1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa06ATEX0183X**

4 Equipment or Protective System: **BTV RANGE OF TRACE HEATING UNITS**

5 Manufacturer: **TYCO THERMAL CONTROLS LLC**

6 Address: **2415 Bay Road, Redwood City, California 94063, USA**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa (2001) Ltd., Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR06.00620/00**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2004, EN 60079-7: 2003, EN 62086-1: 2005, IEC61241-0: 2004 and EN 61241-1: 2004

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD Ex e II T6 Ex tD A21 IP66 T80°C

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0865**

Project File No. **06/0189**

This certificate is granted subject to the general terms and conditions of Baseefa (2001) Ltd. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

Re-issued 6th March 2012 to add Dust Temperature

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X**

15 Description of Equipment or Protective System

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 PTB 98 ATEX 1101U.

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

Type E-150 mechanical end seals, covered by certificate PTB 98 ATEX 1121U.

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 T-100 tee connection system, certificate PTB 98 ATEX 1020U, for connecting up to three heater cables.

Type S-150 mechanical splice kit, covered by certificate PTB 98 ATEX 1121U.

POWER CONNECTIONS

Power connection may be achieved by the following means:

Types C25-21 and C16-19, incorporating Type GHG 960 923 P... plastic cable glands covered by certificate PTB 99 ATEX 3128X. The kits may use a moulded silicone rubber core seal to insulate the bus wires with silicone grease in a moulded cavity to seal the end of the heating cable. In this arrangement the kits are Types C25-100 and C16-100, to PTB 98 ATEX 1015U.

Type C3/4-100-Metal or C25-100-Metal, which incorporate a Type E8XF metallic cable gland covered by certificate SIRA 01ATEX1270X.

C-150 power connector, covered by certificate PTB 98 ATEX 1121U.

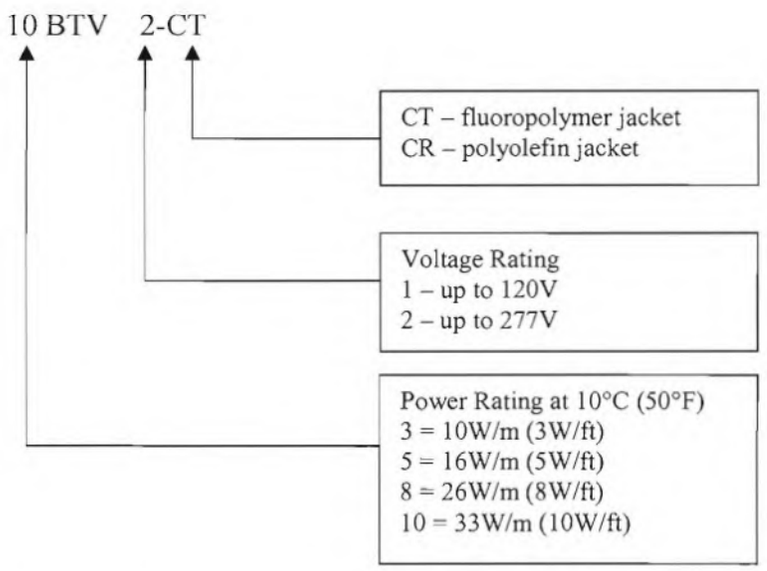
Type JBS-100 power connection system for a single heater cable, covered by certificate PTB 97 ATEX 1058U.

Type JBM-100 power connection system for multiple heater cables, covered by certificate PTB 98 ATEX 1021U.

Type JBU-100 power connection system, covered by certificate PTB 99 ATEX 1108U.

Type CCON connection kit, covered by certificate SEV 05 ATEX 0147U.

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



16 Report Number

GB/BAS/ExTR06.0062/00

17 Special Conditions for Safe Use

1. The temperature of the E-03 and S-19, end seal and splice shall not exceed 85°C.
2. The end seals, splices and power connections have the following associated minimum ambient temperatures:

   -55°C for the CCON, E-03, E-06 and S-19

   -50°C for the E-100, E-100-L, E-150, S-150, C-150, JBS-100, JBU-100 and JBM-100

   -40°C for the JBS-100-L, JBM-100-L T-100 and JBU-100-L

   -55°C for the GHG 960 923 P... cable gland with silicon rubber seals.

   -60°C for the Type E8XF cable gland

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 BTV units.

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

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

	Number	Sheet	Rev	Date	Description
*	205350-A	-	L	03/10/05	3BTV-CT & 5BTV-CT Cables
*	205310-A	-	M	03/10/05	8BTV-CT & 10BTV-CT Cables
*	205349-A	-	G	02/13/03	3BTV-CR & 5BTV-CR Cables
*	205308-A	-	M	02/13/03	8BTV-CR & 10BTV-CR Cables
*	906579-A	-	H	08/07/06	BTV Heater Units
*	906563-A	-	B	10/02/03	E-03 End Seal
*	906564-A	-	B	10/02/03	E-06 End Seal
*	906567-A	-	H	07/10/06	Connection Kits
*	906568-A	-	A	11/27/95	S-19 & S21 Splice Joint Kits
*	907195-A	-	C	04/04/06	S-150
*	907196-A	-	B	07/26/06	E-150
*	906701-A	-	E	05/05/05	T-100
*	906794-A	-	J	11/03/06	Generic Print Drawing

* Common to IECEx BAS 06.0043X and Baseefa06ATEX0183X, held with IECEx BAS 06.0043X.

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa06ATEX0183X/1**
4	Equipment or Protective System:	**BTV RANGE OF TRACE HEATING UNITS**
5	Manufacturer:	**TYCO THERMAL CONTROLS LLC**
6	Address:	**2415 Bay Road, Redwood City, California 94063, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. Baseefa06ATEX0183X to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0865**

Project File No. **07/0893**

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Baseefa is a trading name of Baseefa (2001) Ltd
Registered in England No. 4305578 at the above address

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa (2001) Ltd.

13 # Schedule

14 ## Certificate Number Baseefa06ATEX0183X/1

15 Description of the variation to the Equipment or Protective System

Variation 1.1

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-30-1: 2007 in respect of the differences from EN 62086-1: 2001, and that none of these differences in the Standard affects this equipment.

16 Report Number

GB/BAS/ExTR08.0031/00

17 Special Conditions for Safe Use

None additional to those listed previously

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

None

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa06ATEX0183X/2**
4	Equipment or Protective System:	**BTV RANGE OF TRACE HEATING UNITS**
5	Manufacturer:	**TYCO THERMAL CONTROLS LLC**
6	Address:	**2415 Bay Road, Redwood City, California 94063, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0865**

Project File No. **08/0622**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

R S SINCLAIR
DIRECTOR
On behalf of
Baseefa

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13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X/2**

15 **Description of the variation to the Equipment or Protective System**

Variation 2.1

Minor changes to marking layout.

