PERFORMANCE CHART - ZINC ALLOY & ALUMINUM CASTINGS MEASURE UP

ALLOY PROPERTY	ZZINC														ALUMINUM				
	ZAMAK 2**	ZAMAK 3**		ZAMAK 5**	ZAMAK 7**	ZA -8**			ZA-12**			ZA-27***			380			319	356-T6	
	DIE CAST	DIE CAST	Graphite Prm Mld	DIE CAST	DIE CAST	SAND CAST	PERM MOULD	DIE CAST	SAND CAST	PERM MOULD	DIE CAST	SAND CAST	PERM MOULD	DIE CAST	DIE CAST	GRAPHITE Prm Mld	PERM MOULD	SAND CAST	SAND CAST	GRAPHITE Prm Mld
MECHANICAL																				
Ultimate Tensile ksi x 10^3	52	41	27.3	48	41	38	35	54	43	48	59	61	64	62	47	29.5	34	27	33	39.5
Strength M Pa	359	283		331	283	263	240	374	299	328	404	421	441	426	324		234	186	228	
Yield Strength ksi x 10^3	NA	32	24.3	33	NA	29	30	42	31	39	46	54	55	54	24	22		18	24	31.8
0.2 % Offset M Pa		221		228		198	208	290	211	268	320	371	376	371	165			124	165	
Elongation (% in 2")	7	10	1	7	13	1.7	1.3	8	1.5	2.2	5	4.6	2.5	2.5	3	0.84	2.5	2	3.5	4
Young's ksi x 10 6th	>12.4	>12.4	16.9	>12.4	>12.4	12.4	12.4	12.4	12	12	12	11.3	11.3	11.3	10.3			10.7	10.5	
Modulus M Pa x 10^3	>85.5	>85.5		>85.5	>85.5	85.5	85.5	85.5	82.7	82.7	82.7	77.9	77.9	77.9	71			73.8	72.4	
Torsional psi x 10 6th	NA	NA		NA	NA	4.8	4.8	4.8	4.6	4.6	4.6	4.3	4.3	4.3	3.9			4	3.9	
Modulus M Pa x 10^3						33.1	33.1	33.1	31.7	31.7	31.7	29.6	29.6	29.6	26.9			27.6	26.9	
Shear ksi x 10^3	46	31		38	31	NA	35	40	37	>35	43	42	NA	47	27			22	26	
Strength M Pa	317	214		262	214		241	275	253	241	296	292		325	186			152	179	
Hardness (Brinell)	100	82		91	80	85	87	103	94	89	100	113	114	119	80	85.6	85	70	70	
Impact ft-lb	35 [2]	43[2]		48[2]	43[2]	15[1]	NA	31[2]	19	NA	21[2]	35[1]	NA	9[2]	3[1]			4[1]	8[1]	
Strength J	47	58		65	58	20		42	25		29	48		13	4			5	11	
Fatigue Strength Rotary Bend psi x 10^3 (5 x 10 cycles) MPa	8.5 58.6	6.9 47.6		8.2 56.5	6.8 46.9	NA	7.5 51.7	15 103	15 103	NA	17 117	25 172	NA	21 145	20 138			10 69	8.5 58.6	
Compressive Yield Strength ksi x 10^3 0.1% Offset Mpa	93 6th 641	60 6th 414		87 6th 600	60 6th 414	29 199	31 210	37 252	33 230	34 235	39 269	48 330	NA	52 359	17		19	19 131	25 172	
PHYSICAL																				
Density lb/in^3	0.24	0.24		0.24	0.24	0.227			0.218			0.181			0.098		0.101		0.097	
Kg/m^3	6600	6600		6700	6600	6300			6030			5000			2713		2796		2685	
Melting ºF	715-	718-		718-	718-	707-759			710-810			708-903			1000-		960-1120		1035-	
Range ºC	734	728		727	728	375-404			377-432			376-484			1100		516-604		1135	
	379-	381-		381-	381-										538-				557-	
	390	387		386	387										593				613	
Electrical Conductivity (% IACS)	25	27		26	27	27.7			28.3			29.7			27		27		39	
Thermal Btu/ft-hr F	60.5	65.3		62.9	65.3	66.3			67.1			72.5			55.6			65.5	87	
Conductivity W/m K	104.7	113		108.9	113	114.7			116.1			125.5			96.2			113.4	151	
Coef of Thermal	15.4	15.2		15.2	15.2	12.9			13.4			14.4			11.8			11.9	11.9	
Expansion (68-212 ºF)	27.7	27.4		27.4	27.4	23.3			24.2			26			21.2			21.4	21.4	
Pattern Shrinkage 1/ºFx10 6th	0.006	0.006		0.006	0.006	0.01		0.007	0.013		0.0075	0.013		0.008	0.006			NA	NA	
in/in or mm/mm 1/ºCx10 6th																				

Indicates Forest City Castings Standard Alloy's & Properties