Certificate no.:
TAE00004Z7

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Electric Heating Cable

with type designation(s)
ELSR-H, ELSR-N

issued to
eltherm production GmbH
Burbach, **Germany**

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 **2024-10-25**
This Certificate is valid until **2029-10-24**.
DNV local unit: **Essen**

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.

Product description

Self-regulating trace heating system consisting of the self-regulating heating cable, associated junction and connection kits and special cable glands.

Nomenclature for the heating cable:

ELSR-N-XX-Y-Z or ELSR-H-XX-Y-Z
XX: Nominal output [W/m at 10°C]
Y: Nominal Voltage (1=110 V, 2=230V)
Z: AO = Aluminium foil with a thermoplastic outer jacket
BO = Protective braid with a thermoplastic outer jacket
BOT = Protective braid with fluoropolymer outer jacket (Teflon)

Type	Nominal output
ELSR-N-10-2-AO	10 W/m at 10 °C
ELSR-N-10-2-BO	10 W/m at 10 °C
ELSR-N-10-2-BOT	10 W/m at 10 °C
ELSR-N-20-2-AO	20 W/m at 10 °C
ELSR-N-20-2-BO	20 W/m at 10 °C
ELSR-N-20-2-BOT	20 W/m at 10 °C
ELSR-N-30-2-AO	30 W/m at 10 °C
ELSR-N-30-2-BO	30 W/m at 10 °C
ELSR-N-30-2-BOT	30 W/m at 10 °C
ELSR-N-40-2-AO	40 W/m at 10 °C
ELSR-N-40-2-BO	40 W/m at 10 °C
ELSR-N-40-2-BOT	40 W/m at 10 °C

Power Connection and End Termination ELSR-N

ELVB-SRAN-Ex-20	Power connection, glued, Gland M20, brass, Ex d	0X81PND
EL-ECN-ex	Silicone termination cap black, glued, transparent with ex marking	0X81EN1
ELVB-SREx-25	Power connection, glued, Gland M25 x 1,5, PE, Ex e	0X81PA1
Ex-Con-SR	Ex connection sleeve Ø 36 x 210 mm 4J	0X81125
ELVB-SREx-IT	Power connection, glued, without gland	091AIT1
ELVB-SRA-25	Power connection, glued, Gland M25 x 1,5, PE	091A010
EL-ECN	Silicone termination cap, glued, transparent	09112N1
ELVB-SRV-N-L-W	Connection set, shrink-fit	0911116
El-Clic P/S	El-Clic P Fast connector with integrated cold lead	09ClicP
	El-Clic S Fast connector T-splice	09ClicS

Junction Boxes

ELAK-Ex-2.00	110 x 75 x 57 mm, polyester, IP66, 1 Trace heater, 1 Power cable	0X85200
ELAK-Ex-4.01	122 x 120 x 90 mm, polyester, IP66, 1 - 3 Trace heaters, 1 Power cable	0X85401
Ex-it-R	ø 150 x 125 mm, 3 heaters, 1 Pt100 power supply lead, incl. mounting stand, IP 65	0X80070
ELAK-2	104 x 104 x 70 mm, polycarbonate, breakouts 7x M25, IP 66	0920030
ELAK-5	122 x 120 x 90 mm, polyester, 3 breakouts M25, IP 66	0920013
ELAK-5.1	130 x 130 x 75 mm, polycarbonate, breakouts 9x M20/M25, IP 66	0920002
ELAK-RS-T	150 x 125 mm, twin Pt100, 3 heaters incl. mounting stand, IP 65	0920059

Type	Nominal output
ELSR-H-10-2-BOT	10 W/m at 10 °C
ELSR-H-15-2-BOT	15 W/m at 10 °C
ELSR-H-20-2-BOT	20 W/m at 10 °C
ELSR-H-30-2-BOT	30 W/m at 10 °C
ELSR-H-45-2-BOT	45 W/m at 10 °C
ELSR-H-60-2-BOT	60 W/m at 10 °C
ELSR-H-75-2-BOT	75 W/m at 10 °C

Power Connection and End Termination ELSR-H

EL-ECSH-Ex	Silicone termination cap red, glued, with ex marking	0X81EH2
ELVB-SREx-25	Power connection, glued, Gland M25 x 1,5, PE, Ex e	0X81PA1
Ex-Con-SR	Ex connection sleeve Ø 36 x 210 mm 4J	0X81125
ELVB-SREx-IT	Power connection, glued, without gland	091AIT1
ELVB-SRAH-Ex-20	Power connection, glued, Gland M20, Brass	0X81PHD
ELVB-SRV-H	Connection set, shrink-fit	0911117
ELVB-SRAH-25	Power connection, glued, Gland M25 x 1,5, PE	091A040

Junction Boxes

ELAK-Ex-2.00	110 x 75 x 57 mm, polyester, IP66, 1 Trace heater, 1 Power cable	0X85200
ELAK-Ex-4.01	122 x 120 x 90 mm, polyester, IP66, 1 - 3 Trace heaters, 1 Power cable	0X85401
Ex-it-R	ø 150 x 125 mm, 3 trace heaters, 1 Pt100 incl. mounting stand	0X80070
ELAK-RS-T	150 x 125 mm, twin Pt100, 3 heaters incl. mounting stand, IP 65	0920059

Application/Limitation

Freeze protection and temperature maintenance
*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.

Type Approval documentation

Tests carried out

EN IEC 60079-0:2018***
EN IEC 60079-7:2015***
EN 60079-30-1:2017***
EN 60079-31:2014***
*** Based on the respective IECEx and/or ATEX Certificates of Conformity

Marking of product

Heating Cable Unit Type
Heating Cable Reference
Unit Length
Total Wattage
Supply Voltage

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