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EX HEAT Industrial Ltd

INSTALLATION OPERATION AND MAINTENANCE INSTRUCTIONS EXHEAT INDUSTRIAL FLR & FLRA TYPE FLAMEPROOF RADIATORS

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

CONTENTS

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 suitably qualified personnel.

1.2 Equipment must be handled with care and stored in dry conditions.

1.3 **CAUTION** – these radiators are heavy and must be handled appropriately:

50kg FLR1

100kg FLR2

150kg FLR3

1.4 Carefully remove all protective packaging and visually inspect unit for any transit damage.

1.5 All prevailing rules, regulations and bylaws in force at the time and place of installation must be observed.

1.6 Any modification not carried out by Exheat Industrial Ltd will invalidate certification and warranty.

1.7 This is a hazardous area heater. Reference must be made to EN 60079-17 & IEC 1241-1-2.

1.8 All electrical testing must be carried out in a non-hazardous area.

1.9 Precautions must be taken to prevent damage to machined surfaces and threads of flameproof enclosures.

1.10 Ensure that any special conditions for safe use detailed on the hazardous area certification are complied with.

1.11 **CAUTION** – the liquid within the radiator contains glycol and must not be consumed. Should a leak occur the heater must be de-energised immediately and returned to Exheat Industrial Ltd for repair. Any leaks must be cleared up with care and hands washed immediately after contact.

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 refer to 4.8 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 INSTALLATION

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

3.2 Move the equipment by either crane or fork lift truck, using suitable rated lifting slings to prevent damage.

- All lifting tackle/equipment must have a safe working load (SWL) capacity in excess of that of the equipment weight and include for snatch factors etc.
- The slings or ropes must be long enough to keep the angle between the slings/ropes and the top of the equipment greater than 90°
- Ensure that the destination position is free from obstructions.
- Move the equipment into position and set the load down carefully and without bumping.

3.3 The radiator should be securely fixed in position with the wall brackets supplied and all terminal connections checked for tightness before energising. Please refer to *APPENDIX B & C* for all mounting point dimensions.

3.4 The correct installed orientation is with the terminal box at the bottom of the radiator.

3.5 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 radiator and do not allow anything to rest on or against it. If a protective guard is required, only Exheat Industrial Ltd's design is pre-approved and tested with the FLR range.

3.6 At no time is the ambient temperature to be allowed to rise above 40°C.

3.7 FLRA radiators supplied with an externally adjustable thermostat must be limited and set to a maximum of 25°C.

4.0 ELECTRICAL SUPPLY CONNECTION

4.1 Refer to wiring diagram *APPENDIX A.*

4.2 The cable entry is positioned on the bottom of the terminal box.

4.3 Before connection ensure that the supply corresponds with that specified on the rating label.

4.4 Ensure that the sizes and types of cables to be used are suitably rated for the load and temperature of the unit.

4.5 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.

4.6 The cables must enter the heater terminal box via suitably certified cable glands (not supplied) and be fitted by a qualified person. Any unused entries should remain plugged with the factory fitted certified Ex d plugs.

4.7 The cover of the terminal box is removed after releasing the 3 socket head screws in the cover. When re-fitting ensure that the 'o' ring seal is in good condition and correctly located. The main cover mating and spigot faces **MUST** be kept clean and free from any debris at all times.

4.8 After re-fitting, the gap between the cover and the body must be checked to ensure that it does not exceed 0.15mm.

4.9 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.

4.10 **WARNING – Silica gel bags must be removed before the heater is energised.**

5.0 EARTH CONNECTION

5.1 **WARNING – these heaters MUST BE EARTHED.**

5.2 The external earth connection is located adjacent to one of the terminal box cable entries.

5.3 An internal earth connection is provided inside the terminal box.

6.0 OPERATION

6.1 Heat is generated by means of electric heating elements.

6.2 FLRA – Rotate the adjustable control knob clockwise to increase the desired set-point or anti-clockwise to reduce the set-point.

6.2 Temperature control of the radiator is limited by a built-in preset thermostatic cut-out (auto-reset type).

6.3 Over-temperature control of the radiator is facilitated by a built-in preset thermostatic cut-out (manual-reset type). Upon over-temperature, the terminal box cover will have to be removed to enable a reset to be carried out. The unit should not be reset until the cause is found and action has been carried out to prevent re-occurrence.

6.4 **CAUTION** – Under no circumstances must the heater be energised following leakage of any fluid from within the radiator.

