

A-Powder IN625 Nickel Superalloy

Gas-atomized nickel-chromium-molybdenum superalloy for laser powder bed fusion (LPBF)

A-Powder IN625 is a solid-solution-strengthened Ni-Cr-Mo superalloy for LPBF. It combines outstanding resistance to seawater, acids and pitting with high strength and oxidation resistance to ~980 °C — the go-to alloy for marine, chemical, aerospace-exhaust and oil & gas parts. US-produced, gas-atomized for high sphericity and low oxygen; every lot ships with a Certificate of Analysis.

POWDER SPECIFICATION

Alloy / grade	Inconel 625 nickel superalloy
Equivalents	UNS N06625 · 2.4856
Particle size (PSD)	15–53 µm (custom cuts available)
Production method	VIGA · US-produced
Morphology	Spherical, high sphericity, low O ₂
Strengthening	Solid-solution (no aging)
Process	LPBF (machine type F)
Packaging	10 kg bottle · 440 / 840 kg hopper

MECHANICAL PROPERTIES

PROPERTY	AS-BUILT	ANNEALED
UTS	~ 900 MPa	~ 830 MPa
Yield (Rp0.2)	~ 550 MPa	~ 440 MPa
Elongation	~ 40 %	~ 45 %
Hardness	~ 25 HRC	~ 22 HRC

Indicative, process-dependent. Solid-solution — no precipitation aging.
Oxidation resistance to ~980 °C. Relative density > 99 %.

CHEMICAL COMPOSITION (WT %)

ELEMENT	CONTENT	ELEMENT	CONTENT
Nickel (Ni)	≥ 58.0	Niobium (Nb+Ta)	3.15–4.15
Chromium (Cr)	20.0–23.0	Iron (Fe)	≤ 5.0
Molybdenum (Mo)	8.0–10.0	Titanium (Ti)	≤ 0.40
Aluminium (Al)	≤ 0.40	Carbon (C)	≤ 0.10

MATERIAL COMPARISON

FEATURE	IN625	IN718	HAYNES 230
Type	Ni-Cr-Mo (SS)	Ni-Cr-Fe (PH)	Ni-Cr-W-Mo
Strengthening	Solid-solution	Precipitation (γ’)	Solid-solution
Corrosion resistance	Outstanding	Good	Good
Max service temp	~980 °C	~700 °C (strength)	~1150 °C

TYPICAL APPLICATIONS

Marine & seawater

Chemical processing

Aerospace exhaust & bellows

Oil & gas sour service

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