

5000 SERIES ALUMINUM ALLOYS

Flat, Shaped and Round Wire

Applications

Architectural applications, Hardware, Signage, Marine applications, Zippers, Screens, Shielding, Rivets, nails, etc.

Description

Magnesium is one of the most effective and widely used alloying elements for aluminum, and is the principal element in the 5000 series alloys. These are moderate-to high-strength, non-heat-treatable alloys that are readily weldable and have excellent resistance to corrosion, even in marine applications.

Chemistry Typical

UNS #	ALUMINUM	ADDITIONAL ELEMENTS
A95005	Balance	0.50-1.0 Mg, 0.30 Si max, 0.7 Fe max, 0.20 Cu max, 0.20 Mn max, 0.10 Cr max, 0.25 Zn max, 0.05 max other (each), 0.15 max other (total)
A95050	Balance	1.1-1.8 Mg, 0.40 Si max, 0.7 Fe max, 0.20 Cu max, 0.10 Mn max, 0.10 Cr max, 0.25 Zn max, 0.05 max other (each), 0.15 max other (total)
A95052	Balance	2.2-2.8 Mg, 0.25 Si max, 0.40 Fe max, 0.10 Cu max, 0.10 Mn max, 0.15-0.35 Cr, 0.10 Zn max, 0.05 max other (each), 0.15 max other (total)
A95056	Balance	4.5-5.6 Mg, 0.30 Si max, 0.40 Fe max, 0.10 Cu max, 0.05-0.20 Mn, 0.20 Cr max, 0.10 Zn max, 0.05 max other (each), 0.15 max other (total)
A95083	Balance	4.0-4.9 Mg, 0.40 Si max, 0.40 Fe max, 0.10 Cu max, 0.40-1.0 Mn, 0.05-0.25 Cr, 0.25 Zn max, 0.15 Ti max, 0.05 max other (each), 0.15 max other (total)
A95154	Balance	3.1-3.9 Mg, 0.25 Si max, 0.40 Fe max, 0.10 Cu max, 0.10 Mn max, 0.15-0.35 Cr, 0.20 Zn 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.

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Physical Properties

Typical Density: 0.095 - 0.097 lbs/in³, 2.64 - 2.68 g/cm³

Electrical Conductivity: (% IACS at 68°F, annealed): 29-52%

Thermal Conductivity: BTU-in/hr-ft²-°F:

At 68 °F: 810 - 1390

Mean Coefficient of Thermal Expansion: $\mu\text{in/in-}^\circ\text{F}$:

68 - 572 °F: 14.2 - 14.5

Modulus of Elasticity: KSI

10 - 10.3 x 10³ in tension

Melting Temperature: 1055 - 1210 °F (568 - 654 °C)

Forms

Profile, Round, Flat, Square

Mechanical Properties at Room Temperature

Properties: Temper O

Ultimate Tensile Strength: 18 KSI min (124 MPa min)

Yield Strength: 6 KSI min (41.4 MPa min)

Elongation: 24% 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.

Welding

Contact Ulbrich Wire for specific information.

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