



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.:	IECEX BAS 06.0045X	Issue No: 9	Certificate history:
Status:	Current	Page 1 of 4	Issue No. 9 (2014-02-25)
Date of Issue:	2014-02-25		Issue No. 8 (2013-02-21)
Applicant:	Pentair Thermal Management, LLC 307 Constitution Drive Menlo Park, CA 94025 United States of America		Issue No. 7 (2012-12-19)
Electrical Apparatus:	QTVR Range of Trace Heating Units		Issue No. 6 (2012-01-17)
Optional accessory:			Issue No. 5 (2010-06-25)
Type of Protection:	Increased Safety, Dust Ingress Protection		Issue No. 4 (2009-09-08)
Marking:	Ex e IIC T4 Gb Ex td A21 IP66 T130°C or Ex e mb IIC T4 Gb Ex td mbD A21 IP66 T130°C (See previous variation of this certificate)		Issue No. 3 (2009-03-17)
			Issue No. 2 (2008-10-06)
			Issue No. 1 (2008-03-26)
			Issue No. 0 (2007-01-29)


Approved for issue on behalf of the IECEx
Certification Body:

R S Sinclair

Position:

General Manager

Signature:
(for printed version)


25-2-14

Date:

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 the Official IECEx Website.

Certificate issued by:

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

SGS





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Manufacturer: Pentair Thermal Management, LLC
307 Constitution Drive
Menlo Park,
CA 94025
United States of America

Additional Manufacturing
location(s):

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 electrical apparatus 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 Edition:5	Explosive atmospheres - Part 0:Equipment - General requirements
IEC 60079-18 : 2004 Edition:2.0	Electrical apparatus for explosive gas atmospheres - Part 18: Construction, test and marking of type of protection encapsulation 'm' electrical apparatus
IEC 60079-30-1 : 2007-01 Edition:1	Explosive atmospheres - Part 30-1: Electrical resistance trace heating - General and testing requirements
IEC 60079-7 : 2006-07 Edition:4	Explosive atmospheres - Part 7: Equipment protection by increased safety "e"
IEC 61241-0 : 2004 Edition:1	Electrical apparatus for use in the presence of combustible dust - Part 0: General requirements
IEC 61241-1 : 2004 Edition:1	Electrical apparatus for use in the presence of combustible dust - Part 1: Protection by enclosures "tD"
IEC 62086-1 : 2001 Edition:1	Electrical apparatus for explosive gas atmospheres - Electrical resistance trace heating - Part 1: General and testing requirements

This Certificate does not indicate compliance with electrical 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 Report:

GB/BAS/ExTR06.0064/00	GB/BAS/ExTR08.0031/00	GB/BAS/ExTR08.0186/00
GB/BAS/ExTR09.0144/00	GB/BAS/ExTR10.0024/00	GB/BAS/ExTR11.0270/00
GB/BAS/ExTR12.0289/00		

Quality Assessment Report:

GB/BAS/QAR06.0030/04



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The QTVR Range of Trace Heating Units is of the parallel circuit self-regulating type, rated at up to 277V, with power output up to 66W/m (20W/ft). The units have a maximum self-limiting temperature of 130°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 fluoropolymer insulation before being overbraided with tinned copper. A further protective, anti-corrosion layer of fluoropolymer is extruded over the braid.

The declared maximum withstand temperature for the range is 135°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.

CONDITIONS OF CERTIFICATION: YES as shown below:

1. The limiting temperatures for the end seals, splices and power connections are:

- 135°C for the S-21 and E-06
- 110°C for the GHG 960 923 P... cable gland

The E-100, E-100-L, JBM-100, JBS-100 and T-100 have limiting temperatures based on an internal component in these accessories. When located on a pipe or other work piece surface, a maximum pipe temperature of 215°C will not cause the limiting temperatures of 151°C or 155°C to be exceeded.

2. 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

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

4. The heating element supply circuit must include an electrical protection device in conformity with Clause 4.4 of IEC 62086-1.

5. The minimum bending radius is 35mm for the Type QTVR units.

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



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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Variation 9.1

Addition of Annex, issue 1.

Annex:

IECEX BAS 06 0045X Annex Issue 1.pdf

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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 fluoropolymer insulation before being overbraided with tinned copper. A further protective, anti-corrosion layer of fluoropolymer is extruded over the braid.

The declared maximum withstand temperature for the range is 135°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.

Type E-06, which comprise heat shrink sleeves lined with hot melt adhesive.

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-21 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.

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:

