Bambu Filament

Technical Data Sheet V3.0

ABS

• Basic Info

ABS is a technical material for 3D printing, known for its superior comprehensive properties such as high temperature resistance, UV resistance and water resistance. However, the disadvantage is that it warps easily and stinks when printing. Bambu ABS is designed to reduce warping and cracking but maintain outstanding impact resistance. In addition, it's very suitable for high-speed printing because of its good flow behavior.

• 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: 80 °C, 8 h X1 Series Printer Heatbed: 90 - 100 °C, 12 h
Printing and Storage Humidity	< 20% RH (Sealed, with desiccant)
Nozzle Size	0.2, 0.4, 0.6, 0.8 mm
Nozzle Temperature	240 - 270 °C
Build Plate Type	Engineering Plate, High Temperature Plate or Textured PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	80 - 100 °C
Cooling Fan	0 - 80%
Printing Speed	< 300 mm/s
Retraction Length	0.8 - 1.4 mm
Retraction Speed	20 - 40 mm/s
Chamber Temperature	45 - 60 °C

Max Overhang Angle	~ 70°
Max Bridging Length	~ 40 mm

• Properties

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

Physical Properties		
Subjects	**Testing Methods**	**Data**
Density	ISO 1183	1.05 g/cm³
Melt Index	260 °C, 2.16 kg	34.2 ± 3.8 g/10 min
Melting Temperature	DSC, 10 °C/min	200 °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	94 °C
Heat Deflection Temperature	ISO 75 1.8 MPa	84 °C
Heat Deflection Temperature	ISO 75 0.45 MPa	87 °C
Saturated Water Absorption Rate	25 °C, 55% RH	0.65%

Mechanical Properties		
Subjects	**Testing Methods**	**Data**
Young's Modulus (X-Y)	ISO 527, GB/T 1040	2200 ± 190 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	1960 ± 110 MPA
Tensile Strength (X-Y)	ISO 527, GB/T 1040	33 ± 3 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	28 ± 2 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	10.5 ± 1.0 %
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	4.7 ± 0.8 %
Bending Modulus (X-Y)	ISO 178, GB/T 9341	1880 ± 110 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	1590 ± 100 MPa
Bending Strength (X-Y)	ISO 178, GB/T 9341	62 ± 4 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	39 ± 4 MPa
Impact Strength (X-Y)	ISO 179, GB/T 1043	39.3 ± 3.6 kJ/m²; 21.5 ± 2.2 kJ/m² (notched)
Impact Strength (Z)	ISO 179, GB/T 1043	7.4 ± 1.2 kJ/m²

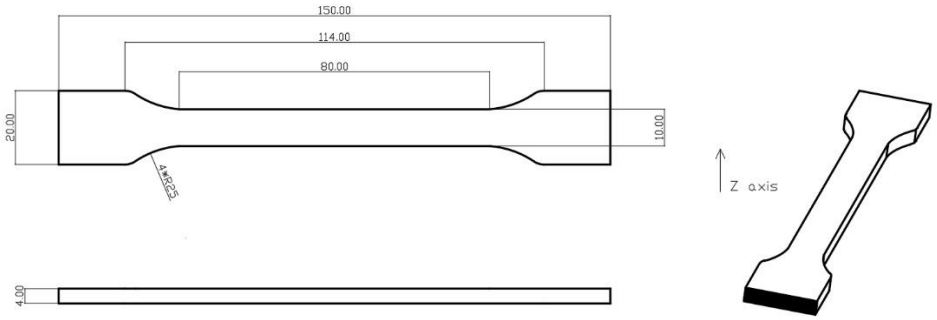
Other Physical and Chemical Properties	
Subjects	**Data**
Odor	Odorless
Composition	ABS
Skin Hazards	No hazard
Chemical Stability	Stable under normal storage and handling conditions
Solubility	Insoluble in water
Resistance to Acid	Resistant
Resistance to Alkali	Resistant
Resistance to Organic Solvent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

- **Specimen Test**

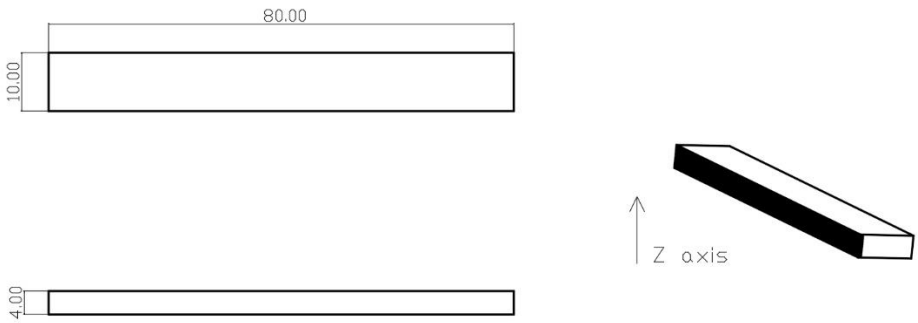
Specimen Printing Conditions	
Subjects	**Data**
Nozzle Temperature	260 °C
Bed Temperature	80 °C
Printing Speed	200 mm/s
Infill Density	100%

**All the specimens were annealed and dried at 80 °C for 12 h before testing. And the suggested annealing temperature of models printed with Bambu ABS is 80 to 90 °C, and the time is 6 to 12 hours. The annealing effect depends on the annealing temperature, time and the model itself: size, structure, infill and other printing settings; some prints may deform and warp after annealing. 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.*

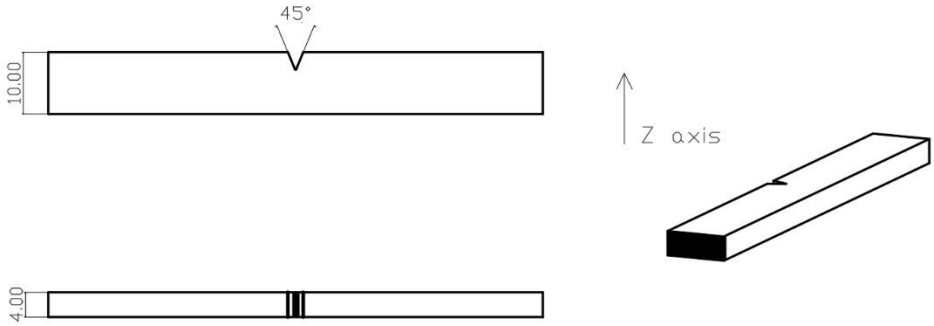
1. Tensile Testing



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.

Bambu Lab
Filament Hex Code Table

ABS

White
Hex:#FFFFFF

Bambu Green
Hex:#00AE42

Olive
Hex:#789D4A

Azure
Hex:#489FDF

Navy Blue
Hex:#0C2340

Blue
Hex:#0A2CA5

Tangerine Yellow
Hex:#FFC72C

Orange
Hex:#FF6A13

Red
Hex:#D32941

Purple
Hex:#AF1685

Silver
Hex:#87909A

Black
Hex:#000000