Certificate No: TO.DEB.21-1794-03

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This Certificate consists of 3 pages.

This is to certify that the

TİP 2: NAVY SHIP CONTROL AND SIGNAL CABLES

With type designations

KT-LHCH, KT-LHCH-FR

Manufactured by

KABLOTEK KABLO SANAYİ VE TİCARET A.Ş.

Is found to comply with

TÜRK LOYDU RULES CHAPTER E, PART 105 - NAVAL SHIP TECHNOLOGY, ELECTRICAL INSTALLATIONS
TÜRK LOYDU RULES CHAPTER B, PART 5 – ELECTRIC
TÜRK LOYDU ASKERİ GEMİ KABLOLARI İÇİN TEST GEREKSİNİMLERİ,
IEC 60092-350, 352, 360, IEC 60332-1-2, IEC 60332-3-22,
IEC 60331-21 (FE 180) (Fire Resistant Types Only)

Application	: Tip 2, Lightweight, Power, Signal and control cables for naval ships
Design	: Voltage class up to 550 VAC & 825 VDC and Temperature Class 90°C
Sizes	: Core Number: 2 to 37, Cross Section: 1,5 mm², 2,5 mm²
Address of Manufacturer	: Ali Paşa Mahallesi, Sanayi 12. Sokak, No:7, Silivri/İSTANBUL - TÜRKİYE
Place and date	: İSTANBUL / 01.09.2021

Subject to the conditions referred to in the following pages, this certificate is valid until 16.08.2026

Emrah SÖĞÜTCÜ
New Building Division Manager

118836

Product description : Lightweight, Power and Signal and control cables for fixed applications for naval and commercial ships with following properties:
Voltage ratings: 550 VAC or 825 VDC
Temperature Class: 90°C
Cables mentioned in this certificate are Tip 2 type cables in TL Askeri Gemi Kabloları Teknik Sirküleri

Type Designation : Below type designations can be used
KT-LHCH: Halogen free screened signal and control cables
KT-LHCH-FR: Halogen free screened signal and control cables with fire resistant capability
-FR is used for fire resistivity

Materials used :
Conductor: Copper for electrical application
Material for Insulation: Halogen free, cross linked polymeric material
Material for Covering of Cores: Halogen free elastic or plastic compound
Material for Screen: Cooper for electrical applications
Material for Sheath: Halogen free, cross linked elastomeric compound
Material for Fire Resistivity: Fire resistive tape (Mica tape etc.) around conductor (FR type)

Application/Limitation(Approval conditions): -

Documentation : Product test reports (TL, KABLOTEK, TSE), KABLOTEK Crosspolimeri test report 26.07.2018

Test carried out (and results) : Below tests have been carried out and found satisfactory

1- Visual inspection and dimensional controls
2- Construction and finishing control
3- Marking control
4- Print durability control
5- Mechanical controls;
   - Tensile strength and elongation tests (Insulation and sheath)
   - Abrasion test
   - Notch sensitivity test
   - Tear resistance test
6- Thermal effect tests;
   - Cold bend test (d>12,5 mm), Coiling test at low temperature (d ≤ 2,5 mm)
   - Hot set test
   - Shrinkage test
   - Heat shock test
7- Fire retardant tests (single cable and cable bunch)
8- Tensile strength and elongation change tests after aging treatment (Insulation, sheath and complete cable)
9- Ozone resistance test
10- Smoke density control
11- Electrical controls;
   - Conductor resistance test
   - High voltage test
   - Insulation resistance test (20°C and 90°C)
   - Electromagnetic compatibility test
   - Increase in AC capacitance test
12- Halogen content control, corrosivity of combustion gases and Fluorine content test

13- Toxicity index control
14- Operation under fire condition (3h) test (Fire resistant types only)
15- Chemical resistance and oil resistance tests for sheath

Place of test carried out : KABLOTEK FACTORY, TSE

Marking of product: KABLOTEK, year of production, lot number, S.P 01-21, Cable TL type, cable code, number of cores, cross section

Yağız YILDIRIM
Surveyor

This certificate is subject to terms and conditions described below:

- Any significant change in design or construction may render this Certificate invalid. Type Approval Certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. This certificate is not valid for products without marking above mentioned. The manufacturer should notify TÜRK LOYDU of any modifications or changes to the equipment in order to obtain valid certificate. This certificate shows that tested specimens as representative of the product complies of the TÜRK LOYDU rules, and relevant international instruments that apply to it.