TYPE APPROVAL CERTIFICATE

Certificate no.:
TAE0000159
Revision No:
4

This is to certify:

that the Electric Power Cable

with type designation(s)
M2XACH FE 180, M2XASH FE 180

issued to
2M Kablo Sanayi ve Ticaret A.S
Çerkezköy, Tekirdağ, Türkiye

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft
DNV class programme DNV-CP-0399 – Type approval – Electric cables

Application:

Products approved by this certificate are accepted for installation on all vessels classed by DNV.

Type	Rated voltage (kV)	Temp. class (°C)
M2XACH FE 180	0,6/1	90
M2XASH FE 180	0,6/1	90

Issued at **Høvik** on **2026-06-22**
This Certificate is valid until **2031-07-03**.
DNV local unit: **Istanbul**

for **DNV**

Approval Engineer: **Ivar Bull**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

M2XACH FE 180/ M2XASH FE 180 0,6/1 kV

Construction:

Conductors:	Tinned or annealed stranded copper (class 2 or class 5)
Core insulation:	Mica tape + XLPE
Overall separator:	Polyester tape
Overall shielding:	AL-PES tape (with tinned copper drain wire)
Inner sheath/ separator:	Halogen free filler or polyester tape (only for BFCI (c))
Screen / Armour:	Tinned or annealed copper wire braid, or galvanized steel braid
Outer sheath:	SHF1

No of Elements:	Cross sectional area [mm^2]
1	1,0 1,5 2,5 4 6 10 16 25 35 50 70 95 120 150 185 240 300
2, 3, 4	1,0 1,5 2,5 4 6 10 16 25 35 50 70 95 120 150 185 240
5, 7, 12, 16, 19, 24, 27, 37	1,0 1,5 2,5

Manufactured by

2M Kablo Sanayi ve Ticaret A.Ş.
Çerkezköy V.D. Gaziosmanpaşa OSB Mahallesi, 4. Cadde No:18/A
59500 Çerkezköy, Tekirdağ, Türkiye

Application/Limitation

This cable is fire resistant according to IEC 60331.

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	Issued	General description	Limitation
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2021-01	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60331-1/2	2018-03	Fire resistance / Circuit integrity – Test for method for fire with shock at temperature of at least 830ºC for cables rated up to and including 0,6/1 kV	
IEC 60332-3-22	2018-07	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 60332-1-2	2025-06	Tests on electric cables under fire conditions. Test for vertical flame propagation for a single insulated wire or cable.	

Standard	Issued	General description	Limitation
IEC 60754-1	2019-11	Test on gases evolved during combustion of materials from cables – Determination of the amount of halogen acid gas	Low Halogen: <0,5% Halogen
IEC 60754-2	2019-11	Test on gases evolved during combustion of materials from cables – Determination of the degree of acidity of gases evolved during the combustion of materials taken from electric cables by measuring pH and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke

Marking of product

2M Kablo IEC 60092-353 – M2XACH FE 180 – 0,6/1 kV – IEC 60332-3-22 Cat. A – IEC 60331 – meters – year, or:
2M Kablo IEC 60092-353 – M2XASH FE 180 – 0,6/1 kV – IEC 60332-3-22 Cat. A – IEC 60331 – meters – year.

Periodical assessment

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.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE