



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: **IECEX BAS 06.0043X**

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Certificate history:

Status: **Current**

Issue No: 17

Issue 16 (2019-03-13)
Issue 15 (2019-01-16)
Issue 14 (2018-02-27)
Issue 13 (2017-02-21)
Issue 12 (2016-04-21)
Issue 11 (2015-11-20)
Issue 10 (2015-06-12)
Issue 9 (2014-02-25)
Issue 8 (2013-02-21)
Issue 7 (2012-12-19)

Date of Issue: 2020-05-05

Applicant: **nVent Thermal LLC**
899 Broadway Street
CA
94063-3104
United States of America

Equipment: **BTV Range of Trace Heating Units**

Optional accessory:

Type of Protection: **Electrical resistance – Trace Heating, Increased Safety, Encapsulation, Dust Ingress Protection**

Marking: **Ex e IIC T6 Gb Ex td A21 IP66 T80 °C or
Ex e mb IIC T6 Gb Ex td mbD A21 IP66 T80 °C
(See previous variation of this certificate)**

Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

Position:

Technical Manager

Signature:
(for printed version)

Date:

11/5/2020

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting www.iecex.com or use of this QR Code.



Certificate issued by:

SGS Baseefa Limited
Rockhead Business Park
Staden Lane
Buxton, Derbyshire, SK17 9RZ
United Kingdom



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Manufacturer: **nVent Thermal LLC**
899 Broadway Street
CA
94063-3104
United States of America

Additional manufacturing locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended

STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

IEC 60079-0:2007-10 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:5

IEC 60079-18:2004 Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus
Edition:2.0

IEC 60079-30-1:2007-01 Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements
Edition:1

IEC 60079-7:2006-07 Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
Edition:4

IEC 61241-0:2004 Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
Edition:1

IEC 61241-1:2004 Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"
Edition:1

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[GB/BAS/ExTR06.0062/00](#)
[GB/BAS/ExTR09.0144/00](#)
[GB/BAS/ExTR12.0289/00](#)
[GB/BAS/ExTR17.0055/00](#)
[GB/BAS/ExTR20.0061/00](#)

[GB/BAS/ExTR08.0031/00](#)
[GB/BAS/ExTR10.0024/00](#)
[GB/BAS/ExTR15.0035/00](#)
[GB/BAS/ExTR18.0101/00](#)

[GB/BAS/ExTR08.0186/00](#)
[GB/BAS/ExTR11.0270/00](#)
[GB/BAS/ExTR15.0263/00](#)
[GB/BAS/ExTR19.0014/00](#)

Quality Assessment Report:

[GB/BAS/QAR06.0030/08](#)



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EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

The BTV Range of Trace Heating Units is of the parallel circuit self-regulating type, rated at up to 277V, with power output up to 33W/m (10W/ft). The units have a maximum self-limiting temperature of 80°C.

Each trace heating unit comprises:

- the active heating cable.
- an end seal for terminating the remote end of the unit.
- a cable gland for connecting the powered end of the unit to a suitable terminal enclosure, or alternative integrated power connection systems.

The active heating cable comprises two stranded copper conductors around which is extruded a semi-conductive core material. This core material increases in resistance with increasing temperature and gives the cable its self-limiting property. The core is covered with an extruded layer of modified polyolefin insulation before being overbraided with tinned copper. A further layer of polyolefin or fluoropolymer is extruded over the braid.

The declared maximum withstand temperature for the range is 85°C and the minimum installation temperature is -60°C.

The heating units may be provided with end seals, splices and power connections.

See Annex for further details.

SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The following limiting temperatures of the end seals and splices shall not exceed:

- +85°C for the S-19 and E-03
- +110°C for the S-20 and E-20

2. The end seals, splices and power connections have the following associated minimum ambient temperatures:

- 55°C for the CCON
- 55°C for the GHG 960 923 P... cable gland with silicone rubber seals
- 60°C for the Type E8XF cable gland
- 60°C for the E-20 and S-20, end seal and splice.
- 55°C for the E-03 and S-19, end seal and splice.

3. The end seals, splices and power connections have the following associated ambient temperatures:

- 50°C to +40°C for the C...-100
- 50°C to +150°C for the C-150, S-150 and E-150
- 50°C to +56°C for the T-100, JBM-100, JBS-100, JBU-100 and E-100
- 40°C to +40°C for the JBM-100-L, JBS-100-L, JBU-100-L and E-100-L
- 60°C to +56°C for the E-20 and S-20

4. The assembly of glands, splices and end terminations shall be carried out in accordance with the manufacturer's instructions.

5. The heating element supply circuit must include an electrical protection device in conformity with Clause 4.3 of IEC 60079-30 1.

6. The minimum installation temperature is -60°C. The minimum bending radii at specific temperatures for the Type BTV units are shown in the table in the equipment description.

7. The supply to the heating unit must be terminated in a suitably certified terminal enclosure.

8. The minimum installation temperature for E-20 and S-20, end seal and splice is -20°C.



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

Variation 17.1

To introduce the E-20 Heat Shrink End Seal kit as an integral component to the BTV Range of Trace Heating Units.

Variation 17.2

To introduce the S-20 Heat Shrink Splice kit as an integral component to the BTV Range of Trace Heating Units.

