

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Data transmission cables and systems

with type designation(s)

09YSH(ST)CH 1X2X0,9/2,4-LI VZN SW FRNC, 09YSH(ST)CH 2X2X0,9/2,4-LI VZN SW FRNC

Issued to

LEONI Special Cables GmbH
Friesoythe, 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.

This Certificate is valid until **2021-07-01**.

Issued at **Hamburg** on **2016-11-30**

DNV GL local station: **Essen**

for **DNV GL**

Approval Engineer: **Carsten Hunsalz**

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

Type: 09YSH(ST)CH 1X2X0,9/2,4-120 LI VZN SW FRNC
09YSH(ST)CH 2X2X0,9/2,2-120 LI VZN SW FRNC

Conductors: Stranded tinned copper
Core insulation: Foamed PP
Screen: Aluminium / polyester & Tinned copper wires
Outer sheath: FRNC

Number of cores x conductor cross-section mm ²	Overall dimensions mm
1 x 2 x 0,9	7,7±0,2
2 x 2 x 0,9	8,4±0,2

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.

CAN-BUS Halogen free.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
EC 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 60754-2	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

Marking of product

LEONI - L - 09YSH(ST)CH 1X2X0,9/2,4-120 LI VZN SW FRNC or
09YSH(ST)CH 2X2X0,9/2,2-120 LI VZN SW FRNC

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)

Job Id: **262.1-023107-1**
Certificate No: **TAE00001JJ**

- 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