HexTow® IM7 carbon fiber is a continuous, high performance, intermediate modulus, PAN based fiber available in 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. It is suggested for use in weaving, prepregging, filament winding, braiding, and pultrusion.

The unique properties of HexTow® IM7 fiber, such as higher tensile strength and modulus, as well as good shear strength, allow structural designers to achieve both higher safety margins for both stiffness and strength critical applications.

IM7-G 12K (0.25%) carbon fiber has 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

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>U.S. Units</th>
<th>SI Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile Strength</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6K</td>
<td>800 ksi</td>
<td>5516 MPa</td>
</tr>
<tr>
<td>12K</td>
<td>825 ksi</td>
<td>5688 MPa</td>
</tr>
<tr>
<td>Tensile Modulus (Chord 6000-1000)</td>
<td>40.0 Msi</td>
<td>276 GPa</td>
</tr>
<tr>
<td>Ultimate Elongation at Failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6K</td>
<td>1.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td>12K</td>
<td>1.8%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Density</td>
<td>0.0643 lb/in³</td>
<td>1.78 g/cm³</td>
</tr>
<tr>
<td>Weight/Length</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6K</td>
<td>12.5 x 10^-6 lb/in</td>
<td>0.223 g/m</td>
</tr>
<tr>
<td>12K</td>
<td>25.0 x 10^-6 lb/in</td>
<td>0.446 g/m</td>
</tr>
<tr>
<td>Approximate Yield</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6K</td>
<td>6,674 ft/lb</td>
<td>4.48 m/g</td>
</tr>
<tr>
<td>12K</td>
<td>3,337 ft/lb</td>
<td>2.24 m/g</td>
</tr>
<tr>
<td>Tow Cross-Sectional Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6K</td>
<td>1.94 x 10^-4 in²</td>
<td>0.13 mm²</td>
</tr>
<tr>
<td>12K</td>
<td>3.89 x 10^-4 in²</td>
<td>0.25 mm²</td>
</tr>
<tr>
<td>Filament Diameter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6K</td>
<td>0.203 mil</td>
<td>5.2 microns</td>
</tr>
<tr>
<td>12K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon Content</td>
<td>95.0%</td>
<td>95.0%</td>
</tr>
<tr>
<td>Twist</td>
<td>Never Twisted</td>
<td>Never Twisted</td>
</tr>
</tbody>
</table>

### Typical HexPly 8552 Composite Properties

<table>
<thead>
<tr>
<th>Test Method</th>
<th>U.S. Units</th>
<th>SI Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>0º Tensile Strength</td>
<td>395 ksi</td>
<td>2,723 MPa</td>
</tr>
<tr>
<td>0º Tensile Modulus</td>
<td>23.8 Msi</td>
<td>164 GPa</td>
</tr>
<tr>
<td>0º Tensile Strain</td>
<td>1.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>0º Flexural Modulus</td>
<td>270 ksi</td>
<td>1,862 MPa</td>
</tr>
<tr>
<td>0º Flexural Modulus</td>
<td>22.0 Msi</td>
<td>152 GPa</td>
</tr>
<tr>
<td>0º Short Beam Shear Strength</td>
<td>18.5 ksf</td>
<td>128 MPa</td>
</tr>
<tr>
<td>0º Compressive Strength</td>
<td>245 ksi</td>
<td>1,689 MPa</td>
</tr>
<tr>
<td>0º Compressive Modulus</td>
<td>21.7 Msi</td>
<td>150 GPa</td>
</tr>
<tr>
<td>Open Hole Tensile Strength</td>
<td>62.1 ksi</td>
<td>428 MPa</td>
</tr>
<tr>
<td>Open Hole Compressive Strength</td>
<td>48.9 ksf</td>
<td>337 MPa</td>
</tr>
<tr>
<td>90º Tensile Strength</td>
<td>9.3 ksf</td>
<td>64.1 MPa</td>
</tr>
<tr>
<td>Fiber Volume</td>
<td>60%</td>
<td>60%</td>
</tr>
</tbody>
</table>
HexTow® IM7 carbon fiber

Product Data Sheet

Yarn/Tow Characteristics | U.S. Units | SI Units
--- | --- | ---
Specific Heat | 0.21 Btu/lb-°F | 0.21 cal/g-°C
Electrical Resistivity | 4.9 x 10-5 ohm-ft | 1.5 x 10-3 ohm-cm
Coefficient of Thermal Expansion | -0.36 ppm/°F | -0.64 ppm/°C
Thermal Conductivity | 3.12 Btu/hr-ft-°F | 5.40 W/m-°K

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® IM7 is as follows:

<table>
<thead>
<tr>
<th>Filament Count</th>
<th>Sizing</th>
<th>Nominal Weight</th>
<th>Nominal Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>6K</td>
<td>GP</td>
<td>5.0</td>
<td>2.3</td>
</tr>
<tr>
<td>12K</td>
<td>Unsized</td>
<td>4.0</td>
<td>1.8</td>
</tr>
<tr>
<td></td>
<td>G, GP</td>
<td>8.0</td>
<td>3.6</td>
</tr>
</tbody>
</table>

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

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