



Certificate no.:
TAE000050C

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Electric Power Cable**

with type designation(s)

CJ86/NSC, CJ96/NSC, CJ85/NSC, CJ95/NSC

issued to

Anhui Tiankang (Group) Shares Co., Ltd.
Tianchang, China

is found to comply with

DNV 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.

Rated voltage (kV) 0,6/1

Temp. class (°C) 90

Issued at **Hamburg** on **2025-01-07**

This Certificate is valid until **2030-01-06**.

DNV local unit: **Nanjing NB & CMC**

Approval Engineer: **Carsten Hunsalz**

for **DNV**



Digitally signed by
Elter, Frederik Tore
Location: DNV
Høvik, Norway

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

XLPE insulated shipboard power cables

Type CJ86/NSC, CJ96/NSC, CJ85/NSC, CJ95/NSC

Construction:

Conductor: Tinned stranded copper, class 2

Insulation: Mica tape + XLPE

Inner covering: Extruded for types CJ95/NSC, CJ96/NSC

Armour / braid: 8 - Copper wire braid

9 - Galvanized steel wire braid (not for single core cable)

Outer sheath: 5 - SHF2

6 - SHF1

CJ86/NSC

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
1×1,0	6,3
1×1,5	6,8
1×2,5	7,2
1×4	7,8
1×6	8,3
1×10	9,3
1×16	10,5
1×25	12,2
1×35	13,2
1×50	15,2
1×70	17,0
1×95	19,1
1×120	21,9
1×150	23,6
1×185	25,7
1×240	28,7
2×1,0	10,3
2×1,5	11,1
2×2,5	12,0
2×4	13,0
2×6	14,3
2×10	17,0
2×16	19,0
2×25	22,8
2×35	24,4
2×50	27,4
2×70	31,2
2×95	35,2
2×120	40,8
2×150	44,5
2×185	48,5
3×1,0*	11,0
3×1,5*	11,7
3×2,5*	12,6
3×4*	13,9
3×6*	15,2
3×10*	18,0
3×16*	20,3
3×25*	24,2
3×35*	26,1

*(2×1+E)

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
3×50*	29,1
3×70*	33,4
3×95*	37,7
3×120*	44,3
3×150*	48,1
3×185*	52,6
3×240*	59,1
4×1,0	11,9
4×1,5	12,6
4×2,5	13,9
4×4	15,1
4×6	17,2
4×10	19,8
4×16	22,2
4×25	26,7
4×35	28,8
4×50	32,2
4×70	36,9
4×95	42,4
4×120	48,9
4×150	53,4
4×185	58,4
4×240	69,5
3×2,5+1×2,5	13,9
3×4+1×4	15,1
3×6+1×6	17,2
3×10+1×10	19,8
3×16+1×16	22,2
3×25+1×16	25,8
3×35+1×25	28,0
3×50+1×25	31,1
3×70+1×35	35,3
3×95+1×50	40,3
3×120+1×70	45,9
3×150+1×95	51,0
3×185+1×95	54,1
3×240+1×120	65,0
5×1,0	12,8
7×1,0	13,8
8×1,0	15,5

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
10×1,0	18,0
12×1,0	18,5
14×1,0	19,4
16×1,0	20,3
19×1,0	21,5
24×1,0	25,0
27×1,0	25,5
30×1,0	26,4
37×1,0	28,5
5×1,5	13,8
7×1,5	14,9
8×1,5	17,0
10×1,5	19,2
12×1,5	19,8
14×1,5	20,9
16×1,5	21,9
19×1,5	23,0
24×1,5	26,8
27×1,5	27,5
30×1,5	28,5
37×1,5	30,8
5×2,5	15,0
7×2,5	16,2
8×2,5	18,3
10×2,5	21,2
12×2,5	21,8
14×2,5	22,8
16×2,5	24,2
19×2,5	25,4
24×2,5	29,6
27×2,5	30,4
30×2,5	31,5
37×2,5	34,1

