

Property	Specification / Typical Value	Standard / Notes
Product Name	Solid Carbon Fiber Rod	Pultruded, unidirectional composite
Material Composition	100% Carbon Fiber (T300/T700) + Epoxy Resin	Aerospace- grade prepreg or wet- lay
Diameter Range	Ø 2 mm - Ø 50 mm (increments of 0.1 mm)	Custom diameters available
Length	Up to 3000 mm continuous	Cut- to- length service
Dimensional Tolerance	± 0.05 mm	ISO 2768 m (general tolerances)
Straightness	≤ 0.2 mm/m	ISO 5286- 2 (pultruded FRP)
Density	1.55 g/cm³	ASTM D792
Tensile Strength (Longitudinal)	≥ 1200 MPa	ASTM D3039 (unidirectional)
Tensile Modulus	≥ 70 GPa	ASTM D3039
Compressive Strength	≥ 700 MPa	ASTM D695
Flexural Strength	≥ 900 MPa	ASTM D790
Flexural Modulus	≥ 65 GPa	ASTM D790
Interlaminar Shear Strength	≥ 60 MPa	ASTM D2344
Coefficient of Thermal Expansion	≈ 0 × 10 ^{- 6} /° C (in- plane)	ASTM E228
Service Temperature Range	-40 ° C to +120 ° C (continuous) Short- term to 150 ° C	Dependent on resin system
Surface Finish	Natural matte / Glossy clear coat	UV- resistant option
Fire Resistance (Optional)	UL 94 V- 0 resin system	For electronics & safety- critical
Electrical Conductivity	Conductive (in- plane) / Insulating (through thickness)	EMI/RFI shielding
Moisture Absorption	< 0.1% (24h immersion)	ASTM D570
Machinability	CNC turning, drilling, cut-off	Dust control & PPE required
Certifications	ISO 9001, RoHS, REACH, MSDS	Third- party test reports available
Typical Applications	Precision shafts, robotic linkages, UAV booms, medical devices	High stiffness- to- weight and tight tolerances required