

Nickel Alloy Inconel 718



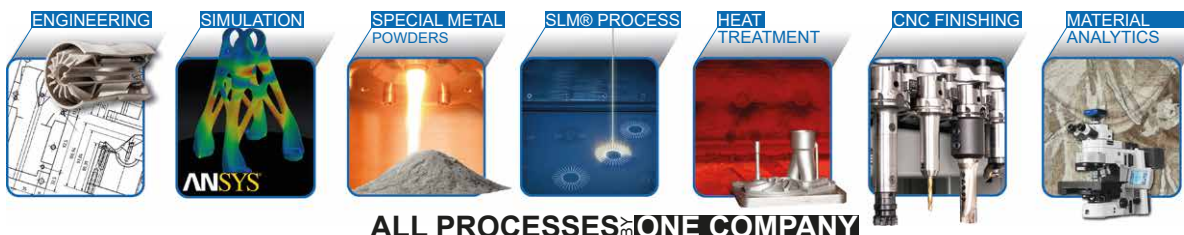
Metal Alloys for Additive Manufacturing

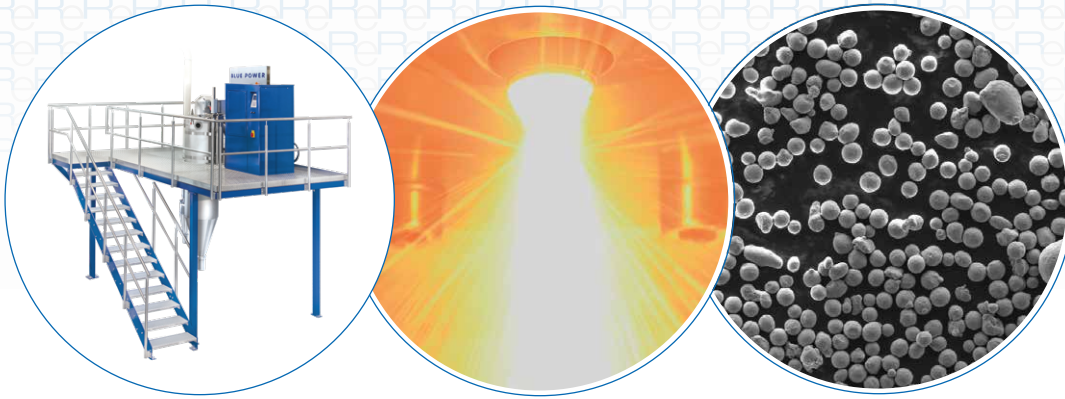
ALTERNATIVE NAMES:

NiCr19Fe19Nb5Mo3
2.4668
Alloy 718

Properties	Unit	As built ¹⁾	Heat-treated ²⁾
Tensile Strength R_m	MPa	1050 ±30	1500 ±30
Yield Strength $R_{p0,2}$	MPa	740 ±20	1350 ±20
Elongation at Break A_5	%	28 ±3	10 ±3
Young's Modulus E	GPa	185 ±10	215 ±15
Charpy Notch Toughness A_v	J	75 ±5	25 ±3
Hardness	HV	305 ±5	470 ±5

Rosswag Engineering offers a holistic and fully integrated process chain for Additive Manufacturing services. Our portfolio ranges from manufacturing of your prototypes, tools and small serial products to an individual consulting and engineering process for the choice of material, parameters and process chain.





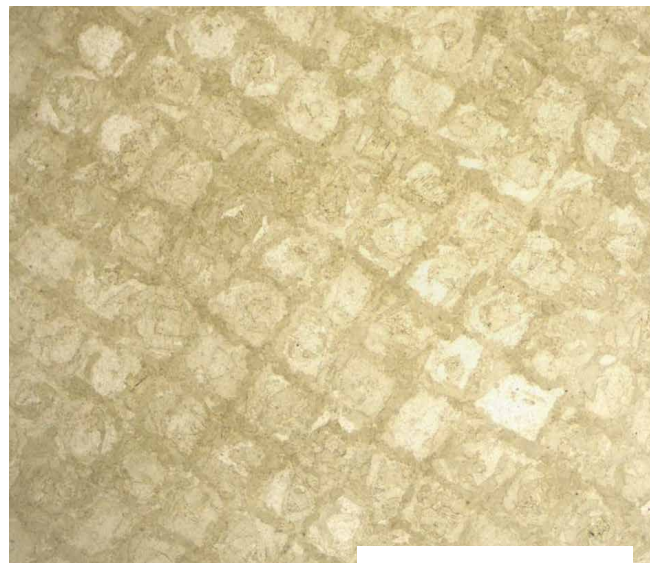
Material characteristics

The nickel-based Alloy 718 is suitable for the use at high temperatures and under corrosive conditions. The superalloy is frequently used for compressor and turbine blades, for example in gas turbines or in the aerospace industry. Additive manufacturing with downstream heat treatment processes enable good modification possibilities of the materials properties, which leads to a broad range of possible applications.

CHEMICAL COMPOSITION

Element	Mass Fraction [%]
C	≤ 0.08
Si	≤ 0.35
Mn	≤ 0.35
P	≤ 0.015
S	≤ 0.015
Al	0.20 - 0.80
Cr	17.0 - 21.0
Co	≤ 1.00
Cu	≤ 0.30
Mo	2.80 - 3.30
Ni	50.0 - 55.0
Nb + Ta	4.75 - 5.50
Ti	0.65 - 1.25
Fe	Balance

MICROSECTION



500µm

- 1) The specified material properties were determined at room temperature. They are multi-dimensionally dependent on many different machine and process parameters. Without further investigation, the material properties do not constitute a sufficient basis for component dimensioning.
- 2) Specific heat treatment processes lead to optimized mechanical-technological properties to meet the component requirements.

