Marine & Offshore

**Certificate number:** 22448/C0 BV
**File number:** ACE12/847/1
**Product code:** 2884H

*This certificate is not valid when presented without the full attached schedule composed of 7 sections*

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# TYPE APPROVAL CERTIFICATE

*This certificate is issued to*

## nVent Thermal LLC

Redwood City - UNITED STATES OF AMERICA

*for the type of product*

## HEATING CABLES / TAPES

RAYCHEM Type BTV, QTVR, XTV and KTV

**Requirements:**
Bureau Veritas Rules for the Classification of Steel Ships
IEC 60079-0 (2011), IEC 60079-7 (2006), IEC 60079-18 (2009), IEC 60079-30-1 (2007)
IEC 61241-0 (2004), IEC 61241-1 (2004)

*This certificate is issued to attest that Bureau Veritas Marine & Offshore did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.*

**This certificate will expire on: 27 Jan 2025**

**For Bureau Veritas Marine & Offshore,**
At BV PORT EVERGLADES CENTRE, on 06 Jul 2020,
Flavio Rosas

# THE SCHEDULE OF APPROVAL

**1. PRODUCT DESCRIPTION:**

**Self-regulating heat tracing cables and associated connection accessories** for heat tracing of pipes and vessels on ships and offshore units in hazardous and non-hazardous locations.

**1.1 - Type BTV**

| | |
|---|---|
| Heating element | Self-regulating conductive core |
| Conductor | Stranded copper wires - Cross section: 1.2mm² |
| Inner sheath | Modified polyolefin |
| Braid | Copper tinned braiding |
| Outer Sheath | Fluoropolymer (-CT) or Modified polyolefin (-CR) |
| Rated voltage | Up to 277 VAC |
| Min. Installation Temperature | -60°C |
| Max. Maintain Temperature | 65°C (continuous power on) |
| Nominal Power Rating | Refer to table below |
| Approval | Ex e II T6 |
| Degree of protection | IP66 |

| **Type** | **Power rating (W/m at 10°C)** |
|---|---|
| 3BTV2-CT / 3BTV2-CR | 10 |
| 5BTV2-CT / 5BTV2-CR | 16 |
| 8BTV2-CT / 8BTV2-CR | 26 |
| 10BTV2-CT / 10BTV2-CR | 33 |

**1.2 - Type QTVR**

| | |
|---|---|
| Heating element | Self-regulating conductive core |
| Conductor | Stranded copper wires - Cross section: 1.4mm² for 10QTVR2 and 15QTVR2<br>: 2.3mm² for 20QTVR2 |
| Inner sheath | Fluoropolymer |
| Braid | Copper tinned braiding |
| Outer Sheath | Fluoropolymer |
| Rated voltage | Up to 277 VAC |
| Min. Installation Temperature | -60°C |
| Max. Maintain Temperature | 110°C (continuous power on) |
| Nominal Power Rating | Refer to table below |
| Approval | Ex e II T4 |
| Degree of protection | IP66 |

| Type | Power rating (W/m at 10°C) |
|---|---|
| 10QTVR2-CT | 33 |
| 15QTVR2-CT | 49 |
| 20QTVR2-CT | 66 |

**1.3 - Type XTV**

| | |
|---|---|
| Heating element | Self-regulating conductive fibres |
| Conductor | Stranded copper wires - Cross section: 2.3mm² |
| Inner sheath | High temperature fluoropolymer |
| Braid | Copper tinned braiding |
| Outer Sheath | High temperature fluoropolymer |
| Rated voltage | Up to 277 VAC |
| Min. Installation Temperature | -60°C |
| Max. Maintain Temperature | 120°C (continuous power on) |
| Nominal Power Rating | Refer to table below |
| Approval | Ex e II T3 for 4XTV2-CT-T3, 8XTV2-CT-T3, 10XTV2-CT-T3, 12XTV2-CT-T3, 15XTV2-CT-T3 |
| | Ex e II T2 for 20XTV2-CT-T2 |
| Degree of protection | IP66 |

| Type | Power rating (W/m at 10°C) |
|---|---|
| 4XTV2-CT-T3 | 12 |
| 8XTV2-CT-T3 | 26 |
| 10XTV2-CT-T3 | 33 |
| 12XTV2-CT-T3 | 38 |
| 15XTV2-CT-T3 | 49 |
| 20XTV2-CT-T2 | 66 |

