DNV·GL

Certificate No:
TAE000039Z

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Heating Cable

with type designation(s)
CT, FT, PT, ST, HSB, MSB, PSB, PSBL, TM

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 GL.

Rated voltage (V)	**see Page 2**
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 **2018-01-01**
This Certificate is valid until **2022-12-31**.
DNV GL local station: **Augsburg**

Approval Engineer: **Maik Gagern**

for **DNV GL**

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.

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Product description

Self regulating electrical trace heating cable, type BACAB ST and BACAB CT

Construction:	ST	CT
Conductors:	1,0 mm^2 tin plated copper	0.56 mm^2 tin plated copper
Heating element:	Self-limiting heating element	Self-limiting heating element
Inner sheath:	Proprietary bonded jacket (optional)	NA
Insulation:	Insulating material of TPE	Insulating material of TPE
Braiding:	Tin plated copper braid	Tin plated copper braid
Outer sheath:	TPE or fluoropolymer overjacket	TPE or fluoropolymer overjacket

Type	Nominal power	Max. ambient temperature	
		ON	OFF
ST-10	10 W/m at +10 °C	+ 65 °C	+85 °C
ST-15	15 W/m at +10 °C	+ 65 °C	+85 °C
ST-20	20 W/m at +10 °C	+65 °C	+85 °C
ST-25	25 W/m at +10 °C	+ 65 °C	+85 °C

Type	Nominal power	Max. ambient temperature	
		ON	OFF
CT-10	10 W/m at +10 °C	+ 65 °C	NA
CT-15	15 W/m at +10 °C	+ 65 °C	NA
CT-18	18 W/m at +10 °C	+ 65 °C	NA

Self regulating, ex electrical trace heating cable, type BACAB FT and BACAB PT

Construction:	FT	PT
Conductors:	1,25 mm^2 tin plated copper	1,25 mm^2 nickel plated copper
Heating element:	Self-limiting heating element	Self-limiting fluoropolymer heating element
Inner sheath:	Proprietary bonded jacket (optional)	
Insulation:	Insulating material of TPE	Insulating material of FEP
Braiding:	Tin plated copper braid	Tin plated copper braid
Outer sheath:	TPE or fluoropolymer overjacket	FEP overjacked

Type	Nominal power	Max. ambient temperature	
		ON	OFF
FT-10	10 W/m at +10 °C	+ 65 °C	+85 °C
FT-13	13 W/m at +10 °C	+ 65 °C	+85 °C
FT-15	15 W/m at +10 °C	+ 65 °C	+85 °C
FT-20	20 W/m at +10 °C	+65 °C	+85 °C
FT-25	25 W/m at +10 °C	+ 65 °C	+85 °C
FT-33	33 W/m at +10 °C	+ 65 °C	+85 °C

Type	Nominal power	Max. ambient temperature	
		ON	OFF
PT-10	10 W/m at +10 °C	+ 120 °C	+190 °C *
PT-15	15 W/m at +10 °C	+ 120 °C	+190 °C *
PT-20	20 W/m at +10 °C	+ 120 °C	+190 °C *
PT-25	25 W/m at +10 °C	+ 120 °C	+190 °C *
PT-30	30 W/m at +10 °C	+ 120 °C	+190 °C *
PT-45	45 W/m at +10 °C	+ 120 °C	+190 °C *
PT-60	60 W/m at +10 °C	+ 120 °C	+190 °C *

* intermittent for 1000 hours cumulative

Self-limiting parallel circuit heating tape for use in hazardous and safe area, Type BARTEC PSB

Construction:	PSB
Conductors:	1,25 mm2 tin plated copper
Heating element:	Self-limiting heating element
Inner sheath:	Proprietary bonded jacket (optional)
Insulation:	Insulating material of Polyolefin
Braiding:	Tinned copper braid
Outer sheath:	5 Fluoropolymer 6 Polyolefin
Ex class:*	II 2G Ex e IIC T5,T6 Gb II 2D Ex tb IIIC T95°C, T80°C Db

Type	Type number	Nominal power at +10°C	Temperature class*	max. ambient temperature	
				ON	OFF
110VAC to 120VAC					
PSB-10	07-5801-110*	10 W/m	T5	+65°C	+85°C
PSB-13	07-5801-113*	13 W/m	T5	+65°C	+85°C
PSB-15	07-5801-115*	15 W/m	T5	+65°C	+85°C
PSB-20	07-5801-120*	20 W/m	T5	+65°C	+85°C
PSB-26	07-5801-126*	25 W/m	T5	+65°C	+85°C
PSB-33	07-5801-133*	33 W/m	T5	+65°C	+85°C

* 5 = Fluoropolymer, 6 = Polyolefin

Type	Type number	Nominal power at +10°C	Temperature class*	max. ambient temperature	
				ON	OFF
208 VAC to 254 VAC					
PSB-10	07-5801-210*	10 W/m	T6	+65°C	+85°C
PSB-13	07-5801-213*	13 W/m	T6	+65°C	+85°C
PSB-15	07-5801-215*	15 W/m	T6	+65°C	+85°C
PSB-20	07-5801-220*	20 W/m	T5	+65°C	+85°C
PSB-26	07-5801-226*	25 W/m	T5	+65°C	+85°C
PSB-30	07-5801-230*	33 W/m	T5	+65°C	+85°C

* 5 = Fluoropolymer, 6 = Polyolefin

Self-limiting parallel circuit heating tape for use in hazardous and safe area, Type BARTEC PSBL

