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INSTALLATION OPERATION AND MAINTENANCE INSTRUCTIONS FOR EXHEAT INDUSTRIAL LTD. FWD & FWD-T TYPE FLAMEPROOF AIR WARMERS



**Please read these instructions thoroughly before installation and ensure they
are passed on to the end-user**

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To maintain the equipment warranty and the Hazardous Area Certification, the instructions contained within this manual must be complied with in full.

1.0 GENERAL

- 1.1 All work should be carried out by suitable qualified personnel.
- 1.2 Carefully remove all protective packaging and visually inspect unit for any transit damage.
- 1.3 Heaters must be handled with care and stored in dry conditions.
- 1.4 **CAUTION** – Air warmers over 1m long are HEAVY and must be handled appropriately.
- 1.5 **CAUTION** – These heaters are designed for industrial use only, and additional personnel protection against contact with hot surfaces may be required in some installations.
- 1.6 Before connection ensure that the supply corresponds with that specified on the rating label.
- 1.7 Ensure that the sizes and types of cables to be used are suitably rated for the load and temperature of the unit.
- 1.8 Each heater must be protected by a suitably rated over current device.
- 1.9 All prevailing rules, regulations and bylaws in force at the time and place of installation must be observed.
- 1.10 The heater should be securely fixed in position and all terminal connections checked for tightness before energising.
- 1.11 Any modification not carried out by Exheat Industrial Ltd will invalidate certification and warranty.
- 1.12 If you are installing a hazardous area heater. Reference must be made to EN 60079-17 & IEC 1241-1-2.
- 1.13 All electrical testing must be carried out in a non-hazardous area.
- 1.14 Precautions must be taken to prevent damage to machined surfaces and threads of flameproof enclosure.
- 1.15 The FWD-T model variant includes a factory fitted integral externally adjustable air sensing thermostat. **The MAXIMUM setting is to be no more than +25°C (approx. between 2 & 3 on the scale)**
- 1.16 Ensure that any special conditions for safe use detailed on the hazardous area certification are complied with.

2.0 STORAGE

- 2.1 Store the equipment in an inside location that is dry, clean and well ventilated.
- 2.2 Suitable preservation materials, such as silica gel bags or equivalent, have been placed inside the packaging. Additionally, spare silica gel bags, or equivalent, can be supplied by contacting Exheat Industrial Ltd.
- 2.3 If the equipment is stored beyond 3 months, ensure that preservation materials are replaced.
- 2.4 **CAUTION** – It is the client's responsibility to ensure that, if the terminal enclosure is opened prior to installation, these bags are checked and replaced if necessary. When refitting terminal enclosure lid please ensure the gaskets or O-rings are not damaged or moved in any way and for the HFT & AFT thermostats please refer to 5.9 below.
- 2.5 **CAUTION** – The following preservation instructions must be adhered to. Failure to do so could result in the equipment warranty being invalidated:
 - Store the equipment at between 0°C and +50°C.
 - Ensure that the equipment is not subjected to direct sunlight at ambient temperatures above 30°C.

3.0 PRE INSTALLATION INSPECTION AND CHECKS

3.1 Each heater and thermostat is manufactured to the highest standard with great care and quality materials. All the goods are thoroughly inspected and tested before leaving the manufacturing plant. They must be handled with care during storage and installation. Before the installation starts it is advised that the heater is checked to ensure the insulation resistance reading is above 2MΩ per element at 500 volts dc.

Should the heater fail this test, isolate the power and control circuits (if installed), and follow the steps below:

- Fill the terminal box with silica gel bags, and replace the terminal box lid.
- Leave for 24hrs to draw any moisture out of the heater elements.
- If you have a heated blanket, place this over the heater elements to help with the drying. Heater blankets are available to purchase from <http://www.exheat-industrial.com/contact/enquiry>
- If the insulation resistance has not been raised to a sufficient level after 24hrs, repeat the process above with replacement gel bags.
- Should the above not raise the insulation resistance to the required level please contact the technical help on our website. <http://www.exheat-industrial.com/contact/support>

3.2 Insulation Resistance (Megger)

3.2.1 The 'Megger' should be applied between the phases and earth. A reading of greater than 2MΩ at 500 volts dc should be recorded. Should the whole heater be below this value each element would need to be checked to ascertain which one was low in resistance.

3.2.2 Use the continuity (Ohms) setting on the elements and check the resistance of each element matches or is approximately equal to the results as per the electrical test cert that would have been sent with the heater.

4.0 INSTALLATION

4.1 Carefully remove the packaging from each item and check for damage. Immediately report any damage to Exheat Industrial Ltd.

4.2 The heater should be securely fixed in position and all terminal connections checked for tightness before energising.

4.3 The appliance must be securely fitted to a wall or floor using only the brackets provided.

4.4 The installer or end user shall ensure that the unit has free and unrestricted airflow to allow natural convection to occur.

4.5 Orientation of heater must be strictly adhered to. The heater tube must remain horizontal at all times whilst energised.

