

ALLOY DESCRIPTION ¹

Silicon/Manganese/Magnesium alloy. Products include Extruded Tube, Rod, Bar and Profiles. Typically used in Structural applications requiring higher mechanical properties and good corrosion resistance.

¹ Alloy subject to cast lot quantity restriction

MINIMUM 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	MPa	KSI x 10 ³
T4	32.0	220	19	130	18	10.0	6.9
T6	47	324	42	289	12	96	31	215	13	90	10.0	69

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	A	...	B	C	*	A	A	A	A
T6	B	A	C	C	*	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 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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APPLICABLE SPECIFICATIONS

Cold Finished	Extruded
ASTM B211	ASTM B221
TBA	AMS-QQA-20013
ASME SB211	ASME-SB221

CHEMICAL COMPOSITION LIMITS

Weight %	Si	Fe	Cu	Mn	Mg	Cr	Ni	Zn	Ti	Others	
										Each	Total
Nominal	0.7 – 1.3	0.50	0.10	0.40 -0.8	0.6- 1.2	.25	...	0.20	0.10	0.05	0.15

TYPICAL PHYSICAL PROPERTIES

Characteristic		English	Metric
Nominal Density (68 °F/20 °C)		0.098	2.70 g/cm ³
Melting Range		1030 °F - 1200 °F	575 °C - 650 °C
Specific Heat (212 °F/100 °C)			
Coefficient of Thermal Expansion	Linear 68 °F-212 °F 20 °C-100 °C	13	23.0
	Volumetric 68 °F/20 °C		
Thermal Conductivity (68 °F/20 °C)	T4	...	W/m x K
	T6	1220	172 W/m x K
Electrical Conductivity (68 °F/20 °C)	Equal Volume	T4	...
		T6	44
	Equal Weight	T4	...
		T6	145

* DATA NOT AVAILABLE