



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 02ATEX3075** Issue: **8**

4 Equipment: **Freezstop Micro (FSM) Self-Regulating Heating Cable**

5 Applicant: **Heat Trace Limited**

6 Address: **Meres Edge
Chester Road
Helsby
Frodsham WA6 0DT
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 60079-30-1:2007 IEC 60079-31:2008

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 2GD
Ex e IIC T6 Gb
Ex tb IIIC T85°C Db IP67
Refer to the Description of Equipment for the ambient range.

Project Number 27430

C Ellaby
Deputy Certification Manager

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SCHEDULE

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13 DESCRIPTION OF EQUIPMENT

The Freezstop Micro (FSM) Self Regulating Heating Cables utilise two parallel buswires housed within a semi-conductive self-limiting matrix. The semi-conductive self-limiting matrix is covered with an insulation jacket which is then protected by an aluminium sheath or metallic braid of either tinned copper or nickel plated copper. An optional outer jacket of TPE, PVDF, MFA or PFA can be specified. The cables are rated at up to 25 W/m and 277 V.

The cable is intended to be cut to length on site and the equipment is designed to be connected to a supply by means of suitable certified cable entries and junction boxes (i.e. Ex e or Ex d) in accordance with the manufacturer’s installation instructions. Termination can be made using the Heat Trace termination kits approved under Sira 12ATEX3157U, Sira 05ATEX3099U and Sira 04ATEX3293X or any suitably certified type termination kit, which fully isolate, insulate and seal the conductive cores.

Additional Rating Information

Applicable for nominally rated 230 V products up to 25 W/m powered up to a maximum 277 V
Ex e IIC T6 Gb
Ex tb IIIC T85°C Db IP67

Description	Temperature
Max. continuous exposure temperature (Power ON)	65°C
Max. permissible exposure temperature (Power OFF)	85°C
Minimum installation temperature	-40°C

Variation 1 - This variation introduced the following changes:

- i. This equipment was permitted to be used in the presence of combustible dust; the marking of the equipment and the list of documents that assures Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule to this certificate, were amended accordingly.
- ii. The option to add a customer name or reference in the marking applied to the trace heating cables was recognised.

Variation 2 - This variation introduced the following change:

- i. The use of the Heat Trace End Termination Kit (Sira certificate number 05ATEX3099U) with the trace heating cable was allowed.

Variation 3 - 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
	UK		UK
- ii. The braid diameter on the cables was altered.

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Variation 4 - This variation introduced the following changes:

- i. The Freezstop range of electrical heat tracing cables energised temperature rating was permitted to be the same as the non-energised temperature rating (100°C). (Note: The temperature rating is the withstand temperature of the cable insulation and is not related to the temperature class.)

Variation 5 - This variation introduced the following changes:

- i. To permit the FSM cable construction to be changed to FSLe type construction.
- ii. To allow optional Nickel or Tin coated copper bus wire conductors.
- iii. Bus wire specifications amended to have a Min/Max cross sectional area.

Variation 6 - 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 7 – This variation introduced the following changes:

- i. The markings have been amended to include the latest requirements for type of protection Ex tb.
- ii. The descriptions have been amended to align with other certificate descriptions and to remove ambiguity and inconsistencies across the range of the manufacturer’s certificates.
- iii. The upper tolerance of the power output stated in the description was amended.
- iv. At the request of the manufacturer, the drawing numbers of existing drawings were clarified to be in line with their company system.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	7 March 2003	R53A8908A	The release of the prime certificate.
1	23 December 2004	R51A12475A	The introduction of Variation 1.
2	13 July 2005	R51A12633B	The introduction of Variation 2.
3	25 April 2006	R51A14380A	The introduction of Variation 3.
4	24 September 2007	R51A16420A	This Issue covers the following changes: <ul style="list-style-type: none"> • All previously issued certification was rationalised into a single certificate, Issue 4, Issues 0 to 3 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 4.
5	11 September 2008	R52A18177A	The introduction of Variation 5.
6	01 June 2010	R21959A/00	The introduction of Variation 6.

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Sira Certification Service

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Issue	Date	Report no.	Comment
7	5 May 2011	N/A	Issued to correct the drawing number and title shown at Issue 1
8	21 May 2012	R27430A/00	This Issue covers the following changes: <ul style="list-style-type: none">• The certificate content was transferred onto an EC Type-Examination Certificate format.• The introduction of Variation 7.

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

15.1 None

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 An electric strength test of $\sqrt{2} U + 1000$ V rms shall be applied between the conductors and the outer braid or jacket as appropriate for 60 seconds as required by clause 5.1.2 of EN 60079-30-1:2007.

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 60079-30-1:2007 clause 5.2.1.

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

17.6 The manufacturer shall demonstrate, through their quality program, the thermal safety of the trace heating cable with respect to time as per EN 60079-30-1:2007 clause 5.1.12.

Certificate Annexe

Certificate Number: Sira 02ATEX3075
Equipment: Freezstop Micro (FSM) Self-Regulating Heating Cable
Applicant: Heat Trace Limited



Issue 0

Drawing No.	Sheet	Rev.	Date	Description
HC2600/O	1 of 1	1	08 Mar 02	FSM Specification
BES2-PL	1 of 1	A	06 Mar 00	BES2 – End seal reference list
BES3-PL	1 of 1	B	06 Feb 01	BES3 – End seal reference list
BPS2-PL	1 of 1	B	06 Feb 01	BPS2 – 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

Drawing No.	Sheet	Rev.	Date	Description
HC2600/O	1	3	24 Sep 04	Sira Certification Drawing for Freezstop Micro

Issue 2

Drawing No.	Sheet	Rev.	Date	Description
SF2580/S	1 of 1	A	27 Jun 05	Applicable Cable List for use with Stripfree End Termination Kit

Issue 3

Drawing No.	Sheet	Rev.	Date (Sira stamp)	Description
HC2600/O	1 of 1	4	06 Mar 06	Freezstop Micro

Issue 4

Drawing No.	Sheet	Rev.	Date (Sira stamp)	Description
HC2600/O	1 of 1	5	11 Sep 07	Sira Certification Drawing For Freezstop Micro

Issue 5

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Description
HC2600/O	1 of 1	6	20 Aug 08	Sira Certification Drawing For Freezstop Micro

Issue 6

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Description
HC2600/O	1 of 1	7	20 May 10	Sira Certification Drawing For Freezstop Micro

Issue 7 No new drawings were introduced.

Issue 8

Drawing	Sheets	Rev.	Date (Sira Stamp)	Title
HC2601/O	1 of 1	9	14 Feb 12	Sira Certification for Freezstop Micro

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