

ALLOY DESCRIPTION

401C is a lead-free machining alloy that offers very good machinability along with good corrosion resistance. It can be extruded in a wide variety of shapes and has machinability similar to A356.

TYPICAL MECHANICAL PROPERTIES

Temper	Tensile (.500" Dia. Specimen)					Hardness Rockwell E	Shear		Fatigue*	
	Ultimate		Yield		Elongation/4D %		Ultimate Shearing Strength		Endurance Limit – R.R. Moore Type	
	KSI	MPa	KSI	MPa			KSI	MPa	KSI	MPa
T6	50	345	45	310	11	93	-	-	-	-
	-								-	-

*5x10E4 cycles of reversed stress

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	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
- 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. Anodize color will be grey.
- 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.

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APPLICABLE SPECIFICATIONS

Cold Finished	Extruded
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CHEMICAL COMPOSITION LIMITS

									Others ¹	
Weight %	Si	Fe	Cu	Mn	Mg	Cr	Zn	Ti	Each	Total
Minimum	5.5	-	-	-	0.30	-	-	-	-	-
Maximum	8.0	0.40	0.30	0.15	0.7	-	0.25	0.20	0.05	0.15