

Parameter	Specification / Typical Value	Standard / Notes
Fiber Grade	3K (3,000 filaments per tow)	—
Weave Style	Twill 2×2	—
Resin System	Epoxy (ambient- cure)	Service $\leq 120^{\circ}\text{C}$
Outer Diameter (OD)	12 - 50 mm (customizable in 0.1 mm increments)	ISO 2768- m (general tolerances)
Wall Thickness (WT)	0.5 - 5 mm (customizable)	ISO 2768- m
Length	Up to 1500 mm continuous	Pultrusion limit
Straightness	$\leq 0.3\text{ mm/m}$	ISO 5286- 2 (pultruded FRP tolerance)
Roundness	$\leq 0.05\text{ mm}$	ISO 5286- 2
Dimensional Tolerance	$\pm 0.1\text{ mm}$	Assembly- ready
Density	1.55 g/cm^3	ASTM D792
Tensile Strength	$\geq 800\text{ MPa}$	ASTM D3039 (uniaxial)
Elastic Modulus	$\geq 90\text{ GPa}$	ASTM D3039
Interlaminar Shear Strength	$\geq 60\text{ MPa}$	ASTM D2344
Coefficient of Thermal Expansion	$\approx 0 \times 10^{-6} / ^{\circ}\text{C}$	ASTM E228
Operating Temperature	-40°C to $+120^{\circ}\text{C}$	Continuous; short- term up to 150°C
Surface Resistivity	$10^3 - 10^4\ \Omega$ (ESD safe)	ASTM D257
Surface Finish	Matte or Gloss UV- resistant clear coat	Outdoor fade- proof $\geq 2\text{ years}$
Fire Rating	UL94 V- 0 (with FR resin option)	UL94
Quality System	ISO 9001:2015, AS9100D	Certified
Material Certification	Batch Certificate of Analysis	Chemical & mechanical test report
Available Machining	CNC turning, milling, drilling, tapping	Factory direct
Typical Applications	UAV booms, camera sliders, scooter posts	—