DNV·GL

Certificate No:
TAE00003CJ

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Category cables

with type designation(s)
LanMarin® Cat 6A S/FTP – 0,26 [mm²] AWG23 Stranded bare or tinned Cu – Armoured – SHF1 or SHF2,

LanMarin® Cat 7A S/FTP - 0,26 [mm²] AWG23 Solid or stranded bare Cu - Armoured - SHF1 or SHF2

Issued to
NEK Kabel AS
LØRENSKOG, Norway

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Data communication cable, installation/horizontal cable. Armoured.
Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.

Issued at **Høvik** on **2018-01-19**
This Certificate is valid until **2022-12-31**.
DNV GL local station: **Oslo Maritime and CAP**

Approval Engineer: **Ivar Bull**

for **DNV GL**

Marta Alonso Pontes
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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Job Id: **262.1-028430-1**
Certificate No: **TAE00003CJ**

Product description

LanMarin® Cat 6A S/FTP SHF1 stranded wire 0.26 [mm²] AWG 23 bare or tinned, Armoured

Construction	
Conductor	0,26 mm^2, AWG 23 bare or tinned copper
Insulation	Foam PE
Screens	Individual laminated aluminium tape + overall tinned copper braid
Inner sheath	SHF1
Armour	Galvanised steel wire braid
Outer sheath	SHF1 or SHF2
Characteristic impedance	100 ±5 [Ω]
Conductor resistance	<70 [Ω/km]

LanMarin® Cat 7A S/FTP SHF1 Solid or stranded wire 0.26 [mm²] AWG23, Armoured

Construction	
Conductor	0,26 mm^2, solid or stranded bare copper
Insulation	Foam PE
Screens	Individual laminated aluminium tape + overall tinned copper braid
Inner sheath	SHF1
Armour	Galvanised steel wire braid
Outer sheath	SHF1 or SHF2
Characteristic impedance	100±5 [Ω]
Conductor resistance	≤73,2 [Ω/km]

For transmission properties, please refer to cable data sheets.

Manufactured by

DNVGL Id: 10630537

Application/Limitation

In order to achieve a transmission link compliant with Category 5E, 6, 6A, cables shall be installed with suitable termination equipment according to manufacturer's recommendations.

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

Tests carried out

Standard	Release	General description	Limitation
IEC 61156-5	2009-05	Multicore and symmetrical pair/quad cables for digital communications – Part 5: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz – Horizontal floor wiring – Sectional specification	Reference to requirement for category cable: 6A 7A (600MHz),
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.	SHF1 outer sheath
IEC 60332-1-2	2004-07	Tests on electric and optical fibre cables under fire conditions – Part 1-1:Test for vertical flame propagation for a single insulated wire or cable – Apparatus	Flame retardant small scale
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 60754-2	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	IEC 61034-1/2

Marking of product

NEK Kabel – LanMarin® Cat 6A S/FTP ARM - 4 x 2 x AWG 23 –<Lot No.> <Meter MARKING> or
NEK Kabel – LanMarin® Cat 7A S/FTP ARM - 4 x 2 x AWG 23–<Lot No.> <Meter MARKING>

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) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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