TYPE APPROVAL CERTIFICATE

Certificate No:
TAE00002KD
Revision No:
1

This is to certify:

That the Electric Heating Cable

with type designation(s)
Powerheat AHT,

Issued to
Heat Trace Ltd.
Frodsham, CHESHIRE, United Kingdom

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

Application :

Heat trace with constant power output.
Suitable for gas dangerous areas ref. IEC Ex marking on cable.
Products 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
Powerheat AHT	110-277	See Annex to IECEx CML 19.0130	10/15/30/50/100/150/200	Yes

Issued at **Høvik** on **2023-04-01**

This Certificate is valid until **2028-02-05**.
DNV local unit: **UK & Ireland CMC & VMC**

Approval Engineer: **Ivar Bull**

for **DNV**

Digitally Signed By: Elter, Frederik Tore
Location: DNV Høvik, Norway

Frederik Tore Elter
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

Constant Power Heating Cable AHT

Conductors:	2 parallel bus wires: Stranded metallic conductor
	Heating element wire : Resistance wire
Conductor insulation:	Mica tape + glass tape
Outer tape:	Mica tape + glass tape
Braid:	Aluminum outer jacket
Sheath:	Optional Chemical resistant outer jacket

Type designation	Supply voltage (V)	Nominal Output (W/m)	Type Self regulating / constant power / series
10 AHT	110-277	10	Constant power
15 AHT	110-277	15	Constant power
30 AHT	110-277	30	Constant power
50 AHT	110-277	50	Constant power
100 AHT	110-277	100	Constant power
150 AHT	110-277	150	Constant power
200 AHT	110-277	200	Constant power

Application/Limitation

References to Ex-certifications in this type approval is for information only.
Installation must be done in accordance with installation instruction.

For maximum maintain temperature please refer to following table from Annex to IECEx CML 19.0130:

The minimum installation temperature of the heating cables is -40°C. The maximum surface temperature is dependent on the maximum permissible workpiece temperature as shown in the following tables:

Table A (*)		Maximum Permissible Workpiece Temperature					
Maximum surface temperature:		T6	T5	T4	T3	T2	T1
Product type	Nominal output (W/m)	T85 °C	T100 °C	T135 °C	T200 °C	T300 °C	T450 °C
AHT	10	34	50	100	188	290	340
	15	-	36	71	160	289	350
	30	-	11	28	100	246	323
	50	-	-	-	39	178	276
	100	-	-	-	-	48	140
	150	-	-	-	-	-	36
	200	-	-	-	-	-	7

Table B (#)		Maximum Permissible Workpiece Temperature					
Maximum surface temperature:		T6	T5	T4	T3	T2	T1
Product type	Nominal output (W/m)	T85 °C	T100 °C	T135 °C	T200 °C	T300 °C	T450 °C
AHT	10	40	60	110	190	290	340
	50	-	-	-	-	206	295
	100	-	-	-	-	82	176
	150	-	-	-	-	-	38

Table A: Stabilised design system or Protective System
Table B: Protective system with Heat Trace 'Powermatch' power controller (Where a temperature controller is used to limit the maximum surface temperature, it shall comply with IEC 60079-30:2007 clause 4.4.3.)

Type Approval documentation

Data sheet: CWDS0205
Test reports: Powerheat AHT Heating Cables IECEx CML 19.0130 2021-08-19
IECEx Quality Assessment Report: GB/CML/QAR19.0027/05 issued 2022-06-30 valid until 2024-08-21

Tests carried out

Tested in accordance with IEC 60079-30-1 Electrical resistance trace heating - General and testing requirements.

Marking of product

HEAT TRACE -Type designation – Gas Marking - Power output at nominal voltage – Serial number

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) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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