Ed 5.1 and IEC 60079- 31:2013 Ed 2	Ex eb IIC Gb Ex tb IIIC Db
2	Range of sheet metal empty enclosures	Hawke International	IECEx BAS 08.0064U	IEC 60079-0:2017 Ed 7, IEC 60079-11:2011 Ed 6, IEC 60079- 7:2015 Ed 5 and IEC 60079-31:2013 Ed 2	Ex eb IIC Gb Ex tb IIIC Db Ex ib IIC Gb Ex ib IIIC Db Ex ia IIC Ga Ex ia IIIC Da Note: Ex i options not utilised
3	SX Range of Empty Enclosures	Abtech Limited	IECEx CML 15.0039U	IEC 60079-0:2011 Ed 6, IEC 60079-11:2011 Ed 6, IEC 60079- 15:2017 Ed 5, IEC 60079-31:2013 Ed 2 and IEC 60079-7:2015 Ed 5	Ex eb IIB/IIC Gb or Ex ia IIB/IIC Ga or Ex ib IIB/IIC Gb or Ex ta IIIC Da or Ex tb IIIC Gb or Ex ec IIC Gc or Ex nR IIC Gc Note: Ex i options not utilized





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IECE	IECEx Certified Components on Which Conformance Depends					
Item	Description	Manufacturer	Certificate No.	Standards*	Coding	
4	ZPL6** Range of Enclosures	Hawke International	IECEx BAS 06.0027U	IEC 60079-0:2017 Ed 7, IEC 60079-11:2011 Ed 6, IEC 60079- 7:2015 Ed 5 and IEC 60079-31:2013 Ed 2	Ex eb IIC Gb Ex tb IIIC Db Ex ib IIC Gb Ex ib IIIC Db Ex ia IIC Ga Ex ia IIIC Da Note: Ex i options not utilised	
5	ZPL7** Range of Enclosures	Hawke International	IECEx BAS 08.0090U	IEC 60079-0:2017 Ed 7, IEC 60079-11:2011 Ed 6, IEC 60079- 7:2015 Ed 5 and IEC 60079-31:2013 Ed 2	Ex eb IIC Gb Ex tb IIIC Db Ex ib IIC Gb Ex ib IIIC Db Ex ia IIC Ga Ex ia IIIC Da Note: Ex i options not utilized	
6	Feed through and protective conductor terminals with accessories - WDU*, WPE* and accessories ZQV*, WQV*, WAP*, WEW*, WTW*, LS 2.8	Weidmüller Interface GmbH & Co. KG	IECEx ULD 14.0005U	IEC 60079-0:2017 Ed 7 IEC 60079-7:2017 Ed 5.1	Ex eb IIC Gb	
7	Terminal blocks and Protective conductor terminal blocks series SAK and EK	Weidmüller Interface GmbH & Co.	IECEX KEM 06.0014U	IEC 60079-0:2004 Ed 4 IEC 60079-7:2001 Ed 3	Ex e II	
8	Terminal Blocks UT 2,5; UT 4; UT 4-MTD; UT 6; UT 10; UT 10 SL: UT 16; UT 35; UT 35 IB, Protective Conductor Terminal Blocks UT 2,5- PE; UT 4-PE; UT 4 MTD- PE; UT 4-MTD-PE/S; UT 6-PE; UT 10-PE; UT 16- PE; UT 35-PE; UT 35-PE IB and Pick-off Terminal Blocks AGK 4- UT 10; AGK 4-UT 16; AGK 4-UT 35	PHOENIX CONTACT GmbH & Co. KG	IECEx KEM 06.0027U	IEC 60079-0:2017 Ed 7 IEC 60079-7:2017 Ed 5.1	Ex eb IIC Gb	





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IECEx Certified Components on Which Conformance Depends					
Item	Description	Manufacturer	Certificate No.	Standards*	Coding
9	Control and signalling device adapters, Type 05-0003-00**/***	BARTEC GmbH	IECEx CML 14.0005U	IEC 60079-0:2017 Ed 7 IEC 60079-7:2017 Ed 5.1 IEC 60079-31:2013 Ed 2	Ex eb IIC Gb Ex tb IIIC Db

^{* &}quot;No applicable Technical Differences" or "Technical Differences evaluated and found satisfactory – for detail see ExTR"

overpressure test of 30	IEC 60079-1 each welded pocket shall be submitted bar for a minimum of 10 seconds. No deformation	Standard and Clause
overpressure test of 30	•	
amage shall occur.	IEC 60079-1:2014 Ed 7, Clause 16.1	
•		
Enclosure Size	Test Pressure	
FP4 – FP10	22.12bar	
FP12 – FP20	25.79bar	
RFA	N/A – Enclosure tested at the exemption pressure	
	cording to Clause 16.1 of pressure test for a minim Enclosure Size FP4 – FP10 FP12 – FP20	cording to Clause 16.1 of IEC 60079-1 each enclosure shall be submitted to an pressure test for a minimum of 10 seconds at the following pressure: Enclosure Size

SPECIFIC CONDITIONS OF USE:

- All safety devices shall operate independently of any measurement or control devices required for operation. Resetting the safety devices shall only be manual.
- The anti-condensation heaters must be wired in accordance with the manufacturer drawings.
- The installer and user must ensure that the terminal enclosure and its associated stand-off are not lagged.
- For assembly dummy flange version, the installer and/or end user shall ensure that the dummy flange is fully seal welded to the lagging cover and that the cover prevents ingress of hazardous area.
- When equipment is painted, potential electrostatic charging hazard. Clean only with a wet cloth (or see instructions).
- No modification must be made to the flamepaths of the enclosure without prior consultation with the manufacturer.
- When Titanium Element Tubes are utilised, these must be installed in areas where they are not susceptible to mechanical impact.
- For assembly heat shield version, the installer and/or end user shall ensure that the heat shields are always left unobstructed.
- Conditions of certification concerning components already certified depend on the relevant certificates.
- For FP-B model, the installer and/or end user must install and operate a process connection flange, process or element overtemperature control safety device, the sensing element of which must be fitted in the location expected, under the users responsibility, to reach the highest temperature under normal operating conditions. All





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safety devices shall operate independently of any measurement or control devices required for operation. Resetting the safety devices shall only be manual.

• For FP-BH model, the installer and/or end user must install and operate an element overtemperature control safety device per heater stage phase, the sensing element of which must be fitted the element surface in the location expected, under the users responsibility, to reach the highest temperature under normal operating conditions. All safety devices shall operate independently of any measurement or control devices required for operation. Resetting the safety devices shall only be manual.



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