



Bambu Filament

Technical Data Sheet V1.0



TPU 95A HF

• Basic Info

Bambu TPU 95A HF is an optimized TPU filament designed for high-speed 3D printing. Compared to regular TPU 95A, TPU 95A HF offers an impressive 3x faster printing speed, effectively addressing the common problem of lengthy prints associated with other TPU filaments. TPU 95A HF maintains exceptional interlayer adhesion, impact resistance, flexibility, and cold-temperature resilience, just like traditional TPU filaments. Experience faster TPU printing without any compromises.

• Specifications

Subjects	Data
Diameter	1.75 mm
Net Filament Weight	1 kg
Spool Material	PC + ABS (Temperature resistance 90 °C)
Spool Size	Diameter: 200 mm; Height: 67 mm

• Recommended Printing Settings

Subjects	Data
Drying Settings before Printing	Blast Drying Oven: 70 °C, 8 h X1 Series Printer Heatbed: 80 - 90 °C, 12 h
Printing and Storage Humidity	< 20% RH (Sealed with desiccant)
Nozzle Size	0.4, 0.6, 0.8 mm
Nozzle Temperature	220 - 240 °C
Build Plate Type	Cool Plate, Engineering Plate, High Temperature Plate or Textured PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	30 - 35 °C
Cooling Fan	Turn on
Printing Speed	< 200 mm/s
Retraction Length	0.8 - 1.4 mm
Retraction Speed	20 - 40 mm/s
Chamber Temperature	25 - 45 °C

Max Overhang Angle	~ 55°
Max Bridging Length	20 mm

• Properties

Bambu Lab has tested the differing aspects in the performance of TPU 95A HF material, including physical, mechanical, and chemical properties. Typical values are listed as followed:

Physical Properties		
Subjects	Testing Methods	Data
Density	ISO 1183	1.22 g/cm ³
Melt Index	210 °C, 2.16 kg	36.5 ± 2.6 g/10 min
Melting Temperature	DSC, 10 °C/min	183 °C
Glass Transition Temperature	DSC, 10 °C/min	N / A
Crystallization Temperature	DSC, 10 °C/min	N / A
Vicar Softening Temperature	ISO 306, GB/T 1633	N / A
Heat Deflection Temperature	ISO 75 1.8 MPa	N / A
Heat Deflection Temperature	ISO 75 0.45 MPa	N / A
Saturated Water Absorption Rate	25 °C, 55% RH	1.08%

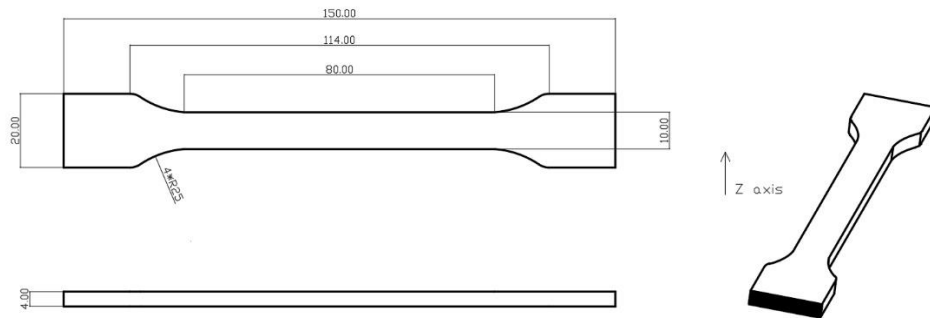
Mechanical Properties		
Subjects	Testing Methods	Data
Young's Modulus (X-Y)	ISO 527, GB/T 1040	9.8 ± 0.7 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	7.4 ± 0.6 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	27.3 ± 0.8 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	22.3 ± 0.6 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	> 650%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	> 480%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	N/A
Bending Modulus (Z)	ISO 178, GB/T 9341	N/A
Bending Strength (X-Y)	ISO 178, GB/T 9341	N/A
Bending Strength (Z)	ISO 178, GB/T 9341	N/A
Impact Strength (X-Y)	ISO 179, GB/T 1043	123.2 kJ/m ²
Impact Strength (Z)	ISO 179, GB/T 1043	86.3 kJ/m ²