**1.4 - Type KTV**

| | |
|---|---|
| Heating element | Self-regulating conductive fibres |
| Conductor | Stranded copper wires - Cross section: 2.3mm² |
| Inner sheath | High temperature fluoropolymer |
| Braid | Copper tinned braiding |
| Outer Sheath | High temperature fluoropolymer |

| | |
|---|---|
| Rated voltage | Up to 277 VAC |
| Min. Installation Temperature | -60°C |
| Max. Maintain Temperature | 150°C (continuous power on) |
| Nominal Power Rating | Refer to table below |
| Approval | Ex e II T2 |
| Degree of protection | IP66 |

| **Type** | **Power rating (W/m at 10°C)** |
|---|---|
| 5KTV2-CT | 16 |
| 8KTV2-CT | 26 |
| 15KTV2-CT | 49 |
| 20KTV2-CT | 66 |

**1.5 - Accessories**

| **Designation** | **Type** |
|---|---|
| End seals | E-03 (BTV); E-06 (BTV, QTVR); E-19 (XTV, KTV); E-100; E-100-L; E-150 |
| Splices and joints | S-19 (BTV); S-21 (QTVR); S-69 (XTV, KTV); S-150; T-100 |
| Power connections | C25-21; C25-100; C3/4-100-Metal; C25-100-Metal; C-150; JBS-100-E, -EP, -L-E, -L-EP; JBM-100-E, -EP, -L-E, -L-EP; JBU-100-E, -EP, -L-E, -L-EP |
| Junction box | JB-EX-25 |
| Approval<br>E-100-L-A & E-100-L-E | Ex e mb llC T* Gb<br>Ex tb lllC T***'C Db - Ta = 40.C to +40.C |

## 2. DOCUMENTS AND DRAWINGS:

**2.1 - Pentair Data Sheets:**
Data sheets accessories ref. Raychem-DS-H56834-Accessories-EN-1805, dated 2018.
Data sheets ref. Raychem-DS-DOC2210-JBEX2535MM2-EN-1902, dated 2018.
Data sheets E-150 ref. Raychem-DS-H56835-E150-EN-1805, dated 2018.
Data sheets S150 ref. Raychem-DS-H56843-S150splicekit-EN-1805, dated 2018.
Data sheets ref. Raychem-DS-DOC2210-C25100-EN-1902, dated 2018.
Datasheet End Seal and Lighted End Seal Kits ref. Raychem-DS-H56829-E100AE100LA-EN-1805, dated 2018.
Datasheet End Seal and Lighted End Seal ref. Raychem-DS-DOC2210-E100EE100LE-EN-1902, dated 2018.
Data sheets BTV ref. RAYCHEM-DS-DOC2210-BTV-EN-1904, dated 2019.
Data sheets BTV ref. Raychem-DS-H51086-BTV-EN-1805, dated 2018.
Data sheets KTV ref. Raychem-DS-H51853-KTVfreezeprotection-EN-1805, dated 2018.
Data sheets QTVR ref. Raychem-DS-DOC2210-QTVR-EN-1902, dated 2018.
Data sheets XTV ref. Raychem-DS-H52711-XTVfreezeprotection-EN-1805, dated 2018.

**2.2 - Pentair Installation Instructions:**
High-Profile Lighted End Seal Installation Instructions ref. Raychem-IM-INSTALL028-E100L-ML-1805, dated 2018.

**2.3 - ATEX certificates:**
PTB09ATEX1060U, dated 09 Apr 2018 for E-100 series
PTB09ATEX1068U, dated 09 Apr 2018 for E-150, S-150 and C-150
PTB09ATEX1043U, dated 09 Apr 2018 for T-100
PTB99ATEX3128X (5th supplement) dated 31/05/2007 for C25-21
PTB09ATEX1063U, dated 09 Apr 2018 for C25-100
SIRA01ATEX1270X Issue n°5 dated 12/11/2009 for C25-100-Metal and C3/4-100-Metal
PTB09ATEX1059U, dated 09 Apr for JBS-100 series
PTB09ATEX1056U, dated 09 Apr 2018 for JBM-100 series
PTB09ATEX1061U, dated 09 Apr for JBU-100 series
BASEEFA06ATEX0183X/12, dated 13 Mar 2019 for BTV range
BASEEFA06ATEX0184X/13, dated 16 Jan 2019 for XTV range
BASEEFA06ATEX0185X/11, dated 16 Jan 2019 for QTVR range
BASEEFA06ATEX0186X/12, dated 16 Jan 2019 for KTV range
PTB00ATEX1002 (9th supplement) dated 18 Apr 2012 for JB-EX-25
SIRA No.: Sira 14ATEX3015X Issue 5, dated 20 Apr 2018 for E-100-L-A, E-100-L-E
IECEx SIR 14.0007X Issue No.4, dated 2019-04-16

**2.4 - Pentair Industrial Manuals:**
Industrial manual ref. Raychem-IM-DOC71-SelfRegHeatingCable-EN-1805, dated 2018.
Industrial manual ref. Raychem-DG-H56882-SelfRegulating-EN-1805, dated 2018.
Industrial manual ref. Raychem-SB-EU0264-Selfregulating-EN-1805, dated 2018.
Industrial manual ref. Raychem-IM-H57274-SelfRegPowerLimitingHeatTracing-ML-1805, dated 2018.
Industrial manual ref. Raychem-TH-DOC2210-IndustrialHeatTracing-EN-1902, dated 2018.
Industrial manual ref. Raychem-TH-H56550-INDHeatTracing-EN-1812, dated 2018.

