

# TYPE APPROVAL CERTIFICATE

**This is to certify:****That the Low Voltage Cable**

with type designation(s)

**CKEF/DA/SA, CKEFR/DA/SA, CKEH/DA/SA, CKEHR/DA/SA, CKEV/DA/SA, CKEP/SC, CKEPJ/SC, CHEF/DA/SA, CHEFR/DA/SA, CHEFP/DA/SA, CHEFRP/DA/SA, CHEH/DA/SA, CHEHR/DA/SA, CHEHP/DA/SA, CHEHRP/DA/SA, CHEV/DA/SA, CHEVP/DA/SA, CHEP/SC, CHEPP/SC, CHEPJ/SC, CHEPJP/SC**

Issued to

**Anhui Huayu Cable Group Co., Ltd**  
**Wuhu, 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 (V) 150/250****Temp. class (°C) 90**Issued at **Hamburg** on **2018-08-30**This Certificate is valid until **2023-08-29**.for **DNV GL**DNV GL local station: **Nanjing**Approval Engineer: **Carsten Hunsalz**

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**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.



## Product description

EPR insulated shipboard control and instrumentation cables

Rated voltage: 150/250 V  
Maximum operating conductor temperature: 90° C  
Conductor: Tinned stranded copper, class 2 or class 5  
Insulation: EPR  
Individual screen: P - Tinned copper wire braid  
Outer sheath: V - ST2  
F - SE  
H - SH  
P - SHF1  
PJ - SHF2

### CHE cable types:

No. of pair units: Nominal cross section mm<sup>2</sup>  
1, 3, 7, 12, 19, 27, 37 0.75, 1, 1.5, 2.5

No. of triple units: Nominal cross section mm<sup>2</sup>  
1, 3, 7, 12 0.75, 1, 1.5, 2.5

No. of quad units: Nominal cross section mm<sup>2</sup>  
1, 3, 7 0.75, 1, 1.5, 2.5

### CKE cable types:

No. of cores: Nominal cross section mm<sup>2</sup>  
2 - 37 0.75, 1, 1.5, 2.5

## Application/Limitation

Control and instrumentation.

The following applies to SA and SC type cables only:

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.

The following applies to SC type cables only:

Flame retardant Cat. A. Halogen free.

## Type Approval documentation

Test report: CT08-0641-1, CT08-0641-2, CT08-0641-3, CT08-0641-6, CT08-0641-7

Specification: Reports of ANHUI HUAYU Cable Group, dated 2008-04-14  
HY/GY1101

Job Id: **262.1-028870-1**  
Certificate No: **TAE000032B**

### 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 60092-376   | 2017-05 | Cables for control and instrumentation circuits 150/250 V (300 V)                                                                                                                |                                                                             |
| 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 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**   | 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                         |

\*SA and SC type only

\*\* SC type only

### Marking of product

Example:

Anhui Huayu Cable Group Co., Ltd – CKEF/SA – 150/250V – size - IEC 60332-3-22\* – Lot no.

\*SA and SC type only

### 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