

FIDFLAX UNIDIR 300 HS45®

UNIDIRECTIONAL HIGH STRENGTH FLAX FIBER SHEET FOR STRUCTURAL APPLICATION



FIDIA srl
Technical Global Services



Geometrical and Mechanical properties of the FRP composite *

Dry Fibre (yarn properties)

Ultimate tensile strength, σ_{fibra}	512 MPa
Young's Modulus, E_{fibra}	21,4 GPa
Ultimate tensile strain, ϵ_{fibra}	3,27 %
Density	1,5 g/cm ³

Fabric impregnated with resin (calculation values)

Title of woven	324 Tex
n° yarn/cm	9,0 yarn/cm
weight (including thermo-welding)	292 g/m ²
Equivalent thickness of FRP, t_f	0,194 mm
Characteristic strength of FRP, f_{fk}	710 MPa
Young's modulus of FRP, E_f	45 GPa
Characteristic ultimate tensile strain of FRP, ϵ_f	2,74 %

Updated 4 august 2010

* 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". The characteristics strength and deformation are calculated as the average minus two times the standard deviation.

MATERIAL CHARACTERISTICS

Description

FIDFLAX UNIDIR 300 HS45 is a woven composed by unidirectional high strength flax fiber. It is a fabric suitable for reinforcing elements in masonry, natural stone and wattle.

Ideal for

- Seismic adjustment
- remedy design mistakes
- Retrofitting of structures damaged by fire or earthquake
- Limits crack propagation

Advantage:

- Lightness
- Adaptable complex shape (rounds, corners);
- No increase of thickness
- Aesthetically noninvasive
- Simply to apply
- Can be applied with epoxy resin or mortars

PACKAGES

The fabric is usually supplied in rolls of a width of 150 cm and a length of 30m for a total of 45 sqm.

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 FLAX fiber sheet visit the "Application" area at FIDIA website:

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.

Sede centrale e legale:

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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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