

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Electric Power Cable**with type designation(s)
M2X 0,6/1 kV Switchboard wire

Issued to

2 M Kablo Sanayi ve Ticaret A.S
Istanbul, Turkey

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft
DNV GL class programme DNVGL-CP-0399 – Type approval – Electric cables**Application :****0,6/1 kV switchboard wire.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.****Voltage class (kV) 0,6/1**
Temp. class (°C) 90This Certificate is valid until **2021-10-10**.Issued at **Høvik** on **2016-10-11**for **DNV GL**DNV GL local station: **Istanbul**Approval Engineer: **Ivar Bull**

Andreas Kristoffersen
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

Job Id: **262.1-020084-1**
Certificate No: **TAE000019U**

Product description

Type: M2X 0,6/1 kV Switchboard wire

Construction:

Conductor: Plain or Tinned, stranded copper class 2 or class 5

Core insulation: HF90

No of cores:	Cross sectional area [mm ²]
1	1 – 300

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-353	2011-08	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	0,6/1 kV
IEC 60332-3-22	2009-02	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	Bunch test Category A
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Low Halogen: <0,5% Halogen
IEC 60754-2	2011-11	Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm
IEC 61034-1/2	2013-07 2013-09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance ≥60%
IEC 60684-2	2011-08	Flexible insulating sleeving – Part 2: Methods of test Clause 45.2 Methods of determination of low levels of fluorine	HF max 0,1% [0,02% can be detected]

Marking of product

2M Kable – M2X – Size – 0,6/1 kV – IEC 60332 Cat. A – Lot no.

Periodical assessment



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The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

Inspection on factory samples, selected at random from the production line (where practicable)
Results from Routine Tests (RT) checked (if not available tests according to RT to be carried out)
Review of type approval documentation
Review of possible change in design, materials and performance
Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Assessment to be performed at least every second year.

END OF CERTIFICATE