16 **Report Number**

None.

17 **Special Conditions for Safe Use**

None additional to those listed previously

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
906794-A	1	M	09.15.08	Generic Print Drawing

This drawing is common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0187X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X, IECEx BAS 06.0047X, IECEx BAS 06.0048X, and is held on IECEx BAS 06.0043X.

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa06ATEX0183X/3**
4	Equipment or Protective System:	**BTV RANGE OF TRACE HEATING UNITS**
5	Manufacturer:	**TYCO THERMAL CONTROLS LLC**
6	Address:	**307 Constitution Drive, Menlo Park, CA94025, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0865**

Project File No. **09/0588**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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Registered in England No. 4305578. Registered address as above.

13 **Schedule**

14 **Certificate Number Baseefa00ATEX0183X/3**

15 **Description of the variation to the Equipment or Protective System**

Variation 3.1

Minor changes to marking layout.

16 **Report Number**

None.

17 **Special Conditions for Safe Use**

None additional to those listed previously

18 **Essential Health and Safety Requirements**

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 **Drawings and Documents**

Number	Sheet	Issue	Date	Description
906794-A	1	N	06.11.09	Generic Print Drawing

This drawing is common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X and is held with IECEx BAS 06.0043X.

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa06ATEX0183X/4**
4	Equipment or Protective System:	**BTV RANGE OF TRACE HEATING UNITS**
5	Manufacturer:	**TYCO THERMAL CONTROLS LLC**
6	Address:	**307 Constitution Drive, Menlo Park, CA94025, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

This certificate may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0865**

Project File No. **10/0110**

[redacted]

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

[redacted]

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On behalf of
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13 # Schedule

14 ## Certificate Number Baseefa06ATEX0183X/4

15 Description of the variation to the Equipment or Protective System

Variation 4.1

To note later component certificates for the connection units and minor corrections to print marking.

Variation 4.2

To note deletion of T-100 connection kit drawing 906701A as a certification drawing.

16 Report Number

GB/BAS/ExTR10.0024/00

17 Special Conditions for Safe Use

None additional to those listed previously

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
906579-A	1	J	04.09.10	BTV Heater Units
*906567-A	1	J	04.09.10	Connection Kits
**906794-A	1	P	03.11.10	Generic Print Drawing

*This drawing is common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X , and IECEx BAS 06.0048X and is held with IECEx BAS 06.0043X.

**This drawing is common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X , and is held with IECEx BAS 06.0043X.

1 # SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3	Supplementary EC - Type Examination Certificate Number:	**Baseefa06ATEX0183X/5**
4	Equipment or Protective System:	**BTV RANGE OF TRACE HEATING UNITS**
5	Manufacturer:	**TYCO THERMAL CONTROLS LLC**
6	Address:	**307 Constitution Drive, Menlo Park, CA94025, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

This supplementary certificate shall be held with the original certificate.

Baseefa Customer Reference No. **0865**

Project File No. **10/1008**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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On behalf of
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Registered in England No. 4305578. Registered address as above.

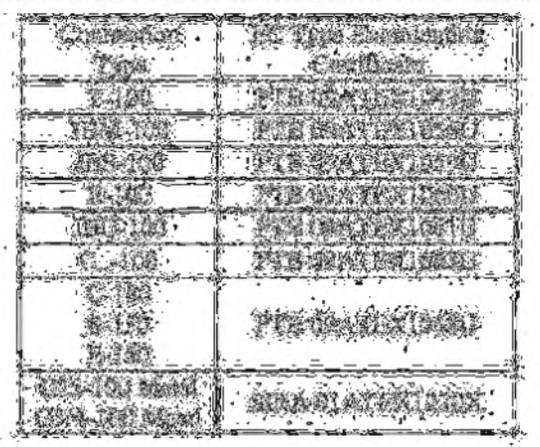
13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X/5**

15 Description of the variation to the Equipment or Protective System

Variation 5.1

To note later component certificates for the connection units as indicated below and minor corrections to print marking.



17 Special Conditions for Safe Use

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

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
*9242869	1 & 2	J	12/08/11	Label JBM-100-L-E
*9532687	1 & 2	K	12/08/11	Label JBM-100-L-EP
*9621473	1 & 2	J	12/08/11	Label JBS-100-L-E

Number	Sheet	Issue	Date	Description
*9777523	1 & 2	K	12/08/11	Label JBS-100-L-EP
*9319676	1 & 2	J	12/08/11	Label JBU-100-L-E
*9735898	1 & 2	J	12/08/11	Label JBU-100-L-EP
**906794-A	1	U	12.13.11	Generic Print Drawing

*These drawings are common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, , Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X , and IECEx BAS 06.0048X and is held with IECEx BAS 06.0043X.

**This drawing is common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0187X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X , and is held with IECEx BAS 06.0043X.

1 SUPPLEMENTARY EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 Supplementary EC - Type Examination Certificate Number: **Baseefa06ATEX0183X/6**

4 Equipment or Protective System: **BTV Range Of Trace Heating Units**

5 Manufacturer: **Tyco Thermal Controls LLC**

6 Address: **307 Constitution Drive, Menlo Park, CA94025, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to equipment or protective systems designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 Item 9 of the original Certificate is replaced by "Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN60079-0: 2009 EN60079-7: 2007 EN60079-30-1: 2007 EN60079-18: 2004
EN61241-0: 2004 EN61241-1: 2004 EN62086-1: 2005

except in respect of those requirements listed at item 18 of the Schedule."

9 The marking of the equipment has changed from the original Certificate and shall include the following:

⟨Ex⟩ II 2 GD Ex e IIC T6 Gb Ex td A21 IP66 T80°C or
⟨Ex⟩ II 2 GD Ex e mb IIC T6 Gb Ex td mbD A21 IP66 T80°C (See previous variation of this certificate)

This certificate shall be held with the original certificate and may only be reproduced in its entirety, without any change, schedule included.

Baseefa Customer Reference No. **0865**

Project File No. **12/0909**

This certificate is granted subject to the general terms and conditions of Baseefa. It does not necessarily indicate that the equipment may be used in particular industries or circumstances.

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13 # Schedule

14 ## Certificate Number Baseefa06ATEX0183X/6

15 Description of the variation to the Equipment or Protective System

Variation 6.1

To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN60079-0: 2009 and EN60079-7: 2007 in respect of the differences from the standards to which this certificate is currently issued; none of these differences affect this equipment, other than the code marking requirements which have been addressed.

