Xometry

Datasheet

316L-SLM

Description

Stainless steel 316L is one of the most widely used stainless steel grades in 3D printing. Due to its high temperature gradients and rapid solidification rates, stainless steel 316L exhibits superior mechanical properties and it is a robust metal with a rough surface and slight pitting. Our stainless steel 316L material is available in various polished and matte finishes and is suitable for applications such as jewelry, functional components, and small sculptures.

Features

Features: Preferred for industrial use • High strength • Chemical resistant • Heat-resistant • Excellent mechanical properties, Key parameters:

Maximum size	Default layer height	Optional layer height	Tolerance	Heat resistance
250*250*320 mm	0.1 mm	0.3 mm	0.2%*L	50-60

Xometry

Datasheet ▸

Suitable for: functional prototypes and final products, movable and assembly parts, form and fit inspection, functional prototyping and testing Not suitable for: complex designs with intricate details, large models, cavities within designs (unless escape holes are used) and low-cost prototyping.

Parameters

Material Properties	Test Method	316L
Ultimate Strength	ASTM E8	X & Y: 582 MPa Z: 526 MPa
Yield Strength (0.2% offset)		X & Y: 224 MPa Z: 226 MPa
Elongation		X & Y: 55% Z:52 %
Elastic Modulus		X & Y: 220 GPa Z: 186 GPa
Hardness	ASTM E18	71 HRB
Impact	ASTM E23	63 J
Poisson's Ratio		0.27
Relative Density		98%
Density		79 g/cc
Surface Roughness		3.0 µm Ra

Material			

Xometry

Datasheet

Composition			
Iron	bal	Molybdenum	2-3%
Nickel	10-14%	Manganese	2.0% max
Chromium	16-18%	Silicon	1.0% max
Carbon	0.03% max		

Geometric Capability	
Corner Radius	Max. as design allows, 0.254 mm. (0.010 in.) min.
Chamfer	> 0.1 mm. (0.039 in.)
Wall Thickness	> 1.5 mm. (0.059 in.)
Holes	> 0.38 mm. (0.014 in.) depending on hole length
Accepted file formats	STL, STEP