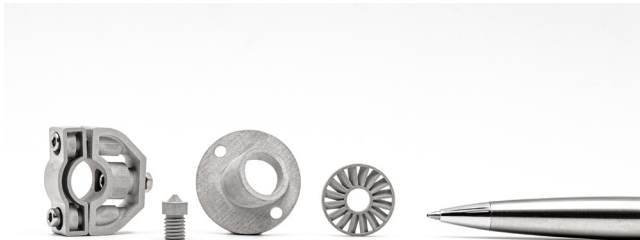


Material Data Sheet Stainless Steel 316L – 1.4404



Austenitic microstructure with high chrome and molybdenum in combination with a low carbon content providing high corrosion and moderate chemical resistance. Widely used in the petrochemical industry, the medical sector, marine applications, and automotive components. Additionally, it is often found as the first choice in the paper, food, and beverage industry.

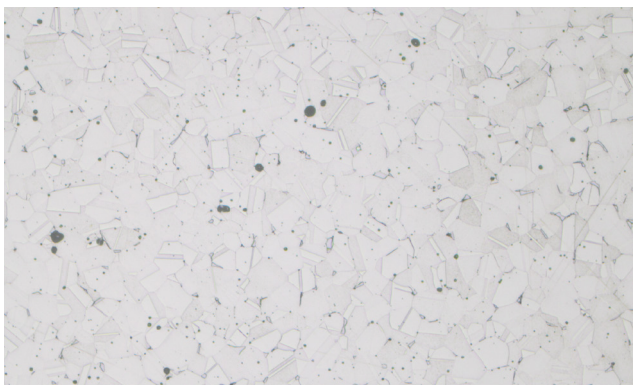
Material properties

High corrosion resistance
High temperature resistance
Good combination of strength and ductility

Composition ¹

Element	Fe	C	Cr	Ni	Mo	Si	Mn	N	S	P
Fraction [%]	Balance	≤0.03	16-18	10-14	2-3	≤1	≤2	≤0.1	≤0.03	≤0.045

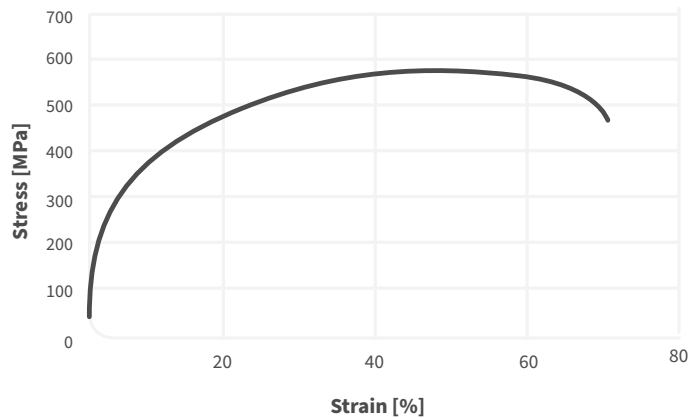
Microstructure and porosity ²



pr: 98.4 ±0.2 %

100 µm

Microstructure of etched testing sample



Typical stress-strain curve of sintered sample

Mechanical properties ³

Value	Standard	Lithography-based Metal Manufacturing (LMM)	Metal Injection Molding (MIM) minimum ⁴	MIM typical ⁴
Yield strength [MPa]	ISO 6892	178	140	175
Ultimate strength [MPa]	ISO 6892	523	450	520
Elongation [%]	ISO 6892	72	40	50
Young's Modulus [GPa]	ISO 6892	180	-	190
HV10	ISO 6507	138	-	-
HRB ⁵	ASTM E140	75	-	67
Density ⁶ [%]	-	98.4	-	95

¹ Nominal values provided by the powder supplier.

² Typical values achieved with Incus process parameters.

³ Tensile samples type B according to ISO 2740.

⁴ Per MPIF Standard 35, Materials Standards for Metal Injection Molded Parts (MPIF 35-MIM, 2018).

⁵ Converted from HV.

⁶ With respect to a measured powder density of 8,0562 g/cm³.