4.6 The installer or end user shall ensure that the unit has free and unrestricted air flow to allow natural convection to occur at all times. **DO NOT COVER** the heater and do not allow anything to rest on or against it. This could lead to dangerous overheating and will invalidate the hazardous area certification.

4.7 At no time is the ambient temperature to be allowed to rise above 40°C (T3 & T4 Variants) Or 60°C (T2 Variants). This can be achieved by the use of Exheat Industrial Ltd Integral (if option available) or separate flameproof air thermostats (HFT & AFT).

4.8 Threaded (FWD) or spigot (FWD-T) cover flame path surfaces must be checked to ensure that they are undamaged and the 'O' ring must be fully located in its groove before re-fitting.

5.0 ELECTRICAL SUPPLY CONNECTION

- 5.1 Refer to wiring diagrams in *APPENDIX A*.
- 5.2 The cable entries in the FWD & FWD-T Ranges are positioned to the side and bottom of the terminal boxes. No additional cable entries are to be made within any of the terminal boxes. Only Exheat Industrial Ltd personnel can facilitate this.
- 5.3 The cables must enter the FWD & FWD-T heaters via the terminal box cable entries using Ex d cable glands and IP Washers (If Required). All cable glands are to be suitable for the rating and size of the supply cables.
- 5.4 Before connection ensure that the supply corresponds with that specified on the rating label.
- 5.5 Ensure that the sizes and types of cables to be used are suitably rated for the load and temperature of the unit.
- 5.6 Each heater must be protected by a suitably rated over current device and earth leakage circuit breaker device. See section 5 below for earthing details.
- 5.7 The cables must enter the heater terminal box via suitably certified cable glands and IP washers (not supplied) and be fitted by a qualified person. Any unused entries should remain plugged with the factory fitted certified Ex d plugs (if installed) or with suitably rated plugs and IP washers.
- 5.8 FWD only: the cover of the FWD terminal box is unscrewed after slackening a locking grub screw using a 3mm A/F hex key. When re-fitting ensure that the 'O' ring seal is in good condition and correctly located. The cover threads **MUST** be kept clean and free from any debris at all times.
- 5.9 FWD-T only: the cover of the FWD-T terminal box is opened after the three socket head screws have been removed. When re-fitting ensure that the 'O' ring seal is in good condition and correctly located. The cover spigot mating faces **MUST** be kept clean and free from any debris at all times.
- 5.10 FWD-T only: the terminal box of the FWD-T may be rotated as necessary for alignment purposes only while the cover is removed. Slacken the 3-off grub screws in the locking ring inside the base of the terminal box and then rotate the locking ring anti-clockwise sufficiently to allow re-alignment of the terminal box. The locking ring is tightened by rotating clockwise. The 3-off grub screws in the ring must be re-tightened before the terminal box cover is re-fitted
- 5.11 After re-fitting the lids on the FWD-T, the gap between the cover and the body must be checked to ensure that it does not exceed 0.15mm.
- 5.12 The installer or end user must connect to the Exheat Industrial Ltd supplied terminals within the terminal box - **DO NOT** connect to or disturb factory fitted wiring.
- 5.13 **WARNING – Silica gel bags must be removed before the heater is energised.**

6.0 EARTH CONNECTION

- 6.1 **WARNING – the heater MUST BE EARTHED.**
- 6.2 The external earth connection is located on the outside of the terminal box.
- 6.3 The internal earth connection is via a pillar or screw (FWD-T) inside the terminal box.

7.0 OPERATION

- 7.1 Heat is generated by means of electric heating elements. Once energized the air warmers will continue to operate until de-energized by an external (or integral) air thermostat.
- 7.2 To adjust the temperature settings on an integral thermostat (FWD-T), rotate the adjustable control (by means of a large flat screwdriver) clockwise to increase the desired set-point or

anti-clockwise to reduce the set-point. **The MAXIMUM setting is to be no more than +25°C (approx. between 2 & 3 on the scale)**

7.3 The permitted ambient temperature range for operation of the standard FWD Air Warmers is -60°C ≤ T_{amb} ≤ +40°C. A special high ambient version (up to +60°C) is available, identified by marking of the extended ambient temperature range. The end user must ensure that no excursions outside these ambient temperature limits are allowed to occur at any time.

7.5 **CAUTION** – Check that the voltage on the heater nameplate is compatible with the mains supply being used before energising the heater.

8.0 MAINTENANCE

8.1 All prevailing site safety regulations shall be adhered to at all times.

8.2 Equipment shall be checked regularly for any dust accumulation which must be removed from all surfaces.

8.3 Before and whilst any maintenance activity is carried out, it must be ensured that there are no hazardous gases or dusts present.

8.4 Equipment is to be fully isolated from the electrical supply before and whilst any work is being carried out.

8.5 Any damage or faults should be notified to Exheat Industrial Ltd immediately.

8.6 Any replacement parts required must be obtained directly from Exheat Industrial Ltd. The use of any other parts will void any certification and warranty.

8.7 Equipment is certified for use in a hazardous area and reference should be made to EN60079-17 (especially table 1) & IEC 1241-1-2 in addition to the following recommendations.

