

Meltio Stainless Steel 316L

Material Group: Stainless Steels

Stainless Steel 316L is an austenitic steel with excellent durability, good biocompatibility and adequate elevated temperature properties. The alloy has low carbon content which makes it particularly recommended when there is a risk of intergranular corrosion. Thus, parts manufactured with stainless steel have a low carbon content which makes the material ideal for corrosion resistance applications.

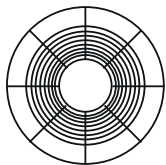
Nomenclature Standards

AWS A 5.9 _____	ER316LSi
EN ISO 14343 - A _____	G 19 12 3 L Si
Material N° _____	1.4430

Chemical Composition

C	Si	Mn	Cr	Ni	Mo
0.02	0.9	1.7	18.5	12	2.7

Spool Specs



Diameter	1 mm
Weight	15 kg
Volume	1875 cm ³
Density	8.0 g/cm ³
Spool Type	BS300

Applications



Chemical industries



Architectural structures



Food industries



Shipbuilding

Mechanical Properties

Results show Meltio's wire LMD 3D printed specimens to perform at the same level as conventional manufacturing methods, with low deviations and near isotropic properties between horizontal (XY) and vertical (XZ) print orientations.

		Tensile Strength (MPa)	Yield Strength (MPa)	Elongation (%)	Hardness (HV-30)
Wrought Properties		550	260	35	146
Cast Properties		515	208	40	
Meltio As Built	XY	648 ± 4	420 ± 4	54 ± 3	198
	XZ	546 ± 23	337 ± 33	15 ± 3	

Printing Parameters Used

Print Speed	Deposition Width	Layer Height	Laser Power
450 mm/min	1 mm	1.2 mm	1100 W

Tomography

In this tomography we can observe the internal structure of the material and see its good density, absence of porosity or internal defects that put at risk the structure of the sample.

The resolution used for the CT inspection is 24 micrometros por pixel.



Shielding gas: Argon > 99.996% purity.

Machine Used: Meltio M450

Laser System: 6x200W Fiber coupled diode lasers. 976nm wavelength.

* Data represent tycal reference values from Worught and Cast material classification compared to Meltio (M450) horizontal (XY) and vertical (XZ) specimens extracted from 3D printed walls and tensile tested according to UNE EN ISO 6892-1

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