Certificate No:
TAE00004B9

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Heating Cable

with type designation(s)
Heating Unit nVent RAYCHEM HCH1M / HCC1M / 32C / 31C / 62C, Heating Unit nVent RAYCHEM HDF1M / HDC1M, Heating Unit nVent RAYCHEM HSQ1M, Heating Unit nVent RAYCHEM HIQ1M, Heating Unit nVent RAYCHEM HAx1N / 61S**, Heating Unit nVent RAYCHEM HAx2N / 62S**, Heating Unit nVent RAYCHEM HAx2M / 32S****

Issued to
nVent Thermal Canada Ltd
Trenton, ON, Canada

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.

Type	Rated voltage (V)	Temp. class (°C)	Power [W/m] @ref. temp.	Suitable for Hazardous areas
Heating Unit nVent RAYCHEM HCH1M / HCC1M / 32C / 31C / 62C**	See Page 2	See Page 2	See Page 2	Yes
Heating Unit nVent RAYCHEM HDF1M / HDC1M	See Page 2	See Page 2	See Page 2	Yes
Heating Unit nVent RAYCHEM HSQ1M	See Page 2	See Page 2	See Page 2	Yes
Heating Unit nVent RAYCHEM HIQ1M	See Page 2	See Page 2	See Page 2	Yes
Heating Unit nVent RAYCHEM HAx1N / 61S**	See Page 2	See Page 2	See Page 2	Yes
Heating Unit nVent RAYCHEM HAx2N / 62S**	See Page 2	See Page 2	See Page 2	Yes
Heating Unit nVent RAYCHEM HAx2M / 32S**	See Page 2	See Page 2	See Page 2	Yes

Issued at **Hamburg** on **2022-01-01**
This Certificate is valid until **2026-12-31**.
DNV local station: **Montreal**

Approval Engineer: **Maik Gagern**

for **DNV**

Arne Schaarmann
Head of Section

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.

Product description

Mineral insulated heat trace system for hazardous areas on vessels, equipment and on pipes
The system consists of a pre-assembled product, which includes the heating cable, a cold lead cable, connected by means of a hot / cold joint, a cable gland with potted seal. Dual core cables are provided with an end cap on one end.
Option: The system includes a multi purpose junction box covered under IECEX PTB 08.0004 / PTB 00 ATEX 1002 configured for the respective application.

Mineral insulated (MI) Copper sheathed heating cable unit HCH1M/HCC1M / 61C

Cable sheath material	Copper	
Conductor material	Copper (HCC1M) or Copper Alloy (HCH1M)	
Max. exposure temperature	200°C**	
Min. installation temperature	–60°C	
Min. bending radius	6 x outer diameter at –60°C	
Max. supply voltage and power	Voltage (U0/U) 300/500 Vac	Max. power output* 50 W/m *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230Vac, 50 - 60Hz)	
Min. cable spacing	25 mm for hazardous areas	

Mineral insulated (MI) CUPRO-NICKEL sheathed heating cable unit HDF1M/HDC1M

Cable sheath material	70/30 Cupro-Nickel	
Conductor material	Copper (HDC1M) or Copper Alloy (HDF1M)	
Max. exposure temperature	400°C**	
Min. installation temperature	–60°C	
Min. bending radius	6 x outer diameter at –60°C	
Max. supply voltage and power	Voltage (U0/U) 300/500 Vac	Max. power output* 70 W/m *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230Vac, 50 - 60Hz)	
Min. cable spacing	25 mm for hazardous areas	

Mineral insulated (MI) stainless steel sheathed heating cable unit HSQ1M

Cable sheath material	321 Stainless steel	
Conductor material	Nichrome	
Max. exposure temperature	550°C (brazed heating units)** 680°C (Laser welded units)**	
Min. installation temperature	–60°C	
Min. bending radius	6 x outer diameter at –60°C	
Max. supply voltage and power	Voltage (U0/U) 300/500 Vac	Max. power output* 70 W/m *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230Vac, 50 - 60Hz)	
Min. cable spacing	25 mm for hazardous areas	

Mineral insulated (MI) Inconel sheathed heating cable unit HIQ1M

Cable sheath material	Inconel 600
Conductor material	Nichrome

Max. exposure temperature	550°C (brazed heating units)** 680°C (Laser welded units)**	
Min. installation temperature	–60°C	
Min. bending radius	6 x outer diameter at –60°C	
Max. supply voltage and power	Voltage (U0/U) 300/500 Vac	Max. power output* 300 W/m *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230Vac, 50 - 60Hz)	
Min. cable spacing	25 mm for hazardous areas	

Mineral insulated (MI) Alloy 825 heating cable unit HAx / 61S / 62S / 32S

Cable sheath material	Alloy 825	
Conductor material	Various alloys and copper	
Max. exposure temperature	550°C (brazed heating units)** 680°C (Laser welded units)**	
Min. installation temperature	–60°C	
Min. bending radius	6 x outer diameter at –60°C	
Max. supply voltage and power	Voltage (U0/U) 600/600 Vac 300/300 Vac 600/600 Vac	Max. power output* 210 W/m - HAx1N Single Conductor 200 W/m - HAx2M Dual Conductor 270 W/m - HAx2N Dual Conductor *typical value, depending on application
Earth leakage	3 mA/100 m (nominal at 20°C, 230Vac, 50 - 60Hz)	
Min. cable spacing	25 mm for hazardous areas	

**Higher temperatures can be realized on request

Approval for System: (Heating units)	Baseefa 13ATEX0174X	II 2 G Ex 60079-30-1 db eb IIC T* Gb
		II 2 D Ex 60079-30-1 tb IIIC T*°C Db IP6X
	IECEx BAS 13.0090X	Ex 60079-30-1 db eb IIC T* Gb
		Ex 60079-30-1 tb IIIC T*°C Db IP6X
Approval for bulk cable:	Baseefa 13ATEX0173U	II 2 G Ex 60079-30-1 IIC Gb
		II 2 D Ex 60079-30-1 IIIC Db
	IECEx BAS 13.0091U	Ex 60079-30-1 IIC Gb
		Ex 60079-30-1 IIIC Db

Multi purpose junction box

Box & lid	Electrostatic charge-resistant glass-filled engineered polymer, black
Sealing gasket	Silicone rubber
Lid fixing screws	Stainless steel

Approvals:	PTB 00 ATEX 1002	II 2 G Ex edm ia [ia] IIC T6, T5 and t4
		II 2 D Ex tD A21 IP66 T85°C, T100°C and T135°C

IECEX PTB 08.0004	Ex db eb ia [ia] mb IIC T4, T5, T6 Gb
	Ex tb IIIC T85°C, T100°C, T135°C Db

Application/Limitation

*Note: All details about electrical explosion protection mentioned in this certificate are for information only. For relevant binding information the details of a valid corresponding Certificate of Conformity with regard to electrical explosion protection, issued by a recognised Authority, and the Special Condition for Safe Use listed therein shall be observed. Ex installations to be approved in each case according to the 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

EN IEC 60079-0:2018
EN 60079-1:2014***
EN 60079-7:2015***
EN 60079-30-1:2017***
EN 60079-31:2014***
*** Based on EU-Type Examination Certificate Baseefa13ATEX0174X – Issue 5

Marking of product

Heating Cable Unit Type
Heating Cable Reference
Unit Length
Total Wattage
Supply Voltage
Further details acc. to Doc. B3120-11-AP “Heating Unit Configuration Coding”

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