MasterStrength™ FIB

High Strength and High Modulus Unidirectional FRP Sheets

Material Description

MasterStrength™ FIB is carbon, glass or aramide based, high strength and high modulus unidirectional sheets in **MasterStrength™ FRP** System.

Areas of Application

MasterStrength™ FIB 230/50 CFS and **MasterStrength™ FIB 300/50 CFS** (High strength carbon fibre sheets) are used in;

- Increasing the flexural and shear strength of the concrete beams
- Increasing the flexural strength of the concrete slabs
- Increasing the compressive strength of concrete columns
- Enhancement of the ductility of concrete columns
- Increasing the flexural strength of the wooden beams
- Increasing the mechanical strengths of the masonry elements

MasterStrength™ FIB 300/50 CFH (High modulus carbon fibre sheet) is used in;

- Strengthening of high strength, cast-in-situ, precast and pre-stressed RC elements
- Shear strengthening of high strength RC elements

Characteristics and Benefits

- Light and easy to carry
- East to cut and re-shaped
- Easy to design (Unidirectional fibers and similar elasticity modulus with steel)
- Good fatigue properties

Processing Method

(A) Preparation of Substrate

The mineral based substrates (concrete, stone, brick, tile etc.) must be sound, clean and dry. It shouldn't be weakened by over-troweling and lack of curing. The concrete should be free of frost, curing membranes,
Waterproofing treatments, oil stains, laitance, friable material and dust. If there is a water leakage it must be drained or properly plugged. In case of low strength concrete (tc <1.5 N/mm^2), the loosen parts of concrete must be broken and the surfaces should be reprofilled with structural repair mortars in **MasterCrete™ S** range. Before the adhesive application let the repair mortars cure at least 7 days at 20°C. FRP sheets should be free of oil stains and dust. In all kind of substrates **MasterStrength™ PRI 3500** should be used as a primer and the adhesive application should be done in the following 24 hours.

Technical Properties

	MasterStrength™ FIB 300 (12K)	MasterStrength™ FIB 300 (24K)	MasterStrength™ FIB 600 (24K)
Structure of the Material	Karbon Fiber	Karbon Fiber	Karbon Fiber
Weight (TS EN 12127)	300 g/m^2 ± 5%	300 g/m^2 ± 5%	600 g/m^2 ± 5%
Weave (TS 1635 ISO 2113)	Unidirectional	Unidirectional	Unidirectional
Density	>1,82 g/cm³	1,78 g/cm³	1,78 g/cm³
Width (TS 3427 ISO 5025) (mm)	500 ± 2.5%	500 ± 2.5%	500 ± 2.5%
Elasticity Moduls	240 GPa	240 GPa	240 GPa
Tensile Strength	4900 MPa	4900 MPa	4900 MPa
Thread Count Warp (TS 250 EN 1049-2) (ends/10cm)	36.50 ± 5%	18.00 ± 5%	36.50 ± 5%
Thread Count Weft (TS 250 EN 1049-2) (ends/10cm)	10.00 ± 5%	10.00 ± 5%	10.00 ± 5%

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(B) Processing

MasterStrength™ FIB should be applied to the primed surfaces by using a soft roller. Application thickness should be 0.8-1.0 mm. Lay down **MasterStrength™ FIB** on to the surfaces while the adhesive is still wet. After lying, strongly press the sheets two or three times in the longitudinal direction of the fiber using a roller or rubber spatula in order to allow **MasterStrength™ ER 4500** penetrate into the sheet and to eliminate air from the coat of resin. In the case of multiple layers of fiber, 700-800 gr/m^2 **MasterStrength™ ER 4500** should be applied between the all layers. Under UV radiations the fibers should be coated with a UV resistant paint in **MasterShield™** range. For plastering on the fiber surface, clean and sound sand should be spread on to the fiber surface while the adhesive is still wet. After curing of adhesive any kind of plaster can be easily applied. For fire resistance, the fibers should be coated with special fire resistant coatings.

Point to Consider

- **MasterStrength™ FRP** applications should be done by approved experts.
- Work clothes, protective gloves, glasses and mask defined in Labour Laws must be used during the application. Do not touch to the fibers without hand gloves.
- Consult to the **MBT Tech** Technicians for special applications aren't defined in this data sheet.

Cleaning of Tools

All the tools and equipments must be cleaned by solvent after the application. After **MasterStrength™ FIB** is hardened, it can only be removed from the surface mechanically.

Packaging

MasterStrength™ FIB
50m^2 ve 100m^2 rolls

Storage

Store in original container in cool (+5°C-+30°C) and dry indoor conditions.

Health and Safety

It is dangerous to approach the application sites. During the application, a protective apparel, protective gloves, goggles and masks which comply with the Occupational Health and Safety Rules should be used. Due to the irritation effect of the uncured materials, the mixture should not come into contact with skin and eyes; in case of a contact, the affected area should be washed with plenty of water and soap; in case of swallowing, a physician should be consulted immediately. No food or beverages should be brought to the application area. The product should be stored and kept out of reach of children. For detailed information please consult the Material Safety Data Sheet.

Disclaimer

The technical information given in this publication is based on the present state of our best scientific and practical knowledge. **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is only responsible for the quality of the product **MBT Teknik Yapı Kimyasalları Sanayi ve Ticaret A.Ş.** is not responsible for results that may occur because the product is used other than advised and/or out of instructions regarding the place and the method of use. This technical form is valid only till a new version is implemented and nullifies the old ones.

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