ADC12 Aluminum

Die Casting Alloy Datasheet - AlSi11Cu2(Fe), as-cast, high-pressure die cast (HPDC)

KastMfg
Precision Die Casting

DESIGNATIONS & EQUIVALENTS

Standard	Designation
JIS H5302 (Japan)	ADC12 (primary designation)
ASTM B85 (USA)	383.0 / A383 (approximate)
EN 1706 (Europe)	AC-46100 - AlSi11Cu2(Fe)

Note: ADC12 approximates ASTM 383.0 / A383 and EN AC-46100; it is not the same alloy as A380. The EN equivalent is AC-46100 per EN 1706 (this corrects the AC-47100 listing previously shown on the kastdiecast.com material page).

CHEMICAL COMPOSITION (WT%)

Element	Min %	Max %
Silicon (Si)	9.6	12.0
Copper (Cu)	1.5	3.5
Magnesium (Mg)	-	0.30
Iron (Fe)	-	1.3
Manganese (Mn)	-	0.50
Zinc (Zn)	-	1.0
Nickel (Ni)	-	0.50
Tin (Sn)	-	0.20
Aluminum (Al)	Balance	

Note: per JIS H5302 composition limits for ADC12.

MECHANICAL PROPERTIES (AS-CAST HPDC)

Property	Typical value
Tensile strength (UTS)	~310-331 MPa
Yield strength (0.2% offset)	~150-165 MPa
Elongation	~2.5-3.5%
Hardness	~75-85 HB

Note: typical as-cast HPDC values per JIS H5302 / published alloy data; hardness on the Brinell (HB) scale per ASTM E10.

PHYSICAL PROPERTIES

Property	Typical value
Density	~2.70-2.75 g/cm3
Melting range	~515-582 C
Thermal conductivity	~92-96 W/mK
Coefficient of thermal expansion	~20.8-22.1 x10^-6/K

Note: typical values per published alloy data; melting range and thermal-conductivity band supersede the 515-580 C / 96 W/mK single figures previously shown on the kastdiecast.com material page.

TYPICAL APPLICATIONS

- Automotive and motorcycle powertrain components
- Engine and transmission housings, cam and timing covers
- Compressor bodies and HVAC housings
- Camera, optical, and consumer-electronics housings
- Thin-wall, complex-geometry die cast parts

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