



1 **TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 02ATEX3079** Issue: **4**

4 Equipment: **Powerheat AHT Constant Power Heating Cable**

5 Applicant: **Heat Trace Limited**

6 Address: **Meres Edge
Chester Road
Helsby
Frodsham WA6 0DJ
UK**

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

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 2 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 94/9/EC of 23 March 1994.

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 of this certificate, has been assessed by reference to:

EN 60079-0:2012

IEC 60079-31:2008

EN 60079-30-1:2007

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

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 TYPE EXAMINATION CERTIFICATE relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 2 GD

Ex e IIC T* Gb

Ex tb IIIC T#°C Db

T* and T#°C (see schedule)

Project Number 25433

C Ellaby
Deputy Certification Manager

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SCHEDULE

TYPE EXAMINATION CERTIFICATE

Sira 02ATEX3079
Issue4

13 DESCRIPTION OF EQUIPMENT

AHT Range Heating Cables

The Powerheat AHT Heating Cables are constant power trace heating cables that are used to protect against freezing or maintain temperatures. The cables are rated at up to 200 W/m on a supply voltage up to 277 V. They comprise two insulated parallel bus wires, around which is wrapped a layer of mica and then glass insulation tape. A resistance wire is spiralled over the core, which is notched at intervals so that the resistance wire connects to the bus wires underneath. A further layer of mica and glass tape insulation is extruded over the top of the resistance wire. The insulation is covered with an aluminium outer jacket, and can have a further, optional, chemical resistant outer jacket.

The heating cables are cut to length to form a unit that is terminated at each end with a seal kit. The equipment is designed to be connected to a supply by means of suitable certified cable entries and junction boxes in accordance with the manufacturer's installation instructions. Additional earthing of the outer jacket may also be achieved by the use of a P clip arrangement. The minimum installation temperature of the heating cables is -40°C. The maximum surface temperature is dependent on the maximum permissible workpiece temperature as shown in the following tables:

| Table A (*) | | Maximum permissible workpiece temperature | | | | | |
|------------------------------|----------------------|---|--------|--------|--------|--------|--------|
| Maximum surface temperature: | | T6 | T5 | T4 | T3 | T2 | T1 |
| Product type | Nominal output (W/m) | T85°C | T100°C | T135°C | T200°C | T300°C | T450°C |
| AHT | 10 | 34 | 50 | 100 | 188 | 290 | 340 |
| | 15 | - | 36 | 71 | 160 | 289 | 350 |
| | 30 | - | 11 | 28 | 100 | 246 | 323 |
| | 50 | - | - | - | 39 | 178 | 276 |
| | 100 | - | - | - | - | 48 | 140 |
| | 150 | - | - | - | - | - | 36 |
| | 200 | - | - | - | - | - | 7 |

| Table B (#) | | Maximum Permissible Workpiece Temperature | | | | | |
|------------------------------|----------------------|---|--------|--------|--------|--------|--------|
| Maximum surface temperature: | | T6 | T5 | T4 | T3 | T2 | T1 |
| Product type | Nominal output (W/m) | T85°C | T100°C | T135°C | T200°C | T300°C | T450°C |
| AHT | 10 | 40 | 60 | 110 | 190 | 290 | 340 |
| | 50 | - | - | - | - | 206 | 295 |
| | 100 | - | - | - | - | 82 | 176 |
| | 150 | - | - | - | - | - | 38 |

Table A: Stabilised design system or Protective System

Table B: Protective system with Heat Trace 'Powermatch' power controller (Where a temperature controller is used to limit the maximum surface temperature, it shall comply with IEC 60079-30:2007 clause 4.4.3.)

The heating cables meet the requirements for degree of protection IP 67.



SCHEDULE

TYPE EXAMINATION CERTIFICATE

Sira 02ATEX3079
Issue4

Variation 1 - This variation introduced the following changes:

- i. The manufacturer's address was changed
From: Heat Trace Limited To: Heat Trace Limited
Tracer House Meres Edge
Cromwell Road Chester Road
Bredbury Helsby
Stockport SK6 2RF Frodsham WA6 0DT
- ii. The braid diameter on the cables was altered.