8.7.1 3 Monthly

- a. Generally inspect the equipment for external damage.
- b. Ensure that the spaces between the element fins remain clear and that the airflow remains unrestricted.

8.6.2 6 Monthly

- a. Isolate the electrical supply and remove the cover. (As 5.8 or 5.9)
- b. Internals should be clean and dry.
- c. Ensure terminals are intact and secure.
- d. Heating element insulation resistance to be at least 2 M-ohm. Please refer to section 3.0 for further information)
- e. Refit cover with new 'O' ring if required (note – this must be secured in place using RTV sealant supplied with the replacement 'o'-ring. (As 5.8 to 5.13)
- f. Earth continuity must be maintained between all earth points and main structure.

8.7.3 Annually


- a. Carry out 3 monthly and 6 monthly checks as above.
- b. Check for element failure or low insulation resistance, as section 2.

8.8 If equipment is being left unused for a period greater than 3 months, carry out 6 monthly maintenance before energizing.

8.9 Removal and Replacement of Ceramic Core Type Heating Element.

- 8.9.1 Request the new core and the relevant "Clients Works Instruction" to facilitate the removal and replacement of a new core.

9.0 Marking and certification reference

- 9.1  II 2 G D (ATEX certified units only)

Ex d IIC T4, T3 or T2

Ex t IIIC T***°C Db IP66 (T135, T200 or T300°C)

Do not open while energised

Do not open in presence of explosive atmosphere

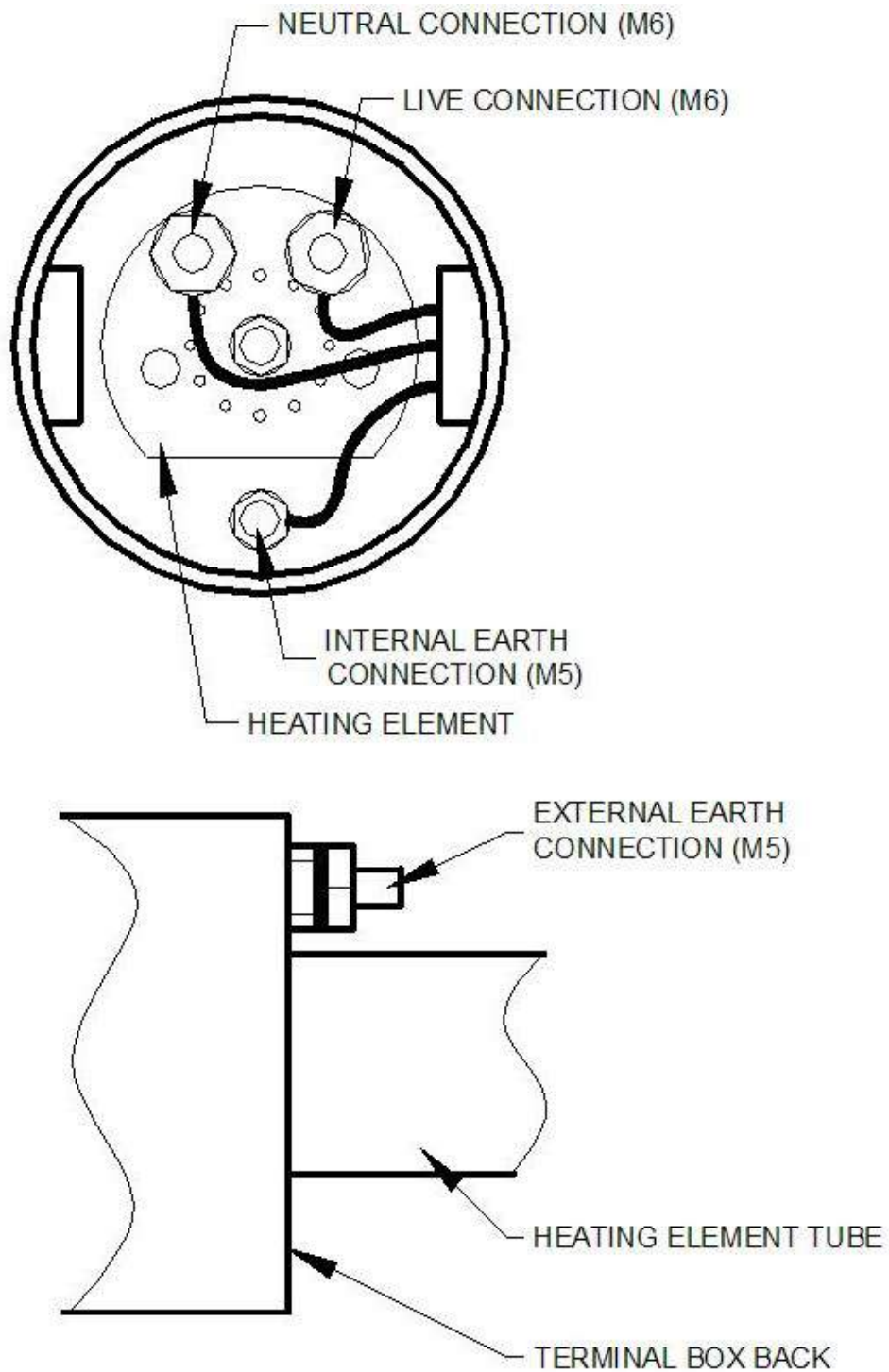
If the temperature at the conduit entry exceeds 70°C high temperature cable must be used

