

snapmaker

PETG HF User Guide



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Snapmaker PETG HF is a printing filament compatible with the full range of Snapmaker 3D printers and most mainstream FDM (Fused Deposition Modeling) 3D printers on the market. This guide covers the filament's technical specifications, usage procedures, storage guidelines, common issues and solutions, and safety precautions.

1 Product Overview

Snapmaker PETG HF is a 3D printing filament specifically engineered for high-speed printing and enhanced durability. It supports printing speeds of up to 300 mm/s, significantly reducing the time required for creative and production workflows. Its excellent flexural resistance and interlayer adhesion make it well-suited for high-strength functional parts such as hooks and brackets. Outstanding resistance to water, temperature, UV radiation, and weak acids/alkalis ensures long-term stability in both indoor and outdoor environments. The optimized formulation delivers stable and reliable extrusion even at high speeds, preventing gaps or voids. With clean lines and sharp detail reproduction, every print achieves the desired finish and precision.



2 Specifications

Subjects	Data
Diameter	1.75 ± 0.02 mm
Net Filament Weight	1 kg
Length	320 m/kg
Spool Material	Cardboard Spool
Spool Size	Diameter: 200 mm; Height: 66 mm

Recommended Printing Settings

Subjects	Data
Drying Settings Before Printing	65°C , 6 h
Printing and Storage Humidity	< 20% RH (Sealed, with Desiccant)
Nozzle Size	0.2/0.4/0.6/0.8 mm
Nozzle Temperature	240–260°C
Bed Type	PC Plate, Textured PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	60–80°C
Cooling Fan	ON, 20–40%
Printing Speed	< 300 mm/s
Retraction Length	1–3 mm
Retraction Speed	30 mm/s

Physical Properties

Subjects	Testing Methods	Data
Density	ISO 1183	1.30 g/cm ³ at 23°C
Melt Index	230°C , 2.16 kg	16.3 g/10 min
Melting Temperature	DSC, 10 °C/min	N/A
Glass Transition Temperature	DSC, 10 °C/min	71.24°C
Decomposition Temperature	TGA, 20 °C/min	405.49°C
Crystallization Temperature	DSC, 10 °C/min	N/A
Vicar Softening Temperature	ISO 306, GB/T 1633	75°C
Heat Deflection Temperature	ISO 75, 1.8 MPa	69°C
Heat Deflection Temperature	ISO 75, 0.45 MPa	65°C
Saturated Water Absorption Rate	23°C, 70% RH	0.51%

Mechanical Properties

Subjects	Testing Methods	Data
Young's Modulus (X-Y)	ISO 527, GB/T 1040	2311.11 ± 92.41 MPa
Young's Modulus (Z)	ISO 527, GB/T 1040	2202.91 ± 52.34 MPa
Tensile Strength (X-Y)	ISO 527, GB/T 1040	47.96 ± 4.88 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	45.71 ± 1.76 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	9.33 ± 6.57%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	3.54 ± 2.35%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	2277.34 ± 198.09 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	1958.74 ± 126.39 MPa
Bending Strength (X-Y)	ISO 178, GB/T 9341	80.08 ± 3.53 MPa
Bending Strength (Z)	ISO 178, GB/T 9341	57.65 ± 5.63 MPa
Impact Strength (X-Y)	ISO 179, GB/T 1043	4.95 ± 0.55 kJ/m ² (Notched); 20.24 ± 3.95 kJ/m ²
Impact Strength (Z)	ISO 179, GB/T 1043	15.74 ± 3.91 kJ/m ²

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

Specimen Printing Conditions

Subjects	Data
Nozzle Temperature	240°C
Bed Temperature	80°C
Printing Speed	50 mm/s
Infill Density	100%



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

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.

