DNV·GL

Certificate No:
TAE0000408

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
ÖLFLEX® CLASSIC 110 CH

Issued to
U.I. Lapp GmbH
Stuttgart, 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) 300/500
Temp. class (°C) 75

Issued at **Hamburg** on **2020-06-23**
This Certificate is valid until **2025-06-22**.
DNV GL local station: **Augsburg**

for **DNV GL**

Approval Engineer: **Carsten Hunsalz**

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 GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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.

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Job Id: **262.1-033193-1**
Certificate No: **TAE0000408**

Product description

Halogen free, flame retardant power and control cabels

Rated voltage:	U_0/U 300/500 V
Temperature range:	-40 °C to +75 °C fixed installation (20.000 h)
Conductor:	Flexible stranded copper class 5
Insulation:	Polyolefin based TI6
Inner sheath:	Polyolefin based HM2
Screen:	Tinned copper wire 85% coverage rate
Outer sheath:	Polyolefin based HM2

Number of cores:	Cross-sectional areas:
2 to 12	0,5 + 2,5 mm²
2 to 25	0,75 mm²
2 to 41	1 mm²
2 to 25	1,5 mm²
4 to 7	4 + 6mm²
4 to 5	10 + 16 + 25 mm²
4	35 mm²

Application/Limitation

Depending on the installation methods the cross section of the cable conductor shall be selected according IEC 60092-352 ANNEX A or according the manufacturer`s instruction.

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.

Power and Control.
Flame retardant Cat. A. Halogen free. Low smoke.

Type Approval documentation

Test report:	LAPP Forbach No.124.15+057.15 dated 22-Mai-15 + 24-April-15 LAPP Forbach No. 152.15 dated 2-July-15 VDE 562800-9021-0001/104047 a-d dated 2011-03-21 VDE 562800-9021-0001/104047 d-g dated 2011-03-21
Data sheet:	DB10019900gl and DB10035030gl

Tests carried out

Standard	Release	General description	Limitation
UL AWM 785 Style		10701 + 21089	
EN 50525-3-11	2011-05	Electric cables -Low voltage energy cables of rated voltages up to and including 450/750 V (*U*0/*U*) - Part 3-11: Cables with special fire performance - Flexible cables with halogen-free thermoplastic insulation, and low emission of smoke	
EN 50363-7	2005-11	Insulating, sheathing and covering materials for low voltage energy cables Part 7: Halogen-free, thermoplastic insulating compounds	
VDE 0250-214	2002-04		

Standard	Release	General description	Limitation
IEC 60228	2004-11	Conductors of insulated cables	
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 IEC 60332-3-24 IEC 60332-3-25	2018-07	Tests on electric cables under fire conditions - Part 3-22/24/25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A/C/D	Bunch test Category A/C/D.
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	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

LAPP KABEL STUTTGART * ÖLFLEX® CLASSIC 110 CH * size * 300/500 V

Place of production

Cableries LAPP S.A.R.L. / Forbach in France

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