DNV·GL

Certificate No:
TAE000029Y

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
FLAME-X 950 NTKOGsekw 250 V

Issued to
Tele-Fonika Kable Sp. z o.o.
Krakow, Poland

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Instrumentation and communication, Fire resistant

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Rated voltage (V) 250
Temp. class (°C) 90

Issued at **Høvik** on **2017-09-11**
This Certificate is valid until **2022-09-10**.
DNV GL local station: **Katowice**

Approval Engineer: **Ivar Bull**

for **DNV GL**

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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Job Id: **262.1-026177-1**
Certificate No: **TAE000029Y**

Product description
FLAME-X 950 NTKOGsekw 250 V

Construction:

Conductors:	Plain or tinned stranded copper (class 2)
Core insulation:	Ceramic HF S95
Inner covering:	Taped or extruded
Metal covering:	Plain copper wire braid
Outer sheath:	SHF1

No of Elements:	Cross sectional area [mm^2]
1, 2, 3, 4, 7, 10, 12, 14, 19, 24, 37 pairs	0,75 1,0 1,5
1 triples	0,75 1,0 1,5 2,5
1 quad	0,75 1,0 1,5
1 pair	2,5

Application/Limitation
This type of cable is fire resistant in accordance with IEC Publication 60331-21 and IEC 60331-1.

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

	Release	**General description**	**Limitation**
DNVGL-CP-0399	2016-03	Class Programme Electric cables	
IEC 60092-350	2014-08	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 60092-376	2017-05	Electrical installations in ships - Part 376: Cables for control and instrumentation circuits 150/250 V (300 V)	
IEC 60331-1/2	2009-05	Fire resistance / Circuit integrity – Test for method for fire with shock at temperature of at least 830ºC for cables rated up to and including 0,6/1 kV	120 min
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 - 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 - Part 2: Determination of acidity (by pH measurement) and conductivity	Halogen free: pH > 4,3 Conductivity < 10µS/mm

	Release	General description	Limitation
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
TF Kable 3 or TFK 3 – FLAME-X 950 NTKOGsekw – size – 250 V – IEC 60331-21 and IEC 60331-1 - IEC 60332-3-22

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