



Certificate no.:
TAE000051E

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **High Voltage Cable**

with type designation(s)

CJ85/SC, CJ86/SC, CJ85/SC-VFD, CJ86/SC-VFD

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.

Rated voltage (kV) 3,6/6 6/10 8,7/15 12/20 18/30
Temp. class (°C) 90

Issued at **Hamburg** on **2025-02-14**

This Certificate is valid until **2030-02-13**.

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

Type: CJ85/SC, CJ86/SC, CJ85/SC-VFD, CJ86/SC-VFD

Conductor: Stranded copper conductor (class 2)

Insulation: Semi-conducting compound

XLPE

Semi-conducting compound

Screen: Copper tape layer

Inner covering: Extruded

Armour / braid: 8 - Tinned copper wire braid

Outer sheath: 5 - (SHF2) or 6 - (SHF1)

CJ85/SC, CJ86/SC 3,6/6

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1×10	17,8
1×16	18,9
1×25	20,2
1×35	21,2
1×50	22,4
1×70	24,4
1×95	26,4
1×120	27,8
1×150	29,4
1×185	31,2
1×240	34,2
1×300	37,0
1×400	40,2
1×500	43,8
1×630	47,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×10	33,4
3×16	36,4
3×25	38,9
3×35	41,3
3×50	43,7
3×70	48,6
3×95	52,9
3×120	56,1
3×150	59,9
3×185	63,6
3×240	69,2
3×300	74,7

CJ85/SC, CJ86/SC 6/10

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1×16	21,1
1×25	22,4
1×35	23,4
1×50	24,4
1×70	26,6
1×95	28,6
1×120	29,8
1×150	31,6
1×185	33,8
1×240	36,8
1×300	39,2
1×400	42,4
1×500	45,8
1×630	49,6

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×16	40,6
3×25	43,2
3×35	45,9
3×50	48,3
3×70	53,0
3×95	57,7
3×120	60,5
3×150	64,1
3×185	68,0
3×240	74,0
3×300	79,1

CJ85/SC, CJ86/SC 8,7/15

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1×25	24,4
1×35	25,6
1×50	26,6
1×70	28,8
1×95	30,8
1×120	32,0
1×150	34,2
1×185	36,4
1×240	39,0
1×300	41,4
1×400	45,0
1×500	48,0
1×630	51,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25	48,6
3×35	50,9
3×50	53,3
3×70	58,4
3×95	62,7
3×120	65,5
3×150	69,2
3×185	73,4
3×240	79,0
3×300	84,1

CJ85/SC, CJ86/SC 12/20

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1×35	27,8
1×50	28,8
1×70	31,0
1×95	33,8
1×120	35,0
1×150	36,8
1×185	38,6
1×240	41,2
1×300	43,6
1×400	47,2
1×500	50,2
1×630	53,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×35	56,1
3×50	58,4
3×70	63,1
3×95	67,2
3×120	70,0
3×150	74,3
3×185	77,9
3×240	83,5
3×300	88,7

CJ85/SC, CJ86/SC 18/30

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
1×50	35,0
1×70	37,2
1×95	39,2
1×120	40,4
1×150	42,2
1×185	44,4
1×240	47,0
1×300	49,4
1×400	52,6
1×500	56,0
1×630	59,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×50	70,0
3×70	75,1
3×95	79,4
3×120	82,2
3×150	85,9
3×185	89,7
3×240	95,7
3×300	100,9

CJ85/SC-VFD, CJ86/SC-VFD 3,6/6

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25	39,4
3×35	41,8
3×50	44,6
3×70	49,3
3×95	53,4
3×120	56,6
3×150	60,4
3×185	64,1
3×240	70,1
3×300	76,7

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25+3×10	49,4
3×35+3×10	50,9
3×50+3×10	52,6
3×70+3×16	57,9
3×95+3×16	60,8
3×120+3×25	64,3
3×150+3×25	66,9
3×185+3×35	71,2
3×240+3×50	77,4
3×300+3×50	81,7

CJ85/SC-VFD, CJ86/SC-VFD 6/10

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25	44,6
3×35	46,9
3×50	49,3
3×70	53,8
3×95	58,5
3×120	61,3
3×150	64,9
3×185	68,8
3×240	74,8
3×300	79,9

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25+3×10	56,2
3×35+3×10	57,9
3×50+3×10	59,4
3×70+3×16	64,3
3×95+3×16	67,2
3×120+3×25	70,9
3×150+3×25	73,9
3×185+3×35	78,0
3×240+3×50	83,5
3×300+3×50	87,2

CJ85/SC-VFD, CJ86/SC-VFD 8,7/15

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25	49,7
3×35	52,1
3×50	54,4
3×70	59,4
3×95	63,6
3×120	66,4
3×150	70,1
3×185	74,3
3×240	79,9
3×300	85,1

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×25+3×10	63,4
3×35+3×10	64,9
3×50+3×10	66,6
3×70+3×16	71,5
3×95+3×16	74,8
3×120+3×25	78,3
3×150+3×25	80,9
3×185+3×35	85,2
3×240+3×50	90,7
3×300+3×50	94,2

CJ85/SC-VFD, CJ86/SC-VFD 12/20

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×35	57,2
3×50	59,4
3×70	64,1
3×95	68,4
3×120	71,2
3×150	75,2
3×185	79,1
3×240	84,6
3×300	89,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×35+3×10	71,5
3×50+3×10	73,6
3×70+3×16	78,3
3×95+3×16	81,4
3×120+3×25	84,9
3×150+3×25	87,5
3×185+3×35	91,6
3×240+3×50	97,7
3×300+3×50	101,2

CJ85/SC-VFD, CJ86/SC-VFD 18/30

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×50	71,2
3×70	76,3
3×95	80,4
3×120	83,2
3×150	87,0
3×185	90,7
3×240	96,6
3×300	101,8

Number of cores x conductor cross-section	Overall diameter nom.
mm ²	mm
3×50+3×10	89,8
3×70+3×16	94,5
3×95+3×16	98,0
3×120+3×25	101,5
3×150+3×25	104,1
3×185+3×35	108,4
3×240+3×50	113,9
3×300+3×50	117,4

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 60092-354	2020-02	Electrical installations in ships - Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 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 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:

Yangzhou Zhongda Cable Co., Ltd - CJ85/SC – 6/10kV – 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