Construction:	PSBL
Conductors:	1 mm2 tin plated copper
Heating element:	Self-limiting heating element
Inner sheath:	Proprietary bonded jacket (optional)
Insulation:	Insulation material of Polyolefin
Brainding:	Tinned copper braid
Outer sheath:	8 Fluoropolymer, 9 Polyolefin
Ex class:*	II 2G Ex e IIC T5 Gb II 2D Ex tb IIIC T95°C Db

Type	Type number	Nominal power at +10°C	Temperature class*	max. ambient temperature	
				ON	OFF
110VAC to 120VAC					
PSBL-10	07-5807-110*	13 W/m	T5	+65°C	+85°C
PSBL-15	07-5807-115*	19,5 W/m	T5	+65°C	+85°C
PSBL-20	07-5807-120*	27,5 W/m	T5	+65°C	+85°C
PSBL-25	07-5807-125*	34,5 W/m	T5	+65°C	+85°C
208 VAC to 254 VAC					
PSBL-10	07-5807-210*	13 W/m	T5	+65°C	+85°C
PSBL-15	07-5807-215*	19,5 W/m	T5	+65°C	+85°C
PSBL-20	07-5807-220*	27,5 W/m	T5	+65°C	+85°C
PSBL-25	07-5807-225*	34,5 W/m	T5	+65°C	+85°C
PSBL-30	07-5807-230*	44 W/m	T5	+65°C	+85°C

*Please refer to the Ex certificate in order to verify correct use.
* 8 = Fluoropolymer, 9 = Polyolefin

Self-limiting parallel circuit heating tape for use in hazardous and safe area, TYPE BARTEC HSB

Construction:	HSB
Conductors:	1,25 mm2 tin plated copper
Heating element:	Self-limiting heating element
Insulation:	Insulating material of Fluoropolymer
Braiding:	Tinned copper braid
Outer sheath:	fluoropolymer overjacket
Ex class:	II 2G Ex e IIC 200°C(T2), T3, T4 Gb II 2D Ex tb IIIC T200°C, T195°C, T130°C Db

Type	Type number	Nominal power at 120VAC at +10º	Temperature class* at 120VAC	Max. ambient temperature	
				ON	OFF
HSB-10	07-5803-110A	10,8 W/m	T3	120 º C	190 º C
HSB-15	07-5803-115A	16,1 W/m	T3	120 º C	190 º C
HSB-25	07-5803-125A	26,6 W/m	T3	120 º C	190 º C
HSB-30	07-5803-130A	31,8 W/m	T3	120 º C	190 º C
HSB-45	07-5803-145A	47,1 W/m	T2	120 º C	190 º C
HSB-60	07-5803-160A	62,0 W/m	T2	120 º C	190 º C
Type	Type number	Nominal power at 254VAC at 10º C	Temperature class* at 254VAC	Max. ambient temperature	
				ON	OFF
HSB-10	07-5803-210A	10 W/m	T3	120 º C	190 º C
HSB-15	07-5803-215A	15 W/m	T3	120 º C	190 º C
HSB-25	07-5803-225A	25 W/m	T3	120 º C	190 º C
HSB-30	07-5803-230A	30 W/m	T3	120 º C	190 º C
HSB-45	07-5803-245A	45 W/m	T3	120 º C	190 º C
HSB-60	07-5803-260A	60 W/m	T2	120 º C	190 º C

*Please refer to the Ex certificate in order to verify correct use.

Self-limiting parallel circuit heating tape for use in hazardous and safe area, Type BARTEC MSB

Construction:	MSB
Conductors:	1,25 mm^2 nickel plated copper
Heating element:	Self-limiting heating element
Insulation:	Insulation material of TPC
Brainding:	Tinned copper braid
Outer sheath:	TPC
Ex class:*	II 2G Ex e IIC 150 °C(T3), T4 Gb II 2D Ex tb IIIC T150°C, T130°C Db

Type	Type number	Nominal power at +10°C	Temperature class*	max. ambient temperature	
				ON	OFF
MSB-10	07-5804-210Y	13 W/m	150°C(T3),T4	+110°C	+130°C
MSB-15	07-5804-215Y	19,5 W/m	150°C(T3),T4	+110°C	+130°C
MSB-25	07-5804-225Y	27,5 W/m	150°C(T3),T4	+110°C	+130°C
MSB-30	07-5804-230Y	34,5 W/m	150°C(T3),T4	+110°C	+130°C
MSB-40	07-5804-240Y	44 W/m	150°C(T3),T4	+110°C	+130°C

Application/Limitation

Makers instructions and details of Certificate of Conformity with regard to electrical explosion protection shall be observed.

Type Approval documentation

Tests carried out

For BARTEC MSB, PSB, PSBL Reference is made to IECEx certificate:

IECEx KEM 07.0047U Self limiting heating cables; series PSB type 07-5801-**** and PSBL type 07-5807-****

IECEx DEK 2.004U Self limiting heating cables; series MSB type 07-5804-****

For BARTEC PSB Reference is made to Atex certificate:

KEMA 02ATEX2326 U Self limiting heating cables; series PSB type 07-5801-****

For BACAB FT, PT:

Testing in accordance with VDE 0254, IEC 60800, EN/IEC 60079-0, EN/IEC 60079-30-1, EN/IEC 60079-31.

For BACAB CT, ST:

Testing in accordance with VDE 0254, IEC 60800, EN/IEC 60079-0 (ST), EN/IEC 60079-30-1 (ST), EN/IEC 60079-31 (ST).

Marking of product

BARTEC - type designation - voltage
BACAB - type designation - voltage

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.
The main elements of the survey are:
• Inspection on factory samples, selected at random from the production line
• 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.

General Remarks

*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.

END OF CERTIFICATE