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# MasterBrace® LAM (Formerly known as Mbrace® Laminate)

## High Strength and High Modulus Unidirectional Pultruded Carbon Fiber Laminates

### DESCRIPTION OF PRODUCT

**MasterBrace® LAM** is high strength or high modulus unidirectional pultruded carbon fiber laminates in **MasterBrace® FRP** System.

### FIELDS OF APPLICATION

- Increasing the flexural strength of the concrete beams
- Increasing the flexural strength of the concrete slabs under heavy machine loads
- Increasing the rigidity of the beams and slabs against bending deformations
- Increasing the flexural strength of the concrete slabs damaged with ventilating channel openings, stairs and elevator holes etc.
- Increasing the flexural strength of the concrete beams and slabs under increased service loads (change of usage etc.)
- Decreasing disturbing effect of the vibrations on the slabs caused by machines

### FEATURES AND BENEFITS

- Light and easy to carry
- Easy to cut and re-shaped
- Easy to design (Unidirectional laminates and similar elasticity modulus with steel)
- Does not increase the gravity of the structure
- Does not require to empty the structure and

### TECHNICAL DATA

	MasterBrace® LAM 50/1.2 CFS	MasterBrace® LAM 100/1.2 CFS	MasterBrace® LAM 100/1.4 CFH
Elasticity Modulus (N/mm <sup>2</sup> )	165.000	165.000	210.000
Tensile Strength (N/mm <sup>2</sup> )	3.000	3.000	2.800
Elongation at Break (%)	%1.5	%1.5	% 1.4
Thickness S (mm)	1.2	1.2	1.4
Width (mm)	50	100	100
Cross Section Area (mm <sup>2</sup> )	60	120	140

strengthening works can be done with temporary stops

- Decreases the bending deformations in the slabs and beams

### APPLICATION PROCEDURE

#### 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 ( $\sigma_{tc} < 1.5 \text{ N/mm}^2$ ), the loose parts of concrete must be broken and the surfaces should be refilled with structural repair mortars in **MasterEmaco® 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 **MasterBrace® P 3500** should be used as a primer and the adhesive application should be done in the following 24 hours.

### APPLICATION METHOD

**MasterBrace® ADH 4000** should be applied to the prepared surfaces and to FRP laminates by



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using a steel spatula or steel trowel. Application thickness should be between 1.0-2.0 mm. In the following 10 minutes (at 25°C) FRP laminates should be placed on to the substrate and push on to the laminates with a stiff roller (polyamide, steel etc.) for preventing possible air gaps between the laminate and substrate. 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 (**Meyco® Fireshield**, etc.).

#### WATCH POINTS

- **MasterBrace® 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 **BASF Türk Kimya Sanayi ve Tic. Ltd. Şti.** Technicians for special applications aren't defined in this data sheet.

#### CLEANING OF TOOLS

After the application all tools should be cleaned with a proper detergent or solvent such as thinner.

#### PACKAGING

100 m rolls

#### STORAGE

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

#### HEALTH AND SAFETY PRECAUTIONS

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

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