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

7.0 MAINTENANCE

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

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

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

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

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

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

7.7 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.

7.7.1 3 Monthly

a. Generally inspect the equipment for external damage or leaks.

7.7.2 6 Monthly

a. Isolate the electrical supply and remove the cover (refer to 4.7 above)

b. Internals should be clean and dry.

c. Ensure terminals are intact and secure.

d. Heating element insulation resistance to be at least 2 megohm.

e. Refit cover with new gasket or ‘o’ ring if required (refer to 7.6 above) and re-tighten using only the socket head screws provided.

f. Check the flamepath gap as 4.8 above.

g. Earth continuity must be maintained between all earth points and main structure.

7.7.3 Annually

a. Carry out 3 monthly and 6 monthly checks as above.

b. Check for element failure or low insulation resistance.

7.8 Only Exheat Industrial Ltd can carry out rod type element replacements in hazardous area heaters, any unauthorised modifications will invalidate the hazardous area certification and any warranty.

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

7.10 Should a leak occur, the heater must be de-energised immediately and returned to Exheat Industrial Ltd for repair. Any leaks must be cleared up with care and hands washed immediately after contact.

8.0 Marking

8.1 Ⓔx II 2 G D

Ex d IIC T6 Gb

Ex t IIIC T85°C Db

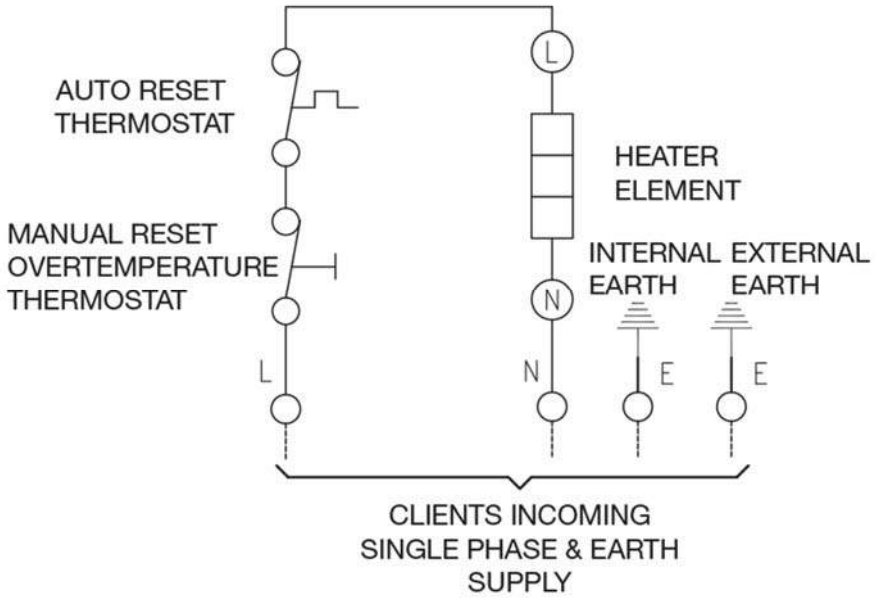
IP6X

9.0 Certification

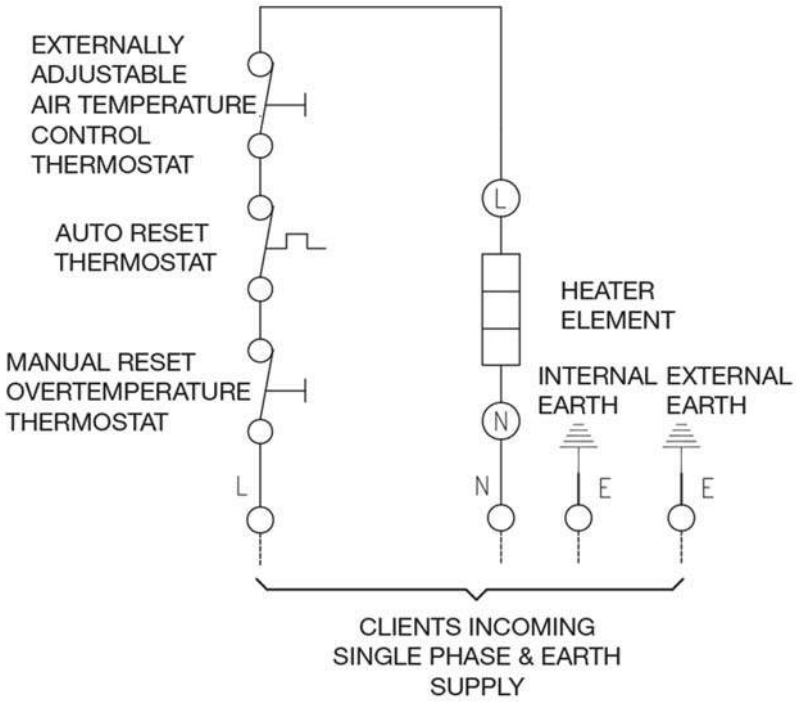
9.1 LCIE 00 ATEX 6012 X

