DNV·GL

TYPE APPROVAL CERTIFICATE

Certificate No:
TAE00000HX
Revision No:
1

This is to certify:

That the Electric Power Cable

with type designation(s)
U-HFA m, U-HFA m (C), U-HFA m EMC, U-HFA m EMC

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

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

General power and lighting. Screened. Electromagnetic interference Resistant.

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

Type	Rated voltage (kV)	Temp. class (°C)
U-HFA m	0,6/1	90
U-HFA m (C)	0,6/1	90
U-HFA m EMC	0,6/1	90
U-HFA m EMC	1,8/3	90

Issued at **Høvik** on **2018-07-20**

This Certificate is valid until **2020-12-28**.
DNV GL local station: **Istanbul**

Approval Engineer: **Georgy Abramenko**

for **DNV GL**

Digitally Signed By: Andreas Kristoffersen
Location: DNV GL Høvik, Norway

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: **262.1-028788-1**
Certificate No: **TAE00000HX**
Revision No: **1**

Product description

Type: U-HFA m & U-HFA m (C) & U-HFA m EMC 0,6/1 kV;
U-HFA m EMC 1,8/3 kV.

Construction:

Conductors:	Plain or tinned stranded copper class 2 or class 5
Core insulation:	XLPE
Inner covering:	Halogen free compound
Screen:	Metal coated polyester tape (C)
Metal covering:	Copper (plain or tinned) or galvanized steel wire braid (multicore cables only)
Outer sheath:	SHF1 or SHF2

0,6/1 kV variants:

U-HFA m

No of cores:	Cross sectional area [mm^2]
1	1,0 – 300, 630
2	1,0 – 95
3	1,0 - 240
4	1,0 - 240
5G	10, 25, 50
5, 7, 10, 12, 16, 19, 24, 27, 37	1,0 - 2,5
6, 8, 9, 14, 15, 25	1,5

U-HFA m (C) & U-HFA m EMC

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

1,8/3 kV variants:

U-HFA m EMC

No of cores:	Cross sectional area [mm^2]
Single Core	10 16 25 35 50 70 95 120 150 185 240 300
3x+3x Cores	50+10 70+16 95+16 120+25 150+25 185+35 240+50

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

Data sheet and drawing U-HFA m
Data sheet and drawing U-HFA m (C)
Data sheets and drawings U-HFA m EMC
Electrical and physical routine test report No. 1031 dated 21.09.2007

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Tests carried out

Standard	Issued	General description	Limitation
IEC 60092-350	2014-04	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	Bunch test Category A
IEC 60754-1	2011-11	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	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
IEC 61034-1/2	2013-07/09	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke

Marking of product

UNIKA KABLO - U-HFA m or U-HFA m (C) or U-HFA m EMC - size - 0,6/1 kV – IEC 60332-3-22 – Year, or
UNIKA KABLO - U-HFA m EMC - size – 1,8/3 kV – IEC 60332-3-22 – 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