



Confirmation of Product Type Approval

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product. This certificate reflects the information on the product in the ABS Records as of the date and time the certificate is printed.

Pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product held a valid Manufacturing Assessment (MA) with expiration date of 09/JAN/2019. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And; a Product Design Assessment (PDA) valid until 09/FEB/2021 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

Product Name: Cable, Propulsion or Propulsion Control
Model Name(s): LKEM-HF 0.6/1 kV and LKEM-SHF2 0.6/1 kV

Presented to:
HELKAMA BICA OY
LAKIMIEHENKATU 4
Finland

Intended Service:	For use on ABS Classed Vessels and Offshore Facilities in accordance with the listed ABS Rules and International Standards.
Description:	Propulsion controls, propulsion semiconductors and propulsion cables over 1.5 square mm. Single core halogen free, flame retardant power, lighting and switchboard wiring cables with cross-linked polyolefine plastic insulation to IEC 60092-360 / HF90/SHF2.
Ratings:	Rated voltage: 0,6 / 1 kV Max. Conductor Temperature: 90°C Cable Size: 0.75-300 mm
Service Restrictions:	Unit Certification is required for Propulsion controls, propulsion semiconductors and propulsion cables. All propulsion cables, other than internal wiring in control gears and switchboards are to be subjected to Dielectric and Insulation Tests at the Plant of Manufacture and ON BOARD in the presence of the Surveyor. 4-1-1/Table 3 (item 21) and 4-8-5/5.17.11 (e) of the ABS Rules for Building and Classing Steel Vessels 2016, 4-6-5/3.17.11 (e) of the ABS Rules for Building and Classing Steel Vessels under 90 Meters in Length 2016, 4-8-5/5.17.11 (e) of the ABS Rules for Offshore Support Vessels 2016, 4-5-5/5.17.11 (e) of the ABS Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways 2016 and 4-6-5/3.17.11 (e) of the ABS Rules for High Speed Crafts 2016 refer. LKEM-HF and LKEM-SHF2 are not intend to use in Hazardous Area.
Comments:	The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product. Test certificates are to be provided to the surveyor if

requested. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined.

Notes / Documentation:

Drawing No. Specification HBKQ 9 Spec.33 LKEM-HF 0.6/1kV and HBKQ 9 Spec.176 LKEM-SHF2 0.6/1kV datasheet , Revision: -, Pages: Drawing No. Test Report LKEM-SHF2 TT RMRS approved, Revision: -, Pages:

Term of Validity:

This Product Design Assessment (PDA) Certificate 16-LD1481558-PDA, dated 10/Feb/2016 remains valid until 09/Feb/2021 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be to an agreement between the manufacturer and intended client.

ABS Rules:

- Steel Vessel Rules (2016): 1-1-4/7.7, 1-1-A3&A4; 4-8-3/9 - Steel Vessels Under 90 Meters (295 Feet) in Length (2016): 1-1-4/7.7, 1-1-A3&A4; 4-6-4/13 - Mobile Offshore Drilling Units (2016): 1-1-4/9.7, 1-1-A2&A3, 6-1-1/9, 6-1-1/13; 4-3-4/7 - Offshore Support Vessels (2016): 1-1-4/7.7, 1-1-A3&A4, 4-8-3/9 - Facilities on Offshore Installations (2016): 1-1-4/9.7, 1-1-A2&A3 - Steel Vessels for Service on Rivers and Intracoastal Waterways (2016): 1-1-4/7.7, 1-1-A3&A4 - High Speed Crafts (2016): 1-1-4/11.9, 1-1-A2&A3; 4-6-4/13 - Steel Barge Rules (2016): 1-1-4/7.9, 1-1-A3&A4; 4-1-3/9.1

**National Standards:
International Standards:**

IEC 60092-350 Ed4.0:2014, IEC 60092-353 Ed3.0:2011, IEC 60332-1-2 Ed1.0 :2004, IEC 60228 Ed3.0:2004, IEC 60092-360 Ed1.0:2014, IEC60754-1 Ed3.0:2011, IEC60754-2 Ed2.0:2011, IEC 60684-2 Ed3.0:2011, IEC 61034-1 Ed3.1:2013, IEC 61034-1 Ed3.1:2013.

Government Authority:

EUMED:

Others:

Model Certificate	Model Certificate No	Issue Date	Expiry Date
PDA	16-LD1481558-PDA	10/FEB/2016	09/FEB/2021



ABS Programs

ABS has used due diligence in the preparation of this certificate and it represents the information on the product in the ABS Records as of the date and time the certificate was printed. Type Approval requires Drawing Assessment, Prototype Testing and assessment of the manufacturer's quality assurance and quality control arrangements. Limited circumstances may allow only Prototype Testing to satisfy Type Approval. The approvals of Drawings and Products remain valid as long as the ABS Rule, to which they were assessed, remains valid. ABS cautions manufacturers to review and maintain compliance with all other specifications to which the product may have been assessed. Further, unless it is specifically indicated in the description of the product; Type Approval does not necessarily waive witnessed inspection or survey procedures (where otherwise required) for products to be used in a vessel, MODU or facility intended to be ABS classed or that is presently in class with ABS. Questions regarding the validity of ABS Rules or the need for supplemental testing or inspection of such products should, in all cases, be addressed to ABS.