



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 22.0024X** Page 1 of 4 [Certificate history:](#)

Status: **Current** Issue No: 0

Date of Issue: 2023-08-18

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

Equipment: **ISE, FAW, FCR**

Optional accessory:

Type of Protection: **Increased Safety**

Marking: Ex eb IIC T1..T6 Gb
or
Ex db eb IIC T1..T6 Gb (when fitted with Thermostat IECEx EPS 13.0015U)
-60°C ≤ Ta ≤ +60°C
IECEX ITS 22.0024X

Approved for issue on behalf of the IECEx
Certification Body:

Mark Newman

Position:

Certificate Officer

Signature:
(for printed version)

Date:
(for printed version)

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ITS House, Cleeve Road
Leatherhead
Surrey, KT22 7SA
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Manufacturer: **EXHEAT INDUSTRIAL LIMITED**
Threxton Road Industrial Estate
Watton, Thetford, Norfolk
IP25 6NG
United Kingdom

Manufacturing locations: **EXHEAT INDUSTRIAL LIMITED**
Threxton Road Industrial Estate
Watton, Thetford, Norfolk
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EXHEAT Limited
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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"
Edition:7.0

[IEC 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
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/ExTR19.0007/00](#)

Quality Assessment Report:

[GB/ITS/QAR21.0009/00](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

ISE:

The main enclosure is made of stainless steel or coated mild steel, with gland plates of the same material. This enclosure comes in a range of size from 100mm x 100mm x 60mm up to 4000mm x 4000mm x 1000mm. A gasket is bonded using RTV silicon to the lid of the box and gland plates which are closed by M6x12 hexagonal head screw associated to M6 rivet bush. The temperature inside the box is limited to 80°C; enclosure may be fitted with a HEF anti-condensation heater (IECEX ITS 19.0024X) and Gas Detector (IECEX PTB 11.0005X).

Supply cables enter the box via "Ex e" or "Ex d" certified glands fitted into the gland plates. Both of the internal and external earth studs are made from brass or stainless steel.

Tubular heating elements made of stainless steel, incoloy or titanium with an insulating bead made of steatite or high alumina ceramic have a minimum cold length of 20mm. The elements enter the base of the enclosure via heating element glands made of brass or stainless steel including nitrile or silicon rubber 'o'ring. These elements may be paralleled together with small bus bars before being connected to the supply terminals.

An auxiliary terminal box may be fitted (IECEX IBE 09.0018U, IECEX IBE 14.0013, IECEX SIR 13.0113, IECEX PTB 09.0048, IECEX BAS 08.0064, IECEX CML 15.0039U, IECEX BAS 06.0027U, IECEX BAS 06.0090U, IECEX LCI 08.0025X) to connect the temperature transmitters (IECEX FMG 12.0022X, IECEX BAS 07.0086X, IECEX BAS 07.0053X, IECEX BAS 07.0004X, IECEX KEM 07.0044X, IECEX BVS 19.0022X, IECEX BVS 08.0018X, IECEX PTB 10.0067X, IECEX PTB 12.0039X, IECEX PTB 09.0014X) and thermostats (IECEX EPS 13.0046, IECEX EPS 13.0015U). This junction box may be positioned on any side providing that it is not within the stand-off area. This box is designed on the same principles than the main enclosure. The temperature sensors are connected via "Ex e" certified terminals (IECEX ULD 14.0005U, IECEX KEM 06.0014U, IECEX KEM 06.0027U). If an anti-condensation heater is mounted, any separate junction box must be mounted at least 50mm away from the anti-condensation heater.

FAW air warmer:

The FAW range is generically made from powder-coated mild steel mesh surround (specials may be stainless steel) up to 2.0mts long 180mm high and 280 wide with a blanking plate at one end and an Ex eb terminal box on the other. The elements as mentioned below are installed through element support brackets and secured to the terminal box via ferrules and locknuts/gaskets.

FAW-C "compact" air warmer: The FAW-C range is generically made from stainless steel mesh surround up to 0.6mts long, approx. 170mm high x 170mm wide with a blanking plate at one end and an Ex eb terminal box on the other. The elements as mentioned below are installed and the element support brackets are on the end plate and secured to the terminal box via ferrules and locknuts/gaskets.

FAW-C-T "compact" air warmer complete with EXHEAT Ltd. Ex d HFT thermostat: The FAW-C-T range is as the FAW-C above, but with the addition of the HFT stainless steel thermostat which mounts on a bracket welded to the heater. The connections are made using barrier and non-barrier glands and 3 core cable. The glands may also be terminated through swivel and set 90° elbows.

