DNV·GL

Certificate No:
**TAE00003HB**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the High Voltage Cable**

with type designation(s)
**CJPF86/SC, CJPF96/SC**

Issued to
**Jiangsu Shangshang Cable Group Co., Ltd.**
**LIYANG, JIANGSU, China**

is found to comply with
**DNV GL 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 GL.**
**Rated voltage (kV) 3,6/6 6/10 8,7/15**
**Temp. class (°C) 90**

Issued at **Hamburg** on **2019-05-22**
This Certificate is valid until **2024-05-21**.
DNV GL local station: **Nanjing**

Approval Engineer: **Carsten Hunsalz**

for **DNV GL**

**Arne Schaarmann**
**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.


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## Product description

Type: CJPF86/SC, CJPF96/SC

Conductor: Stranded copper conductor (class 2)
Insulation: Semi-conducting compound
XLPE
Semi-conducting compound
Screen: Copper tape layer
Inner sheath: PF - (SHF1)
Armour / braid: 8 - Tinned copper wire braid
9 - Galvanized steel wire braid
Outer sheath: 6 - (SHF1)

3,6/6 kV:

| No of cores: | Cross sectional area [mm2] |
|---|---|
| 1 | 10 – 240 (10 – 630 CJPF86/SC) |
| 3 | 10 – 240 |

6/10 kV:

| No of cores: | Cross sectional area [mm2] |
|---|---|
| 1 | 16 – 240 (16 – 630 CJPF86/SC) |
| 3 | 16 – 240 |

8,7/15 kV:

| No of cores: | Cross sectional area [mm2] |
|---|---|
| 1 | 25 – 240 (25 – 630 CJPF86/SC) |
| 3 | 25 – 240 |

## Application/Limitation

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.

## Type Approval documentation

Test report: CT08-2165-2; Jiangsu Shangshang Cable dated 2008-09-12

Specification: Shipboard Power Cables 3.6/6kV; 6/10kV; 8.7/15kV Jan. 2008

## Tests carried out

| Standard | Release | General description | Limitation |
|---|---|---|---|
| IEC 60092-350 | 2014-08 | General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications | |
| IEC 60092-360 | 2014-04 | 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 60092-354 | 2014-08 | 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 60228 | 2004-11 | Conductors of insulated 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 | Bunch test<br>Category A |
| IEC 60754-1 | 2011-11 | Test on gases evolved during combustion of materials from cables - Part 1: Determination of the halogen acid gas content | Low Halogen:<br><0,5% Halogen |
| IEC 60754-2 | 2011-11 | Test on gases evolved during combustion of materials from cables - Part 2: Determination of acidity (by pH measurement) and conductivity | Halogen free:<br>pH > 4,3<br>Conductivity < 10µS/mm |
| IEC 61034-1/2 | 2013-06 | Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements | Low smoke<br>Light transmittance >60% |

## Marking of product

Example:

Jiangsu Shangshang Cable Group Co., Ltd. - CJPF86/SC - 6/10kV – size - IEC 60332-3-22 - LOT number

## 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