3 Usage Procedure



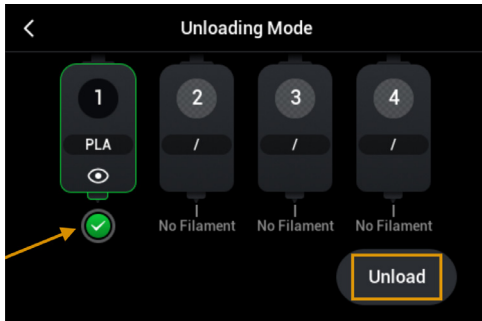
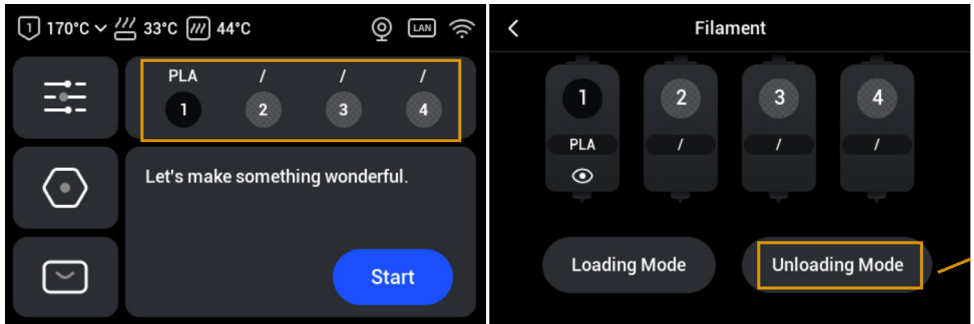
This section demonstrates the usage procedure using the Snapmaker U1 model.



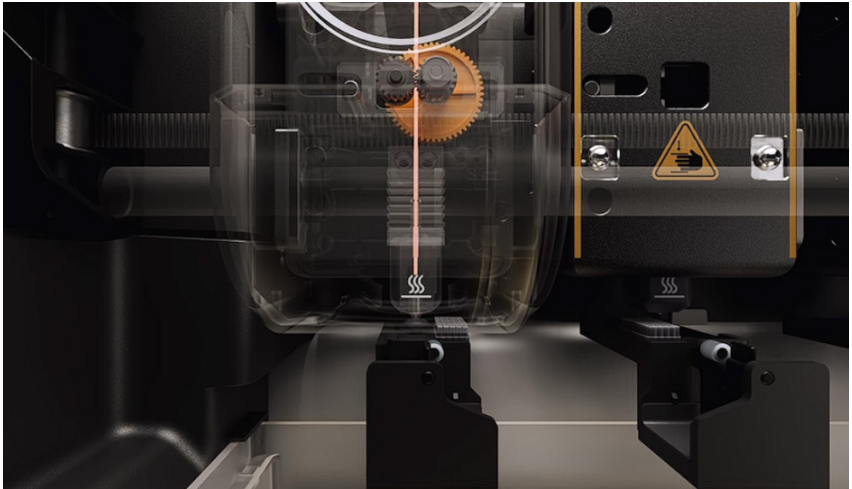
Since PETG and PLA are both rigid filaments, the procedure in this section is demonstrated using PLA as an example.

Filament Unloading

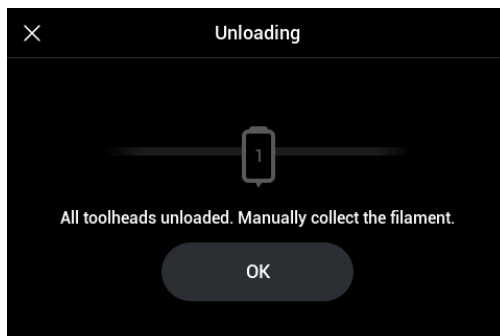
1. On the touchscreen main interface, navigate to the Filament page. Tap **Unloading Mode**. Select all toolheads requiring unloading, then tap **Unload**.



2. The printer will extract the selected toolhead and automatically heat the nozzle. Once the nozzle reaches the target temperature, the extrusion gears will retract the filament upwards, completing the unloading process.



3. The printer will sequentially unload the filament from the other selected toolheads. Once all unloading is complete, tap **OK**.



4. Rotate the spool to retract the filament from the tube until the white indicator light on the corresponding feeder turns off.



