

Description

Alloy **1100** is an aluminium-based alloy in the "commercially pure" wrought family (1000 or 1xxx series). With a minimum of 99.0% aluminum, it is the most heavily alloyed of the 1000 series. It is also the mechanically strongest alloy in the series, and is the only 1000-series alloy commonly used in rivets. At the same time, it keeps the benefits of being relatively lightly alloyed (compared to other series), such as high electrical conductivity, thermal conductivity, corrosion resistance, and workability. It can be strengthened by cold working, but not by heat treatment.

Welding

Readily welded by all conventional methods. Use AL 1100 consumable electrodes and filler wire.

Typical Applications

Commonly used in spun hollowware, fin stock, heat exchanger fins, dials and name plates, cooking utensils, decorative parts, giftware, rivets and reflectors, and in sheet metal work.

Forging

The alloy may be hot forged with no difficulty.

Cold Working

This is an ideal alloy for cold working because of the good ductility in the annealed temper. It can be cold formed by bending, drawing or spinning.

Hot Working

Hot working is readily accomplished if necessary.

Annealing

Annealing, which may be necessary after severe cold working, is done at 650°F (≈ 343.3°C) for sufficient time to allow for thorough heating and then air cooled.

Composition Specification (%)

(single values are maxima except as noted)

Alloy	Mn	Cu	Fe + Si	Zn	Al	Others	
						Each	Total
1100	0.05	0.05 - 0.20	0.95	0.10	99 (min)	0.05	0.15

Physical Properties

(typical values)

Alloy	Density (lbs/cubic in.) (1)	Melting Range Approximate y (°F) (2)(3)	Average Coefficient of Thermal Expansion 68-212°F	Thermal Conductivity (btu-in/ft2hr °F)	Electrical Conductivity at 68°F (Percent of International Annealed Copper Standard)		Electrical Resistivity at 68°F (Ohms- Cir.Mil/Foot)
					Equal Volume	Equal Mass	
1100	0.098	1190-1215	13.1	1520	59	194	18

(1) Coefficient to be multiplied by 10-6. Example 12.2 x 10-6 = 0.0000122.

(2) Melting ranges shown apply to wrought products of 1/4 inch thickness or greater.

(3) Based on typical composition of the indicated alloys.

Mechanical Property Specification

(single values are minima except as noted)

Alloy & Temper		Tensile Strength (MPa)	Yield Strength 0.2% Proof (MPa)min	Elongation (% in 50mm) minimum for sheet or plate thicknesses shown	Brinell Hardness
1100	O	≥ 75	≥ 35	12	—
1100	H24				—
1100	H112				30 - 45

Limitation of Liability

* This data is indicative only and as such is not to be relied upon in place of the full specification. In particular, mechanical property requirements vary widely with temper, product and product dimensions. All information is based on our present knowledge and is given in good faith. No liability will be accepted by the Company in respect of any action taken by any third party in reliance thereon.

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