

TECHNICAL DATA SHEET

Rhino Carbon Fiber™ Concrete Crack Lock® Stitches | Revision Date 9/16/2022

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01: PRODUCT IDENTIFICATION

RHINO PRODUCTS USA
8383 Riley Street,
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Product Name: Rhino Carbon Fiber™ Concrete Crack Lock® stitch

02: DESCRIPTION

The Rhino Carbon Fiber™ Concrete Crack Lock® stitch (CCL) is a revolutionary new product that was developed to improve concrete crack repair. CCL is installed by making a single cut across the crack and drilling two holes along the cut at the appropriate locations. Once the preparation is complete and free of dust, the cut is filled with RCF™ High Strength Anchoring Epoxy Paste, the CCL is inserted, and more Anchoring Epoxy covers the stitch. Once installed, the CCL bonds both sides of the crack together. Due to the unique shape of the CCL, it utilizes the complete tensile strength of the carbon fiber instead of just the epoxy bond.

03: WHERE TO USE:

The Rhino Carbon Fiber™ Concrete Crack Lock® stitch has been engineered to stop cracks in concrete slabs, poured walls, masonry, concrete block foundations, columns, industrial buildings, bridges and foundations. The Rhino Carbon Fiber™ Concrete Crack Lock® stitch is designed for cracks of various sizes under virtually any circumstance. CCL can also be used to increase seismic strength after an earthquake.

04: ADVANTAGES

- High Strength
- Non-Corrosive
- Alkali Resistant
- Minimal Aesthetic Impct
- Minimally Intrusive
- Shape Maximizes Strength

05: DATA

RESULTS MAY DIFFER BASED UPON STATISTICAL VARIATIONS DEPENDING UPON MIXING METHODS AND EQUIPMENT, TEMPERATURE, APPLICATION METHODS, TEST METHODS, ACTUAL SITE CONDITIONS AND CURING CONDITIONS.

Storage Conditions	Store dry at 40° - 95°F (4° - 35°C)
Shelf Life	Unlimited, if stored properly in original, unopened, undamaged packaging
Color	Black
Primary Fiber Direction	0° (Unidirectional) - Carbon

PRE-PREG PROPERTIES		
Property	Imperial	Metric
Tensile Strength	≥ 493 ksi	≥ 3400 Mpa
Tensile Modulus	≥ 33359 ksi	≥ 230 GPa
Thickness	~ 0.004 mm	~ 0.111 mm
Elongation at Break %	1.6%	



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TECHNICAL INFORMATION & COMPOSITE PROPERTIES

Property	Imperial	Metric
Guaranteed Tensile Strength	167 ksi	1150 MPa
Web Thickness	0.055 in	1.40 mm
Web Width	0.420 in	10.67 mm

06: LAYOUT: SURFACE PREP

The surface of concrete must be clean and free of loose debris. Lay out the individual crack locks by marking the crack every 8" to 12" (20 cm to 30 cm). Then trace the crack locks at each location and orient them at roughly 90 degrees to the crack (a simple template may also be used). Vary the angle at each location slightly to reinforce the crack from moving in all directions.

Once the layout is complete, make the cuts across the crack using a 0.08 (2 mm) thick cutting wheel and ensure that you are cutting to a minimum depth of $\frac{5}{8}$ " (16 mm) for the entire length. This will allow sufficient epoxy cover over the CCL's. Once the cuts are made, drill $\frac{1}{2}$ " (13 mm) diameter holes at the appropriate locations on the ends of the cuts to accept the CCL.

Hint: Once one end is drilled, re-check the spacing prior to drilling the second end. Also $\frac{5}{8}$ " (16 mm) diameter holes may be drilled to help ensure proper fit even with a slight misalignment but this will use slightly more epoxy.

07: APPLICATION

Clean all loose debris from the preparation and fill with High Strength Anchoring Epoxy Paste. Once the preparation is filled with epoxy, work the CCL into the preparation, ensuring that all voids around it are filled. Scrape any excess epoxy off of the surface. This material can be worked into the crack between the CCL. The crack needs to be filled by this method or by injection to stop any movement between the opposite sides of the crack.

08: TOOLING & FINISHING

Any tool that will accept a diamond saw blade suitable for cutting concrete will work to make the cuts across the crack. A tuck point grinder or slotting tool with dust shroud works best to minimize dust while allowing you to set the depth of the cut. Use any hammer drill with a $\frac{1}{2}$ " (13 mm) diameter masonry drill bit to drill the holes. Larger bits can be used but will require additional epoxy to fill the larger holes.

09: LIMITATIONS

Design calculations must be made and certified by an independent licensed professional engineer.



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