1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 10ATEX3216** Issue: **0**

4 Equipment: **Range of Mineral Insulated Trace Heating Cable Units**

5 Applicant: **Thermal Resources Management (TRM) Limited**

6 Address: Unit 21 Sedling Road
Wear Industrial Estate
Washington, NE38 9BZ
UK

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

8 Sira Certification Service, notified body number 0518 in accordance with Article 9 of Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, has been assured by compliance with the following documents:

EN 60079-0:2009 EN 60079-7:2007 EN 60079-30-1:2007

10 If the sign 'X' is placed after the certificate number, it indicates that the equipment 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 the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:

II 2G
Ex e IIC T1 to T6 Gb

Project Number 20737

D R Stubbings BA MIET
Certification Manager

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SCHEDULE

EC TYPE-EXAMINATION CERTIFICATE **Sira 10ATEX3216**
Issue 0

13 DESCRIPTION OF EQUIPMENT

The ranges of Mineral Insulated Trace Heating Cables are factory assembled resistance heating cables with cold leads attached via end terminations jointed at both ends. The resistance cable is a single, resistance wire that is insulated with compressed magnesium oxide and surrounded by a metallic sheath.

The heaters are rated at up to 500 Vac, with power output dependent upon the circuit length and the applied voltage. The temperature class for each installation is established by the stabilised design method and may be T1 to T6.

The range of heaters consists of the following types:

Type	Description
H321	Stainless Steel Sheath or Incoloy 825
H600	High Nickel Content Alloy Sheath
HDF	Cupro-Nickel sheath having nominal outside diameters between 3.2 mm and 4.9 mm (Nominal)
HDC	Cupro-Nickel sheath and copper conductors
HCx	For applications up to 200°C. Nominal outside diameters between 3.2 mm and 5.9 mm Copper sheath with constantan or copper conductor

The cold lead cables are also mineral insulated and have a stainless steel sheath. These are spliced to the resistance cable using a joint assembly that is brazed or welded onto the sheaths of the cables. This joint assembly is filled with fused magnesia to insulate the conductor joint. A suitably certified cable gland is fitted to enable the unit to be connected to a certified junction box.

The cold lead-in cable (cupro-nickel or stainless steel sheathed, Mineral Insulated Cable, sizes 1H2.5 or 1H6) may also be terminated with a flexible wire seal; this seal comprises a brass or stainless steel pot that is either crimped onto to the MIC sheath or attached using silver solder. A flexible, PVC insulated wire fitted with an insulated ferrule is attached to the MIC conductor using a copper crimp that is covered with shrink tubing. The pot is filled with epoxy resin to form the seal. The flexible wire seal is used with a suitable gland that may be fitted with a flexible wire, earth tag assembly.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	03 February 2011	R20737A/00	The release of the prime certificate.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

None

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16 **ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II** (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed in the reports listed in Section 14.2.

17 **CONDITIONS OF CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 A dielectric strength test shall be carried out on each unit manufactured in accordance with the requirements of EN 60079-30-1-2007 clause 5.2.1.

17.4 The manufacturer shall verify the output rating for each unit manufactured in accordance with EN 60079-30-1-2007 clause 5.2.2.

17.5 The manufacturer shall ensure that all component certified items are installed in accordance with their certificate conditions. A suitably certified cable entry device that will maintain IP54 shall also be provided.

17.6 The flexible wire seal shall only be fitted by the manufacturer in accordance with drawing number TRMH/EX/00/0016 Rev 07 using the specific constituent parts and cable types that are detailed on that drawing, in addition, the epoxy resin shall comply with the requirements of TRM/EX/010 Issue 2.

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Certificate Annexe

Certificate Number: **Sira 10ATEX3216**

Equipment: **Range of Mineral Insulated Trace Heating Cable Units**

Applicant: **Thermal Resources Management (TRM) Limited**

Issue 0

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
TRM/EX/002	1 of 1	6	05 Jan 11	Label details
TRM/H/00/0003/1	1 of 1	01	27 Mar 03	Heating Unit Joint Assembly
TRM/EX/005/HDx	1 of 1	2	04 Jun 04	Heating Element Cables
TRM/EX/003/HxQ	1 to 2	2	27 Apr 07	Cable Design Datasheet
TRM/EX/006/CC	1 of 1	1	27 Jul 07	Cold Element Cables
TRM/EX/006/HCx	1 of 2	1	27 Jul 07	Heating Element Cables
TRM/EX/006/HCx	2 of 2	1	27 Jul 07	Heating Element Cables
TRM/EX/004/1M10	1 of 1	4	27 Jul 07	1M10 Thermal data
TRM/EX/004/1M0.63	1 of 1	4	27 Jul 07	1M0.63 Thermal data
TRM/EX/004/1M0.16	1 of 1	4	27 Jul 07	1M0.16 Thermal data
TRM/EX/002	1 of 1	4	03 Sep 07	Label details
TRMH/EX/00/0016	1 of 1	7	15 Jan 08	General arrangement drawing
TRM/EX/010	1 of 1	2	15 Jan 08	Seal pot compound
TRM/EX/006/HDx	1 of 2	0	10 Mar 05	Heating Element Cables
TRM/EX/006/HDx	2 of 2	1	03 Mar 05	Heating Element Cables

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