16 Report Number

GB/BAS/ExTR12.0289/00.

17 Specific Conditions of Use

None additional to those listed previously.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
906794-A	1	V	12.11.12	Generic Print BTV, QTVR, XTV, KTV

This drawing is common to Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X, and is held with IECEx BAS 06.0043X.

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa06ATEX0183X – Issue 7**

4 Equipment or Protective System: **BTV Range of Trace Heating Units**

5 Manufacturer: **Pentair Thermal Management LLC**

6 Address: **307 Constitution Drive, Menlo Park, CA 94025, USA**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. **GB/BAS/ExTR15.0035/00.**

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2009, EN 60079-7: 2007, EN 60079-30-1: 2007, EN 60079-18: 2004, EN 61241-0: 2004, EN 61241-1: 2004 & EN 62086-1: 2005

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

Ⓔx II 2 GD Ex e IIC T6 Gb Ex td A21 IP66 T80°C

or

Ⓔx II 2 GD Ex e mb IIC T6 Gb Ex td mbD A21 IP66 T80°C

Baseefa Customer Reference No. **0865**

Project File No. **14/0981**

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pp MPowney MPowney
R S SINCLAIR
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X – Issue 7**

15 **Description of Equipment or Protective System**

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 PTB09ATEX1060U.

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

Type E-150 mechanical end seals, covered by certificate PTB09ATEX1068U.

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 T-100 tee connection system, certificate PTB09ATEX1043U, for connecting up to three heater cables.

Type S-150 mechanical splice kit, covered by certificate PTB09ATEX1068U.

POWER CONNECTIONS

Power connection may be achieved by the following means:

Types C25-21 and C16-19, incorporating Type GHG 960 923 P... plastic cable glands covered by certificate PTB 99 ATEX 3128X. The kits may use a moulded silicone rubber core seal to insulate the bus wires, with silicone grease in a moulded cavity to seal the end of the heating cable. In this arrangement the kits are Types C25-100 and C16-100, to PTB09ATEX1063U.

Type C3/4-100-Metal or C25-100-Metal, which incorporate a Type E8XF metallic cable gland covered by certificate SIRA 01ATEX1270X.

C-150 power connector, covered by certificate PTB09ATEX1068U.

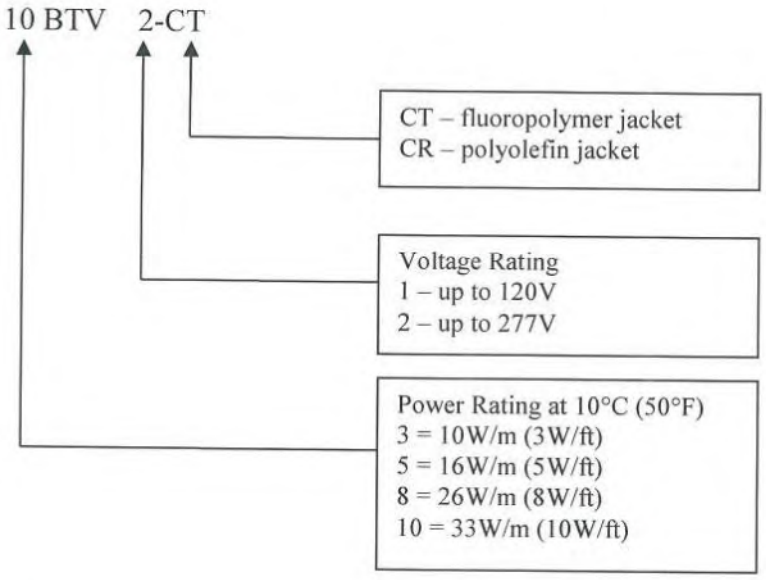
Type JBS-100 power connection system for a single heater cable, covered by certificate PTB09ATEX1059U.

Type JBM-100 power connection system for multiple heater cables, covered by certificate PTB09ATEX1056U.

Type JBU-100 power connection system, covered by certificate PTB09ATEX1061U.

Type CCON connection kit, covered by certificate SEV05ATEX0147U.

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



16 Report Number

SGS Baseefa Certification Report GB/BAS/ExTR15.0035/00.

17 Specific Conditions of Use

1. The temperature of the E-03 and S-19, end seal and splice shall not exceed 85°C.
2. The end seals, splices and power connections have the following associated minimum ambient temperatures:

   -55°C for the CCON, E-03, E-06 and S-19

   -55°C for the GHG 960 923 P… cable gland with silicone rubber seals

   -60°C for the Type E8XF cable gland
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
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 4.4 of IEC 62086-1.
6. The minimum bending radius is 35mm for the Type BTV units.
7. The supply to the heating unit must be terminated in a suitably certified terminal enclosure.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

The drawings detailed below are considered to fully define the equipment for this issue 7 of the certificate. All previous drawings are considered superseded.

Number	Sheet	Issue	Date	Description
205350-A*	1 of 1	M	02/22/13	BTV-3BTV-CT & BTV-3HBTV-CT BTV-5BTV-CT & BTV-5HBTV-CT
205310-A*	1 of 1	N	02/22/13	BTV-8BTV-CT & BTV-8HBTV-CT BTV-10BTV-CT & BTV-10HBTV-CT
205349-A*	1 of 1	H	02/22/13	BTV-3BTV-CR BTV-5BTV-CR
205308-A*	1 of 1	N	02/22/13	BTV-8BTV-CR BTV-10BTV-CR
906579-A*	1 of 1	K	07/22/13	BTV heater units (European System)
906563-A*	1 of 1	C	07/22/13	E-03 end seal cut back dimensions
906564-A**	1 of 1	C	07/23/13	E-06 end seal Cut back dimensions
906567-A***	1 of 1	K	07/22/13	C25-100, C25-21, C16-29, C16-100 connection kits
906568-A[4]	1 of 1	B	12/23/14	S-19 and S-21 heat shrinkable splice joint kit cut back dimensions
907195-A[5]	1 of 1	D	06/24/13	S-150 (approval drawing)
907196-A[5]	1 of 1	C	06/24/13	E-150 (approval drawing)
906794-A[5]	1 of 1	Y	05/09/14	Generic ATEX and IECEx print for dwg for BTV-CT, QTVR-CT, XTV-CT and KTV-CT heating cables
9242869[6]	2	K	10/09/13	LABL-JBM-100-L-E
9532687[6]	2	L	10/09/13	LABL-JBM-100-L-EP
9621473[6]	2	K	10/09/13	LABL-JBS-100-L-E
9777523[6]	2	L	10/09/13	LABL-JBS-100-L-EP
9319676[6]	2	K	10/08/13	LABL-JBU-100-L-E
9735898[6]	2	K	10/08/13	LABL-JBU-100-L-EP

