

Stainless Steel Alloy AISI309



Metal Alloys for Additive Manufacturing

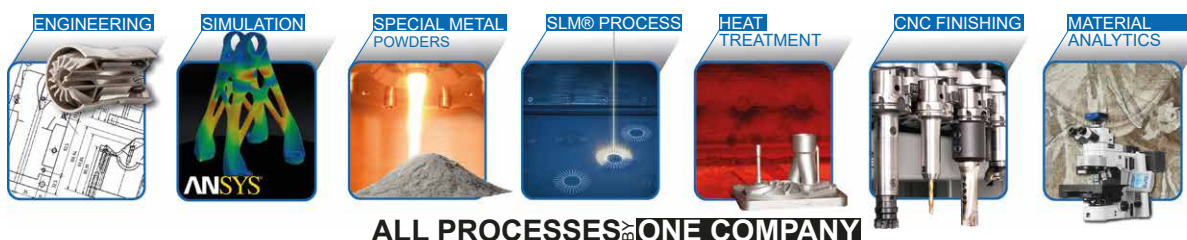
ALTERNATIVE NAMES:

X15CrNiSi20-12
1.4828

Properties

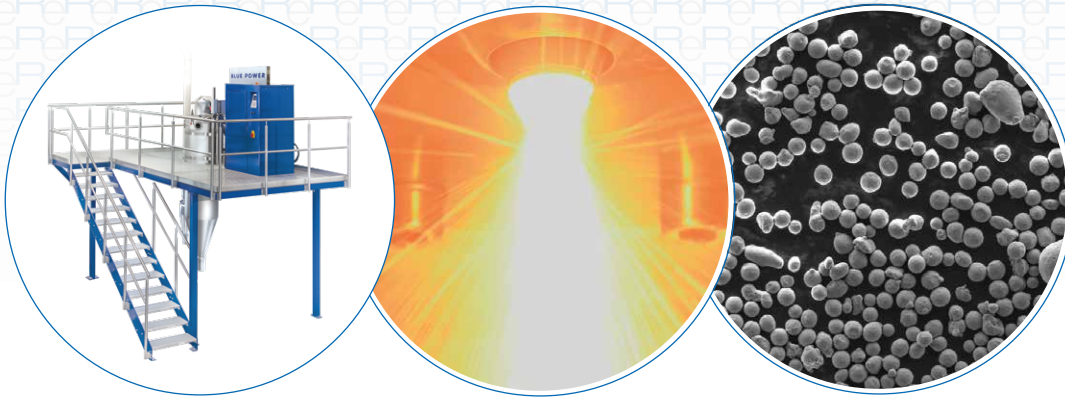
Properties	Unit	As built ¹⁾
Tensile Strength R_m	MPa	710 ±10
Yield Strength $R_{p0,2}$	MPa	550 ±20
Elongation at Break A_5	%	42 ±2
Young's Modulus E	GPa	190 ±5
Charpy Notch Toughness A_v	J	95 ±5
Hardness	HV	225 ±5

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.



ALL PROCESSES IN ONE COMPANY





Material characteristics

The austenitic stainless steel alloy AISI309 is characterized by a high temperature resistance and strength. The material is scale-resistant up to approx. 1,000 °C and has a good weldability. Due to these properties, the material is mostly used in furnace and apparatus engineering. Additive manufacturing offers a wide range of possibilities with this alloy for functional optimization, for example to build high-performance heat exchangers.

CHEMICAL COMPOSITION

Element	Mass Fraction [%]
C	≤ 0.20
Si	1.50 - 2.50
Mn	≤ 2.00
P	≤ 0.045
S	≤ 0.015
Cr	19.0 - 21.0
Ni	11.0 - 13.0
N	≤ 0.11
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.