



# HexTow® AS4D

## Carbon Fiber



### Product Data Sheet

HexTow® AS4D carbon fiber is a continuous, high strength, high strain, 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, and is suggested for use in prepregging, filament winding, braiding, and pultrusion.

| Typical Fiber Properties          | U.S. Units                              | SI Units               |
|-----------------------------------|---|------------------------|
| Tensile Strength                  | 685 ksi                                 | 4729 MPa               |
| Tensile Modulus (Chord 6000-1000) | 35.0 Msi                                | 241 GPa                |
| Ultimate Elongation at Failure    | 1.8%                                    | 1.8%                   |
| Density                           | 0.0647 lb/in <sup>3</sup>               | 1.79 g/cm <sup>3</sup> |
| Weight/Length (12K)               | 42.8 x 10 <sup>-6</sup> lb/in           | 0.765 g/m              |
| Approximate Yield (12K)           | 1945 ft/lb                              | 1.31 m/g               |
| Tow Cross-Sectional Area (12K)    | 6.63 x 10 <sup>-4</sup> in <sup>2</sup> | 0.43 mm <sup>2</sup>   |
| Filament Diameter                 | 0.265 mil                               | 6.7 microns            |
| Carbon Content                    | 94.0%                                   | 94.0%                  |
| Twist                             | Never Twisted                           | Never Twisted          |

| Typical HexPly 8552 Composite Properties<br>(at Room Temperature) | U.S. Units | SI Units  | Test Method    |
|---|------------|-----------|----------------|
| 0° Tensile Strength   | 350 ksi    | 2,413 MPa | ASTM D3039     |
| 0° Tensile Modulus  | 19.6 Msi   | 135 GPa   |                |
| 0° Tensile Strain   | 1.6%       | 1.6%      |                |
| 0° Short Beam Shear Strength                                      | 18.7 ksi   | 129 MPa   | ASTM D2344     |
| 0° Compressive Strength   | 232 ksi    | 1600 MPa  | ASTM Mod. D695 |
| Fiber Volume  | 60%        | 60%       |                |
| Open Hole Compressive Strength                                    | 51.1 ksi   | 352 MPa   | ASTM D5766     |



## Carbon Fiber Certification

This carbon fiber is manufactured to Hexcel aerospace grade specification HS-CP-4000. A copy of this specification is available upon request. A Certification of Analysis will be provided with each shipment of HS-CP-4000 fiber.

## 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 |
| Unsized | All Resins   | Prepreg Tape                            |

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

## Packaging

Standard packaging of HexTow® AS4D is as follows:

| Filament Count | Size      | Nominal Weight |      | Nominal Length |       |
|----------------|-----------|----------------|------|----------------|-------|
|                |           | (lb)           | (kg) | (ft)           | (m)   |
| 12K            | GP (1.1%) | 6.5            | 2.9  | 12,640         | 3,850 |
|                | Unsized   | 10.0           | 4.5  | 19,450         | 5,930 |

*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® preprints
- 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>

©2023 Hexcel Corporation – All rights reserved. Hexcel Corporation and its subsidiaries ("Hexcel") believe that the technical data and other information provided herein was materially accurate as of the date this document was issued. Hexcel reserves the right to update, revise or modify such technical data and information at any time. Any performance values provided are considered representative but do not and should not constitute a substitute for your own testing of the suitability of our products for your particular purpose. Hexcel makes no warranty or representation, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, and disclaims any liability arising out of or related to, the use of or reliance upon any of the technical data or information contained in this document.