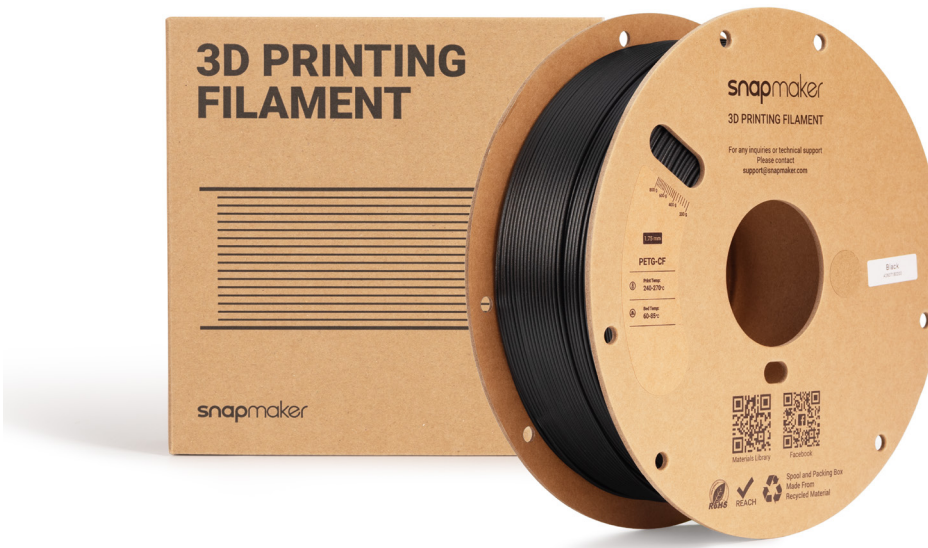
snapmaker | **PETG-CF**

Technical Data Sheet



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1 Filament Introduction

PETG-CF is reinforced with carbon fiber to enhance the stiffness and strength of printed parts, making it suitable for load-bearing components and engineering fixtures. Its heat deflection temperature of 72.3°C helps resist deformation in elevated-temperature environments and supports outdoor applications. The carbon fiber texture also reduces the visibility of layer lines for a refined surface finish. Combining the low-warping properties of PETG with carbon fiber reinforcement, the formulation helps reduce shrinkage and edge lifting for reliable large-format printing.

2 Specifications

Subjects	Data
Diameter	1.75 ± 0.03 mm
Net Filament Weight	1 kg
Length	325 m/kg
Spool Material	Cardboard Spool
Spool Size	Diameter: 200 mm; Height: 66 mm

3 Recommended Printing Settings

Subjects	Data
Drying Settings Before Printing	65°C , 8 h
Printing and Storage Humidity	< 20% RH (Sealed, with Desiccant)
Nozzle Size	0.4 / 0.6 / 0.8 mm
Nozzle Temperature	240–270°C
Bed Type	Textured PEI Plate, Smooth PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	60–85°C
Cooling Fan	OFF
Printing Speed	< 200 mm/s
Retraction Length	1–1.5 mm

(continued)

Subjects	Data
Retraction Speed	20-30 mm/s
Chamber Temperature	25–50°C
Max Overhang Angle	~ 70 °
Max Bridging Length	~ 30 mm
Support Material	N/A

Printing Tips

1. Drying & Storage

- **Pre-Dry**: PETG-CF has moderate moisture sensitivity, so drying before use is optional. However, pre-drying is recommended for optimal print results. The recommended setting is 65°C for 8 hours.
- **Storage**: When not in use, we recommend keeping the filament away from direct sunlight in a sealed container with desiccant.

2. Printing

- **Use Manual Loading:** PETG-CF is an abrasive filament that may accelerate wear on the printer's automatic filament feeder. To protect the feeder and extend its service life, **do not use the automatic feeding function. Always load and unload the filament manually.** *(Note: Since the RFID readers are located near the spool holders on both sides of the printer, RFID detection is unavailable during manual filament loading unless the spool is placed on a holder.)*
- **Use Hardened Steel Hot Ends:** The carbon fibers are abrasive. Replace the U1's standard stainless steel hot ends with hardened steel ones (sold separately) to minimize nozzle wear.
- **Hot End Size:** Do not use hot ends smaller than 0.4 mm, as they may cause clogging.
- **Improving Layer Adhesion:** If layer adhesion is insufficient, try reducing the print speed or cooling fan speed, or slightly increasing the nozzle temperature.
- **Carbon Fiber Debris Precautions:** Carbon fibers may give the filament and printed parts a slightly prickly feel. Direct contact with rough or damaged surfaces and cross-sections during cutting or sanding may cause skin irritation. Do not rub or touch rough edges or fractured surfaces with bare hands. Always wear protective gloves when loading or unloading the filament and during post-processing.

