

A-Powder Ti-6Al-4V Titanium

EIGA-atomized alpha-beta titanium alloy for laser powder bed fusion (LPBF)

A-Powder Ti-6Al-4V is an alpha-beta titanium alloy for LPBF. It combines high strength at roughly 55 % the weight of steel with outstanding corrosion resistance and biocompatibility — the alloy for aerospace structures, medical implants and motorsport. Available as Grade 5 (TC4) and Grade 23 (ELI). US-produced, EIGA-atomized for clean, spherical, low-oxygen powder; every lot ships with a Certificate of Analysis.

POWDER SPECIFICATION

Alloy / grade	Ti-6Al-4V — Grade 5 (TC4) & Grade 23 (ELI)
Equivalents	UNS R56400 / R56401 · ASTM F2924 / F3001
Particle size (PSD)	15–53 µm (custom cuts available)
Production method	EIGA · US-produced
Morphology	Spherical, high sphericity, low O ₂
Density	≈ 4.43 g/cm³
Process	LPBF (machine type F)
Packaging	10 kg bottle (argon-sealed)

MECHANICAL PROPERTIES

PROPERTY	AS-BUILT	ANNEALED
UTS	~ 1100 MPa	~ 950 MPa
Yield (Rp0.2)	~ 1000 MPa	~ 880 MPa
Elongation	~ 10 %	~ 14 %
Hardness	~ 36 HRC	~ 33 HRC

Indicative, process-dependent. HIP recommended for fatigue-critical / implantable parts. Grade 23 (ELI) offers higher toughness. Relative density > 99 %.

CHEMICAL COMPOSITION (WT %)

ELEMENT	CONTENT	ELEMENT	CONTENT
Titanium (Ti)	Balance	Oxygen (O)	≤ 0.20 (ELI ≤ 0.13)
Aluminium (Al)	5.5–6.75	Iron (Fe)	≤ 0.30 (ELI ≤ 0.25)
Vanadium (V)	3.5–4.5	Carbon (C)	≤ 0.08
Nitrogen (N)	≤ 0.05	Hydrogen (H)	≤ 0.015

MATERIAL COMPARISON

FEATURE	TI64 GR 5	TI64 GR 23 (ELI)	CP-TI (GR 2)
Type	α-β alloy	α-β, low interstitial	Commercially pure
Strength	High	High	Moderate
Toughness / ductility	Good	Higher	High
Biocompatibility	Good	Excellent (implant)	Excellent

TYPICAL APPLICATIONS

Aerospace structural

Medical implants (ELI)

Motorsport

Marine & chemical

COMPATIBILITY & SUPPLY

LPBF systems	AO Metal A50 / A100 · open-parameter
Certification	Full COA per lot (PSD, chemistry, O ₂ , density, flow)
Dispatch	5–10 business days from Los Angeles