DNV·GL

Certificate No:
TAK00000R4

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Aramid-Glass Hybrid Fibre Products

with type designation(s)
Aramid-Glass Hybrid Woven (200-1000 g/m²) with and without chopped strand mats (50-600 g/m²)

Issued to
Telateks Tekstil Urunleri Sanayi Ve Ticaret A.S.
(METYX Composites)
Tuzla Istanbul, Turkey

is found to comply with
DNV GL rules for classification – High speed and light craft
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 **2017-02-26**
This Certificate is valid until **2022-02-25**.
DNV GL local station: **Istanbul**

Approval Engineer: **Gisle Hersvik**

for **DNV GL**

Martin Strande
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: **262.1-012206-8**
Certificate No: **TAK00000R4**

Product description

METYX® Aramid-Glass Fibre Reinforcements.
Aramid-Glass Hybrid Woven (200-1000 g/m²) with and without CSM (50-600 g/m²)
- 4/1 Twill woven

Legends:

A	Aramid
G	Glass
CSM	Chopped Strand Mat
W	Woven
M	Mat

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

Property - Orientation	**Test Method**	**AGMW600**		
Tensile Strength – 0°	ISO 527	352	MPa	msmv
Tensile Modulus – 0°	ISO 527	23	GPa	msv
Tensile Elongation – 0°	ISO 527	1.7 / 1.5	%	mean/msmv
Flexural Strength	ISO 14125	330	MPa	msmv
Flexural Modulus	ISO 14125	15	GPa	msv
Interlaminar Shear Strength	ISO 4585	24	MPa	mean
Compressive Strength	ASTM D695	82	MPa	msmv
Compressive Modulus	ASTM D695	16	GPa	msv
Compressive Elongation	ASTM D695	1.0 / 0.5	%	mean/msmv
Fibre content	ISO 1172	65	%	mean
Resin		Scott Bader Crystic VE676-03 Vinyl Ester Resin		
Curing Procedure for Type Testing		24 hrs at room temperature, 3 hrs at 80°C		

Legend:
msmv = Manufacturer's Specified Minimum Value (verified to be below mean – 2 x standard deviation of Type Test results)
msv = Manufacturer's Specified Value
mean = Mean of Type Test results

Application/Limitation

The moisture content in the;
- Glass/Aramid Fibre (combined) is max. 1.4%.
- Glass Fibre is max. 0.05%.
- Aramid Fibre is max. 4.4%.

Type Approval documentation

Tests carried out

Type Testing carried out according to **Type Approval documentation**.

Marking of product

Product shall be marked with *manufacturer's name*: **Telateks Tekstil Urunleri Sanayi Ve Ticaret A.S. (METYX Composites), Tuzla / Istanbul, Turkey** 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.

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 DNV GL Type Approval Certificate.

END OF CERTIFICATE