DNV·GL

Certificate No:
TAE00001YG

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

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

Issued to
Suzhou Draka Cable Co. Ltd.
SUZHOU JIANGSU, China

is found to comply with
DNV GL rules for classification – Ships, offshore units, and 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**

Issued at **Hamburg** on **2017-05-12**
This Certificate is valid until **2022-05-11**.
DNV GL local station: **Shanghai**

Approval Engineer: **Holger Jansen**

for **DNV GL**

Joannis Papanuskas
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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Product description

Type: TU 0,6/1 kV

Conductors: Plain or Tinned, stranded copper class 2
Core insulation: XLPE
Outer sheath: SHF2

Number of cores x conductor cross-section	Overall diameter Nominal
mm^2	mm
1 x 1,0	4,8
1 x 1,5	5,0
1 x 2,5	5,5
1 x 4	6,0
1 x 6	6,6
1 x 10	7,5
1 x 16	8,5
1 x 25	10,5
1 x 35	11,6
1 x 50	13,3
1 x 70	15,5
1 x 95	17,4
1 x 120	19,4
1 x 150	21,6
1 x 185	23,9
1 x 240	26,8
1 x 300	29,7
2 x 1,0	7,6
2 x 1,5	8,2
2 x 2,5	9,3
2 x 4	10,3
2 x 6	11,4
2 x 10	13,5
2 x 16	15,8
2 x 25	19,5
2 x 35	22,1
2 x 50	25,2
2 x 70	29,4
2 x 95	33,6
2 x 120	37,4
2 x 150	41,5
2 x 185	46,5
2 x 240	52,5
2 x 300	58,0
3 x 1,0	8,0
3 x 1,5	8,6
3 x 2,5	9,8
3 x 4	10,9
8 x 1,5	13,1
10 x 1,5	14,6

Number of cores x conductor cross-section	Overall diameter Nominal
mm^2	mm
3 x 6	12,3
3 x 10	14,3
3 x 16	16,8
3 x 25	20,7
3 x 35	23,6
3 x 50	27,1
3 x 70	31,7
3 x 95	36,0
3 x 120	40,2
3 x 150	44,7
3 x 185	50,1
3 x 240	56,5
3 x 300	62,6
3 x 35 sector	20,7
3 x 50 sector	23,6
3 x 70 sector	27,4
3 x 95 sector	31,5
3 x 120 sector	34,6
3 x 150 sector	38,7
3 x 185 sector	43,4
3 x 240 sector	48,8
3 x 300 sector	53,0
4 x 1,0	8,8
4 x 1,5	9,6
4 x 2,5	10,7
4 x 4	12,2
4 x 6	13,6
4 x 10	16,0
4 x 16	18,8
4 x 25	23,2
4 x 35	25,1
4 x 50	28,9
4 x 70	33,7
4 x 95	38,5
4 x 120	42,8
4 x 150	47,7
4 x 185	53,4
4 x 240	60,2
30 x 1,5	22,4
37 x 1,5	24,4

Number of cores x conductor cross-section	Overall diameter Nominal
mm^2	mm
4 x 300	66,6
4 x 35 sector	23,6
4 x 50 sector	26,1
4 x 70 sector	30,5
4 x 95 sector	35,2
4 x 120 sector	38,5
4 x 150 sector	43,5
4 x 185 sector	48,5
4 x 240 sector	54,7
4 x 300 sector	60,4
5 x 1,0	9,8
5 x 1,5	10,5
5 x 2,5	11,7
5 x 4	13,4
5 x 6	15,1
5 x 10	17,5
5 x 16	20,6
5 x 25	25,7
5 x 35	29,1
5 x 50	33,4
5 x 70	39,3
5 x 95	44,6
6 x 1,0	10,6
7 x 1,0	10,6
8 x 1,0	11,8
10 x 1,0	13,5
12 x 1,0	13,9
14 x 1,0	14,6
16 x 1,0	15,6
19 x 1,0	16,4
24 x 1,0	19,4
27 x 1,0	19,8
30 x 1,0	20,5
37 x 1,0	22,3
6 x 1,5	11,4
7 x 1,5	11,4
14 x 2,5	18,2
16 x 2,5	19,2

Number of cores x conductor cross-section	Overall diameter Nominal
mm^2	mm
12 x 1,5	15,3
14 x 1,5	16,0
16 x 1,5	16,9
19 x 1,5	18,0
24 x 1,5	21,2
27 x 1,5	21,6

Number of cores x conductor cross-section	Overall diameter Nominal
mm^2	mm
6 x 2,5	12,9
7 x 2,5	12,9
8 x 2,5	14,6
10 x 2,5	16,6
12 x 2,5	17,1

Number of cores x conductor cross-section	Overall diameter Nominal
mm^2	mm
19 x 2,5	20,2
24 x 2,5	24,1
27 x 2,S	24,6
30 x 2,5	25,5
37 x 2,5	27,7

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. Control. Halogen free. Low smoke. Flame retardant in bunch Cat. A.

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	2016-09	Single and multicore non-radial field power cables with extruded solid insulation for rated Voltages of 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	
IEC 60754-1	2011-11	Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content	
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	
IEC 61034-1/2	2013-06	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	

Marking of product

Suzhou Draka – TU – Size – 0,6/1 kV – IEC 60332-3-22 Cat. A – 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