



TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE0000009
Revision No:
3

This is to certify:

that the **Data transmission cables and systems**

with type designation(s)
Maritime LAN 6A S/FTP,
Maritime LAN 6A S/FTP with extra strong sheathing,
Maritime LAN 6AS S/FTP,
Maritime LAN 7S S/FTP

issued to
Sohome AS
Søreidgrend, Norway

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

Application:

Data communication cables, cat. 6A and 7. Installation / Horizontal cable.
Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Issued at **Høvik** on **2024-03-25**

for **DNV**

This Certificate is valid until **2027-09-27**.

DNV local unit: **Bergen**

Approval Engineer: **Ivar Bull**

.....

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



Manufactured by
 DNV ID 10082991

Product description

Types : **Maritime LAN 6A S/FTP,**
Maritime LAN 6A S/FTP with extra strong sheathing,

Standards: Category 6A, Installation cable according to:
 EN 50173-1; EN 50288-4-1, ISO/IEC 11801; IEC 61156-5, Power over
 Ethernet(PoE/PoE+)

Conductors: Plain stranded copper 0.27 mm², AWG23

Core insulation: Polyethylene

Screen: Al/polyester tape

Metal covering: Tinned, Copper wire braid

Outer sheath: SHF1 or thermoplastic halogen free polyurethane (TPU)

F (MHz)	Attenuation (dB/100m)	NEXT (dB)
1	2,0	90
4	3,6	90
10	5,5	90
16	7,5	90
20	7,7	90
31.25	9,8	90

F (MHz)	Attenuation (dB/100m)	NEXT (dB)
62.50	14,0	86
100	17,9	83
155.00	22,4	81
200.00	25,6	78
250.00	28,8	77
500.00	41,9	72

Type: **Maritime LAN 6AS S/FTP,**

Standards Category 6A, Installation cable according to:
 EN 50173-1; EN 50288-4-1, ISO/IEC 11801; IEC 61156-5

Conductors: Solid Copper (Class 1) 0,26mm² / AWG23

Core insulation: Polyethylene foam skin

Screen: Al/polyester tape

Metal covering: Tinned, Copper wire braid

Outer sheath: SHF1

Optional extra sheath: SHF MUD

Electrical data at 20°C

Frequency MHz	Attenuation, [dB/100m]	NEXT [dB]
1,0	1,8	100
4,0	3,4	100
10,0	5,4	100
16,0	6,8	100
20,0	7,7	100
31,2	9,6	100
62,5	13,7	100
100,0	17,4	100
125,0	19,5	95
155,5	21,9	94
175,0	23,3	93
200,0	25,0	92
250,0	28,1	90
300,0	30,9	89
450,0	38,3	87
500,0	43,0	86

Characteristic impedance: 100 Ohm
 DC-loop resistance: $\leq 150 \Omega/\text{km}$

Types: **Maritime LAN 7S S/FTP**
 Conductors: Solid Copper (Class 1 / AWG23)
 Core insulation: Polyethylene foam skin
 Screen: Al/polyester tape
 Metal covering: Tinned, Copper wire braid
 Outer sheath: SHF1
 Optional extra sheath: SHF MUD

Electrical data at 20°C

Frequency	Attenuation, nom	NEXT
MHz	[dB/100m]	[dB]
1	1,8	100
4	3,4	100
10	5,4	100
16	6,8	100
20	7,7	100
31,25	9,6	100
62,5	13,7	100
100	17,4	100
155	21,9	94
200	25,0	92
250	28,1	90
300	30,9	89
600	44,8	85

Characteristic impedance : 100 Ohm
 DC-loop resistance: $\leq 150 \Omega/\text{km}$

Application/Limitation

Temperature window

Operation: - 40°C to +85°C
 Installation: - 15°C to +50°C

The information related to EN certification from recognised test institution is taken as information only

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

- Datasheets:** Bergen Cabling Maritime LAN S/FTP Cat.6A stranded cable, dated 03.09.2018
 Bergen Cabling Maritime LAN S/FTP Cat.6A stranded cable with extra strong sheathing, dated 03.09.2018
 BC-10-021 Bergen Cabling Maritime LAN S/FTP cat.6A cable Rev. 2.7 dated 30/06-2022
 BC-10-001 Bergen Cabling Maritime LAN S/FTP Cat 7 cable dated 29/01-2020
 BC-10-005 Bergen Cabling DNV Maritime LAN S/FTP Cat7 MUD cable dated 1/11-2023
- Test reports:** Test report dated 04.06.2010, electrical tests, batch no E909640
 Draka test report summary dated 2004-01-30
 3P reports
 FR/LS test report for test no 2719 and 10-12; dated 17.06.2010
 Test report dated 04.06.2010, electrical tests, batch no E909640
 FR/LS test report for test no 2719 and 10-12; dated 17.06.2010

Tests carried out

Standard	Release	General description	Limitation
DNV-CP-0403	2021-09	DNV Type Approval Programme Data communication cables - category cables	
IEC 61156-5	2020-04	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: Cat 5e (100MHz), Cat 7 (600MHz)
ISO/IEC 11801	2017-11	Information technology – Generic cabling for customer premises, including Amd 1 and 2.	Reference to requirement for category cable: Cat 5e (100MHz), Cat 7 (600MHz)
NEK EN 50173-1	2020-07	Information technology – Generic cabling systems – Part 1. General requirements.	
EN 50288-4-1	2013-06	Multi-element metallic cables used in analogue and digital communication and control - Part 4-1: Sectional specification for screened cables characterised up to 600MHz – Horizontal and building backbone 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	2018-07	Tests on electric 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 60332-3-24	2018-07	Tests on electric and optical fibre cables under fire conditions – Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category C	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
IEC 60754-1	2019-11	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	2019-11	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	2019-11	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%
NEK TS606 Ed6	2022-03	Cables for offshore installations - halogen-free low smoke flame-retardant / fire-resistant (HFFR-LS). Technical specification.	Mud resistance test: IRM903 100°C 7d. Calcium Bromide 70°C 56d. EDC 95/11 70°C 56d

Marking of product

Bergen Cabling Maritime LAN – Cat 6A or Cat 6AS or Cat.7 – MUD (optional) – IEC 60332-3-24 – Factory code - <part no > - order no - date – 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