

# TECHNICAL DATA SHEET

Rhino Carbon Fiber™ 560 GSM Bidirectional | Revision Date 6/30/2022

8383 Riley Street,  
Zeeland, MI USA 49464  
P: +1 888 684 3889  
E: info@rhinocarbonfiber.com

01

## 01: PRODUCT IDENTIFICATION

8383 Riley Street,  
Zeeland, MI  
USA 49464

Product Code:	(Type-Width-Weight)	Weave Weight
	BD-5.5-560	1.03 lb/SY (560 g/m <sup>2</sup> )
	BD-12-560	1.03 lb/SY (560 g/m <sup>2</sup> )
	BD-24-560	1.03 lb/SY (560 g/m <sup>2</sup> )

Product Name: Rhino Carbon Fiber™ 560 GSM Bidirectional

## 02: DESCRIPTION

Rhino Carbon Fiber™ 560 GSM Bidirectional is a high-strength, bidirectional carbon fiber fabric. 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

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

- Used for shear, confinement or structural strengthening
- Flexible, can be wrapped around complex geometries
- High-Strength
- Lightweight
- 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 (red string)
Primary Fiber Direction	0° (Bidirectional) - Carbon
Areal Density / Weight:	560 g/m <sup>2</sup> (16.52 oz/yd <sup>2</sup> )

DRY FIBER PROPERTIES		
	Imperial	Metric
Thickness	-0.02205 in	-0.56 mm
Tensile Strength	≥493 ksi	≥ 3400 MPa
Tensile Modulus	≥ 33359 ksi	≥ 230 GPa
Elongation at Break %	1.6%	1.6%

<sup>1</sup>Load and Chord Stiffness per Unit are computed based on CFRP laminate specimen width

<sup>2</sup>20 sample coupons per test series

<sup>3</sup>Average value of test series

<sup>4</sup>Average value minus 3 standard deviations per ACI440

TECHNICAL INFORMATION & COMPOSITE PROPERTIES					
	Tested/Experimental Average Value		Design Value		Testing Method
	Imperial	Metric	Imperial	Metric	
Thickness	0.019 in.	0.48 mm	0.019 in.	0.48 mm	ASTM D3039
Tensile Strength	111 ksi	768 MPa	94 ksi	647 MPa	ASTM D3039
Tensile Modulus	6890 ksi	47.5 GPa	5750 ksi	39.7 GPa	ASTM D3039
Elongation at Break %	1.60%	1.60%	1.25%	1.25%	ASTM D3039
Tensile Strength per Unit Width	2259 lbs/in.	0.396 kN/mm	1945 lbs/in.	0.341 kN/mm	ASTM D3039



1-888-684-3889 | www.RhinoCarbonFiber.com

© All Rights Reserved

None of the authors, contributors, administrators, or anyone else connected with Rhino Products USA Inc. or any of its affiliates (collectively, "Rhino"), in any way whatsoever, can be responsible for your use of the information, instructions or advice contained in or linked from this or any related document. All liability with respect to actions taken or not taken based on the contents of this or any related document is hereby expressly disclaimed by Rhino. The content of this document is provided "as is"; no representations are made that the content is error-free.

# TECHNICAL DATA SHEET

Rhino Carbon Fiber™ 560 GSM Bidirectional | Revision Date 6/30/2022

8383 Riley Street,  
Zeeland, MI USA 49464  
P: +1 888 684 3889  
E: info@rhinocarbonfiber.com

02

## 06: HOW TO USE – SURFACE PREP

---

Surface must be clean, sound, and dry. Remove a light layer of concrete from the surface to allow the epoxy to penetrate the substrate (Refer to ICRI 310-2R for additional information). Typical methods include shot blasting or grinding to achieve this open textured surface. Consult the epoxy adhesive data sheets 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.

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 to placement. In either case, installation of this system should be performed only by a trained contractor.

## 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.



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

© All Rights Reserved

None of the authors, contributors, administrators, or anyone else connected with Rhino Products USA Inc. or any of its affiliates (collectively, "Rhino"), in any way whatsoever, can be responsible for your use of the information, instructions or advice contained in or linked from this or any related document. All liability with respect to actions taken or not taken based on the contents of this or any related document is hereby expressly disclaimed by Rhino. The content of this document is provided "as is;" no representations are made that the content is error-free.