

ALLOY DESCRIPTION

6041 is a lead-free alternative to 6262. The alloy offers very good machinability along with good corrosion resistance. It also has excellent coating acceptance (anodize response). It can be used in place of 6262. Physical and mechanical properties are equivalent to 6262.

TYPICAL MECHANICAL PROPERTIES

Temper	Tensile (.500" Dia. Specimen)					Hardness Rockwell "E" 100kg 1/16" Ball	Shear		Fatigue*	
	Ultimate		Yield		Elongation/4D %		Ultimate Shearing Strength		Endurance Limit – R.R. Moore Type	
	KSI	MPa	KSI	MPa			KSI	MPa	KSI	MPa
T6, T6511	55.0	380	50.0	345	15	95	-	-	-	-

*5x10E4 cycles of reversed stress

MINIMUM MECHANICAL PROPERTIES

Temper	Tensile (.500" Dia. Specimen)					Hardness Rockwell "E" 100kg 1/16" Ball	Shear		Fatigue*	
	Ultimate		Yield		Elongation/4D %		Ultimate Shearing Strength		Endurance Limit – R.R. Moore Type	
	KSI	MPa	KSI	MPa			KSI	MPa	KSI	MPa
T6, T6511	44.0	300	40.0	275	12	92	-	-	-	-

COMPARATIVE CHARACTERISTICS

Temper	Corrosion Resistance		Cold Workability ³	Machinability ³	Anodize Response ³	Brazeability ⁴	Weldability ⁴		
	General ¹	Stress ²					Gas	Arc	Spot
T6, T6511	B	A	C	B	A	-	-	-	-

- 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 applied stress.
- 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 procedures 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

	Extruded
	ASTM B221, B807

CHEMICAL COMPOSITION LIMITS

Weight %	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Sn	Bi	Others	
											Each	Total
Minimum	0.50	0.15	0.15	0.05	0.80	0.05	-	-	0.35	0.30	-	-
Maximum	0.90	0.70	0.60	0.20	1.20	0.15	0.25	0.15	1.20	0.90	0.05	0.15

TYPICAL PHYSICAL PROPERTIES

Characteristic		English	Metric
Nominal Density (68 °F/20 °C)		0.099 lbs./in. ³	2.73 Mg/m ³
Melting Range		1078 °F - 1204 °F	582 °C - 652 °C
Specific Heat (212 °F/100 °C)		-	-
Coefficient of Thermal Expansion	Linear 68 °F-212 °F 20 °C-100 °C	13.0 micro in./in.-°F	23.4 micro m/m-°K
	Volumetric 68 °F/20 °C	3.78 x 10 ⁻⁵ in. ³ /in. ³ -°F	68 x 10 ⁻⁶ m ³ /m ³ -°K
Thermal Conductivity (68 °F/20 °C)		99.1 BTU/ft. - hr. - °F	172 W/m - °K
Electrical Conductivity (68 °F/20 °C)	Equal Volume		44% IACS
	Equal Weight		145% IACS