Zamak 3 Zinc

Die Casting Alloy Datasheet - ZnAl4, as-cast, hot-chamber die cast

KastMfg
Precision Die Casting

DESIGNATIONS & EQUIVALENTS

Standard	Designation
ASTM B86 (USA)	Alloy 3 / AG40A
UNS	Z33525
EN 12844 (Europe)	ZP0400 - ZnAl4
JIS H5301 (Japan)	ZDC1 (similar)

Note: UNS Z33525 per ASTM B86-22.

CHEMICAL COMPOSITION (WT%)

Element	Min %	Max %
Aluminum (Al)	3.7	4.3
Copper (Cu)	-	0.10
Magnesium (Mg)	0.020	0.060
Iron (Fe)	-	0.05
Lead (Pb)	-	0.005
Cadmium (Cd)	-	0.004
Tin (Sn)	-	0.003
Zinc (Zn)	Balance	

Note: per ASTM B86 / EN 12844 composition limits for the cast alloy (nominal Al 4.0, Mg 0.04).

MECHANICAL PROPERTIES (AS-CAST)

Property	Typical value
Tensile strength (UTS)	283 MPa (41,000 psi)
Yield strength (0.2% offset)	200 MPa (29,000 psi)
Elongation	10%
Hardness	82 HB
Impact strength (unnotched)	58 J (43 ft-lbf)

Note: typical as-cast values per ASTM B86 / NADCA Product Standards.

PHYSICAL PROPERTIES

Property	Typical value
Density	~6.6-6.7 g/cm3
Melting range	381-387 C
Thermal conductivity	~110-120 W/mK
Electrical conductivity	~27-29% IACS
Coefficient of thermal expansion	~27-30 x10^-6/K

Note: typical values per published alloy data.

TYPICAL APPLICATIONS

- General hardware: handles, locks, hinges, brackets
- Housings for electronics, connectors, and switches
- Automotive trim and interior fittings
- Decorative trim and plated consumer products
- Excellent castability and the standard plating base for the Zamak family

Typical values for separately cast test specimens, not guaranteed minimums. Contractual limits per the referenced standard.