* These drawings are common to Baseefa06ATEX0183X and IECEx BAS 06.0043X and are held with the latter.
** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, Baseefa06ATEX0187X, IECEx BAS 06.0043X, IECEx BAS 06.0045X and IECEx BAS 06.0047X and is held with IECEx BAS 06.0043X.
*** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, Baseefa04ATEX0388X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X, IECEx BAS 06.0048X and IECEx BAS 05.0022X and is held with IECEx BAS 06.0043X.
[4]This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, IECEx BAS 06.0043X and IECEx BAS 06.0045X and is held with IECEx BAS 06.0043X.
[5]These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X and are held with IECEx BAS 06.0043X.
[6]These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X and IECEx BAS 06.0048X and are held with IECEx BAS 06.0043X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa06ATEX0183X	29th January 2007	The release of the prime certificate. The associated test and assessment is documented in the certification report GB/BAS/ExTR06.0062/00.
Baseefa06ATEX0183X/1	31st January 2008	To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-30-1: 2007 in respect of the differences from EN 62086-1: 2001, and that none of these differences in the Standard affects this equipment. Certification report GB/BAS/ExTR08.0031/00 refers.
Baseefa06ATEX0183X/2	5th October 2008	Minor changes to the marking layout. No report.
Baseefa06ATEX0183X/3	3rd September 2009	Minor changes to the marking layout. No report.
Baseefa06ATEX0183X/4	21st June 2010	To note later component certificates for the connection units and minor corrections to print marking. To note deletion of T-100 connection kit drawing 906701-A as a certification drawing. Certification report GB/BAS/ExTR10.0024/00 refers.
Baseefa06ATEX0183X/5	29th February 2012	To note later component certificates for the connection units and minor corrections to print marking. To note alternative coding when the type JBM-100, JBS-100, JBU-100 and E-100 connection units are used with the pilot light option. Certification report GB/BAS/ExTR11.0270/00 refers.
Baseefa06ATEX0183X/6	18th December 2012	To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0: 2009 and EN 60079-7: 2007 in respect of the differences from the standards to which this certificate is currently issued; none of the differences affect this equipment, other than the code marking requirements which have been addressed. Certification report GB/BAS/ExTR12.0289/00 refers.
Baseefa06ATEX0183X/7	12th June 2015	Re-issue of the certificate to include certificate history. Minor changes to the drawing template to reflect Pentair ownership. Minor drawing modification that do not affect certification. Confirmation of the complete list of schedule drawings that fully define the equipment. Certification report GB/BAS/ExTR15.0035/00 refers.

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa06ATEX0183X – Issue 8**

4 Equipment or Protective System: **BTV Range of Trace Heating Units**

5 Manufacturer: **Pentair Thermal Management LLC**

6 Address: **307 Constitution Drive, Menlo Park, CA 94025, USA**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. – see certificate history.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2009, EN 60079-7: 2007, EN 60079-30-1: 2007, EN 60079-18: 2004, EN 61241-0: 2004, EN 61241-1: 2004 & EN 62086-1: 2005

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD Ex e IIC T6 Gb Ex td A21 IP66 T80°C

or

⟨Ex⟩ II 2 GD Ex e mb IIC T6 Gb Ex td mbD A21 IP66 T80°C

Baseefa Customer Reference No. **0865**

Project File No. **15/0614**

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R S SINCLAIR p.p. Alan Ogden
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X – Issue 8**

15 **Description of Equipment or Protective System**

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 PTB09ATEX1060U.

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

Type E-150 mechanical end seals, covered by certificate PTB09ATEX1068U.

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 T-100 tee connection system, certificate PTB09ATEX1043U, for connecting up to three heater cables.

Type S-150 mechanical splice kit, covered by certificate PTB09ATEX1068U.

POWER CONNECTIONS

Power connection may be achieved by the following means:

Types C25-21 and C16-19, incorporating Type GHG 960 923 P... plastic cable glands covered by certificate PTB 99 ATEX 3128X. The kits may use a moulded silicone rubber core seal to insulate the bus wires, with silicone grease in a moulded cavity to seal the end of the heating cable. In this arrangement the kits are Types C25-100 and C16-100, to PTB09ATEX1063U.

Type C3/4-100-Metal or C25-100-Metal, which incorporate a Type E8XF metallic cable gland covered by certificate SIRA 01ATEX1270X.

C-150 power connector, covered by certificate PTB09ATEX1068U.

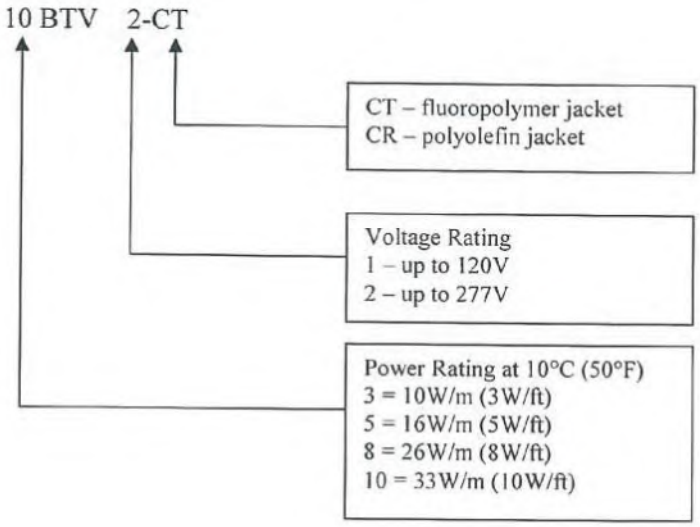
Type JBS-100 power connection system for a single heater cable, covered by certificate PTB09ATEX1059U.

Type JBM-100 power connection system for multiple heater cables, covered by certificate PTB09ATEX1056U.

Type JBU-100 power connection system, covered by certificate PTB09ATEX1061U.

Type CCON connection kit, covered by certificate SEV05ATEX0147U.

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



16 Report Number

SGS Baseefa Certification Report GB/BAS/ExTR15.00263/00.

