

# CARBON FIBER POWER GRIDS

## Bidirectional Carbon Fiber Grid for Wall Crack Reinforcement

### GENERAL DESCRIPTION:

Emecole Metro Grids are a pre-impregnated, bidirectional carbon fiber grid for use as a near surface reinforcement for crack stitching and strengthening of concrete foundation structures. The grids are installed using Emecole Metro 4121 resin to form a carbon fiber reinforced polymer system.

### USES:

- Structural Retrofit & Upgrades
- Crack reinforcement & strengthening (increasing service life)
- Use on concrete foundation walls and floors



### PRODUCT SPECIFICATIONS:

Base Material: Carbon filament tows woven into a grid

Shelf Life: Unlimited

Color: Black

Carbon Filament Tensile Strength, ksi (MPa) 800 (5,515)

Carbon Filament Tensile Modulus, ksi (MPa) 36,000 (248,000)

Fortress Grid-Stitch™ Nominal Size, in (mm) 10 x 0.6 x 0.090 (254 x 16 x 2.3)

#### System Mechanical and Physical Properties

	Ultimate Tensile Strength <sup>1</sup> $f_{ru}$ ksi (MPa)	Modulus of Elasticity <sup>1</sup> $E_r$ ksi (GPa)	Ultimate Tensile Strength per Unit Width <sup>2</sup> $p \cdot 1u$ kips/in (kN/mm)	Tensile Elastic Modulus per Unit Width <sup>2</sup> $E_{tir}$ kips/in (kN/mm)	Ultimate Strain at Rupture $f_r^*$ $ru$ in/in (mm/mm)
Design Values <sup>3</sup>	284.2 (1960)	17,160 (118.2)	5.68 (1.24)	271 (47.6)	0.0160

Laminate results at room temperature using SKRS Room 77°F curing epoxy resin

<sup>1</sup>ASTM 03039    <sup>2</sup>Thickness of cured laminate= 0.090 in (2.3 mm)

<sup>3</sup>Design values are statistically based as recommended by American Concrete Institute, ACI 440.2R

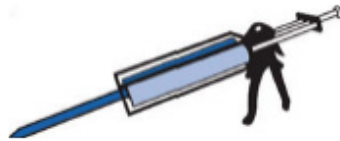
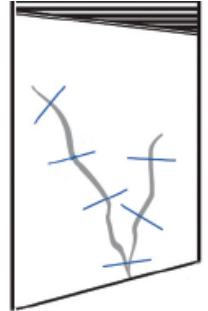
**Keep out of reach of children and pets - Not for internal consumption - Do not freeze - Read all instructions and SDS**

## INSTRUCTIONS:

**Note:** Carbon fiber grids are installed in conjunction with the repair of a foundation crack using low-pressure injection. This kit includes all of the materials required for attaching the repair grids. Jake dual cartridge dispenser or caulking gun and crack injection materials sold separately.

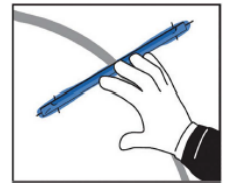
**Preparation:** Wall should be dry and clean. For the most complete repair, the Grid Stitching should be installed prior to repairing the crack with an injection polyurethane or epoxy.

1. The Carbon Fiber Grids are typically installed at 12"-16" spacing not to exceed 24" spacing between grids. Make sure that there are no obstructions to interfere with the planned carbon fiber grid locations. Mark location where grids are to be installed keeping them evenly spaced.
2. (Wearing safety glasses and mask) Make a straight saw-cut , typically 5/8" deep x 10 1/2" allowing grid to be flush with the wall when installed. Clean dust and debris from slot before proceeding.
3. Load the epoxy cartridge into the dispensing applicator. Then fasten the Static Mixing Tube to the end of the applicator with the nut.

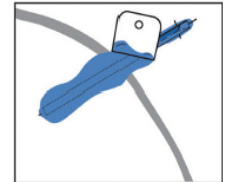


4. (Wearing protective gloves) Fill saw-cut slot with epoxy, insert grid and push in until grid is flush with wall.

Hint: buttering both sides of the grid with the epoxy before inserting in the slot will insure a complete seal.



5. Use the trowel to push epoxy into gaps and unfilled spaces, grid must be completely covered with epoxy when finished.
6. When grid epoxy is cured, you may proceed with the crack repair.



**Tip:** The warmer the epoxy adhesive is, the faster it will set. You can save setting time by placing the epoxy tubeset in a bucket of hot water. Do not exceed =120°F.

**Caution:** Gloves should be worn to protect against carbon dust skin irritation and exposed fiber ends. Use of an appropriate, properly fitted NIOSH approved respirator is recommended. As with any cutting and adhesive operation, proper eye protection should always be used.