

Type Approval Certificate Extension

This is to certify that Certificate No. 08/70022 (E7) for the undernoted products is extended and renumbered as shown.

This certificate is issued to:

PRODUCER	Helkama Bica Oy, Finland	
PLACE 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

DESCRIPTION	Halogen free, flame retardant, unscreened and screened power and control cable. The LKSM-EMC is designed with enhanced Electromagnetic compatibility (EMC) characteristics.
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TYPES	LKM-HF LKM-SHF2 H-FLEX PWR SHF2 LKSM-HF LKSM-SHF2 H-FLEX PWR C-SHF2 LKSM-EMC LKSM-EMC-SHF2 LKAM-HF LKAM-SHF2	Unarmoured Cu- or CuSn-wire braid armoured Cu-tape Screened and Cu or CuSn-wire braid Armoured Al/pest-tape Screened
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APPLICATION	Fixed wiring on ships, offshore and industrial installation.
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Certificate No.	13/20039
Issue Date	04 December 2013
Expiry Date	03 December 2018
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71 Fenchurch Street, London EC3M 4BS

SPECIFIED STANDARDS

Construction:	IEC 60092-353:2011 and IEC 60092-350:2008
Conductor:	IEC 60228: 2004 Plain or tinned to class2 or class5
Insulation:	IEC 60092-351: 2004 XLPE
Collective screen:	Copper foil (-EMC-) Plastic coated aluminium tape (LKAM-)
Armour:	Copper wire braid plain or tinned
Sheathing:	IEC 60092-359: 1999 SHF1 or SHF2

ADDITIONAL TESTS

Flame retardancy	IEC 60332-3-22: 2009 IEC 60332-1-2: 2004
Acid gas emission pH and conductivity	IEC 60754-1: 2011 IEC 60754-2: 2011
Fluorine content	IEC 60684-2: 2003
Smoke emission	IEC 61034-1: 2005 and IEC 61034-2: 2005
Transfer impedance	IEC 61196-1: 2005

Helkama Bica Oy specification:	HBKQ-9
LKM-HF	3
LKM-SHF2 / H-FLEX PWR SHF2	104
LKSM-HF	5
LKSM-SHF2 / H-FLEX PWR C-SHF2	105
LKSM-EMC	59
LKSM-EMC-SHF2	110
LKAM-HF	28
LKAM-SHF2	112

RATINGS

Voltage	0.6/1kV (1.2 kV)
Max. conductor temperatur:	90°C
Min installation temperature:	-15°C

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RANGE	Number of conductors		Conductor cross section (qmm)
	1, 2, 3, 4, 5x	LKM-HF LKSM-HF LKSM-EMC LKM-SHF2 / H-FLEX PWR SHF2 LKSM-SHF2 / H-FLEX PWR C-SHF2 LKSM-EMC-SHF2	1.0, 1.5, 2.5, 4, 6, 10, 16, 25, 35, 50, 70, 95, 120, 150, 185, 240, 300
	7x	LKM-HF LKSM-HF LKSM-EMC LKM-SHF2 LKSM-HF2 LKSM-EMC-SHF2	1.0, 1.5, 2.5, 4, 6, 10, 16, 25
	10, 12, 14, 16, 19, 24, 27, 30, 32, 37x	LKM-HF LKSM-HF LKSM-EMC LKM-SHF2 LKSM-SHF2 LKSM-EMC-SHF2	1.0, 1.5, 2.5
	1, 2, 3, 4, 5, 7, 10, 12, 14, 16, 19, 24, 27, 30, 32, 37x	LKAM-HF LKAM-SHF2	1.0, 1.5, 2.5

"This Certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register EMEA of any modification or changes to the equipment in order to obtain a valid certificate."

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The attached Design Appraisal Document No. HTS/ETS 28646-13 and its supplementary Type Approval Terms and Conditions form part of this Certificate.

All other details remain as the previous Certificate No. 08/70022 (E7) to which this extension should be attached.

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Marine Design Appraisal Document

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04 December 2013

Please quote this reference number on all future communications
HPC1320190/28646-13/JK/LK

THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2002
ISSUED TO: HELKAMA BICA OY, KAARINA, FINLAND
FOR: POWER AND CONTROL CABLE
TYPE APPROVAL CERTIFICATE NO. 13/20039

The undernoted documents have been reviewed for compliance with the requirements of the Lloyd's Register's Type Approval System, 2002 and this Design Appraisal Document forms part of the Certificate.

