

## 316L Stainless Steel (UNS S31603)

### Wipro 3D – 316L Stainless Steel

SS316L is a low-carbon, non-magnetic, austenitic stainless steel widely used in industries that demand high corrosion resistance, excellent weldability, and good mechanical properties.

This document provides information and data for parts built using 316L powder with Laser Powder Bed Fusion (LPBF) process.

### Characteristics

- Very high strength without alloy modification
- Complex geometries & internal lattices possible
- Tailorable properties via scan strategy
- Near-net-shape manufacturing
- Excellent weld cracking resistance

### Applications

- Heat exchangers with internal channels
- Chemical & semiconductor components
- Aerospace brackets
- Pharmaceutical equipment, medical devices,
- Wastewater treatment, marine applications and
- Architectural applications near the seashore or in urban areas.

### Chemical Composition

Table 1: Chemical Composition of 316L as per ASTM F3184 (weight %)

Element	Minimum	Maximum
Chromium – Cr	16.00	18.00
Nickel – Ni	10.00	14.00
Molybdenum – Mo	2.00	3.00
Carbon – C	-	0.030
Manganese – Mn	-	2.00
Phosphorous – P	-	0.025
Sulphur – S	-	0.030
Silicon – Si	-	1.00
Iron – Fe	Balance	

#### Business Unit:

Wipro3D  
9-B/10-A  
1<sup>st</sup> Phase  
Peenya Industrial Area  
Bengaluru - 560 058  
India

T : 080 33579398  
E : info.wipro3d@wipro.com  
W : wipro-3d.com

#### Registered Office:

Wipro Enterprises (P) Ltd.  
'C' Block, CCLG Division  
Doddakannelli  
Sarjapur Road  
Bengaluru - 560 035  
India

T : +91 (80) 2844 0011  
F : +91 (80) 2844 0054  
E : communications.wel@wipro.com  
W : wiproel.com  
C : U15141KA2010PTC054808



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### Microstructure

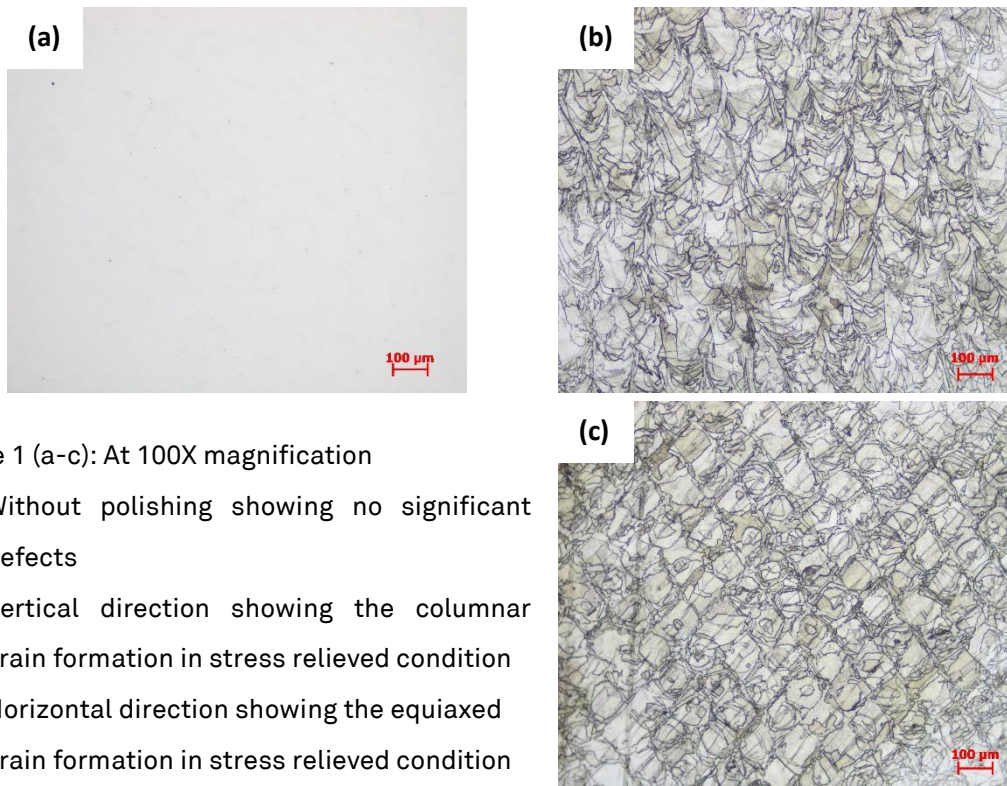


Figure 1 (a-c): At 100X magnification

- (a) Without polishing showing no significant defects
- (b) Vertical direction showing the columnar grain formation in stress relieved condition
- (c) Horizontal direction showing the equiaxed grain formation in stress relieved condition

### Mechanical Properties

Table: Stress Relieved properties of 316L

Properties	Values
Tensile Strength (MPa)	>550
Yield Strength (MPa)	>350
Elongation (%)	>35
Reduction Area (%)	>45

**Disclaimer:** While every reasonable effort has been made to ensure that the information contained in this data sheet is correct, there is no guarantees or warranties (express or implied) concerning the accuracy or completeness of the information provided and expressly excludes all liabilities for any inaccuracies in this document or failure to achieve the stated levels.

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