PROTOLABS
Manufacturing. Accelerated.

Aluminum 6061-T651/T6

Aluminum 6061 is a versatile and widely used alloy renowned for its excellent mechanical properties and weldability. The "T6" and "T651" designations refer to specific tempering processes that enhance its strength and stress relief capabilities. Both variations of Aluminum 6061 are highly sought after in industries such as aerospace, automotive, marine, and general manufacturing due to their combination of strength, machinability, and corrosion resistance.

Applications

Typical applications consist of aircraft and aerospace parts, appliance fittings, automotive parts, brackets, couplings, electrical fittings and connectors, hinge pins, housing, hydraulic pistons, structural siding, and valves.

Key Product Benefits

- High Corrosion Resistance
- Cost Effective
- Enhanced Strength and Stress Relief
- Appearance After Anodizing
- Excellent Machinability
- Electrical Conductivity

Properties

Property	Value (Imperial)	Value (Metric)
Ultimate Tensile Strength	45 ksi	310 MPa
Yield Stress	40 ksi	276 MPa
Elongation	17%	17%
Brinell Hardness	95	95
Ultimate Shearing Strength	30 ksi	207 MPa
Endurance Limit – R.R. Moore Type	14 ksi	97 MPa
Modulus of Elasticity	10.0 ksi x 10^3	68.3 GPa
Nominal Density (68°F/20°C)	0.098 lb/in^3	2.70 Mg/m^3
Melting Range	1080°F - 1206°F	582°C - 652°C
Specific Heat (212°F/100°C)	0.214 BTU/lb-°F	896 J/kg-°K
Linear Coefficient of Thermal Expansion (68°F - 212°F/20°C - 100°C)	13.1 micro in/in-°F	23.6 micro m/m-°K

Property	Value (Imperial)	Value (Metric)
Volumetric Coefficient of Thermal Expansion (68°F/20°C)	3.93×10^{-5} in³/in³-°F	71×10^{-6} m3/m³-°K
Thermal Conductivity	97 BTU/ft-hr-°F	167 W/m-°K