Certificate no.:
TAE000050E

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Low Voltage Cable

with type designation(s)
CKJPF86/SC, CKJPF96/SC, CKJPJ85/SC, CKJPJ95/SC, CKJPFP86/SC, CKJPFP96/SC, CKJPJP85/SC, CKJPJP95/SC, CHJPF86/SC, CHJPF96/SC, CHJPJ85/SC, CHJPJ95/SC, CHJPFP86/SC, CHJPFP96/SC, CHJPJP85/SC, CHJPJP95/SC

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 (V)	**150/250**
Temp. class (°C)	**90**

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

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

for **DNV**

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

Approval Engineer: **Carsten Hunsalz**

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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to USD 300 000.

Product description

XLPE insulated shipboard control and instrumentation cables

Type CKJPF86/SC, CKJPF96/SC, CKJPJ85/SC, CKJPJ95/SC, CKJPFP86/SC, CKJPFP96/SC, CKJPJP85/SC, CKJPJP95/SC,
CHJPF86/SC, CHJPF96/SC, CHJPJ85/SC, CHJPJ95/SC, CHJPFP86/SC, CHJPFP96/SC, CHJPJP85/SC, CHJPJP95/SC

Construction:

Conductor:	Tinned stranded copper, class 2
Insulation:	XLPE
Electrostatic screen:	P - Tinned copper
Inner sheath:	PF - SHF1 PJ - SHF2
Armour / braid:	8 - Copper wire braid 9 - Galvanized steel wire braid
Outer sheath:	5 - SHF2 6 - SHF1

CKJPF86/SC, CKJPF96/SC, CKJPJ85/SC, CKJPJ95/SC,

Number of cores x cross section mm²	Overall Diameter [mm] nom.	Number of cores x cross section mm²	Overall Diameter [mm] nom.	Number of cores x cross section mm²	Overall Diameter [mm] nom.
2×0,5	8,2	2×1,0	9,3	2×2,5	11,4
3×0,5	8,5	3×1,0	9,7	3×2,5	12,0
4×0,5	8,8	4×1,0	10,4	4×2,5	12,9
5×0,5	9,3	5×1,0	11,1	5×2,5	14,5
7×0,5	9,9	7×1,0	11,8	7×2,5	15,6
8×0,5	10,4	8×1,0	12,8	8×2,5	16,6
10×0,5	11,7	10×1,0	14,9	10×2,5	19,2
12×0,5	12,0	12×1,0	15,4	12×2,5	19,8
14×0,5	12,7	14×1,0	16,0	14×2,5	20,7
16×0,5	13,2	16×1,0	16,7	16×2,5	21,8
19×0,5	14,2	19×1,0	17,5	19×2,5	22,9
24×0,5	16,1	24×1,0	20,1	24×2,5	26,5
27×0,5	16,4	27×1,0	20,5	27×2,5	27,1
30×0,5	16,9	30×1,0	21,1	30×2,5	28,0
37×0,5	18,1	37×1,0	22,7	37×2,5	30,1
2×0,75	8,9	2×1,5	10,3		
3×0,75	9,2	3×1,5	10,8		
4×0,75	9,8	4×1,5	11,7		
5×0,75	10,5	5×1,5	12,5		
7×0,75	11,2	7×1,5	13,5		
8×0,75	12,2	8×1,5	14,8		
10×0,75	14,2	10×1,5	17,1		
12×0,75	14,5	12×1,5	17,6		
14×0,75	15,3	14×1,5	18,4		
16×0,75	15,9	16×1,5	19,3		
19×0,75	16,4	19×1,5	20,2		
24×0,75	19,0	24×1,5	23,3		
27×0,75	19,4	27×1,5	23,8		
30×0,75	20,0	30×1,5	24,6		
37×0,75	21,5	37×1,5	26,4		

