



Pultrusions vs. Aluminum

COMPARE!

Pultruded Fiberglass Structural Shapes

Aluminum Extruded Shapes

Corrosion Resistance

Superior resistance to a broad range of chemicals. Surfacing veil and UV additives improve weatherability.

Can cause galvanic corrosion. Corrosion resistance can be increased through anodizing or other coatings.

Weight

Very lightweight - about 70% the weight of aluminum on a density basis.

Lightweight - about 1/3 that of copper or steel.

Electrical Conductivity

Non-conductive - high dielectric capability.

Conducts electricity - grounding potential.

Thermal Conductivity

Insulates - low thermal conductivity, 4 Btu/ft²/hr/°F/in; low thermal coefficient of expansion 4.4 x 10⁻⁶ in/in/°F

Heat conductor - high thermal conductivity. 150 Btu/ft²/hr/°F/in; thermal coefficient of expansion 11-13 x 10⁻⁶ in/in/°F

Strength

Ultimate flexural strength (Fu)
LW = 30 ksi.
CW = 10 ksi.
Pultruded fiberglass has 86% of the yield strength of aluminum and is pound-for-pound stronger than aluminum in the lengthwise direction.

Flexural strength (Fu) 35 ksi.
Homogeneous material

Finishing and Color

Pigments added to the resin provide color throughout the part. Special colors available. Composite design can be customized for required finishes.

Silver color. Other colors require prefinishes, anodic coatings and paints. Mechanical, chemical and electroplated finishes can be applied.

EMI/RFI Transparency

Transparent to radio waves, EMI/RFI transmissions, used for radar and antennae enclosures and supports.

Highly reflective.

Fabrication

Easy field fabrication with simple carpenter tools - utilizes adhesive bonding and/or mechanical joining. No torches or welding.

Good machinability - welding, brazing, soldering or mechanical joining.

Cost

Slightly higher tooling costs; price per lineal foot marginally higher.

Extrusion tooling is relatively inexpensive. Part price comparable or slightly lower.

Impact Resistance

Will not permanently deform under impact.

Easily deforms under impact.