Bambu Filament

Technical Data Sheet V3.0

PLA Basic

• Basic Info

PLA is the most common material in 3D printing as it's easy to print and inexpensive. Meanwhile, its stiffness and strength can meet most printing needs. It is worth mentioning that it can biodegrade in some artificial composting conditions. Bambu PLA Basic is designed for high-speed printing. Compared to general PLA, it can easily achieve printing speeds up to 250-300 mm/s and has excellent toughness and Z-layer strength.

• Specifications

Subjects	Data
Diameter	1.75 mm
Net Filament Weight	1 kg
Spool Material	ABS (Temperature resistance 70 ℃)
Spool Size	Diameter: 200 mm; Height: 67 mm

• Recommended Printing Settings

Subjects	Data
Drying Settings before Printing	Blast Drying Oven: 50 ℃ ， 8 h X1 Series Printer Heatbed: 60 - 70 ℃, 12 h
Printing and Storage Humidity	< 20% RH (Sealed with desiccant)
Nozzle Size	0.2, 0.4, 0.6, 0.8 mm
Nozzle Temperature	190 - 230 ℃
Bed Type	Cool Plate, High Temperature Plate or Textured PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	35 - 45 ℃
Cooling Fan	Turn on

Printing Speed	< 300 mm/s
Retraction Length	0.6 - 1.0 mm
Retraction Speed	20 - 40 mm/s
Chamber Temperature	25 - 45 ℃
Max Overhang Angle	55°
Max Bridging Length	30 mm
Support Material	Support for PLA

• Properties

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

Physical Properties		
Subjects	**Testing Methods**	**Data**
Density	ISO 1183	1.24 g/cm³
Melt Index	210 °C, 2.16 kg	23.2 ± 3.5 g/10 min
Melting Temperature	DSC, 10 °C/min	160 °C
Glass Transition Temperature	DSC, 10 °C/min	60 °C
Crystallization Temperature	DSC, 10 °C/min	N / A
Vicar Softening Temperature	ISO 306, GB/T 1633	57 °C
Heat Deflection Temperature	ISO 75 1.8 MPa	54 °C
Heat Deflection Temperature	ISO 75 0.45 MPa	57 °C
Saturated Water Absorption Rate	25 °C, 55% RH	0.43%

Mechanical Properties		
Subjects	**Testing Methods**	**Data**
Young's Modulus (X-Y)	ISO 527, GB/T 1040	2580 ± 220 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	2060 ± 170 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	35 ± 4 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	31 ± 3 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	12.2 ± 1.8 %
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	7.5 ± 1.3 %
Bending Modulus (X-Y)	ISO 178, GB/T 9341	2750 ± 160 MPa

Bending Modulus (Z)	ISO 178, GB/T 9341	2370 ± 150 MPa
Bending Strength (X-Y)	ISO 178, GB/T 9341	76 ± 5 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	59 ± 6 MPa
Impact Strength (X-Y)	ISO 179, GB/T 1043	26.6 ± 2.8 kJ/m²; 7.9 ± 1.2 kJ/m² (notched)
Impact Strength (Z)	ISO 179, GB/T 1043	13.8 ± 0.9 kJ/m²

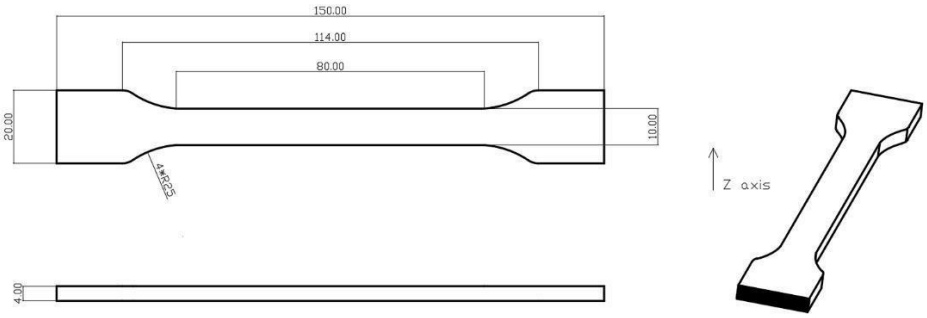
Other Physical and Chemical Properties	
Subjects	**Data**
Odor	Odorless
Composition	PLA
Skin Hazards	No hazard
Chemical Stability	Stable under normal storage and handling conditions
Solubility	Insoluble in water
Resistance to Acid	Not resistant
Resistance to Alkali	Not resistant
Resistance to Organic 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
Odor of Combustion Products	Odorless

