

## 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 13/20041(E2) issued on 19.01.2017 which is hereby cancelled

This certificate is issued to:

<b>PRODUCER</b>	Helkama Bica Oy Lakimiehenkatu 4 FI- 20780 Kaarina Finland
<b>DESCRIPTION</b>	Halogen Free, flame retardant/ fire resistant, power and control cable
<b>TYPES</b>	(1) RFA-FRHF Collectively screened RFA-FRSHF2  RFA-FRHF(i) Collectively and individually screened RFA-FRSHF2(i)  (2) (3) RFA-FRHF+WSR 150/250(300)V/RFA-FRHF+WJR 150/250(300)V Collectively screened RFA-FRHF(i) + WSR 150/250(300)V/RFA-FRHF(i) + WJR 150/250(300)V Collectively and individually screened
<b>APPLICATION</b>	Fixed wiring in Marine, Offshore and Industrial installations
<b>Certificate No.</b>	13/20041 (E3)
<b>Issue Date</b>	24 January 2017
<b>Expiry Date</b>	10 February 2021
<b>Sheet</b>	1 of 4

Lloyd's Register EMEA  
71 Fenchurch Street, London EC3M 4BS



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Hamburg Technical Support Office  
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<b>SPECIFIED STANDARDS</b>	Construction:	IEC 60092-376: 2003 and IEC 60092-350: 2014
	Conductor:	IEC 60228: 2004 Plain or tinned to class2
	Insulation:	IEC 60092-360: 2014/XLPE
	Sheathing:	IEC 60092-360: 2014/SHF1 or SHF2

<b>ADDITIONAL TESTS</b>	Flame retardancy	IEC 60332-3-22: 2009 IEC 60332-1-2: 2004
	Fire resistance	IEC 60331-1: 2009 IEC 60331-2: 2009
	Acid gas emission	IEC 60754-1: 2011
	pH and conductivity	IEC 60754-2: 2011
	Fluorine content	IEC 60684-2:2011
	Smoke emission	IEC 61034-1: 2013 and IEC 61034-2: 2013
	<sup>(3)</sup> Water Spray	IEC 60331-2: 2009 + EN 50200 Annex E: 2015 (180min + 15min Water Spray)
	<sup>(3)</sup> Water Jet	IEC 60331-1: 2009 + BS 8491: 2008 (180min + 5x5s Water Jet)

Helkama Bica Oy specification:	HBKQ-9
RFA-FRHF	57
RFA-FRSHF2	121
RFA-FRHF(i)	58
RFA-FRSHF2(i)	122
RFA-FRHF +WSR/ + WJR	201
RFA-FRHF(i) +WSR/ + WJR	202

<b>RATINGS</b>	Rated voltage: $U_o/U (U_m)$ : 150/250V (300V)
	Max conductor temperature: 90°C
	Minimum installation temperature: - 15° C

Certificate No. 13/20041 (E3)

Issue Date 24 January 2017

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**RANGE**

RFA-FRHF  
RFA-FRSHF2  
RFA-FRHF +WSR/ + WJR

Number of conductors		Conductor cross section
Pairs	1 to 37	0.5, 0.75, 1.0, 1.5, 2.5
Triple	1	0.5, 0.75, 1.0, 1.5, 2.5
Quads	1	0.5, 0.75, 1.0, 1.5, 2.5

RFA-FRHF(i)  
RFA-FRSHF2(i)  
RFA-FRHF(i) +WSR/ + WJR

Number of conductors		Conductor cross section
Pairs	1 to 37	0.5, 0.75, 1.0, 1.5, 2.5
Triple	1	0.5, 0.75, 1.0, 1.5, 2.5
Quads	1	0.5, 0.75, 1.0, 1.5, 2.5

**OTHER CONDITIONS**

Installation conditions as per the relevant LR Rules and Regulations and SOLAS are to be observed.

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**PLACES OF  
PRODUCTION**

<sup>(1)</sup> and <sup>(2)</sup>  
Helkama Bica Oy  
Lakimiehenkatu 4  
FI- 20780 Kaarina  
Finland

<sup>(1)</sup> and <sup>(2)</sup>  
Helkama Bica Oy  
Lasitehtaankatu 12  
FI- 10960 Hanko  
Finland

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

All other details remain as the previous Certificate Nos. 13/20041 (E2) to which this extension should be attached.