APPENDIX A, WIRING DIAGRAM

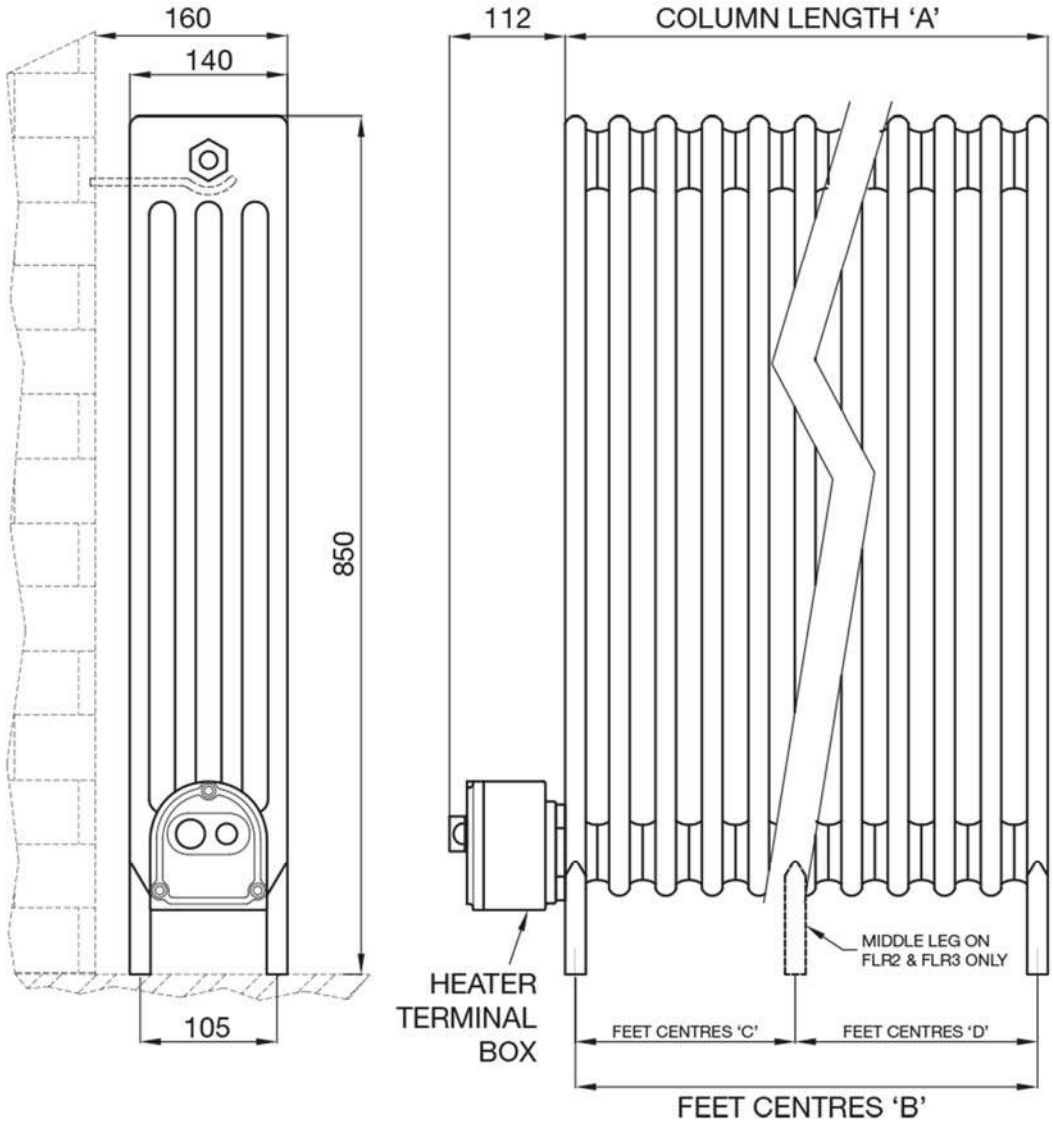
FLR



FLRA

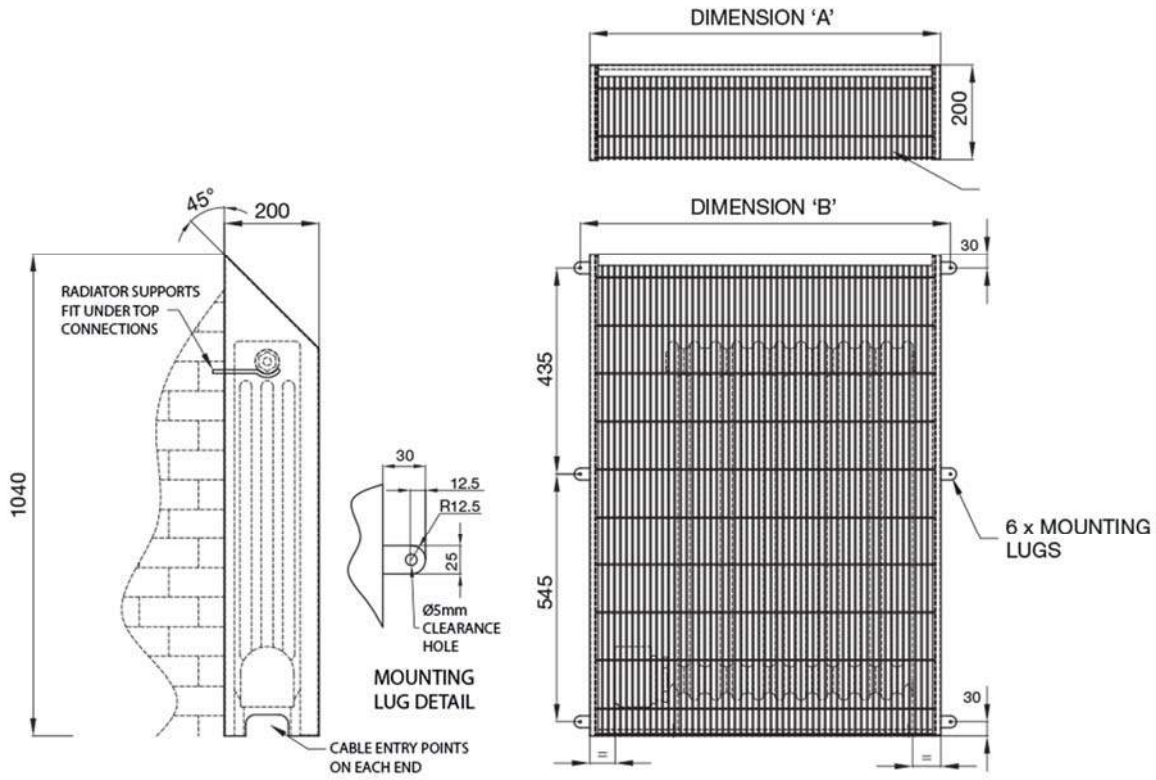


APPENDIX B, HEATER GENERAL ARRANGMENT DIAGRAM



MODEL	STOCK CODE	kW	DIMENSIONS (mm)				WEIGHT
			'A'	'B'	'C'	'D'	KG
FLR1	S63030001	1	580	510	n/a	n/a	50
FLR2	S63030002	2	1130	1035	510	550	100
FLR3	S63030003	3	1680	1575	780	830	150
FLR1A	S63040001	1	580	510	n/a	n/a	50
FLR2A	S63040002	2	1130	1035	510	550	100
FLR3A	S63040003	3	1680	1575	780	830	150

APPENDIX C, CAGE GENERAL ARRANGMENT DIAGRAM



MODEL	STOCK CODE	DIMENSIONS (mm)		WEIGHT
		'A'	'B'	KG
FLR1	S63050001	795	835	25
FLR2	S63050002	1280	1320	33
FLR3	S63050003	1820	1860	44

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 00 ATEX 6012 X

4 Appareil ou système de protection

Radiateur chargé en liquide
Type : FLR

5 Demandeur : HEATEX LIMITED

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° 21 022 010.