CKJPFP86/SC, CKJPFP96/SC, CKJPJP85/SC, CKJPJP95/SC,

Number of cores x cross section mm²	Overall Diameter [mm] nom.	Number of cores x cross section mm²	Overall Diameter [mm] nom.	Number of cores x cross section mm²	Overall Diameter [mm] nom.
2×0,5	9,0	2×1,0	10,1	2×2,5	12,2
3×0,5	9,2	3×1,0	10,5	3×2,5	12,9
4×0,5	9,7	4×1,0	11,1	4×2,5	14,3
5×0,5	10,1	5×1,0	11,8	5×2,5	15,3
7×0,5	10,7	7×1,0	13,2	7×2,5	16,4
8×0,5	11,2	8×1,0	14,0	8×2,5	17,8

10×0,5	12,7	10×1,0	15,8	10×2,5	20,4
12×0,5	13,0	12×1,0	16,2	12×2,5	20,9
14×0,5	13,5	14×1,0	17,1	14×2,5	21,9
16×0,5	14,5	16×1,0	17,9	16×2,5	22,9
19×0,5	15,1	19×1,0	18,4	19×2,5	24,0
24×0,5	17,3	24×1,0	21,2	24×2,5	27,6
27×0,5	17,6	27×1,0	21,6	27×2,5	28,2
30×0,5	18,1	30×1,0	22,3	30×2,5	29,1
37×0,5	19,2	37×1,0	23,8	37×2,5	31,3
2×0,75	9,8	2×1,5	11,1		
3×0,75	10,1	3×1,5	11,6		
4×0,75	10,7	4×1,5	12,5		
5×0,75	11,2	5×1,5	13,4		
7×0,75	11,9	7×1,5	14,8		
8×0,75	12,7	8×1,5	15,8		
10×0,75	14,4	10×1,5	18,2		
12×0,75	15,3	12×1,5	18,7		
14×0,75	15,8	14×1,5	19,5		
16×0,75	16,5	16×1,5	20,4		
19×0,75	17,2	19×1,5	21,3		
24×0,75	19,9	24×1,5	24,4		
27×0,75	20,2	27×1,5	24,9		
30×0,75	20,8	30×1,5	25,7		
37×0,75	22,2	37×1,5	27,5		

CHJPF86/SC, CHJPF96/SC, CHJPJ85/SC, CHJPJ95/SC

Number of cores x cross section mm²	Overall Diameter [mm] nom.	Number of cores x cross section mm²	Overall Diameter [mm] nom.	Number of cores x cross section mm²	Overall Diameter [mm] nom.
1 x2x0,5	7,8	24 x2x0,75	31,7	8 x2x1,5	24,8
2 x2x0,5	11,2	27 x2x07,5	32,3	10 x2x1,5	27,9
3 x2x0,5	11,9	30 x2x0,75	33,5	12 x2x1,5	29,1
4 x2x0,5	12,7	37 x2x0,75	36,6	14 x2x1,5	30,4
5 x2x0,5	14,1	1 x3x0,75	8,9	16 x2x1,5	32,1
7 x2x0,5	15,3	1 x4x0,75	9,4	19 x2x1,5	33,9
8 x2x0,5	16,9	1 x2x1	8,8	24 x2x1,5	40,2
10 x2x0,5	18,9	2 x2x1	13,9	27 x2x1,5	41,4
12 x2x0,5	19,4	3 x2x1	14,8	30 x2x1,5	42,7
14 x2x0,5	20,6	4 x2x1	16,1	37 x2x1,5	46,4
16 x2x0,5	21,5	5 x2x1	17,4	1 x3x1,5	10,2
19 x2x0,5	22,5	7 x2x1	18,7	1 x4x1,5	11,1
24 x2x0,5	26,3	8 x2x1	21,0	1 x2x2,5	10,6
27 x2x0,5	26,8	10 x2x1	23,5	2 x2x2,5	18,1
30 x2x0,5	27,6	12 x2x1	24,4	3 x2x2,5	19,1
37 x2x0,5	29,9	14 x2x1	25,4	4 x2x2,5	21,0
1 x3x0,5	8,1	16 x2x1	26,8	5 x2x2,5	22,7
1 x4x0,5	8,5	19 x2x1	28,1	1 x3x2,5	11,2
1 x2x0,75	8,6	24 x2x1	33,1	1 x4x2,5	12,3
2 x2x0,75	13,5	27 x2x1	33,7		
3 x2x07,5	14,1	30 x2x1	35,5		
4 x2x0,75	15,4	37 x2x1	38,4		
5 x2x0,75	16,7	1 x3x1	9,1		
7 x2x0,75	18,1	1 x4x1	9,7		
8 x2x0,75	20,3	1 x2x1,5	9,8		
10 x2x0,75	22,5	2 x2x1,5	16,3		
12 x2x0,75	23,3	3 x2x1,5	17,3		
14 x2x0,75	24,5	4 x2x1,5	18,7		
16 x2x0,75	25,9	5 x2x1,5	20,5		
19 x2x0,75	27,1	7 x2x1,5	22,1		

