



Physical and Mechanical Properties of Zinc Diecasting Alloys

Physical Property	Alloy Designation						
	2	3	5	7	ZA-8	ZA-12	ZA-27
Density (lb./cu. in.)	0.24	0.24	0.24	0.24	0.227	0.218	0.181
Solidification Shrinkage (%)	1.25	1.17	1.17	1.17	1.1	1.25	1.25
Solidification Temp. Range (F)	734-715	728-719	727-717	728-717	759-707	810-710	903-708
Thermal Expansion (in./in. -F)	15.2x10 ⁻⁶	15.2 x10 ⁻⁶	15.2 x10 ⁻⁶	15.2 x10 ⁻⁶	12.9 x10 ⁻⁶	13.4 x10 ⁻⁶	14.4 x10 ⁻⁶
Specific Heat Capacity (btu/lb.-F)	0.1	0.1	0.1	0.1	0.104	0.107	0.125
Specific Heat Capacity (btu/cu. In.-F)	0.024	0.024	0.024	0.024	0.024	0.023	0.023
Electrical Conductivity (%IACS)	25	27	26	27	27.7	28.3	29.7
Electrical Resistivity (Micro ohm-in.)	-	2.5	2.6	-	2.4	2.4	2.6
Ultimate Tensile Strength (ksi)	48	35	39	41	43	45	52
Yield Strength (ksi)	-	-	-	-	32	35	46
Elongation (%)	2	16	13	18	20	10	3.0
Hardness (Brinell-500 kg)	98	72	80	67	91	91	100
Shear Strength (ksi)	46	31	38	31	33	34	37
Compressive Strength (0.1% offset) (ksi)	93	60	87	60	25	27	37
Impact Energy (unnotched bar 0.25 in. x 0.25 in.) (J)	6.8	55.6	54.2	55.6	17	19	2.2
Fatigue Strength (5x10 ⁸ cycles) (ksi)	8.5	6.9	8.2	6.8	15	-	21