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 (1992)
- EN 50018 (1994)
- CEI 1241-1-1 (1993)

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
EEx d IIC T6 DIP B21

1 **EC TYPE EXAMINATION CERTIFICATE**

2 Equipment or Protective System Intended for use in Potentially explosive atmospheres
Directive 94/9/CE

3 EC type Examination Certificate number
LCIE 00 ATEX 6012 X

4 Equipment or Protective system

Liquid filled radiator
Type : FLR

5 Applicant : HEATEX LIMITED

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 refered to.

8 LCIE, notified body number 0081 in accordance with article 9 of the directive 94/9/CE 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 to the directive.
The examination and test results are recorded in confidential report No 21 022 010

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with :

- EN 50014 (1992)
- EN 50018 (1994)
- CEI 1241-1-1 (1993)

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 Directive applies 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
EEx d IIC T6 DIP B21

Fontenay-aux-Roses, le 4 juillet 2000

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

Timbre sec/dry seal

Par délégation
Michel BRÉNON
Directeur adjoint
à la Certification

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LABORATOIRE CENTRAL DES INDUSTRIES ELECTRIQUES
Société anonyme à Directoire et Conseil de surveillance au capital de 103 592 000 Francs - RCS Nanterre B 408 363 174
Siège social : 33, avenue du Général Leclerc - F 92260 Fontenay-aux-Roses - Tél. : +33 (0)1 40 95 60 60

(A1) **ANNEXE**

(A2) **ATTESTATION D'EXAMEN CE DE TYPE**

LCIE 00 ATEX 6012 X

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

L'appareil est constitué d'une enveloppe métallique contenant un liquide (eau et glycol) chauffé par un réchauffeur immergé type RFA certifié LCIE 99 ATEX 6006.
Puissance maximale : 3 kW

Le marquage sera le suivant :

HEATEX LIMITED
Adresse
Type : FLR
N° de fabrication
Année de fabrication
Ex II 2 G
EEx d IIC T6 DIP B21
LCIE 00 ATEX 6012 X
- Caractéristiques électriques
Réchauffeur immergé RFA : marquage mentionné dans l'attestation d'examen CE de type LCIE 00 ATEX 6006.

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

(A4) **Documents descriptifs**

Dossier technique du Rév. 2 du 26/06/2000.
Ce document comprend 3 rubriques (4 pages).

(A5) **Conditions spéciales pour une utilisation sûre**

Conformément aux prescriptions du paragraphe (A5) de l'attestation d'examen CE de type LCIE 00 ATEX 6006.

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

La conception de cet équipement satisfait aux normes européennes EN 50014 et EN 50018.

Epreuve individuelle

Néant.

(A1) **SCHEDULE**

(A2) **EC TYPE EXAMINATION CERTIFICATE**

LCIE 00 ATEX 6012 X

(A3) **Description of Equipment or Protective System**

The equipment is formed of a metallic enclosure including a liquid (water and glycol) heated by an immerged heater type RFA certified LCIE 99 ATEX 6006.
Maximum power supply : 3 kW

The marking will be the following :

HEATEX LIMITED
Address
Type : FLR
Serial number
Year of construction :
Ex II 2 G
EEx d IIC T6 DIP B21
LCIE 00 ATEX 6012 X
- Electrical characteristics.
Immerged heater RFA : marking mentionned in the EC type examination certificate LCIE 00 ATEX 6006.

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

(A4) **Descriptive documents :**

Technical file Rev. 2 issued 26/06/2000.
This file includes 3 items (4 pages).

(A5) **Special conditions for safe use**

According to prescriptions of EC type examination certificate LCIE 00 ATEX 6006 clause (A5).

(A6) **Essential Health and Safety Requirements**

The design of the equipment complies to European standards EN 50014 and EN 50018.

Routine test

None.

(A1) **ATTESTATION D'EXAMEN CE DE TYPE LCIE 00 ATEX 6012X du 4 juillet 2000**

AVENANT 00 ATEX 6012X /01

(A2) DESIGNATION DE L'EQUIPEMENT OU DU SYSTEME DE PROTECTION :

Radiateur chargé en liquide
Type : FLR
Construit par : HEATEX LIMITED.

(A3) OBJET DE L'AVENANT, DESCRIPTION DE L'APPAREIL OU DU SYTEME DE PROTECTION :

- Ajout d'une tige de commande pour thermostat.

