



Aluminum Extrusions vs. Molded Plastic, Wood, And PVC

Property	Aluminum Extrusions	Molded Plastic	Wood	Vinyl (Polyvinyl Chloride)
Strength (Tensile)	Very good mechanical properties.	Wide variation in properties from .08 to .8 tensile strength of aluminum extrusions for glass filled compounds.	Good compressive properties, variable with the species of wood and moisture content.	Low mechanical properties.
Density	Lightweight; about 1/3 that of copper or steel.	Very lightweight; about 60% the weight of aluminum.	Very lightweight. about 1/3 the density of aluminum.	Very lightweight about 60% the density of aluminum.
Strength to Weight Ratio	Very Good.	Low-good.	Low-good.	Low-good.
Corrosion Resistance	Excellent; it can be further increased, along with enhanced appearance, through anodizing or other coatings.	Excellent; choice of compound and color important for weatherability (UV).	Not directly applicable; decomposes in the presence of some acids.	Excellent; high resistance to alkalis and salts but is attacked by organic solvents and strong acids.
Formability	Easily formable and extruded in a wide variety of complex shapes including multi-void hollows. Formable to net shapes, and extrusions provide for the placement of metal where it's needed.	Easily formed or molded into complex shapes.	Poor; cannot be routinely formed.	Easily formed or molded into complex shapes.
Electrical Conductivity	Excellent; on a pound for pound basis, twice as efficient as copper, used in bus bar and electric connector applications.	Poor; used as an insulator, high dielectric capability.	Poor; cannot be used as an electrical conductor Usually cannot be employed as an insulator.	Poor; electrical and thermal insulating characteristics.
Thermal Conductivity	Excellent; ideal for heat exchanger applications.	Poor; low coefficient of thermal (heat) transfer.	Poor.	Poor.
Finishing	A near limitless array of finishes can be applied including mechanical and chemical prefinishes, anodic coatings, paints and electroplated finishes.	Color can be integral with material as well as plated, painted, and hot stamped.	Paint and stain coatings can be employed.	Color can be integral with material.
Recyclability	High scrap value; routinely reprocessed to generate new extrusions.	Routinely reprocessed but loses properties; reprocessed material is added to new stock.	Low scrap value.	Low scrap value routinely reprocessed.
Tooling Economics	Extrusion tooling is relatively inexpensive. Generally, a simple shape will cost only a few hundred dollars. Short lead times for tooling construction.	Tooling is expensive; generally in the thousands of dollars. Long lead times required.	Very inexpensive.	Relatively inexpensive.
Energy Savings	Lightweight aluminum extrusions can offer energy savings for transportation vehicles.	Savings for vehicles, processing, insulation.	In certain applications.	Can offer energy savings in appropriate transportation applications.
Combustibility	Noncombustible; does not emit any toxic fumes when exposed to high temperatures.	Combustible; may emit toxic fumes when exposed to high temperatures.	Combustible; emits toxic fumes while burning.	Combustible. May emit toxic fumes when exposed to high temperatures.

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