



TÜRK LOYDU

TYPE APPROVAL CERTIFICATE

This is to certify that the

Shipboard Power, Lighting and Control, Instrumentation and Communication Cables

Manufacturer : 2M KABLO SANAYI VE TICARET A.S.

Address : Organize Sanayi Bölgesi, Gaziosmanpaşa Mahallesi, 4. Cadde, No:18, 59500 Çerkezköy/Tekirdağ

Product Type : FM2XCCH FE 180, FM2XCSH FE 180
FM2XACH FE 180, FM2XAACH FE 180
FM2XAASH FE 180
FM2XCH FE180, FM2XSH FE 180
FM2XH(I) FE 180, FM2XAH FE 180
FM2XAAH FE 180
FM2XH FE 180
FM2XCCH, FM2XACH, FM2XASH
FM2XAACH
FM2XCH, FM2XSH
FM2XH(I), FM2XAH, FM2XAAH
FM2XH, M2XH, M2XH FE 180
M2XASH, M2XASH FE 180
M2XSH, M2XSH FE 180
M2XACH, M2XACH FE 180
M2XCH, M2XCH FE 180
M2XAH, M2XAH FE 180, M2XCH EMC/VFD

Reference Rule : TL Rules, Part E, Chapter 105 - Naval Ship Technology, Electrical Installations, 01.01.2022
IEC 60092-360 Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables , 04.01.2021
IEC 60092-350 General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications, 28.01.2020
IEC 60754 - 1&2 Test on gases evolved during combustion of materials from cables, 17.11.2011
IEC 61034 - 1&2 , 20.04.2005
TL Rules, Part B, Chapter 5, Electric , 01.01.2024
IEC 60332-3-22, Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A , 19.11.2018
IEC 60092-353 Power cables for rated voltages 1 kV and 3 kV, 06.06.2024
IEC 60092-376:2025, 28.04.2025
IEC 60228:2023 Conductors of insulated cables, 11.12.2023
IEC 60332-1-2 Tests on electric and optical fibre cables under fire conditions, 10.06.2025
IEC 60684-2 Flexible insulating sleeving - Part 2: Methods of test, 05.09.2025
IEC 60331-1:2018 Tests for electric cables under fire conditions - Circuit integrity - Part 1:, 28.03.2018
IEC 60331-2:2018 Tests for electric cables under fire conditions , 10.07.2026

This certificate is subject to terms and conditions described below:

Any significant change in design or construction may render this Certificate invalid. 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 relevant international instruments that apply to it.

Subject to the conditions referred to in the following pages, this certificate is valid until **03.08.2031**
Surveyor: **Abdullah DEMİRCİ**

Issued at **İstanbul** on **04.09.2026**



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does not require a manual signature*

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Emrah SÖĞÜTÇÜ
New Building Division Manager
TÜRK LOYDU

Expire Date of Previous Certificate: 03.08.2026

This certificate supersedes 2605151407126354 numbered certificate.



