

**FIDCARBON UNI 400 HT240®**  
**HIGH TENACITY UNIDIRECTIONAL CARBON FIBER SHEET**  
**FOR STRUCTURAL STRENGTHENING**  
**(400 g/mq)**



**TECHNICAL GLOBAL SERVICES**



**Geometrical and Mechanical properties of the FRP composite\***

Ultimate tensile strength, $f_{fk}$	3500 MPa
Tensile modulus, $E_f$	240 Gpa
Ultimate tensile strain, $\epsilon_f$	1,45 %
Design thickness of the FRP, $t_f$	0,220 mm
Standard width of the FRP sheet, $b_f$	500 mm
Weight of the dry sheet before impregnation	400 g/m <sup>2</sup>

\* The properties of the composite have been determined according to the UNI and ASTM standards as indicated in the CNR-DT 200/2004 guidelines " Guide for the Design and Construction of Externally Bonded FRP Systems for Strengthening Existing Structures ".

**Matrix properties (Resin)**

Ultimate tensile strength	45 MPa
Ultimate tensile modulus	3500 MPa
Tensile strain	1,28 %
Density	1,16 g/cm <sup>3</sup>
Mixing ratio	whole package
Color	yellow

**MATERIAL CHARACTERISTICS**

*Description*

FIDCARBON UNI 400 HT240 is a sheet composed of unidirectional high tenacity carbon fibers, realized by thermo-welding, process which stops the unwinding of the fibers and which make the installation in-situ easier. It can be used on RC, PC, masonry, timber and steel members for shear and flexural strengthening, and column confinement.

*Ideal for:*

- Strengthening for shear or/and flexural sollicitation beams and systems-floor;
- Confining columns and piers to increase the compression strength;
- Strengthening due to load increase;
- Seismic mitigation;
- Mitigate design or post-construction defects;
- Strengthening structures which have been modified for architectural or configuration use;
- Control crack propagation and reduce deformations.

*Advantages:*

- Strengthening system highly is resistant to corrosion;
- High fatigue resistance;
- Ligthweigh and durable;
- Adaptable to complex shapes;
- Adaptable for confinement, shear and flexural strengthening;
- No increase in section of structural elements strengthened;
- Easy to install, after adequate surface preparation.

**APPLICATION**

*1. Surface preparation*

Clean the surface from dust, grease and other particles by brushing and sand blasting. Clean the reinforcements from eventual traces of rust and seal possible crevices.

*2. Leveling surface*

Leveling the surface in order to eliminate eventual roughness and incoherent materials.

*3. Primer application*

Apply to the surface, with a brush or a roller, a layer of primer and wait until it cured. Level the surface with putty.

*4. Application of the first layer of saturant resin*

Apply a first layer of epoxy to impregnate the sheet.

*5. Sheet installation*

Till the epoxy layer is still "fresh", install the sheet previously cut of the required dimension paying attention to not form any bubble by manually smoothing or by passing with a roller.

*6. Sheet impregnation*

Roll several times the sheet ensuring a good level of impregnation eliminating any excess of resin.

*7. Finishing*

Apply a second layer of epoxy and finish by applying silica sand; proceed with the application of polyuretan paint or polyurea for protecting the reinforcement.

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**PACKAGES**

Each job size, sheets can be supplied to meet design requirements in different widths and lengths. Standard widths available in stock are 100, 200, 300, 400, 500 mm and different lengths.

**RECOMMENDATIONS**

When managing the sheet, protective clothing and glasses must be worn and instructions regarding the installation of the materials must be followed carefully.

*Inhalation:* breath fresh air and rinse out your mouth.

*Skin contact:* no special measures are needed.

*Contact with eyes:* rinse for at least 15 minutes; in case of use of contact lenses they must be removed and rinsed for at least another 5/10 minutes; If still painful seek medical care.

*Ingestion:* rinse the mouth by drinking water and inducing vomit. Seek medical care.

*Yard storage:* Keep in a dry covered area which is far from substances which may jeopardize the optimal bond of the matrix.

**APPLICATION EXAMPLES**

To learn about structural projects using unidirectional carbon fiber sheet visit the "Application" area at FIDIA website: [www.fidiaglobalservice.com](http://www.fidiaglobalservice.com).

**QUALITY & CERTIFICATION**

Material supply is accompanied by a certificate of origin of the material from the producer and the certificate of characterization of the mechanical properties issued by an Italian laboratory approved by the Ministry of Infrastructure and Transport according to Art. 59 of D. P. R. 380/2001 construction material sector following the law .1086/71, with Decree n.38194 of 14/01/1992 and followings.

**LEGAL NOTES**

*The technical advice that Fidia S. r.l. Technical Global Services provides, orally or in writing, as assistance to the customer or installer on the basis of its experiences, corresponding to current scientific knowledge and practices, are not binding and do not demonstrate any legal or contractual obligation accessory with contract of sale. They do not exempt from liability buyer feel our products as regards their suitability for use. For the rest are valid our commercial conditions. Discrepancies that original content and/or use not involve any responsibility by the company's Fidia S. r.l.. The Client is obliged to check that this report, and the values are valid for the consignment of product of its interest and not be overcome, as replaced by subsequent editions and/or new formulations of the product. In doubt, please contact advance our Technical Office.*

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