Variation 2 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the EN 60079 series of standards, the documents originally listed in section 9, IEC 62086-1:2001, EN 50014:1997 (amendments 1 and 2), EN 50019:2000 and EN 50281-1-1:1998, were replaced by those currently listed, the markings in section 12 were updated accordingly and the conditions were modified to recognise the requirements of the latest standards.

Variation 3 - This variation introduced the following changes:

- i. Following appropriate re-assessment to demonstrate compliance with the requirements of the latest general requirements standard, EN 60079-0:2009 was replaced by EN 60079-0:2012.
- ii. The use of an optional, chemical resistant outer jacket was endorsed.
- iii. The maximum value of the nominal output (W/m) in 'Table A: Stabilised design system or Protective System' was increased from 150 W/m to 200 W/m, in addition, two new intermediary values, 15 W/m and 30 W/m, were recognised, the Description of Equipment was amended accordingly.
- iv. The addition of Figure 3 in drawing number HC2901/0 to clarify temperature markings of the heating cable.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

| Issue | Date | Report number | Comment |
|-------|------------------|---------------|--|
| 0 | 07 March 2003 | 53A8908 | The release of prime certificate. |
| 1 | 25 April 2006 | 51A14380 | The introduction of Variation 1. |
| 2 | 01 June 2010 | R21959A/00 | This Issue covers the following changes: <ul style="list-style-type: none">• All previously issued certification was rationalised into a single certificate, Issue 2, Issues 0 to 1 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.• the introduction of Variation 2. |
| 3 | 05 May 2011 | N/A | Issued to correct the title of the Annexe |
| 4 | 13 December 2012 | R25433F/00 | The introduction of Variation 2 |

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Sira Certification Service

Rake Lane, Eccleston, Chester, CH4 9JN, England

Tel: +44 (0) 1244 670900

Fax: +44 (0) 1244 681330

Email: info@siracertification.com

Web: www.siracertification.com



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Sira 02ATEX3079
Issue4

15 SPECIAL CONDITIONS FOR SAFE USE

None

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed 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 Type Examination Certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

17.3 An electric strength test of $\sqrt{2} U + 1000$ V rms shall be applied between the conductors and the outer, metallic braid/jacket as appropriate for 60 seconds as required by clause 5.1.2 of EN 60079-30-1.

17.4 An electric strength test of the polymeric sheath (overjacket) used for corrosion resistance shall be carried out in accordance with the requirements of EN 60079-30-1 clause 5.2.1.

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

17.5 The manufacturer shall demonstrate, through their quality program, the thermal safety of the trace heating cable with respect to time as per EN 60079-30-1 clause 5.1.12.

Certificate Annexe

Certificate Number: Sira 02ATEX3079
Equipment: Powerheat AHT Constant Power Heating Cable
Applicant: Heat Trace Limited



Issue 0

| Number | Sheet | Rev. | Date | Description |
|----------|--------|------|-----------|--|
| HC2901/s | 1 of 1 | 0 | 14 Oct 02 | AHT specification |
| BES2-PL | 1 of 1 | A | 06 Mar 00 | BES1 – End seal reference list |
| BPS3-PL | 1 of 1 | B | 06 Feb 01 | BPS3 – Silicone boot power seal reference list |
| HES2-PL | 1 of 1 | A | 06 Mar 00 | HES2 – Shrink sleeve end seal reference list |
| HPS2-PL | 1 of 1 | A | 06 Mar 00 | HPS2 – Shrink sleeve power seal reference list |

Issue 1

| Number | Sheet | Rev | Date (Sira stamp) | Description |
|-----------|--------|-----|-------------------|---------------|
| HC2901/S* | 1 of 1 | 1 | 25 April 06 | Powerheat AHT |

* This drawing was modified by Sira on 25 April 2006.

Issue 2

| Number | Sheet | Rev | Date (Sira stamp) | Description |
|----------|--------|-----|-------------------|---------------|
| HC2901/S | 1 of 1 | 2 | 25 May 10 | Powerheat AHT |

Issue 3 No new drawings were introduced.

Issue 4

| Number | Sheets | Rev. | Date (Sira stamp) | Title |
|----------|--------|------|-------------------|---|
| HC2901/0 | 1 of 1 | 5 | 12 Dec 12 | Sira Certification Drawing For Power Heat AHT |

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