5. Thread the end of the filament through the two locking holes on the spool to prevent loosening or tangling.



6. Remove the spool from the spool holder.



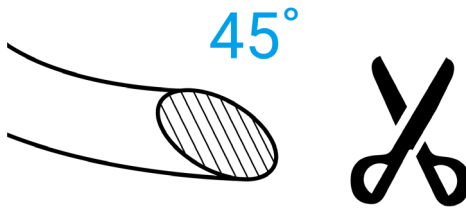
7. Repeat the steps above until all intended filaments have been successfully retrieved.

Automatic Loading



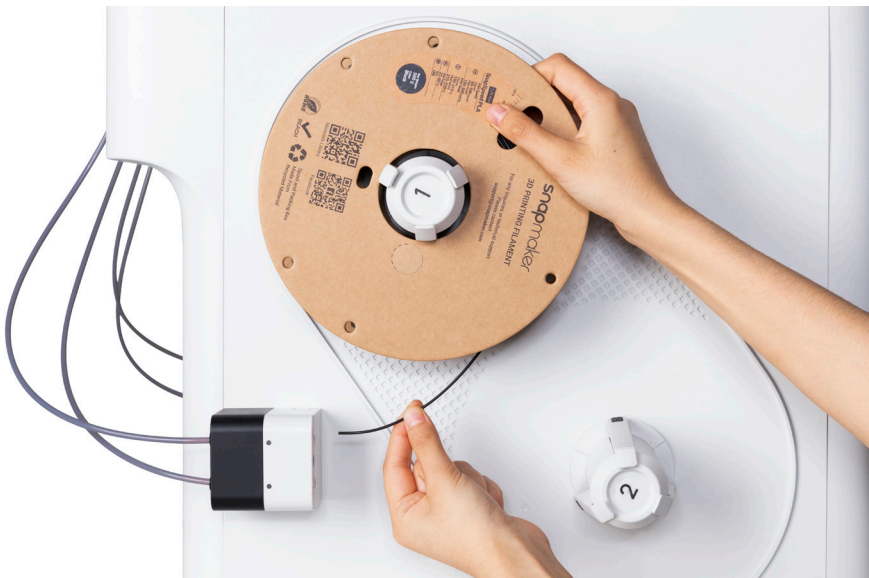
For rigid filament or flexible filament rated 95A or above, the default mode Automatic Loading is recommended. For flexible filament rated below 95A, please follow the instructions for Manual Loading.

1. Trim the end of the filament at an approximately 45° angle with diagonal cutters.



This reduces feeding resistance, thus enhancing the success rate.

2. Mount the filament spool on the spool holder. Make sure the filament can be pulled tangentially from the bottom of the spool.

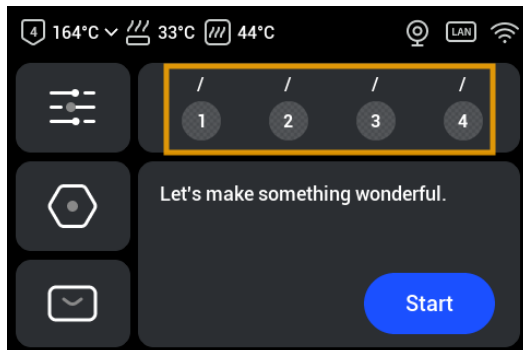


3. Insert the filament into the feeder until the white indicator light turns on.

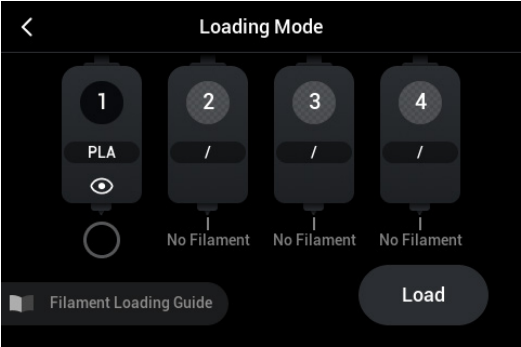


If the feeder's white light is blinking, feeding is still in progress.
If the white light remains steady, pre-loading is complete.

