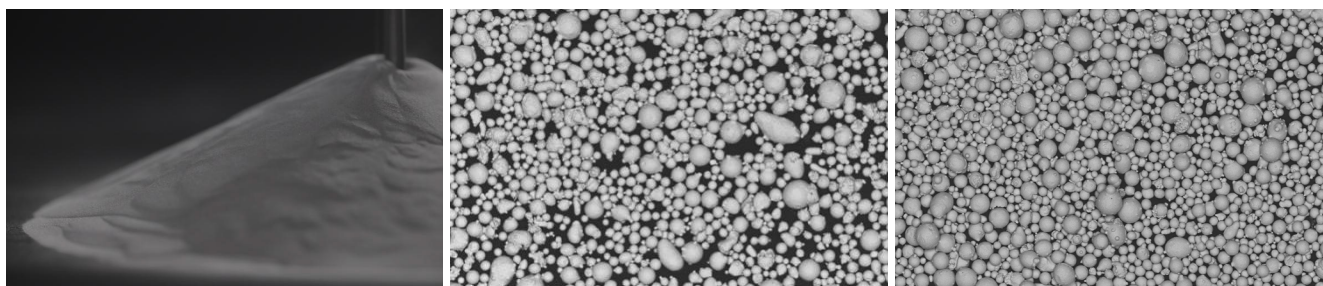


Hayness 188 Superalloy

【 Oxidation resistance, cold and hot processing plasticity, and welding performance 】

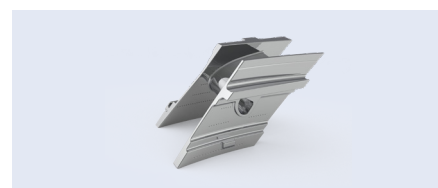
Material Introduction

Hayness 188 is a Co based precipitation hardening deformation superalloy. Its operating temperature is less than 1100 °C. It has good oxidation resistance, cold and hot processing plasticity, and welding process performance.



Applications

It is suitable for making high-temperature components such as combustion chamber flame tubes and guide vanes for aircraft engines.



Guide Vane

Chemical Composition (wt.%)

C	Ni	Cr	W	La	Fe	Si	N
0.05-0.15	20-24	20-24	13-16	0.03-0.12	≤3	0.2-0.5	≤0.02
Co	Cu	P	S	B	Mn	O	/
Bal.	≤0.07	≤0.02	≤0.015	≤0.015	≤1.25	≤0.02	/

Physical Property

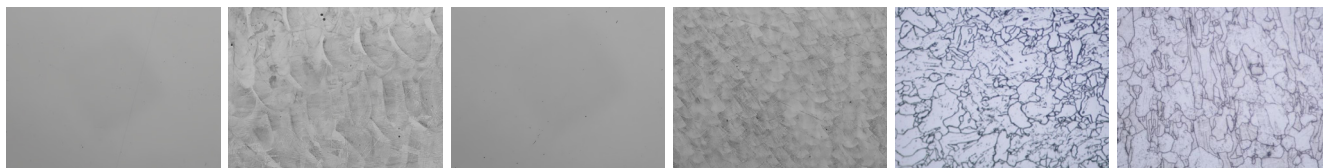
Granularity(μm)			Sphericity	Loose density (g/cm ³)	Tap density (g/cm ³)	Flowability (s/50g)
D10	D50	D90				
≥15	30-40	≤60	≥0.9	≥4.5	≥5.2	≤18

Parameters

Laser power(W)	Laser speed(mm/s)	Scanning spacing(mm)
275	900	0.08



Metallographic Structure



Sedimentary microstructure (XY-direction)

Sedimentary microstructure (Z-direction)

Microstructure in heat-treated state
(left: XY direction; right: Z direction)

Mechanical Property

Heat-Treated			
Test Temperature	Tensile Strength/MPa	Yield Strength/MPa	Elongation/%
Room Temperature	≥850	≥400	≥40.0
980℃	≥190	≥150	≥40.0

Persistent Performance

State	Temperature	Direction	Endurance stress (MPa)	Endurance time (h)	Endurance elongation (%)
Solid solution	927℃	XY	90	>23	16
		Z	90	>23	33

Advanced Powder Metallurgy Technology

The powder metallurgy technology and equipment production line—
Vacuum Induction Gas Atomization (AVI-VIGA)



Adapting Devices

10+ proprietary LPBF equipment systems supporting build sizes from 100 mm to 1500 mm.



MT170H

MT280

MT400M

MT450

MT650

© 2026.05 The copyright belongs to Avimetal AM Tech Co., Ltd.
We reserve the right to update the above content due to equipment iteration and upgrading. Any changes are subject to no further notice.

