

# 6063 Aluminum Alloy: Properties

## General Characteristics

Characteristic	Appraisal
Strength	Medium
Corrosion Resistance	Good
Weldability & Brazability	Good
Workability	Good
Machinability	Fair

## Chemical Composition

Element	Minimum %	Maximum %
Magnesium	0.45	0.9
Silicon	0.2	0.6
Iron	No Min	0.35
Copper	No Min	0.1
Manganese	No Min	0.1
Chromium	No Min	0.1
Zinc	No Min	0.1
Titanium	No Min	0.1
Other Elements	No Min	0.05 each, 0.15 in total

## Physical Properties

Property	6063-T5	6063-T6	6063-T832
Density	2.70 g/cc   0.0975 lb/in <sup>3</sup>	2.70 g/cc   0.0975 lb/in <sup>3</sup>	2.70 g/cc   0.0975 lb/in <sup>3</sup>

## Mechanical Properties

Property	6063-T5	6063-T6	6063-T832
Tensile Strength	186 MPa   27000 psi	241 MPa   35000 psi	290 MPa   42000 psi
Yield Strength	145 MPa   21000 psi	214 MPa   31000 psi	269 MPa   39000 psi
Modulus of Elasticity	68.9 GPa   10000 ksi	68.9 GPa   10000 ksi	69.0 GPa   10000 ksi

## Thermal Properties

Property	6063-T5	6063-T6	6063-T832
Coefficient of Thermal Expansion @ 20.0 - 100 °C Temp	21.8 μm/m-°C   12.1 μin/in-°F	21.8 μm/m-°C   12.1 μin/in-°F	21.8 μm/m-°C   12.1 μin/in-°F
Thermal Conductivity	209 W/m-K   1450 BTU-in/hr-ft <sup>2</sup> -°F	200 W/m-K   1390 BTU-in/hr-ft <sup>2</sup> -°F	200 W/m-K   1390 BTU-in/hr-ft <sup>2</sup> -°F