ExTR: **GB/BAS/ExTR20.0061/00**

File Reference: **20/0212**

Annex:

[IECEX BAS 06.0043X Annex Issue 3.pdf](#)

<p style="text-align: center;">SGS Baseefa Limited Rockhead Business Park Staden lane, Buxton, Derbyshire SK17 9RZ United Kingdom</p>		
ANNEX to IECEx BAS 06.0043X	Issue No. 3	Date: 05/05/2020

The BTV Range of Trace Heating Units is of the parallel circuit self-regulating type, rated at up to 277V, with power output up to 33W/m (10W/ft). The units have a maximum self-limiting temperature of 80°C.

Each trace heating unit comprises:

- the active heating cable.
- an end seal for terminating the remote end of the unit.
- a cable gland for connecting the powered end of the unit to a suitable terminal enclosure, or alternative integrated power connection systems.

The active heating cable comprises two stranded copper conductors around which is extruded a semi-conductive core material. This core material increases in resistance with increasing temperature and gives the cable its self-limiting property. The core is covered with an extruded layer of modified polyolefin insulation before being overbraided with tinned copper. A further layer of polyolefin or fluoropolymer is extruded over the braid.

The declared maximum withstand temperature for the range is 85°C and the minimum installation temperature is -60°C.

CABLE ACCESSORIES

END SEALS

The end seals for terminating the remote end of the unit may be the following types:

Types E-100-L or E-100, which are mechanical end seals incorporating an end cap which is filled with silicone grease sealant, covered by certificate IECEx PTB 09.0038U.

Types E-100-L-A or E-100-A, which are mechanical end seals incorporating an end cap which is filled with silicone grease sealant.

Raychem Types E-03 or E-06 end seal kit, which comprise heat shrink sleeves lined with hot melt adhesive.

A Raychem Type E-20 heat shrink end seal kit.

Type E-150 mechanical end seals, covered by certificate IECEx PTB 09.0043U.

SPLICES AND JOINTS

The following splicing and jointing arrangements are provided:

A Raychem Type S-19 heat shrink splice kit for connecting lengths of active heating cable.

A Raychem Type S-20 heat shrink splice kit for connecting lengths of active heating cable.

A Raychem T-100 tee connection system, certificate IECEx PTB 09.0023U, for connecting up to three heater cables.

Type S-150 mechanical splice kit, covered by certificate IECEx PTB 09.0043U.

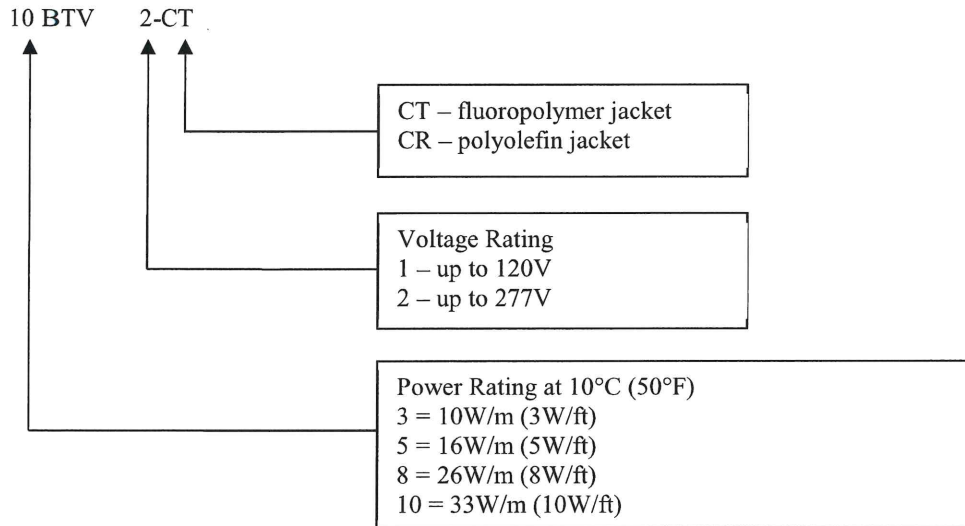
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ANNEX to IECEx BAS 06.0043X	Issue No. 3	Date: 05/05/2020

POWER CONNECTIONS

Power connection may be achieved by the following means:

Connection Type	IECEX Certificate
T-100	IECEX PTB 09.0023U
JBM-100	IECEX PTB 09.0027U
JBS-100	IECEX PTB 09.0037U
E-100	IECEX PTB 09.0038U
JBU-100	IECEX PTB 09.0039U
C.-100	IECEX PTB 09.0040U
C-150 S-150 E-150	IECEX PTB 09.0043U
C25-100 Metal C3/4-100 Metal	IECEX SIR 05.0020X

A number of power levels and voltages, up to the maximum specified, are included in the range. They are identified in the following manner:



Any of the products in the range may be considered as part of a stabilised design system. In such a system the design is based upon the use of Raychem Engineering design software such as Trace Calc. The algorithm defined in this software and reported in Report No. CXDE 9603-510 may be used in additional design software.

The minimum bending radii for BTV trace heating cable at specific temperatures are shown in the table below:

Temperature, T (°C)	Minimum Bending Radius (mm)
$-60 \leq T < -20$	35
$-20 \leq T < -10$	30
$-10 \leq T < 0$	25
$0 \leq T < +10$	20
$T \geq +10$	12