



Certificate No:
TAE0000510

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
U-HFFR m WSR

Issued to

Unika Universal Kablo San. ve Tic. A.S.
ISTANBUL, Türkiye

is found to comply with

DNV rules for classification – Ships, offshore units, and high speed and light craft

Application :

Low voltage power cable. Fire resistant with WSR/WJR.

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

Rated voltage (kV) 0,6 / 1 kV

Temp. class (°C) 90

Issued at **Høvik** on **2025-03-13**

This Certificate is valid until **2030-02-19**.

for **DNV**

DNV local unit: **Istanbul**

Approval Engineer: **Ivar Bull**

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.

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 300,000 USD.



Form code: TA 251

Revision: 2022-12

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Page 1 of 3

Product description

Type: U-HFFR m WSR

Construction:

Conductors: Annealed bare or tinned stranded copper according to IEC 60228 class2 or class 5

Tape: Helical applied fire-resistant tape

Core insulation: Cross-linked polyolefin halogen-free, HF90

Bedding: Polyester tape or halogen free extruded compound (optional)

Tape: Fire resistant glass fiber tape + double copper backed polyester tape + fire resistant glass fiber tape + polyester tape (optional)

Outer jacket: Halogen free extruded compound SHF1 or SHF2.

Number of cores	Cross section
1 2 3	1 1,5 2,5 4 6 10 16 25 35 50 70 95 120
1 3	150 185 240
1	300
4	4 - 95
4 5 6 7 8 9 10 11 12 14 16 18 19 24 27 33 37	1,5 2,5

Application/Limitation

This type of cable is fire resistant according to IEC 60331-1/2 including water spray and water jet.

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bundles of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
DNV CP-0399	2021-08	Electric cables.	
IEC 60092-350	2020-01	Electrical installations in ships - Part 350: 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	Tests for electric cables under fire conditions - Circuit integrity - Part 1: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV	Sample <20mm: 30 minutes with water spray last 15 minutes of test. Sample >20mm: 90 minutes with water jets last 5 minutes of test.
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	2019-11	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	2019-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	Halogen free: pH > 4,3 Conductivity < 10µS/mm

Standard	Release	General description	Limitation
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Part 1: Test apparatus Part 2: Test procedure and requirements	Low smoke Light transmittance >60%
BS 8491	2008-01	Method for assessment of fire integrity of large diameter power cables for use as components for smoke and heat control systems and certain other active fire safety systems	Water jets last 5 minutes of test.
EN50200	2015-12	Method of test for resistance to fire of unprotected small cables for use in emergency circuits. The standard also includes in Annex E a means of applying water spray to the cable during the test.	Water spray last 15 minutes of test.
CSA C22.2 No. 03	2009	4.12 Flexibility at any specified temperature 4.13 Abnormal low temperature – impact	Cold bend: -40°C Cold impact: -35°C

Marking of product

UNIKA – U-HFFR m WJR - size – 0,6/1 kV - IEC 60331-1 [90 min] - IEC 60332-3-22 – Lot No. or
UNIKA – U-HFFR m WSR - size – 0,6/1 kV - IEC 60331-2 [30 min] - IEC 60332-3-22 – 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) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall 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