



AM 316L

Austenitic stainless steel for laser powder bed fusion

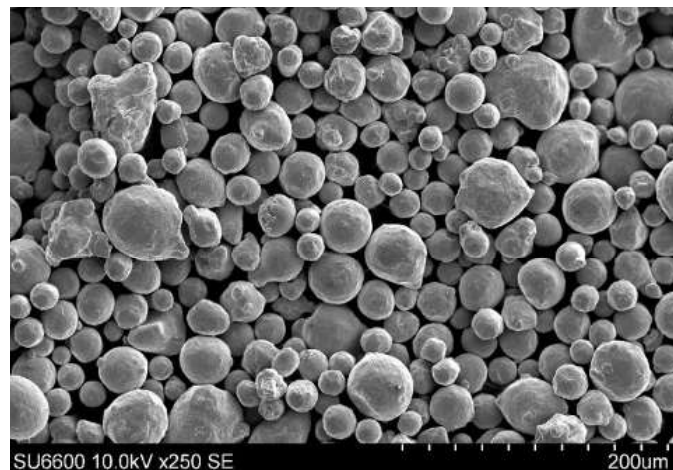
General material description

AM 316L is a nitrogen gas atomized, good flowable spherical powder for additive manufacturing. It is a general-purpose stainless steel with good resistance to atmospheric corrosion and many organic and inorganic chemicals. **AM 316L** withstand the normal corrosive attack of the everyday environment that people experience.

Equivalent materials:

- X2CrNiMo17-12-2
- X2CrNiMo17-12-3
- 1.4404
- AISI 316L

Chemical composition, % (typical values)	
Element	Content, %
Cr	17
Ni	12
Mo	2.5
Mn	1.5
Si	0.8
C	0,01
O	0.06
N	0.10
Fe	Balance



Typical powder properties		
Nominal particle range	20–53 µm (max 5% over- and undersize)	MPIF05, ASTM B214, ISO4497
Hall flow	15 s/50 g	MPIF03, ASTM B213, ISO4490
Apparent density	4.1 g/cc	MPIF04, ASTM B212, ISO3923/1
Tap density	5.0 g/cc	ASTM B527, DIN3953

Typical mechanical properties			
	As printed and stress relieved*	As printed and Solution annealed**	Machined and stress relieved*
Z-direction - Build direction			
UTS (MPa)	575	530	595
YS (MPa)	465	345	505
Elongation (%)	45	55	45
X/Y-direction – Perpendicular			
UTS (MPa)			690
YS (MPa)			560
Elongation (%)			32
IE Notch in XY direction (J)			150
IE Notch in Z direction (J)			145
Hardness HV10			225



Non etched



Etched

Figure: As printed microstructure of stainless steel AM 316L

** Stress relieve: 300°, 1 hour, in air.

** Solution annealing: 1050–1080 °C, 1 hour under Ar, quench in oil to below 280 °C.

Standard packaging:

20 kg (4x5 kg, 1 L PE bottles packed in cardboard box)

(Other tailored particle sizes and packaging are available under conditions)