Certificate No.: 2507211552158034

TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This is to certify that the

TYPE 2: NAVY SHIP LIGHT POWER CONTROL AND SIGNAL CABLES

TL Project No	**22-2538**
Manufacturer	**BAŞOĞLU Kablo ve Profil Sanayi ve Tic. A.Ş.**
Address	**Merkez, Organize Sanayi Bölgesi, Akın Çakmak Blv. Bolu**
Product Type	**TAKYEYO, TAKYEYO FR-180**
Reference Rule	**TL Rules, Part E, Chapter 105 - Naval Ship Technology, Electrical Installations, 01.01.2022** **TL Rules, Part B, Chapter 5, Electric, 01.07.2022** **S-P 01/21 REV.01 ASKERİ GEMİ KABLOLARI İÇİN TEST GEREKSİNİMLERİ, 01.07.2024**
Expire Date of Previous Certificate	-
Place and Date	**İSTANBUL / 22.07.2025**

This certificate supersedes 2212261800043878 numbered certificate.

Subject to the conditions referred to in the following pages, this certificate is valid until 29.12.2027.

124900

Emrah SÖĞÜTÇÜ

New Building Division Manager

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 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 revelant international instruments that apply to it.

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Product	: TYPE 2: NAVY SHIP LIGHT POWER CONTROL AND SIGNAL CABLES
Type of Product	: TAKYEYO, TAKYEYO FR-180
Product Description	: Voltage Rate: 550 VAC Test Voltage: 2.5 kVAC Operating Temperature: -30 °C / +90 °C Core Number: 2 to 37, Cross Section: 1,5 mm², 2,5 mm² Conductor: Electrolytic Copper Wires (Bare or Tinned Coated), EN 60228 Class 5 or Class 2. Insulation: Halogen Free, Cross-Linked Insulation Compound, Silicone Insulation Compound for TAKYEYO FR-180 Flame Barrier: Mica Tape forTAKYEYO FR-180, Fiberglass Tape for TAKYEYO FR-180 Stranding: Cores are Stranded in Layers Separator: PET Foil Screen: Tinned Copper Braid (90 % Coverage) Separator: PET Foil Outer Sheath: Halogen-Free, Flame Retardant, Cross-Linked Sheathing Compound Outer Sheath Colours: Green for FR type, one core insulation colours green-yellow for TAKYEYO
Approval No / Date	: PAE-EPAS/014604/22-2538/GTÇ- 20.12.2022
Standart	: Fire Resistance: IEC 60331-21, Flame Retardant: IEC 60332-1-2, IEC 60332-3-22, Halogen Free: IEC 60754/1-2, Smoke Density: IEC 61034-2
Performed Tests	: Below tests and QMS audit 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, Coiling test at low temperature, 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, Electromagnetic compatibility test, Increase in AC capacitance test 12- Halogen content control, corrosivity of combustion gases and Fluorine content test 13- In service life control 14- Toxicity index control 15- Operation under fire condition (3h) test (Fire resistant types only) 16- Chemical resistance and oil resistance tests for sheath
Test Place	: BAŞOĞLU KABLO- BOLU
Test Scope	: Type Tests
Last Inspection Date	: 17.07.2025

Approval Conditions : Applications other than the "Product Description" mentioned in this certificate are not covered by this type approval certificates.

Surveyor Name : İbrahim Evren DAL

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