17 Specific Conditions of Use

1. The temperature of the E-03 and S-19, end seal and splice shall not exceed 85°C.
2. The end seals, splices and power connections have the following associated minimum ambient temperatures:

   -55°C for the CCON, E-03, E-06 and S-19

   -55°C for the GHG 960 923 P... cable gland with silicone rubber seals

   -60°C for the Type E8XF cable gland
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
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 4.4 of IEC 62086-1.
6. The minimum bending radius is 35mm for the Type BTV units.
7. The supply to the heating unit must be terminated in a suitably certified terminal enclosure.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
906567-A***	1 of 1	K	11/11/15	C25-100, C25-21, C16-29, C16-100 connection kits
907195-A[5]	1 of 1	E	06/18/15	S-150 (approval drawing)
907196-A[5]	1 of 1	D	06/18/15	E-150 (approval drawing)

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
205350-A*	1 of 1	M	02/22/13	BTV-3BTV-CT & BTV-3HBTV-CT BTV-5BTV-CT & BTV-5HBTV-CT
205310-A*	1 of 1	N	02/22/13	BTV-8BTV-CT & BTV-8HBTV-CT BTV-10BTV-CT & BTV-10HBTV-CT
205349-A*	1 of 1	H	02/22/13	BTV-3BTV-CR BTV-5BTV-CR
205308-A*	1 of 1	N	02/22/13	BTV-8BTV-CR BTV-10BTV-CR
906579-A*	1 of 1	K	07/22/13	BTV heater units (European System)
906563-A*	1 of 1	C	07/22/13	E-03 end seal cut back dimensions
906564-A**	1 of 1	C	07/23/13	E-06 end seal Cut back dimensions
906568-A[4]	1 of 1	B	12/23/14	S-19 and S-21 heat shrinkable splice joint kit cut back dimensions
906794-A[5]	1 of 1	Y	05/09/14	Generic ATEX and IECEx print for dwg for BTV-CT, QTVR-CT, XTV-CT and KTV-CT heating cables
9242869[6]	2	K	10/09/13	LABL-JBM-100-L-E
9532687[6]	2	L	10/09/13	LABL-JBM-100-L-EP
9621473[6]	2	K	10/09/13	LABL-JBS-100-L-E
9777523[6]	2	L	10/09/13	LABL-JBS-100-L-EP
9319676[6]	2	K	10/08/13	LABL-JBU-100-L-E
9735898[6]	2	K	10/08/13	LABL-JBU-100-L-EP

* These drawings are common to Baseefa06ATEX0183X and IECEx BAS 06.0043X and are held with the latter.
** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, Baseefa06ATEX0187X, IECEx BAS 06.0043X, IECEx BAS 06.0045X and IECEx BAS 06.0047X and is held with IECEx BAS 06.0043X.
*** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, Baseefa04ATEX0388X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X, IECEx BAS 06.0048X and IECEx BAS 05.0022X and is held with IECEx BAS 06.0043X.
[4]This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, IECEx BAS 06.0043X and IECEx BAS 06.0045X and is held with IECEx BAS 06.0043X.

[5]These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X and are held with IECEx BAS 06.0043X.
[6]These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X and IECEx BAS 06.0048X and are held with IECEx BAS 06.0043X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa06ATEX0183X	29th January 2007	The release of the prime certificate. The associated test and assessment is documented in the certification report GB/BAS/ExTR06.0062/00.
Baseefa06ATEX0183X/1	31st January 2008	To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-30-1: 2007 in respect of the differences from EN 62086-1: 2001, and that none of these differences in the Standard affects this equipment. Certification report GB/BAS/ExTR08.0031/00 refers.
Baseefa06ATEX0183X/2	5th October 2008	Minor changes to the marking layout. No report.
Baseefa06ATEX0183X/3	3rd September 2009	Minor changes to the marking layout. No report.
Baseefa06ATEX0183X/4	21st June 2010	To note later component certificates for the connection units and minor corrections to print marking. To note deletion of T-100 connection kit drawing 906701-A as a certification drawing. Certification report GB/BAS/ExTR10.0024/00 refers.
Baseefa06ATEX0183X/5	29th February 2012	To note later component certificates for the connection units and minor corrections to print marking. To note alternative coding when the type JBM-100, JBS-100, JBU-100 and E-100 connection units are used with the pilot light option. Certification report GB/BAS/ExTR11.0270/00 refers.
Baseefa06ATEX0183X/6	18th December 2012	To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0: 2009 and EN 60079-7: 2007 in respect of the differences from the standards to which this certificate is currently issued; none of the differences affect this equipment, other than the code marking requirements which have been addressed. Certification report GB/BAS/ExTR12.0289/00 refers.
Baseefa06ATEX0183X/7	15th May 2015	Re-issue of the certificate to include certificate history. Minor changes to the drawing template to reflect Pentair ownership. Minor drawing modification that do not affect certification. Confirmation of the complete list of schedule drawings that fully define the equipment. Certification report GB/BAS/ExTR15.0035/00 refers.
Baseefa06ATEX0183X/8	20th November 2015	To introduce the Ex Component certified C1 Core Sealer covered by certificate Baseefa15ATEX0194U and to introduce an alternative lubricating grease. SGS Baseefa Certification report GB/BAS/ExTR15.0263/00 refers.

1 # EC - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 94/9/EC**

3 EC - Type Examination Certificate Number: **Baseefa06ATEX0183X – Issue 8**

4 Equipment or Protective System: **BTV Range of Trace Heating Units**

5 Manufacturer: **Pentair Thermal Management LLC**

6 Address: **307 Constitution Drive, Menlo Park, CA 94025, USA**

7 This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

8 Baseefa, Notified Body number 1180, in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential Report No. – see certificate history.

9 Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0: 2009, EN 60079-7: 2007, EN 60079-30-1: 2007, EN 60079-18: 2004, EN 61241-0: 2004, EN 61241-1: 2004 & EN 62086-1: 2005

except in respect of those requirements listed at item 18 of the Schedule.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system 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 or protective system. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.

12 The marking of the equipment or protective system shall include the following :

⟨Ex⟩ II 2 GD Ex e IIC T6 Gb Ex td A21 IP66 T80°C

or

⟨Ex⟩ II 2 GD Ex e mb IIC T6 Gb Ex td mbD A21 IP66 T80°C

Baseefa Customer Reference No. **0865**

Project File No. **15/0614**

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R S SINCLAIR p.p. Alan Ogden
GENERAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X – Issue 8**

15 **Description of Equipment or Protective System**

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 PTB09ATEX1060U.

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

Type E-150 mechanical end seals, covered by certificate PTB09ATEX1068U.

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 T-100 tee connection system, certificate PTB09ATEX1043U, for connecting up to three heater cables.

Type S-150 mechanical splice kit, covered by certificate PTB09ATEX1068U.

