

# TYPE APPROVAL CERTIFICATE

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## This is to certify:

that the **Carbon Fibre Products**

with type designation(s)

**Biaxial C-LT series (0°/90°): 100-1200 g/m<sup>2</sup> with or without CSM,**

**Biaxial C-DB series (±45°): 100-1200 g/m<sup>2</sup> with or without CSM**

issued to

**Danyang Haitai Advanced Material Technology Co., Ltd**  
**Zhenjiang, Jiangsu, China**

is found to comply with

**DNV class programme DNV-CP-0434 – Type approval – Uni- and multi-axial multi-ply fabrics made of carbon fibres**

## Application:

**Manufacturing of FRP laminates.**

**Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV.**

Issued at **Hamburg** on **2024-05-16**

This Certificate is valid until **2029-05-15**.

for **DNV**

DNV local unit: **Nanjing NB & CMC**

Approval Engineer: **Joachim Rehbein**

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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 300,000 USD.



## Product description

Biaxial non-knitted carbon fibre fabric with or without chopped strand mat.

### Approved variants

- C-LT series (0°/90°): 100-1200 g/m<sup>2</sup>
- C-DB series (±45°): 100-1200 g/m<sup>2</sup>
- Thickness: 0.05 to 1.5 mm
- Width: 2540 mm
- Sizing: epoxy, unsaturated polyester, vinyl ester
- Fibre: HF 30S – 12k

## Application/Limitation

Applicable for the construction of FRP-laminates, on condition that the fabric or chopped strand mat is compatible to the resin and adhesive.

Any significant changes in design and/or quality of the material will render the approval invalid.

## Type Approval documentation

### Tests carried out

According to Type Approval documentation.

Production tests: GSM, linear density, moisture content, loss of ignition.

## Marking of product

Product shall be marked with *manufacturer's name, place of manufacture and type designation*.

The marking is to be carried out in such a way that it is visible, legible and indelible. The marking of product is to enable traceability to the DNV Type Approval Certificate.

## Periodical assessment

The scope of the Periodical Assessment is to verify that the conditions stipulated for the Type Approval is complied with and that no alterations are made to the product design or choice of materials.

Periodical assessments (for Certificate Retention / Certificate Renewal) shall be performed according to DNV-CP-0338.

A production site with a valid Approval of Manufacturer (AoM) certificate for material in question is exempted from the obligation concerning retention and renewal assessments.

This certificate is only valid if required Periodical assessments are carried out with satisfactory results. To check the validity of this certificate, please look it up in <https://approvalfinder.dnv.com>

END OF CERTIFICATE