

Certificate No: **TAK00007R** Revision No:

# TYPE APPROVAL CERTIFICATE

This is to certify:

That the Glass Fibre Products

with type designation(s)

Quadri-axial:  $(0^{\circ}/\pm 45^{\circ}/90^{\circ})$  (625-3090 g/m<sup>2</sup>) with and without chopped strand mats (100-500 g/m<sup>2</sup>)

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

Det Norske Veritas Standards' for Certification No. 2.21, Craft, 2010

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

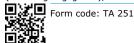
### **Application:**

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 <b>Høvik</b> on <b>2021-01-21</b>	
This Certificate is valid until <b>2026-01-20</b> .	for <b>DNV GL</b>
DNV GL local station: <b>Istanbul</b>	
Approval Engineer: <b>Gisle Hersvik</b>	
	Gustav Heiberg
	Head of Section

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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.

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# **Product description**

#### **METYX® Glass Fibre Reinforcements:**

Quadri-axial: (Q)  $(0^{\circ}/\pm 45^{\circ}/90^{\circ})$  (625-3090 g/m<sup>2</sup>) with and without (M) (100-500 g/m<sup>2</sup>)

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

Property - Orientation	Test Method	Q 625	Q 940			
Tensile Strength - 0°	ISO 527	208	201	msmv	MPa	
Tensile Modulus - 0°	ISO 527	14 489	14 724	msv	MPa	
Tensile Elongation - 0°	ISO 527	3.0	2.3	msmv	%	
Glass content	ISO 1172	50.2	52.9	mean	%	
Flexural Strength - 0°	ISO 14125	410	330	msmv	MPa	
Flexural Modulus - 0°	ISO 14125	13 371	14 871	msv	MPa	
Flexural Elongation - 0°	ISO 14125	4.2	3.8	msmv	%	
Glass content	ISO 1172	50.0	53.3	mean	%	
Resin	CE 266 N12 ISO Polyester					
Curing Procedure for Type Testing	24 hrs at room temperature, post-cured 3 hrs at 80°C					

#### Legends

msmv = Manufacturer's Specified Minimum Value, verified to be below mean - 2 x standard deviation of Type Test results

msv = Manufacturer's Specified Value, verified to be within  $\pm$  10% of mean of Type Test results.

mean = Mean of Type Test results

Q: 0/90/+45/-45 Quadri-axial M: Chopped Strand Mat

### Application/Limitation

Manufacture of FRP components for applications including marine vessels - and rotor blades within wind energy (ref. DNVGL-ST-0376).

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*: **Telateks Tekstil Urunleri San. ve A.S. (Metyx®), 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.

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### **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 and Certificate Renewal) shall be performed according to DNVGL-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 <a href="https://approvalfinder.dnvgl.com">https://approvalfinder.dnvgl.com</a>

END OF CERTIFICATE

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