

Aluminum Alloy Numbering

Aluminum alloy numbers are part of a concise, descriptive notation system used throughout the aluminum industry. The first four numbers identify the alloy series and specific alloys. The second set of letters and numbers describe the material's temper, heat treatment and special characteristics.

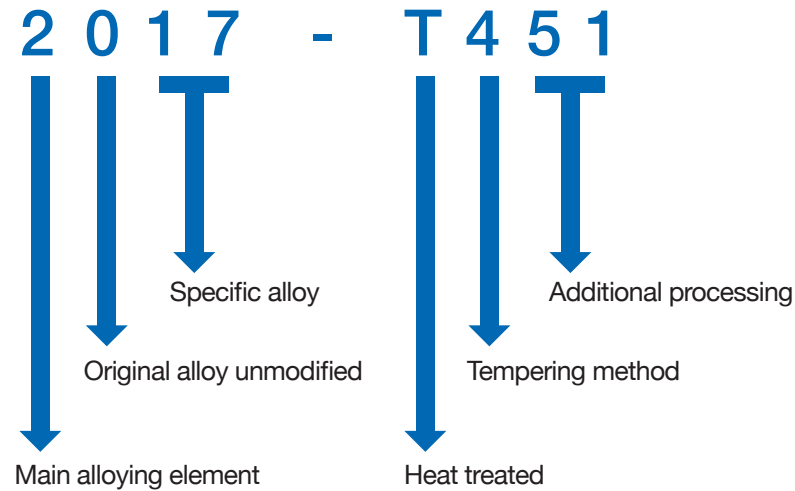
Series	Alloy	Alloy Effect
*1xxx	None - 99% aluminum	Unalloyed aluminum is highly corrosion resistant, low strength, workable, conductive. Non-heat treatable.
**2xxx	Copper	Increased strength, hardness, machinability. Heat treatable.
*3xxx	Manganese	Adds moderate strength, good workability. Non-heat treatable.
*5xxx	Magnesium	Moderate to high strength. Corrosion resistant. Non-heat treatable.
*6xxx	Magnesium and Silicon	Increases strength, formability, corrosion resistance. Heat treatable.
**7xxx	Zinc	Provides greatest strength. Heat treatable.

* Good welding characteristics and resistance to corrosion

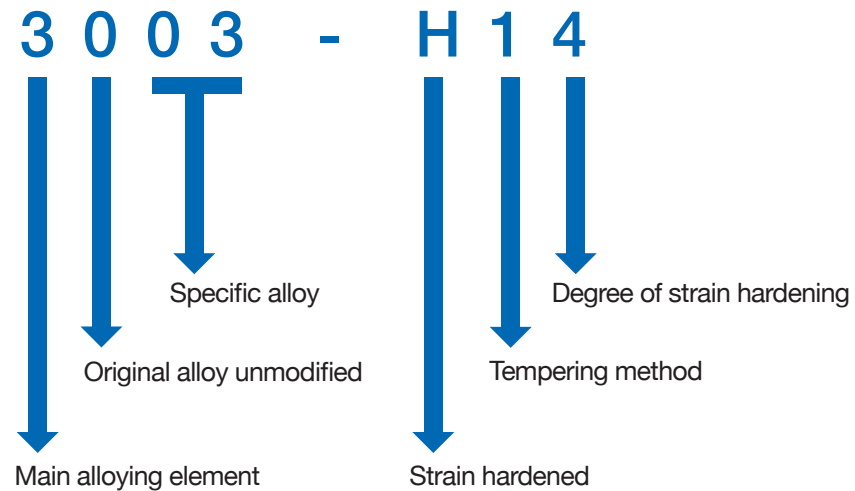
** Superior strength and machinability, lower weldability and resistance to corrosion

Numbering Breakdowns

Heat Treatable Alloys



Non-Heat Treatable Alloys



Applications

Heat Treatable Alloys

2011	Standard screw machine stock.
2017	Screw machine parts.
2024	High-strength aircraft parts, bolts.
6061	Structural applications, welded assemblies.
6063	Extruded parts, window frames, furniture.
7075	High-strength aircraft applications.

Non-Heat Treatable Alloys

1100	Name plates, utensils, high conductivity applications.
3003	Low-strength sheet metal work, drawing, spinning.
5005	Appliances, architectural applications. Good for anodizing.
5052	Tanks, electronic chassis, medium-strength sheet metal parts.
5083	Welded assemblies, tanks. High-strength. Approved to 150° F.
5086	Welded assemblies, tanks. High-strength, corrosion resistant.
5454	Welded assemblies, tanks. ASME approved to 400° F.
5456	Welded assemblies. High-strength.

Tempers

Non-Heat Treatable Alloys

H	Strain Hardened (cold worked) with or without thermal treatment
H 1	Strain Hardened without thermal treatment
H 2	Strain Hardened and partially annealed
H 3	Strain Hardened and stabilized by low temperature heating

A second digit defines the degree of hardness. The following examples apply to H1, H2 and H3

H 12	1/4 hardness
H 14	1/2 hardness
H 16	3/4 hardness
H 18	full hardness
H 111	Strain hardened less than H 11
H 112	Strain hardened enough to establish mechanical property limits
*H 311	Strain hardened less than H 31
*H 321	Strain hardened less than H 32
*H 32, H 324	Fabricated to have acceptable resistance to stress-corrosion cracking

*** Applies to alloys with over 4% magnesium**

F	As fabricated, no control of temper
O	Soft (annealed)

Tempers

Heat Treatable Alloys

T	Heat treated to produce stable tempers as follows:
T 1	Partially solution heat treated and naturally aged
T 3	Solution heat treated and cold worked
T 4	Solution heat treated and naturally aged
T 5	Partially solution heat treated and artificially aged
T 6	Solution heat treated and artificially aged
T 9	Solution heat treated, artificially aged and cold worked
T x 51	Stress relieved by stretching
T x 510	No further straightening after stretching
T x 511	Minor straightening after stretching
O	Soft (annealed)