FCR air warmer:

The FCR range is generically made from powder-coated sheet mild steel surround up to 2.0mts long, approx. 600 high and 200 deep with a blanking plate at one end and an Ex eb terminal box on the other. The elements as mentioned below are installed through element support brackets and secured to the terminal box via ferrules and locknuts/gaskets.

FCR-A air warmer complete with EXHEAT Ltd. Ex d HFT thermostat: The FCR-A range is as the FCR above, but with the addition of the HFT stainless steel thermostat which mounts on the terminal box lid to the heater. The connections are made using barrier and non-barrier glands and 3 core cable. The glands may also be terminated through swivel and set 90° elbows.

The heaters are in principle Ex eb protection concept, or Ex db eb when a Ex component thermostat (IECEX EPS 13.0015U) is installed.

The elements within these heaters are sealed as per certificate numbers:

ATEX: ELT 21 ATEX 0025U

IECEX: IECEX ITS 21.0015U

UKEX: ITS 21 UKEX 0260U

All elements with the above heaters are designed as per the parameters below:

The FAW & FCR (FCR-A) are based on a maximum power density at the element sheath of 3.01W/cm² at its rated supply voltage, this will give the heaters a temperature class of T3 in an ambient of up to +40°C and T2 in an ambient up to +60°C.

The FAW & FCR (FCR-A) may also be based on a maximum power density at the element sheath of 1.35W/cm² at its rated supply voltage, this will give the heaters a temperature class of T4 in an ambient of up to +40°C.

The FAW-C (FAW-C-T) is based on a maximum power density at the element sheath of 1.1W/cm² at its rated supply voltage, this will give the heaters a temperature class of T3 in an ambient of up to +40°C and T2 in an ambient up to +60°C.

The HFT Thermostat used on the FAW-C-T and the FCR-A has the following certificates covering ATEX, IECEX & UKEX:

ATEX: SIRA 18 ATEX 1238X



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IECEX: IECEX SIR 18.0053X
UKEX: ITS 22 UKEX 0280X

SPECIFIC CONDITIONS OF USE: YES as shown below:
See Annex for Specific Conditions.

Annex:

[IECEX ITS 22.0024X - Annex for IECEx Certificate of Conformity_1.pdf](#)



Annex to IECEx Certificate of Conformity

Certificate No:	IECEX ITS 22.0024X	Issue No. 0
Annex No. 1		

Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
Ex eb Element Gland ATEX & IECEx & UKEX Approved	2000-12-81	6	16.03.23
Alternative Ex eb Element Gland ATEX & IECEx & UKEX Approved	2003-03-23	6	16.03.23
Ex eb ISEH Type Air/Gas Heater General Arrangement IECEX & UKEX Approved	2003-12-01	9	16.03.23
Ex eb Terminal Box Construction Drawing IECEX & UKEX Approved	2003.12.12	7	17.03.23
Ex eb ISES Type ATEX & IECEx & UKEX Approved Submersible Liquid Tank Heater General Arrangement	2003-12-71	8	17.03.23
Ex eb ISES Type Air/Gas Heater Zero Stand-Off ATEX & IECEx & UKEX Approved General Arrangement	2003-12-80	7	17.03.23
Alternative Element & Flange Temperature Sensor Fitting Detail Drawing Ex eb ISE Type ATEX & IECEx & UKEX Approved Liquid or Air/Gas Heater (2 Sheets)	2003.12.89	5	02.09.22
Ex eb ISEH Type Air/Gas Heater Zero Stand-Off ATEX & IECEx & UKEX Approved General Arrangement	2003-12-90	7	17.03.23
ISE Series Ex eb ATEX & IECEx & UKEX Approved Heater Detail Drawing	2003.12.91	6	17.03.23
Ex eb ISES Type Liquid or Air/Gas Heater ATEX & IECEx & UKEX Approved General Arrangement Drawing	2003.12.92	8	17.03.23
Current Carrying Capacities – ISE Series Heaters (ATEX / IECEX / UKEX Approved)	2003.12.93	05	15.09.22
Schedule of Terminal and Insulators – ISE Series Heaters (ATEX / IECEx / UKEX Approved) (2 Sheets)	2003.12.94	6	23.02.23
Schedule of Thermocouple / RTD / Transmitter Series Heaters (2 Sheets)	2003-12-95	6	17.03.23
Copper Element Link Ex eb ISE Type ATEX & IECEx & UKEX Approved Liquid or Air	2003-12-96	4	05.09.22

