TYPE APPROVAL CERTIFICATE

Certificate No:
TAE00002BC
Revision No:
3

This is to certify:

That the Electric Power Cable

with type designation(s)
M2X, M2X SHF2 Green/Yellow earth wire

Issued to
Untel Kablolari San. ve Tic. A.S.
Dilovası, **Türkiye**

is found to comply with
DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

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

Type	Rated voltage (kV)	Temp. class (°C)
M2X	0,6/1	90
M2X SHF2 Green/Yellow earth wire	0	90

Issued at **Høvik** on **2023-03-01**

for **DNV**

This Certificate is valid until **2027-12-31**.
DNV local unit: **Istanbul**

Approval Engineer: **Ivar Bull**

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Frederik Tore Elter
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.

Product description

M2X,
M2X SHF2 Green/Yellow earth wire

Conductor:	Plain or tinned stranded copper class 2 or class5	
Insulation:	M2X:	XLPE Compound (flame retardant)
	M2X SHF2:	Type with SHF2 outer sheath can be used as earth wire.

Cross-sectional areas: 1 - 300mm²

Application/Limitation

Switchboard wires for 0,6/1 kV power circuits inside cabinets.
SHF2 type can only be used as yellow/green earth conductor.

Type Approval documentation

Data sheet:	M2X SHF2 Rev. 3 dated 16.04.2021
Test Report:	Üntel Kabloari Quality Control Report dated of 12.01.2004
	Üntel Kabloari dated 23.08.2017

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 60092-353	2016-09	Electrical installations in ships – Part 353: Power cables for rated voltages 1 kV and 3 kV	
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 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable –Procedure for 1 kW pre-mixed flame	
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 – 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/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%

Marking of product

ÜNTEL voltage level M2X size IEC 60092/353, IEC 60332-3 CAT A CE– lot no

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