LCIE 04 ATEX 6016 X (ATEX certified units)

IECEX LCI 07.0005X (IECEX certified units)

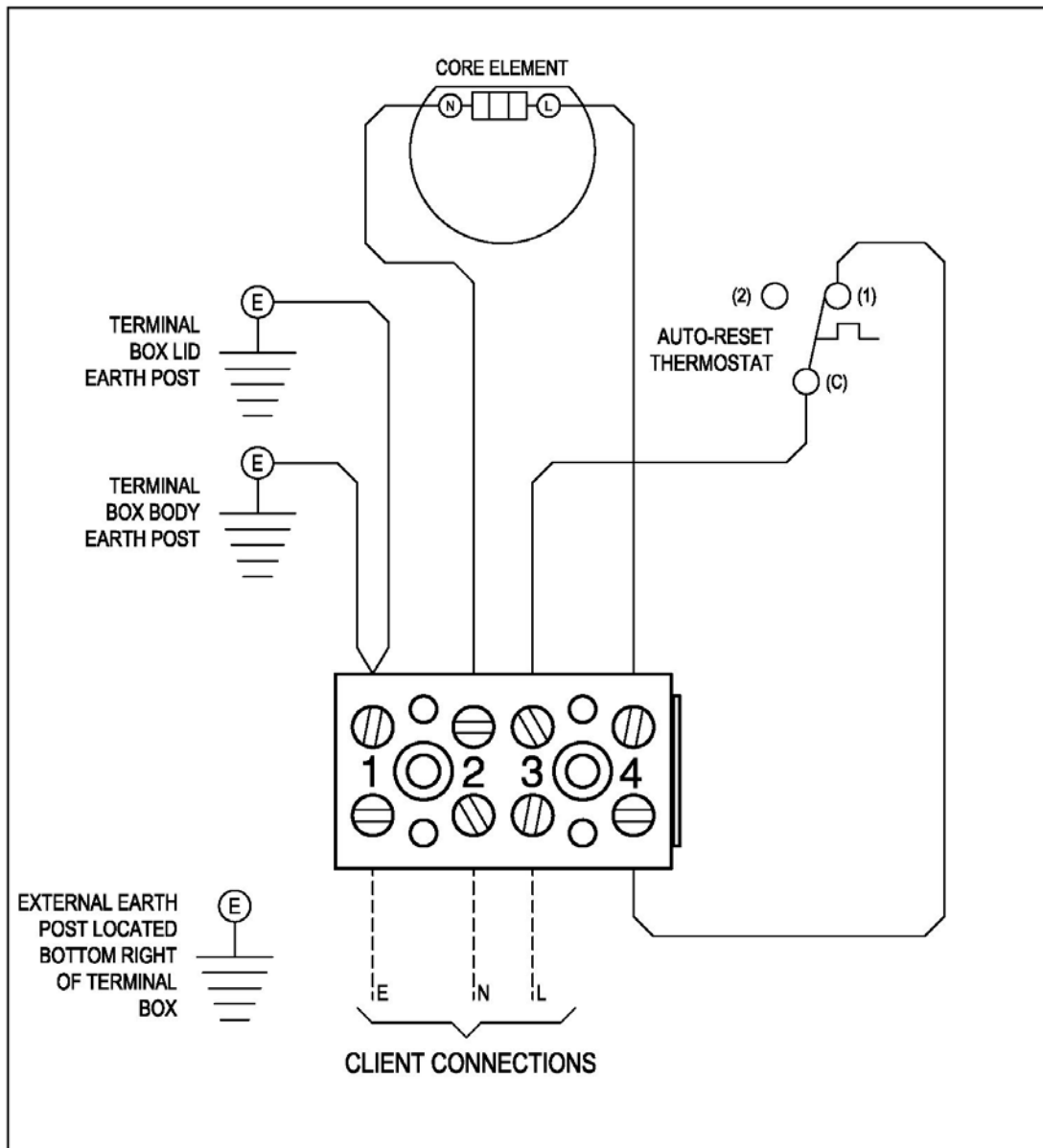
APPENDIX A

WIRING DIAGRAM FOR FWD TYPE (DIRECT CONNECTION TO ELEMENT)



APPENDIX A (Con't)

