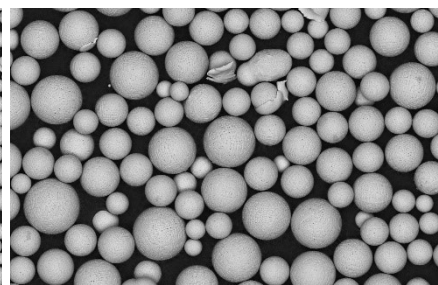
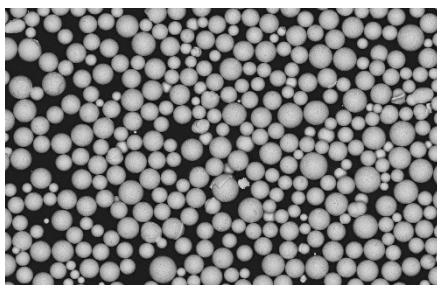


MT-GH4099 Superalloy

[Excellent thermal strength and formability
in cold and hot processing]

Material Introduction

GH4099 is a Ni based precipitation hardening deformation superalloy, which can be used below 900 °C and can reach a maximum short-term operating temperature of 1000 °C. It has good thermal strength and cold and hot processing formability.



Applications

It is suitable for manufacturing high-temperature welded structural components such as aviation engine combustion chambers and after-burner chambers.



Combustion chamber

Chemical Composition (wt.%)

Ni	Cr	Co	W	Mo	Al	Ti	C	Mg
Bal.	17.0–20.0	5.0–8.0	5.0–7.0	3.5–4.5	1.7–2.4	1.0–1.5	≤0.08	≤0.01
Ce	B	Fe	P	S	Mn	Si	O	N
≤0.02	≤0.005	≤2.0	≤0.015	≤0.015	≤0.4	≤0.5	≤0.02	≤0.02

Physical Property

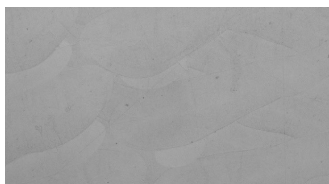
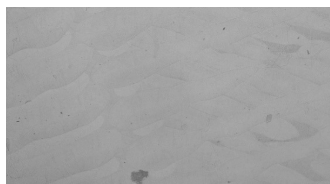
Granularity(μm)			Sphericity	Loose density (g/cm ³)	Tap density (g/cm ³)	Flowability (s/50g)
D10	D50	D90				
≥15	30–40	≤60	≥0.9	≥4.4	≥5.0	≤18

Parameters

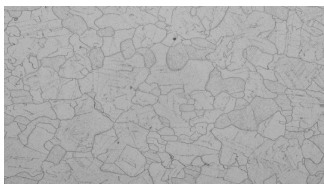
Laser power(W)	Laser speed(mm/s)	Scanning spacing(mm)
300	1000	0.08



Metallographic Structure



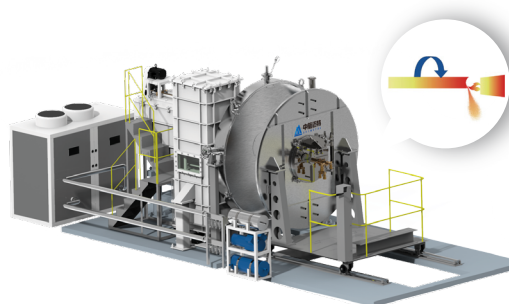
Sedimentary microstructure (XY-direction)


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	≥ 1050	≥ 700	≥ 15.0
900°C	≥ 400	≥ 350	≥ 15.0

Advanced Powder Metallurgy Technology


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

The powder metallurgy technology and equipment production line—
Plasma Rotating Electrode Process (AVI-PREP)


Adapting Devices

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



MT170H



MT280



MT400M



MT450



MT650

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