DNV·GL

Certificate No:
TAE000029A

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
HELUTHERM 145

Issued to
Helukabel GmbH
Hemmingen, 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 (kV) 0,3/0,5 0,45/0,75 and 0,6/1
Temp. class (°C) 120

Issued at **Hamburg** on **2017-10-17**
This Certificate is valid until **2020-07-13**.
DNV GL local station: **Augsburg**

Approval Engineer: **Carsten Hunsalz**

for **DNV GL**

Duy Nam Le
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.

Job Id: **262.1-024772-1**
Certificate No: **TAE000029A**

Product description

Halogen-free, low smoke cable with resistance against heat

Type: HELUTHERM 145

Rated voltage:	U0/U = 300/500 V < 1,0 mm² U0/U = 470/750 V > 1,5 mm² U0/U = 600/1000 V > 1,5 mm² (fixed and protected installation)
Operating temperature:	-40° C to +120° C (20 000 h)
Conductor:	Flexible stranded copper conductor, bright or tinned (class 5)
Core insulation:	EI5 Cross-linked Polyolefin acc. EN 50363-5
Braid / screen :	Copper tinned (optional)
Outer sheath :	EM10 Cross-linked Polyolefin acc. EN 50363-6

No. of cores:	Nominal cross section mm²
1	0,5 up to 240
1 to 37	0,5 up to 2,5
1 to 14	4
1 to 7	6 up to 25
1 to 5	35 up to 95

screened version

1 to 21	0,5 up to 2,5
1 to 14	4
1 to 7	6 and 10

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Test reports:	Helukabel: 22.04.2010; VDE 1519100-5920-0070/104041: 15.12.2008 MPA 2009-B-2623/03 // 3812: 07.07.2009 // 21.09.2009
Data sheet:	HELUTHERM 145: 2010-02-25

Tests carried out

Standard	Release	General description	Limitation
UL 758	2014	Appliance Wiring Material	
IEC 60228	2004-11	Conductors of insulated cables	
EN 50363-5	2006-10	Insulating, sheathing and covering materials for low voltage energy cables - Part 5: Halogen-free, cross-linked insulating compounds	
EN 50363-6	2006-10	Insulating, sheathing and covering materials for low voltage energy cables - Part 6: Halogen-free, cross-linked sheathing compounds	

Standard	Release	General description	Limitation
EN 60216-2	2006-04	Electrical insulating materials - Thermal endurance properties - Part 2: Determination of thermal endurance properties of electrical insulating materials	
IEC 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions. Part 1-2. Test for vertical flame propagation for a single insulated wire or cable. Procedure for 1 kW pre-mixed flame	
IEC 60332-3-22	2009-02	Tests on electric and optical fibre cables under fire conditions – Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2013-07 2013-09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

HELUKABEL - HELUTHERM 145 - voltage - size - IEC 60332-3-22 - DNV GL TAE000029A – HALOGEN-FREE acc. IEC 60754-1/2 - CE
(Additional marking e.g. article no., order no., meter marker is permitted)

Second Place of Production

Kabelwerk Meißen Wilhelm Balzer GmbH, 01662 Meißen

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