4 Properties

Physical Properties

Subjects	Testing Methods	Data
Density	ISO1183, GB/T1033	1.28 g/cm³ at 23°C
Melt Index	230°C , 2.16 kg	5-12 g/10min
Melting Temperature	DSC, 10 °C/min	N/A
Glass Transition Temperature	DSC, 10 °C/min	76.6°C
Decomposition Temperature	TGA, 20 °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	72.3°C
Saturated Water Absorption Rate	23°C, 70% RH	N/A

Mechanical Properties

Subjects	Testing Methods	Data
Young's Modulus (X-Y)	ISO 527, GB/T 1040	3005.18 ± 44.20 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	2205.16 ± 26.08 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	57.20 ± 0.48 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	35.37 ± 0.70 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	6.90 ± 1.53%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	2.50 ± 0.15%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	3184.10 ± 49.85 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	2324.59 ± 43.58 MPa
Bending Strength (X-Y)	ISO 178, GB/T 9341	91.72 ± 0.81 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	64.77 ± 1.30 MPa
Impact Strength (X-Y)	ISO 179, GB/T 1043	30.91 ± 2.12 kJ/m²
Impact Strength (Z)	ISO 179, GB/T 1043	8.71 ± 1.51 kJ/m²

Other Physical and Chemical Properties

Subjects	Data
Odor	Odorless
Composition	Thermoplastic Polyester
Skin Hazards	Non-Hazardous
Chemical Stability	Stable under normal storage and handling conditions
Solubility	Insoluble in Water
Resistance to Acid	N/A
Resistance to Alkali	N/A
Resistance to Organic Solvent	N/A
Resistance to Oil and Grease	Good
Flammability	Flammable
Combustion Products	Water, Carbon Oxides
Odor of Combustion Products	Pungent Odor

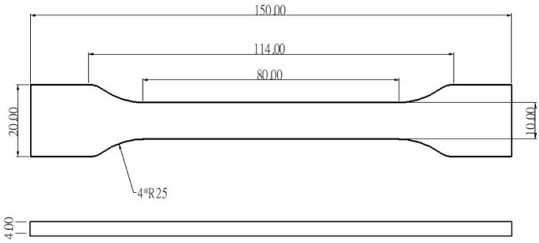
5 Specimen Test

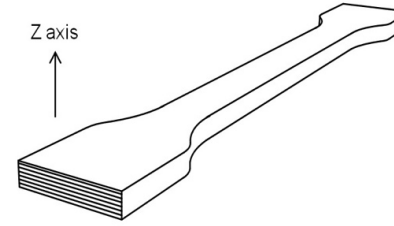
Specimen Printing Conditions

Subjects	Data
Nozzle Temperature	260°C
Bed Temperature	70°C
Printing Speed	50 mm/s
Infill Density	100%

Based on 0.4 mm nozzle. Printing conditions may vary with different nozzle diameters.

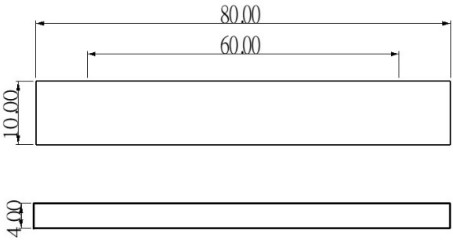
Tensile Testing Specimen

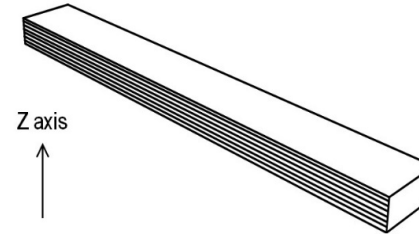




ISO 527, GB/T 1040

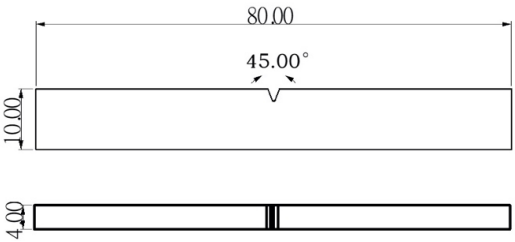
Flexural Testing Specimen

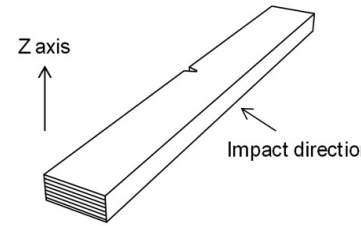




ISO 178, GB/T 9341

Impact Testing Specimen

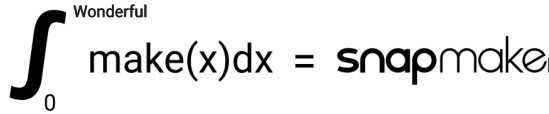




ISO 179, GB/T 1043

6 Disclaimer

The performance and printing parameters of the aforementioned filaments are obtained by Snapmaker through testing filament samples with sample 3D printers. All data provided is for reference and comparison purposes only, and does not constitute design specifications or any warranty of quality. Actual 3D printing quality and final part performance are subject to various factors including, but not limited to, printer equipment, model design, environmental conditions, and printing parameters. Users shall independently evaluate the compliance and safety of printed models and finished parts, including legal compliance, application safety, and structural reliability. Snapmaker shall not be held liable for any direct or indirect losses arising from the use of the aforementioned filaments, including equipment damage, print failure, personal injury, and property damage.



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