WIRING DIAGRAM FOR FWD-T TYPE



APPENDIX B - CERTIFICATION



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 07.0005X	issue No.:	1	Certificate history:	Issue No. 1 (2008-11-21) Issue No. 0 (2007-6-5)
Status:	Current				
Date of Issue:	2008-11-21	Page 1 of 4			
Applicant:	EXHEAT LIMITED Thrextan Road Industrial Estate Watton, Thetford, Norfolk IP25 6NG United Kingdom				
Electrical Apparatus: <i>Optional accessory:</i>	FWD and FWD-T Flameproof Air Warmer				
Type of Protection:	Flameproof 'd' and Dust 'tD'				
Marking:	EXHEAT LIMITED Type : FWD or FWD-T Serial Number Year of construction Ex d IIC T2 to T4 Ex tD A21 IP 66 T...°C IECEx LCI 07.0005 X WARNING - DO NOT OPEN WHILE ENERGIZED WARNING - DO NOT OPEN WHEN AN EXPLOSIVE DUST ATMOSPHERE IS PRESENT T cable entry = +82 °C (Ta = +60°C) T branching point = + 80 °C (Ta = +60°C)				
Approved for issue on behalf of the IECEx Certification Body:	Marc GILLAUX				
Position:	Ex certification manager				
Signature: (for printed version)					
Date:	21-11-2008				

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





IECEx Certificate of Conformity

Certificate No.: IECEx LCI 07.0005X

Date of Issue: 2008-11-21

Issue No.: 1

Page 2 of 4

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

Manufacturing location(s):

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 : 2004 Edition: 4.0	Electrical apparatus for explosive gas atmospheres - Part 0: General requirements
IEC 60079-1 : 2003 Edition: 5	Electrical apparatus for explosive gas atmospheres - Part 1: Flameproof enclosure 'd'
IEC 61241-0 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-1 : 2004 Edition: 1	Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"

*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/ExTR07.0005/01

Quality Assessment Report:

FR/LCI/QAR06.0005/00



IECEx Certificate of Conformity

Certificate No.: IECEx LCI 07.0005X

Date of Issue: 2008-11-21

Issue No.: 1

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The FWD air warmer is a tubular convector heater comprising a ceramic core type electric heating element fitted in an horizontally mounted mild steel or stainless steel externally finned tube and terminated in an integral Ex d IIC terminal enclosure.

A FWD-T model additionally includes the option of integral externally adjustable thermostatic control.

The maximum rating is established to ensure that whilst continuously energised at its rated voltage a given temperature class cannot be exceeded in a given ambient.

The enclosure is made of mild steel or stainless steel of welded construction with a threaded cover for the FWD model and of cast aluminium with a spigot cover for the FWD-T model. All electrical connections are terminated in the terminal enclosure. The equipment for both model is designed to operate in a -60°C to +60°C ambient temperature.

CONDITIONS OF CERTIFICATION: YES as shown below:

Ambient operating temperature range: -60°C to +60°C

Temperature classification according to a power density of 0.33W/cm²:

T4 for gas and T135°C for dust according to an ambient operating temperature range of -60°C to +40°C

T3 for gas and T200°C for dust according to an ambient operating temperature range of -60°C to +60°C

Temperature classification according to a power density of 0.67W/cm²:

T3 for gas and T200°C for dust according to an ambient operating temperature range of -60°C to +40°C

T2 for gas and T300°C for dust according to an ambient operating temperature range of -60°C to +60°C



IECEx Certificate of Conformity

Certificate No.: IECEx LCI 07.0005X

Date of Issue: 2008-11-21

Issue No.: 1

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

- Change of company name : EXHEAT instead of HEATEX
- Low ambient temperature : -60°C

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LCIE

1 ATTESTATION D'EXAMEN CE DE TYPE

2 Appareils et systèmes de protection destinés à être utilisés en atmosphères explosibles
Directive 94/9/CE

3 Numéro de l'attestation CE de type
LCIE 04 ATEX 6016 X

4 Appareil ou système de protection :
Réchauffeur antidéflagrant
Type : FWD

5 Demandeur : HEATEX Ltd

6 Adresse : Threxton Road Industrial Estate
Watton, Thetford, Norfolk, IP25 6NG
United Kingdom

7 Cet appareil ou système de protection et ses variantes éventuelles acceptées est décrit dans l'annexe de la présente attestation et dans les documents descriptifs cités en annexe.

8 Le LCIE, organisme notifié sous la référence 0081 conformément à l'article 9 de la directive 94/9/CE du Parlement européen et du Conseil du 23 mars 1994, certifie que cet appareil ou système de protection est conforme aux exigences essentielles en ce qui concerne la sécurité et la santé pour la conception et la construction d'appareils et de systèmes de protection destinés à être utilisés en atmosphères explosibles, données dans l'annexe II de la directive. Les vérifications et épreuves figurent dans notre rapport confidentiel N° 60018863 - 511607.

9 Le respect des exigences essentielles en ce qui concerne la sécurité et la santé est assuré par la conformité aux documents suivants :
-EN 50014 (1997) + amendements 1 et 2
-EN 50018 (2000)
-EN50281-1-1(1998)

10 Le signe X lorsqu'il est placé à la suite du numéro de l'attestation, indique que ce matériel ou système de protection est soumis aux conditions spéciales pour une utilisation sûre, mentionnées dans l'annexe de la présente attestation.

11 Cette attestation d'examen CE de type concerne uniquement la conception et la construction de l'appareil ou du système de protection spécifié, conformément à la directive 94/9/CE. Des exigences supplémentaires de cette directive sont applicables pour la fabrication et la fourniture de l'appareil ou du système de protection.

