

GC-70-UCL: Product Specifications

GC-70-UCL: UNIDIRECTIONAL CARBON FIBER LAMINATE

A light weight laminate composed of continuous unidirectional carbon fiber in an epoxy matrix, providing high strength and stiffness. GC-70-UCL is manufactured with a proprietary pulforming process in which all carbon fibers are pretensioned and aligned during impregnation and curing. This process assures the efficient utilization of the superior mechanical properties of the carbon fibers.



Applications

- Infrastructure Reinforcement
- Structural Components
- Archery Bow Limbs
- Sail Battens
- Industrial Springs
- Prosthetics
- Aerospace

Sizing

Width: 1.50" to 8.75"

Thickness: .020" to .045"

Length: 6" to 120"(Also available in roll form with lengths up to 250 ft.)

Color

Black

Finish

The material is normally supplied with one surface prepared for bonding but can also be supplied with a bonding surface on both sides.

[Physical and Mechanical Properties \(other side\)](#)

Contact us, or visit www.gordoncomposites.com for additional product information.

Gordon Composites, Inc.

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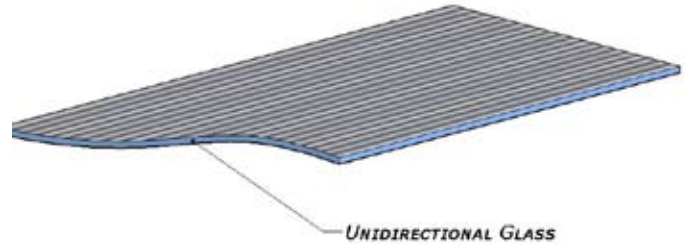
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GC-70-UCL: Physical and Mechanical Properties

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Physical and Mechanical Properties

PROPERTY DESCRIPTION (ORIENTATION and MATERIAL CONSTANT)	UNITS	TEST METHOD	MIN VALUE	AVG. VALUE
PRODUCT TYPE		ASTM D3647	UNIDIRECTIONAL	UNIDIRECTIONAL
FIBER CONTENT BY WEIGHT	%	ASTM D2584	68	70
DENSITY	lbs./c.i.	ASTM D1505	.055	.056
FIBER ORIENTATION	0°/ 90°	ASTM D3647		0
FLEX STRENGTH, 0° ***	KSI	ASTM D790	240	303
FLEX MODULUS, 0° ***	MSI	ASTM D790	17.7	19.9
TENSILE STRENGTH, 0°, (τS_{11})	KSI	ASTM D3039	350	430
TENSILE MODULUS of ELASTICITY, 0°, (τE_{11})	MSI	ASTM D3039	20	22
ULTIMATE TENSILE STRAIN, 0°, ($\tau \epsilon_{11}$)	%	ASTM D3039	1.75	1.9
TENSILE STRENGTH, 90°, (τS_{22})	KSI	ASTM D3039	6	7
TENSILE MODULUS of ELASTICITY, 90°, (τE_{22})	MSI	ASTM D3039	1.23	1.4
POISSON'S RATIO, 0°/ 90°, (ν_{12}) tension		ASTM D3039		.31
COMPRESSION STRENGTH, 0°, (S_{11})	KSI	ASTM D6641	112	160
COMPRESSION MODULUS OF ELASTICITY, 0°, (E_{11})	MSI	ASTM D6641	18.2	19.5
ULTIMATE COMPRESSION STRAIN, 0°, (ϵ_{11})	%	ASTM D6641	.62	.82
COMPRESSION STRENGTH, 90°, (S_{22})	KSI	ASTM D6641	21.8	24
COMPRESSION MODULUS OF ELASTICITY, 90°, (E_{22})	MSI	ASTM D6641	1.4	1.6
POISSON'S RATIO, 0°/ 90°, (ν_{12}) compression		ASTM D6641		
IN PLANE SHEAR STRENGTH, (S_{12})	KSI	ASTM D5379		
IN PLANE SHEAR MODULUS, (G_{12})	MSI	ASTM D5379		
INTER-LAMINAR SHEAR STRENGTH, (S_{23})	KSI	ASTM D5379		
INTER-LAMINAR SHEAR MODULUS, (G_{23})	MSI	ASTM D5379		
GLASS TRANSITION TEMP.	(°F)	ASTM D3418	235	240
WATER ABSORPTION	%	ASTM D570		.2

E is Elastic Modulus

G is Shear Modulus

S is strength

ν is Poisson's ratio

τ is tension

C is compression

ϵ is strain

"1" is parallel to fiber direction (length)

"2" is transverse to fiber direction (width)

"3" is vertical to fiber direction (thickness)

**50/50 Scrim Fiberglass Cloth Inlay, 1.45 oz. per square yd.

***Note: Strength Values developed from ASTM D790 are dependent on thickness.

As thickness increased flex strength decreased. The test data above is based on a test thickness of .060"

Origination Date 1-3-02 Revised 4-1-08

Because Gordon Composites, Inc. has no control over the ways in which others may use its products, it cannot guarantee or accept responsibility for the effectiveness or the safety of any possible or suggested design or application of articles containing its products. Each user of the material should perform their own tests to determine the suitability of the material or design, or both for their particular use or application.



Engineered Structural Materials

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