

Property	Specification / Typical Value	Standard / Notes
Product Name	Carbon Fiber Square Rod	Solid square- section pultruded rod
Material Composition	100% Carbon Fiber (T300 / T700) + Epoxy Resin	Aerospace- grade prepreg or wet- lay
Fiber Orientation	Unidirectional core + optional 3K twill outer layer	Tailorable for strength or appearance
Cross- Section Size (Width × Height)	5 × 5 mm - 50 × 50 mm (increments of 0.1 mm)	Custom sizes available
Length	Up to 3000 mm continuous	Cut- to- length service
Dimensional Tolerance	± 0.1 mm	ISO 2768- m (general tolerances)
Straightness	≤ 0.2 mm/m	ISO 5286- 2 (pultruded FRP tolerance)
Density	1.55 g/cm ³	ASTM D792
Tensile Strength (Longitudinal)	≥ 1000 MPa	ASTM D3039 (unidirectional)
Tensile Modulus	≥ 70 GPa	ASTM D3039
Compressive Strength	≥ 600 MPa	ASTM D695
Flexural Strength	≥ 800 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
Surface Finish	Natural matte / Glossy clear coat	UV- resistant option
Fire Resistance (Optional)	UL 94 V- 0 resin system	For electronics or safety- critical applications
Electrical Conductivity	Conductive (in- plane) / Insulating (through thickness)	EMI/RFI shielding uses
Moisture Absorption	< 0.1 % (24 h immersion)	ASTM D570
Certifications	ISO 9001, RoHS, REACH, MSDS	Third- party test reports available
Applications	Robotics linkages, UAV booms, precision shafts, medical devices	Where high stiffness- to- weight and tight tolerance matter