Other Physical and Chemical Properties	
Subjects	Data
Odor	Odorless
Composition	Thermoplastic polyurethane
Skin Hazards	No hazard
Chemical Stability	Stable under normal storage and handling conditions
Solubility	Insoluble in water
Resistance to Acid	Not resistant
Resistance to Alkali	Not resistant
Resistance to Organic Solvent	Not resistant to some organic solvents
Resistance to Oil and Grease	Resistant to most kinds of oil and grease
Flammability	Flammable
Combustion Products	Water, carbon oxides, nitrogen oxides
Odor of Combustion Products	Pungent odor

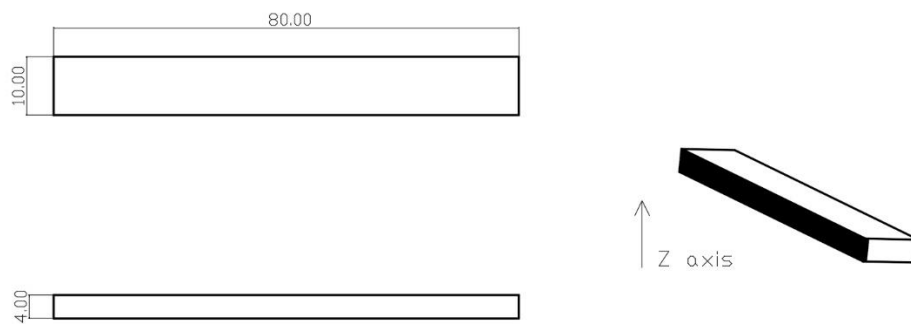
• Specimen Test

Specimen Printing Conditions	
Subjects	Data
Nozzle Temperature	230 °C
Bed Temperature	35 °C
Printing Speed	140 mm/s
Infill Density	100%
<i>*All the specimens were annealed and dried at 70 °C for 12 h before testing. It's not recommended to anneal prints of TPU, or prints with not very simple shape and structure can deform obviously. When drying the filament and annealing the prints, it's required to use an oven that has big enough inside volume and can provides even temperature distribution, such as a blast drying oven (forced-air drying oven), and the filament and prints need to be away from the heater, and a micro-wave oven or kitchen oven is not compatible, otherwise the filament and prints can get damaged.</i>	

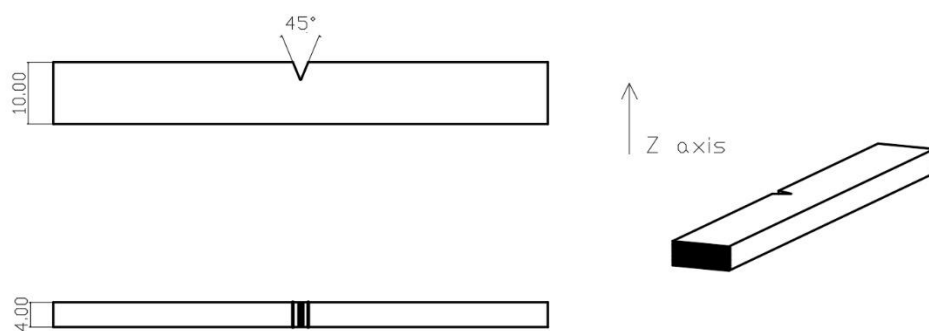
1. Tensile Testing



2. Bending Testing



3. Impact Testing



• Disclaimer

The performance values are tested by standard samples at Bambu Lab, and the values are for design reference and comparison only. Actual 3D printing model performance is related

to many other factors, including printers, printing conditions, printing models, printing parameters, etc.

In the process of using Bambu Lab 3D printing filaments, users are responsible for the legality, safety, and performance indicators of printing. Bambu Lab is not responsible for the use of materials and scenarios and is not responsible for any damage that occurs in the process of using our filaments.

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