BLT

Stock Code:688333.SH

BLTM

BLT-316L

→ General Description

316L is a high-performance austenitic stainless steel with high ductility and toughness, good corrosion resistance, good pitting corrosion resistance with molybdenum element, very low carbon content and good intergranular corrosion resistance, suitable for products with special requirements for grain boundary corrosion resistance.

→ Main Characteristics

- High Ductility and Toughness
- High Strength
- Good Corrosion Resistance

→ Typical Applications

- Food Grade Material
- Chemical Industry
- Medical Equipment

→ Powder Properties

The chemical composition of BLT 316L powder is reported in the table below:

Element	C	Cr	Ni	Mo	Mn	Si	P	S	Fe
Wt./%	≤0.03	16.00~18.00	10.00~14.00	2.00~3.00	≤2.00	≤1.00	≤0.045	≤0.030	Bal.

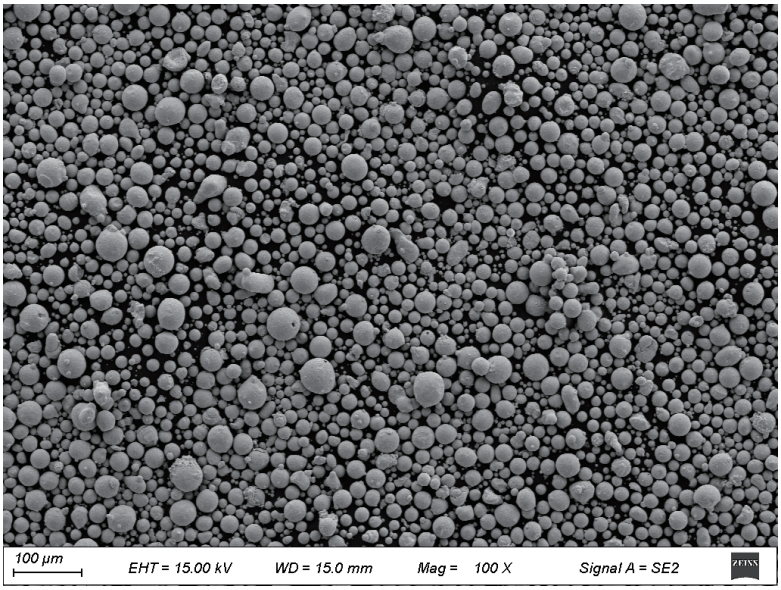
The particle size distribution of BLT 316L powder is shown as follows, which was tested by the laser particle size analyzer:

Particle size distribution	DV(10)	DV(50)	DV(90)
15μm ~ 45μm	10μm≤DV(10)≤25μm	25μm≤DV(50)≤35μm	40μm≤DV(90)≤60μm
15μm ~ 53μm	10μm≤DV(10)≤25μm	25μm≤DV(50)≤40μm	45μm≤DV(90)≤65μm
20μm ~ 63μm	20μm≤DV(10)≤30μm	30μm≤DV(50)≤55μm	60μm≤DV(90)≤80μm

Other physical properties

Properties	Flowability s/50g	Sphericity	Hollow powder ratio %
Technical requirement	≤30	≥0.85	≤5

→ SEM Micrograph of the Powders



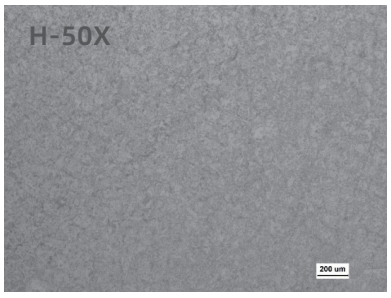
→ Part Performance

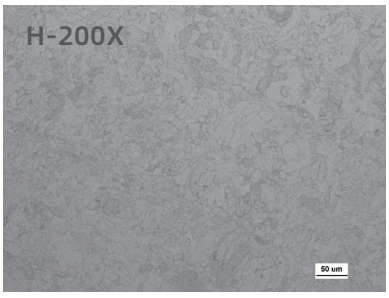
Inert gas	Layer thickness µm	Surface roughness µm		
		Upper skin (45°)	Down skin (45°)	Vertical plane
Argon	40	6-7	16-18	6-7

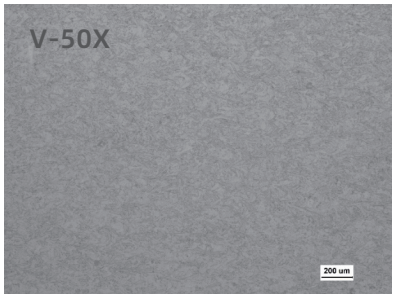
→ Heat Treatment Process

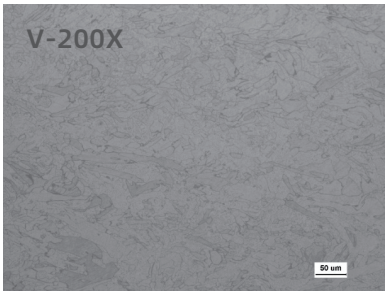
Hold at 1050℃ for 2 hours followed by argon cooling.

→ Microstructure in Heat Treated Condition









→ Mechanical Properties in As-Manufactured Condition

Condition	Temperature ℃	Direction	Ultimate tensile strength R_m/MPa	Yield strength $R_{p0.2}$/MPa	Elongation at break A/%
As-manufactured	Room temperature	Horizontal	690±20	550±20	45±5
		Vertical	570±20	460±20	65±5

Note: The number of samples in each mechanical property test is 30.

Tensile testing standards follow ASTM E8/E8M. Specimens subiected to testing are in the machined-state.

The data in the mechanical properties table applies to 3D printing eauipment types such as BLT-A300, BLT-A320,BLT-A400,BLT-S310,BLTS400,BLT-S450,BLT-S600,BLT-S615,BLT-S800.

→ Mechanical Properties in Heat Treated Condition

Condition	Temperature ℃	Direction	Ultimate tensile strength R_m/MPa	Yield strength $R_{p0.2}$/MPa	Elongation at break A/%
Heat treated	Room temperature	Horizontal	640±20	380±20	50±5
		Vertical	560±20	340±20	75±5

Note: The number of samples in each mechanical property test is 30.

Tensile testing standards follow ASTM E8/E8M. Specimens subiected to testing are in the machined-state.

The data in the mechanical properties table applies to 3D printing eauipment types such as BLT-A300, BLT-A320,BLT-A400,BLT-S310,BLTS400,BLT-S450,BLT-S600,BLT-S615,BLT-S800.

→ Hardness

Condition	HV1
As-manufactured	210±10
Heat treated	190±10

Note: The number of samples in hardness test is 10.

→ Part Density

Condition	Density g/cm^3
Heat treated	7.95±0.01

Note: The number of samples in density test is 5.

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