- Utilisation en zone poussière

Le marquage est complété par :

Ex II 2 G/D
IP6X, T85°C (à Ta = 40°C).

(A4) DOCUMENTS DESCRIPTIFS :

Dossier de certification N°2004.26.TF Rev 5
Du 11/02/2003
Ce dossier comprend 7 rubriques (8 pages).

(A5) CONDITIONS SPECIALES POUR UNE UTILISATION SURE :

Inchangées.

(A6) EXIGENCES ESSENTIELLES EN CE QUI CONCERNE LA SECURITE ET LA SANTE :

Inchangées.

(A1) **EC TYPE EXAMINATION CERTIFICATE LCIE 00 ATEX 6012X dated July 4th, 2000**

VARIATION 00 ATEX 6012X /01

(A2) NAME OF EQUIPMENT OR PROTECTIVE SYSTEM :

Liquid filled radiator
Type : FLR
Manufactured by : HEATEX LIMITED.

(A3) SUBJECT OF THE VARIATION, DESCRIPTION OF EQUIPMENT OR PROTECTIVE SYSTEM :

- Adjunction of an adjustable control thermostat.

- Use in dust atmosphere

The marking is completed :

Ex II 2 G/D
IP6X, T85°C (at Ta = 40°C).

(A4) DESCRIPTIVE DOCUMENTS :

Certification file N°2004.26.TF Rev 5
Dated February 11th, 2003
This file includes 7 items (8 pages).

(A5) SPECIAL CONDITIONS FOR SAFE USE :

Unchanged.

(A6) ESSENTIAL HEALTH AND SAFETY REQUIREMENTS :

Unchanged.

Fontenay-aux-Roses, le 11 mars 2003

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

Isabelle HELLER
Timbre sec/Dry seal

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Société anonyme à directoire
et conseil de surveillance
au capital de 15 745 984 €
RCS Nanterre B 408 363 174

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 00 ATEX 6012 X / 02

4 Appareil ou système de protection :
Réchauffeur immerge pour liquide, air ou gaz
Type : FLR...

5 Demandeur : EXHEAT LIMITED

15 **DESCRIPTION DE L'AVENANT**
- Mise à jour selon les normes EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006) et EN 61241-1 (2004)
- Changement de raison sociale

Les résultats des vérifications et essais figurent dans le rapport confidentiel N° 77472-566017/03.

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

Le marquage doit être modiié comme suit :

EXHEAT au lieu de HEATEX
Ex d IIC T6
Ex tD A21 IP6X T85°C (à Ta=+40°C)

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

16 **DOCUMENTS DESCRIPTIFS**

Dossier de certification 2004-26-TF rév. 06 du 22/05/08.
Ce dossier comprend 4 rubriques (5 pages).

17 **CONDITIONS SPECIALES POUR UNE UTILISATION SURE**
Inchangées

18 **EXIGENCES ESSENTIELLES DE SECURITE ET DE SANTE**
Conformité aux normes européennes EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006) et EN 61241-1 (2004)

19 **VERIFICATIONS ET ESSAIS INDIVIDUELS**
Inchangés

Fontenay-aux-Roses, le 6 juin 2008

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 00 ATEX 6012 X / 02

4 Equipment or protective system :
Liquid, Air or Gas Immersion Heater
Type : FLR...

5 Applicant : EXHEAT LIMITED

15 **DESCRIPTION OF THE SUPPLEMENTARY CERTIFICATE**
- Normative update according to EN 60079-0 (2004), EN 60079-1 (2004), EN 61241-0 (2006) et EN 61241-1 (2004) standards
- Change of company name

The examination and test results are recorded in confidential report N° 77472-566017/03.

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

None

The marking shall be modified as follows :

EXHEAT instead of HEATEX
Ex d IIC T6
Ex tD A21 IP6X T85°C (at Ta=+40°C)

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

16 **DESCRIPTIVE DOCUMENTS**

Certification file 2004-26-TF rev. 06 dated 22/05/08.
This file includes 4 items (5 pages).

17 **SPECIAL CONDITIONS FOR SAFE USE**

Unchanged

18 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS**

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

19 **ROUTINE VERIFICATIONS AND TESTS**
Unchanged

Le responsable de certification ATEX
ATEX certification manager

Henri CERVELLO

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CE

2006/95/EC
89/336/EEC
(As amended by 92/31/EEC & 93/68/EEC)
94/9/EC
Stock Code S090.00.0000.0018
Issue 7

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