ADDITIONAL APPROVAL DOCUMENTATION

Form LR2571	Application for Type Approval	03.04.2013
Unnumbered	Offshore (IEC) 12/2013	12.2013
Unnumbered	Marine Cables 12/2012	12.2013
HBKQ 9.Spec 28	Cable Data Sheet LKAM-HF 0.6/1 kV	03.06.2013
HBKQ 9.Spec 28	Cable Data Sheet LKAM-HF 0.6/1 kV	29.11.2013
Appendix 2		
HBKQ 9.Spec 112	Cable Data Sheet LKAM-SHF 2	03.06.2013
HBKQ 9.Spec 112	Cable Data Sheet LKAM-SHF 2	29.11.2013
Appendix 2		
HBKQ 9.Spec 3	Cable Data Sheet LKM-SHF 2	03.06.2013
HBKQ 9.Spec 3	Cable Data Sheet LKM-SHF 2	27.11.2013
Appendix 2		
HBKQ 9.Spec 3	Cable Data Sheet LKM-SHF 2	06.07.2012
Appendix 3		
HBKQ 9.Spec 104	Cable Data Sheet LKM-SHF 2 0.6/1 kV	03.06.2013
HBKQ 9.Spec 104	Cable Data Sheet LKM-SHF 2 0.6/1 kV	29.11.2013
Appendix 2		
HBKQ 9.Spec 104	Cable Data Sheet LKM-SHF 2 0.6/1 kV	29.11.2013
Appendix 3		

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

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ADDITIONAL APPROVAL DOCUMENTATION cont.

HBKQ 9.Spec 59	Cable Data Sheet LKSM-EMC 0.6/1 kV	03.06.2013
HBKQ 9.Spec 59	Cable Data Sheet LKSM-EMC 0.6/1 kV	29.11.2013
Appendix 2		
HBKQ 9.Spec 110	Cable Data Sheet LKSM-EMC-SHF2 0.6/1 kV	03.06.2013
HBKQ 9.Spec 110	Cable Data Sheet LKSM-EMC-SHF2 0.6/1 kV	29.11.2013
Appendix 2		
HBKQ 9.Spec 5	Cable Data Sheet LKSM-HF	03.06.2013
HBKQ 9.Spec 5	Cable Data Sheet LKSM-HF	29.11.2013
Appendix 2		
HBKQ 9.Spec 5	Cable Data Sheet LKSM-HF	29.11.2013
Appendix 3		
HBKQ 9.Spec 105	Cable Data Sheet LKSM-SHF2	03.06.2013
HBKQ 9.Spec 105	Cable Data Sheet LKSM-SHF2	29.11.2013
Appendix 2		
HBKQ 9.Spec 105	Cable Data Sheet LKSM-SHF2	29.11.2013
Appendix 3		

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.

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04 December 2013

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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.



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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 Lakimiehinkatu 4 FI-20780 Kaarina Finland	Halogen free, flame retardant, unshielded and screened power and control cable. The LKSM-EMC is designed with enhanced Electromagnetic compatibility (EMC) characteristics Unarmoured LKM-HF LKM-SHF2 H-FLEX PWR SHF2	Fixed wiring on ships, offshore and industrial installations	Expires: 03 December 2018 Comply with: IEC 60092-353: 2011 IEC 60092-350: 2008 IEC 60228: 2004 IEC 60092-351:2004 IEC 60092-359: 1999 Additional tests: IEC 60332-3-22: 2009 IEC 60332-1-2: 2004 IEC 60754-1: 2011 IEC 60754-2: 2011 IEC 60684-2:2003 IEC 61034-1: 2005 IEC 61034-2: 2005 IEC 61196-1:2005	13/20039	
LKSM-HF LKSM-SHF2 H-FLEX PWR C-SHF2	Cu- or CuSn-wire braid armoured				
LKSM-EMC LKSM-EMC-SHF2	Cu-tape Screened and Cu or CuSn-wire braid armoured				
LKAM-HF LKAM-SHF2	Al/pest-tape Screened Rated voltage: $U_0/U (U_m) = 0.6/1kV (1.2 kV)$ Max. conductor temperature: 90°C Minimum installation temperature: -15°C				

J. B. 13.12.13

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

Producer / Licence No.	Description of Product				Remarks	Cert. No.
	Type	Number of cores:	Details of Approval	Application		
	LKM-HF	1,2,3,4,5	Conductor cross section: 1,1,5,2,5,4,6,10,16,25,35,50,70, 95,120,150,185,240,300			
	LKM-SHF2					
	H-FLEX PWR SHF2					
	LKSM-HF	7	1,1,5,2,5,4,6,10,16,25			
	LKSM-SHF2					
	H-FLEX PWR C-SHF2	10, 12, 14, 16, 19, 24, 27, 30, 32, 37x	1,1,5,2,5			
	LKSM-EMC-SHF2					
	LKAM-HF	1, 2, 3, 4, 5, 7, 10, 12, 14, 16, 19, 24, 27, 30, 32, 37x	1,1,5,2,5			
	LKAM-SHF2					

P-13, 12, 13