

Zinc Alloy Properties

Mechanical Properties (Die Cast)	#2	#3	#5	#7	ZA-8					
Ultimate tensile strength: ksi (MPa)	52 (359)	41 (283)	48 (328)	41 (283)	54 (374)					
Yield Strength - 0.2% Offset: ksi (MPa)	41 (283)	32 (221)	39 (269)	32 (221)	42 (290)					
Elongation: % in 2"	7	10	7	13	6-10					
Shear Strength: ksi (MPa)	46 (317)	31 (214)	38 (262)	31 (214)	40 (275)					
Hardness: Brinell	100	82	91	80	95-110					
Impact Strength: ft-lb (J)	35 (48)	43 (58)	48 (65)	43 (58)	31 (42)					
Fatigue Strength Rotary Bend - 5X10 cycles ksi (MPa)	8.5 (59)	6.9 (48)	8.2 (57)	6.8 (47)	15 (103)					
Compressive Yield Strength - 0.1% Offset: ksi (MPa)	93 (641)	60 (414)	87 (600)	60 (414)	37 (252)					
Modulus of Elasticity - psi x 10 (MPa x 10)	12.4 (85.5)	12.4 (85.5)	12.4 (85.5)	12.4 (85.5)	12.4 (85.5)					
Poisson's Ratio	0.27	0.27	0.27	0.27	0.29					
Physical Properties										
Density: lb/cu in (g/cm ³)	0.24 (6.6)	0.24 (6.6)	0.24 (6.6)	0.24 (6.6)	0.227 (6.3)					
Melting Range: °F (°C)	715-734 (379-390)	718-728 (381-387)	717-727 (380-386)	718-728 (381-387)	707-759 (375-404)					
Electrical Conductivity: % IACS	25	27	26	27	27.7					
Thermal Conductivity: BTU/ft/hr/°F (W/m/hr/°C)	60.5 (104.7)	65.3 (113.0)	62.9 (108.9)	65.3 (113.0)	66.3 (114.7)					
Coefficient of Thermal Expansion 68-212°F μin/in/°F (100-200° C μm/mm/°C)	15.4 (27.8)	15.2 (27.4)	15.2 (27.4)	15.2 (27.4)	12.9 (23.3)					
Specific Heat: BTU/lb/°F (J/kg/°C)	0.10 (419)	0.10 (419)	0.10 (419)	0.10 (419)	0.104 (435)					
Pattern or Die Shrinkage: in/in	0.007	0.007	0.007	0.007	0.007					
Chemical Specifications										
(per ASTM) (% by weight)	Ingot	Casting	Ingot	Casting	Ingot	Casting	Ingot	Casting	Ingot	Casting
Al	3.9-4.3	3.7-4.3	3.9-4.3	3.7-4.3	3.9-4.3	3.7-4.3	3.9-4.3	3.7-4.3	8.2-8.8	8.0-8.8
Mg	0.025-0.05	0.02-0.06	0.03-0.06	0.02-0.06	0.03-0.06	0.02-0.06	0.010-0.020	0.005-0.020	0.02-0.03	0.01-0.03
Cu	2.7-3.3	2.6-3.3	0.10 max	0.1 max	0.7-1.1	0.7-1.2	0.10 max	0.1 max	0.9-1.3	0.8-1.3
Fe (Max)	0.035	0.05	0.035	0.05	0.035	0.05	0.035	0.05	0.035	0.075
Pb (max)	0.004	0.005	0.004	0.005	0.004	0.005	0.003	0.003	0.005	0.006
Cd (max)	0.003	0.004	0.003	0.004	0.003	0.004	0.002	0.002	0.005	0.006
Sn (max)	0.0015	0.002	0.0015	0.002	0.0015	0.002	0.001	0.001	0.002	0.003
Ni	-	-	-	-	-	-	0.005-0.020	0.005-0.020	-	-
Zn	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder	Remainder
Industry Standards										
ASTM	B240 AC43A	B86 AC43A	B240 AG40A	B86 AG40A	B240 AC41A	B86 AC41A	B240 AG40B	B86 AG40B	B240	B86
SAE	Former 921		J468B 903	J468B 903	J468B 925	J468B 925	-	-	-	-
UNS	Z35540	Z35541	Z33521	Z33520	Z35530	Z35531	Z33522	Z33523	Z35635	Z35636



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