POWER CONNECTIONS

Power connection may be achieved by the following means:

Types C25-21 and C16-19, incorporating Type GHG 960 923 P... plastic cable glands covered by certificate PTB 99 ATEX 3128X. The kits may use a moulded silicone rubber core seal to insulate the bus wires, with silicone grease in a moulded cavity to seal the end of the heating cable. In this arrangement the kits are Types C25-100 and C16-100, to PTB09ATEX1063U.

Type C3/4-100-Metal or C25-100-Metal, which incorporate a Type E8XF metallic cable gland covered by certificate SIRA 01ATEX1270X.

C-150 power connector, covered by certificate PTB09ATEX1068U.

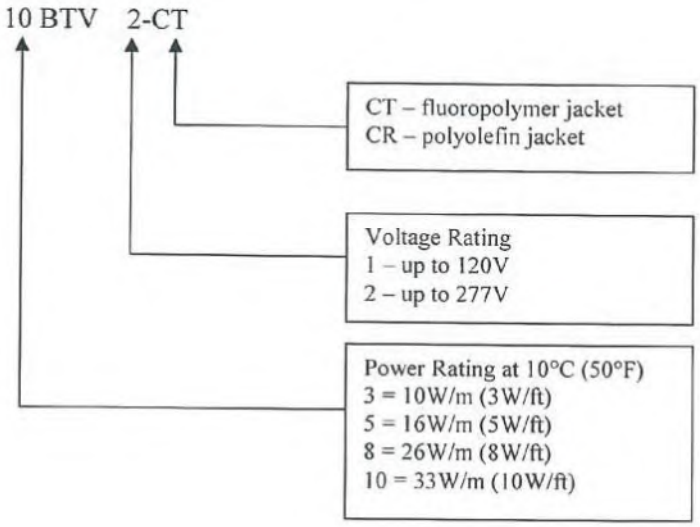
Type JBS-100 power connection system for a single heater cable, covered by certificate PTB09ATEX1059U.

Type JBM-100 power connection system for multiple heater cables, covered by certificate PTB09ATEX1056U.

Type JBU-100 power connection system, covered by certificate PTB09ATEX1061U.

Type CCON connection kit, covered by certificate SEV05ATEX0147U.

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



16 Report Number

SGS Baseefa Certification Report GB/BAS/ExTR15.00263/00.

17 Specific Conditions of Use

1. The temperature of the E-03 and S-19, end seal and splice shall not exceed 85°C.
2. The end seals, splices and power connections have the following associated minimum ambient temperatures:

   -55°C for the CCON, E-03, E-06 and S-19

   -55°C for the GHG 960 923 P... cable gland with silicone rubber seals

   -60°C for the Type E8XF cable gland
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
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 4.4 of IEC 62086-1.
6. The minimum bending radius is 35mm for the Type BTV units.
7. The supply to the heating unit must be terminated in a suitably certified terminal enclosure.

18 Essential Health and Safety Requirements

All relevant Essential Health and Safety Requirements are covered by the standards listed at item 9.

19 Drawings and Documents

New drawings submitted for this issue of certificate.

Number	Sheet	Issue	Date	Description
906567-A***	1 of 1	K	11/11/15	C25-100, C25-21, C16-29, C16-100 connection kits
907195-A[5]	1 of 1	E	06/18/15	S-150 (approval drawing)
907196-A[5]	1 of 1	D	06/18/15	E-150 (approval drawing)

Current drawings also associated with this certificate.

Number	Sheet	Issue	Date	Description
205350-A*	1 of 1	M	02/22/13	BTV-3BTV-CT & BTV-3HBTV-CT BTV-5BTV-CT & BTV-5HBTV-CT
205310-A*	1 of 1	N	02/22/13	BTV-8BTV-CT & BTV-8HBTV-CT BTV-10BTV-CT & BTV-10HBTV-CT
205349-A*	1 of 1	H	02/22/13	BTV-3BTV-CR BTV-5BTV-CR
205308-A*	1 of 1	N	02/22/13	BTV-8BTV-CR BTV-10BTV-CR
906579-A*	1 of 1	K	07/22/13	BTV heater units (European System)
906563-A*	1 of 1	C	07/22/13	E-03 end seal cut back dimensions
906564-A**	1 of 1	C	07/23/13	E-06 end seal Cut back dimensions
906568-A[4]	1 of 1	B	12/23/14	S-19 and S-21 heat shrinkable splice joint kit cut back dimensions
906794-A[5]	1 of 1	Y	05/09/14	Generic ATEX and IECEx print for dwg for BTV-CT, QTVR-CT, XTV-CT and KTV-CT heating cables
9242869[6]	2	K	10/09/13	LABL-JBM-100-L-E
9532687[6]	2	L	10/09/13	LABL-JBM-100-L-EP
9621473[6]	2	K	10/09/13	LABL-JBS-100-L-E
9777523[6]	2	L	10/09/13	LABL-JBS-100-L-EP
9319676[6]	2	K	10/08/13	LABL-JBU-100-L-E
9735898[6]	2	K	10/08/13	LABL-JBU-100-L-EP

* These drawings are common to Baseefa06ATEX0183X and IECEx BAS 06.0043X and are held with the latter.
** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, Baseefa06ATEX0187X, IECEx BAS 06.0043X, IECEx BAS 06.0045X and IECEx BAS 06.0047X and is held with IECEx BAS 06.0043X.
*** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, Baseefa04ATEX0388X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X, IECEx BAS 06.0048X and IECEx BAS 05.0022X and is held with IECEx BAS 06.0043X.
[4]This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, IECEx BAS 06.0043X and IECEx BAS 06.0045X and is held with IECEx BAS 06.0043X.

[5]These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X and are held with IECEx BAS 06.0043X.
[6]These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X and IECEx BAS 06.0048X and are held with IECEx BAS 06.0043X.

