

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Low Voltage Cable**

with type designation(s)

RE4XHOHM1 150/250V, RE4XOHM1 150/250V, FE4XHOHM1 150/250V, FE4XOHM1 150/250V

Issued to

**Camuna Cavi S.r.l.
Edolo BS, Italy**

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.**

Type	Rated voltage (V)	Temp. class (°C)
RE4XHOHM1 150/250V	250	90
RE4XOHM1 150/250V	250	90
FE4XHOHM1 150/250V	250	90
FE4XOHM1 150/250V	250	90

Issued at **Høvik** on **2017-10-06**for **DNV GL**This Certificate is valid until **2022-10-05**.DNV GL local station: **Milan**Approval Engineer: **Ivar Bull****Andreas Kristoffersen
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

Product description

Type: RE4XHOHM1 150/250V, RE4XOHM1 150/250V,
 FE4XHOHM1 150/250V, FE4XOHM1 150/250V

Construction

Conductors: Tinned or plain stranded copper class 2 or class 5
 Core insulation: HF-XLPE
 Communication pair: Optional
 Screen: Collective or individual/collective screen of Aluminium/Polyester tape with tinned copper drain wire.
 Outer sheath: SHF1

No of Elements:	Cross sectional area [mm ²]
1, 2, 3, 4, 7, 8, 12, 14, 19, 20 pairs	0,50 0,75 1,0 1,5 2,5 mm ²
1, 3, 6, 7, 10, 12, 14 triples	0,50 0,75 1,0 1,5 2,5 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

[Data sheets.](#)

[Test reports.](#)

Tests carried out

	Release	General description	Limitation
DNVGL-CP-0399	2016-03	Class Programme Electric cables	
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
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 60092-376	2017-05	Electrical installations in ships - Part 376: Cables for control and instrumentation circuits 150/250 V (300 V)	
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
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 61034-1/2	2013-07	Measurement of smoke density of cables	Low smoke

Job Id: **262.1-012883-3**
Certificate No: **TAE0000275**

	Release	General description	Limitation
	2013-09	burning under defined conditions – Test apparatus, procedure and requirements	Light transmittance $\geq 60\%$

Marking of product

Year - CAMUNA CAVI – RE4XHOHM1 150/250V – <Size> – IEC 60332-3-22 – Lot. No or
Year - CAMUNA CAVI – RE4XOHM1 150/250V – <Size> – IEC 60332-3-22 – Lot. No or
Year - CAMUNA CAVI – FE4XHOHM1 150/250V – <Size> – IEC 60332-3-22 – Lot. No or
Year - CAMUNA CAVI – FE4XOHM1 150/250V – <Size> – IEC 60332-3-22 – Lot. No or

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