A356 Aluminum

Die Casting Alloy Datasheet - AlSi7Mg0.3, heat-treated T6; gravity / LPDC / sand casting

KastMfg
Precision Die Casting

DESIGNATIONS & EQUIVALENTS

Standard	Designation
AA (Aluminum Association, USA)	356.0 / A356.0
ASTM B26 / B108 (USA)	A356.0
UNS	A03560
EN 1706 (Europe)	AC-42100 - AlSi7Mg0.3

Note: UNS A03560 per AA / ASTM B26 / B108. A356 is primarily a gravity, low-pressure (LPDC), and sand casting alloy; it is not a mainstream HPDC grade.

CHEMICAL COMPOSITION (WT%)

Element	Min %	Max %
Silicon (Si)	6.5	7.5
Magnesium (Mg)	0.25	0.45
Copper (Cu)	-	0.20
Iron (Fe)	-	0.20
Manganese (Mn)	-	0.10
Zinc (Zn)	-	0.10
Titanium (Ti)	-	0.20
Aluminum (Al)	Balance	

Note: per AA composition limits for 356.0 / A356.0.

MECHANICAL PROPERTIES (T6 TEMPER, BY CASTING PROCESS)

Condition	UTS (MPa)	Yield (MPa)	Elongation (%)	Hardness (HB)
T6 - Permanent mold / LPDC	260-310	200-270	3-8	70-100
T6 - Sand cast (typical)	230-260	-	2-5	-

Note: mechanical properties of A356-T6 depend on casting process; permanent mold / LPDC values above, sand cast values are lower. Typical data per ASTM B26 / B108.

PHYSICAL PROPERTIES

Property	Typical value
Density	2.68 g/cm3
Melting range	555-615 C
Thermal conductivity	150-155 W/mK (T6)
Coefficient of thermal expansion	21.5 x10^-6/K
Modulus of elasticity	72 GPa

Note: typical values per published alloy data for A356-T6.

TYPICAL APPLICATIONS

- Wheel and hub castings
- Suspension and structural automotive / EV parts
- Aerospace and drone structural castings
- Pressure-containing parts and pump bodies
- Marine fittings (with appropriate coating)

Note: cast by gravity die casting, low-pressure die casting (LPDC), or sand casting - not a mainstream HPDC alloy.

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