Certificate No:
TAE00004A1

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Heating Cable

with type designation(s)
HTSB (07-584C-xxxx)

Issued to
BARTEC GmbH
Bad Mergentheim, Baden-Württemberg, Germany

is found to comply with
DNV GL 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.

Rated voltage (V)	**110-277**
Temp. class (°C)	**See Page 2**
Power [W/m] @ref. temp.	**See page 2**
Suitable for Hazardous areas	**See page 2**

Issued at **Hamburg** on **2021-05-10**
This Certificate is valid until **2026-05-09**.
DNV local station: **Augsburg**

for **DNV**

Approval Engineer: **Maik Gagern**

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.

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 300,000 USD.

Product description**

HTSB Series Electric Heating Cable

Conductors:	2 parallel bus wires: Stranded metallic conductor
Heating Conductor Element:	Semi-conductive self-limiting matrix
Insulation:	Fluoropolymer insulation
Braid:	Metallic braid
Sheath:	Outer jacket of PFA

Type designation		Supply voltage (V)	Nominal Output at 10°C (w/m)	Type Self regulating / Constant power series	Temp Class (°C)
5HTSB	07-584C-*15F	110-277	15	Self regulating	T3
10HTSB	07-584C-*30F	110-277	30	Self regulating	T3
15HTSB	07-584C-*45F	110-277	45	Self regulating	T3
20HTSB	07-584C-*60F	110-277	60	Self regulating	T3
25HTSB	07-584C-*75F	110-277	75	Self regulating	T2
30HTSB	07-584C-*90F	110-277	90	Self regulating	T2

Maximum continuous exposure temperature (Power ON or OFF) is 250°C

Application/Limitation

**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, and the Special Condition for Safe Use listed therein shall be observed.
Installation has to be done in accordance with installation instruction of the maker.
The minimum installation temperature of the heating cables is -40°C.
Installations in hazardous areas to be approved in each case according to the applicable DNV Rules.

Type Approval documentation

Tests carried out**

Tested in accordance with IEC 60079-30-1:2007 - Electrical resistance trace heating - General and testing requirements.

Marking of product

BARTEC -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, material 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