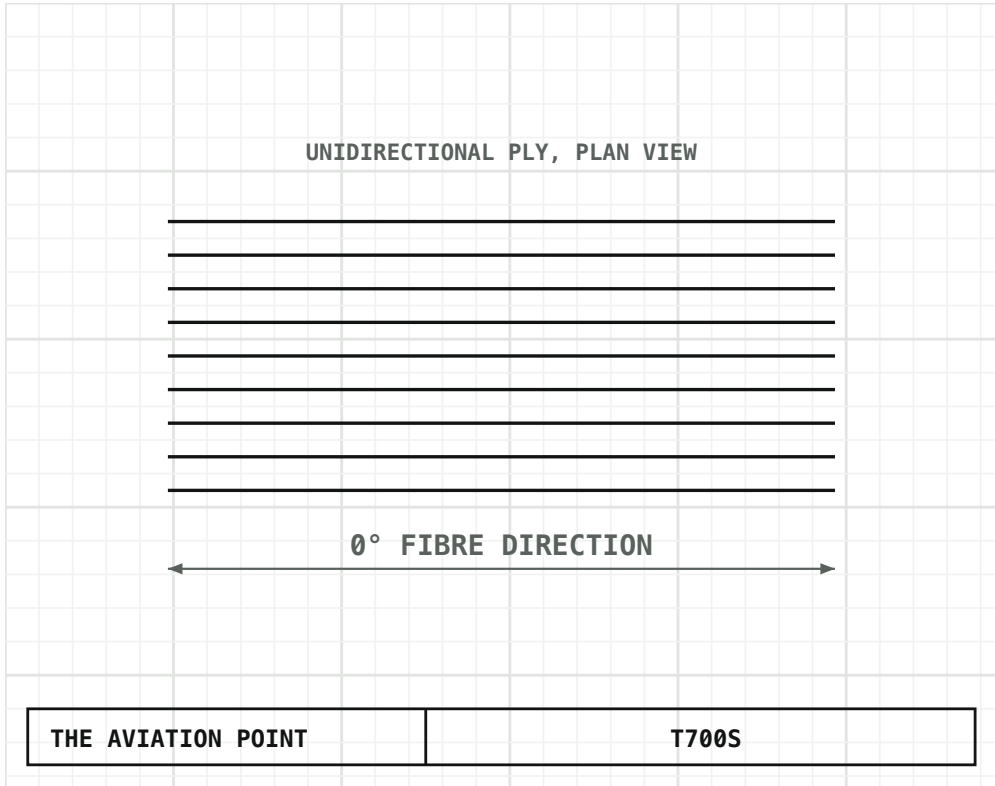
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The Aviation Point

Toray T700S — standard modulus carbon fiber

Standard modulus carbon sits near 230 GPa (33.4 Msi) at 4,900 MPa (711 ksi): about three times the stiffness of glass and a quarter the density of steel.



Schematic

Designation

Item	Value
Designation	Toray T700S
Class	Composites
Type	standard modulus carbon fiber

Toray T700S fiber properties

Property	English	Metric	Method
Tensile strength	711 ksi	4,900 MPa	TY-030B-01
Tensile modulus	33.4 Msi	230 GPa	TY-030B-01
Strain at failure	2.1%	2.1%	TY-030B-01
Density	0.065 lb/in³ (converted)	1.80 g/cm³	TY-030B-02
Filament diameter	0.00028 in (converted)	7 µm	—
Yield, 12K tow	0.00054 lb/in (converted)	800 g/1000 m	TY-030B-03
CTE, axial	-0.38 × 10⁻⁶ /°C	-0.38 × 10⁻⁶ /°C	—

Toray T700S data sheet, lot averages, "for reference purposes only" and "not intended for specification purposes". Conversions by The Aviation Point.

Same fiber in an epoxy laminate (unidirectional, 60% fiber volume)

Property	English	Metric
Tensile strength	415 ksi	2,860 MPa
Tensile modulus	19 Msi	134 GPa
Compressive strength	210 ksi	1,450 MPa
Flexural strength	245 ksi	1,690 MPa
Interlaminar shear (ILSS)	13 ksi	86.9 MPa
90° tensile strength	12 ksi	81 MPa

Normalised to 60% fiber volume, cured with epoxy at 130 °C (266 °F). The laminate gets about 58% of the fiber strength (2,860 of 4,900 MPa), and the 90° tensile strength is only about 3% of the 0° value (81 of 2,860 MPa): the fiber carries the load, the resin does not.

Notes

- **Fiber data are not laminate allowables.** The repair uses the fabric, resin and ply schedule in the SRM.
- **Lot averages.** Toray says the data are not for specification.
- **Not for aluminium contact.** Carbon is cathodic: isolate it per the SRM.

SOURCES · Toray Composite Materials America, TORAYCA T700S Standard Modulus Carbon Fiber Data Sheet · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7

SCAN · OPEN THIS DATA SHEET
theaviationpoint.com/parts/materials/t700s/

Reference data. The aircraft manufacturer's documentation (SRM / IPC) takes precedence.