

TYPE APPROVAL CERTIFICATE

This is to certify:**That the Carbon-Glass Hybrid Fibre Products**

with type designation(s)

Quadri-axial;**(0°/+45°/-45°/90°) (200-2000 g/m²) with or without chopped strand mats (50-500 g/m²),****Quadri-axial;****(0°/+45°/-45°/90°) (200-2000 g/m²) with or without veil (15-100 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 **2020-09-25**This Certificate is valid until **2025-09-24**.for **DNV GL**DNV GL local station: **Istanbul**Approval Engineer: **Gisle Hersvik****Gustav Heiberg**
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.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV GL AS, its parent companies and subsidiaries as well as their officers, directors and employees ("DNV GL") 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

METYX® Carbon-Glass Hybrid Fibre Products.

Quadri-axial combined carbon fibre/glass fibre products of 0°/+45°/-45°/90° and 0°/+45°/-45°/90° orientations:

- (CGQ, 0°/+45°/-45°/90°) (200-2000 g/m²) with or without chopped strand mats (50-500 g/m²),
- (CGQ, 0°/+45°/-45°/90°) (200-2000 g/m²) with or without veil (15-100 g/m²).

Legends:

C: Carbon

G: Glass

Q: Quadri-axial

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

Property	Test Method	CGQ800	CGQ1000		
Tensile Strength	ISO 527-4	284,27	303,92	MPa	mean
Tensile Modulus	ISO 527-4	27,14	24,84	GPa	msv
Flexural Strength	ISO 14125	245,93	445,11	MPa	mean
Flexural Modulus	ISO 14125	22,71	20,97	GPa	msv
Compressive Strength	ISO 14126	156,40	259,66	MPa	mean
Compressive Modulus	ISO 14126	23,32	23,16	GPa	msv
Fibre content (by weight)	EN ISO 1172	67	71	%	mean
Fibre content (by volume)	EN ISO 1172	50	55	%	mean
Resin	Scott Bader Crystic VE 679-03 PA vinyl ester resin				
Curing Procedure for Type Testing	Post-curing: 3 hours at 80°C				

Tested in the stitch direction.

Legends:

mean = Mean of Type Test results

msv = Manufacturer's Specified Value

Application/Limitation

Area of application will be evaluated during approval of classified objects.

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 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®), 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.



Job Id: **262.1-034243-1**
Certificate No: **TAK00001Y2**

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 <https://approvalfinder.dnvgl.com>

END OF CERTIFICATE