Product	: Shipboard Power, Lighting and Control, Instrumentation and Communication Cables
Approval No / Date	: PAE-EPAS/024434/26-0561/MY/06.04.2026
Application	: Low voltage power, lighting, control, instrumentation and communication cables for shipboard installations. Not intended for use as essential cables
Material Used	: - Conductor: Bare or tinned stranded copper - Class 2 or 5 Fire-resisting layer:Mica tape (FE 180 type) - Insulation: XLPE (cross-linked polyethylene) - Inner covering/ sheath:SHF1(halogen-free thermoplastic) - Individual screen: Al-PET foil (with tinned copper drain wire) (FM2XCCH, FM2XAACH, FM2XAAH, FM2XH(I)) - Overall screen:Tinned or annealed copper wire braiding with 90% coverage (FM2XCH, FM2XCCH, FM2XACH,FM2XAACH,M2XCH, M2XACH types) - Al-PET foil (with tinned copper drain wire) (FM2XACH, FM2XASH, FM2XAACH, FM2XAAH, FM2XAH, M2XCH(EMC/VFD type) - Outer sheath: SHF1(halogen-free thermoplastic) - Armour: Galvanized steel wire braid (FM2XSH, FM2XASH) - Colour of Sheat: Black or Yellow/Green (other colors available on request)
Operating Temperature	: -40°C to +90°C
Application/Limitation	: Naval Application are not covered with this Type Approval Certificates.
Documentation	: 1. Routine Test Report, Issued By 2MKABLO-15.05.2026 2. Ageing Test with Air Oven Test Report, Issued By 2MKABLO-15.05.2026 3. HotSet Test for XLPE Test Report, Issued By 2MKABLO-15.05.2026 4. Flame Propagation Test Report Issued By 2MKABLO-15.05.2026 5. Halogen Content -Determination of Acidity and Conductivity Test Report, Issued By 2MKABLO-07.05.2026 6. Smoke Density Test Report, Issued By 2MKABLO-07.05.2026 7. Increase in AC Capacitance Test Report, Issued By 2MKABLO-15.05.2026
Performed Tests	: Following Test have been carried out and found satisfactory; Quality Audit Visual Inspection and Dimensional Controls Marking Control Print Durability Control Mechanical Controls; -Tensile Strength and Elongation Tests Thermal Effect Tests; -Hot Set Test Flame Retardant Test Tensile Strength and Elongation Change Tests Before Ageing Treatment Tensile Strength and Elongation Change Tests After Ageing Treatment Smoke Density Test Electrical Controls; -Conductor Resistance Test -High Voltage Test -Insulation Resistance Test -Increase in AC Capacitance Test Halogen Content Control, Corrosivity of Combustion Gases and Fluorine Content Test
Test Place	: Organize Sanayi Bölgesi, Gaziosmanpaşa Mahallesi, 4. Cadde No:18, 59500 Çerkezköy/Tekirdağ
Marking of Product	: 2MKABLO, [Lot Number], [related standards] [type] [size] [volt class] [Production Year] [Cable Length]
Last Inspection Date	: 15.05.2026
Others	: Abbreviation: P: Pair C: Core T:Timf Q:Quadruple

	Type of Product	Cross Section	Size	Rated Voltage
1	FM2XCCH FE 180, FM2XCSH FE 180 FM2XACH FE 180, FM2XAACH FE 180 FM2XAASH FE 180 FM2XCH FE180, FM2XSH FE 180 FM2XH(I) FE 180, FM2XAH FE 180 FM2XAAH FE 180 FM2XH FE 180 FM2XCCH, FM2XACH, FM2XASH FM2XAACH FM2XCH, FM2XSH FM2XH(I), FM2XAH, FM2XAAH FM2XH	0.5-2.5mm ²	1C to 37C 1P to 37P 1T to 12T 1Q to 12Q	150/250 V (300 V)
2	M2XH, M2XH FE 180 M2XASH, M2XASH FE 180 M2XSH, M2XSH FE 180 M2XACH, M2XACH FE 180 M2XCH, M2XCH FE 180 M2XAH, M2XAH FE 180	1-300mm ²	1	0.6-1 kV
3	M2XH, M2XH FE 180 M2XASH, M2XASH FE 180 M2XSH, M2XSH FE 180 M2XACH, M2XACH FE 180 M2XCH, M2XCH FE 180 M2XAH, M2XAH FE 180	1-240mm ²	2 to 5	0.6-1 kV
4	M2XH, M2XH FE 180 M2XASH, M2XASH FE 180 M2XSH, M2XSH FE 180 M2XACH, M2XACH FE 180	1-4mm ²	7 to 37	0.6-1 kV

	M2XCH, M2XCH FE 180 M2XAH, M2XAH FE 180			
5	M2XCH EMC/VFD	1-300mm ²	1	0.6-1 kV
6	M2XCH EMC/VFD	1-185mm ²	2 to 5	0.6-1 kV
7	M2XCH EMC/VFD	1-4mm ²	7 to 37	0.6-1 kV
8	M2XCH EMC/VFD	10-240mm ² + 4- 50mm ²	3+3E	0.6-1 kV

Approval Conditions :-

