FIBRE NET
composite engineering

BETONTEX

FB-GV620U-MT

CARBON TEXTILE WEIGHT 600 g/m²

Component of the **BETONTEX System.**

FB-GV620U-MT Thermally welded unidirectional high-tenacity carbon fiber reinforcement by Fibre Net, suitable for the reinforcement of concrete and masonry structures by the technique of fiber-reinforced plating. The use of this carbon fiber fabric, to be bonded to the substrate by means of thermosetting polymeric resins, makes it possible to increase both the strength of the reinforced element, particularly against tensile and shear stresses, as well as its ductility, with interventions of hooping that achieves effective holding. The intervention is carried out in a punctual manner, calibrating the quantity and arrangement of the fibers to optimize the mechanical properties of the reinforcement according to the required improvement needs. Fabrics to be impregnated on-site allow interventions even on structures with irregular geometrical architectural elements.

BETONTEX

FB-GV620U-MT

TECHNICAL DATA

	Description	Ref.
Commercial Name	Betontex FB-GV620U-MT	-
Classification	Fibre Net SpA	
Reinforcement type	Unidirectional high-tenacity carbon fiber	CNR-DT 200/2004
Weight (g/m2)	600	ISO 3374

GEOMETRIC AND PHYSICAL CHARACTERISTICS

Property	UoM	Value	Ref.
Tape width	mm	200 / 300 / 500	CNR-DT 200/2004
Fiber's Equivalent thickness	mm	0,337	UNI EN 2561
Reinforcement section	mm^2	67 / 101 / 168	CNR-DT 200/2004
Fiber's tensile strength at break	MPa	4300 (Note 1)	ISO 10618
Fiber's tensile elastic modulus	GPa	250 (Note 1)	ISO 10618
Composite elastic modulus Fabric to expoy resin ratio by weight 1:1	GPa	95 (Note 1)	-
Composite elastic modulus Fabric to expoy resin ratio by weight 1:2	GPa	60 (Note 1)	-
Tensile elongation at break	%	1,72 (Note 1)	ISO 10618
Fibers' density	g/cm^3	1,78 (Note 2)	ASTM D792, ISO 1183-1

CHARACTERISTICS

- High mechanical strengths
- High resistance to corrosion
- non-Compatibility with lime-based mortars

ADVANTAGES

- Durability and effectiveness of the intervention
- Adaptability to irregular geometries
- Very low thickness and low invasiveness

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, free of dust, oil, grease, and/or release agents.

Having defined the arrangement, type, and quantity of fabrics to be applied, the laying should be carried out according to the following operational steps:

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 an amount ≥ 300 g/m^2 by a short-haired roller and let it cure for one hour (maximum 3 hours).
3. Apply a layer of Betontex FB-RC02 impregnating resin in an amount ≥ 600 g/m^2 by a short-haired roller.
4. Spread Betontex FB-GV620U-MT fabric as designed, avoiding wrinkles, creases or air occlusions, using the bubble breaker impregnation roller.
5. Apply a second coat of Betontex FB-RC02 impregnating resin in an amount ≥ 600 g/m^2 and then roll with a bubble breaker roller until the fibers are fully impregnated.

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6. If multi-layer application is planned, repeat steps 4 and 5.
7. Scatter quartz sand to the surface of the fresh resin composite to allow the finishing plaster to adhere.

The above resin quantities may vary depending on the characteristics of the substrate and the number of coats. Further directions for laying the reinforcement system:

- the joining of the end of the fabric tapes (head-to-head) should be performed with an overlap of at least 20 cm;
- splicing of adjacent fabric tapes in the longitudinal direction should be performed ensuring alignment and edge contact, with no need for overlap.

Refer to the reinforcement system installation manual for further specifications on laying methods.

PACKAGING

Roll lengths: 50 -100 m.
Roll heights: 20 -30 -50 cm.

HANDLING AND STORAGE CONDITIONS

The fabric 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

The operator must use gloves, goggles, and a solvent mask. For more information and advice on safety regulations and the use and storage of chemicals, refer to the most recent Material Safety Data Sheet.

SPECIFICATION ITEM

Betontex FB-GV620U-MT Unidirectional thermo-welded carbon fiber fabric from Fibre Net, or equivalent, for reinforcing reinforced concrete, masonry, wood and steel structures, tape width 200 / 300 / 500 mm, reinforcement cross-section 67 / 101 / 168 mm^2, fiber weight in tape 600 g/m^2. Made of high tenacity carbon fibers, characterized by tensile strength 4300 MPa, elastic modulus 250 GPa, elongation at break 1,72%.

Note 1: Value with tollerance of ±8%

Note 2: Value with tollerance of ±5%

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