



Certificate no.:
TAK00002H6

TYPE APPROVAL CERTIFICATE

This is to certify:

that the **Glass Fibre Products**

with type designation(s)

Bi-axial: SBT(0°/90°)-Series (200-2400 g/m²) with or without CSM (50-300 g/m²)

issued to

Nan Ya Plastics Corporation Glass Fabrics First Plant
Chia Yi County, Taiwan Region

is found to comply with

DNV class programme DNV-CP-0467 – Type approval – Uni- and multi-axial multi-ply fabrics made of glass fibres

DNV rules for classification – High speed and light craft

DNV standard DNV-ST-0342 – Craft

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 **2025-04-23**

This Certificate is valid until **2030-04-22**.

for **DNV**

DNV local unit: **Kaohsiung**

Approval Engineer: **Gisle Hersvik**

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 USD 300 000.

Product description

Bi-axial Glass Fibre Products, of 0°/90° orientations:

SBT-Series (200-2400 g/m²) with or without CSM (50-300 g/m²)

Legends:

S: Industrial

BT: (0°/90°)

CSM: Chopped Strand Mat

The following properties have been obtained by Type Testing of laminates:

Property	Test Method	SBTB1CCE7 [853±43 (600±43)]	SBTB1CCE7 [1046±53 (800±53)]	Units	
Tensile Strength	ISO 527-4, Type 3	535.24	653.90	MPa	mean
Tensile Modulus	ISO 527-4, Type 3	27.05	30.48	GPa	mean
Flexural Strength	ISO 14125, Method A	707.75	896.69	MPa	mean
Fibre Volume Fraction	ISO 1172	50.13	50.07	%	mean
Resin		WB-02AB Resin for Vacuum Assisted Resin Transfer Molding [YU PO Chemical Co., Ltd.]			
Curing procedure used for Type Testing		Cured 9 hrs at 90°C, demold at <50°C			
mean : mean of type test results					

Application/Limitation

The approval covers the weight ranges stated above.

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

Type Approval documentation

Tests carried out

Type Testing carried out in accordance with **Type Approval documentation**.

Marking of product

Product shall be marked with *manufacturer's name*: **Nan Ya Plastics Corporation Glass Fabrics First Plant, Taiwan Region** and *type designation, lot no.* etc.

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.

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