



ALLOY DESCRIPTION

Alloy 2014 is most commonly used for applications where high strength is essential. Good fatigue resistance, ductility, corrosion resistance and hardness are its primary characteristics. Strength and forgeability are excellent, machinability is good and weldability is fair.

TYPICAL MECHANICAL PROPERTIES

Temper	Tensile (.500" Dia. Specimen)					Hardness Brinell 500kg 10 mm	Shear		Fatigue		Modulus	
	Ultimate		Yield		Elongation/4D %		Ultimate Shearing Strength	Endurance Limit - R.R. Moore Type	Modulus of Elasticity			
	KSI	MPa	KSI	MPa					KSI	MPa	KSI x 10 ³	Gpa
T4	61	421	37	255	22	105	37	255	20	140	10.5	72.4
T6	68	469	60	414	10	135	41	285	18	125	10.5	72.4

COMPARATIVE CHARACTERISTICS

Temper	Corrosion Resistance		Cold Workability ³	Machinability ³	Anodize Response ³	Brazeability ⁴	Weldability ⁴		
	General ¹	Stress ²					Gas	Arc	Spot
T4									
T6	D	C		B			D	B	B

- Ratings A through E are relative ratings in decreasing order of merit, based on exposures to sodium chloride solution by intermittent spraying or immersion. Alloys with A and B ratings can be used in industrial and seacoast atmospheres without protection. Alloys with C, D and E ratings generally should be protected at least on faying surfaces.
- Stress-corrosion cracking ratings are based on service experience and laboratory tests of specimens exposed to the 3.5% sodium chloride alternate immersion test.
 - A= No known instance of failure in service or in laboratory tests.
 - B= No known instance of failure in service; limited failures in laboratory tests of short transverse specimens.
 - C= Service failures with sustained tension stress acting in short transverse direction relative to grain structure; limited failures in laboratory tests of long transverse specimens.
 - D= Limited service failures with sustained longitudinal or long transverse.
- Ratings A through D for Workability (cold), A through E for Machinability and A through C for Anodize Response, are relative ratings in decreasing order of merit.
- Ratings A through D for Weldability and Brazeability are relative ratings defined as follows:
 - A= Generally weldable by all commercial procedures and methods.
 - B= Weldable with special techniques or for specific applications that justify preliminary trials or testing to develop welding procedure and weld performance.
 - C= Limited weldability because of crack sensitivity or loss in resistance to corrosion and mechanical properties.
 - D= No commonly used welding methods have been developed.

Continued Page 2 of 2

APPLICABLE SPECIFICATIONS

Cold Finished	Extruded

CHEMICAL COMPOSITION LIMITS

Weight %	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Others	
									Each	Total
Minimum	0.50	-	3.9	0.40	0.20	-	-	-	-	-
Maximum	1.2	0.7	5.0	1.2	0.8	0.10	0.25	0.15	0.05	0.15

TYPICAL PHYSICAL PROPERTIES

Characteristic		English	Metric
Nominal Density (68 °F/20 °C)		0.101 lbs./in. ³	2.80 Mg/m ³
Melting Range		945 °F - 1180 °F	507 °C - 638 °C
Specific Heat (212 °F/100 °C)			
Coefficient of Thermal Expansion	Linear 68 °F-212 °F 20 °C-100 °C	11.5 micro in./in.-°F	20.8 micro m/m -°K
	Volumetric 68 °F/20 °C	x 10 ⁻⁵ in. ³ /in. ³ -°F	x 10 ⁻⁶ m ³ /m ³ -°K
	T4	77.4 BTU/ft. - hr. - °F	134 W/m - °K
	T6	89.5 BTU/ft. - hr. - °F	155 W/m - °K
Electrical Conductivity (68 °F/20 °C)	Equal Volume	T4	34% IACS
		T6	40% IACS
	Equal Weight	T4	% IACS
		T6	% IACS