

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)
09YS(ST)C 2x2x0,75/1,5-100LI / LIH-Z CH 4x1x1,5 GN

Issued to

LEONI Special Cables GmbH
Friesoythe, Germany

is found to comply with

DNV GL rules for classification – Ships and offshore units

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

This Certificate is valid until **2021-08-04**.

Issued at **Hamburg** on **2016-08-05**

DNV GL local station: **Leer**

for **DNV GL**

Approval Engineer: **Carsten Hunsalz**

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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.

Product description

EthernetLink Cable

Type: 09YS(ST)C 2x2x0,75/1,5-100LI
LIH-Z CH 4x1x1,5 GN

Rated voltage: 100 V

Max. operating conductor temperature: 70 ° C

Conductor: Stranded plain copper conductors

Insulation: Thermoplastic copolymer (FRNC) for 1,5mm²
Foamed Polypropylen (PP) for 0,34mm²

Screen of pairs: Aluminate foil and shield braiding of tinned copper wires

Screen overall: Plastic tape with drain wire and shield braiding of bare copper wires

Sheath: Thermoplastic copolymer (FRNC)

Number of cores and corss-sectional area:

$$2 \times 2 \times 0,75 \text{ mm}^2 + 4 \times 1 \times 1,5 \text{ mm}^2$$

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 report: Best. No. L45467-J217-W6 dated of 04.01.2006; 05.01.2006 and 16.01.2006
Specification: LEONI No. L45467-J217-W6-EN dated 23.09.2005.

Tests carried out

Standard	Release	General description	Limitation
EN 50290-2-25	2013-12	Communication cables -- Part 2-25: Common design rules and construction - Polypropylene insulation compounds	
EN 50290-2-26	2007-10	Communication cables -- Part 2-26: Common design rules and construction - Halogen free flame retardant insulation compounds	
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.	
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	Bunch test Category A

Job Id: **262.1-022036-1**
Certificate No: **TAE000018Z**

Standard	Release	General description	Limitation
IEC 60754-2	2011-12	Test on gases evolved during combustion of materials from cables – Determination of the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS
IEC 61034-1/2	2013-07/09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke

Marking of product

- 1) #####m INTERSCHALT maritime systems GmbH -Final Recording Medium Data Cable
TAE000018Z * LEONI EthernetLink Cable * 09YS(ST)C 2x2x0,75/1,5-100 LI / LIH-Z CH 4x1x1,5 GN
* IEC 60332-3-22 * "JJXXXX"
- 2) "sequential length in metres" LEONI L SeaLine EthernetLink-Cable TAE000018Z

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 periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routine Tests (RT) checked
- (if RT- and PST-test reports are not available, tests according to PST and RT to be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensure traceability between manufacturer's product type marking and Type Approval Certificate.

Survey shall be performed at least every second year.

END OF CERTIFICATE