

# CRACKSTITCH

ICC# ESR-3815

Carbon Fiber/Kevlar  
ReGrid Technology with Adhesive  
Riveting for concrete crack repair and  
structural reinforcement

**Product Description:** The Crack Stitch by Fortress is a pre-impregnated, bi-directional carbon fiber / Kevlar® open grid near surface mount reinforcement crack repair product for the strengthening of concrete and masonry structures. Crack Stitches are filled installed utilizing Fortress Xtreme 4070 resin to form a Carbon Fiber Reinforced Polymer (CFRP) system.



## PRODUCT USE

### Key Features:

- Non Corrosive
- Ultra High Strength, pre-cured carbon
- Open Grid allows for mechanical bonding through adhesive riveting technology

### Target Applications

- Slab floor crack repair and control
- Masonry wall crack repair and control
- Poured concrete crack repair and control
- Swimming pool crack repair and control
- Parking surface crack repair and control
- Reinforcement of concrete with compromised reinforcement steel (ReBar)



## PRODUCT SPECIFICATIONS

**Base Material** Carbon Filament tows woven into a grid

**Shelf Life** Unlimited

**Color** Black (Carbon) / Yellow (Aramid)

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

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

**Fortress Crack Stitch Nominal Size in (mm)** 10.0 x .06 x 0.090 (254 x 16x 2.3)

### Laminated CFRP System Mechanical Physical Properties

	Ultimate Tensile Strength <sup>1</sup> $f_{tu}$ Ksi (MPa)	Modulus of Elasticity <sup>1</sup> $E_f$ Ksi (GPa)	Ultimate Strain at Rupture $\epsilon^*_{fu}$ in/in (mm/mm)
Typical (mean) Values ( $\mu$ )	342.4 (2361)	21,616 (149)	1.59%
Std. Dev ( $\sigma$ )	13.9 (96)	750 (5.2)	0.006%
min tested	325.7 (2246)	20,326 (140.1)	1.48%
ACI Design ( $\mu-3\sigma$ )	300/7	19.334 (133.3)	1.40%

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

<sup>1</sup>ASTM D3039 <sup>2</sup>Thickness of cured laminate = 0.909 in (2.3mm)

**Packaging:** Standard packaging includes cardboard boxes. Labeled on box.

## HOW TO USE

**Preparation.** Protect the work area from standing water and inclement weather. Surfaces may be damp. Surfaces must be clean and sound. Spalling or other damaged concrete must be removed to solid material. Make a straight saw cut perpendicular to the direction of lateral crack expansion, no less than 1/8" (3.175mm) wide and 3/4" (19.05mm) deep. Dry fit stitch to insure proper cut width and depth. Use oil free compressed air or vacuum to remove concrete dust. Add Xtreme 4070 epoxy to saw cut and place crack stitch into saw cut. Keep Crack Stitches free from contamination. Store in a clean and dry area away from direct sunlight. Keep in original packaging until installation and protect from physical damage. Remove dust, dirt, and any other foreign materials.

**Cutting.** Fortress Crack Stitches™ may be cut to desired length with sharp snips

**Epoxy Resin.** Fortress Xtreme 4070 epoxy resin is recommended for all applications for bonding Fortress Crack Stitches.

**Applications.** Fortress Crack Stitches can be used with various modulus resins. Either pourable or injection resin will interlock Fortress Crack Stitches.

**Qualifications.** Except for standard Fortress installations by Fortress qualified installers, each structural and life safety application requires the design and certification of a licensed professional engineer.

**Cautions.** A near surface mount applied CFRP system is a vapor barrier. Consult a licensed, professional engineer to evaluate results of encapsulating porous substrates. Installation should be performed only by a Fortress' trained and approved installer. Caution must be used when handling Fortress Crack Stitches. 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 operations proper eye protection should be used. Always follow OSHA and site safety requirements.

**Keep out of reach of Children - Keep container tightly closed - not for internal consumption - For industrial use only.**

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