DNV·GL

Certificate No:
TAE000032D

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Heating Cable

with type designation(s)
PLEXO TCS, TWISTO, Heat-Shrink Connection 27-1580, 27-1680, 27-1780, 27-1980, 07-5801 & Junction Box 07-51**

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)	**up to 254**
Temp. class (°C)	**see page 2**
Power [W/m] @ref. temp.	
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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Product description*

1. **HSB Heating System 27-1780-****/**** for use in hazardous area:**
   with Connection kit for HSB: 05-0091-0096, 05-0091-0129XX, 05-0091-0135XX or PLEXO TCS

Type name:	27-1780-****/****
Voltage:	110 -120 and 208-254 V AC
Ambient temperature:	+120 °C heating switched on +200 °C heating switched off
Ex class:	II 2G Ex e IIC 200 °C (T2), T3, T4 Gb II 2 D Ex tb IIIC T 200°C, T195°C, T130°C Db

Type name:	PLEXO TCS 27-1100-*3**/****
Voltage:	Max. 254 V
Ambient temperature:	-60 °C ≤ Ta ≤ +120 °C (T3) -60 °C ≤ Ta ≤ +90 °C (T4)
Ex class:	II 2G Ex e IIC 180 °C(T3), T4 Gb II 2 D Ex tb IIIC T130°C, T180 °C Db
Protection class:	IP 65
Material:	High temperature thermo plast

2. **PSB Heating System 27-1680-****/**** for use in hazardous area:**
   with Connection kit for PSB: 05-0091-097, 05-0091-0130XX, 05-0091-0136XX or PLEXO TCS

Type name:	27-1680-1*00/****
Voltage:	110-120 and 208-254 V AC
Ambient temperature:	+65 °C (heating switched on) +85 °C (heating switched off)
Ex class:	II 2G Ex e IIC T5,T6 Gb/ II 2D Ex tb IIIC T95 °C, T80 °C Db

Type name:	PLEXO TCS 27-1100-*1**/****
Voltage:	Max. 254V
Ambient temperature:	-40 °C ≤ Ta ≤ +65 °C (T5/T6)
Ex class:	II 2G Ex e IIC T5,T6 Gb/ II 2D Ex tb IIIC T95 °C, T80 °C Db
Protection class:	IP 65
Material:	High temperature thermo plast

3. **PSBL heating system type 27-1580-****/****
   with Connection kit for PSBL: 05-0091-0198, 05-0091-0131XX, 05-0091-0137XX or PLEXO TCS

Type name:	**27-1580-****/****	
Voltage:	110-120 V AC and 208-254 V AC	
Ambient temperature:	+65 °C (heating switched on) +85 °C (heating switched off)	
Ex class:	II 2G Ex e IIC T5 Gb/ II 2 D Ex tb IIIC T95 °C Db	
Protection class		
Material	Polyester, stainless steel.	

Type name:	PLEXO TCS 27-1100-*0**/****
Voltage:	Max. 254V
Ambient temperature:	-30 °C ≤ Ta ≤ +65 °C (T5)
Ex class:	II 2G Ex e IIC T5 Gb/ II 2 D Ex tb IIIC T95 °C Db
Protection class:	IP 65
Material:	High temperature thermo plast

4. MSB heating system type 27-1980-**/****
with Connection kit for MSB: 05-0091-0129XX, 05-0091-0135XX or PLEXO TCS**

Type name:	27-1980-1***/****
Voltage:	208-254 V AC
Ambient temperature:	+110 °C (heating switched on) +130 °C (heating switched off)
Ex class:	II 2G Ex e II C 150°C(T3), T4 / II 2D Ex tb IIIC T150°C, T130°C Db
Protection class:	IP 65
Material:	Polyester, stainless steel
Type name:	PLEXO TCS 27-1100-*2**/****
Voltage:	Max. 254V
Ambient temperature:	-40 °C ≤ Ta ≤ +110 °C (T3) -40 °C ≤ Ta ≤ +70 °C (T4)
Ex class:	II 2G Ex e IIC 150°C (T3), T4 Gb/ II 2 D Ex tb IIIC T150 °C, T130°C Db
Protection class:	IP 65
Material:	High temperature thermo plast

5. Connection system TWISTO-B for safe area:

Type name:	27-56K*-****/****
Voltage:	AC 250 V
Ambient temperature:	-25 °C ≤ Ta ≤ +85 °C, +60 °C (depending on cable)
Ex class:	Safe area only
Protection class:	IP 54/66
Material:	High temperature thermo plast

6. Heating Cable System 07-580*-0000 9* for safe area.:**

Type name:	07-5801-0000 98**, 07-5801-0000 9560, 07-5807-0000 99**
Voltage:	110, 120 and 230 V AC
Ambient temperature:	+65 °C (heating switched on) +85 °C (heating switched off)
Ex class:	Safe area only
Protection class:	IP 65
Material:	High temperature thermo plast

7. Heat Circuit junction boxes for PSB/PSBL/HSB/MSB:

Type name:	07-5103/****, 27-5452-4***/****
Voltage:	AC 250 V
Material:	Polyester glass-fibre reinforced
Ex class:	II 2G Ex e IIC T6, T5 Gb/ II 2 D Ex tb IIIC T80 °C, T95 °C Db
Protection class:	IP 65/67/54

8. Heat Circuit junction boxes for PSB/PSBL/HSB/MSB for safe area:

Type name:	07-5177-****, 27-5452-****/****
Voltage:	AC 250 V
Material:	Polyester glass-fibre reinforced and stainless steel
Protection class:	IP 6X

Application/Limitation

Manufacturers instructions for installation and operation shall be observed.

The information related to Ex certification from recognised test institutions is given as information only. Applications where Ex Certified equipment is required will in general be subject to approval case by case based on documentation as required in the DNV GL Rules.

Non-Bartec enclosures may be used in some cases, however suitability for marine environments and correct Ex-rating if in hazardous area should be considered before installation.

Type Approval documentation

Tests carried out*

Ref to Ex certificates and relevant test reports

KEMA 02ATEX2326 U	Parallel circuit PSB/PSBL heating tape 07-5801, 07-5807
KEMA 02ATEX2327 U	Parallel circuit HSB heating tape 07-5803
DEKRA 12 ATEX 0044U	Parallel circuit MSB heating tape 07-5804
KEMA 08 ATEX 0110 X	The HSB/MSB heating system type 27-1780-***0/**** , 27-1980-***0/****
KEMA 08 ATEX 0111 X	The PSB heating system type 27-1680-***0/****
KEMA 08 ATEX 0112 X	The PSBL heating system type 27-1580-**10/****
BVS 13 ATEX E 040	PLEXO TCS
PTB 08 ATEX 1064	Distr. Box 07-5103
PTB 08 ATEX 1062 U	Ex enclosure 07-5185

Marking of product

BARTEC and type designation

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