

TECHNICAL DATA SHEET

Rhino Carbon Fiber 400 GSM Unidirectional | Revision Date 04/02/2026

2311 Royal Windsor Dr
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01: PRODUCT IDENTIFICATION

AGT Products Inc. 2311 Royal Windsor Drive, Mississauga, ON L5J 1K5	Product Code:	(Type-Width-Weight)	Weave Weight
		UDV-6-400	11.8 oz/yd ² (400 g/m ²)
		UDH-12-400	11.8 oz/yd ² (400 g/m ²)
		UDV-24-400	11.8 oz/yd ² (400 g/m ²)

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

Load Increases	<ul style="list-style-type: none">• Strengthening of beams, slabs, columns, and walls to accommodate increased loading• Support of new or heavier industrial and commercial equipment• Structures subject to dynamic or vibrating loads• Change in building use or occupancy resulting in higher design loads• Upgrades required to meet revised codes, standards, or project specifications
Seismic Strengthening and Retrofit	<ul style="list-style-type: none">• Column wrapping and jacketing for improved confinement and ductility• Strengthening of reinforced concrete and masonry walls• Repair and strengthening of structural elements damaged by seismic events• Mitigation of deficiencies identified during seismic evaluation
Repair of Damaged or Deteriorated Structures	<ul style="list-style-type: none">• Strengthening of elements affected by material aging or environmental exposure• Repair of structural damage caused by vehicle impact or accidental loading• Preventative strengthening to reduce risk of future earthquake-related damage
Structural Modifications	<ul style="list-style-type: none">• Strengthening following removal of load-bearing walls or columns• Reinforcement around new slab openings or penetrations• Local strengthening to accommodate alterations to the structural system
Design or Construction Defects	<ul style="list-style-type: none">• Retrofit of members with insufficient reinforcement• Strengthening of elements with inadequate structural depth or capacity• Correction of detailing or construction shortcomings identified during assessment
Applicable Structures & Substrates	<ul style="list-style-type: none">• Cast-in-place and precast concrete & prestressed concrete members• Concrete masonry units (CMU) Commercial, industrial, institutional, infrastructure and residential structures

04: ADVANTAGES

- Flexible, can be wrapped around complex geometries
- High-strength-to-weight ratio
- Lightweight
- Fiber orientation tailor-made
- Minimal section enlargement
- Non-corrosive
- Alkali resistant
- Low aesthetic impact
- Rapid installation and reduced downtime

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
Areal Density / Weight	400 g/m ² (11.8 oz/yd ²)



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DRY FIBER PROPERTIES		
Property	Imperial	Metric
Thickness	~0.091 in	~0.23 mm
Tensile Strength	≥ 550 ksi	≥ 3790 MPa
Tensile Modulus	≥33359 ksi	≥230 GPa
Elongation at Break %	1.6%	

TECHNICAL INFORMATION & COMPOSITE PROPERTIES					
Property	Tested/Experimental Average Value ¹		Design Value ²		Testing Method
	Imperial	Metric	Imperial	Metric	
Thickness	0.0169 in	0.43 mm	0.0169 in	0.43 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			

¹Load and Chord Stiffness per Unit are computed based on CFRP laminate specimen width
²20 sample coupons per test series

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

6: SURFACE PREP

- The substrate must be clean, sound, dry, and free of all contaminants that may impair bond, including dust, debris, laitance, paint, coatings, grease, oil, curing compounds, or weak surface material.
- Surface preparation shall be performed using mechanical methods such as grinding, abrasive blasting (sand or shot blasting), or hydro-demolition to achieve a Concrete Surface Profile (CSP) of 3 to 5.
- All unsound concrete, delaminated areas, bug holes, voids, and cracks shall be properly treated and repaired prior to CFRP installation. Repair materials shall be allowed to cure in accordance with the manufacturer's recommendations before installation of the CFRP system.
- Corners and edges where carbon fiber fabric is applied shall be rounded to a minimum radius of 10–13 mm (3/8–1/2 in) to prevent stress concentrations in the fibers and to ensure full contact with the substrate.
- The prepared substrate shall have a minimum direct tensile strength of 200 psi (1.4 MPa), verified where required by pull-off testing. The surface shall be dry and free of standing water at the time of installation in order to achieve adequate epoxy bond.

7: APPLICATION

- Prepared concrete surfaces should be primed as required by the selected resin system. Carbon fiber fabrics shall be fully saturated with the designated saturant resin and installed in manageable sections appropriate to project conditions, crew size, and installer experience.
- Installation shall be performed by a trained and competent contractor in accordance with the project specifications and applicable installation guidelines.

8: TOOLING & FINISHING

- Standard hand tools suitable for epoxy resin application may be used for installation of CFRP systems, including rollers, squeegees, brushes, and mixing equipment. Tools shall be clean and compatible with epoxy resins.
- Excess resin, air voids, or irregularities should be addressed during installation to ensure proper fiber consolidation and bond to the substrate.
- Once cured, exposed CFRP surfaces may be lightly sanded or prepared as required to receive protective coatings, fireproofing materials, or architectural finishes. Finishing materials shall be compatible with the cured CFRP system and applied in accordance with the manufacturer's recommendations and project specifications.



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9: LIMITATIONS & WARNINGS

- All structural design calculations must be performed and certified by a licensed professional engineer experienced in FRP strengthening.
- CFRP systems shall only be installed in accordance with approved design drawings and applicable codes and standards.
- CFRP reinforcement is intended to supplement existing structural capacity and shall not be used to repair severely deteriorated or unsound substrates without proper restoration.

10: 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.



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