DNV·GL

Certificate No:
TAE000000N

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
MGCH, MGCH EMC, MGCH VFD

Issued to
Unika Universal Kablo San. ve Tic. A.S.
ISTANBUL, Turkey

is found to comply with
Det Norske Veritas' Rules for Classification of Ships, High Speed & Light Craft and Det Norske Veritas' Offshore Standards

Application :

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

Type	Voltage class (kV)	Temp. class (°C)
MGCH	0,6/1	90
MGCH EMC	0,6/1	90
MGCH VFD	1,8/3	90

This Certificate is valid until **2018-06-30**.

Issued at **Høvik** on **2015-09-01**

for **DNV GL**

DNV GL local station: **Istanbul**

Approval Engineer: **Ludovico Gullifa**

Marit Laumann
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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-003326-12**
Certificate No: **TAE000000N**

Product description

Construction:
Conductors: Plain or tinned stranded copper class 2 or class 5
Core insulation: HEPR
Inner covering: Halogen free compound
Screen: Metal coated polyester tape (EMC, VFD types)
Metal covering: Plain or tinned copper wire braid
Outer sheath: SHF1

Number of cores x conductor cross-section
mm^2
MGCH
1 x 25
1 x 95
2 x 1,5
2 x 2,5
2 x 4
2 x 6
3 x 1,5
3 x 2,5
3 x 4
3 x 6
3 x 10

Number of cores x conductor cross-section
mm^2
3 x 16
3 x 25
3 x 35
3 x 50
3 x 70
3 x 95
4 x 1,5
5 x 1,5
7 x 1,5
10 x 1,5
14 x 1,5
16 x 1,5

Number of cores x conductor cross-section
mm^2
19 x 1,5
MGCH EMC
3 x 2,5
3 x 6
3 x 16
3 x 35
3 x 70
3 x 95
MGH VFD
3 x 10

Number of cores x conductor cross-section
mm^2
3 x 16
3 x 35
3 x 50
3 x 95

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	
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	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 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

UNIKA KABLO - MGCH or MGCH EMC or MGCH VFD - size - 0,6/1 kV or 1,8/3 kV – IEC 60332-3 – Lot No.

Periodical assessment

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

The main elements of the Periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and 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

Survey to be performed at least every second year.

END OF CERTIFICATE