

L-PBF PROCESS

Layer thickness	30 µm
Laser power	400 W
Theoretical build-up rate	15,5 cm ³ /h

POWDER MATERIAL

316L Stainless Steel is an austenitic stainless steel with high mechanical properties and high corrosion resistance. 316L or 1.4404 is used in a very broad field of applications. For example, in automotive, aerospace and biomedical products. The parts can be further processed as built or in stress-relief annealed condition. A solution heat treatment is not necessary because the mechanical properties as built are already on a standard level.

PHYSICAL PROPERTIES

Particle Size	25 µm – 63 µm
Density	7,9 g/cm ³
Thermal conductivity	15,6 W/mK
Melting range	1380 °C – 1410 °C
Thermal expansion	16 x 10 ⁻⁶ K ⁻¹

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Account: 1070174691 | Routing: 39050000
 Sparkasse Aachen
 IBAN: DE66 3905 0000 1070 1746 91 | BIC: AACSD33XXX

US-Dollar Account: 107877301 | Routing: 39070024
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CHEMICAL COMPOSITION

Element -	Mass fraction
Fe	Balanced%
Cr	17,5-18,0%
Ni	12,5-13,0%
Mo	2,25-2,50%
Mn	2,00%
Si	<0,75%
Cu	<0,50%
O	<0,10%
N	<0,10%
C	<0,030%
P	<0,025%
S	<0,010%

MECHANICAL DATA

As Built

Tensile Strength	R_m	640 MPa ± 50 MPa
Yield strength	R_{p0,2}	530 MPa ± 60 MPa
Elongation at break	A	50% ± 20%
Young's modulus	E	167 GPa ± 8 GPa
Vickers hardness		212 HV 0,5 ± 2 HV 0,5
Roughness average	R_a	12,5 µm ± 5
Mean roughness depth	R_z	80 µm ± 10

All values are subject to natural volatilities depending on applied powder material, process parameters and surrounding conditions.

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