DNV·GL

Certificate No:
TAE00003UX

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
LEONI L SeaLine® L45551 PP insulated and SHF2 sheathed, halogen- free cables

Issued to
LEONI Special Cables GmbH
Friesoythe, Niedersachsen, 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) 150/250
Temp. class (°C) 120 (20.000 h)

Issued at **Hamburg** on **2020-04-20**
This Certificate is valid until **2025-04-19**.
DNV GL local station: **Hamburg CMC**

Approval Engineer: **Carsten Hunsalz**

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

LEONI L SeaLine® L45551 PP insulated and SHF2 sheathed, halogen- free cables

Rated voltage:	150/250 V
Max. operating conductor temperature:	90 °C acc. to DNVGL-RU-SHIP Pt.4 Ch.8 or 120° C 20.000 h according to manufacturer`s instruction
Environmental temperature:	-40°C up to 120 °C (20.000 h)
Conductor:	Plain or tinned, stranded copper
Core insulation:	PP
Fillers:	Halogen- free fillers (optional)
Taping:	Halogen- free tapes (optional)
Metal covering:	Tinned copper wires
Outer sheath:	SHF2

Number of cores:	Nominal cross section mm²
50	0.5
2 to 50	0.75
2 to 12	1.5
2 to 27	2.5
2 to 5	6, 10

Pairs	
4x2 to 5x2	0.5
1x2 to 24x2	0.75
2x2 to 4x2	1.5

Application/Limitation

PP insulated and SHF2 sheathed cables for marine and offshore applications
for installation only on and near shipboard engines

Type Approval documentation

Specification:	Version 2019-05-XX / F45052-F7100
Test report :	Leoni 2019-11-21 Type Test Leoni 2019-12-10/11 witnessed by DNV GL LABCO No. 17-0204 Index 0 dated 2017-04-28 CURRENTA No. 20/0345, 20/0343, 20/0344, 20/0354, 20/0352, 20/0353, 20/0348, 20/0346, 20/0347, 20/0351, 20/0349, 20/0350, VED dated 2016-02-24

Tests carried out

Standard	Release	General description	Limitation
UL Style		11789 and 10492	
IEC 60228	2004-11	Conductors of insulated cables	
IEC 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	partly

Standard	Release	General description	Limitation
IEC 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	For SHF2 Sheath
EN 50290-2-25	2013-11	Common design rules and construction Polypropylene insulation compounds	For PP Insulation
IEC 60332-1-2	2015-07	Tests on electric cables under fire conditions. Test for vertical flame propagation for a single insulated wire or cable.	
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 60684-2	2011-08	Flexible insulating sleeving – Part 2: Methods of test.	Fluorine content < 0,1%
IEC 60811-505	2012-03	Electric and optical fibre cables – Test methods for non-metallic materials – Part 505: Mechanical tests – Elongation at low temperature for insulations and sheaths	Cold bend: -40°C
IEC 60811-404	2012-03	Electric and optical fibre cables – Test methods for non-metallic materials – Part 404: Miscellaneous tests – Mineral oil immersion tests for sheaths	For Sheath SHF2 Oil IRM2 7 days/100°C

Marking of product

Example:

"sequential length in metres" * LEONI L SeaLine® * L45551-D42-K6 LI9YCH 4X2X0.75 150V/250V * lot 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) 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