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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
Gas Heater			
Heating Element Terminal Pin Current Carrying Capacities (ATEX / IECEx / UKEX Approved)	2003.12.98	05	15.09.22
Anti-Condensation Heater Mounting Detail ATEX & IECEx & UKEX Approved	2003-12-99	6	17.03.23
Schedule of Temperature Transmitters, Breathers / Drains, Buttons & Switches – ISE Series Heaters (ATEX, IECEx & UKEX Approved)	2003.13.01	1	23.02.2023
Ex eb ISE Type Liquid or Air/Gas Heater Complete with Heat Shields ATEX & IECEx & UKEX Approved General Arrangement	2003-14-92	7	17.03.23
Ex eb ISES Type Liquid or Air/Gas Heater Complete with Dummy Flange ATEX & IECEx & UKEX Approved General Arrangement	2003-18-01	7	17.03.23
ATEX & IECEx & UKEX Type Solid Hater (Cast In Elements Variant) General Arrangement	2003-21-01	4	17/03/23
Ex eb ISES Type Air/Gas heater 150mm Stand-Off General Arrangement ATEX & IECEx & UKEX Approved	2003-50-91	4	17.03.23
Alternative 12.5mm Element Ex eb Box Fitting Details ATEX & IECEx & UKEX Approved	2004-03-24	6	17.03.23
Ex eb ISES/H Type Heater Element Manufacturing Parameter ATEX & IECEx & UKEX Approved	2004.15.04	5	17.03.23
Ex eb Cartridge Heating Element Manufacturing Parameters ATEX & IECEx & UKEX Approved	2004-16-04	3	05.09.22
Nameplate for ISE Type ATEX / IECEx / UKEX Approved Heaters (2 Sheets)	2004.50.41	8	17.03.23
Gas Detector / ATEX & IECEx & UKEX Approved Terminal Box Assembly Drawing	2004-50-42	3	17.03.23
General Arrangement Ex db eb ISE Type ATEX & IECEx & UKEX Approved Liquid or Air/Gas Heater with Thermostatic Control	2004-50-90	7	17.03.23
Nameplate For ISE Type ATEX / IECEx / UKEX Approved Enclosures	2004-50-91	1	20.03.23
Installation, Operation & Maintenance Instructions Manual Appendix X IOM Ex Heater Annex	Cert 005	0	04th October 2022

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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
FAW Range (standard) General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-17-01	04	30.09.22
FAW, FAW-C, FAW-C-T & FCR, FCR-A Range Terminal Box General Arrangement Drawings Industrial Product ATEX, IECEx & UKEX (2 Sheets)	2004-17-12	06	20.06.23
FAW-C & FAW-C-T Air Heating Element ATEX, IECEx & UKEX Industrial Product 8.5mm up to 12mm	2004-17-14	04	20.06.23
FAW, FCR & FCR-A Air Heating Element 12.5mm, ATEX, IECEx & UKEX Industrial Product	2004-17-15	03	30.09.22
FAW-C-T Type Range Nameplate General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-17-40	03	30.09.22
FAW-C Type Range Nameplate General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-17-41	05	30.09.22
FAW Type Range Nameplate General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-17-42	03	30.09.22
Supplementary Data Sheet: ATEX & UKEX Page 1 of 2	2004-17-90	04	30.09.22
Supplementary Data Sheet: IECEx Page 2 of 2	2004-17-90	04	30.09.22
FAW-C Range General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-17-91	04	30.09.22
FAW-C-T (Thermostat Option) General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-17-92	03	30.09.22
FAW Type General Wring Details General Arrangement Drawing ATEX, IECEx & UKEX Industrial Product	2004.17.94	03	30.09.22
FAW-C & FAW-C-T Range Hazardous Area Air Warmer Wiring ATEX, IECEx * UKEX Single Phase 4 Elements in Parallel 110/240V (Sheet 1 of 3)	2004.17.95	03	30.09.22
FAW-C- & FAW-C-T Range Hazardous Area Air Warmer Wiring ATEX, IECEx & UKEX 3PH 3 Element & 1PH 3 Element in Parallel 110/240/415V (Sheet 2 of 3)	2004.17.95	03	30.09.22
FAW-C & FAW-C-T Range Hazardous Area Air Warmer Wiring ATEX, IECEx & UKEX Single Phase 2 Elements in Parallel 110/240V	2004.17.95	03	30.09.22

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Technical Documents			
Title:	Drawing No.:	Rev. Level:	Date:
(Sheet 3 of 3)			
FCR Type Convector Heater General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-27-01	04	30.09.22
FCR-A (Thermostat Option) General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-27-02	03	30.09.22
FCR Type Range Nameplate General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-27-40	03	30.09.22
FCR-A Type Range Nameplate General Arrangement Drawing Industrial Product ATEX, IECEx & UKEX	2004-27-41	03	30.09.22
FCR & FCR-A Type General Wiring Details General Arrangement Drawing ATEX, IECEx & UKEX Industrial Product	2004.27.94	03	30.09.22
Installation Operation and Maintenance Instructions FAW, FAW-C & FAW-C-T Type Air Warmers FCR & FCR-A Type Convectors	-	First Edition	OCT 2022

