

Property	Typical Value	Test Standard / Notes
Material Type	High-strength carbon fiber + epoxy resin	Unidirectional T300/T700, twill 3K surface optional
Fiber Orientation	0° / 90° / ±45° hybrid layup	Customized for strength and stiffness optimization
Manufacturing Process	Pultrusion / Vacuum Molding / CNC Post-Machining	Based on dimension tolerance and length requirements
Outer Dimensions	Customizable (e.g., 20×40 mm, 30×60 mm)	Tolerance ±0.05 mm
Wall Thickness	1.5 mm - 5.0 mm (standard: 2.0 mm)	R-angle reinforcement optional for higher rigidity
Density	1.55 - 1.65 g/cm³	ASTM D792
Flexural Strength	600 - 750 MPa	ASTM D790
Flexural Modulus	60 - 80 GPa	ASTM D790
Torsional Stiffness	3.0 - 5.5 N•m/° (varies by size)	In-house standard
Interlaminar Shear Strength	65 - 85 MPa	ASTM D2344
Thermal Expansion Coefficient	~1.2 × 10 ⁻⁶ /° C	TMA test
Service Temperature	-40 ° C to +180 ° C	Long-term usage, epoxy TG ≥ 150 ° C
Flame Resistance (Optional)	UL94 V-0 grade epoxy resin	For UAV, battery enclosure, transportation use
Surface Finish Options	Glossy 3K twill / Matte 3K / Matte black PU	UV-resistant, scratch-resistant coating
Customization Options	CNC slotting / drilling / threading / anodizing	For modular assembly, optical mounts, robotic arms
Connection Methods	Bonding + riveting / Inserted aluminum sleeve / Corner joints	M4/M6 thread torque ≥ 8 N•m
Length Availability	1000 mm / 2000 mm / up to 3000 mm	Seamless pultrusion or spliced extensions available
Tolerances	±0.05 mm (outer) / ±0.1 mm (length)	Suitable for precision optical & structural use
Testing & Quality	100% ultrasonic scan, bend & torsion batch test	ISO 9001 / AS9100D certified
Compliance	RoHS / REACH / ISO 9001	Material batch traceable via certificate