



Marine & Offshore
Division

Certificate number: 20889/B0 BV

File number: ACE 01/103/18

Product code: 2502H

This certificate is not valid when presented without the full attached schedule composed of 7 sections

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TYPE APPROVAL CERTIFICATE

This certificate is issued to

HELKAMA BICA OY

KAARINA - FINLAND

for the type of product

CABLES (MEDIUM/HIGH VOLTAGE)

1.8/3 kV

LKSM-VFD-SHF2 & LKSM-VFD.

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.

IEC 60092-350/351/353/359/376 (2008), IEC 60228 (2004), IEC 60332-1 (2004),

IEC 60332-3-22 Cat.A (2009), IEC 60754-1/2 (2011), IEC 61034-1/2 (2013).

This certificate is issued to attest that BUREAU VERITAS did undertake the relevant approval procedures for the product identified above which was found to comply with the relevant requirements mentioned above.

This certificate will expire on: 10 Dec 2019

For BUREAU VERITAS,

At BV HELSINKI, on 10 Dec 2014,

Tommy Andersson



This certificate remains valid until the date stated above, unless cancelled or revoked, provided the conditions indicated in the subsequent page(s) are complied with and the product remains satisfactory in service. This certificate will not be valid if the applicant makes any changes or modifications to the approved product, which have not been notified to, and agreed in writing with BUREAU VERITAS. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/they being placed on board vessels to which the amended regulations or standards apply. This certificate is issued within the scope of the General Conditions of BUREAU VERITAS Marine & Offshore Division available on the internet site www.veristar.com. Any Person not a party to the contract pursuant to which this document is delivered may not assert a claim against BUREAU VERITAS for any liability arising out of errors or omissions which may be contained in said document, or for errors of judgement, fault or negligence committed by personnel of the Society or of its Agents in establishment or issuance of this document, and in connection with any activities for which it may provide.

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BV Mod. Ad.E 530 October 2014

This certificate consists of 3 page(s)

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION :

Flame retardant, low smoke and Halogen Free Marine & Offshore Power Control cables, designed to meet requirements for Variable Frequency Drives (VFD).

1.1 - Common specifications:

Rated voltage: 1.8/3 kV according to IEC 60092-353
 Temperature class: 90°C
 Halogen Free: IEC 60754-1/2
 Low Smoke: IEC 61034-1/2
 Flame retardant: IEC 60332-1-2 and IEC 60332-3-22 (Cat. A)

1.2 - Construction:

Conductor: Stranded plain annealed copper - Class 2 or Class 5
 Insulation: Halogen Free Cross-Linked PolyEthylene - HF XLPE
 Armour / Screen: Copper tape + Copper wire braid
 Outer Sheath: Halogen Free Thermoplastic compound - SHF1 or SHF2 Thermoset

1.3- Product Range:

Type	Number of core	Cross sectional areas (mm ²)	Remarks
LKSM - VFD	1	16 to 300	Flame retardant according to IEC 60332-1-2 & 60332-3-22 Cat.A
	3	16 to 240	
LKSM - VFD - SHF2	3+3E	95 + 16	
	3+3E	120 + 25	
	3+3E	150 + 25	

2. DOCUMENTS AND DRAWINGS :

HELKAMA BIKA:

As per document filed in ACE 01/103/18.
 Cable data sheet specifications N°: HBKQ 9. SPEC. 61, approved on 08.08.2008.
 Appendix for HBKQ9 spec. 59 dated 17.07.2008.
 Technical Specification / Appendix2 for HBKQ 9 Spec. 61, approved on 08.08.2008.

3. TEST REPORTS :

HELKAMA BIKA:

Test Reports N°:
 TDFPdoc_f/ BV TT LKSM-VFD 3x120 : BV Nr. 31151HSK09, dated 16.04.2009.
 TDFPdoc_h/ BV TT LKSM-VFD 3x16 approved on 08.08.2008.
 Tests reports on LKAM-HF / LKM-HF / LKM-SHF2 / LKSM-EMC / LKSM-EMC-SHF2 / LKSM-HF / LKSM-SHF2 dated on 2014.

4. APPLICATION / LIMITATION :

4.1 - BUREAU VERITAS Rules for the Classification of Steel Ships and IEC 60092 series.
 4.2 - Approval also valid for units having to comply with IMO Resolution A649 (The "MODU Code").

5. PRODUCTION SURVEY REQUIREMENTS :

5.1 - The cables are to be supplied by **HELKAMA BIKA OY** in compliance with the type described in this certificate.
 5.2 - This type of product is within the category HBV of Bureau Veritas Rule Note NR320.
 5.3 - **HELKAMA BIKA OY** has to make the necessary arrangements to have its works recognised by Bureau Veritas in compliance with the requirements of NR320 for HBV products :
1 - Helkama Bica Oy, Lakimiehenkatu 4, 20780 Kaarina, Finland
2 - Helkama Bica Oy, Lasitehtaankatu 12, 10960 Hanko, Finland
3 - Helkama Bica (Shanghai) Co., Ltd., Plot 1-2, MinHang Export Processing Zone, No.3111 Huan Cheng West Road, Fengxian District, Shanghai 201401 P.R.C.

6. MARKING OF PRODUCT :

The cable shall be marked on the surface outer sheath, in a durable legible and visible manner, with the following information through the length of cable:

- 1) - Voltage grade.
- 2) - Cable symbol and temperature class.
- 3) - Number of conductors and conductor size.
- 4) - Applicable standard(s) to flame retardant
- 5) - Manufacturer's name or trade mark.
- 6) - Year of manufacture.

7. OTHERS :

7.1 - This approval is given on the understanding that the Society reserves the right to require check tests to be carried out on the cables at any time and that **HELKAMA BICA OY** will accept full responsibility for informing shipbuilders, ship-owners or their sub-contractors of the proper methods of use and general maintenance of the cables and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 20889/A0 BV issued on 10.06.2009. by the Society.

***** END OF CERTIFICATE *****