GE Additive

Ni 718

Nickel alloy 718 can be used for manufacturing components for high-temperature applications.

Data in this document represents material built with 50 µm layer thickness and in an Nitrogen atmosphere on an M2 /M2 Multilaser machine. Values listed are typical.

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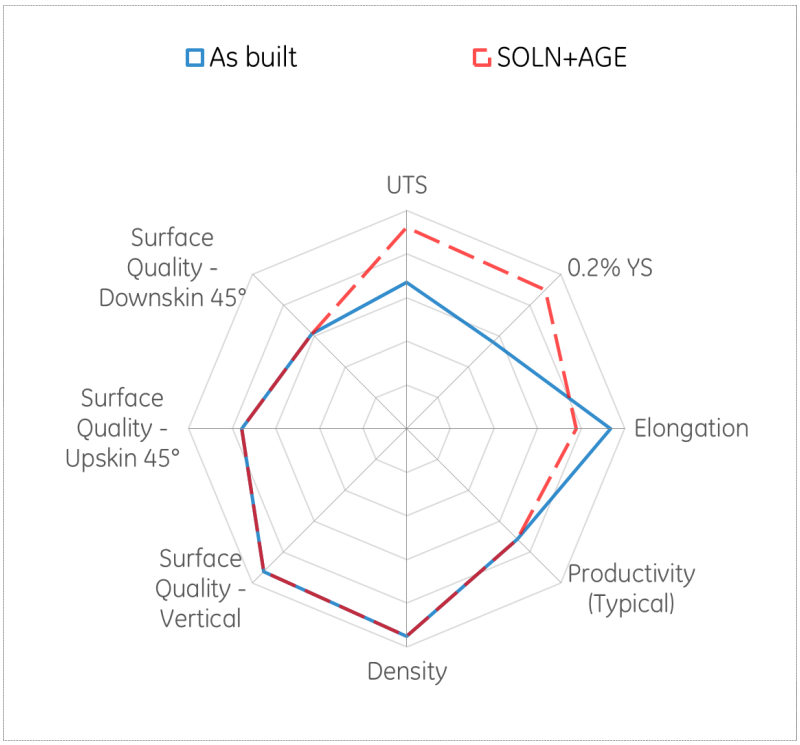
Ni

POWDER CHEMISTRY

Element	Indicative value (wt%)
Ni	50.0-55.0
Cr	17.0-21.0
Nb+Ta	4.75-5.50
Mo	2.80-3.30
Ti	0.65-1.15
Al	0.20-0.80
Co	0-1.00
Cu	0-0.30
C	0-0.08
Si	0-0.35
Mn	0-0.35
P	0-0.015
S	0-0.015
B	0-0.006
Fe	Balance

Ni 718 (powder) chemical composition et al. according to ASTM B 637 UNS N07718

SPIDER PLOT



MACHINE CONFIGURATION

- M2 / M2 Multilaser
- Nitrogen Gas
- Rubber blade
- Layer thickness 50µm
- Build rate dual laser w/ coating *[cm/h³]: 21.5
- Max. Build rate per Laser** [cm/h³]: 21.6.

*Measured by using Factory Acceptance Test layout
**Calculated (layer thickness x scan velocity x hatch distance)

THERMAL STATES

1. AS BUILT
2. SOLN+AGE Heat treatment procedure per AMS 5662: Solution Anneal at 980 °C for 1 hour; Aging treatment at 720 °C for 8 hours, furnace cool to 620 °C in 2 hours, hold at 620 °C for 8 hours, cooled in air

PHYSICAL DATA AT ROOM TEMPERATURE

	Surface Roughness - Overhang (µm)		
	45°	60°	75°
Upskin	14	12	11
Downksin	19	14	12

	Surface Roughness (µm)
H	15
V	8

	Porosity (% Density)		Hardness (HV10)		Poisson's Ratio	
Thermal State	H	V	H	V	H	V
As-Built	99.9	99.9	280	--	--	--
SOLN+AGE	99.9	99.9	--	--	--	--

TENSILE DATA

Tensile testing done in accordance with ASTM E8 and ASTM E21

Temperature: RT

	Modulus of Elasticity (GPa)		0.2% YS (MPa)		UTS (MPa)		Elongation (%)		Reduction of Area (%)	
Thermal State	H	V	H	V	H	V	H	V	H	V
As-Built	193	153	735	605	1045	969	29.7	34.3	--	--
SOLN+AGE	191	174	1110	1045	1420	1350	16.5	17.0	--	--

H: HORIZONTAL (XY) orientation
V: VERTICAL (Z) orientation

* All of the figures contained herein are approximate only. The figures provided are dependent on a number of factors, including but not limited to, process and machine parameters, and the approval is brand specific and/or application specific. The information provided on this material data sheet is illustrative only and cannot be relied on as binding.