TECHNICAL DATA SHEET

Rhino Carbon Fiber 400 GSM Unidirectional | Revision Date 7/01/2024

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01: PRODUCT IDENTIFICATION

RHINO PRODUCTS USA
8383 Riley Street,
Zeeland, MI 49464 USA

Product Name: Rhino Carbon Fiber 400 GSM Unidirectional

02: DESCRIPTION

Rhino Carbon Fiber 400 GSM Unidirectional is a high-strength, unidirectional carbon fiber fabric equipped with weft fibers that keep the fabric stable. The material is field laminated using RCF Saturant-Adhesive Epoxy to form a carbon fiber reinforced polymer (CFRP) system used to strengthen structural concrete elements.

03: WHERE TO USE

- Increase load capacity of structural elements (beams, slabs, columns, walls, etc.)
- Restore structural integrity of damaged or deteriorated structural elements
- Repair for damaged or missing reinforcing steel/post tensioning
- Improved blast resistance of concrete, masonry, or stone in mining operations
- Additional reinforcement to repair/withstand seismic events

04: ADVANTAGES

- Flexible, can be wrapped around complex geometries
- High-strength
- Lightweight
- Economical
- Non-corrosive
- Alkali resistant
- Low aesthetic impact

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	90° (Unidirectional) - Carbon
Areal Density / Weight	400 g/m^2 (11.80 oz/yd^2)

DRY FIBER PROPERTIES		
Property	**Imperial**	**Metric**
Thickness	~0.0086 in	~0.22 mm
Tensile Strength	≥493 ksi	≥3400 MPa
Tensile Modulus	≥33358 ksi	≥230 GPa
Elongation at Break %	1.6%	

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TECHNICAL INFORMATION & COMPOSITE PROPERTIES					
	Tested/Experimental Average Value[1]		Design Value[2]		Testing Method
Property	**Imperial**	**Metric**	**Imperial**	**Metric**	
Thickness	0.027 in	0.68 mm	0.027 in	0.68 mm	ASTM D3039
Tensile Strength	150 ksi	1033.5 MPa	129 ksi	887.8 MPa	
Tensile Modulus	10620 ksi	73.2 GPa			
Elongation at Break %	1.4%	1.4%			
Tensile Strength per Unit Width	4047 lbs/in	0.709 kN/mm			

[A]Load and Chord Stiffness per Unit are computed based on CFRP laminate specimen width
*20 sample coupons per test series

[1]Average value of test series
[2]Average value minus 3 standard deviations per ACI440

6: SURFACE PREP

Refer to Rhino Carbon Fiber application instructions.

7: APPLICATION

Refer to Rhino Carbon Fiber application instructions.

8: TOOLING & FINISHING

Fabric can be cut to appropriate lengths by using sharp heavy duty shears. Dull or worn cutting implements can damage, weaken or fray the fabric and their use should be avoided.

9: LIMITATIONS & WARNINGS

- Design calculations must be made and certified by an independent licensed professional engineer
- System is a vapor barrier. Concrete should not be fully encapsulated in areas of freeze/thaw

16: WARRANTY

Rhino Products warrants to the Buyer that this product is in good quality and conforms to the manufacturer's specifications in force on the date of manufacturer and when used in accordance with the Installation Instructions and when stored as directed in the technical literature.

Manufacturer cannot warrant or guarantee any particular method of use, performance or application under any particular condition and Buyer is responsible for determining the suitability of intended purpose and assumes all risks therein. RCF shall not be liable for any injury, loss, cost of labor or consequential damages either directly, indirectly or incidentally, arising out of the use or misuse of any product sold by RCF or another distributor. If the product is proven to be in nonconformance, the Buyers sole remedy shall be a refund of the purchase price or replacement of product.