



We create chemistry

# Ultrafuse 316L

BASF Polymer and 316L Stainless Steel Composite Filament

Metal-polymer composite filament to produce metal components in stainless-steel type 316L using standard FFF printer systems followed by 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 funneled through complex idler pulleys as well as many guide roller filament transportation systems in printers.

## Example applications



Tooling



Jigs and fixtures



Series production



Functional parts and prototypes



Recommended 3D print processing parameters		Filament properties		
Nozzle temperature	230 – 250 °C	Filament diameter	1.75 mm	2.85 mm
Build chamber temperature	-	Tolerances	±0.05 mm	±0.075 mm
Bed temperature	90 – 120 °C	Roundness	±0.05 mm	±0.075 mm
Bed material	Glass + approved glues*/ Polyimide tape (*Dimafix® suggested)	Bending radius	5 ± 1 mm	10 ± 3 mm
Nozzle diameter	≥ 0.4 mm	Length per spool	250 m	100 m
Print speed	15 – 50 mm /s	Weight per spool	3 kg	3 kg

### General properties

Printed part density	7.85 kg/m <sup>3</sup> Density values obtained from tensile and fracture samples.	ISO 1183-1
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**Drying recommendations:** Under normal conditions no drying is required.

### Mechanical properties

	<sup>1</sup> Specimen shape form E2x6x25 according to DIN 50125		
	<sup>2</sup> Undersized impact test specimen according to DIN EN ISO 148-1		
Print direction	Standard	XY	ZX
Orientation	-	Flat	Upright
Tensile strength	DIN EN ISO 6892-11	561 MPa	521 MPa
Yield strength, Rp 0.2	DIN EN ISO 6892-11	251 MPa	234 MPa
Elongation at break	DIN EN ISO 6892-11	53 %	36 %
Impact strength charpy (notched)	DIN EN ISO 148:2017-052 (2mm V-notch)	111 J/cm <sup>2</sup>	-
Vickers hardness	DIN EN ISO 6507-1	128 HV10	128 HV10



Easy to-handle filament for all FFF systems



Total cost of ownership



Freedom of design



Enable series production of 3D printed industrial-grade metal parts



Easy and affordable metal 3D printing