



# EC-TYPE EXAMINATION CERTIFICATE

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

EC-Type Examination Certificate Number : **BAS98ATEX2336X**

Equipment or Protective System: **XTV RANGE OF HEATING UNITS**

Manufacturer: **RAYCHEM CORPORATION**

Address: **300 Constitution Drive, Menlo Park, California 94025, USA**

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

The Electrical Equipment Certification Service, notified body number 600 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 N°

**98(C)0976 dated 8 June 1999**

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


**EN 50014: 1997      EN 50019: 1994**

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

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.

This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

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

 **II 2 G      EEx e II T3 or EEx e II T2 (see Schedule)**

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

File No: EECS 0865/03/031A

This certificate is granted subject to the general conditions of the Electrical Equipment Certification Service. It does not necessarily indicate that the apparatus may be used in particular industries or circumstances.



**JM CLEARE**  
DIRECTOR  
8 July 1999



Electrical Equipment Certification Service  
Health and Safety Executive  
Harpur Hill, Buxton, Derbyshire. SK17 9JN. United Kingdom  
Tel: 01298 28000 Fax: 01298 28244

Re-issued 1 September 1999 to replace original



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#### Description of Equipment or Protective System

The XTV Range of Trace Heating Units are of the parallel circuit self-regulating type rated at up to 254V with a nominal power output from 13 W/m to 66 W/m at 10°C. The maximum self-limiting temperature is 240°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 separated by a fluoropolymer spacer around which are wound in a spiral a number of carbon-loaded polymer fibres which form the active part of the heating cable. An extruded layer of fluoropolymer covers the fibres and serves to insulate the copper conductors from a tinned copper braid which covers the basic heater. A protective anti-corrosion fluoropolymer sheath is extruded over the braid.

The declared maximum withstand temperature for the range is 250°C and the minimum installation temperature is -60°C.

#### CABLE ACCESSORIES

##### END SEALS

The end seal for terminating the remote end of the unit may be the following types.

Type E-19 comprises hot melt adhesive liners with separate heat shrink sleeves.

Type E-100 mechanical end seal comprises a silicone rubber end cap which is filled with silicone grease sealant and is covered by certificate PTB Nr. Ex-95.D.1045 U, coded EEx e II.

The E-100-L covered by Component Certificate Ex 95.D.1045U.

##### SPLICES AND JOINTS

A Raychem Type S-69 heat shrink splice kit is available for connecting lengths of active heating cable.

A Raychem T-100 tee connection system for up to three heater cables covered by Type Examination Certificate PTB98ATEX1020U.



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POWER CONNECTIONS

The power connection is by means of a Power Connection Kit incorporating heatshrink insulation and suitable glanding arrangements.

Types C25-21 and C16-29 incorporating ABB Type GHG 960 923 P... plastic cable glands covered by component certificate PTB Nr. Ex-92.C.3142 coded EEx e II. The power connection 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. These are types C25-100 and C16-100.

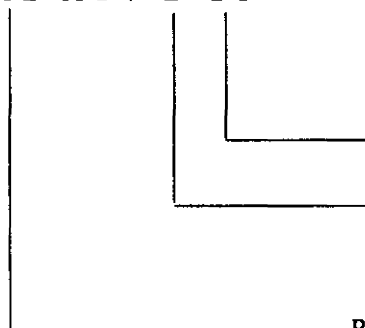
Type C3/4-100-METAL or C25-100-METAL for connection into Ex d enclosures which includes a Type A7F/e metallic cable gland covered by BASEEFA Certificate of Conformity Number Ex 97D1313U and coded EEx d IIC.

Type JBS-100- power connection system for a single heater cable, covered by Type Examination Certificate PTB 97ATEX1058U.

Type JBM-100 power connection system for multiple heater cables, covered by Type Examination Certificate PTB98ATEX1021U.

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

1 2 XTV 2 - CT -



CT - copper braid and anti-corrosion sheath

Voltage rating

1 - 120 Volts

2 - 254 Volts

Power rating in approximate watts per foot at 10°C

4 = 4 W/ft (13 W/m) 5 = 5 W/ft (16 W/m) 8 = 8 W/ft (26 W/m)

10 = 10 W/ft (32 W/m) 12 = 12 W/ft (39 W/m) 15 = 15 W/ft (49 W/m)

20 = 20 W/ft (66 W/m)



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The following temperature classes are assigned:

Output (W/ft)	Type	Temperature Class
4 to 12	XTV1 and XTV2	T3
15	XTV1	215°C (T2)
15	XTV2	T3
20	XTV1	215°C (T2)
20	XTV2	240°C (T2)

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 Plus. The algorithm defined in this software and reported in Report No. CXDE 9511-512 may be used in additional design software. These designs may carry temperature classes other than those described above and are marked with the actual maximum temperature and the appropriate T class in parenthesis.

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Report Nos.

98(C)0976 dated 8 June 1999.

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SPECIAL CONDITIONS FOR SAFE USE

1.

