DNV·GL

Certificate No:
TAE000038M

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MGCH-FFR EMC

Issued to
Untel Kablolari San. ve Tic. A.S.
Dilovasi, Turkey

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

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Rated voltage (kV)	0,6/1
Temp. class (°C)	90

Issued at Hamburg on 2019-01-18
This Certificate is valid until 2024-01-17.
DNV GL local station: Istanbul

Approval Engineer: Carsten Hunsalz

for DNV GL

Arne Schaarmann
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: 262.1-028904-1
Certificate No: TAE000038M

Product description

Halogen free, HF HEPR insulated and thermoplastic sheathed shipboard power and control cable with copper wire braiding

Type: MGCH-FFR EMC

Rated voltage: 0,6 / 1 kV
Maximum operating conductor temperature: 90° C
Conductor: Stranded copper conductor, class 2 / 5 (tinned optional)
Insulation: Mica tape + HF HEPR
Screen: Copper wire braiding, wrapped by copper tape (EMC)
Outer sheath: Thermoplastic polyolefin based compond / SHF1

Number of cores:	Cross-sectional area:
1	1,5 to 300 mm ²
2 to 4	1 to 300 mm ²
5	1 to 240 mm²
7	1 to 4 mm²
10 to 37	1,5 to 2,5 mm²

Application / Limitation

This type of cable is fire resistant in accordance with IEC Publication 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.

General power and lighting.
Fire resistant. Flame retardant in bunch Cat. A. Halogen free. Low smoke.

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 60092-353	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 60331-1	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	For cables with an overall diameter exceeding 20 mm

Standard	Release	General description	Limitation
IEC 60331-21	1999-04	Tests for electric cables under fire conditions Circuit integrity Part 21: Procedures and requirements. Cables of rated voltage up to and including 0,6/1,0 kV	For cables with an overall diameter not exceeding 20 mm
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	Charred portion of sample does not exceed 2,5m above bottom edge of burner.
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 60684-2	2011-08	Clause 45.2 Methods of determination of low levels of fluorine	HF max 0,1%
IEC 61034-1/2	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

ÜNTEL – MGCH-FFR EMC – size – 0,6/1 kV - IEC 60332-3-22 – IEC 60331-1/21

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