



Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

This certificate supersedes certificate number 13/20034 issued on 04.12.2013 which is hereby cancelled.

This certificate is issued to:

PRODUCER	Helkama Bica Oy Lakimiehenkatu 4 FI- 20780 Kaarina Finland
DESCRIPTION	Halogen-free, flame retardant, screened power and control cable designed to meet requirements for Variable Frequency Drives.
TYPES	LKSM-VFD LKSM-VFD-SHF2
APPLICATION	Fixed wiring in ships, offshore and industrial installations meets requirements for Variable Frequency Drives (VFD) with voltage peaks to 3 kV
SPECIFIED STANDARDS	Construction: IEC 60092-353: 2016 and IEC60092-350:2014 Conductor: IEC 60228: 2004 Annealed stranded copper wire plain or tinned to class2 or class 5 Collective screen: Copper foil Armour: Copper wire braid plain or tinned Sheathing: IEC 60092-359: 1999 SHF1 or SHF2

Certificate No.	13/20034 (E1)
Issue Date	28 February 2018
Expiry Date	04 December 2018
Sheet	1 of 3



Jochen Körner
Hamburg Technical Support Office



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**PLACES OF
PRODUCTION**

Helkama Bica Oy
Lakimiehenkatu 4
FI- 20780 Kaarina
Finland

Helkama Bica Oy
Lasitehtaankatu 12
FI- 10960 Hanko
Finland

Helkama Bica (Shanghai) CO., LTD
Plot 1-2, Minhang Export Processing Zone
No. 3111 Huan Cheng West Road
Fengxian District, Shanghai 201401, China

The Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

If the specified standards are amended during the validity of this certificate, the product is to be re-approved prior to it being supplied to vessels to which the amended standards apply.

The Design Appraisal Document No. HTS/ETS 36601-18 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

Certificate No. 13/20034 (E1)
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Sheet 3 of 3

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Design Appraisal Document

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Date
28 February 2018

Please quote this reference number on all future communications
HPC1762190/36601-18/JK/LK

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2017
ISSUED TO: HELKAMA BICA OY, KAARINA, FINLAND
FOR: POWER AND CONTROL
TYPE APPROVAL CERTIFICATE NO. 13/20034 (E1)**

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System Procedure TA14 and this Design Appraisal Document forms part of the Certificate.

APPROVAL DOCUMENTATION

HTS/ETS 28619-13 unnumbered	Design Appraisal Document C/N 1320189 Application checklist – Appendix to Form 2502TA	04.12.2013 04.12.2017
HBKQ Spec. 61/111 Unnumbered	Cable Data Sheet, 4 pages Revised list of used standards	29.11.2017 undated
DANAK-19J1956 HBKQ Spec. 61	Transfer Impedance test report, DELTA –N312513, rev 1 Appendix 2, 2 pages	undated 29.11.2017



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FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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E-mail: hamburg-technical-support@lr.org

Date
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HPC1762190/36601-18/JK/LK

Supplementary Type Approval Terms and Conditions

Type Approval certifies that a representative sample of the product(s) referred to herein has/have been found to meet the applicable design criteria for the use specified herein. It does not mean or imply approval for any other use, nor approval of any product(s) designed or manufactured otherwise than in strict conformity with the said representative sample.

Type Approval is based on the understanding that the manufacturer's recommendations and instructions and any relevant requirements of the Rules and Regulations are complied with.

Type Approval does not eliminate the need for normal inspection and survey procedures required by the Rules and Regulations.

Lloyd's Register EMEA reserves the right to cancel or withdraw this Type Approval Certificate in accordance with the LR Type Approval System Procedure.

FINAL ACCEPTANCE OF ACTUAL ITEM(S) DEPEND(S) ON SATISFACTORY SURVEY AND TESTING

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Part 1
Subject: Electrical Equipment (Not Environmentally Tested)
Product: Cables Power

Producer / Licence No.		Description of Product			Cert. No.
Type	Details of Approval	Application	Remarks		
Helkama Bica Oy, Finland Lakimiehentkatu 4 FI-20780 Kaarina Finland	LKSM-VFD LKSM-VFD-SHF2	Halogen-free, flame retardant, screened power and control cable designed to meet requirements for Variable Frequency Drives Rated voltage: U_0/U_{m} : = 1.8/3kV (3.6kV) Max. conductor temperature: 90°C Minimum installation temperature: -15°C	Marine, Offshore and Industrial applications- meets requirements for Variable Frequency Drives (VFD) with voltage peaks to 3 kV	Expires: 04 December 2018 Comply with: IEC 60092-353: 2016 IEC 60092-350: 2014 Additional tests: IEC 60332-3-22: 2009 IEC 60332-1-2:2004 IEC 60754-1: 2011 IEC 60754-2: 2011 IEC 60684-2: 2011 IEC 61034-1: 2013 IEC 61034-2: 2013 IEC 61196-1:2005	13/20034 (E1)
		Number of cores: Conductor cross section: 1.3 10,16,25,35,50,70,95, 120,150,185,240, 300 3 + PE 3x10+3x6, 3x16+3x6, 3x25+6, 3x35+3x6, 3x50+3x10, 3x70+3x16, 3x95+3x16, 3x120+3x25, 3x150+3x25, 3x185+3x35, 3x240+3x50, 3x300+3x50			


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