Certificate no.:
TAE0000533

TYPE APPROVAL CERTIFICATE

This is to certify:

that the Electric Power Cable

with type designation(s)
CJ85/SC, CJ86/SC, CJ95/SC, CJ96/SC, CBPJ85/SC, CBPJ86/SC 0,6/1 and 1,8/3

issued to

Guangzhou OUSSEA Photoelectric Transmission Technology Inc., Ltd.
Guangzhou, Guangdong Province, 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 and 1,8/3**
Temp. class (°C)	**90**

Issued at **Hamburg** on **2025-10-09**
This Certificate is valid until **2030-10-08**.
DNV local unit: **China South NB**

for **DNV**

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.

Product description

Type: CJ85/SC, CJ86/SC, CJ95/SC, CJ96/SC 0,6/1kV and 1,8/3kV
CBPJ85/SC, CBPJ86/SC VFD cables 0,6/1kV and 1,8/3kV

Conductor: Tinned, stranded copper class 2 or class 5
Insulation: XLPE
Inner covering: Extruded for CJ95/NC and CJ96/NC types
Armour / braid: 8 - Tinned copper wire braid
9 - Galvanized steel wire braid (not for single core cables when not non-magnetic)
Outer sheath: 5 - (SHF2) or 6 - (SHF1)

CJ85/SC, CJ86/SC 0,6/1kV

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
1x1	5,9
1x1,5	6,1
1x2,5	6,6
1x4	7,1
1x6	7,7
1x10	8,7
1x16	9,9
1x25	11,7
1x35	13,1
1x50	15,2
1x70	17,3
1x95	19,4
1x120	21,3
1x150	23,4
1x185	25,9
1x240	28,9
1x300	31,8
2x1	8,7
2x1,5	9,2
2x2,5	10,3
2x4	11,4
2x6	12,6
2x10	15,2
2x16	17,4
2x25	21,1
2x35	23,8
2x50	26,9
2x70	31,3
2x95	35,4
2x120	39,8
2x150	44,0
2x185	48,9
3(2+E)x1	9,1
3(2+E)x1,5	9,8
3(2+E)x2,5	10,9
3(2+E)x4	12,1
3(2+E)x6	13,4
3(2+E)x10	16,1
3(2+E)x16	18,6

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3(2+E)x25	22,6
3(2+E)x35	25,4
3(2+E)x50	28,8
3(2+E)x70	33,5
3(2+E)x95	38,5
3(2+E)x120	42,7
3(2+E)x150	47,2
3(2+E)x185	52,5
3(2+E)x240	59,1
4(3+E)x1	9,9
4(3+E)x1,5	10,6
4(3+E)x2,5	11,8
4(3+E)x4	13,2
4(3+E)x6	15,2
4(3+E)x10	17,6
4(3+E)x16	20,4
4(3+E)x25	24,9
4(3+E)x35	28,1
4(3+E)x50	31,9
4(3+E)x70	37,7
4(3+E)x95	42,6
4(3+E)x120	47,3
4(3+E)x150	52,4
4(3+E)x185	58,4
5(4+E)x1	10,7
5(4+E)x1,5	11,5
5(4+E)x2,5	12,9
5(4+E)x4	14,9
5(4+E)x6	16,6
5(4+E)x10	19,3
5(4+E)x16	22,3
5(4+E)x25	27,4
5(4+E)x35	31,0
5(4+E)x50	35,2
5(4+E)x70	41,5
5(4+E)x95	47,1
5(4+E)x120	52,4
5(4+E)x150	58,0
5(4+E)x185	64,7

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
6x1	11,0
7x1	11,6
10x1	15,0
12x1	15,5
14x1	16,2
16x1	17,0
19x1	17,9
24x1	20,8
27x1	21,3
30x1	22,0
33x1	22,9
37x1	23,7
6x1,5	11,8
7x1,5	12,4
10x1,5	16,2
12x1,5	16,7
14x1,5	17,5
16x1,5	18,4
19x1,5	19,4
24x1,5	22,6
27x1,5	23,0
30x1,5	23,9
33x1,5	24,8
37x1,5	25,8
6x2,5	13,3
7x2,5	14,5
10x2,5	18,3
12x2,5	18,8
14x2,5	19,8
16x2,5	20,9
19x2,5	22,0
24x2,5	25,7
27x2,5	26,2
30x2,5	27,2
33x2,5	28,3
37x2,5	29,4

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
6x4	15,3
7x4	16,2
10x4	20,5
12x4	21,1
14x4	22,2
16x4	23,4
19x4	24,7
24x4	29,0
27x4	29,6
30x4	30,7
33x4	32,0
37x4	33,3

CJ95/SC, CJ96//SC 0,6/1kV

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
1x1	8,0
1x1,5	8,3
1x2,5	8,8
1x4	9,4
1x6	10,0
1x10	11,0
1x16	12,1
1x25	14,5
1x35	15,9
1x50	17,4
1x70	19,6
1x95	21,6
1x120	24,0
1x150	26,1
1x185	29,0
1x240	32,1
1x300	34,9
2x1	10,9
2x1,5	11,5
2x2,5	12,6
2x4	14,2
2x6	15,4
2x10	17,4
2x16	19,7
2x25	23,8
2x35	26,5
2x50	30,1
2x70	34,4
2x95	39,0
2x120	43,4
2x150	47,6
2x185	52,5
3(2+E)x1	11,4
3(2+E)x1,5	12,0
3(2+E)x2,5	13,1
3(2+E)x4	14,9
3(2+E)x6	16,2
3(2+E)x10	18,4
3(2+E)x16	20,8

