TECHNICAL DATA SHEET

Rhino Carbon Fiber™ 200 GSM Unidirectional | Revision Date 7/19/2022

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01: PRODUCT IDENTIFICATION

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

Product Name: Rhino Carbon Fiber™ 200 GSM Unidirectional

Product Code:

(Type-Width-Weight)	Weave Weight
UD-12H-200	0.369 lb/SY (200 g/m 2)
UD-12V-200	0.369 lb/SY (200 g/m 2)
UD-24V-200	0.369 lb/SY (200 g/m 2)

02: DESCRIPTION

Rhino Carbon Fiber™ 200 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 Structural-Adhesive Epoxy to form a carbon fiber reinforced polymer (CFRP) used to strengthen structural concrete elements.

03: WHERE TO USE

Load Increases	•Increased loading capacity •Installation of heavy machinery in industrial buildings •Vibrating structures •Changes of building utilization •Meeting of changed standards or specifications
Seismic Strengthening	•Column wrapping •Masonry walls
Damage to Structural Parts	•Aging of construction material •Vehicle impact •Fire and blast resistance •Prevention of defects caused by earthquakes
Change in Structural System	•Removal of walls or columns •Removal of slab sections for openings
Design or Construction Defects	•Insufficient reinforcements •Insufficient structural depth

04: ADVANTAGES

- •Used for shear, confinement or structural strengthening
- •Flexible, can be wrapped around complex geometries
- •High Strength
- •Light Weight
- •Non-corrosive
- •Alkali Resistant
- •Low aesthetic impact
- •Fiber orientation tailor-made

05: TYPICAL 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
Areal Density / Weight	200 g/m^2 (5.9 oz/yd^2)

DRY FIBER PROPERTIES		
	Imperial	Metric
Tensile Strength	~711 ksi	~4900 MPa
Tensile Modulus	~36259 ksi	~250 GPa
Elongation at Break %	1.9%	1.9%

TECHNICAL INFORMATION & COMPOSITE PROPERTIES		
	Tested/Experimental Average Value	
	Imperial	Metric
Thickness	0.0087 in.	0.22 mm
Tensile Strength	493 ksi	3400 MPa
Tensile Modulus	33359 ksi	230 GPa
Elongation at Break %	1.6%	1.6%

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06: HOW TO USE – SURFACE PREP

Surface must be clean and sound. It may be dry or damp, but free of standing water and frost. Remove a light layer of concrete from the surface work areas. Consult the current product data sheets for Rhino Carbon Fiber™ for additional information on surface preparation.

Existing uneven surfaces must be filled with an appropriate repair mortar/hydraulic cement. The adhesive strength of the concrete must be verified after surface preparation by random pull-off testing (ASTM D-4541) at the discretion of the engineer. Minimum tensile strength, 200 psi (1.4 MPa) with concrete substrate failure.

Preparation Work: Concrete - Blast clean, shot-blast or use other approved mechanical means to provide a roughened, open-textured surface.

Round all corners to 1/2" radius in certain "contact critical" applications and at the engineers discretion, a thorough cleaning of the substrate using low pressure sand or water blasting may be sufficient.

07: APPLICATION

Application prior to placing the fabric, scarify the concrete surface using dustless grinding system. The fabric may also be manually saturated using your hand, a roller prior or scraper t o placement. In either case, installation of this system should be performed only by a trained contractor. In fiber direction, overlapping of the fabric must be at least 10mm or as per the project specifications. Overlapping sections of additional layers should be distributed over the column circumference.

08: TOOLING & FINISHING

Fabric can be cut to appropriate lengths by using scissors. Since the dull or worn cutting implements can damage, weaken or fray the fabric, their use should be avoided.

09: LIMITATIONS

- 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.