



TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This Certificate consists of 3 pages.

This is to certify that the

SHIPBOARD POWER AND SIGNAL CABLES

With type designations

TFOI, TFCI, TFXI, BFOI, BFCI, BFXI

Manufactured by

2M KABLO SANAYİ VE TİCARET A.Ş.

Is found to comply with

Türk Loydu Rules Chapter 5 – Electrical Installations,
Power Cables acc. to IEC 60092-353, Signal Cables acc. to IEC 60092-376,
IEC 60092-350, IEC 60092-360, IEC 60228, IEC 60332-1-2, IEC 60332-3-22 Cat A,
IEC 60754-1, IEC 60754-2, IEC 60684-2, IEC 61034-1, IEC 61034-2,
For fire resistant cables IEC 60331-21

Application : Power, lighting, instrumentation and signal cables for ships

Design : Voltage rating: 0,6/1 (1.2) kV,
Maximum rated conductor temperature:
Normal operation: 90°C,
Short circuit: 250°C

Sizes : Power cables from 1mm² to 300mm²,
Signal cables from 0,75mm² to 2,5mm².

Address of Manufacturer : Sancaktepe Mah. Klas Sok. No:8/1 Silivri İSTANBUL

Place and date : İSTANBUL, 18.05.2016

Subject to the conditions referred to in the following pages, this certificate is valid until 17.05.2021.

Hür FIRTINA
New Building Division Manager

S. Taner GÜNDÜZ
Surveyor



Product description : Shipboard and Signal Cables

Type Designation : TFOI, TFCI, TFXI, BFOI, BFCI, BFXI

TFXI 0.6/1 (1.2) kV, TFXI (C) 0.6/1 (1.2) kV, TFOI EMC 0.6/1 (1.2) kV, TFOI 0.6/1 (1.2) kV, TFCI 0.6/1 (1.2) kV, TFOI (C) 0.6/1 (1.2) kV, TFCI (C) 0.6/1 (1.2) kV,

FireKab BFXI FE180 0.6/1 (1.2) kV, FireKab BFXI (C) FE180 0.6/1 (1.2) kV, FireKab BFOI FE180 0.6/1 (1.2) kV, FireKab BFCI FE180 0.6/1 (1.2) kV, FireKab BFOI (C) FE180 0.6/1 (1.2) kV, FireKab BFCI (C) FE180 0.6/1 (1.2) kV,

TFOI 150/250 (300) V, TFOI (I) 150/250 (300) V, TFOI (C) 150/250 (300) V, TFCI (C) 150/250 (300) V, TFOI (I&C) 150/250 (300) V,

FireKab BFOI FE180 150/250 (300) V, FireKab BFOI (I) FE180 (I) 150/250 (300) V, FireKab BFCI (I) FE180 150/250 (300) V, FireKab BFOI (C) FE180 150/250 (300) V, FireKab BFOI (I&C) FE180 150/250 (300) V, FireKab BFCI (I&C) FE180 150/250 (300) V,

TFXI 150/250 (300) V, TFXI (I) 150/250 (300) V, TFXI (C) 150/250 (300) V, TFXI (I&C) 150/250 (300) V,

FireKab BFXI FE180 150/250 (300) V, FireKab BFXI (I) FE180 150/250 (300) V, FireKab BFXI (C) FE180 150/250 (300) V, FireKab BFXI (I&C) FE180 150/250 (300) V.

Materials used : Following materials are used where required:

Conductor: Plain annealed stranded copper wire class 2, tinned copper or class 5 (IEC 60228),

Insulation: XLPE (IEC 60092-360),

Flame Barrier: Mica tape,

Lay-up: Cores, pairs, triples, quad are stranded in layers,

Individual shielding: AL-PES tape with tinned copper drain wire,

Overall separator: Polyester tape,

Overall Shielding: AL-PES tape with tinned copper drain wire,

Inner sheath/separator: Halogen free filler or polyester tape,

Screen/Armour: Electrolytic copper wire braiding (%90 coverage) and drain wire or galvanized steel braid.

Sheath: SHF1 (Halogen free, flame retardant thermoplastic compound, IEC 60092-360)

Application/ Limitation (Approval conditions):

For each new building ship and in service ships under major modifications, factory acceptance tests (routine tests) for cables shall be carried out before mounted to the ship with the witness of TL surveyor.

Documentation :

2M KABLO data sheet, TSE test reports for fluorine content dated 11.03.2016, TSE test reports for ph/conductivity dated 09.02.2016, 2M KABLO test reports dated 05.04.2016.

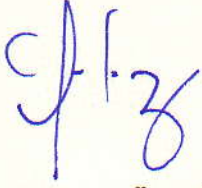
Test carried out (and results) :

Test carried out for power cables acc. to IEC 60092-353, for signal cables acc. to IEC 60092-376, and for fire resistant cables IEC 60331-21

Place of test carried out : 2M KABLO Silivri İSTANBUL

Marking of product: The product to be marked same as below mentioned.

[Manufacturer trade mark][type] [size] [volt] [standards]



S. Taner GÜNDÜZ

Surveyor

This certificate is valid if retention/renewal surveys carried out to the satisfaction of TL surveyor and following entries made:

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Surveyor	Surveyor	Surveyor	Surveyor
<input type="text" value=".../.../2017"/>	<input type="text" value=".../.../2018"/>	<input type="text" value=".../.../2019"/>	<input type="text" value=".../.../2020"/>
Survey Date	Survey Date	Survey Date	Survey Date

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.