12 Le marquage de l'appareil ou du système de protection devra comporter, entre autres indications utiles, les mentions suivantes :

Ex II 2 G / D

EEx d IIC T2 - T4 IP6X T300°C - T135°C

Fontenay-aux-Roses, le 6 février 2004

1 EC TYPE EXAMINATION CERTIFICATE

2 Equipment or protective system intended for use in potentially explosive atmospheres
Directive 94/9/EC

3 EC type Examination Certificate number
LCIE 04 ATEX 6016 X

4 Equipment or protective system :
Flameproof air warmer
Type : FWD

5 Applicant : HEATEX Ltd

6 Address : Threxton Road Industrial Estate
Watton, Thetford, Norfolk, IP25 6NG
United Kingdom

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 LCIE, notified body number 0081 in accordance with article 9 of the Directive 94/9/EC of the European Parliament and Council of 23 March 1994, certifies that this equipment or protective system has been found to comply with the essential Health and Safety Requirements relating to the design and construction of equipment and protective system intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in confidential report No 60018863 - 511607.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with :
-EN 50014 (1997) + amendments 1 and 2
-EN 50018 (2000)
-EN50281-1-1 (1998)

10 If the sign X is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

11 This EC Type examination certificate relates only to the design and construction of this specified equipment or protective system in accordance with the Directive 94/9/EC. Further requirements of the Directive apply to the manufacture and supply of this equipment or protective system.

12 The marking of the equipment or protective system shall include the following :

Ex II 2 G / D

EEx d IIC T2 - T4 IP6X T300°C - T135°C

Le Directeur de l'organisme certificateur
Manager of the certification body

Timbre sec / Dry seal

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LCIE

(A1) ANNEXE

(A1) SCHEDULE

(A2) ATTESTATION D'EXAMEN CE DE TYPE

(A2) EC TYPE EXAMINATION CERTIFICATE

LCIE 04 ATEX 6016 X

LCIE 04 ATEX 6016 X

(A3) Description de l'équipement ou du système de protection :

(A3) Description of Equipment or Protective System:

Réchauffeur antidéflagrant
Type : FWD

Flameproof air warmer
Type : FWD

Le réchauffeur d'air antidéflagrant type FWD est un convecteur tubulaire comportant un noyau chauffant en céramique inséré dans un corps horizontal en acier doux ou acier inoxydable. Le tube est équipé d'ailettes et d'une boîte de raccordement antidéflagrante EEx d IIC.

The FWD type flameproof air warmer is a tubular convector heater comprising a ceramic core type electric heating element fitted in a horizontally mounted mild steel or stainless steel externally finned tube and terminated in an integral EEx d IIC terminal enclosure.

Les paramètres électriques sont les suivants :

The electrical parameters are the following :

Tension d'alimentation maximale : 690V
Puissance maximum : 4 kW

Maximum supply voltage : 690 V
Maximum rated power : 4 kW

Le marquage est le suivant :

The marking is the following :

HEATEX
Adresse
Type : FWD
N° de fabrication
Année de construction
Ex II 2 G / D
EEx d IIC T4, T3 ou T2
IP6X T135°C, T200°C ou T300°C
LCIE 04 ATEX 6016 X
NE PAS OUVRIR SOUS TENSION
Si la température au niveau de l'entrée de câble excède 70°C,
un câble haute température doit être utilisé.

HEATEX
Address
Type : FWD
Serial number
Year of construction
Ex II 2 G / D
EEx d IIC T4, T3 or T2
IP6X T135°C, T200°C or T300°C
LCIE 04 ATEX 6016 X
DO NOT OPEN WHILE ENERGIZED
If the temperature at the cable entry exceeds 70°C high
temperature cable must be used

Le marquage CE est accompagné du numéro d'identification de l'organisme notifié responsable de la surveillance du système approuvé de qualité (0081 pour le LCIE).

The CE marking shall be accompanied by the identification number of the notified body responsible for surveillance of the approved quality system (0081 for LCIE).

Le matériel devra également comporter le marquage normalement prévu par les normes de construction du matériel électrique concerné.

The equipment must also carry the usual marking required by the manufacturing standards applying to such equipments.

(A4) Documents descriptifs :

(A4) Descriptive documents :

Dossier technique N°2004-60-TF Rév 01 du 03/02/2004.
Ce document comprend 5 rubriques (6 pages).

Technical file N°2004-60-TF Rev 01 dated 03/02/2004.
This file includes 5 items (6 pages).



L C I E

(A1) ANNEXE

(A1) SCHEDULE

(A2) ATTESTATION D'EXAMEN CE DE TYPE

(A2) EC TYPE EXAMINATION CERTIFICATE

LCIE 04 ATEX 6016 X (suite)

LCIE 04 ATEX 6016 X (continued)

(A5) Conditions spéciales pour une utilisation sûre :

(A5) Special conditions for safe use:

Température ambiante : -50°C à +60°C.

Ambient temperature : -50°C à +60°C.

