



Lloyd's  
Register

## 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 is issued to:

<b>PRODUCER</b>	Helkama Bica Oy Lakimiehenkatu 4 FI- 20780 Kaarina Finland
<b>DESCRIPTION</b>	Flame retardant, fire resistant, halogen free, crosslinked polyethylene (XLPE) insulated, (armoured) screened, polyolefine sheathed, instrumentation, communication and control cables (250 V)
<b>TYPES</b>	(1) RFE-FRHF Armoured (Collectively screened) RFE-FRSHF2  RFE-FRHF(i) Armoured (Collectively screened) RFE-FRSHF2(i) and individually screened  (2) (3) RFE-FRHF + WSR 150/250(300)V / RFE-FRHF + WJR 150/250(300)V RFE-FRHF(i) + WSR 150/250(300)V / RFE-FRHF(i) + WJR 150/250(300)V
<b>APPLICATION</b>	Fixed wiring on ships, offshore and industrial installations
<b>Certificate No.</b>	13/20032 (E2)
<b>Issue Date</b>	28 February 2018
<b>Expiry Date</b>	11 January 2023
<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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**SPECIFIED STANDARDS**

Construction: IEC 60092-376: 2017 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

**ADDITIONAL TESTS**

Flame retardancy IEC 60332-3-22: 2009  
 IEC 60332-1-2: 2015  
 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  
 (3) Water Spray EN 50200 Annex E: 2015  
 (3) Water Jet BS 8491: 2008

Helkama Bica Oy specification: HBKQ-9  
 RFE-FRHF 25  
 RFE-FRSHF2 117  
 RFE-FRHF(i) 45  
 RFE-FRSHF2(i) 118  
 RFE-FRHF + WSR/ + WJR 199  
 RFE-FRHF(i) + WSR/ + WJR 200

**RATINGS**

Rated voltage:  $U_o/U (U_m)$ : 150/250 V (300 V)  
 Maximum conductor temperature: 90° C  
 Minimum installation temperature: -15° C

Certificate No. 13/20032 (E2)  
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**RANGE**

RFE-FRHF  
RFE-FRSHF2  
RFE-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 to 37	0.5, 0.75, 1.0, 1.5, 2.5
Quads	1	0.5, 0.75, 1.0, 1.5, 2.5

RFE-FRHF(i)  
RFE-FRSHF2(i)  
RFE-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 to 37	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.

**PLACES OF PRODUCTION**

(1) and (2)  
Helkama Bica Oy  
Lakimiehenkatu 4  
FI- 20780 Kaarina  
Finland

(1) and (2)  
Helkama Bica Oy  
Lasitehtaankatu 12  
FI- 10960 Hanko  
Finland

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

Certificate No. 13/20032 (E2)

Issue Date 28 February 2018

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*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 36599-18 and its supplementary Type Approval Terms and Conditions form part of this Certificate.*

**Certificate No.** 13/20032 (E2)  
**Issue Date** 28 February 2018  
**Expiry Date** 11 January 2023  
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# Design Appraisal Document

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

Date  
28 February 2018

Please quote this reference number on all future communications  
HPC1662159/36599-18/JK/LK

**THE LLOYD'S REGISTER'S TYPE APPROVAL SYSTEM, 2017**  
**ISSUED TO: HELKAMA BICA OY, KAARINA, FINLAND**  
**FOR: INSTRUMENTATION, COMMUNICATION AND CONTROL CABLE**  
**TYPE APPROVAL CERTIFICATE NO. 13/20032 (E2)**

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 34664-17	Design Appraisal Document C/N 1662159	19.01.2017
unnumbered	Application checklist – Appendix to Form 2502TA	04.12.2017
HBKQ Spec. 25/117	Cable Data Sheet, 11 pages	26.09.2017
HBKQ Spec. 45/118	Cable Data Sheet, 7 pages	26.09.2017
HBKQ Spec. 199	Cable Data Sheet, 9 pages	26.09.2017
HBKQ Spec. 200	Cable Data Sheet, 9 pages	26.09.2017



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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**

Description of Product		Cert. No.
Producer/Licence No.	Type	Remarks
Helkama Bica Oy, Finland Lakimiehkatu 4 FI- 20780 Kaarina Finland	RFE-FRHF RFE-FRHF(i)	Expires: 11 January 2023  Comply with: IEC 60092-376: 2017 IEC 60092-350: 2014 IEC 60092-360: 2016 IEC 60228: 2004 IEC 60092-360:2014 IEC 60092-360:2014  Additional tests: IEC 60332-3-22: 2009 IEC 60332-1-2: 2015 IEC 60331-1:2009 IEC 60331-2:2009 IEC 60754-1:2011 IEC 60754-2: 2011 IEC 60684-2:2011 IEC 61034-1: 2013 IEC 61034-2: 2013
	Flame retardant, fire resistant, halogen free, crosslinked polyethylene (XLPE) insulated, (armoured) screened, polyolefine sheathed, instrumentation, communication and control cables (250 V)  Collectively screened individually and collectively screened	Marine, Offshore and Industrial applications  Other conditions: Installation conditions as per the relevant LR Rules and Regulations and SOLAS are to be observed.
	Armoured (Collectively screened)	
	Armoured (Collectively screened) and individually screened	
	Rated voltage: $U_0/U (U_m)$ : = 150/250 V (300 V) Max. conductor temperature: 90°C Minimum installation temperature: -15°C	
	RFE-FRHF RFE-FRSHF2 RFE-FRHF + WSR/ + WJR  RFE-FRHF(i) RFE-FRSHF2(i) RFE-FRHF(i) + WSR/ +WJR	

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

Producer/Licence No.	Description of Product			Cert. No.
	Type	Details of Approval	Application	
	Number of conductors Pairs: 1 to 37,  Triples: 1  RFE-FRHF RFE-FRSHF2  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		



**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	
	RFE-FRHF(i) RFE-FRSHF2(i)	Number of conductors Pairs: 1 to 37, 0.5, 0.75, 1.0, 1.5, 2.5 Triples: 1 0.5, 0.75, 1.0, 1.5, 2.5 Quads: 1 0.5, 0.75, 1.0, 1.5, 2.5	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		
	RFE-FRHF + WSR 150/250(300)V / RFE-FRHF + WJR 150/250(300)V	Armoured (Collectively screened) Number of conductors Pairs: 1 to 37, 0.5, 0.75, 1.0, 1.5, 2.5 Triples: 1 0.5, 0.75, 1.0, 1.5, 2.5 Quads: 1 0.5, 0.75, 1.0, 1.5, 2.5	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 : RFE-FRHF + WSR / + WJR 150/250(300)V RFE-FRHF(i) + WSR / + WJR 150/250(300)V. IEC 60331-2: 2009 + EN 50200 Annex E: 2015 (180min + 15min Water Spray) IEC 60331-1:2009 + BS 8491: 2008 (180min + 5x5s Water Jet)
	RFE-FRHF(i) + WSR 150/250(300)V / RFE-FRHF(i) + WJR 150/250(300)V	Armoured (Collectively screened and individually screened) Number of conductors Pairs: 1 to 37, 0.5, 0.75, 1.0, 1.5, 2.5 Triples: 1 0.5, 0.75, 1.0, 1.5, 2.5 Quads: 1 0.5, 0.75, 1.0, 1.5, 2.5	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		

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