DNV·GL

Certificate No:
TAE000026T

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
CJV/DA&SA, CJVR/DA&SA

Issued to
Hebei Huatong Wires & Cables Group Co., Ltd.
Tangshan, 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.
Rated voltage (kV) 0,6/1
Temp. class (°C) 90

Issued at **Hamburg** on **2017-08-10**
This Certificate is valid until **2022-08-09**.
DNV GL local station: **Tianjin**

Approval Engineer: **Carsten Hunsalz**

for **DNV GL**

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.

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

Job Id: **262.1-008108-21**
Certificate No: **TAE000026T**

Product description

Type: CJV/DA, CJV/SA, CJVR/DA and CJVR/SA 0,6/1 kV

Construction:

Conductors: Tinned stranded copper
Core insulation: XLPE
Outer sheath: ST2

CJV/DA&SA

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
mm^2	mm	mm
CJV/DA&SA		
1 x 1,0	4,4	7,0
1 x 1,5	4,7	7,2
1 x 2,5	5,0	7,6
1 x 4	5,4	8,2
1 x 6	6,0	8,8
1 x 10	6,8	9,8
1 x 16	8,0	11,5
1 x 25	9,6	13,0
1 x 35	10,5	14,5
1 x 50	12,0	16,0
1 x 70	14,0	18,5
1 x 95	15,5	20,5
1 x 120	17,5	22,5
1 x 150	19,5	25,0
1 x 185	21,5	27,5
1 x 240	24,5	30,5
1 x 300	26,5	33,5
2 x 1,0	7,2	11,0
2 x 1,5	7,8	11,5
2 x 2,5	8,6	12,5
2 x 4	9,6	13,5
2 x 6	10,5	15,0
2 x 10	12,5	17,5
2 x 16	14,5	19,5
2 x 25	18,0	23,5
2 x 35	20,0	26,5
2 x 50	23,0	30,0
2 x 70	27,0	34,5
2 x 95	30,5	38,5
2 x 120	34,0	42,5
2 x 150	37,5	47,0
2 x 185	42,0	52,0
2 x 240	47,5	58,0
2 x 300	52,5	64,0

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
mm^2	mm	mm
CJV/DA&SA		
3 x 1,0	7,6	11,5
3 x 1,5	8,4	12,5
3 x 2,5	9,2	13,5
3 x 4	10,0	14,5
3 x 6	11,5	16,0
3 x 10	13,5	18,5
3 x 16	15,5	21,0
3 x 25	19,0	25,5
3 x 35	21,5	28,0
3 x 50	24,5	32,0
3 x 70	29,0	36,5
3 x 95	32,5	41,5
3 x 120	36,5	45,5
3 x 150	40,5	50,5
3 x 185	45,5	56,0
3 x 240	51,0	62,5
3 x 300	56,5	69,0
4 x 1,0	8,4	12,5
4 x 1,5	9,0	13,0
4 x 2,5	10,0	14,5
4 x 4	11,0	16,0
4 x 6	12,5	17,0
4 x 10	14,5	20,0
4 x 16	17,0	23,0
4 x 25	21,5	28,0
4 x 35	24,0	31,0
4 x 50	27,5	35,0
4 x 70	32,0	40,5
4 x 95	36,5	46,0
4 x 120	40,5	50,5
4 x 185	45,5	56,0
4 x 185	50,5	62,5
4 x 240	57,0	69,5
4 x 300	63,0	76,5

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.

mm²	mm	mm
CJV/DA&SA		
4 x 1,0	8,4	12,5
5 x 1,0	9,0	13,5
7 x 1,0	10,0	14,5
10 x 1,0	12,5	18,0
12 x 1,0	13,0	19,0
14 x 1,0	13,5	19,5
16 x 1,0	14,5	21,0
19 x 1,0	15,0	22,0
24 x 1,0	18,0	25,5
27 x 1,0	18,5	26,0
30 x 1,0	19,0	27,0
33 x 1,0	19,5	28,0
37 x 1,0	20,5	29,0
4 x 1,5	9,0	13,0
5 x 1,5	10,0	14,5
7 x 1,5	10,5	15,5
10 x 1,5	13,5	19,5
12 x 1,5	14,5	20,5
14 x 1,5	15,0	21,0
16 x 1,5	16,0	22,5

mm²	mm	mm
CJV/DA&SA		
19 x 1,5	17,0	23,5
24 x 1,5	19,5	27,5
27 x 1,5	20,0	28,0
30 x 1,5	21,0	29,0
33 x 1,5	22,0	30,5
37 x 1,5	22,5	31,5
4 x 2,5	10,0	14,5
5 x 2,5	11,0	15,5
7 x 2,5	12,0	17,0
10 x 2,5	15,5	21,5
12 x 2,5	16,0	22,0
14 x 2,5	17,0	23,5
16 x 2,5	18,0	24,5
19 x 2,5	19,0	26,0
24 x 2,5	22,5	30,5
27 x 2,5	23,0	31,0
30 x 2,5	24,0	32,5
33 x 2,5	24,5	33,5
37 x 2,5	25,5	35,0