Required Manufacturer Routine Testing		
Test	Title/Description of Test	Standard and Clause
1	<ul style="list-style-type: none"> Each heating element is to be subjected to a routine di-electric strength test in accordance with Clause 6.1 of IEC 60079-7:2017 Ed 5.1. For resistance heating devices and resistance heating units to which additional requirements of 5.8 apply: $(1000+2U_n)$ V r.m.s., where U_n is the rated voltage. Each RTD and thermocouple circuit not terminated in a Ex d enclosure or as simple apparatus in an I.S. circuit is to be subjected to a routine dielectric strength test in accordance with Clause 6.1 of IEC 60079-7:2015 Ed 5.1 For electrical equipment and Ex Components with rated voltages not exceeding 90 V peak or in which working voltages not exceeding 90 V peak are present: 500 V r.m.s. 	IEC 60079-7:2017 Ed 5.1, Clause 6.1



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SPECIFIC CONDITIONS:

ISE

- For assembly 150mm minimum stand-off and non-stand-off version, the auxiliary terminal box shall not be mounted nearer than the minimum stand-off distance of 50mm from the main enclosure side/base where the optional anti-condensation heater is mounted.

- For assembly dummy flange version, additionally to the condition above, the installer and/or end user shall ensure that the dummy flange is fully seal welded to the lagging cover and that this cover prevents ingress of hazardous area.

The installer and/or end user shall ensure that the lagging is applied between the dummy flange process and the process flange.

- For assembly Heat shield version, additional to the first condition, the installer and/or end user shall ensure that the heat shields are always left unobstructed.

- For assembly type submersible heater, additional to the first condition, the installer and/or end user shall ensure that the heater is de-energized if the liquid level does not completely cover the heating elements.

- Leads connected to the terminals shall be insulated for the appropriate voltage and this insulation shall extend to within 1 mm of the metal of the terminal throat.

- All the terminal screws, used and unused, shall be tightened down.

- Supply terminal lugs shall be insulated for the appropriate voltage and this insulation shall be set to maintain a minimum clearance of 15mm.

- A suitable temperature controller shall be fitted with a manually re-settable temperature trip (access to which is only possible by use of a tool) set to a maximum of:

Temperature Class with 150mm Stand-Off

Temperature Class	Maximum Flange RTD or TC Sensor Setpoint	Maximum Over temperature thermostat Sensor Setpoint
T6	Up To 80°C	Up To 75°C
T5	Up To 95°C	Up To 90°C
T4	Up To 130°C	Up To 125°C
T3	Up To 195°C	Up To 190°C
T2*	Up To 290°C	Up To 285°C
T1*	Up To 440°C	Up To 435°C

Temperature Class with Zero Stand-Off

T6	Up To 80°C	Up to 75°C
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The above table assumes unit vertical (terminal box at top) with maximum number of elements in a 40°C, 50°C or 60°C ambient.

*T1 & T2 require heat shields and terminal box standoff

And a trip response to allow the temperature class to be met or the elements shall be suitably down rated to allow an uncontrolled temperature maximum of 80°C (T6), 90°C (T5), 130°C (T4), 195°C (T3) when equated to an ambient of 40°C, 50°C or 60°C as appropriate.

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- The safety trip shall be set using the manufacturers setting up procedure number WI/09/131, prior to use, failure to adhere to this mandatory requirement nullified all certification.
- Faulty/replacement safety trip controllers shall be set up as condition above, prior to use, failure to adhere to this mandatory requirement nullified all certification.
- When installing supply cables due note should be taken that the anti-condensation heater without a guard may reach high temperature and the cables shall be routed a minimum of 50 mm away this heat source.
- Conditions of certification concerning the components already certified depend on the relevant certificates.
- When materials in standoff (e.g. heating elements) are Titanium, the heater must be installed in an area of low mechanical (impact) risk
- If painted, electrostatic charging hazard - clean only with a damp cloth

FAW/FCR

- FAW & FCR (power density at element surface of 3.01 W/cm²):
 - -60°C to +40°C for T3
 - -60°C to +60°C for T2
- FAW & FCR (power density at element surface of 1.35W/cm²):
 - -60°C to +40°C for T4
- FAW-C (power density at element surface of 1.1 W/cm²):
 - -60°C to +40°C for T3
 - -60°C to +60°C for T2

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