

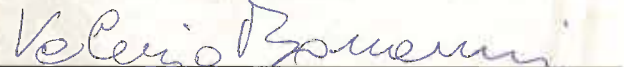


TYPE APPROVAL CERTIFICATE
No. ELE066114CS/009

This is to certify that the product below is found to be in compliance with the applicable requirement of the RINA type approval system.

<i>Description</i>	ELECTRIC CABLES
<i>Type</i>	LKSM-EMC 0.6/1 kV; LKSM-EMC-SHF2 0.6/1 kV
<i>Applicant</i>	HELKAMA BICA OY LAKIMIEHENKATU 4 FIN 20780 KAARINA FINLAND
<i>Manufacturer</i>	HELKAMA BICA OY
<i>Place of manufacture</i>	LAKIMIEHENKATU 4 FIN 20780 KAARINA FINLAND
<i>Reference standards</i>	RINA Rules for the Classification of Ships, Part C, Chapter 2, Section 9; RINA Rules for Testing and Certification of Marine Materials and Equipment; IEC 60092-350; IEC 60092-353.

Issued in **Genova** on **April 7, 2015**. *This Certificate is valid until* **April 7, 2020**



RINA Services S.p.A.
Valerio Bonanni

This certificate consists of this page and 1 enclosure



TYPE APPROVAL CERTIFICATE

No. ELE066114CS/009

Enclosure - Page 1 of 1

LKSM-EMC 0.6/1 kV

LKSM-EMC-SHF2 0.6/1 kV

Materials/Components

Shipboard power cables, flame retardant, low smoke emission, halogen free, design to meet requirements for enhanced Electromagnetic compatibility (EMC) characteristics.

Rated voltage: 0.6/1 kV

Type: LKSM-EMC 0.6/1 kV; LKSM-EMC-SHF2 0.6/1 kV

Marking: "lot number" Cables type n x s mm² 0.6/1 kV 90°C IEC 60092-353 IEC 60332-3-22 HELKAMA "month-year" "length marking" (cables with conductor of IEC 60228 class 5 shall be marked on the sheath with "cl5")

Construction:

conductor:

stranded plain or tinned copper according to IEC 60228 class 2 for 1,5 -10 mm²

stranded plain or tinned copper according to IEC 60228 class 5 for 16-300 mm²

insulation: XLPE

stranding: cores stranded together and covered by wrapped tape

armour: braided armour of annealed plain or tinned copper wire braid. Copper tape under the braid

sheath: SHF1 or SHF2

In accordance to IEC 60228 cl.2 and cl.5; IEC 60092-350; IEC 60092-351; IEC 60092-353; IEC 60092-359; IEC 60092-360 as applicable; IEC 60754-1; IEC 61034-1; IEC 61034-2; IEC 60332-1-2; IEC 60332-3-22; IEC 61196-1; RINAMIL Rules.

Maximum conductor temperature: 90°C

Technical Specification: HELKAMA SPECIFICATION HKBQ 9.SPEC.59 5.7.2012/dk.

Measurement of transfer impedance according to IEC 61196-1: Test Report DELTA N. DANAK-19J1956 DELTA-N312513, rev.1.

Note/Remarks:

The product is subject to the compliance with RINA Rules and Standards mentioned on the certificates Type Approval certifies that a representative sample of the products has been found to meet the applicable design criteria

Any modification of change shall not be valid until approval is granted by RINA as a result of due assessment.

The present Certificate cancel and supersedes the previous N. ELE196009CS/009 dated April 8, 2010.

Other Place of Manufacturing:

a) HELKAMA BICA (SHANGHAI) Co., Ltd.
Plot 1-2 Minghang Export Processing Zone, Shanghai, 201401 P.R.C.

b) HELKAMA BICA Oy
Lasitehtaankatu 12, FI-10960 Hanko, Finland.

Genova, April 7, 2015