CJVR/ DA&SA

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
mm²	mm	mm
CJVR/ DA&SA		
1 x 1,0	4,4	7,0
1 x 1,5	4,7	7,2
1 x 2,5	5,0	7,6
1 x 4	5,4	8,2
1 x 6	6,0	9,0
1 x 10	7,0	10,5
1 x 16	8,2	11,5
1 x 25	9,8	13,5
1 x 35	11,0	15,5
1 x 50	13,0	17,5
1 x 70	14,5	20,0
1 x 95	16,5	22,0
1 x 120	18,5	24,0
1 x 150	20,5	26,5
1 x 185	22,5	29,0
1 x 240	25,5	32,5
1 x 300	28,0	35,0

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
mm²	mm	mm
CJVR/ DA&SA		
2 x 1,0	7,2	11,0
2 x 1,5	7,8	11,5
2 x 2,5	8,6	12,5
2 x 4	9,6	13,5
2 x 6	11,0	15,5
2 x 10	13,0	18,0
2 x 16	15,0	20,5
2 x 25	18,5	24,0
2 x 35	21,0	28,0
2 x 50	25,0	32,0
2 x 70	28,5	37,0
2 x 95	32,5	41,0
2 x 120	35,5	45,0
2 x 150	40,0	50,0
2 x 185	44,0	55,0
2 x 240	50,0	61,5
2 x 300	55,0	67,5

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
mm²	mm	mm
CJVR/ DA&SA		
3 x 1,0	7,6	11,5
3 x 1,5	8,4	12,5

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
mm²	mm	mm
CJVR/ DA&SA		
10 x 1,0	12,5	18,0
12 x 1,0	13,0	19,0

3 x 2,5	9,2	13,5
3 x 4	10,0	14,5
3 x 6	11,5	16,0
3 x 10	14,0	19,0
3 x 16	16,0	22,0
3 x 25	19,5	26,0
3 x 35	23,0	30,0
3 x 50	27,0	34,5
3 x 70	30,5	39,5
3 x 95	34,5	44,0
3 x 120	38,5	48,0
3 x 150	43,0	53,5
3 x 185	47,5	59,0
3 x 240	54,0	66,5
3 x 300	59,5	73,0
4 x 1,0	8,4	12,5
4 x 1,5	9,0	13,0
4 x 2,5	10,0	14,5
4 x 4	11,0	16,0
4 x 6	13,0	17,5
4 x 10	15,0	21,0
4 x 16	18,0	24,0
4 x 25	22,0	28,5
4 x 35	25,5	33,0
4 x 50	30,0	38,0
4 x 70	34,0	43,5
4 x 95	38,5	49,0
4 x 120	43,0	53,5
4 x 185	48,0	59,5
4 x 185	53,0	66,0
4 x 240	60,0	74,0
4 x 300	66,0	81,0
4 x 1,0	8,4	12,5
5 x 1,0	9,0	13,5
7 x 1,0	10,0	14,5

14 x 1,0	13,5	19,5
16 x 1,0	14,5	21,0
19 x 1,0	15,0	22,0
24 x 1,0	18,0	25,5
27 x 1,0	18,5	26,0
30 x 1,0	19,0	27,0
33 x 1,0	19,5	28,0
37 x 1,0	20,5	29,0
4 x 1,5	9,0	13,0
5 x 1,5	10,0	14,5
7 x 1,5	10,5	15,5
10 x 1,5	13,5	19,5
12 x 1,5	14,5	20,5
14 x 1,5	15,0	21,0
16 x 1,5	16,0	22,5
19 x 1,5	17,0	23,5
24 x 1,5	19,5	27,5
27 x 1,5	20,0	28,0
30 x 1,5	21,0	29,0
33 x 1,5	22,0	30,5
37 x 1,5	22,5	31,5
4 x 2,5	10,0	14,5
5 x 2,5	11,0	15,5
7 x 2,5	12,0	17,0
10 x 2,5	15,5	21,5
12 x 2,5	16,0	22,0
14 x 2,5	17,0	23,5
16 x 2,5	18,0	24,5
19 x 2,5	19,0	26,0
24 x 2,5	22,5	30,5
27 x 2,5	23,0	31,0
30 x 2,5	24,0	32,5
33 x 2,5	24,5	33,5
37 x 2,5	25,5	35,0

Application/Limitation

General power and lighting. Control.

The following applies to SA type cables only:

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 60092-353	2016-09	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	

Standard	Release	General description	Limitation
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	Charred portion of sample does not exceed 2,5m above bottom edge of burner.

*SA type only

Marking of product

Hebei Huatong Wires & Cables Group Co.,Ltd. – CJV/DA or CJV/SA or CJVR/DA or CJVR/SA - size – 0,6/1 kV – IEC60332-3-22* – Lot no.

*SA type only

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, mat
- erials 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