



Marine & Offshore

Certificate number: 05535/G2 BV

File number: ACE 01/103/07

Product code: 2501H

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 (LOW VOLTAGE)
 0.6/1 kV
 LKM, LKSM, LKAM series

Requirements:

BUREAU VERITAS Rules for the Classification of Steel Ships.
 IEC 60092-350 (2014), IEC 60092-353 (2016), IEC 60092-360 (2014)
 IEC 60228 (2004)
 IEC 60332-1-2 (2015), 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 Marine & Offshore 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 Marine & Offshore,
 At BV TURKU (ABO), on 03 Aug 2018,
 Roger Robertsson



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 Marine & Offshore. 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 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 Marine & Offshore 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.

THE SCHEDULE OF APPROVAL

1. PRODUCT DESCRIPTION:

Flame retardant, low smoke and Halogen Free, Marine & Offshore Power, Lighting and Control cables.

1.1 - Common specifications:

Rated voltage: 0.6/1 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 conductor of plain (or tinned) annealed copper - Class 2 or Class 5
 Insulation: Halogen Free Cross-Linked PolyEthylene - HF XLPE
 Inner sheath: SHF1 or SHF2 (LKSM-DS type)
 Screen: Collective metallic screen of copper tape, coverage 100% (LKSM-DS type + LKSM-EMC type)
 Armour: Braided armour of plain (or tinned) annealed copper wires (LKSM-DS type + LKSM-EMC type)
 Outer Sheath: SHF1 or SHF2

1.3- Product Range:

Type	Number of core	Cross sectional areas (mm ²)	Remarks
LKM - HF LKM - SHF2 and LKSM - HF LKSM - SHF2 LKSM - EMC - SHF2 LKSM - EMC	1	1 to 300	Flame retardant according to IEC 60332-1-2 & 60332-3-22 Cat.A
	2	1 to 300	
	3	1 to 300	
	4	1 to 300	
	5	1 to 25	
	7, 10	1 to 2.5	
	12, 14	1 to 2.5	
	16, 19	1 to 2.5	
	24, 27	1 to 2.5	
	37	1 to 2.5	
LKAM - HF LKAM - SHF2	2, 3, 4	1 to 2.5	Flame retardant according to IEC 60332-1-2 & 60332-3-22 Cat.A
	5, 7	1 to 2.5	
	10, 12	1 to 2.5	
	14, 16	1 to 2.5	
	19, 24	1 to 2.5	
	27, 37	1 to 2.5	
LKSM-DS-HF LKSM-DS-EMC	1 to 5	1 to 300	Flame retardant according to IEC 60332-1-2 & 60332-3-22 Cat.A
	7	1 to 25	
	10 to 37	1 to 2.5	

2. DOCUMENTS AND DRAWINGS:

HELKAMA BIKA:

As per document filed in ACE 01/103/07

Cable data sheet specifications N°s: HBKQ 9. SPEC. 3, HBKQ 9. SPEC. 5, HBKQ 9. SPEC. 28, issued on 20.09.2004

Cable data sheet specifications N°s: HBKQ 9. SPEC. 3 and HBKQ 9. SPEC. 5, dated 1.11.2006

Cable data sheet specification N°: HBKQ 9. SPEC. 59, dated 20.5.2008.

Cable data sheet specification N°: HBKQ 9.SPEC. 188 dated 17.7.2017.

Cable data sheet specification N°: HBKQ 9.SPEC. 189 dated 7.8.2017.

3. TEST REPORTS:**HELKAMA BIKA:**

Test Reports N°s: LKAM-HF / ATT 3X1-5.XLS, LKM-HF / 1TT 3X1 - 5.XLS, LKM-HF / 1TT 3X70.XLS, LKSM-HF / STT 3X1 - 5.XLS, LKSM-HF / 3X70.XLS, all issued on 25 February 1999.

Test Report N°: TT_LKSM-EMC 3x6 and Annexes dated 08.08.2008.

Tests reports on LKAM-HF / LKM-HF / LKM-SHF2 / LKSM-EMC / LKSM-EMC-SHF2 / LKSM-HF / LKSM-SHF2 dated on 2014.

TICW:

Test reports N° CT16-6157-1/2, dated 13.01.2017

4. APPLICATION / LIMITATION:

BUREAU VERITAS Rules for the Classification of Steel Ships and IEC 60092-3 series.

5. PRODUCTION SURVEY REQUIREMENTS:

5.1 - The CABLES (LOW VOLTAGE) are to be supplied by **HELKAMA BICA 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 and as such does not require a BV product certificate.

5.3 - **HELKAMA BICA 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.

5.4 - For information, **HELKAMA BICA OY** has declared to Bureau Veritas the following production site(s):

Helkama Bica (Shanghai) Co., Ltd
Plot 1-2, MinHang EPZ
No. 3111 Huan Cheng West Road
Feng Xian District
SHANGHAI
CHINA

HELKAMA BICA OY
Lakimiehenkatu 4
20780 KAARINA
FINLAND

Helkama Bica Oy
Lasitehtaankatu 12
10960 Hanko
FINLAND

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 standards to flame retardant(s) and fire resistant, if any.
- 5) - Manufacturer's name or trade mark.
- 6) - Year of manufacture.

7. OTHERS:

7.1 - It is **HELKAMA BICA OY**'s responsibility to inform shipbuilders or their sub-contractors of the proper methods of fitting, use and general maintenance of the approved equipment and the conditions of this approval.

7.2 - This certificate supersedes the Type Approval Certificate N° 05535/G1 BV issued on 23 Apr 2018 by the Society.

*** END OF CERTIFICATE ***