



# HexTow<sup>®</sup> HM63

## Carbon Fiber



### Product Data Sheet

HexTow<sup>®</sup> HM63 carbon fiber is a continuous, high strength, high performance, high modulus, PAN based carbon fiber available in 12,000 (12K) filament count tows. This fiber has been surface treated and sized to improve its handling characteristics, interlaminar shear strength, compressive strength, and structural properties. It is suggested for use in aerospace, space, premium sporting goods, and industrial applications.

The unique properties of HexTow<sup>®</sup> HM63 fiber, such as higher tensile strength and modulus, as well as shear and compressive strength, allow structural designers to achieve both higher safety margins for both stiffness and strength critical applications.

Typical Fiber Properties	U.S. Units	SI Units
Tensile Strength	700 ksi	4889 MPa
Tensile Modulus (Chord 6000-1000)	63.0 Msi	434 GPa
Tensile Modulus (Tangent 1/2 Load)	65.6 Msi	452 GPa
Ultimate Elongation at Failure	1.0%	1.0%
Density	0.0661 lb/in <sup>3</sup>	1.83 g/cm <sup>3</sup>
Weight/Length		
6K	11.8 x 10 <sup>-6</sup> lb/in	0.210 g/m
12K	23.6 x 10 <sup>-6</sup> lb/in	0.422 g/m
Approximate Yield		
6K	7088 ft/lb	4.76 m/g
12K	3527 ft/lb	2.37 m/g
Tow Cross-Sectional Area		
6K	1.8 x 10 <sup>-4</sup> in <sup>2</sup>	0.12 mm <sup>2</sup>
12K	3.57 x 10 <sup>-4</sup> in <sup>2</sup>	0.23 mm <sup>2</sup>
Filament Diameter	0.195 mil	4.9 microns
Carbon Content	99%	99%

Typical HexPly 8552 Composite Properties (at Room Temperature)	U.S. Units	SI Units	Test Method
0° Tensile Strength	361 ksi	2491 MPa	ASTM D3039
0° Tensile Modulus	35.7 Msi	246 GPa	
0° Tensile Strain	1.0%	1.0%	
0° Short Beam Shear Strength	14.5 ksi	100 MPa	ASTM D2344
0° Compressive Strength	196 ksi	1350 MPa	ASTM Mod. D695
0° Compressive Modulus	32.0 Msi	221 GPa	
Open Hole Tensile Strength	66 ksi	455 MPa	ASTM D5766
Open Hole Compressive Strength	36 ksi	248 MPa	ASTM D6484
90° Tensile Strength	6.5 ksi	45 MPa	ASTM D3039
Fiber Volume	60%	60%	



Yarn/Tow Characteristics	U.S. Units	SI Units
Specific Heat	0.21 Btu/lb-°F	0.21 Cal/g-°C
Electrical Resistivity	2.9 x 10 <sup>-5</sup> ohm-ft	0.9 x 10 <sup>-3</sup> ohm-cm
Coefficient of Thermal Expansion	-0.7 ppm/°F	-1.2 ppm/°C
Thermal Conductivity	31.8 Btu/hr-ft-°F	55.0 W/m-°K

## Carbon Fiber Certification

This carbon fiber is manufactured to Hexcel aerospace grade specification HS-CP-5500. A copy of this specification is available upon request. A Certification of Analysis will be provided with each shipment.

## Available Sizing

Sizing compatible with various resin systems, based on application are available to improve handling characteristics and structural properties. Please see additional information on available sizes on our website or contact our technical team for additional information.

## Sizing

Size	Compatibility	Recommended Uses
GP	Epoxy, Phenolic, Vinyl Ester, Polyurethane, Cyanate Ester, BMI	Weaving, Filament Winding, Prepreg Tape
Unsize	All Resins	Prepreg Tape

\*Compatibility with these Matrices is considered theoretically compatible. Hexcel cannot guarantee their results.

## Packaging

Standard packaging of HexTow® HM63 is as follows:

Filament Count	Sizing	Nominal Weight		Nominal Length	
		(lb)	(kg)	(ft)	(m)
6K	GP (1.1%)	2.0	0.90	6,703	2,043
	Unsize				
12K	GP (1.1%)	1.8	0.82	6,347	1,935
	Unsize				

Other package sizes may be available on request. The fiber is wound on a 3-inch ID by 11-inch long cardboard tube and overwrapped with plastic film.

## Safety Information

Obtain, read, and understand the Safety Data Sheet (SDS) before use of this product.



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### For more information

Hexcel is a leading worldwide supplier of composite materials to aerospace and industrial markets. Our comprehensive range includes:

- HexTow® carbon fibers
- HexForce® reinforcements
- HiMax® multiaxial reinforcements
- HexPly® prepregs
- HexAM® additive manufacturing
- HexMC® molding compounds
- HiFlow® RTM resins
- HexBond® adhesives
- HexTool® tooling materials
- HexWeb® honeycomb
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates & pultruded profiles

For U.S. quotes, orders and product information call toll-free 1-800-688-7734. For other worldwide sales office telephone numbers and a full address list, please go to:

**<http://www.hexcel.com/contact>**

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