



## Alloy Numbers

These numbers refer to a specific chemical composition of the aluminum alloy - the "recipe" of the metal. Pure aluminum is not a very useful product in any structural work - aluminum products almost without exception are produced from batches of pure aluminum mixed with a number of alloying elements that have been carefully specified by metallurgists in order to maximize particular characteristics of the finished metal. For example, an aluminum alloy that is easily extruded, may be difficult to machine, or an alloy that machines well, may be difficult to weld, etc. This is why there are so many different products in so many different alloys.

## The Alloys

### Alloy 1100

A low strength but very workable alloy with excellent corrosion resistance. It is not heat treatable. It is easily welded, however it is soft, and spalls when machined.

**1100-O:** Annealed (or "soft", bendable condition)

**1100-H14:** Strain hardened

### Alloy 2011

A free machining, heat treatable alloy, with fair corrosion resistance, but not very easily welded.

**2011-T3:** Heat treated, cold worked and naturally aged

### Alloy 2024

Heat treatable with high strength, good machinability and fair corrosion resistance. It welds very poorly.

**2024-O:** Annealed (or "soft", bendable condition)

**2024-T3:** Heat treated, cold worked and naturally aged

**2024-T351:** Heat treated, cold worked and naturally aged

### Alloy 3003

This alloy is not heat treatable but welds very well and has very good workability. Like alloy 1100 it is somewhat soft and difficult to machine.

**3003-H14:** Strain hardened

**3003-H22:** Strain hardened, partially annealed

### Alloy 5005

Poor machinability, good workability and welds very well. It finishes very well, and offers excellent corrosion resistance.

**5005-H34:** Strain-hardened and stabilized

### Alloy 5052

Strong, not heat treatable, easily welded, with excellent corrosion characteristics.

**5052-O:** Annealed (or "soft", bendable condition)

**5052-H32:** Strain-hardened and stabilized

### **Alloy 5086**

Very strong, not heat treatable, with excellent corrosion resistance and good weldability.

**5086-H116:** Strain-hardened only

**5086-H32:** Strain-hardened and stabilized

**5086-H34:** Strain-hardened and stabilized

### **Alloy 6061**

Heat treatable, easily welded, with very good corrosion resistance and finishing characteristics.

Very commonly used for architectural products

**6061-O:** Annealed (or "soft", bendable condition)

**6061-T4:** Heat treated and naturally aged

**6061-T6:** Heat treated and artificially aged

**6061-T65:** Heat treated and artificially aged

**6061-T6511:** Heat treated and artificially aged

### **Alloy 6063**

This heat treatable is specifically designed for extrusions, very popular for architectural shapes.

**6063-T52:** Cooled from an elevated temperature shaping process and artificially aged

### **Alloy 7050**

High strength, excellent corrosion resistance, heat treatable, and weldable, but has poor workability.

**7050-T7451:** Heat treated, overaged and strengthened

### **Alloy 7075**

Heat treatable, this alloy is the strongest and hardest aluminum alloy. It has good machining characteristics but is not very easily welded nor is it very workable.

**7075-O:** Annealed (or "soft", bendable condition)

**7075-T6:** Heat treated and artificially aged

**7075-T651:** Heat treated and artificially aged

\*To be used as a guideline only