20 Certificate History

Certificate No.	Date	Comments
Baseefa06ATEX0183X	29th January 2007	The release of the prime certificate. The associated test and assessment is documented in the certification report GB/BAS/ExTR06.0062/00.
Baseefa06ATEX0183X/1	31st January 2008	To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-30-1: 2007 in respect of the differences from EN 62086-1: 2001, and that none of these differences in the Standard affects this equipment. Certification report GB/BAS/ExTR08.0031/00 refers.
Baseefa06ATEX0183X/2	5th October 2008	Minor changes to the marking layout. No report.
Baseefa06ATEX0183X/3	3rd September 2009	Minor changes to the marking layout. No report.
Baseefa06ATEX0183X/4	21st June 2010	To note later component certificates for the connection units and minor corrections to print marking. To note deletion of T-100 connection kit drawing 906701-A as a certification drawing. Certification report GB/BAS/ExTR10.0024/00 refers.
Baseefa06ATEX0183X/5	29th February 2012	To note later component certificates for the connection units and minor corrections to print marking. To note alternative coding when the type JBM-100, JBS-100, JBU-100 and E-100 connection units are used with the pilot light option. Certification report GB/BAS/ExTR11.0270/00 refers.
Baseefa06ATEX0183X/6	18th December 2012	To confirm that the equipment covered by this certificate has been reviewed against the requirements of EN 60079-0: 2009 and EN 60079-7: 2007 in respect of the differences from the standards to which this certificate is currently issued; none of the differences affect this equipment, other than the code marking requirements which have been addressed. Certification report GB/BAS/ExTR12.0289/00 refers.
Baseefa06ATEX0183X/7	15th May 2015	Re-issue of the certificate to include certificate history. Minor changes to the drawing template to reflect Pentair ownership. Minor drawing modification that do not affect certification. Confirmation of the complete list of schedule drawings that fully define the equipment. Certification report GB/BAS/ExTR15.0035/00 refers.
Baseefa06ATEX0183X/8	20th November 2015	To introduce the Ex Component certified C1 Core Sealer covered by certificate Baseefa15ATEX0194U and to introduce an alternative lubricating grease. SGS Baseefa Certification report GB/BAS/ExTR15.0263/00 refers.

1 SUPPLEMENTARY EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 Supplementary EU - Type Examination Certificate Number: **Baseefa06ATEX0183X/9**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

4 Product: **BTV Range of Trace Heating Units**

5 Manufacturer: **Pentair Thermal Management LLC**

6 Address: **899 Broadway Street, CA, 94063-3104, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

SGS Baseefa Customer Reference No. **0865**

Project File No. **16/0984**

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R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X/9**

15 Description of the variation to the Product

Variation 9.1

To amend the Specific Condition of Use number 6 to clarify the minimum installation temperature and to introduce alternative minimum bending radii for specific temperatures.

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

16 Report Number

SGS Baseefa Certification report GB/BAS/ExTR17.0055/00.

17 Specific Conditions of Use

The amended Specific Condition of Use number 6 is:-

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 above.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is affected as follows.

Clause	Subject	Compliance
1.2.7	LVD type requirements	Pass
1.2.8	Overloading of equipment (protection relays, etc.)	Pass
1.4.1	External effects	Pass
1.4.2	Aggressive substances, etc.	Pass

19 Drawings and Documents

None.

1 SUPPLEMENTARY EU - TYPE EXAMINATION CERTIFICATE

2 Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU

3 Supplementary EU - Type Examination Certificate Number: **Baseefa06ATEX0183X/10**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

4 Product: **BTV Range of Trace Heating Units**

5 Manufacturer: **Pentair Thermal Management LLC**

6 Address: **899 Broadway Street, CA, 94063-3104, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseea06ATEX0183X** to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

SGS Baseefa Customer Reference No. **0865** Project File No. **17/0815**

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Registered address: Rossmore Business Park, Ellesmere Port, Cheshire, CH65 3EN

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 # Schedule

14 ## Certificate Number Baseefa06ATEX0183X/10

15 Description of the variation to the Product

Variation 10

Introduction of alternative variants of the E-06 End Seal and S-19/S-21 Splice Joint.

16 Report Number

SGS Baseefa certification report GB/BAS/ExTR17.0377/00.

17 Specific Conditions of Use

None additional to those listed previously.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheets	Issue	Date	Description
906564-A*	2	D	12/26/17	E-06 End Seal Cut Back Dimensions
906568-A**	2	C	12/26/17	S-19 and S-21 heat shrinkable splice joint kit cut back dimensions

* This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, Baseefa06ATEX0187X, IECEx BAS 06.0043X, IECEx BAS 06.0045X and IECEx BAS 06.0047X and is held with IECEx BAS 06.0043X.

** This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0185X, IECEx BAS 06.0043X and IECEx BAS 06.0045X and is held with IECEx BAS 06.0043X.

1 # SUPPLEMENTARY EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 Supplementary EU - Type Examination Certificate Number: **Baseefa06ATEX0183X/11**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

4 Product: **BTV Range of Trace Heating Units**

5 Manufacturer: **nVent Thermal LLC**

6 Address: **899 Broadway Street, CA, 94063-3104, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseea06ATEX0183X** to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

SGS Baseefa Customer Reference No. **0865** Project File No. **17/0865**

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pp M Powney
R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

M POWNEY
Certification Manager

13 # Schedule

14 ## Certificate Number Baseefa06ATEX0183X/11

15 Description of the variation to the Product

Variation 11.1

To confirm the certificate is now held in the name of nVent Thermal LLC.

Variation 11.2

To update the product marking labels to show the name of nVent Thermal LLC.

16 Report Number

SGS Baseefa certification report GB/BAS/ExTR18.0101/00.

17 Specific Conditions of Use

None additional to those listed previously.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheets	Issue	Date	Description
906794-A*	1 of 1	Z	05/10/18	Generic ATEX and IECEx print dwg for BTV-CT, QTVR-CT, XTV-CT and KTV-CT heating cables
9242869**	2	M	02/27/18	LABL-JBM-100-L-E
9532687**	2	N	02/28/18	LABL-JBM-100-L-EP
9621473**	2	M	02/27/18	LABL-JBS-100-L-E
9777523**	2	N	02/28/18	LABL-JBS-100-L-EP
9319676**	2	M	02/27/18	LABL-JBU-100-L-E
9735898**	2	M	02/27/18	LABL-JBU-100-L-EP

*This drawing is common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X and IECEx BAS 06.0046X and are held with IECEx BAS 06.0043X.
**These drawings are common to Baseefa06ATEX0183X, Baseefa06ATEX0184X, Baseefa06ATEX0185X, Baseefa06ATEX0186X, Baseefa06ATEX0188X, IECEx BAS 06.0043X, IECEx BAS 06.0044X, IECEx BAS 06.0045X, IECEx BAS 06.0046X and IECEx BAS 06.0048X and are held with IECEx BAS 06.0043X.

1 SUPPLEMENTARY EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 Supplementary EU - Type Examination Certificate Number: **Baseefa06ATEX0183X/11**
This is a typo must be Baseefa06ATEX0183X/12 see next page

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

4 Product: **BTV Range of Trace Heating Units**

5 Manufacturer: **nVent Thermal LLC**

6 Address: **899 Broadway Street, CA, 94063-3104, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseea06ATEX0183X** to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Baseefa, Notified Body number 1180, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

SGS Baseefa Customer Reference No. **0865** Project File No. **19/0040**

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M POWNEY
Certification Manager

R S SINCLAIR
TECHNICAL MANAGER
On behalf of SGS Baseefa Limited

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X/12**

15 Description of the variation to the Product

Variation 12.1

To introduce two alternative sheath materials for the BTV range of trace heating cables.

