



# Aluminum Alloy Mechanical Properties Specifications Rev. 2017 - Cabiran (1991) Ltd.

Alloy Type	Applicable Specification	Chemical Composition							Mechanical Properties (min.)			Castability	Notes		
		Al	Si	Cu	Mg	Fe	Ti	Others	Temper	U.T.S ksi {MPa}	Y.P ksi {MPa}			Elong. %	
A356	AMS-A-21180; AMS 4218	Balance	6.5-7.5	0.20 Max.	0.25-0.45	0.20 Max.	0.2 Max.	Zn - 0.10 Mn - 0.10	T6	40 {275}	30 {206}	3	Excellent	Electronics and thin parts	
	Cabiran Capability									42 {290}	32 {220}	5		Separate Test Bars	
										40 {275}	30 {206}	3		Integral Test Bars	
	Cabiran Exceptions														
A357	AMS-A-21180; AMS 4219	Balance	6.5-7.5	0.20 Max.	0.40-0.7	0.20 Max.	0.04-0.20	Zn - 0.10 Mn - 0.10 Be - Free	T6	45 {310}	35 {241}	3	Excellent	Structural applications, aircraft missile parts and impellers.	
	Cabiran Capability									45 {310}	35 {241}	5		Separate Test Bars	
										41 {282}	32 {221}	5		Integral Test Bars	
										47 {324}	36 {248}	5		Coupon / Cut from part requires high properties	
	Cabiran Exceptions														See below
E357	AMS-A-21180; AMS 4288	Balance	6.5-7.5	-	0.55-0.6	0.10 Max.	0.10-0.20	Mn - 0.10 Be - Free	T6				Excellent	Submersed jet-a fuel pumps, high corrosion resistance, high straight premium castings.	
	Cabiran Capability									45 {310}	36 {248}	3		Integral Test Bars / Coupon	
										51 {352}	42 {290}	5		Separate Test Bars	
	Cabiran Exceptions														
F357	AMS-A-21180; AMS 4289	Balance	6.5-7.5	0.20 Max.	0.40-0.7	0.10 Max.	0.04-0.20	Zn - 0.10 Mn - 0.10 Be - Free	T6	41 {282}	32 {220}	3	Excellent	High straight premium castings, aircraft chassis.	
	Cabiran Capability									41 {282}	32 {220}	3		Separate / Integral Test Bars	
										47 {324}	36 {248}	5		Coupon / Cut from part requires high properties	
	Cabiran Exceptions														See below
C355	AMS-A-21180; AMS 4215	Balance	4.5-5.5	1.0-1.5	0.40-0.6	0.20 Max.	0.20 Max.	Zn - 0.10 Mn - 0.10	T6	37 {255}	30 {206}	2	Excellent	Good hot cracking and corrosion resistance, high straight at elevated temp. Typical uses include valve bodies, aircraft chassis, and engine and machine parts.	
	Cabiran Capability									43 {296}	35 {241}	2-3		Separate Test Bars	
										41 {283}	31 {234}	3		Integral Test Bars	
	Cabiran Exceptions									41 {283}	34 {234}	3		Integral Test Bars	
A201	AMS-A-21180; AMS 4229	Balance	0.05 Max.	4.0-5.0	0.15-0.35	0.10 Max.	0.15-0.35	Mn - 0.20-0.40 Ag - 0.40-1.0	T7	60 {414}	50 {345}	3	Fair	High straight alloy, used typically on close engine parts, high temp operation, high levels of Silver (Ag) for better stability in high corrosive environment.	
	Cabiran Capability									60 {414}	50 {345}	3		Integral / Cut from part Test Bars	
										69 {476}	62 {427}	4		Separate Test Bars	
	Cabiran Exceptions														See below
A203	AMS 4225	Balance	0.20 Max.	4.5-5.5	-	0.30 Max.	0.15-0.25	Ni - 1.3-1.8 Zn - 0.10 Mn - 0.20-0.30 Sb - 0.10-0.40 Sb+Co - 0.6 Ti+Zr - 0.50 Co - 0.10-0.40 Zr - 0.10-0.30	T6	32 {220}	24 {165}	1.5	Fair	Good resistance to stress corrosion cracking. Moderate strength and good stability up to 300°C (600°F)	
	Cabiran Capability									40 {275}	30 {206}	1.5		Separate / Integral Test Bars	
										42 {290}	31 {234}	2-3		Integral / Cut from part Test Bars	
	Cabiran Exceptions														
A205	AMS 4471	Balance	0.10 Max.	4.2-5.0	0.20-0.33	0.08 Max.	3.0-3.85	B - 1.25-1.55 Ag - 0.6-0.9	T7	66 {455}	59 {407}	3-6	Excellent	The strongest cast aluminum alloy currently available. Improved: compositional and mechanical properties, resistance to stress corrosion cracking, properties at elevated temperatures. Elimination of segregation issues in large sections and reduction of shrinkage	
	Cabiran Capability													Separate / Integral / Cut from part Test Bars	
	Cabiran Exceptions														
Controlled solidification consult on Cabiran's capability with engineering															
A201 applications require long development times (2-6 months typically) due to shrink/hot tearing tendency															