Ulbrich Wire • 55 Defco Park Road • North Haven, CT 06473 USA • 800-243-1676 • ULBRICHWIRE.com

6000 & 7000 SERIES ALUMINUM ALLOYS

Flat, Shaped and Round Wire

Applications

6000 Series

Window and door parts, Architectural applications, Hardware, Furniture parts, Rings, Fuses, Electrical conductors, Screw machine parts

7000 Series

Fin stock, Applications requiring high strength

Description

6000 Series

Alloys in this group have magnesium and silicon as the major alloying elements. They are moderate strength alloys which is achieved by either heat treating or cold working. For a heat treatable grade they have excellent spot and fusing weldability and can be furnace brazed. They can be easily anodized.

7000 Series

Alloys in this series have the highest strength of all the series. Zinc is the primary alloying addition. These alloys have excellent fatigue properties. In the T6 condition fracture toughness can be inferior to other alloys. Alloys in series can be spot welded but not fusion welded. If corrosion is a concern, these alloys should be anodized, primed, painted or protected with some type of chemical film.

Chemistry Typical

UNS #	ALUMINUM	ADDITIONAL ELEMENTS
A96005	Balance	0.40-0.60 Mg, 0.6-0.9 Si, 0.35 Fe max, 0.10 Cu max, 0.10 Mn max, 0.10 Cr max, 0.10 Zn max, 010 Ti max, 0.05 max other (each), 0.15 max other (total)
A96013	Balance	0.80-1.2 Mg, 0.60-1.0 Si, 0.50 Fe max, 0.60-1.1 Cu, 0.20-0.80 Mn, 0.10 Cr max, 0.25 Zn max, 010 Ti max, 0.05 max other (each), 0.15 max other (total)

UNS #	ALUMINUM	ADDITIONAL ELEMENTS
A96061	Balance	0.8-1.2 Mg, 0.40-0.80 Si, 0.7 Fe max, 0.15-0.40 Cu, 0.15 Mn max, 0.10 Cr max, 0.25 Zn max, 0.15 Ti max, 0.05 max other (each), 0.15 max other (total)
A96063	Balance	0.45-0.9 Mg, 0.20-0.6 Si, 0.35 Fe max, 0.10 Cu max, 0.10 Mn max, 0.10 Cr max, 0.10 Zn max, 0.10 Ti max, 0.05 max other (each), 0.15 max other (total)
A96101	Balance	0.35-0.8 Mg, 0.30-0.70 Si, 0.50 Fe max, 0.10 Cu max, 0.03 Mn max, 0.03 Cr max, 0.10 Zn max, 0.06 B max, 0.03 max other (each), 0.10 max other (total)
A96151	Balance	0.45-0.8 Mg, 0.6-1.2 Si, 1.0 Fe max, 0.35 Cu max, 0.20 Mn max, 0.15-0.35 Cr, 0.25 Zn max, 015 Ti max, 0.05 max other (each), 0.15 max other (total)
A96201	Balance	0.6-0.9 Mg, 0.50-0.95 Si, 0.50 Fe max, 0.10 Cu max, 0.3 Mn max, 0.03 Cr max, 0.10 Zn max, 0.06 B max, 0.03 max other (each), 0.10 max other (total)
A97072	Balance	0.8-1.3 Zn, Si+Fe 0.70 max, 0.10 Cu max, 0.10 Mg max, 0.10 Mn max, 0.05 max other (each), 0.15 max other (total)
A97075	Balance	5.1-6.1 Zn, 2.1-2.9 Mg, 1.2-2.0 Cu, 0.18-0.28 Cr max, 0.30 Mn max, 0.40 Si max, 0.50 Fe max, 0.20 Ti max, 0.05 max other (each), 0.15 max other (total)

** Contact Ulbrich Wire for request regarding the availability of other aluminum alloys.*

Physical Properties

6000 Series

Typical Density: 0.0972 - 0.0975 lb/in^3, 2.69 - 2.70 g/cm^3

Electrical Conductivity: (% IACS at 68°F, annealed): 47 - 57%

Thermal Conductivity: BTU-in/hr-ft^2-°F:
At 68 °F: 1140 - 1510

Mean Coefficient of Thermal Expansion: µin/in-°F:
68 - 572 °F: 13.0 - 14.1

Modulus of Elasticity: KSI
10 x 10^3 in tension

Melting Temperature: 1080 - 1210 °F (582 - 654 °C)

7000 Series

Typical Density: 0.0983 - 0.102 lb/in^3, 2.72 - 2.81 g/cm^3

Electrical Conductivity: (% IACS at 68°F, annealed): 46 - 60%

Thermal Conductivity: BTU-in/hr-ft^2-°F:
At 68 °F: 1200 - 1540

Mean Coefficient of Thermal Expansion: µin/in-°F:
68 - 572 °F: 14.0 - 14.2

Modulus of Elasticity: KSI
9.86 - 10.4 x 10^3 in tension

Melting Temperature: 890 - 1215 °F (477 - 657 °C)

Forms

Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Properties: Temper O
Contact Ulbrich Wire for specific information.

Properties: Tempered
These alloys can be cold worked to various tempers.

** Actual physical and mechanical properties are alloy dependent. Contact Ulbrich Technical Service for alloy specific properties.*

Additional Properties

Corrosion Resistance
Contact Ulbrich Wire for specific information.

Wire Finishes
XC - Extra clean. Annealed or annealed and cold rolled.
Contact Ulbrich Wire with special finish requests.

Heat Treatment
These alloys are hardenable by heat treating and by cold working.

Welding
Contact Ulbrich Wire for specific information.