16 Report Number

SGS Baseefa certification report GB/BAS/ExTR19.0014/00.

17 Specific Conditions of Use

None additional to those listed previously.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheets	Issue	Date	Description
205310-A*	1	P	11/19/18	BTV-8BTV-CT & BTV-10BTV-CT
205350-A*	1	O	11/19/18	BTV-3BTV-CT & BTV-5BTV-CT

These drawings are common to, and held with, IECEx BAS 06.0043X.

1 # SUPPLEMENTARY EU - TYPE EXAMINATION CERTIFICATE

2 **Equipment or Protective System Intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU**

3 Supplementary EU - Type Examination Certificate Number: **Baseefa06ATEX0183X/13**

3.1 In accordance with Article 41 of Directive 2014/34/EU, EC-Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Supplementary Certificates to such EC-Type Examination Certificates, and new issues of such certificates, may continue to bear the original certificate number issued prior to 20 April 2016

4 Product: **BTV Range of Trace Heating Units**

5 Manufacturer: **nVent Thermal LLC**

6 Address: **899 Broadway Street, CA, 94063-3104, USA**

7 This supplementary certificate extends EC – Type Examination Certificate No. **Baseefa06ATEX0183X** to apply to products designed and constructed in accordance with the specification set out in the Schedule of the said certificate but having any variations specified in the Schedule attached to this certificate and the documents therein referred to.

8 SGS Fimko Oy, Notified Body number 0598, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that the product, as modified by this supplementary certificate, has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.

8.1 The original certificate was issued by SGS Baseefa Ltd (UK Notified Body 1180). It, and any supplements previously issued by SGS Baseefa Ltd have been transferred to the supervision of SGS Fimko Oy (EU Notified Body 0598). The original certificate number is retained.

SGS Fimko Oy Customer Reference No. **0865** Project File No. **20/0212**

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Business ID 0978538-5 Member of the SGS Group (SGA SA)

R S SINCLAIR
Authorised Signatory for SGS Fimko Oy

13 **Schedule**

14 **Certificate Number Baseefa06ATEX0183X/13**

15 Description of the variation to the Product

Variation 13.1

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

Variation 13.2

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

Variation 13.3

To amend the product description to include the above variations to the BTV Range of Trace Heating Units. See updated product description below;

Description of Equipment or Protective System

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 PTB09ATEX1060U.

Raychem Type 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 PTB09ATEX1068U.

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 PTB09ATEX1043U, for connecting up to three heater cables.

Type S-150 mechanical splice kit, covered by certificate PTB09ATEX1068U.

POWER CONNECTIONS

Power connection may be achieved by the following means:

Types C25-21 and C16-19, incorporating Type GHG 960 923 P… plastic cable glands covered by certificate PTB 99 ATEX 3128X. The kits may use a moulded silicone rubber core seal to insulate the bus wires, with silicone grease in a moulded cavity to seal the end of the heating cable. In this arrangement the kits are Types C25-100 and C16-100, to PTB09ATEX1063U.

Type C3/4-100-Metal or C25-100-Metal, which incorporate a Type E8XF metallic cable gland covered by certificate SIRA 01ATEX1270X.

C-150 power connector, covered by certificate PTB09ATEX1068U.

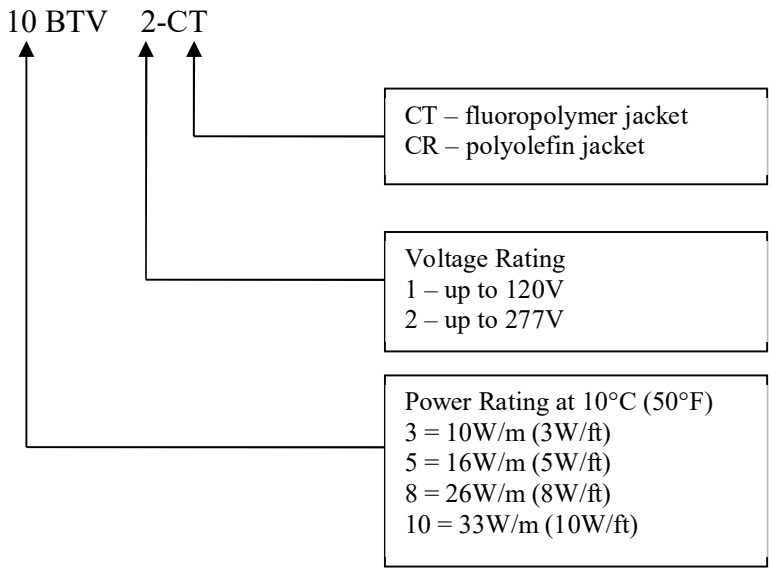
Type JBS-100 power connection system for a single heater cable, covered by certificate PTB09ATEX1059U.

Type JBM-100 power connection system for multiple heater cables, covered by certificate PTB09ATEX1056U.

Type JBU-100 power connection system, covered by certificate PTB09ATEX1061U.

Type CCON connection kit, covered by certificate SEV05ATEX0147U.

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



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 ≤ T < -20	35
-20 ≤ T < -10	30
-10 ≤ T < 0	25
0 ≤ T < +10	20
T ≥ +10	12

16 Report Number

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17 Specific Conditions of Use

'Specific condition of Use' have changed to include the new heat shrink end seal and splice kits (see Variations 13.1 & 13.2 above). The updated 'Specific conditions of Use' are listed below for clarity;

1. The following limiting temperatures for the end seals and splices shall not be exceeded:

   +85°C for the E-03 and S-19
   +110°C for the E-20 and S-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
   -55°C for the E-03, E-06 and S19
   -60°C for the E-20 and S-20

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

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 EN 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.

18 Essential Health and Safety Requirements

Compliance with the Essential Health and Safety Requirements is not affected by this variation.

19 Drawings and Documents

Number	Sheet	Issue	Date	Description
908742-A	1 of 1	A	2/19/20	E-20 HEAT SHRINKABLE END SEAL KIT CUT BACK DIMENSIONS
908743-A	1 of 1	A	2/19/20	S-20 HEAT SHRINKABLE SPLICE JOINT KIT CUT BACK DIMENSIONS

The above drawings are common to Baseefa06ATEX0183X, IECEx BAS 06.0043X, Baseefa06ATEX0185X and IECEx BAS 06.0045X and are held with IECEx BAS 06.0043X.