Bambu Filament
Technical Data Sheet V2.0

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	80 °C, 8 hours
Printing and Storage Humidity	< 20% RH (Sealed, with desiccant)
Nozzle Temperature	240 - 270 °C
Bed Type	Engineering Plate, High Temperature Plate or Textured PEI Plate
Bed Surface Preparation	PVP 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 （Dry state）		
Subjects	Testing Methods	Data
Young's Modulus (X-Y)	ISO 527, GB/T 1040	3800 ± 190 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	2960 ± 110 MPA
Tensile Strength (X-Y)	ISO 527, GB/T 1040	41 ± 1 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	32 ± 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	68 ± 3 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	45 ± 3 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 and self-extinguishing in the air
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 hours before testing.	

1. Tensile Testing
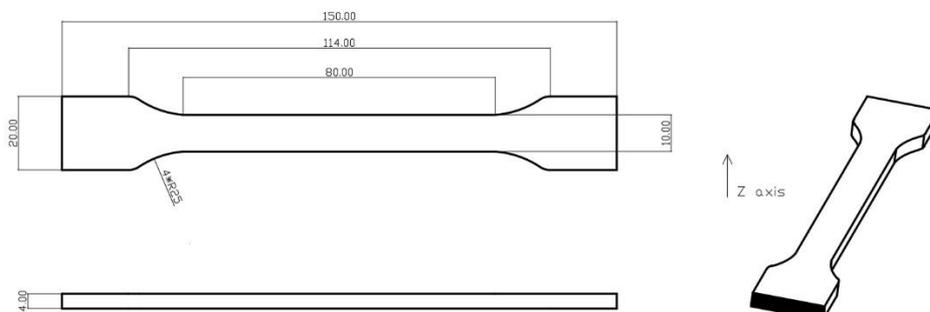
2. Bending Testing
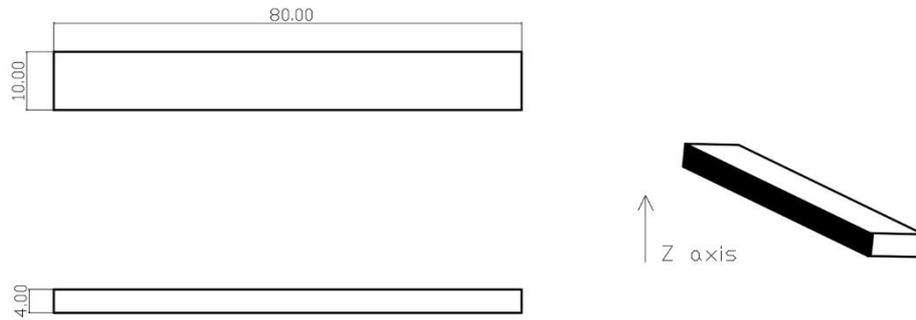
3. Impact Testing
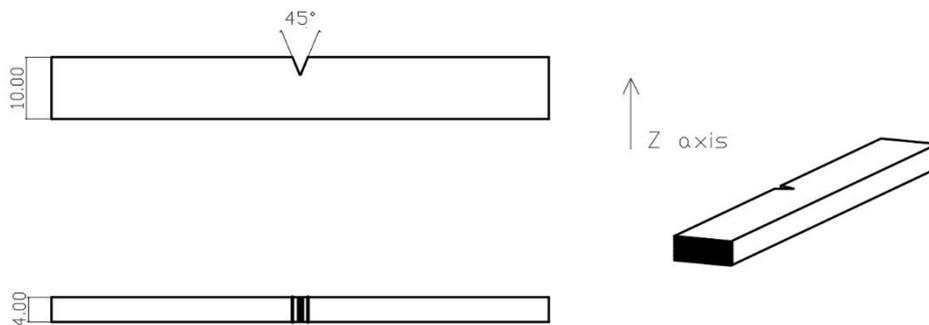
• **Disclaimer**

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.