

Property	Typical Value	Test Standard / Notes
Material Composition	High-strength carbon fiber + epoxy resin	3K Twill / UD layers optional
Cross-Section Shape	Oval (Elliptical)	e.g. 10×20mm, 15×30mm, 20×40mm
Wall Thickness	1.0 - 3.0 mm	Tolerance ±0.1 mm
Outer Dimension Tolerance	±0.05 mm	Precision for mechanical fit
Length	500 mm / 1000 mm / 1500 mm / up to 3000 mm	Custom cut lengths available
Density	1.55 - 1.65 g/cm³	ASTM D792
Tensile Strength (0°)	≥800 MPa	ASTM D3039, along tube axis
Tensile Modulus (0°)	≥85 GPa	ASTM D3039
Flexural Strength	≥700 MPa	ASTM D790
Flexural Modulus	≥70 GPa	ASTM D790
Impact Resistance	High	Drop test & ASTM D7136 optional
Surface Finish Options	Glossy / Matte / Natural 3K twill	UV-resistant polyurethane coating
Surface Resistivity	10³ - 10⁶ Ω	Antistatic performance
Working Temperature	-40 ° C to +150 ° C	Long-term operation
Thermal Expansion	~1.2 × 10⁻ ⁶ /° C	ASTM E831 (TMA analysis)
Manufacturing Process	Roll wrapping / Mandrel pultrusion / Autoclave	Process selected per strength, tolerance, and volume
End Machining Options	CNC trimming / hole drilling / slotting	Custom as per client drawing
Connection Method	Adhesive bonding, thread inserts, tube clamps	Aluminum fittings optional
Weight per Meter	Varies by size (e.g. 20×40mm ≈ 210g/m)	Light yet rigid
Applications	Drone arms, camera stabilizers, e-bikes, poles	Lightweight & aerodynamic demands
Flame Retardant (Optional)	UL94 V-0 resin system available	Industrial safety compliant
Testing & Inspection	100% dimensional + ultrasonic batch test	ISO 9001:2015 / AS9100D production
Certifications	RoHS / REACH / MSDS available	Export-ready documentation