

# ALUMINUM-SILICON-MAGNESIUM

ANSI AA NUMBER	356.0				A356.0			
Common Name (Not recommended)								
UNS Designation	A03560				A13560			
<b>COMPOSITION PERCENT</b>	<b>Min</b>	<b>Max</b>			<b>Min</b>	<b>Max</b>		
Silicon (Si)	6.50	7.50			6.50	7.50		
Iron (Fe)		0.60				0.20		
Copper (Cu)		0.25				0.20		
Manganese (Mn)		0.35				0.10		
Magnesium (Mg)	0.20	0.45			0.20	0.45		
Chromium (Cr)								
Nickel (Ni)								
Zinc (Zn)		0.35				0.10		
Titanium (Ti)		0.25				0.20		
Other (Total)		0.15				0.15		
<b>NEAREST APPLICABLE CASTING STANDARDS</b>								
ASTM (B Series)	B26				B26			
SAE (J Series)								
Federal (QQ-C- Series)	601e				601e			
Military (Mil-C- Series)	21180c				21180c			
<b>TYPICAL PROPERTIES</b>	<b>T51</b>	<b>T6</b>	<b>T7</b>	<b>T71</b>	<b>T51</b>	<b>T6</b>	<b>T71</b>	
Tensile Strength (ksi)	25	33	34	28	26	40	30	
Yield Strength (.5% extension under load) (ksi)	20	24	30	21	18	30	20	
Elongation (2 inch gauge length) (%)	2	3.5	2	3.5	3	6	3	
Compressive Yield Strength (ksi)	21	25	31	22				
Hardness (Brinell) (HB @ 500kg)	60	70	75	60		75		
Shear Strength (ksi)	20	26	24	20				
Endurance Limit (ksi)	8	8.5	9	8.5				
Modulus of Elasticity (K ksi)	10.5	10.5	10.5	10.5				
Density (lb/cu.in. @ 68F)	.097	.097	.097			.097		
Electrical Conductivity (% IACS @ 68F)	43	39	40			39		
Thermal Conductivity (cal/sec/sq cm/cm/C @ 25C)	0.4	0.36	0.37			0.36		
Coefficient of Thermal Expansion (per F @ 68-212F)	11.9	11.9	11.9			11.9		
Coefficient of Thermal Expansion (per F @ 68-572F)	12.9	12.9	12.9			12.9		
Melting Range (Liquidus-Solidus)(F)	1035-1135				1035-1135			
Resistance to Hot Cracking	E				E			
Pressure Tightness	E				E			
Fluidity	E				E			
Solidification Shrinkage Tendency	E				E			
Strength at Elevated Temperatures	G				G			
Corrosion Resistance	VG				VG			
Machinability	F				F			
Polishing	G				G			
Gas Welding	E				E			
Arc Welding	E				E			
Brazing	No				No			
Normally Heat Treated	Yes				Yes			
Anodizing Appearance	Gray				Gray			
Electroplating	E				VG			
<b>Applications:</b>	Rear axle housings, engine parts, impellers, aircraft fittings, water jackets, crank cases, electric motor parts, engine blocks, jet engine compressor cases, transmission cases, flywheel housings, airframe castings, missile components, light pole bases.							

\* Not Recommended



All mechanical properties listed are typical and not minimums. Always consult applicable specs and use good engineering judgment. Consult your foundry early in the design process.

**St. Paul Brass and Aluminum Foundry**

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