

TYPE APPROVAL CERTIFICATE

This is to certify:**That the High Voltage Cable**with type designation(s)
NHKOXSek 6/10 KV, NHKOXSek 8,7/15 KV

Issued to

Tele-Fonika Kable S.A.
Bydgoszcz, Polandis found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****High voltage power cable.****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**

Type	Rated voltage (kV)	Temp. class (°C)
NHKOXSek 6/10 KV	6/10	90
NHKOXSek 8,7/15 KV	8,7/15	90

Issued at **Høvik** on **2020-05-26**This Certificate is valid until **2024-07-05**.for **DNV GL**DNV GL local station: **Katowice CMC**Approval Engineer: **Ivar Bull****Marta Alonso Pontes**
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.



Product description

Type: **NHKOXSek 6/10 kV, NHKOXSek 8,7/15 kV**
Conductors: Plain or tinned copper – stranded class 2 or class 5
Cond. screening: Extruded semi-conductor
Core insulation: XLPE
Insul. screening: Semi-conductor extruded or lapped + copper tapes
Inner covering: Halogen free
Metal covering: Plain or tinned copper braid
Outer sheath: SHF1

Single cores : NHKOXSek 6/10 kV, NHKOXSek 8,7/15 kV

Voltage U0 / U [kV]				
3,6/6	6/10	8,7/15	12/20	18/30
-	-	-	-	-
-	-	-	-	-
-	1 x 25	-	-	-
-	1 x 35	1 x 35	-	-
-	1 x 50	1 x 50	-	-
-	1 x 70	1 x 70	-	-
-	1 x 95	1 x 95	-	-
-	1 x 120	1 x 120	-	-
-	1 x 150	1 x 150	-	-
-	1 x 185	1 x 185	-	-
-	1 x 240	1 x 240	-	-
-	1 x 300	1 x 300	-	-

3 cores :

Voltage U0 / U [kV]				
3,6/6	6/10	8,7/15	12/20	18/30
-	-	-	-	-
-	-	-	-	-
-	3 x 25	-	-	-
-	3 x 35	3 x 35	-	-
-	3 x 50	3 x 50	-	-
-	3 x 70	3 x 70	-	-
-	3 x 95	3 x 95	-	-
-	3 x 120	3 x 120	-	-
-	3 x 150	3 x 150	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

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 60092-354	2014-08	Electrical installations in ships - Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV ($U_m = 7,2$ kV) up to 30 kV ($U_m = 36$ kV)	
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 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 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 – 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 < 10 μ S/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

TFKABLE5 NHKOSek size 6/10 kV or NHKOSek size 8,7/15kV - IEC 60092-354 - IEC 60332-3-22
year meter marking

TFKABLE5 = Factory Bydgoszcz-5.

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.



Job Id: **262.1-032884-1**
Certificate No: **TAE00003Y4**

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