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3(2+E)x25	25,3
3(2+E)x35	28,6
3(2+E)x50	31,9
3(2+E)x70	37,2
3(2+E)x95	42,0
3(2+E)x120	46,2
3(2+E)x150	50,8
3(2+E)x185	56,1
3(2+E)x240	62,7
4(3+E)x1	12,2
4(3+E)x1,5	12,9
4(3+E)x2,5	14,6
4(3+E)x4	16,0
4(3+E)x6	17,5
4(3+E)x10	19,9
4(3+E)x16	23,1
4(3+E)x25	28,0
4(3+E)x35	31,2
4(3+E)x50	35,0
4(3+E)x70	41,2
4(3+E)x95	46,2
4(3+E)x120	50,9
4(3+E)x150	56,0
4(3+E)x185	62,0
5(4+E)x1	13,0
5(4+E)x1,5	14,3
5(4+E)x2,5	15,7
5(4+E)x4	17,2
5(4+E)x6	18,8
5(4+E)x10	21,6
5(4+E)x16	25,0
5(4+E)x25	30,5
5(4+E)x35	34,1
5(4+E)x50	38,8
5(4+E)x70	45,1
5(4+E)x95	50,7
5(4+E)x120	55,9
5(4+E)x150	61,6
5(4+E)x185	68,3

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
6x1	13,3
7x1	14,4
10x1	17,3
12x1	17,7
14x1	18,5
16x1	19,3
19x1	20,2
24x1	23,5
27x1	24,0
30x1	24,7
33x1	25,6
37x1	26,4
6x1,5	14,6
7x1,5	15,3
10x1,5	18,4
12x1,5	19,0
14x1,5	19,8
16x1,5	20,7
19x1,5	21,6
24x1,5	25,3
27x1,5	25,7
30x1,5	26,6
33x1,5	27,5
37x1,5	28,9
6x2,5	16,1
7x2,5	16,8
10x2,5	20,5
12x2,5	21,1
14x2,5	22,5
16x2,5	23,6
19x2,5	24,7
24x2,5	28,8
27x2,5	29,4
30x2,5	30,3
33x2,5	31,4
37x2,5	32,5

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
6x4	17,6
7x4	18,5
10x4	23,2
12x4	23,8
14x4	24,9
16x4	26,1
19x4	27,4
24x4	32,1
27x4	32,8
30x4	33,9
33x4	35,1
37x4	36,9

CJ85/SC, CJ86/SC 1,8/3kV

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
1x10	11,5
1x16	12,7
1x25	14,6
1x35	16,0
1x50	17,3
1x70	19,3
1x95	21,3
1x120	23,1
1x150	24,7
1x185	26,8
1x240	29,6
1x300	32,2

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
2x10	20,8
2x16	23,0
2x25	25,9
2x35	28,6
2x50	31,3
2x70	35,1
2x95	39,8
2x120	43,3
2x150	46,6
2x185	50,7
2x240	56,3
2x300	61,6

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3x10	22,2
3x16	24,6
3x25	27,7
3x35	30,6
3x50	33,5
3x70	38,2
3x95	42,7
3x120	46,4
3x150	50,0
3x185	54,4
3x240	60,5
3x300	66,2

CBPJ85/SC, CBPJ86/SC VFD cables 0,6/1kV

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3x1	9,5
3x1,5	10,2
3x2,5	11,2
3x4	12,6
3x6	14,3
3x10	16,6
3x16	18,9
3x25	22,9
3x35	26,0
3x50	29,2
3x70	33,8
3x95	38,8
3x120	43,0
3x150	47,7
3x185	52,9
3x240	60,1
3x300	65,7

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3x1+3x0,5	10,1
3x1,5+3x0,5	10,7
3x2,5+3x1	11,7
3x4+3x1,5	13,1
3x6+3x2,5	14,8
3x10+3x4	17,1
3x16+3x6	19,5
3x25+3x6	23,5
3x35+3x6	26,5
3x50+3x10	29,7
3x70+3x16	34,4
3x95+3x16	39,4
3x120+3x25	43,6
3x150+3x25	48,2
3x185+3x35	53,4
3x240+3x50	60,6

CBPJ85/SC, CBPJ86/SC VFD cables 1,8/3kV

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3x10	22,7
3x16	25,0
3x25	28,0
3x35	31,0
3x50	33,8
3x70	38,6
3x95	43,0
3x120	46,8
3x150	50,5
3x185	54,7
3x240	61,0
3x300	66,6

Number of cores x conductor cross-section	Overall diameter nom.
mm^2	mm
3x10+3x4	23,3
3x16+3x6	25,5
3x25+3x6	28,6
3x35+3x6	31,6
3x50+3x10	34,4
3x70+3x16	39,1
3x95+3x16	43,6
3x120+3x25	47,3
3x150+3x25	51,0
3x185+3x35	55,2
3x240+3x50	61,5

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
DNV-CP-0399	2021-08	Class Programme Electric cables	
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 60332-1-2	2015-07	Tests on eletric cables under fire conditions. Test for vertical flame propagation for a single insulated wire or cable.	
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	HF max 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:

Guangzhou OUSSEA Photoelectric Transmission Technology Inc., Ltd. - CJ85/SC - 1,8/3kV - 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