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

2000 SERIES ALUMINUM ALLOYS

Flat, Shaped and Round Wire

Applications

Gears, Knobs, Clock parts, Fitting, Screws, Compressor Rings, Structural applications, Electrodes, Welding and filler wire

Description

2000 series of alloys are a set of “hard alloys”. The aluminum-copper alloys typically contain between 2 to 10% copper, with smaller additions of other elements. The copper provides substantial increases in strength and facilitates precipitation hardening. The introduction of copper to aluminum can also reduce ductility and corrosion resistance. The susceptibility to solidification cracking of aluminum-copper alloys is increased; consequently, some of these alloys can be the most challenging aluminum alloys to weld. These alloys include some of the highest strength heat treatable aluminum alloys.

Chemistry Typical

UNS #	ALUMINUM	ADDITIONAL ELEMENTS
A92011	Balance	5.0-6.0 Cu, 0.20-06 Pb, 0.70 Fe max, 0.40 Si max, 0.30 Zn max, 0.05 max other (each), 0.15 max other (total)
A92017	Balance	3.5-4.5 Cu, 0.40-1.0 Mg, 0.20-0.80 Si, 0.7 Fe max, 0.4-0.80 Mn max, 0.25 Zn max, 0.15 Ti max, 0.10 Cr max, 0.05 max other (each), 0.15 max other (total)
A92024	Balance	3.8-4.9 Cu, 1.0-1.8 Mg, 0.30-0.9 Mn, 0.5 Si max, 0.50 Fe max, 0.25 Zn max, 0.15 Ti max, 0.10 Cr max, 0.05 max other (each), 0.15 max other (total)
A92048	Balance	2.8-3.8 Cu, 1.2-1.8 Mg, 0.20-0.6 Mn, 0.15 Si max, 0.20 Fe max, 0.25 Zn max, 0.10 Ti max, 0.05 max other (each), 0.15 max other (total)
A92219	Balance	5.8-6.8 Cu, 0.20-0.40 Mn, 0.10-0.25 Zr, 0.10-0.20 Ti, 0.05-.015 V, 0.02 Si max, 0.30 Fe max, 0.02 Mg max, 0.10 Zn max, 0.0008 Be 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

Typical Density: 0.099 - 0.103 lbs/in³, 2.75 - 2.84 g/cm³

Electrical Conductivity: (% IACS at 68°F, annealed): 39-50%

Thermal Conductivity: BTU-in/hr-ft²-°F at 68°F: 1050 - 1340

Mean Coefficient of Thermal Expansion: µin/in-°F:
68 - 572 °F: 13.6 - 14.1

Modulus of Elasticity: KSI
10.2 - 10.6 x 10^3 in tension

Melting Temperature: 935 - 1190 °F (502 - 643 °C)

Forms

Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Properties: Temper O

Ultimate Tensile Strength: 25 KSI min (172 MPa min)
Yield Strength: 10 KSI min (168 MPa min)
Elongation: 12% min

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 cold working and by heat treatment.

Welding

Contact Ulbrich Wire for specific information.