CJ96/NSC

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
1×1,0	8,4
1×1,5	8,7
1×2,5	9,2
1×4	9,8
1×6	10,4
1×10	11,5
1×16	12,7
1×25	14,5
1×35	16,3
1×50	17,8
1×70	20,0
1×95	22,0
1×120	23,9
1×150	26,0
1×185	28,0
1×240	32,3
2×1,0	11,7
2×1,5	12,3
2×2,5	13,4
2×4	14,6
2×6	16,2
2×10	18,4
2×16	20,8
2×25	24,6
2×35	27,5
2×50	29,8
2×70	33,8
2×95	38,7
2×120	43,5
2×150	47,1
2×185	51,5
3×1,0*	12,2
3×1,5*	12,9
3×2,5*	14,0
3×4*	15,0
3×6*	17,3
3×10*	19,6
3×16*	21,9
3×25*	26,0
3×35*	29,0

*(2x1+E)

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
3×50*	31,7
3×70*	36,4
3×95*	40,8
3×120*	46,4
3×150*	50,6
3×185*	55,8
3×240*	64,5
4×1,0	13,1
4×1,5	14,2
4×2,5	15,3
4×4	17,2
4×6	18,8
4×10	21,4
4×16	24,2
4×25	28,7
4×35	30,8
4×50	34,6
4×70	40,5
4×95	45,2
4×120	51,9
4×150	56,6
4×185	61,8
4×240	71,5
3×2,5+1×2,5	15,5
3×4+1×4	17,2
3×6+1×6	18,8
3×10+1×10	21,4
3×16+1×16	24,2
3×25+1×16	27,8
3×35+1×25	31,0
3×50+1×25	33,0
3×70+1×35	37,5
3×95+1×50	43,1
3×120+1×70	48,9
3×150+1×95	54,0
3×185+1×95	57,8
3×240+1×120	67,4
5×1,0	14,9
7×1,0	15,4
8×1,0	17,3

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
10×1,0	19,4
12×1,0	20,1
14×1,0	21,0
16×1,0	22,1
19×1,0	23,1
24×1,0	26,8
27×1,0	27,3
30×1,0	28,2
37×1,0	30,5
5×1,5	15,7
7×1,5	16,8
8×1,5	18,3
10×1,5	20,8
12×1,5	21,6
14×1,5	22,5
16×1,5	23,5
19×1,5	25,0
24×1,5	28,8
27×1,5	29,3
30×1,5	30,5
37×1,5	32,8
5×2,5	16,9
7×2,5	18,3
8×2,5	20,6
10×2,5	22,8
12×2,5	23,4
14×2,5	24,8
16×2,5	26,0
19×2,5	27,2
24×2,5	31,8
27×2,5	32,4
30×2,5	33,5
37×2,5	36,3

CJ85/NSC

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
1×1,0	6,3
1×1,5	6,8
1×2,5	7,2
1×4	7,8
1×6	8,3
1×10	9,3
1×16	10,5
1×25	12,2
1×35	13,2
1×50	15,2
1×70	17,0
1×95	19,1
1×120	21,9

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
3×1,0*	11,0
3×1,5*	11,7
3×2,5*	12,6
3×4*	13,9
3×6*	15,2
3×10*	18,0
3×16*	20,3
3×25*	24,2
3×35*	26,1
3×50*	29,1
3×70*	33,4
3×95*	37,7
3×120*	44,3

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
7×1,5	14,9
8×1,5	17,0
10×1,5	19,2
12×1,5	19,8
14×1,5	20,9
16×1,5	21,9
19×1,5	23,0
24×1,5	26,8
27×1,5	27,5
30×1,5	28,5
37×1,5	30,8
4×2,5	13,9
5×2,5	15,0

1×150	23,6
1×185	25,7
2×1,0	10,3
2×1,5	11,1
2×2,5	12,0
2×4	13,0
2×6	14,3
2×10	17,0
2×16	19,0
2×25	22,8
2×35	24,4
2×50	27,4
2×70	31,2
2×95	35,2
2×120	40,8
2×150	44,5
2×185	48,5

*(2x1+E)

