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Unidirectional Carbon Tape

In a unidirectional (UD) ply every fiber runs the same way.

Strength along and across the fiber (Toray T700S/epoxy, 60% fiber volume)

Direction	Tensile strength	Tensile modulus	Ratio to 0° strength
0° (along fiber)	415 ksi (2,860 MPa)	19 Msi (134 GPa)	100%
90° (across fiber)	12 ksi (81 MPa)	—	about 3% (calculated)
In-plane shear	20 ksi (136 MPa)	—	about 5% (calculated)

Carbon tape prepreg (HexPly 8552)

Property	Carbon tapes
Resin content	33-38%
Flow	10-22%
Volatiles	1.0% max
Gel time at 350 °F	12-22 min

Key points

- **Ratios are for one fiber and resin pair.**
- **Not a ply design.** The SRM gives plies, angles and cure.

SOURCES · Toray Composite Materials America, TORAYCA T700S Standard Modulus Carbon Fiber Data Sheet · Toray Composite Materials America, TORAYCA T800S Intermediate Modulus Carbon Fiber Data Sheet · Hexcel HexPly 8552 Product Data Sheet · FAA-H-8083-31B, AMT Handbook — Airframe, Volume 1, Chapter 7

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Educational reference only, not approved data. Always consult the applicable SRM, AMM, or AC 43.13-1B and your certifying authority.

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