CHJPFP86/SC, CHJPFP96/SC, CHJPJP85/SC, CHJPJP95/SC

Number of cores x cross section mm²	Overall Diameter [mm] nom.
1 x2x0,5	7,8
2 x2x0,5	10,3
3 x2x0,5	10,8
4 x2x0,5	11,9
5 x2x0,5	12,7
7 x2x0,5	14,0
8 x2x0,5	15,5
10 x2x0,5	17,5
12 x2x0,5	17,9
14 x2x0,5	18,7
16 x2x0,5	19,5
19 x2x0,5	20,7
24 x2x0,5	23,8
27 x2x0,5	24,4
30 x2x0,5	25,2
37 x2x0,5	27,0
1 x3x0,5	8,1
1 x4x0,5	8,5
1 x2x0,75	8,6
2 x2x0,75	12,1
3 x2x07,5	12,7
4 x2x0,75	14,1
5 x2x0,75	15,3
7 x2x0,75	16,6
8 x2x0,75	18,4
10 x2x0,75	20,7
12 x2x0,75	21,3
14 x2x0,75	22,2
16 x2x0,75	23,4
19 x2x0,75	24,7

Number of cores x cross section mm²	Overall Diameter [mm] nom.
24 x2x0,75	28,9
27 x2x07,5	29,4
30 x2x0,75	30,3
37 x2x0,75	32,8
1 x3x0,75	8,9
1 x4x0,75	9,4
1 x2x1	8,8
2 x2x1	12,5
3 x2x1	13,6
4 x2x1	14,7
5 x2x1	16,0
7 x2x1	17,1
8 x2x1	19,0
10 x2x1	21,5
12 x2x1	22,1
14 x2x1	23,2
16 x2x1	24,5
19 x2x1	25,6
24 x2x1	29,9
27 x2x1	30,5
30 x2x1	31,7
37 x2x1	34,1
1 x3x1	9,1
1 x4x1	9,7
1 x2x1,5	9,8
2 x2x1,5	15,0
3 x2x1,5	15,7
4 x2x1,5	17,3
5 x2x1,5	18,6
7 x2x1,5	20,4

Number of cores x cross section mm²	Overall Diameter [mm] nom.
8 x2x1,5	22,5
10 x2x1,5	25,4
12 x2x1,5	26,4
14 x2x1,5	27,5
16 x2x1,5	29,2
19 x2x1,5	30,6
24 x2x1,5	36,4
27 x2x1,5	37,3
30 x2x1,5	38,7
37 x2x1,5	41,8
1 x3x1,5	10,2
1 x4x1,5	11,1
1 x2x2,5	10,6
2 x2x2,5	16,6
3 x2x2,5	17,6
4 x2x2,5	19,0
5 x2x2,5	20,9
1 x3x2,5	11,2
1 x4x2,5	12,3

Application/Limitation

Control and instrumentation.

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.

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

Type Approval documentation

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 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
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.	

Standard	Release	General description	Limitation
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 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. - CKJPJP85/SC – 150/250V - size - IEC 60332-3-22 - 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