

A-Powder 18Ni300 Maraging Steel

Gas-atomized maraging (18Ni-300) tool steel for laser powder bed fusion (LPBF)

A-Powder 18Ni300 is a maraging (Fe-Ni-Co-Mo) tool steel for LPBF. It reaches ultra-high strength after a single low-temperature age with excellent dimensional stability and machinability before aging — the workhorse for conformal-cooling tooling, dies and high-strength parts. US-produced, gas-atomized for high sphericity and low oxygen; every lot ships with a Certificate of Analysis.

POWDER SPECIFICATION

Alloy / grade	18Ni-300 maraging steel
Equivalents	1.2709 · UNS K93120
Particle size (PSD)	15–53 µm (custom cuts available)
Production method	VIGA · US-produced
Morphology	Spherical, high sphericity, low O ₂
Condition	Age-hardenable (~490 °C, ~6 h)
Process	LPBF (machine type F)
Packaging	10 kg bottle · 440 / 840 kg hopper

MECHANICAL PROPERTIES

PROPERTY	AS-BUILT	AGED
UTS	~ 1100 MPa	~ 2000 MPa
Yield (Rp0.2)	~ 1000 MPa	~ 1950 MPa
Elongation	~ 10 %	~ 4 %
Hardness	~ 35 HRC	~ 54 HRC

Indicative, process-dependent. Aged = single age ~490 °C. Low corrosion resistance — surface-treat for wet service. Relative density > 99 %.

CHEMICAL COMPOSITION (WT %)

ELEMENT	CONTENT	ELEMENT	CONTENT
Iron (Fe)	Balance	Titanium (Ti)	0.60–0.80
Nickel (Ni)	17.0–19.0	Aluminium (Al)	0.05–0.15
Cobalt (Co)	8.5–9.5	Carbon (C)	≤ 0.03
Molybdenum (Mo)	4.5–5.2	Si / Mn	≤ 0.10

MATERIAL COMPARISON

FEATURE	18NI300	17-4PH	H13
Type	Maraging (Fe-Ni-Co-Mo)	Martensitic PH stainless	Hot-work tool steel
Strength (aged)	Very high (~2000 MPa)	High	High
Hardness	~54 HRC	~44 HRC	~50 HRC
Corrosion resistance	Low	Good	Low

TYPICAL APPLICATIONS

Conformal-cooling tooling

Injection mold inserts & dies

Aerospace structural

Motorsport high-load 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