HexTow® AS4
Carbon Fiber

HEXCEL®

Product Data Sheet

HexTow® AS4 carbon fiber is a continuous, high strength, high strain, PAN based fiber available in 3,000 (3K), 6,000 (6K) and 12,000 (12K) filament count tows. This fiber has been surface treated and can be sized to improve its interlaminar shear properties, handling characteristics, and structural properties, and is suggested for use in weaving, prepregging, filament winding, braiding, and pultrusion.

AS4-GP 3k (1%), AS4-GP 12k (0.9%), and AS4 12k carbon fibers have been qualified to NMS 818 Carbon Fiber Specification (NCAMP). This allows customers to call out an industry standard, aerospace grade carbon fiber without the need to write and maintain their own specification.

Typical Fiber Properties	U.S. Units	SI Units
Tensile Strength		
3K	685 ksi	4723 MPa
6K	650 ksi	4482 MPa
12K	645 ksi	4447 MPa
Tensile Modulus (Chord 6000-1000)	33.5 Msi	231 GPa
Ultimate Elongation at Failure		
3K	1.8%	1.8%
6K	1.7%	1.7%
12K	1.7%	1.7%
Density	0.0647 lb/in^3	1.79 g/cm^3
Weight/Length		
3K	11.8 x 10^{-6} lb/in	0.210 g/m
6K	23.9 x 10^{-6} lb/in	0.427 g/m
12K	48.0 x 10^{-6} lb/in	0.858 g/m
Approximate Yield		
3K	7,086 ft/lb	4.75 m/g
6K	3,485 ft/lb	2.34 m/g
12K	1,734 ft/lb	1.17 m/g
Tow Cross-Sectional Area		
3K	1.82 x 10^{-4} in^2	0.12 mm^2
6K	3.70 x 10^{-4} in^2	0.24 mm^2
12K	7.43 x 10^{-4} in^2	0.48 mm^2
Filament Diameter	0.280 mil	7.1 microns
Carbon Content	94.0%	94.0%
Twist	Never Twisted	Never Twisted

Typical HexPly 8552 Composite Properties (at Room Temperature)	U.S. Units	SI Units	Test Method
0° Tensile Strength	310 ksi	2137 MPa	ASTM D3039
0° Tensile Modulus	19.6 Msi	135 GPa	
0° Tensile Strain	1.6%	1.6%	
0° Flexural Strength	274 ksi	1889 MPa	ASTM D790
0° Flexural Modulus	18.4 Msi	127 GPa	
0° Short Beam Shear Strength	18.5 ksi	128 MPa	ASTM D2344
0° Compressive Strength	222 ksi	1530 MPa	ASTM Mod. D695
0° Compressive Modulus	18.6 Msi	128 GPa	
0° Open Hole Tensile Strength	63.5 ksi	438 MPa	ASTM D5766
90° Tensile Strength	9.3 ksi	64 MPa	ASTM D3039
Fiber Volume	60%	60%	

Yarn/Tow Characteristics	U.S. Units	SI Units
Specific Heat	0.28 Btu/lb-°F	0.27 cal/g-°C
Electrical Resistivity	5.6 x 10^{-5} ohm-ft	1.7 x 10^{-3} ohm-cm
Coefficient of Thermal Expansion	-0.35 ppm/ºF	-0.63 ppm/ºC
Thermal Conductivity	3.95 Btu/hr-ft-ºF	6.83 W/m-ºK

Carbon Fiber Certification

This carbon fiber is manufactured to Hexcel aerospace grade specification HS-CP-5000. 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.

Packaging

Standard packaging of HexTow® AS4 is as follows:

Filament Count	Size	Nominal Weight		Nominal Length	
		(lb)	(kg)	(ft)	(m)
3K	G	5.0	2.3	35,430	10,800
	GP	6.0	2.7	42,520	12,960
6K	G	3.0	1.4	10,450	3,190
	GP	6.0	2.7	20,910	6,375
12K	GP	8.0	3.6	13,880	4,230
	Unsized	10.0	4.5	17,340	5,290

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.

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
- HexMC®-i molding compounds
- HexFlow® RTM resins
- HexBond™ adhesives
- HexTool® tooling materials
- HexWeb® honeycombs
- Acousti-Cap® sound attenuating honeycomb
- Engineered core
- Engineered products
- Polyspeed® laminates & pultruded profiles
- HexAM® additive manufacturing

For US quotes, orders and product information call toll-free 1-866-556-2662. For other worldwide sales office telephone numbers and a full address list, please go to:

http://www.hexcel.com/contact

CTA 311 JA20