Classement en température :

Temperature classification :

	Puissance surfacique : <i>Power density :</i> 0.67W/cm ²	Puissance surfacique : <i>Power density :</i> 0.33W/cm ²
-50°C ≤ T _{amb} ≤ +40°C	T3 (G) T200°C (D)	T4 (G) T135°C (D)
-50°C ≤ T _{amb} ≤ +60°C	T2 (G) T300°C (D)	T3 (G) T200°C (D)

(A6) Exigences essentielles en ce qui concerne la sécurité et la santé :

(A6) Essential Health and Safety Requirements:

Conformité aux normes européennes EN 50014 (1997 + amendements 1 et 2), EN 50018 (2000) et EN 50281-1-1 (1998).

Conformity to the European standards EN 50014 (1997 + amendments 1 and 2), EN 50018 (2000) and EN 50281-1-1 (1998).

Epreuve individuelle :

Routine test :

Application d'une pression statique de 20 bars d'une durée au moins égale à 10 secondes sans toutefois être supérieur à 1 minute.

Application of a static pressure of 20 bars at least 10 seconds without exceeding 1 minute.



LCIE

1 AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE

2 Appareil ou système de protection destiné à être utilisé en atmosphères explosibles (Directive 94/9/CE)

3 Numéro de l'avenant : LCIE 04 ATEX 6016 X / 01

4 Appareil ou système de protection : Réchauffeur immergé pour liquide, gaz ou air Type : FWD...

5 Demandeur : HEATEX LIMITED

15 DESCRIPTION DE L'AVENANT

Ajout d'une nouvelle variante de boîtier de raccordement pour le modèle FWD-T. Modification du marquage. Mise à jour selon les normes EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004). Réduction de la température ambiante d'utilisation à la gamme suivante : de -20°C à +60°C

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 60048768-549173-05.

Paramètres spécifiques du ou des modes de protection concerné(s) : Inchangés.

Marquage

Le marquage :

Ex II 2 G / D EEx d IIC T2 à T4 IP6X T... °C Doit être remplacé par :

Ex II 2 G / D Ex d IIC T2 à T4 Ex tD A21 IP66 T... °C

16 DOCUMENTS DESCRIPTIFS

Dossier de certification N° 2008-60-TF du 23/03/2007. Ce dossier comprend 16 rubriques (17 pages).

17 CONDITIONS SPECIALES POUR UNE UTILISATION SURE

Paragraphe (A5) inchangé, excepté pour la température ambiante d'utilisation limitée à -20°C au lieu de -50°C

18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE

Couvertes par les normes EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004).

19 VERIFICATIONS ET ESSAIS INDIVIDUELS

Inchangés.

Fontenay-aux-Roses, le 03/07/2007

1 SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE

2 Equipment or protective system intended for use in potentially explosive atmospheres (Directive 94/9/EC)

3 Supplementary certificate number : LCIE 04 ATEX 6016 X / 01

4 Equipment or protective system : Liquid, gas or air immersion heater Type : FWD...

5 Applicant : HEATEX LIMITED

15 DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE

Addition of a new model of terminal box for the model FWD-T. Modification of the marking. Updating according to the standard EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004). Decrease of the ambient operating temperature to the following range : from -20°C to +60°C.

The examination and test results are recorded in confidential report N° 60048768-549173-05.

Specific parameters of the mode(s) of protection concerned:

Unchanged.

Marking

The marking :

Ex II 2 G / D EEx d IIC T2 to T4 IP6X T... °C Shall be replaced by

Ex II 2 G / D Ex d IIC T2 to T4 Ex tD A21 IP66 T... °C

16 DESCRIPTIVE DOCUMENTS

Certification file N° 2008-60-TF dated 23/03/2007. This file includes 16 items (17 pages).

17 SPECIAL CONDITIONS FOR SAFE USE

Paragraph (A5) unchanged excepted for the ambient operating temperature limited to -20°C instead of -50°C.

18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

Covered by the standards EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004).

19 ROUTINE VERIFICATIONS AND TESTS

Unchanged.

Le responsable de certification ATEX ATEX certification manager



Signature of Henri CERVELLO

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LCIE

1 AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE

2 Appareil ou système de protection destiné à être utilisé en atmosphères explosibles (Directive 94/9/CE)

3 Numéro de l'avenant : LCIE 04 ATEX 6016 X / 01

4 Appareil ou système de protection : Réchauffeur antidéflagrant
Type : FWD

5 Demandeur : EXHEAT LIMITED

15 DESCRIPTION DE L'AVENANT

- Mise à jour normative selon EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004)
- Température ambiante minimale : -60°C
- Changement de raison sociale

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 77478-566023/02.

