

Technical Data Sheet

Ultrafuse 316L

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Version No.: 1.1

General information

Components

316L stainless steel composite filament for Fused Filament Fabrication.

Product Description

Ultrafuse® 316L is a Metal-polymer composite filament to produce metal components in a stainless steel type 316L using standard FFF printer systems and subsequently an industry standard debinding and sintering process. The filament has a non-slip surface allowing its application in any Bowden or direct drive extruder. Its high flexibility allows it to be funnelled through complex idler pulleys as well as many guide roller filament transportation systems in any printer.

Delivery form and warehousing

Ultrafuse® 316L filament should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

Product safety

Recommended: Process materials in a well ventilated room, or use professional extraction systems. For further and more detailed information please consult the corresponding material safety data sheets.

For your information

Standards: DIN 1.4404, X 2 CrNiMo 17 13 2, AISI 316L; UNS S31603

Notice

The data contained in this publication are based on our current knowledge and experience. In view of the many factors that may affect processing and application of our product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the product for a specific purpose. Any descriptions, drawings, photographs, data, proportions, weights etc. given herein may change without prior information and do not constitute the agreed contractual quality of the product. It is the responsibility of the recipient of our products to ensure that any proprietary rights and existing laws and legislation are observed.

The safety data given in this publication is for information purposes only and does not constitute a legally binding Material Safety Data Sheet (MSDS). The relevant MSDS can be obtained upon request from your supplier or you may contact BASF 3D Printing Solutions GmbH directly at sales@basf-3dps.com.

Recommended 3D-Print processing parameters

Nozzle Temperature	230 – 250 °C / 446 – 482 °F
Build Chamber Temperature	-
Bed Temperature	90 – 120 °C / 194 – 248 °F
Bed Material	Glass + approved glues* / polyimide tape (*Dimafix® suggested)
Nozzle Diameter	≥ 0.4 mm
Print Speed	15 - 50 mm/s

Drying Recommendations

Drying recommendations to ensure printability	316L is in a printable condition, drying is not necessary
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General Properties

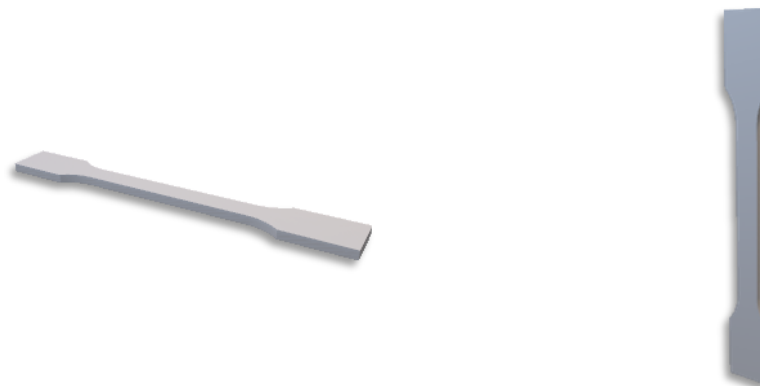
Standard

Sintered Part Density	7850 kg/m ³ / 490.1 lb/ft ³	ISO 1183-1
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Filament Properties

Filament Diameter	1.75 mm	2.85 mm
Tolerance	±0.050 mm	±0.075 mm
Roundness	±0.050 mm	±0.075 mm
Bending Radius	5 ± 1 mm	10 ± 3 mm
Length per Spool	250 m	95 m
Weight per Spool	3 kg	3 kg

Mechanical Properties | sintered



Print direction	Standard	XY Flat	ZX Upright
Tensile strength	ISO 6892-1 ¹	561 MPa / 81.4 ksi	521 MPa / 75.6 ksi
Elongation at Break	ISO 6892-1 ¹	53 %	36 %
Yield Strength, R _{p0.2}	ISO 6892-1 ¹	251 MPa / 36.4 ksi	234 MPa / 33.9 ksi
Impact Strength Charpy (notched)	ISO 148-1 ²	111 kJ/m ²	-
Vickers Hardness	ISO 6507-1	128 HV10	128 HV10

¹Specimen shape Form E2x6x20 according to DIN 50125

²V-notched