



Certificate No. 03-001780/031474

TYPE APPROVAL CERTIFICATE

This is to certify that this product complies with the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products.

TYPE AND DESCRIPTION OF PRODUCT:

**SHIPBOARD INSTRUMENTATION, COMMUNICATION AND CONTROL CABLE
HALOGEN FREE AND FIRE RESISTANT**

**LKM-FRHF / LKSM-FRHF/ LKAM-FRHF 150/250 V (300 V)
LKM-FRSHF2 / LKSM-FRSHF2/ LKAM-FRSHF2 150/250 V (300 V)**

MANUFACTURER:

HELKAMA BICA Oy
Lakimiehenkatu 4
FI-20780 Kaarina
FINLAND

ADDITIONAL PLACES OF PRODUCTION:

HELKAMA Bica Oy, Lasitehtaankatu 12, FI-10960 Hanko, FINLAND

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

CRS RULES FOR THE CLASSIFICATION OF SHIPS, PART 12 - ELECTRICAL EQUIPMENT

Helkama specification: HBKQ 9 spec. 63, 64, 67, 124, 126 and 130

Technical specification:

Design standard: IEC 60092-376 Ed.3.0 (2017-05),
Cable for control and instrumentation circuits 150/250 V (300 V)

Other standards:

- testing: IEC 60092-350 Ed.5.0 (2020-01), General constructions and testing requirements
- insulation: IEC 60092-360 Ed.1.0 (2014-04), Insulating materials for shipboard power cables
- sheathing: IEC 60092-360 Ed.1.0 (2014-04),
Sheathing materials for shipboard power and telecommunication cables

FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.

APPROVAL IS VALID UNTIL: **2024-04-04**

Place and date: Split, 2020-10-09

Seal

Marinko Popović, dipl.ing.

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.

DETAILED PRODUCT DESCRIPTION:

Multi core instrument cables with stranded plain annealed Cu conductors (option tinned Cu) with XLPE insulation.
Fire properties: flame retardant, fire resistant, halogen free and low smoke.

LKM-FRHF 250 V Unarmoured
LKM-FRSHF2 250 V
LKSM-FRHF 250 V Cu-or CuSn-wire braid armoured
LKSM-FRSHF2 250 V (Collectively screened)
LKAM-FRHF 250 V Al/pest-tape collectively screened
LKAM-FRSHF2 250 V

Types	Number of conductors	Conductor cross section [mm ²]
LKM-FRHF LKM-FRSHF2 LKSM-FRHF LKSM-FRSHF2 LKAM-FRHF LKAM-FRSHF2	2, 3, 4, 5, 7, 10, 12, 14, 16, 19, 20, 24, 27, 32, 37, 61	0.75

APPLICATION / LIMITATIONS:

Fixed installations in marine, offshore and industrial use.

TYPE APPROVAL DOCUMENTATION:

Helkama LKM-FRHF/LKM-FRSHF2 250 V Cable Data Sheet Specification HBKQ 9. Spec 63/124	2020-07-08
Helkama LKSM-FRHF/LKSM-FRSHF2 250 V Cable Data Sheet Specification HBKQ 9. Spec 64/126	2020-07-08
Helkama LKAM-FRHF/LKAM-FRSHF2 250 V Cable Data Sheet Specification HBKQ 9. Spec 67/130	2020-07-08

Test report:

LKM-FRHF 250V TT GL; TT_LKSM-FRHF 250V GL; LKAM-HF 24 x 0,75 250V GL TT (App LKAM-FRHF 24 x 0,75 mm²)

Helkama Test report for SHF2 sheathed cables dated 19.03.2012.

MARKING OF PRODUCT:

LOT ##### LKM-FRHF/LKM-FRSHF2/ LKSM-FRHF/LKSM-FRSHF2 "number of core" x "size of conductor" mm² 250 V + 90°C IEC 60092-376, 60331-1 (180) or 60331-2 (180), 60332-3-22 HELKAMA "month-year" and "length marking"

LOT ##### LKAM-FRHF <number of conductors > x <size> mm² 250 V + 90°C IEC 60092-376, 60331-1 (180) or 60331-2 (180), 60332-3-22 HELKAMA "month-year" and "length marking"

LOT ##### LKAM-FRSHF2 <number of conductors > x <size> mm² 250 V + 90°C IEC 60092-376, 60331-1 (180) or 60331-2 (180), 60332-3-22 HELKAMA "month-year" and "length marking"

CONDITIONS FOR CERTIFICATION:

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