

Property	Specification / Typical Value	Standards / Notes
Product Name	Braided Carbon Biaxial Sleeve	Also known as Carbon Fiber Braid / Expandable Biaxial Sleeve
Fiber Type	High Strength PAN-Based Carbon Fiber	e.g., Toray T700, T800, or equivalent
Weave Angle	$\pm 45^\circ$ (Biaxial)	Other angles available upon request
Yarn Format	3K / 6K / 12K / 24K	Determined by required strength and stiffness
Expandable Diameter Range	6 mm - 150 mm	Can expand or contract with minimal wrinkling
Wall Thickness (Nominal)	0.2 mm - 2.0 mm	Depends on braid density and mandrel diameter
Surface Finish	Raw / Graphite Black (Matte)	Suitable for epoxy impregnation
Fiber Volume Fraction	Up to 60% when impregnated and consolidated	Varies with resin and processing method
Tensile Strength	≥ 3.5 GPa (unidirectional fiber)	ASTM D4018 (fiber), ASTM D3039 (laminate)
Tensile Modulus	≥ 230 GPa	ASTM D3039
Density	~ 1.76 g/cm ³	Lightweight compared to metals
Thermal Conductivity	~ 6 W/m • K	Directional, based on fiber orientation
Operating Temperature	-50 ° C to +180 ° C	Higher limits with HT resins
Electrical Conductivity	High (Conductive)	Can be used in EMI shielding
Resin Compatibility	Epoxy, Polyester, Vinyl Ester, Phenolic	Excellent wet-out and bonding
Consolidation Method	Pultrusion, Vacuum Infusion, Hand Layup, RTM	Compatible with various molding processes
Shrinkage Ratio	Up to 25% radial shrinkage (after curing)	Provides tight fit on complex shapes
Customization Options	Braid angle, diameter, pitch density, fiber type	OEM supported
Typical Applications	Tubular composite reinforcement, roll-wrapped parts, prosthetics, sports shafts	Provides high torsional strength and conformity on curved surfaces
Certifications Available	ISO 9001 / RoHS / REACH / MSDS / ASTM Compliant	Third-party testing available