DNV·GL

Certificate No:
**TAE000023Y**

# TYPE APPROVAL CERTIFICATE

## This is to certify:

**That the Electric Power Cable**

with type designation(s)
**CJ86/NSC 0,6/1 kV**

Issued to
**Changzhou Marine Cable Co., Ltd. (CMC)**
**CHANGZHOU JIANGSU, China**

is found to comply with
**DNV GL rules for classification – Ships, offshore units, and high speed and light craft**

## Application :

**General power and lighting.**

**Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**
**Rated voltage (kV) 0,6/1**
**Temp. class (°C) 90**

Issued at **Høvik** on **2017-11-06**
This Certificate is valid until **2022-06-30**.
DNV GL local station: **Nanjing**

Approval Engineer: **Marta Alonso Pontes**

for **DNV GL**

**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.


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Job Id: **262.1-007592-4**
Certificate No: **TAE000023Y**

## Product description

Type: CJ86/NSC 0,6/1 kV

Construction:

Conductors: Tinned or plain, stranded copper class 2
Core insulation: Mica tape + XLPE
Inner covering: Tape
Screen: Copper wire braid
Outer sheath: SHF1

| Number of conductors | Conductor cross section [mm$^2$] |
|---|---|
| 1, 2, 3 | 1, 1.5, 2.5, 4, 6, 10, 16, 25, 35, 50, 70, 95, 120 |
| 1, 3 | 150, 185 |
| 1 | 240, 300 |
| 4, 5, 7, 10, 12, 14, 16, 19, 24, 27, 30, 33, 37 | 1, 1.5, 2.5 |

## Application/Limitation

This type of cable is fire resistant in accordance with IEC Publication 60331.

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

## Tests carried out

| Standard | Release | General description | Limitation |
|---|---|---|---|
| IEC 60092-353 | 2016-09 | Electrical installations in ships - Part 353: Power cables for rated voltages 1 kV and 3 kV | |
| IEC 60331-1 | 2009-05 | Fire resistance / Circuit integrity – Test for method for fire *with shock* at temperature of at least 830ºC for cables rated up to and including 0,6/1 kV and with an overall diameter exceeding 20 mm | 90 min |
| IEC 60331-21 | 1999-04 | Fire resistance / Circuit integrity -Tests for electric cables under fire conditions for Cables of rated voltage up to and including 0,6/1,0 kV and with an overall diameter under 20 mm | 90 min |
| 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 | Charred portion of sample does not exceed 2,5m above bottom edge of burner. |
| 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 |
| IEC 61034-1/2 | 2013-07 2013-09 | Measurement of smoke density of cables burning under defined conditions – Test apparatus, procedure and requirements | Low smoke Light transmittance ≥60% |

## Marking of product

CMCW – CJ86/NSC - 0,6/1 kV – size – IEC 60331-1 or IEC 60331-21 – 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