**2.5 - Pentair Installation Instructions:**
Installation instructions ref. Raychem-IM-INSTALL011-C2521-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-EU0436-E100L-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-E100E-INSTALL024-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-H59141-E100LAendseal-EN-1805, dated 2018.
Installation instructions ref. Raychem-IM-INSTALL032-JBS100XXX-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-INSTALL037-C25100-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-INSTALL038-JBM100X-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-INSTALL039-T100-EN-1811, dated 2018.
Installation instructions ref. Raychem-IM-INSTALL046-S150-ML-1811, dated 2018.
Installation instructions ref. Raychem-IM-INSTALL050-C25100METAL-ML-1811, dated 2018.

**3. TEST REPORTS:**
Test Report TYCO No. TTC 0603-007 dated on 23/03/2006 (IEC 62086-1)
IECEx Test Report No. GB/BAS/ExTR06.0062/00 dated on 29/01/2007 (BTV range)
IECEx Test Report No. GB/BAS/ExTR06.0064/00 dated on 29/01/2007 (QTVR range)
IECEx Test Report No. GB/BAS/ExTR06.0063/00 dated on 29/01/2007 (XTV range)
IECEx Test Report No. GB/BAS/ExTR06.0065/00 dated on 29/01/2007 (KTV range)
IECEx Test Report No. GB/BAS/ExTR12.0289/00 dated on 18 Dec 2012
IECEx Test Report No. GB/BAS/ExTR14.0027/00 dated on 27 Jan 2014
IECEx Test Report No. GB/BAS/ExTR14.0028/00 dated on 27 Jan 2014
TYCO Water resistance Test No. TTC 0712-002, dated 07 Dec 2007 (IEC 60079-30-1)
IECEx Test Report No. GB/SIR/ExTR19.0116/00, dated Apr 2019.
IECEx BAS 06.0043X Issue No.16, dated 2019-03-13 for BTV range
IECEx BAS 06.0044X Issue No.16, dated 2019-01-16 for XTV range
IECEx BAS 06.0045X Issue No.15, dated 2019-01-16 for QTVR range
IECEx BAS 06.0046X Issue No.15, dated 2019-01-16 for KTV range

**4. APPLICATION / LIMITATION:**

4.1 - According to BV Rules for the Classification of Steel Ships.
4.2 - Approval also valid for ships having to comply with SOLAS 74 Convention, as amended, and for units having to comply with IMO Resolution A.1023(26) (The "MODU Code").
4.3 - The heat tracing cable supply circuit must include an electrical protection device in conformity with Clause 4.4 of IEC 62086-1.
4.4 - The installation of heat tracing cables and the assembly of glands, splices and terminations is to be carried out in accordance with the Manufacturer's instructions.
4.5 - Ex-certification is not covered by this certificate. Applications in hazardous areas are to be approved in each case according to the Rules and Conditions for Safe Use specified in a valid Ex-Certificate issued by a Notified or Recognised Certification Body.

**5. PRODUCTION SURVEY REQUIREMENTS:**

5.1 - The above products are to be supplied by **nVent Thermal LLC** in compliance with the type described in this certificate.
5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320 and as such does not require a BV product certificate.
5.3 - **nVent Thermal LLC** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products .
5.4 - For information, **nVent Thermal LLC** has declared to Bureau Veritas the following production sites:

| Heat tracing cables: | Accessories: |
|---|---|
| **nVent Thermal LLC** | **nVent Thermal LLC** |
| **2555 Bay Road** | **899 Broadway Street** |
| **94063 Redwood City** | **94063-3104 Redwood City** |
| **UNITED STATES OF AMERICA** | **UNITED STATES OF AMERICA** |

**6. MARKING OF PRODUCT**:

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information through the length of cable:
- Rated Voltage.
- Cable symbol and max. rating temperature.
- Manufacturer's name or trademark.
- Year of manufacture
- Ex Marking, as relevant

**7. OTHERS:**

7.1 - It is **nVent Thermal LLC**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.
7.2 - This Certificate supersedes the Type Approval Certificate No. 22448/B4 BV issued on 13 Jun 2018 by the Society.

***** END OF CERTIFICATE *****