

BETONTEX®**FB-G14L-HHM****CARBON FIBER PLATE – ULTRA HIGH MODULUS**

Component of **BETONTEX® System** with Technical Assessment Certificate No. 404/2023 pursuant to Ch. 11, item 11.1, letter C of D.M. 17.01.2018. (Note1)

FB-G14L-HHM. Very high modulus carbon fiber pultruded plate by Fibre Net that can be used in the reinforcement of reinforced concrete, wood, and steel structures with the technique of fiber-reinforced plating. The use of this carbon fiber plate, to be bonded to the substrate by means of polymeric thermosetting resins, makes it possible to increase the strength of the reinforced element, particularly against tensile stresses. The intervention is carried out in a punctual manner, calibrating the quantity and arrangement of the plates to optimize the mechanical properties of the reinforcement according to the required improvement needs. Compared with the use of fabrics to be impregnated, carbon fiber plates allow a greater speed of application and the success of the operation is less dependent on the operator's laying skills.



BETONTEX FB-G14L-HHM

TECHNICAL DATA

	Description	Ref.
Commercial name	BETONTEX FB-G14L-HHM	
Manufacturer	Fibre Net SpA	
Reinforcement type	High modulus carbon fiber plates obtained by poltrusion, to be applied by epoxy bonding resin.	CNR-DT 200/2004

GEOMETRIC AND PHYSICAL CHARACTERISTICS

Property		Value	Ref.
Plate thickness		1.4 mm	in-house
Width	FB-G14L-HHM050	50 mm	in-house
	FB-G14L-HHM060	60 mm	
	FB-G14L-HHM080	80 mm	
	FB-G14L-HHM100	100 mm	
	FB-G14L-HHM120	120 mm	
	FB-G14L-HHM150	150 mm	
Length		25 m	in-house
		50 m	
		100 m	
Color		black	in-house
Density	fiber ⁽²⁾	1.79 g/cm ³	ISO 10119
		1.82 g/cm ³	
	resin	1.20 g/cm ³	in-house
Fiber content	by weight	76 %	in-house
	by volume	68 %	in-house
Glass transition temperature of the resin, T _g		120 °C	UNI EN 11357-2

MECHANICAL CHARACTERISTICS

Property	Value	Ref.
Tensile normal modulus of elasticity, referred to the total section of the laminate, mean value	250 GPa	UNI EN 13706-2
Tensile strength referred to the total section of the laminate, average value	2500 MPa	UNI EN 13706-2
Tensile strength referred to the total section of the laminate, characteristic value	2400 MPa	UNI EN 13706-2
Deformation at laminate fracture mean value	1.20 %	UNI EN 13706-2

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LAYING INSTRUCTIONS

The application of the reinforcement system should be done at temperatures between +5°C and +30°C. During the application, the substrate, primer, and adhesive should not be subjected to direct irradiation from light and heat sources as well as exposed to moisture.

The surfaces to be reinforced must be completely dry; the substrate must be clean and free of dust, oil, grease and/or release agents.

1. Remove any surface plaster and grout and any deteriorated parts. Proceed with the cleaning of oxidized metal reinforcements with suitable equipment and the application of proper protective agents, the reconstruction of missing parts and the rounding of edges to a radius of curvature greater than 20 mm using mortars of suitable characteristics. Using an appropriate mortar, create the band (track) wider than the plates to be applied in order to create a smooth, regular surface suitable for the application of the composite. For reinforcing masonry elements, remove the mortar from the joints to a depth of about 10-15 mm in areas where reinforcement is to be applied.
2. If necessary, spread Betontex FB-RC01 primer, in quantity $\geq 300 \text{ g/m}^2$ with a short-haired roller and let it cure for one hour (maximum 3 hours).
3. Apply a layer of Betontex FB-RC30/3 adhesive resin to the surface being reinforced.
4. Immediately before installation, remove from the plate the peel-ply film present on the face intended for bonding and apply a layer of Betontex FB-RC30/3 adhesive resin.
5. Apply the carbon plate by applying light pressure with a hard plastic roller.
6. Remove excess resin.
7. Before applying any surface protection/covering of the reinforcement, remove the peel-ply film by tearing it off from the surface.
8. depending on what protection and/or covering is to be applied and if deemed necessary, adhesion conditions on the surface of the already applied plate can be further improved by the application of an epoxy primer and proceeding with a dusting of quartz sand of appropriate grain size.

More detailed information is provided in the "Reinforcement System Product Installation Manual."

PACKAGING

The product is supplied in rolls to be cut on-site with a diamond blade as needed. A film is arranged on both sides of the plate to protect the product from dirt during handling and cutting operations. Before application, this film must be removed. In case it is necessary to arrange several overlapping plates remove the film on the second side only after the first resin layer has been applied and cured.

Roll lengths: 25 - 50 - 100 m.

HANDLING AND STORAGE CONDITIONS

The plate should be stored in a covered and dry place, protected from rain and direct sunlight.

The user should refer to the latest Material Safety Data Sheet.

The material must be protected before its use from deposits of dust, grease, oil and any other material capable of reducing the adhesion between the fabric and the resin. Particular attention should be paid during transportation, handling and storage to avoid breaking threads due to excessive bending stresses (bumps, folds, etc.).

SAFETY INSTRUCTIONS

During all stages of product preparation and application of the products, the operator must use Personal Protective Equipment (PPE) for the use of textiles and chemicals (work clothing, goggles, gloves, and solvent mask). Avoid contact with skin and eyes. In case of skin contact wash with soap and water. In case of eye contact wash with water and consult a physician.

In case of indoor application, provide sufficient ventilation of the room to ensure proper air exchange.

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SPECIFICATION ITEM

FB-G14L-HHM Fibre Net's FB-G14L-HHM carbon fiber pultruded plate, or equivalent, for reinforcing reinforced concrete, wood and steel structures, plate width 50/60/80/100/120/150 mm, thickness 1.4 mm, characteristic tensile strength of plate 2400 MPa, average tensile elastic modulus of plate 250 GPa, with improved adhesion by using peel-ply.

Note 1: where applicable.

Note 2: values stated by the supplier and verified at certification.

The purchaser is responsible for verifying the suitability of the products described in this document for their intended use and purposes. Fibre Net SpA assumes no responsibility for improper use of the material. It is the customer's responsibility to verify that this sheet and the data contained herein are valid for the product batch of interest and are not outdated as superseded by later editions and/or new product formulations or certifications. The customer is encouraged to contact our Technical Department in advance. This edition cancels and supersedes all previous editions.