



Effects of Alloying Elements

The properties and characteristics of aluminum, such as density, conductivity, corrosion resistance, finish, mechanical properties, and thermal expansion, are modified by the addition of alloying elements. The resulting effect depends upon the principal alloying elements used, as detailed in the table below.

<i>Wrought Alloy Designation</i>	<i>Major Alloying Elements and Typical Alloy Characteristics</i>
1000 Series	Minimum 99% aluminum High corrosion resistance. Excellent finishability. Easily joined by all methods. Low strength. Poor machinability. Excellent workability. High electrical and thermal conductivity.
2000 Series	Copper High strength. Relatively low corrosion resistance. Excellent machinability. Heat treatable.
3000 Series	Manganese Low to medium strength. Good corrosion resistance. Poor machinability. Good workability.
4000 Series	Silicon Not available as extruded products.
5000 Series	Magnesium Low to moderate strength. Excellent marine corrosion resistance. Very good weldability.
6000 Series	Magnesium & Silicon Most popular extrusion alloy class. Good extrudability. Good strength. Good corrosion resistance. Good machinability. Good weldability. Good formability. Heat treatable.
7000 Series	Zinc Very high strength. Good machinability. Heat treatable.