*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 34665-17 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

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# Design Appraisal Document

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

Date  
24 January 2017

Please quote this reference number on all future communications  
HPC1562244/34665-17/JK/KW

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2014  
ISSUED TO: HELKAMA BICA OY  
FOR: MULTICORE POWER AND CONTROL CABLE  
TYPE APPROVAL CERTIFICATE NO. 13/20041(E3)**

**This Design Appraisal Document supersedes and cancels document number  
HTS/ETS 34665-17, Issue No. 0, dated 19.01.2017**

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.

## ADDITIONAL APPROVAL DOCUMENTATION

unnumbered	Application Checklist	12.10.2016
HBKQ 9 SPEC 201	Cable data sheet RFA-FRHF+WSR /+ WJR	16.09.2016
HBKQ 9 SPEC 202	Cable data sheet RFA-FRHF(i)+WSR /+ WJR	16.09.2016
HTS/ETS 33625-16	Marine Design Appraisal Document, HPC 1562244	04.12.2013
HEL1501308/01	PQA form	07.05.2015
HEL1501308/02	PQA form	07.05.2015

## TEST REPORTS

W038284	Test report fire test combined with water jet, 3*25 CL5	20.12.2016
W037876	Test report fire test combined with water jet, 2*2*1.5	28.12.2016
6F007714	FTIR analysis	26.04.2016

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

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**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: Control Cables**

Producer/Licence No.		Description of Product			Cart. No.
Type	Details of Approval	Application	Remarks		
<p>Helkama Bica Oy, Finland  Lakimiehkatu 4  FI-20780 Kaarina  Finland</p> <p>REA-FRHF  RFA-FRSHF2</p>	<p>Halogen Free, flame retardant/ fire resistant, power and control cable</p> <p>Collectively screened</p>	<p>Fixed wiring on ships, offshore and industrial installations</p> <p>Other conditions:  Installation conditions as per the relevant LR Rules and Regulations and SOLAS are to be observed.</p>	<p>Expires: 10 February 2021</p> <p>Comply with:  IEC 60092-376: 2003  IEC 60092-350: 2008  IEC 60228: 2004  IEC 60092-351: 2004  IEC 60092-359: 1999</p> <p>Additional tests:  IEC 60332-3-22: 2009  IEC 60332-1-2: 2004  IEC 60331-1: 2009  IEC 60331-2: 2009  IEC 60754-1:2011  IEC 60754-2: 2011  IEC 60684-2: 2003  IEC 61034-1: 2005  IEC 61034-2: 2005</p>	13/20041 (E3)	
<p>REA-FRHF(i)  RFA-FRSHF2(i)</p>	<p>Collectively and individually screened</p> <p>Rated voltage: <math>U_0/U (U_m) = 150/250 \text{ V (300 V)}</math>  Max. conductor temperature: 90°C  Minimum installation temperature: -15°C</p>				
<p>RFA-FRHF  RFA-FRSHF2</p>	<p>Number of conductors</p> <p>Pairs:  1 to 37,</p> <p>Triples:  1</p> <p>Quads:  1</p> <p>Conductor cross section qmm  0.5, 0.75, 1.0, 1.5, 2.5  0.5, 0.75, 1.0, 1.5, 2.5  0.5, 0.75, 1.0, 1.5, 2.5</p>				

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

Producer/Licence No.		Description of Product			Cert. No.
Type	Details of Approval	Application	Remarks		
RFA-FRHF(i) RFA-FRSHE2(i)	Number of conductors Pairs: 1 to 37,  Triples: 1  Quads: 1	Conductor cross section qmm  0.5, 0.75, 1.0, 1.5, 2.5  0.5, 0.75, 1.0, 1.5, 2.5  0.5, 0.75, 1.0, 1.5, 2.5		Additional tests for : RFA-FRHF + WSR/ +WJR 0.6/1(1.2) kV RFA-FRHF(i) + WSR / +WJR 0.6/1(1.2) kV: IEC 60331-2: 2009 + EN 50200 Annex E: 2015 (180min + 15min Water Spray)  IEC 60331-2009 + BS 8491: 2008 (180min + 5x5s Water Jet)	
RFA-FRHF + WSR 150/250(300)V / RFA- FRHF + WJR 150/250(300)V  RFA-FRHF(i) + WSR 150/250(300)V / RFA- FRHF(i) + WJR 150/250(300)V	For details see certificate   For details see certificate				

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