

# CMB™

## Pre-assembled Carbon Fiber Micro Bars



Building  
&  
Transportation



Oil, Gas  
&  
Industrial



Offshore  
&  
Onshore



Water  
&  
Wastewater



### PRODUCT DESCRIPTION

CTech-LLC® CMB™ is unidirectional reinforcement sheet consisting of an assembly of pre-cured carbon fiber micro bars. The product is available in various stiffnesses and may be used to strengthen existing concrete or steel structures by external bonding. The CMB™ is non-reactive and combine the best features of traditional wet lay-up fabric and pre-cured plate FRP system.

### ADVANTAGES

- Pre-cured and no onsite impregnation product.
- Open construction of strand sheet facilitates bond to substrate allowing paste adhesive to encapsulate each micro bar.
- Unlike solid carbon fiber plates, adhesive bond line can be visually inspected for consistency
- Unlike solid carbon fiber plates, can be spliced by overlapping
- Easy to slit to desired width
- Can be used to retrofit steel structures where welding is dangerous or not allowed.

### TYPICAL USES

The CTech-LLC® CMB™ product can be used to retrofit and strengthening concrete, steel and masonry structures.

### DESIGN

Design calculations shall be made and sealed by a licensed,

independent engineer knowledgeable with the design of FRP strengthening systems.

### INSTALLATION PROCEDURE

#### Concrete and Masonry Structures

- Prepare surfaces to a minimum surface profile of CSP-3 (Ref. ICRI 310.2) by grinding, grit blasting, or other means. Clean prepared surfaces of all dust and insure it is dry prior to applying CTech-LLC® CMB™.
- Use Adhesive (ERS™200) to fill any small bug holes or voids and to smooth surface.
- Apply Adhesive (ERS™200) to surface and gently press Strand Sheet into adhesive. Smooth the surface.
- Apply a second coat of Adhesive (ERS™200) and smooth.
- Paint or coat the surface for additional protection/aesthetics.

#### Steel Structures

- Remove existing rust and paint from steel by grit blasting or other means

### TECHNICAL DATA

|                                  | Unit      | CMB™300S | CMB™300I | CMB™300H | CMB™900H |
|----------------------------------|-----------|----------|----------|----------|----------|
| Areal Weight                     | gsm       | 300      | 300      | 300      | 900      |
| Nominal Thickness*               | mm        | 0.333    | 0.333    | 0.286    | 0.429    |
| Tensile Strength                 | MPa       | 3400     | 2900     | 1900     | 1900     |
| Tensile Modulus of Elasticity**  | GPa       | 245      | 390      | 640      | 640      |
| Elongation at Break***           | %         | 1.39     | 0.74     | 0.3      | 0.3      |
| Tensile Strength/Unit Width      | KN/mm/ply | 1.1      | 0.95     | 0.54     | 0.81     |
| Tensile Stiffness/Unit Width**** | KN/mm/ply | 81.5     | 128.7    | 183.0    | 274.5    |

\* The reported thickness is based on the net fiber area in accordance with ACI 440.2R.

\*\* Tested in accordance with JIS A1191/JSCE-E541.

\*\*\* Elongation at break is extrapolated from the measured ultimate tensile strength and the calculated modulus of elasticity.

\*\*\*\* Modulus of elasticity and unit stiffness are reported as average values in accordance with ACI440.2R and shall be used for design.

and wipe clean using a solvent.

- Immediately apply primer (WEP™) to the prepared surface of the steel to fill any pits, smooth the surface, or create uniform fillets where CTech-LLC® CF fabrics are used with the CMB™ product.
- Apply Adhesive (ERS™200) to surface and gently press the Strand sheet into the adhesive.
- Apply a second coat of Adhesive (ERS™200) and smooth.
- Paint or coat the surface for additional protection/aesthetics.

#### STORAGE & SHELF LIFE

- Store flat, in a cool, dry place at 5°-35 °C
- Away from flame or other hazards
- No shelf life if stored in unopened packaging
- Do not stack anything on top of Strand Sheets

#### CAUTION

CMB™ carbon strand sheets are non-reactive. Wear appropriate PPE and use caution when handling since fine carbon dust may be occur when cutting. Use caution when cutting or working with carbon fiber around electrical equipment since carbon fibers are electrically conductive.

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#### CTech-LLC®

CYTEC's Composite Technology  
technical@ctech-llc.com  
info@ctech-llc.com  
www.CTech-LLC.com

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#### IMPORTANT NOTE:

Before using any CTech-LLC® product, the user must review the most recent version of the product's technical data sheet, material safety data sheet and other applicable documents, available at [www.ctech-llc.com](http://www.ctech-llc.com).

#### WARANTY:

CTech-LLC® warrants its products to be free from manufacturing defects. Buyer determines suitability of product for use and assumes all risks. Buyer's sole remedy shall be limited to replacement of product. Any claim for breach of this warranty must be brought within one month of the 'date of purchase. CTech-LLC® shall not be liable for any consequential or special damages of any kind, resulting from any claim or breach of warranty, breach of contract, negligence or any legal theory. The Buyer, by accepting the products described herein, agrees to be responsible for thoroughly testing any application to determine its suitability before utilizing.