Bambu Filament

Technical Data Sheet V2.0

PLA-CF

• Basic Info

Bambu PLA-CF is a custom-blended tough PLA with carbon fibers added to improve the hardness and bending modulus while still retaining the easy printing and dimensional stability of normal PLA. The resulting prints have a matte finish with almost invisible layer lines, making them ideal for prototypes of components that have to have a premium non-glossy look.

• Specifications

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

• Recommended Printing Settings

Subjects	Data
Drying Settings before Printing	55 °C, 8 hours
Printing and Storage Humidity	< 20% RH (Sealed with desiccant)
Nozzle Temperature	210 - 240 °C
Bed Type	Cool Plate, High Temperature Plate or Textured PEI Plate
Bed Surface Preparation	PVP Glue
Bed Temperature	35 - 45 °C
Cooling Fan	100%
Printing Speed	<200 mm/s
Retraction Length	0.6 - 1.0 mm
Retraction Speed	20 - 40 mm/s
Chamber Temperature	25 - 45 °C
Max Overhang Angle	55°

Subjects	Data
Max Bridging Length	30 mm
Support Material	Bambu Support for PLA

• Properties

Bambu Lab has tested the differing aspects in the performance of PLA-CF 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/cm³
Melt Index	210 °C, 2.16 kg	3.7 ± 0.6 g/10 min
Melting Temperature	DSC, 10 °C/min	165 °C
Glass Transition Temperature	DSC, 10 °C/min	63 °C
Crystallization Temperature	DSC, 10 °C/min	N/A
Vicar Softening Temperature	ISO 306, GB/T 1633	69 °C
Heat Deflection Temperature	ISO 75 1.8 MPa	54 °C
Heat Deflection Temperature	ISO 75 0.45 MPa	55 °C
Saturated Water Absorption Rate	25 °C, 55% RH	0.42%

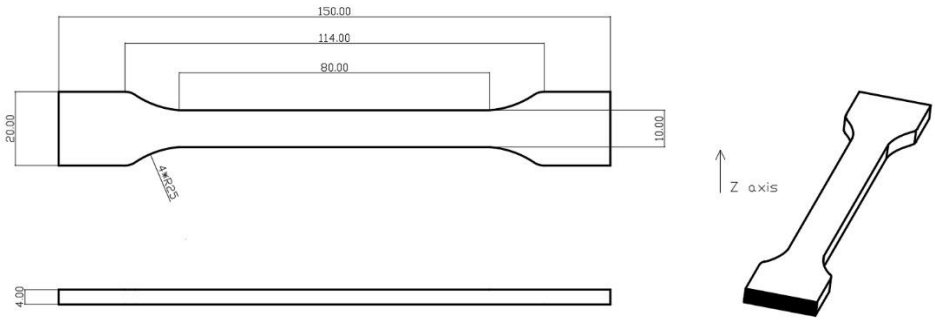
Mechanical Properties（Dry state）		
Subjects	**Testing Methods**	**Data**
Young's Modulus (X-Y)	ISO 527, GB/T 1040	2790 ± 120 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	2160 ± 90 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	38 ± 4 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	26 ± 2 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	12.7 ± 3.4%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	3.6 ± 0.7%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	3700 ± 220 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	2260 ± 180 MPa
Bending Strength (X-Y)	ISO 178, GB/T 9341	96 ± 3 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	49 ± 2 MPa
Impact Strength (X-Y)	ISO 179, GB/T 1043	23.2 ± 3.7 kJ/m²; 7.6 ± 2.6 kJ/m² (notched)
Impact Strength (X-Y)	ISO 179, GB/T 1043	7.8 ± 0.7 kJ/m²;

Other Physical and Chemical Properties	
Subjects	**Data**
Odor	Odorless
Composition	Polylactic acid, carbon fiber
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 and self-extinguishing in the air
Combustion Products	Water, carbon oxides
Odor of Combustion Products	Odorless

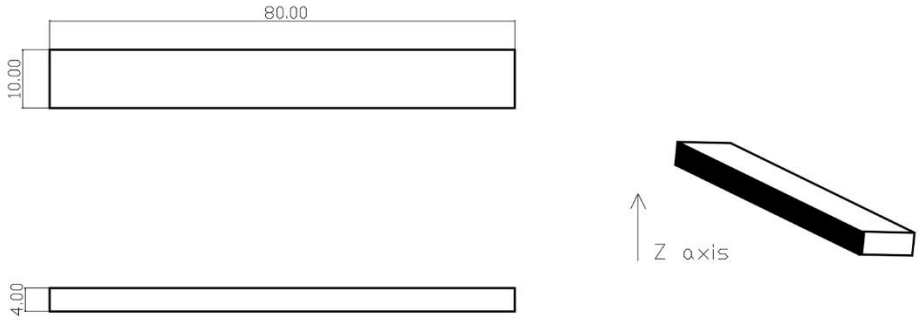
- **Specimen Test**

Specimen Printing Conditions	
Subjects	**Data**
Nozzle Temperature	230 °C
Bed Temperature	35 °C
Printing Speed	180 mm/s
Infill Density	100%
**All the specimens were annealed and dried at 55 °C for 8 hours before testing.*	

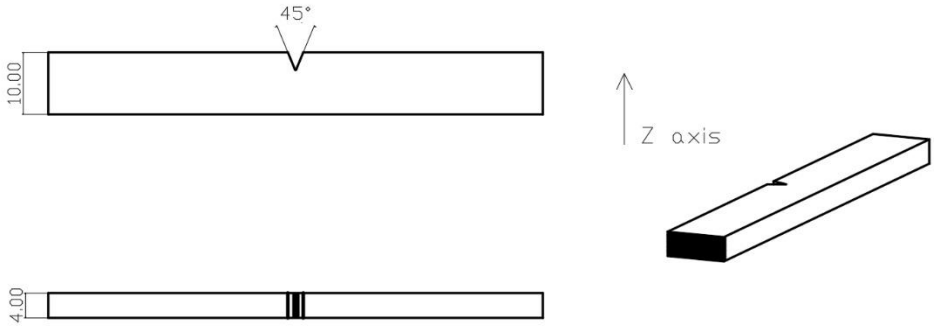
1. Tensile Testing



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.