Certificate no.:
TAE000054F

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Electric Heating Cable

with type designation(s)
5CTV2-CR, 5CTV2-CT, 8CTV2-CR, 8CTV2-CT, 10CTV2-CR, 10CTV2-CT, 10RTV2-CT, 15RTV2-CT

issued to
Chemelex Thermal (Shanghai) Co., Ltd.
Shanghai, **China**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application:

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2025-08-01**
This Certificate is valid until **2030-07-31**.
DNV local unit: **Shanghai**

for **DNV**

Approval Engineer: **Maik Gagern**

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

Self-regulating trace heating cables
Type: xxCTV2-Cx and xxRTV2-CT

Construction:	xxCTV2-CR
Conductors:	16AWG nickel plated stranded copper
Heating element:	Parallel construction, self-regulating type
Inner sheath:	Modified polyolefin jacket
Metal covering:	Tinned copper braid
Outer sheath:	Modified polyolefin jacket
Ex class:	Ex eb IIC T6 Gb, Ex tb IIIC T80℃ Db
Maximum withstand temperature	85ºC (T6)

Type	Max. Voltage	W/m at 10°C/230V	Thickness [mm]	With [mm]	Weight [g/m]
5CTV2-CR	277Vac	16	5.5	10.5	110
8 CTV2-CR	277Vac	25	5.5	13.2	150
10 CTV2-CR	277Vac	29	5.5	13.2	150

Construction:	xxCTV2-CT
Conductors:	16AWG nickel plated stranded copper
Heating element:	Parallel construction, self-regulating type
Inner sheath:	Modified polyolefin jacket
Metal covering:	Tinned copper braid
Outer sheath:	Fluoropolymer jacket
Ex class:	Ex eb IIC T6 Gb, Ex tb IIIC T80℃ Db
Maximum withstand temperature	85ºC (T6)

Type	Max. Voltage	W/m at 10°C/230V	Thickness [mm]	With [mm]	Weight [g/m]
5CTV2-CT	277Vac	16	5.5	10.5	110
8 CTV2-CT	277Vac	25	5.5	13.2	150
10 CTV2-CT	277Vac	29	5.5	13.2	150

Construction:	xxRTV2-CT
Conductors:	16AWG nickel plated stranded copper
Heating element:	Parallel construction, self-regulating type
Inner sheath:	Fluoropolymer jacket
Metal covering:	Tinned copper braid
Outer sheath:	Fluoropolymer jacket
Ex class:	Ex eb IIC T4 Gb, Ex tb IIIC T130℃ Db
Maximum withstand temperature	110 ºC (T4)

Type	Max. Voltage	W/m at 10°C/230V	Thickness [mm]	With [mm]	Weight [g/m]
10RTV2-CT	277V	35	4.5	11.8	126
15RTV2-CT	277V	49	4.5	11.8	126

Application/Limitation

Manufacturers instructions to be followed when relevant. Please observe special conditions for safe use given in IECEx-type examination certificates.

Note: All details about electrical explosion protection mentioned in this certificate are for information only. For relevant binding information the corresponding Certificate of Conformity with regard to electrical explosion protection, issued by a recognised Authority, shall be observed.

Maximum surface temperature is determined by cable design and use referring to the concept of stabilized design as described in IEC IEEE 60079-30-1. Chemelex engineering software such as TraceCalc software to be used to assure that maximum allowable sheath temperatures are adequately below the auto-ignition temperature of the gases in the area. The user of the software should be experienced with the design of heat tracing applications.

Applications where Ex certified equipment is required will in general be subject to approval case by case based on documentation as required in DNV Rules.

Heating cables are not to be installed in contact with woodwork or other combustible material. If installed close to such materials, a separation by means of a non-flammable material may be required.

Type Approval documentation

Tests carried out

IEC 60079-0:2017
IEC 60079-30-1:2007
IEC 60079-31:2022
All based on IECEx Certificates of conformity as follows:
IECEx CQM 24.0028U – Issue No. 0 (for CTV2-CR and CTV2-CT)
IECEx CQM 24.0011U – Issue No. 0 (for RTV2-CT)
IECEx_CQM_24.0028U_001_20250523
IECEx_CQM_24.0011U_001_20250523

Marking of product

RAYCHEM PARALLEL HEATING CABLE xCTV2-Cx Max 277 VAC xxA xxW/m @ 10C IECEx CQM 24.0028U Ex eb IIC T6 Gb Ex tb IIIC T80°C Db ASSEMBLED IN CHINA WITH US ORIGIN CONTENT – WARNING: INSTALL PER RAYCHEM INSTRUCTIONS

RAYCHEM PARALLEL HEATING CABLE xRTV2-CT Max 277 VAC xxA xxW/m @ 10C IECEx CQM 24.0011U Ex eb IIC T4 Gb Ex tb IIIC T130°C Db ASSEMBLED IN CHINA WITH US ORIGIN CONTENT – WARNING: INSTALL PER RAYCHEM INSTRUCTIONS

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer’s product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE