



Aluminum 3003

Chemistry Data

Aluminum	Balance
Copper	0.05 - 0.2
Iron	0.7 max
Manganese	1 - 1.5
Remainder Each	0.05 max
Remainder Total	0.15 max
Silicon	0.6 max
Zinc	0.1 max

General Information

Principal Design Information

AL 3003 is an alloy with very good corrosion resistance and moderate strength. It is not heat treatable and develops strengthening from cold working only.

Applications

Commonly used in chemical equipment, ductwork, and in general sheet metal work. 3003 is also used in the manufacture of cooking utensils, pressure vessels, builder's hardware, eyelet stock, ice cube trays, garage doors, awning slats, refrigerator panels, gas lines, gasoline tanks, heat exchangers, drawn and spun parts, and storage tanks.

Machinability

The AL 3003 alloy is readily machined and is considered as having good machinability for the aluminum alloys,.

Forming

This alloy is readily formed by either conventional cold working or hot working.

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General Information (cont'd)

Welding

Welding is readily accomplished by means of conventional welding methods. Filler rod is generally AL 1100 alloy. When welding AL 3003 to other aluminum alloys, such as 5052, 6061 or 6062 the filler rod should be AL 4043.

Heat Treatment

AL 3003 is a non-heat treatable alloy.

Forging

The alloy may be hot forged in the range of 950 F to 500 F.

Hot Working

The hot working range (as for forging) is 950 F to 500 F. In that range the alloy is easily hot worked.

Cold Working

AL 3003 alloy is readily cold worked by all conventional methods.

Annealing

Annealing, during or following cold working, is done at 775 F, allowing adequate time for thorough heating, followed by air cooling.

Aging

Not applicable to this alloy.

Tempering

Not applicable to this alloy.



General Information (cont'd)

Hardening

Hardens as a result of cold working only.

Other Physical Properties

Electrical conductivity is 40% of copper.

Other Mechanical Properties

Shear strength for O temper (annealed) is 11 ksi. For H14 (cold worked) it is 14 ksi.

Physical Data

Density (lb / cu. in.)	0.099
Specific Gravity	2.73
Melting Point (Deg F)	1190
Modulus of Elasticity Tension	11.4
Modulus of Elasticity Torsion	3.8

Mechanical Data

Form	Condition	Temper	Tensile Strength	Yield Strength	Elongation	Reduction of Area	Sharpy	Brinnell
Sheet	H12	68	19	18	10	20		35
Sheet	H14	-320	35	25	30			
Sheet	H14	-112	24	22	18			
Sheet	H14	-18	22	21	16			
Sheet	H14	68	22	21	8	16		40
Sheet	H14	75	22	21	16			
Sheet	H14	212	21	19	16			
Sheet	H14	300	18	16	16			
Sheet	H14	400	14	9	20			
Sheet	H14	500	7.5	4	60			



Aluminum 3003 Specification Sheet

Mechanical Data (cont'd)

Form	Condition	Temper	Tensile Strength	Yield Strength	Elongation	Reduction of Area	Sharpy	Brinnell
Sheet	H14	600	4	2.4	70			
Sheet	H14	700	2.8	1.8	70			
Sheet	H16	68	26	25	5	14		47
Sheet	H18	-320	41	33	23			
Sheet	H18	-112	32	29	11			
Sheet	H18	-18	30	28	10			
Sheet	H18	68	29	27	4	10		55
Sheet	H18	75	29	27	10			
Sheet	H18	212	26	21	10			
Sheet	H18	300	23	16	11			
Sheet	H18	400	14	9	18			
Sheet	H18	500	7.5	4	60			
Sheet	H18	600	4	2.4	70			
Sheet	H18	700	2.8	1.8	70			
Sheet	O	-320	33	8.5	46			
Sheet	O	-112	20	7	42			
Sheet	O	-18	17	6.5	41			
Sheet	O	68	16	6	30	40	28	
Sheet	O	75	16	6	40			
Sheet	O	212	13	5.5	43			
Sheet	O	300	11	5	47			
Sheet	O	400	8.5	4.3	60			
Sheet	O	500	6	3.4	65			
Sheet	O	600	4	2.4	70			
Sheet	O	700	2.8	1.8	70			