1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 05ATEX3008X** Issue: **8**

4 Equipment: **27-362*-****/**** Range of Mineral Insulated Trace Heating Cable Units**

5 Applicant: **BARTEC GmbH**

6 Address: Max-Eyth Strasse 16
D-97980 Bad Mergentheim
Germany

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 50014:1997 (including A1 and A2) EN 50019:2000 IEC 62086-1:2001

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 2 G
EEx e II T1 to T6 (The temperature class of each unit is individually determined with reference to sheath temperature/power curves, the specific properties of the unit and the intended site conditions)

* Due to restrictions applied by the applicant some products that are detailed in this certificate may not be commercially available.

D R Stubbings BA MIET
Certification Manager

Project Number 51A15727
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13 **DESCRIPTION OF EQUIPMENT**

The 27-362*-****/**** Ranges of Mineral Insulated Trace Heating Cable Units 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 products are factory assembled as complete units. They consist of a resistance cable with a cold lead, complete with end terminations, jointed to both ends. The resistance cable is a single, resistance wire that is insulated with compressed magnesium oxide and surrounded by metal sheath. The types 27-362*-**24/****, 27-362*-**23/****, 27-362*-**22/****, 27-362*-**21/****, 27-362*-**20/****, 27-362*-**19/****, 27-362*-**18/****, 27-362*-**17/****, 27-362*-**16/**** and 27-362*-**15/**** resistance cables have a stainless steel sheath and the types 27-352*-**35/****, 27-362*-**34/****, 27-362*-**33/****, 27-362*-**32/****, 27-362*-**31/****, 27-362*-**30/****, 27-362*-**29/****, 27-362*-**28/****, 27-362*-**27/**** and 27-362*-**26/**** resistance cables have a high nickel content alloy sheath. 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 onto the sheaths of the cables. This joint assembly is filled with fused magnesia to insulate the conductor joint.

The power connection ends of the cold leads are terminated with pot seals covered by certificate number Sira Ex98D3090U or any other similar seal that is suitably ATEX certified. An earth wire is incorporated into the pot seal to ensure that the outer metallic sheath of the cables are grounded. A suitably certified cable gland is fitted to enable the unit to be connected to a certified junction box.

Variation 1

This variation introduced the following changes:

i. The option to either weld or braze the joints and seals used in the fabrication of the heating unit joint assembly.

Variation 2

This variation introduced the following changes:

i. The addition of a range of trace heating cable units, comprising single core mineral insulated cables constructed with an alternative Cupro-Nickel sheath having nominal outside diameters between 3.2 mm and 4.9 mm (Nominal). These are designated types 27-362*-**14/****, 27-362*-**13/****, 27-362*-**12/****, 27-362*-**11/****, 27-362*-**10/**** and 27-362*-**08/****.

Variation 3

This variation introduced the following changes:

i. The addition of a range of trace heating cable units, comprising single core mineral insulated cables constructed with a Cupro-Nickel sheath and copper conductors. These are designated types 27-362*-**07/****, 27-362*-**06/****, 27-362*-**05/****, 27-362*-**04/****, 27-362*-**03/****, 27-362*-**02/****, 27-362*-**01/****.

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Variation 5

This variation introduced the following changes:

i. The specification of the gland and cold seal assemblies to be changed as follows:

Previous specification	
Gland	**Cold seal**
BASEEFA No. Ex90C1161U	Sira Ex98D3090U

Latest specification	
Gland	**Cold seal**
Sira 02ATEX1305X	Sira 02ATEX3304U

Variation 6

This variation introduced the following changes:

i. The use of incoloy 825 as an alternative sheath material for the 'Standard' range.

Variation 7

This variation introduced the following changes:

i. The introduction of a range of trace heating cable units used for applications where the sheath temperature does not exceed 200°C, they utilise a range of single core mineral insulated cables having a nominal outside diameters between 3.2 mm and 5.9 mm, these cables have copper sheath with either a constantan or copper conductor.

Variation 8

This variation introduced the following changes:

i. The optional addition of a single temperature monitoring and control unit, or two separate units, manufactured by BARTEC and approved under PTB 03 ATEX 1180, and coded Ⓔx II 2 G D, EEx ed IIC T5 or T6 IP65 T80°C or T95°C. This is (these are) used to control and limit the temperature of the Range of Mineral Insulated Trace Heating Cable Units.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

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14.2 **Associated Sira Reports and Certificate History**

Issue	Date	Report No.	Comment
0	25 May 2005	R51V12923A	The release of prime certificate.
1	25 May 2005	R51V12923A	The introduction of Variation 1.
2	25 May 2005	R51V12923A	The introduction of Variation 2.
3	25 May 2005	R51V12923A	The introduction of Variation 3.
4	25 May 2005	R51V12923B	The Re-Issue of the Prime Certificate
5	7 June 2007	R51A16587B	The introduction of Variation 5.
6	7 June 2007	R51A16587B	The introduction of Variation 6.
7	7 June 2007	R51A16587B	The introduction of Variation 7.
			This Issue covers the following changes: All previously issued certification was rationalised into a single certificate, Issue 7, Issues 0 to 6 referenced above are only intended to reflect the history of the previous certification and have not been issued as documents in this format.
8	06 November 2007	R51A15727A	The introduction of Variation 8.

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

When the optional single (or separate) temperature monitoring and control unit(s) [approved under PTB 03 ATEX 1180] is (are) fitted, as per variation 7, to control and limit the temperature of the Range of Mineral Insulated Trace Heating Cable Units. The following Special Conditions For Safe Use are applicable:

15.1 In accordance with section 7.3 of the manufacturer's operating instructions, an artificial "Hot-Spot" shall be created in the Trace Heating Cable Units, in addition, the control and safety sensors shall be mounted as per sections 8.1 and 8.2 of this document.

15.2 To comply with EN 50019: 2000: Clause 5.8.9 (c), the protective system shall be entirely independent of any control system provided for the purpose of regulating the functional temperature of the resistance heating device or unit under normal conditions.

15.3 To comply with EN 50019: 2000: Clause 5.8.10 the protective system shall be manually re-settable only (when tripped). In addition, adjustment of the protective device shall be prevented (locked and sealed) when in service.

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.

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17.3 An electric strength test shall be carried out on each unit manufactured in accordance with the requirements of IEC 62086-1:2001 clause 5.1.2.

17.4 The manufacturer shall verify the output rating for each unit manufactured in accordance with IEC 62086-1-2001 clause 5.2.2.

17.5 This certificate relies on the following previously certified products. When used as part of the Ranges of Mineral Insulated Trace Heating Cable Units, the key attributes listed in the table below shall still be maintained by their original certificate.

Product	Certificate number	Key attribute
RPAL Seal [1]	Sira 02ATEX3304U	EEx e II
Temperature monitoring and control unit [2]	PTB 03 ATEX 1180	EEx ed IIC T5 or T6 IP65 T80°C or T95°C

1 This seal may be substituted for any suitably ATEX certified equivalent that has the same key attribute.
2 This control unit may be substituted for any suitably ATEX certified equipment that has the same key attribute.

17.6 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.

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