

Materials used in RC Gliders

Please make a table showing the average weight/m³ and tensile, bending, sheer breaking forces for each material you listed above.

Below is a practical table with **typical** values for common model-glider materials. Strength figures vary a lot by grade, orientation, layup, and manufacturer, so I've used representative ranges where exact "average" values are not universal.

Material	Typical density (kg/m ³)	Tensile strength	Bending strength	Shear strength
Balsa wood	120–220, commonly around 160	~7.5–18 MPa, depending on grade	~15–30 MPa, highly grade-dependent	~1.9–5.6 MPa
Plywood	400–700, often ~500–600 for many structural sheets	~25–50 MPa, species and veneer layup vary	~30–70 MPa, varies strongly with panel type	~3–10 MPa, depending on grade and adhesive
Foam plastics, EPS/XPS type	~25–45 for XPS, ~18–20 for low-density EPS examples	~0.11–0.70 MPa for EPS/XPS examples	Very low; often not used as a primary load path	Very low; usually core material only
Plastic parts, ABS/nylon-	~1000–1200	~30–80 MPa	~40–100	~20–60 MPa

Material	Typical density (kg/m³)	Tensile strength	Bending strength	Shear strength
type			MPa	
Light metals, aluminum/titanium/steel hardware	~2700 for aluminum, ~4500 for titanium, ~7850 for steel	Aluminum ~90–600 MPa, titanium ~900 MPa+, steel much higher	Aluminum ~100–500 MPa, titanium ~800 MPa+, steel higher	Aluminum ~50–350 MPa, titanium ~500 MPa+, steel higher
Carbon fiber composites	~1500–2000 for fibers/composites	~3500 MPa+ for CFRP can be typical in strong laminates	Often ~500–1500 MPa, layup dependent	Often ~50–150 MPa, resin and weave dependent
Fiberglass composites	~1800–2000	~300–1000 MPa	~300–1200 MPa	~40–120 MPa
Aramid/Kevlar composites	~1400–1500	~1400–3600 MPa	~200–800 MPa	~40–120 MPa
Adhesives and resins, epoxy/CA systems	~1100–1300	~20–80 MPa	~30–100 MPa	~10–40 MPa

Notes – Perplexity.ai

- For **high-performance RC gliders**, the most important structural materials are usually **carbon fiber composites, fiberglass composites, balsa, and foam cores**.
- **Foam and plastics** are often used as cores or accessory parts rather than primary load-bearing structure.
- The exact strength of composites depends heavily on fiber orientation, resin content, and manufacturing quality, so published numbers can differ a lot between products.

If you want, I can turn this into a cleaner **RC-glider-focused table** with just the materials most commonly used in wings, fuselages, and control surfaces.

Follow-ups

Why lab-measured material properties often fail to predict long-term performance in real-world construction projects

Deep research

Yes please create a table focusing on wings and fuselages

Can you make the table include only materials for control surfaces

Yes focus on materials for high-stress areas like wing spars

Actually could you add weight-to-strength ratios to that table

Pro

Free preview of advanced search enabled.