

# EXTRUDED STANDARD SHAPES

## ALLOY 6063

### ALLOY DESCRIPTION

Magnesium/Silicon alloy. One of the most popular of the Heat Treatable alloy group. Excellent corrosion resistance and weldability. Finer grain structure than 6061 provides more aesthetically pleasing anodize results. Frequently used for architectural applications.

### TYPICAL MECHANICAL PROPERTIES

Temper	Tensile (.0625" 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 <sup>3</sup>	Gpa	
O	13	90	7	50		25	10	70	8	55	10.0	69
T4	25	170	13	90	22						10.0	69
T5	27	185	21	145	12	60	17	115	10	70	10.0	69
T52												
T6	35	240	31	215	12	73	22	150	10	70	10.0	69

### 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
O	A	A	B	E	A	A	A	A	B
T4	A	A	B	D	A	A	A	A	A
T6	A	A	C	C	A	A	A	A	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 on 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 areas.
- 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.