3×150*	48,1
3×185*	52,6
4×1,0	11,9
5×1,0	12,8
7×1,0	13,8
8×1,0	15,5
10×1,0	18,0
12×1,0	18,5
14×1,0	19,4
16×1,0	20,3
19×1,0	21,5
24×1,0	25,0
27×1,0	25,5
30×1,0	26,4
37×1,0	28,5
4×1,5	12,6
5×1,5	13,8

7×2,5	16,2
8×2,5	18,3
10×2,5	21,2
12×2,5	21,8
14×2,5	22,8
16×2,5	24,2
19×2,5	25,4
24×2,5	29,6
27×2,5	30,4
30×2,5	31,5
37×2,5	34,1

CJ95/NSC

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
1×1,0	8,4
1×1,5	8,7
1×2,5	9,2
1×4	9,8
1×6	10,4
1×10	11,5
1×16	12,7
1×25	14,5
1×35	16,3
1×50	17,8
1×70	20,0
1×95	22,0
1×120	23,9
1×150	26,0
1×185	28,0
2×1,0	11,7
2×1,5	12,3
2×2,5	13,4
2×4	14,6
2×6	16,2
2×10	18,4
2×16	20,8
2×25	24,6
2×35	27,5
2×50	29,8
2×70	33,8
2×95	38,7
2×120	43,5
2×150	47,1
2×185	51,5

*(2x1+E)

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
3×1,0*	12,2
3×1,5*	12,9
3×2,5*	14,0
3×4*	15,0
3×6*	17,3
3×10*	19,6
3×16*	21,9
3×25*	26,0
3×35*	29,0
3×50*	31,7
3×70*	36,4
3×95*	40,8
3×120*	46,4
3×150*	50,6
3×185*	55,8
4×1,0	13,1
5×1,0	14,9
7×1,0	15,4
8×1,0	17,3
10×1,0	19,4
12×1,0	20,1
14×1,0	21,0
16×1,0	22,1
19×1,0	23,1
24×1,0	26,8
27×1,0	27,3
30×1,0	28,2
37×1,0	30,5
4×1,5	14,2
5×1,5	15,7

Number of cores x cross section mm ²	Overall Diameter [mm] nom.
7×1,5	16,8
8×1,5	18,3
10×1,5	20,8
12×1,5	21,6
14×1,5	22,5
16×1,5	23,5
19×1,5	25,0
24×1,5	28,8
27×1,5	29,3
30×1,5	30,5
37×1,5	32,8
4×2,5	15,3
5×2,5	16,9
7×2,5	18,3
8×2,5	20,6
10×2,5	22,8
12×2,5	23,4
14×2,5	24,8
16×2,5	26,0
19×2,5	27,2
24×2,5	31,8
27×2,5	32,4
30×2,5	33,5
37×2,5	36,3

Application/Limitation

General power and lighting. Control.

This type of cable is fire resistant in accordance with IEC Publication 60331.

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.

Fire resistant. Flame retardant Cat. A. Halogen free. Low smoke.

Type Approval documentation

Test report: TN24-4513E, TN24-4511E, TN24-4512E, TN24-4510E,

Specification: Anhui Tiankang (Group) Shares Co., Ltd. updated for DNV 2024

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-353	2024-06	Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV	
IEC 60092-360	2021-01	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	2018-07	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.
IEC 60331-1	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 1: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV	For cables with an overall diameter exceeding 20 mm 120 min.
IEC 60331-2	2018-03	Tests for electric cables under fire conditions - Circuit integrity - Part 2: Test method for fire with shock at a temperature of at least 830 °C for cables of rated voltage up to and including 0,6/1,0 kV	For cables with an overall diameter not exceeding 20 mm 120 min.
IEC 60754-1	2019-11	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	2019-11	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 60684-2	2011-08	Clause 45.2 Methods of determination of low levels of fluorine	Fluorine content < 0,1%
IEC 61034-1/2	2019-11	Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements	Low smoke Light transmittance >60%

Marking of product

Example:

Anhui Tiankang (Group) Shares Co., Ltd. - CJ85/NSC - 0,6/1kV – size - IEC 60332-3-22 - IEC 60331-1/2 - 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