

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Glass Fibre Products**

with type designation(s)
ECW450C/250PP/450C,
ECW600C/250PP/600C

Issued to

Taishan Fiberglass Inc.
TAIAN, SHANDONG, China

is found to comply with

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

Det Norske Veritas' Type Approval Programme 1-501.8, 2009, Glass Fibre Reinforcements

DNV GL standard DNVGL-ST-0342 – Craft

Det Norske Veritas' Standards for Certification No. 2.20, Lifeboats and Rescue Boats, 2007

Application :

For use in marine vessels according to stated Rules/Standards.

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

Issued at **Høvik** on **2018-12-05**

This Certificate is valid until **2023-12-04**.

DNV GL local station: **Dalian**

for **DNV GL**

Approval Engineer: **Gisle Hersvik**

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Rikard Törnqvist
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

PP Core Mat; **ECW450C/250PP/450C** and **ECW600C/250PP/600C**.

- composed by two layers of chopped roving and one PP diversion layer knitted with polyester threads.

Legends:

E: E-glass

CW: Multilayer fabric

PP: Polypropylene

C: Chopped roving

The following indicative properties have been verified by Type Testing of laminates:

Property	Test Method	ECW600C/250PP/600C		
Tensile Strength - 0°	ISO 527-4	94,87	MPa	mean
Tensile Modulus - 0°	ISO 527-4	5,23	GPa	mean
Tensile Elongation - 0°	ISO 527-4	2,20	%	mean
Tensile Strength - 90°	ISO 527-4	92,74	MPa	mean
Tensile Modulus - 90°	ISO 527-4	5,18	GPa	mean
Tensile Elongation - 90°	ISO 527-4	2,19	%	mean
Flexural Strength - 0°	ISO 14125	183,20	MPa	mean
Flexural Modulus - 0°	ISO 14125	5,85	GPa	mean
Flexural Strength - 90°	ISO 14125	183,90	MPa	mean
Flexural Modulus - 90°	ISO 14125	5,15	GPa	mean
Glass content (by weight)	ISO 1172	22,50	%	mean
Resin	Unsaturated Polyester Resin 191#			
Curing Procedure used for Type Testing	24 hrs at room temperature			

Legend:

mean = Mean of Type Test results

Application/Limitation

The Type Approval is valid for the above-mentioned weight variants.

Type Approval documentation

Tests carried out

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

Note that the DNV GL Class Programme DNVGL-CP-0467 – Type approval – Uni- and multi-axial multi-ply fabrics made of glass fibres, is not dedicated for these kind of products, hence the DNV TAP No. 1-501.8 may be used as reference for these kind of products until a specific DNVGL-CP may be established.

Marking of product

Product shall be marked with *manufacturer's name*: **Taishan Fiberglass Inc., China** 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 GL Type Approval Certificate.

Job Id: **262.1-029305-1**
Certificate No: **TAK00001E1**

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 Assessment to be performed after 2 and 3.5 years (Certificate Retention) and at renewal after 5 years (Certificate Renewal).

The main elements of the Periodical Assessment are to:

- Ensure that **Type Approval documentation** is available.
- Review design, materials, production process, and performance with respect to possible changes, in order to ensure compliance with **Type Approval documentation** and/or referenced material specifications.
- Ensure traceability between manufacturer's product marking and the DNV GL Type Approval Certificate.

END OF CERTIFICATE