Paramètres spécifiques du ou des modes de protection concernés(s) : Inchangé

Le marquage doit être modifié comme suit :

EXHEAT au lieu de HEATEX
Ex d IIC T4, T3 ou T2
Ex tD A21 IP6X T135°C, T200°C, T300°C

AVERTISSEMENT - NE PAS OUVRIR SOUS TENSION
NE PAS OUVRIR EN PRÉSENCE D'UNE ATMOSPHÈRE
POUSSIÉREUSE EXPLOSIVE

T entrée de câble : +82 °C (Tamb = +60°C)
T point de branchement : +80 °C (Tamb = +60°C)

16 DOCUMENTS DESCRIPTIFS

Dossier de certification 2004-60-TF rév. 03 du 30/07/08. Ce dossier comprend 10 rubriques (11 pages).

17 CONDITIONS SPECIALES POUR UNE UTILISATION SURE

Classe de température

Table with 3 columns: Temperature ambiante, Puissance surfacique / Power density (0.67 W/cm²), Puissance surfacique / Power density (0.33 W/cm²). Rows show temperature ranges and corresponding protection classes (T3, T2, T4, T3).

T entrée de câble : +82 °C (Tamb = +60°C)
T point de branchement : +80 °C (Tamb = +60°C)

1 SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE

2 Equipment or protective system intended for use in potentially explosive atmospheres (Directive 94/9/EC)

3 Supplementary certificate number : LCIE 04 ATEX 6016 X / 01

4 Equipment or protective system : Flameproof Air Warmer
Type : FWD

5 Applicant : EXHEAT LIMITED

15 DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE

- Normative update according to EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004)
- Minimum ambient temperature : -60°C
- Change of company name

The examination and test results are recorded in confidential report N° 77478-566023/02.

Specific parameters of the mode(s) of protection concerned:

Unchanged

The marking shall be modified as follows :

EXHEAT instead of HEATEX
Ex d IIC T4, T3 or T2
Ex tD A21 IP6X T135°C, T200°C, T300°C

WARNING - DO NOT OPEN WHEN ENERGIZED
DO NOT OPEN WHEN AN EXPLOSIVE DUST
ATMOSPHERE IS PRESENT

T cable entry : +82 °C (Tamb = +60°C)
T branching point : +80 °C (Tamb = +60°C)

16 DESCRIPTIVE DOCUMENTS

Certification file 2004-60-TF rev. 03 dated 30/07/08. This file includes 10 items (11 pages).

17 SPECIAL CONDITIONS FOR SAFE USE

Temperature class

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LCIE



1 AVENANT D'ATTESTATION D'EXAMEN CE DE TYPE (suite)

2 Appareil ou système de protection destiné à être utilisé en atmosphères explosibles (**Directive 94/9/CE**)

3 Numéro de l'avenant :
LCIE 04 ATEX 6016 X / 01

18 EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE

Conformité aux normes européennes EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004).

19 VERIFICATIONS ET ESSAIS INDIVIDUELS

Application d'une pression statique de 31,5 bars d'une durée au moins égale à 10 secondes sans excéder 1 minute.

1 SUPPLEMENTARY EC TYPE EXAMINATION CERTIFICATE (continued)

2 Equipment or protective system intended for use in potentially explosive atmospheres (**Directive 94/9/EC**)

3 Supplementary certificate number :
LCIE 04 ATEX 6016 X / 01

18 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS

Conformity to the European standards EN 60079-0 (2006), EN 60079-1 (2004), EN 61241-0 (2006), EN 61241-1 (2004).

19 ROUTINE VERIFICATIONS AND TESTS

Application of a static overpressure of 31.5 bars for at least 10 seconds without exceeding 1 minute.

Fontenay-aux-Roses, le 1^{er} octobre 2008

Le responsable de certification ATEX
ATEX certification manager



Marc GILLAUX

EC DECLARATION OF CONFORMITY

Issued in accordance with the

ATEX Directive 94/9/EC

EXHEAT LIMITED

of

Threxton Road Industrial Estate, Watton, Norfolk, IP25 6NG, UK.

Declare that, in compliance with the above Directive, the product detailed below has been manufactured in conformity with


EC Type Examination Certificate Number LCIE 04 ATEX 6016 X

Issued by LCIE (Notified Body Number 0081)

of 33, Avenue du Général Leclerc, 92260 Fontenay-aux-Roses, France

Product description: FWD Type Flameproof Air Warmer

Protection concept(s): Flameproof 'd'
Enclosure 't'

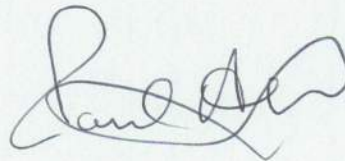
Marking:  II 2 G D
Ex d IIC T2 to T4 Gb
Ex t IIIC T300°C-T135°C Db
IP66

Harmonised standards applied: EN 60079-0: 2009
EN 60079-1: 2007
EN 60079-31: 2009

Other applicable Directives: 2004/108/EC Electromagnetic Compatibility Directive

Other standards applied: EN 60519-2: 2006 (Safety)
EN 61000-6-4: 2007 (Emissions)
EN 61000-6-2: 2005 (Immunity)

Authorised signature:



Name:

P Alford

Date:

20 December 2012

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www.exheat-industrial.com



2006/95/EC

89/336/EEC

(As amended by 92/31/EEC & 93/68/EEC)

94/9/EC

Issue Date: Jan. 2015

Issue G_English

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