A-Powder AlSi10Mg Aluminium

Gas-atomized aluminium casting alloy for laser powder bed fusion (LPBF)

A-Powder AlSi10Mg is a near-eutectic Al-Si-Mg casting alloy for LPBF. It combines low weight, high thermal conductivity and good strength-to-weight, and is heat-treatable (stress relief / T6) — the default aluminium for lightweight structures, heat exchangers and automotive parts. US-produced, gas-atomized for high sphericity and low oxygen; every lot ships with a Certificate of Analysis.

POWDER SPECIFICATION

Alloy / grade	**AlSi10Mg aluminium casting alloy**
Reference	**EN AC-43000 family**
Particle size (PSD)	**15–53 µm (custom cuts available)**
Production method	**VIGA · US-produced**
Density	**≈ 2.67 g/cm³**
Condition	**Heat-treatable — stress relief / T6**
Process	**LPBF (machine type F)**
Packaging	**10 kg bottle · 150 / 280 kg hopper**

MECHANICAL PROPERTIES

PROPERTY	AS-BUILT	T6
UTS	~ 440 MPa	~ 460 MPa
Yield (Rp0.2)	~ 250 MPa	~ 270 MPa
Elongation	~ 6 %	~ 4 %
Hardness	~ 120 HV	~ 130 HV

Indicative, process-dependent. Thermal conductivity ≈ 130 W/m·K. Relative density > 99 %. Stress relief recommended before plate removal.

CHEMICAL COMPOSITION (WT %)

ELEMENT	CONTENT	ELEMENT	CONTENT
Aluminium (Al)	Balance	Iron (Fe)	≤ 0.55
Silicon (Si)	9.0–11.0	Manganese (Mn)	≤ 0.45
Magnesium (Mg)	0.25–0.45	Titanium (Ti)	≤ 0.15
Zinc (Zn)	≤ 0.10	Copper (Cu)	≤ 0.05

MATERIAL COMPARISON

FEATURE	ALSI10MG	ALSI7MG	6061 (AM)
Type	Al-Si casting alloy	Al-Si casting alloy	Wrought (heat-treatable)
Printability (LPBF)	Excellent	Excellent	Harder (crack-prone)
Strength	Good (T6)	Good (T6)	High (T6)
Ductility	Moderate	Higher	High
Thermal conductivity	High	High	High

TYPICAL APPLICATIONS

- Heat exchangers & cold plates
- Automotive & motorsport
- Aerospace & drones
- Lightweight structural parts

COMPATIBILITY & SUPPLY

LPBF systems	**AO Metal A50 / A100 · open-parameter**
Certification	**Full COA per lot (PSD, chemistry, density, flow)**
Dispatch	**5–10 business days from Los Angeles**

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