



[Dick@castingreps.com](mailto:Dick@castingreps.com)

[www.castingreps.com](http://www.castingreps.com)

142 Main St. Suite 302  
 Nashua, NH 03060  
 (603) 889-5422

## Common Casting Alloys for Graphite Mold Casting

Properties	Alloys					
	ZA-12	ZA-27	ZINC DIE CAST (ZA-3)	CAST IRON ASTM CLASS 30	ALUMINUM 356-T6	BRONZE 85-5-5-5
Tensile Strength (100PSI)	45-50	61	41	31	33	37
Yield Strength (.2% offset)	39	53	--	--	24	17
Elongation (%)	1-3	1-3	10	--	4	30
Hardness (Brinell)	90-105	105-125	82	201	70	60
Young's Modulus (10PSI)	12.0	11.3	12	13.16	10.5	12
Fatigue Strength (X1000 @10CY)	15	21	7	14	8.5	11
Density (LB/cubic inch)	.218	.181	.24	.6	.1	.32
Thermal Expansion (68-212 X10/F)	13.4	14.4	15	6	13	10
Thermal Conductivity (BTU/FT/HR/F)	67.1	72.5	65	26	87	40
Electrical Conductivity (% CU)	28.3	29.7	27	--	39	15
Melting Range (F)	710-810	708-903	719-728	>2150	1035-1135	1570-1850

Chemical Specifications (% by Weight)	
Material	ZA-12
AL	10.0-11.5
Mg	0.015-0.030
Cu	0.5-1.25
Fe (max)	0.075
Pb (max)	0.006
Cd (max)	0.003
Sn (max)	--
Ni	Balance
Zn	--