DNV·GL

Certificate No:
TAE00001B2

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
RU P18 0,6/1 kV

Issued to
Nexans (Suzhou) Cable Solutions Co.,Ltd
Suzhou Jiangsu, China

is found to comply with
DNV GL rules for classification – Ships
DNV GL offshore standards
DNV GL rules for classification – High speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Voltage class (kV) **0,6/1**
Temp. class (°C) **90**

This Certificate is valid until **2021-11-06**.

Issued at **Hamburg** on **2016-11-07**
DNV GL local station: **Shanghai CMC** for **DNV GL**

Approval Engineer: **Carsten Hunsalz**

Duy Nam Le
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.

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Job Id:
Certificate No: **TAE00001B2**

Product description

Type: RU P18 0,6/1 kV

Construction:

Conductors:	Tinned stranded copper class 2
Core insulation:	EPR
Outer sheath:	SHF2

Number of cores x conductor cross-section	Overall diameter min.	Overall diameter max.
mm^2	mm	mm
1 x 1,5	5,4	6,6
1 x 2,5	5,8	7,2
1 x 4	6,2	7,6
1 x 6	6,8	8,2
1 x 10	7,8	9,6
1 x 16	8,8	11,0
1 x 25	10,5	13,0
1 x 35	11,5	14,0
1 x 50	13,0	16,0
1 x 70	14,5	18,0
1 x 95	17,0	20,5
1 x 120	18,5	22,5
1 x 150	20,5	24,5
1 x 185	22,5	27,0
1 x 240	25,5	30,5
1 x 300	28,0	33,5
2 x 1,5	9,0	11,0
2 x 2,5	9,8	12,0
2 x 4	10,5	13,0
2 x 6	12,0	14,5
2 x 10	13,5	16,5
2 x 16	15,5	19,0
2 x 25	19,0	23,0
2 x 35	21,5	25,5
2 x 50	24,5	29,5
2 x 70	28,0	33,5
2 x 95	32,5	39,0
2 x 120	35,5	42,5
3 x 1,5	9,4	11,5

Number of cores x conductor cross-section	Overall diameter min.	Overall diameter max.
mm^2	mm	mm
3 x 2,5	10,5	13,0
3 x 4	11,5	14,0
3 x 6	12,5	15,5
3 x 10	14,5	17,5
3 x 16	16,5	20,5
3 x 25	20,5	24,5
3 x 35	22,5	27,5
3 x 50	26,5	31,5
3 x 70R	30,0	36,0
3 x 95R	35,0	42,0
3 x 120R	38,0	45,5
3 x 150R	42,0	50,0
3 x 185R	47,0	56,0
3 x 240R	53,0	62,5
4 x 1,5	10,5	13,0
4 x 2,5	11,5	14,0
4 x 4	12,5	15,0
4 x 6	14,0	17,0
4 x 10	16,0	19,5
4 x 16	18,5	22,5
4 x 25	22,5	27,0
4 x 35	25,5	30,5
4 x 50	29,5	35,0
4 x 70R	33,5	40,0
4 x 95R	38,5	46,5
4 x 120R	42,5	50,5
4x 150R	47,0	56,0
4 x 185R	52,5	62,5
4 x 240R	59,5	70,0

Number of cores x conductor cross-section	Overall diameter min.	Overall diameter max.
mm^2	mm	mm
5 x 1,5	11,5	14,0
7 x 1,5	12,5	15,0
10 x 1,5	16,0	19,0
12 x 1,5	16,5	20,0
14 x 1,5	17,5	21,0
19 x 1,5	19,5	23,5
24 x 1,5	23,0	27,5
27 x 1,5	24,0	28,0
30 x 1,5	24,5	29,0
37 x 1,5	27,0	31,5
48 x 1,5	31,0	36,0
61 x 1,5	34,0	40,0
5 x 2,5	12,5	15,0
7 x 2,5	13,5	16,5
10 x 2,5	17,5	21,0
12 x 2,5	18,5	22,0
14 x 2,5	19,5	23,0
19 x 2,5	22,0	26,0
24 x 2,5	25,5	30,5
27 x 2,5	26,5	31,0
30 x 2,5	27,5	32,5
37 x 2,5	30,0	35,0
48 x 2,5	34,5	40,5
5 x 4	14,0	17,0
7 x 4	15,5	18,5
10 x 4	20,0	24,0
12 x 4	20,5	24,5

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.

General power and lighting.
Flame retardant in bunch Cat. A. Halogen free. Low smoke.
Low temperature. Mud resistant.

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 60092-353	2011-08	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 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 60332-3-22	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
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%
NEK TS 606	2016	Cables for offshore installations. Halogen-free and/or mud resistant. Technical specification.	Mud resistance test: IRM903 100°C 7d. Calcium Bromide 70°C 56d. Carbo Sea 70°C 56d.
IEC 60092-350	2014-08	Annex E: Procedure 8.10: Temperature requirements	Cold bend: -15°C Cold impact: -15°C

Marking of product

NEXANS 448– RU P18 – NEK 606 –IEC 60332 Cat. A – size – 0,6/1 kV – 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.

Assessment to be performed at least every second year.

END OF CERTIFICATE