

# TECHNICAL DATA SHEET

Rhino Carbon Fiber™ Unidirectional | Revision Date 7/25/2019

1633 Thornwood Dr.  
Heath, OH 43056 USA  
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## 01: PRODUCT IDENTIFICATION

RHINO PRODUCTS USA  
1633 THORNWOOD DRIVE  
HEATH, OH 43056 USA

Product Code:	(Type-Width-Weight)	Weave Weight
	UD-12H-200	0.369 lb/SY (200 g/m <sup>2</sup> )
	UD-12V-200	0.369 lb/SY (200 g/m <sup>2</sup> )
	UD-24V-200	0.369 lb/SY (200 g/m <sup>2</sup> )
	UD-24V-300	0.553 lb/SY (300 g/m <sup>2</sup> )
	UD-24V-400	0.737 lb/SY (400 g/m <sup>2</sup> )
	UD-24V-600	1.106 lb/SY (600 g/m <sup>2</sup> )

Product Name: Rhino Carbon Fiber™ Unidirectional

## 02: DESCRIPTION

Rhino Carbon Fiber™ 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	<ul style="list-style-type: none"><li>•Increased loading capacity</li><li>•Installation of heavy machinery in industrial buildings</li><li>•Vibrating structures</li><li>•Changes of building utilization</li><li>•Meeting of changed standards or specifications</li></ul>
Seismic Strengthening	<ul style="list-style-type: none"><li>•Column wrapping</li><li>•Masonry walls</li></ul>
Damage to Structural Parts	<ul style="list-style-type: none"><li>•Aging of construction material</li><li>•Vehicle impact</li><li>•Fire and blast resistance</li><li>•Prevention of defects caused by earthquakes</li></ul>
Change in Structural System	<ul style="list-style-type: none"><li>•Removal of walls or columns</li><li>•Removal of slab sections for openings</li></ul>
Design or Construction Defects	<ul style="list-style-type: none"><li>•Insufficient reinforcements</li><li>•Insufficient structural depth</li></ul>

## 04: ADVANTAGES

<ul style="list-style-type: none"><li>•Used for shear, confinement or structural strengthening</li><li>•Flexible, can be wrapped around complex geometries</li><li>•High Strength</li><li>•Light Weight</li></ul>	<ul style="list-style-type: none"><li>•Non-corrosive</li><li>•Alkali Resistant</li><li>•Low aesthetic impact</li><li>•Fiber orientation tailor-made</li></ul>
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## 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	2 years from date of production
Color	Black
Primary Fiber Direction	Unidirectional
Areal Weight	300g/m <sup>2</sup> ffl 5%

### FIBER PROPERTIES

Property	English	Metric
Tensile Strength	710 ksi	4,900 MPa
Tensile Modulus	36.3 Msi	250 GPa
Elongation	2%	
Density	.065 lbs/in <sup>3</sup>	1.79 g/cm <sup>3</sup>
Nominal Thickness	.0175 in	0.4445 mm



1-888-684-3889 | [www.RhinoCarbonFiber.com](http://www.RhinoCarbonFiber.com)

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## 06: HOW TO USE: SURFACE PREP

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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

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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 to 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

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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

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- 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.