A Manufacturing Company

# NICKEL-BASED ALLOY GH4169

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**OLA Product Name: Nickel-Based Alloy GH4169**

**Color: Natural**

**Process: SLM**

## MATERIAL SUMMARY

Tolerance: ±200μm or ±0.2%

Lead Time: 8 days

Maximum Printing Size: 350mm × 400mm × 360mm

Notes:

## EVALUATION

Advantages
① High strength and structural integrity up to 650°C; suitable for high-load aerospace parts.
② Excellent fatigue resistance under cyclic loading; ideal for blades, rotors, and structural components.
③ Outstanding corrosion resistance in acidic, alkaline, and marine environments.

Disadvantages
① High material and processing cost.
② Complex heat treatment process.
③ Thin-walled designs require careful consideration.
④ Default surface roughness Ra10–12; may require post-processing for smoother surfaces.

## KEY FEATURES

GH4169, also known as Inconel 718, is a precipitation-hardened nickel-based superalloy featuring excellent high-temperature strength, creep resistance, and fatigue performance. It retains stable mechanical properties up to 700°C and also provides good corrosion resistance and weldability, making it widely used in aerospace, energy, and high-temperature industrial applications.

## MATERIAL PROPERTIES

Surface Roughness (Sandblasted): ≥6μm
Hardness (As-Printed) / HRB: 30±3
Hardness (Post-Heat Treatment) / HRB: 45±3
Tensile Strength (As-Printed) / MPa: 1080±80
Tensile Strength (Post-Heat Treatment) / MPa: 1400±100
Yield Strength (As-Printed) / MPa: 770±80
Yield Strength (Post-Heat Treatment) / MPa: 1150±100
Elongation (As-Printed) / %: 25±3
Elongation (Post-Heat Treatment) / %: 18±5

## APPLICATION SCENARIOS

- Industries: Aerospace, nuclear, petrochemical, high-temperature tooling
- Typical Uses: Gas turbines, turbine disks, combustion chambers, marine equipment, extrusion molds.

## POST-PROCESSING OPTIONS

Thread tapping

Sand-blasting