



# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAE00002BF**  
Revision No:  
**1**

## This is to certify:

**That the Electric Power Cable**

with type designation(s)  
**FMGCC**

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 :

**Control and instrumentation cable**

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

**Rated voltage (kV) 150/250**  
**Temp. class (°C) 90**

Issued at **Høvik** on **2022-12-18**

for **DNV**

This Certificate is valid until **2027-12-31**.

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.



## Product description

HEPR insulated, copper wire braided and CR sheathed shipboard control and instrumentation cable 150/250 V

Type: FMGCG

Maximum operating conductor temperature: 90° C

Conductor: Plain or tinned stranded copper class 2 or class 5  
 Insulation: HEPR  
 Armour / screen: Copper wire braiding  
 Outer sheath: CR (SE1)

Number of cores: Cross-sectional area:

1 x 2 to 24 x 2 0,75 mm<sup>2</sup>

## 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.

Control and instrumentation.

## Type Approval documentation

Test Report: Üntel Kabloari 00/02/302/1 dated 05.06.2000  
 Üntel Kabloari dated 23.08.2017

## 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 60092-376  | 2017-05 | Cables for control and instrumentation circuits 150/250 V (300 V)                                                                                                                         |                                                                             |
| 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 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. |
| DIN 89159      | 2017-06 | Electric cables for ships and offshore units - Communication cables with shield - Type FMGCG, FMGCH, halogen-free                                                                         |                                                                             |

## Marking of product

ÜNTEL voltage level FMGCG size DIN 89159, IEC 60092/376, IEC 60332-1&3 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