

6061 aluminum is one of the most versatile heat-treatable aluminum alloys, with good formability and high resistance to corrosion. Containing magnesium and silicon additions, alloy 6061 features medium strength relative to 2000 or 7000 series aluminum alloys. 6061 is one of the most common alloys of aluminum for general-purpose use, and is highly-weldable using MIG or TIG methods. The response to anodization of 6061 aluminum is among the highest in class.

Rolled Alloys stocks wrought 6061 aluminum in the T6511 condition. Extruded Bar is solution heat treated (960-1075°F) and quenched, then stretched a nominal 2% for stress relief purposes before being artificially aged (340-360°F). This combination of solution treatment, water quenching, and artificial aging imparts high strength.

Specifications

UNS: A96061 ASTM: B221 AMS: QQ-A200/8 ASME: SB-221

Chemical Composition, %

	Al	Mg	Si	Cu	Fe	Cr	Zn	Ti	Mn
MIN	*bal	0.80	0.40	0.15	-	0.04	-	-	-
MAX	*bal	1.20	0.80	0.40	0.70	0.35	0.25	0.15	0.15

Physical Properties

 Density: 0.098 lb/in³ at 68°F (20°C) Melting Range: 1080 - 1205°F (582-652°C)

Coefficient* of Thermal Expansion, in/in°F x 10 ⁻⁶	13.1 *Coefficient from 68-212°F (20-100°C)
Thermal Conductivity Btu • ft/ft ² • hr • °F	1160 *77°F (25°C)
Electrical Conductivity, 68°F (20°C), %IACS	43 Equal Volume; 142 Equal Weight

Mechanical Properties

Typical Room Temperature Properties, T6511 Condition

Ultimate Tensile Strength, ksi	0.2% Yield Strength, ksi	Elongation, %	Hardness, Brinell HB
40	37	12	95

*T6511 properties meet T6 requirements

Approximate Tensile Properties, T6511 at Various Temperatures

Temperature, ° F	-320	-112	-18	212	400	600
Ultimate Tensile Strength, ksi	60	49	47	42	19	4.6
0.2% Yield Strength, ksi	47	42	41	38	15	2.7
Elongation, %	22	18	17	18	28	85

Minimum Room Temperature Properties, T6511 Condition

Diameter	Diameter Up to 0.249"	0.250" and over
Ultimate Tensile Strength, ksi	38	38
0.2% Yield Strength, ksi	35	35
Elongation, %	8	10

Features

- Resistance to corrosion; general and stress corrosion cracking
- Excellent welding characteristics
- Response to anodization

Applications

- Automotive
- Marine
- Aircraft Parts
- Chemical Equipment
- Paper and Textile
- Electrical Fittings and Components

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