

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Electric Power Cable**with type designation(s)  
**CJ85/NC**

Issued to

**Shandong Zhongchuan Cable Co., Ltd.  
Weihai, China**

is found to comply with

**DNV GL rules for classification – Ships, offshore units, and high speed and light craft  
DNV GL class programme DNVGL-CP-0399 – Type approval – Electric cables****Application :****General power and lighting.****Product(s) approved by this certificate is/are accepted for installation on all vessels classed  
by DNV GL.****Voltage class (kV) 0,6/1****Temp. class (°C) 90**Issued at **Høvik** on **2017-04-04**This Certificate is valid until **2021-12-31**.DNV GL local station: **Shanghai**for **DNV GL**Approval Engineer: **Ivar Bull**

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**Andreas Kristoffersen  
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.



## Product description

Type: CJ85/NC 0,6/1kV

|                      |                            |
|----------------------|----------------------------|
| Conductor            | Tinned copper wire class 2 |
| Fire resisting layer | Mica tape                  |
| Insulation           | XLPE                       |
| Inner covering       | Filler and tape            |
| Metal covering       | Copper wire braid          |
| Outer sheath         | SHF2                       |

Note: "NSC" can be substituted by "NC"

| No of cores:                                 | Cross sectional area [mm <sup>2</sup> ] |
|----------------------------------------------|-----------------------------------------|
| 1                                            | 1 - 300                                 |
| 2                                            | 1 - 120                                 |
| 3                                            | 1 - 185                                 |
| 4                                            | 1 - 150                                 |
| 5, 7, 10, 12, 14, 16, 19, 24, 27, 30, 33, 37 | 1 1,5 2,5                               |

## Application/Limitation

Cable is fire resistant according to IEC 60331.

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bundles of Cables or Wires) are fulfilled without any additional measures.

## Type Approval documentation

### 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. |                                               |
| IEC 60092-353  | 2016-09 | Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV                                                                                      |                                               |
| IEC 60331-1/2  | 2009-05 | Fire resistance / Circuit integrity – Test for method for fire with shock at temperature of at least 830°C for cables rated up to and including 0,6/1 kV                         | Minimum 120 min+15 min cooling down time      |
| IEC 60332-3-22 | 2009-02 | 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 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: <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: pH > 4,3 Conductivity < 10µS/mm |

Job Id: **262.1-012067-2**  
Certificate No: **TAE00001VD**

| Standard      | Release            | General description                                                                                                     | Limitation                            |
|---------------|--------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| IEC 60684-2   | 2003-05            | Flexible insulating sleeving – Part 2:<br>Methods of test.                                                              | Fluorine content < 0,1%               |
| IEC 61034-1/2 | 2013-07<br>2013-09 | Measurement of smoke density of cables burning under defined conditions –<br>Test apparatus, procedure and requirements | Low smoke<br>Light transmittance ≥60% |

### Marking of product

Shandong Zhongchuan Cable Co., Ltd. – CJ85/NC – IEC 60332-3-22 - IEC 60331-1 – 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