



# Zinc Die Casting Alloys

## ZA-8

ZA Alloys were originally a family of Zinc-based gravity casting alloys, but introduced as die casting alloys in the 1970's. ZA-8 is the most economical of the ZA alloys due to its ability to be cast in a hot chamber die casting machine.

### Summary of Benefits:

- Can be die cast and gravity cast.
- ZA-8 offers improved strength, hardness, fatigue and creep performance.
- Hot Chamber alloy.
- Lighter than Zamak alloys.
- Commonly used for strength as well as its ability to be plated at lower cost than aluminum die casting alloys.

### Properties:

<b>Mechanical Properties:</b>	<b>Die Casting</b>	<b>Permanent Mold</b>
Ultimate Tensile Strength: ksi (MPa)	54 (374)	32-37 (221-255)
Yield Strength: ksi (MPa)	42 (290)	30 (206)
Elongation: % in 2"	6-10	1-2
Hardness: Brinell	95-110	85-90
Modulus of Elasticity: psi x 10 <sup>6</sup>	12.4	12.4

<b>Physical Properties:</b>		
Density: lb/cu in (g/cc)		0.227 (6.3)
Melting Range: deg F (deg C)		707-759 (375-404)
Electrical Conductivity: %IACS		27.7
Thermal Conductivity: BTU/ft/hr/deg F		66.3
Coefficient of Thermal Expansion: $\mu$ in/in/F – 68-212 deg F		12.9
Specific Heat: BTU/lb/deg F		0.104
Pattern or Die Shrinkage: in/in		0.007

*Note: The above properties are published "typical" values tested on net shaped cast test bars. The information found in these tables should be used for initial reference and for comparative purposes only. This data should not be used to establish design limits or as a reason for quality acceptance or rejection.*

### Chemical Analysis of ZA-8:

	<b>Al</b>	<b>Mg</b>	<b>Cu</b>	<b>Fe</b>	<b>Pb</b>	<b>Cd</b>	<b>Sn</b>	<b>Ni</b>	<b>Zn</b>
<b>Ingot</b> (ASTM B240)	8.2-8.8	.02-.03	.9-1.3	.035 max	.005 max	.005 max	.002 max	-	Bal
<b>Die Cast</b> (ASTM B86)	8.0-8.8	.01-.03	.8-1.3	.075 max	.006 max	.006 max	.003 max	-	Bal

Bundle Color Code: **Blue**

