

# TYPE APPROVAL CERTIFICATE

Certificate No:  
**TAE00002Y9**  
Revision No:  
**1**

## This is to certify:

That the **Data transmission cables and systems**

with type designation(s)

**Coaxial cable Type RG 58 Marin SHF1, SHF2 or SHF2 MUD,  
Coaxial cable Type RG213 Marin SHF1, SHF2 or SHF2 MUD,  
Coaxial cable Type RG214 Marin SHF1, SHF2 or SHF2 MUD,  
Coaxial cable Type RF400 Marine SHF1, SHF2 or SHF2 MUD,  
Coaxial cable Type RF400 Marine Ultra Flex SHF1, SHF2 or SHF2 MUD**

Issued to

**NEK Kabel AS**  
**LØRENSKOG, Norway**

is found to comply with

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

## Application :

**Coaxial cable 50 Ohm. Armoured and unarmoured.**

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

Issued at **Høvik** on **2023-07-03**

This Certificate is valid until **2028-06-30**.

for **DNV**

DNV local unit: **Oslo Maritime and CAP**

Approval Engineer: **Ivar Bull**

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**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**

Coaxial cable Type RG 58 Marin SHF1, SHF2 or SHF2 MUD, armoured or unarmoured  
 Coaxial cable Type RG213 Marin SHF1, SHF2 or SHF2 MUD, armoured or unarmoured  
 Coaxial cable Type RG214 Marin SHF1, SHF2 or SHF2 MUD, armoured or unarmoured  
 Coaxial cable Type RF400 Marine SHF1, SHF2 or SHF2 MUD, armoured or unarmoured  
 Coaxial cable Type RF400 Marine Ultra Flex SHF1, SHF2 or SHF2 MUD armoured or unarmoured

**Type RG 58 MIL-C17F Armoured or unarmoured**

Construction	
Inner Conductor	Tinned Copper 19x 0,18mm or Plain copper 7x0,75mm
Insulation	Low density polyethylene
Shield	Aluminium + Polyester + Aluminium tape
Outer conductor	Tinned copper braid
Inner Sheath	SHF1
Armour (optional)	GSWB, Tinned Copper Wire or Bronze Wire
2 <sup>nd</sup> sheath	SHF1, SHF2 or SHF2 MUD

**Type RG213 M17/074 Armoured or unarmoured**

Construction	
Inner Conductor	Plain copper 7x0,75mm
Insulation	Low density polyethylene
Shield	Aluminium + Polyester + Aluminium tape
Outer conductor	Plain copper braid
Inner Sheath	SHF1
Armour (optional)	GSWB, Tinned Copper Wire or Bronze Wire
2 <sup>nd</sup> sheath	SHF1, SHF2 or SHF2 MUD

**RG214 M17/75 Armoured or unarmoured**

Construction	
Inner Conductor	Silvered copper 7x 0,75 mm
Insulation	Low density polyethylene
Shield	Aluminium + Polyester + Aluminium tape
1st outer conductor	Silver coated copper braid 94%
2 <sup>nd</sup> braid	Silver coated copper braid 98%
Inner sheath	SHF1
Armour (optional)	GSWB, Tinned Copper Wire or Bronze Wire
2 <sup>nd</sup> sheath	SHF1, SHF2 or SHF2 MUD

**Coaxial cable Type RF400 Marine SHF1, SHF2 or SHF2 MUD, Armoured or unarmoured**

Construction	
Inner Conductor	Solid Plain copper 2,70 mm
Insulation	Cellular PE
Shield	Aluminium + Polyester + Aluminium tape
Outer conductor	Tinned copper braid, 90% coverage
Sheath	SHF1, SHF2 or SHF2 MUD
Armour (optional)	GSWB, Tinned Copper Wire or Bronze Wire
2 <sup>nd</sup> sheath	SHF1, SHF2 or SHF2 MUD

**Coaxial cable Type RF400 UF Marine Ultra Flex SHF1, SHF2 or SHF2 MUD, Armoured or unarmoured**

Construction	
Inner Conductor	Plain copper 7x1,00mm
Insulation	Cellular PE
Shield	Cu + Polyester + Cu tape
Outer conductor	Copper braid, 90% optical coverage
Sheath	SHF1, SHF2 or SHF2 MUD
Armour (optional)	GSWB, Tinned Copper Wire or Bronze Wire
2 <sup>nd</sup> sheath	SHF1, SHF2 or SHF2 MUD

For electrical data and transmission properties, please refer to relevant datasheets.

**Manufactured by**

DNV Id. 10310952  
 SHF2 or SHF2 MUD sheath applied by DNV Id. 10024443.

**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 60096-0-1 Ed 3	2012	Radio frequency cables Part 0-1: Guide to the design of detail specifications Coaxial 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 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	Bunch test Category A
IEC 60332-3-24	2018-07	Tests on electric and optical fibre cables under fire conditions – Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables – Category C	Bunch test Category C
IEC 60754-2	2019-11	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	2019-11	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%
NEK TS606 Ed6	2022-03	Cables for offshore installations - halogen-free low smoke flame-retardant / fire-resistant (HFFR-LS). Technical specification.	Mud resistance test: IRM903 100°C 7d. Calcium Bromide 70°C 56d. EDC 95/11 70°C 56d
EN ISO 4892-2	2013-06	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps (ISO 4892-2:2013)	720h. Max decay 30% in tensile strength and elongation@break

**Marking of product**

NEK kabel – RG 58 CU Marine SHF1, SHF2 or SHF2 MUD – Armour (Optional) - DNV – IEC 60332-3-22/24 – <batch no.> – <meter marking> or  
NEK kabel – RG 213 CU Marine SHF1, SHF2 or SHF2 MUD - Armour (Optional) - DNV – IEC 60332-3-22/24– <batch no.> – <meter marking> or  
NEK kabel – RG 214 CU Marine SHF1, SHF2 or SHF2 MUD - Armour (Optional) - DNV – IEC 60332-3-22/24– <batch no.> – <meter marking> or  
NEK kabel RF-400 – CU Marine SHF1, SHF2 or SHF2 MUD - Armour (Optional) - DNV– IEC 60332-3-22/24– <batch no.> – <meter marking> or  
NEK kabel RF-400 UF – CU Marine SHF1, SHF2 or SHF2 MUD - Armour (Optional) - DNV– IEC 60332-3-22/24– <batch no.> – <meter marking>

### 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