• Specimen Test

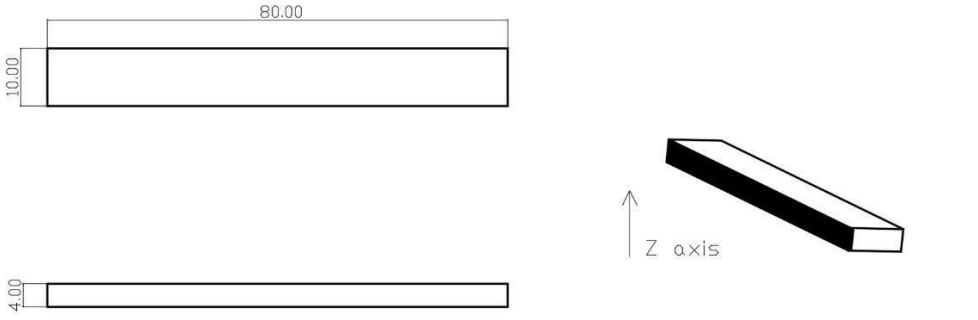
Specimen Printing Conditions	
Subjects	**Data**
Nozzle Temperature	220 °C
Bed Temperature	35 °C
Printing Speed	200 mm/s
Infill Density	100%

**All the specimens were annealed and dried at 55 °C for 8 h before testing. And the suggested annealing temperature of models printed with Bambu PLA Basic is 50 to 60 °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.*

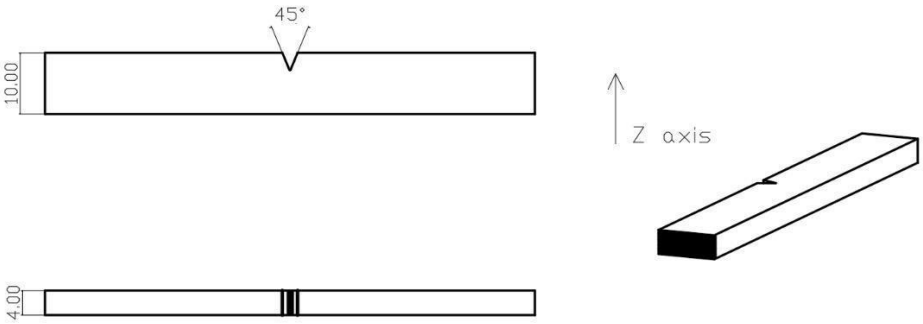
1. Tensile Testing



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

PLA Basic

Jade White Hex:#FFFFFF	**Beige** Hex:#F7E6DE	**Light Gray** Hex:#D1D3D5	**Silver** Hex:#A6A9AA	**Gray** Hex:#8E9089
Magenta Hex:#EC008C	**Pink** Hex:#F55A74	**Hot Pink** Hex:#F5547C	**Orange** Hex:#FF6A13	**Pumpkin Orange** Hex:#FF9016
Gold Hex:#E4BD68	**Sunflower Yellow** Hex:#FEC600	**Yellow** Hex:#F4EE2A	**Bright Green** Hex:#BECF00	**Bambu Green** Hex:#00AE42
Mistletoe Green Hex:#3F8E43	**Bronze** Hex:#847D48	**Cocoa Brown** Hex:#6F5034	**Brown** Hex:#9D432C	**Maroon Red** Hex:#9D2235
Red Hex:#C12E1F	**Turquoise** Hex:#00B1B7	**Cyan** Hex:#0086D6	**Blue** Hex:#0A2989	**Cobalt Blue** Hex:#0056B8
Purple Hex:#5E43B7	**Indigo Purple** Hex:#482960	**Blue Grey** Hex:#5B6579	**Dark Gray** Hex:#545454	**Black** Hex:#000000