



Certificate No:
TAE00004M3

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)

CJPF86/SC CJPF96/SC CJPJ85/SC CJPJ95/SC 0,6/1kV, CJPJ85/SC-VFD CJPF86/SC-VFD 0,6/1kV, CJPJ85/SC-VFD CJPF86/SC-VFD 1,8/3kV

Issued to

Yangzhou Zhongda Cable Co., Ltd
Yangzhou, 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.

Type	Rated voltage (kV)	Temp. class (°C)
CJPF86/SC CJPF96/SC CJPJ85/SC CJPJ95/SC 0,6/1kV	0,6/1	90
CJPJ85/SC-VFD CJPF86/SC-VFD 0,6/1kV	0,6/1	90
CJPJ85/SC-VFD CJPF86/SC-VFD 1,8/3kV	1,8/3	90

Issued at **Høvik** on **2022-12-16**

This Certificate is valid until **2027-12-15**.

for **DNV**

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

Approval Engineer: **Carsten Hunsalz**

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Frederik Tore Elter
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.

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 300,000 USD.



Product description

Type: CJPJ86/SC, CJPJ96/SC, CJPJ85/SC, CJPJ95/SC 0,6/1 kV
CJPJ85/SC-VFD, CJPJ86/SC-VFD 0,6/1 kV
CJPJ85/SC-VFD, CJPJ86/SC-VFD 1,8/3 kV

Conductors: Stranded copper class 2 or class 5
Insulation: XLPE
Inner sheath: PF – SHF1
PJ – SHF2
Armor: 8 – Tinned copper wire braid
9 – Galvanized steel wire braid
Outer sheath: 5 – SHF2
6 – SHF1

CJPJ86/SC, CJPJ96/SC, CJPJ85/SC, CJPJ95/SC 0,6/1 kV

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1x1	7,7
1x1,5	7,8
1x2,5	8,3
1x4	8,8
1x6	9,4
1x10	10,5
1x16	11,7
1x25	14,2
1x35	15,6
1x50	17,3
1x70	19,6
1x95	21,7
1x120	23,8
1x150	26,0
1x185	28,7
1x240	31,9
1x300	34,9
2x1	10,5
2x1,5	11,1
2x2,5	12,2
2x4	13,8
2x6	15,1
2x10	17,2
2x16	19,6
2x25	23,5
2x35	26,3
2x50	29,5
2x70	34,5
2x95	38,8
2x120	42,9
2x150	47,4
2x185	52,6

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3x1	11,1
3x1,5	11,7
3x2,5	13,3
3x4	14,4
3x6	15,9
3x10	18,1
3x16	20,7
3x25	24,9
3x35	27,9
3x50	31,4
3x70	36,8
3x95	41,4
3x120	45,8
3x150	50,7
3x185	56,3
4x1	11,8
4x1,5	12,9
4x2,5	14,3
4x4	15,7
4x6	17,2
4x10	19,8
4x16	22,7
4x25	27,4
4x35	30,8
4x50	35,2
4x70	40,6
4x95	45,9
4x120	50,8
4x150	56,3
4x185	62,6

CJPF86/SC, CJPF96/SC, CJPJ85/SC, CJPJ95/SC 0,6/1 kV

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
5x1	13,1
7x1	14,0
10x1	17,1
12x1	17,6
14x1	18,4
16x1	19,3
19x1	20,2
24x1	23,3
27x1	23,7
30x1	24,5
33x1	25,4
37x1	26,4
5x1,5	13,9
7x1,5	15,0
10x1,5	18,3
12x1,5	18,9
14x1,5	19,7
16x1,5	20,7

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
19x1,5	21,7
24x1,5	25,1
27x1,5	25,6
30x1,5	26,5
33x1,5	27,5
37x1,5	28,5
5x2,5	15,4
7x2,5	16,6
10x2,5	20,5
12x2,5	21,2
14x2,5	22,2
16x2,5	23,3
19x2,5	24,5
24x2,5	28,4
27x2,5	29,0
30x2,5	30,0
33x2,5	31,2
37x2,5	32,4

CJPJ85/SC-VFD, CJPF86/SC-VFD 0,6/1 kV

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1x4	9,8
1x6	10,6
1x10	12,1
1x16	13,4
1x25	15,4
1x35	17,6
1x50	19,7
1x70	22,4
1x95	23,8
1x120	26,1
1x150	28,6
1x185	31,4
1x240	35,4
1x300	36,4

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3x2,5	13,7
3x4	15,8
3x6	17,7
3x10	20,8
3x16	22,7
3x25	27,1
3x35	31,7
3x50	36,7
3x70	42,3
3x95	45,4
3x120	50,3
3x150	55,6
3x185	61,7
3x240	69,2

CJPJ85/SC-VFD, CJPF86/SC-VFD 0,6/1 kV

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×2,5+1×2,5	15,1
3×4+1×4	17,0
3×6+1×6	19,0
3×10+1×10	22,1
3×16+1×16	24,9
3×25+1×16	28,7
3×35+1×25	32,6
3×50+1×25	38,2
3×70+1×35	44,2
3×95+1×50	48,2
3×120+1×70	53,9
3×150+1×95	58,4
3×185+1×95	64,4
3×240+1×120	72,2

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×4+3×1,5	17,3
3×6+3×2,5	19,2
3×10+3×4	22,3
3×16+3×6	25,3
3×25+3×6	28,0
3×35+3×6	32,5
3×50+3×10	38,3
3×70+3×16	42,2
3×95+3×16	45,8
3×120+3×25	52,3
3×150+3×25	56,0
3×185+3×35	63,5
3×240+3×50	72,0

CJPJ85/SC-VFD, CJPF86/SC-VFD 1,8/3 kV

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1x10	15,4
1x16	16,3
1x25	17,9
1x35	20,1
1x50	22,0
1x70	24,4
1x95	25,9
1x120	27,9
1x150	29,9
1x185	32,3
1x240	36,0
1x300	36,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3x10	27,1
3x16	29,0
3x25	32,4
3x35	37,4
3x50	41,6
3x70	46,7
3x95	49,8
3x120	54,2
3x150	58,6
3x185	63,6
3x240	70,7

CJPJ85/SC-VFD, CJPF86/SC-VFD 1,8/3 kV

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×10+1×10	29,5
3×16+1×16	32,0
3×25+1×16	35,4
3×35+1×25	39,3
3×50+1×25	43,8
3×70+1×35	49,4
3×95+1×50	53,3
3×120+1×70	58,4
3×150+1×95	62,1
3×185+1×95	67,3
3×240+1×120	74,5

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×10+3×4	31,1
3×16+3×6	33,7
3×25+3×6	36,6
3×35+3×6	41,1
3×50+3×10	46,1
3×70+3×16	49,7
3×95+3×16	53,3
3×120+3×25	58,7
3×150+3×25	61,8
3×185+3×35	68,6
3×240+3×50	76,4

Application/Limitation

General power and lighting. Control.

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 60092-353	2016-09	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 60332-1-2	2015-07	Tests on electric and optical fibre cables under fire conditions – Part 1-2: Test for vertical flame propagation for a single insulated wire or cable – Procedure for 1 kW pre-mixed flame	
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:

Yangzhou Zhongda Cable Co., Ltd - CJPF86/SC - 0,6/1 kV - 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