The following limiting temperatures shall not be exceeded:

Type	Description	Limiting temperature
E-19	End Seal	200°C
E-100 & E-100-L	End Seals	151°C
S-69	Splice	200°C
JBS-100	Single Power connection kit	151°C
JBM-100	Multiple power connection kit	155°C
T-100	Tee connection	155°C
GHG 960 923 P...	Cable gland	110°C
Type A7F/R	Cable gland	180°C

The E-100 end seal, E-100-L end seal, JBM-100 junction box, JBS-100 junction box and the T-100 tee have limiting temperatures based on an internal component in these accessories. When locating on the pipe or 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.



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- 2. The assembly of glands, splices and end terminations shall be carried out in accordance with the manufacturer's instruction leaflets.
- 3. The heating unit must be terminated in a suitable certified terminal enclosure.
- 4. When a system has been installed based upon a stabilised design the additional labelling identified in the certificate documents shall be fitted.

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**Essential Health and Safety Requirements**

<b>ESSENTIAL HEALTH &amp; SAFETY REQUIREMENTS not covered by Standards listed at (9)</b>		
<b>Clause</b>	<b>Subject</b>	<b>Compliance</b>
1.0.2	Analysis of possible operating faults	5.1.0.2
1.0.5	Marking	5.1.0.5
1.0.6	Instructions	5.1.0.6
1.2.7	Protection against other hazards	5.12.7

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**DRAWINGS**

<b>Number</b>	<b>Issue</b>	<b>Date</b>	<b>Description</b>
906521-A	D	2/6/97	Section of XTV-CT
906565-A	A	11/27/95	E-19 Cut Back Dimensions
906567-A	C	1/4/99	Connection Kits (C25-100)(C25-21)(C16-29)(C16-100)
906576-A	C	1/4/99	XTV heater units
906566-A	A	11/27/95	S-69 Heat Shrinkable Splice cut back dimen.
906569-A	A	11/27/95	Conductor Insulator for S-69
906794-A	A	1/4/99	Generic ATEX print dwg. for XTV-CT
906816-A	A	2/10/99	Metal connection kit label
906817-A	A	2/10/99	ATEX stabilised design label

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**BASEEFA List Keywords**  
2HEATER



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: BAS98ATEX2336X/1**

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

5 **Manufacturer: RAYCHEM CORPORATION**

6 **Address: 300 Constitution Drive, Menlo Park, California 94025, USA**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS98ATEX2336X 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.

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File No: EECS 0865/03/031A

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I M CLEARE  
DIRECTOR  
10 August 1999



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**EC-TYPE EXAMINATION CERTIFICATE N° BAS98ATEX2336X/1**

**Description of the Variation to the Equipment or Protective System**

To allow the use of type S150 splice kits and E150 end seals covered by certificate PTB98ATEX1121U.

**Report Nos.**

None

**SPECIAL CONDITIONS FOR SAFE USE**

See original certificate.

**Essential Health and Safety Requirements**

See original certificate.

**DRAWINGS**

None.

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1 **SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE**

2 **Equipment or Protective System Intended for use  
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3 **Supplementary EC-Type Examination Certificate Number: BAS98ATEX2336X/2**

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

5 **Manufacturer: RAYCHEM CORPORATION**

6 **Address: 300 Constitution Drive, Menlo Park, California 94025, USA**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS98ATEX2336X 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.

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IM CLEARE  
DIRECTOR  
3 November 1999





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**EC-TYPE EXAMINATION CERTIFICATE N° BAS98ATEX2336X/2**

**Description of the Variation to the Equipment or Protective System**

To allow revised marking details.

**Report Nos.**

None

**SPECIAL CONDITIONS FOR SAFE USE**

See original certificate.

**Essential Health and Safety Requirements**

See original certificate.

**DRAWING**

Number	Issue	Date	Description
*906794-A	B	9/30/99	General ATEX print drawing

\*This drawing is common to BAS98ATEX2335X/2, BAS98ATEX2337X/2 and BAS98ATEX2338X/2

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2 **Equipment or Protective System Intended for use  
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Directive 94/9/EC**

3 **Supplementary EC-Type Examination Certificate Number: BAS98ATEX2336X/3**

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

5 **Manufacturer: RAYCHEM CORPORATION**

6 **Address: 300 Constitution Drive, Menlo Park, California 94025, USA**

7 This supplementary certificate extends EC-Type Examination Certificate No. BAS98ATEX2336X 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.

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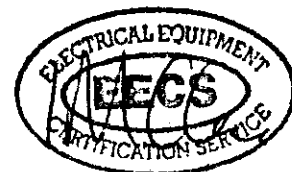
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I M CLEARE  
DIRECTOR  
22 February 2000



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**SUPPLEMENTARY EC-TYPE EXAMINATION CERTIFICATE N° BAS98ATEX2336X/3**

**Description of the Variation to the Equipment or Protective System**

Power connections C25-100 and C16-100 are now covered by Certificate PTB98ATEX1015U.

**Report Nos.**

None

**Special Conditions For Safe Use**

See original certificate.

**Essential Health and Safety Requirements**

See original certificate.

**DRAWINGS**

None.

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