

**POTVRDA O TIPNOM ODOBRENJU**  
**TYPE APPROVAL CERTIFICATE**

Br /No	03-001294/030962
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Potvrđuje se da je ovaj proizvod, u skladu s Pravilima za klasifikaciju brodova, Dio 1. - Opći propisi, Odjeljak 3. - Tipno odobrenje proizvoda, odobren za ugradnju na brodove i postrojenja pod nadzorom Hrvatskog registra brodova.

*This is to certify that this product, on the basis of the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products, is approved for use on board ships and installations under supervision of the Croatian Register of Shipping.*

**TIP I OPIS PROIZVODA:***TYPE AND DESCRIPTION OF PRODUCT:***BRODSKI ENERGETSKI I KONTROLNI OKLOPLJENI KABEL BEZHALOGENI I TEŠKO GORIVI**  
**SHIPBOARD POWER AND CONTROL SCREENED CABLE HALOGEN FREE AND**  
**FLAME RETARDANT****LKSM-VFD 1,8/3 kV****PROIZVOĐAČ:***MANUFACTURER:***HELKAMA BICA Oy***Lakimiehenkatu 4**FIN-20780 Kaarina***FINLAND****PROIZVOD UDOVOLJAVA SLIJEDEĆIM PRAVILIMA/PROPISIMA:***THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:***HRB PRAVILA ZA KLASIFIKACIJU BRODOVA: DIO 12 - ELEKTRIČNA OPREMA**  
**CRS RULES FOR THE CLASSIFICATION OF SHIPS: PART 12 - ELECTRICAL EQUIPMENT**

Helkama specification: HBKQ 9 spec.61

Technical specification:

Design standard: IEC 60092-353 (3<sup>rd</sup> ed 2011-08),  
Single and multicore non-radial field power cable 1,8/3 kV

Other standards:

- testing: IEC 60092-350 (3<sup>rd</sup> Ed. 2008-02), General constructions and testing requirements- insulation: IEC 60092-351 (3<sup>rd</sup> ed. 2004-04), Insulating materials for shipboard power cables- sheathing: IEC 60092-359 (1.2<sup>nd</sup> ed. 1999-08)

Sheathing materials for shipboard power and telecommunication cables

**DETALJI O PROIZVODU I UVJETIMA CERTIFIKACIJE DANI SU NA POLEĐINI.***FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.***ODOBRENJE VRIJEDI DO: 2016-02-10***APPROVAL IS VALID UNTIL:***Mjesto i datum: Split, 2012-02-10***Place and date:***M.P.***(Seal)*

Goran Begović, dipl.ing.

**NAPOMENA: Ova potvrda nije valjana ako se proizvod ili način njegove proizvodnje promijenio u odnosu na tipno ispitani proizvod. Proizvođač treba obavijestiti Hrvatski registar brodova o bilo kojoj izmjeni na proizvodu kako bi ishodio valjanu potvrdu.**

*NOTE: This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Croatian Register of Shipping of any modification or changes to the product in order to obtain a valid certificate.*

**PODROBNJI OPIS PROIZVODA:***DETAILED PRODUCT DESCRIPTION:*

- Halogen-free, flame retardant, screened power and control cable designed to meet requirements for Variable Frequency Drives.
- LKSM-VFD 1.8/3 kV
- Voltages: 1.8/3 kV (3.6 kV)
- Max. conductor temp. 90°C
- Min. installation temp. - 15°C

<u>No of Cores</u>	<u>Cross sectional area (mm<sup>2</sup>)</u>
1	16 mm <sup>2</sup> to 300 mm <sup>2</sup>
3	16 mm <sup>2</sup> to 240 mm <sup>2</sup>
3+PE	95 mm <sup>2</sup> to 185 mm <sup>2</sup>

**PODRUČJE PRIMJENE / POSEBNI GRANIČNI UVJETI:***APPLICATION / LIMITATIONS:*

**Fiksna ugradnja na pomorskim brodovima, odobalnim objektima i industriji.**  
*Fixed installation in marine, offshore and industrial use.*

**DOKUMENTACIJA ZA TIPNO ODOBRENJE:***TYPE APPROVAL DOCUMENTATION:*

Helkama TA Application for LKSM-VFD 1.8	2012-01-27
Helkama Cable Data Sheet Specification HBKQ 9. Spec 61 LKSM-VFD 1.8/3 kV, incl. App. 1	2012-01-16

**Izveštaj o ispitivanju/ test report:**

TT\_lksm\_VFD 3 x 16, Tt doc\_i (s.f)/TTT\_LKSM-VFD 3 x 16

**OZNAČAVANJE PROIZVODA:***MARKING OF PRODUCT:*

For conductor sizes 10 – 300 mm<sup>2</sup>

LOT ##### LKSM-VFD “number of core” x “size of conductor” mm<sup>2</sup>

1,8/3 kV + 90°C IEC 60092-353, 60332-3-22 HELKAMA “month-year” and ”length marking”

For conductor with additional PE conductors

LOT ##### LKSM-VFD “number of unit” x “size of conductor” mm<sup>2</sup> + 3 x “PE conductor size” mm<sup>2</sup>

1,8/3 kV + 90°C IEC 60092-353, 60332-3-22 HELKAMA “month-year” and ”length marking”

**UVJETI ZA CERTIFIKACIJU:***CONDITIONS FOR CERTIFICATION:*

NON

Raččlana

12.05.01

Zamjenjuje potvrdu

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