

**ALLOY DESCRIPTION**

2618 is a high strength alloy used for pistons and rotating aircraft parts. Works well in higher temperature applications.

**TYPICAL MECHANICAL PROPERTIES**

Temper	Gage Length		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
T61	<102	<4	58	400	45	310	4	115	38	260	18	125		

**COMPARATIVE CHARACTERISTICS**

Temper	Corrosion Resistance		Cold Workability <sup>3</sup>	Machinability <sup>3</sup>	Anodize Response <sup>3</sup>	Brazeability <sup>4</sup>	Weldability <sup>4</sup>		
	General <sup>1</sup>	Stress <sup>2</sup>					Gas	Arc	Spot
T6	D	C	...	D	...	D	D	C	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.

\* DATA NOT AVAILABLE

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**CHEMICAL COMPOSITION LIMITS**

Weight %	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	
										Each	Total
Nominal	0.10 - 0.25	0.9 - 1.3	1.9 - 2.7	...	1.3 - 1.8	...	0.9 - 1.2	0.1	0.04 - 0.10	0.05	0.15

**TYPICAL PHYSICAL PROPERTIES**

Characteristic			English	Metric
Nominal Density (68 °F/20 °C)			0.100 lbs./in. <sup>3</sup>	2.76 g/cm <sup>3</sup>
Melting Range			1020 °F - 1180 °F	549 °C - 638 °C
Specific Heat (212 °F/100 °C)			-21 BTU/lb. - °F	875 J/kg - °K
Coefficient of Thermal Expansion	Linear 68 °F-212 °F 20 °C-100 °C		11.4 micro in./in.-°F	20.6 micro m/m -°K
	Volumetric 68 °F/20 °C		3.6 x 10 <sup>-5</sup> in. <sup>3</sup> /in. <sup>3</sup> -°F	6.45 x 10 <sup>-5</sup> m <sup>3</sup> /m <sup>3</sup> -°K
Thermal Conductivity (68 °F/20 °C)	T61		84 BTU/ft. - hr. - °F	146 W/m - °K
Electrical Conductivity (68 °F/20 °C)	Equal Volume	T61	37 % IACS	37 % IACS

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