

Trio Labs Material Specifications

316L Stainless Steel

316L is a fully austenitic stainless steel with a low carbon content, offering excellent corrosion resistance, toughness, formability and welding characteristics.

Capabilities

Voxel Size	5 μm
Layer Thickness	5 μm
Minimum Geometry Size	15-35 μm
Minimum Sidewall Thickness	25-40 μm
As-Sintered Surface Roughness (Ra)	0.8 μm (32 μinch)

Composition Properties

Iron	Fe	balance
Chromium	Cr	16.0 – 18.0%
Nickel	Ni	10.0-14.0%
Molybdenum	Mo	2.0-3.0%
Manganese	Mn	< 2.0%
Silicon	Si	< 0.75%
Nitrogen	N	<0.1%
Carbon	C	< 0.03%
Phosphorus	P	< 0.045%
Sulfur	S	< 0.03%

Weight fractions per ASTM A240

Material Properties

Property	Trio Labs 316L As-Sintered	Comparative Reference Values	
		MPIF 35* As-Sintered	ASTM A240 Wrought
Tensile Strength	544 MPa	520 MPa	482 MPa
0.2% Yield Strength	175 MPa	175 MPa	172 MPa
Elongation at Break	90 %	50 %	40 %
Hardness	75 HRB	67 HRB	95 HRB max
Relative Density	97 %	95 %	-

**Trio Labs' manufacturing techniques build upon well-proven Metal Injection Molding (MIM) processes. The Metal Powder Industries Federation (MPIF) publishes Standard 35- MIM, defining expected properties, provided here for reference.*

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