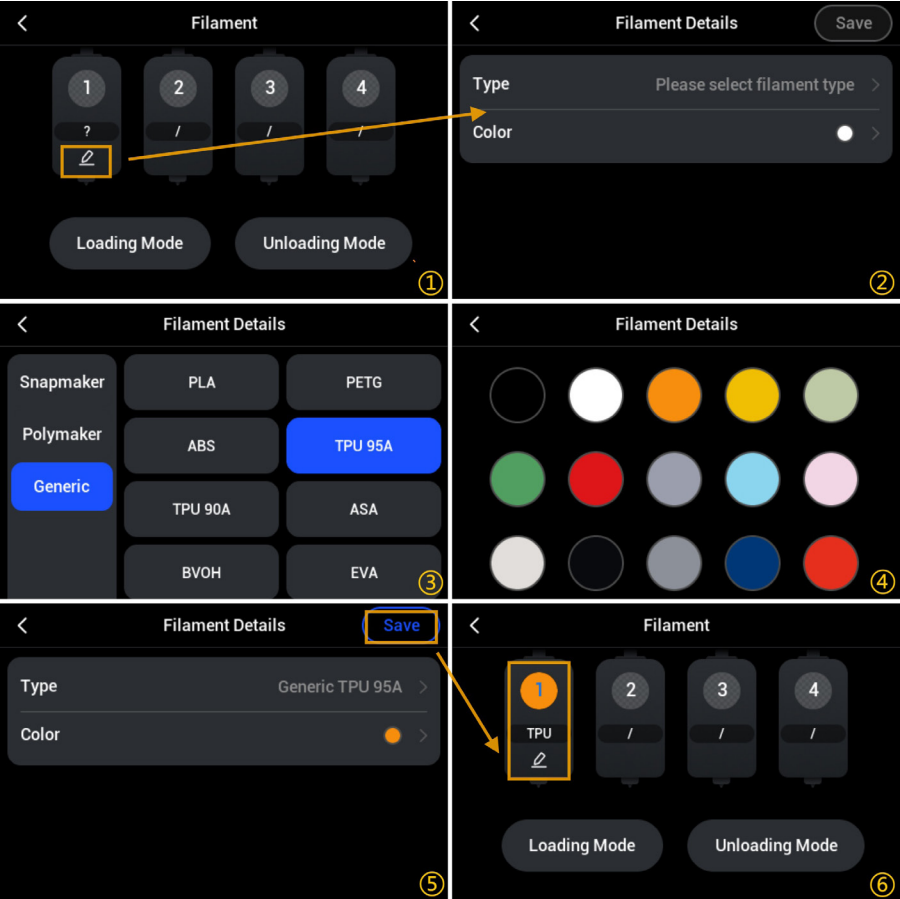
4. On the touchscreen main interface, navigate to the Filament page to edit filament information.



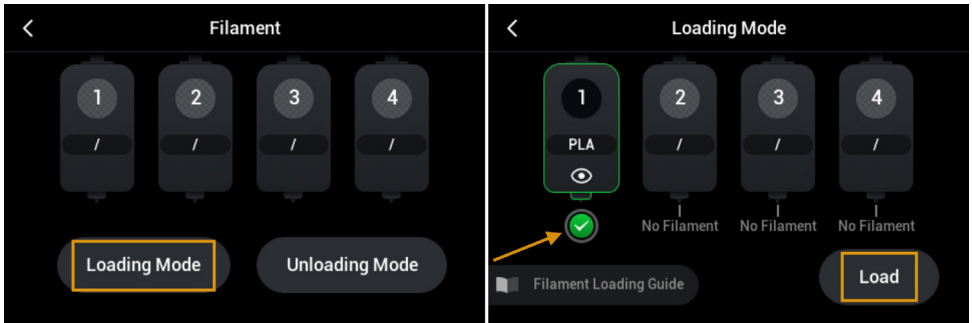
If using RFID-equipped Snapmaker official filament, the device will automatically recognize the filament information; no manual editing is needed.



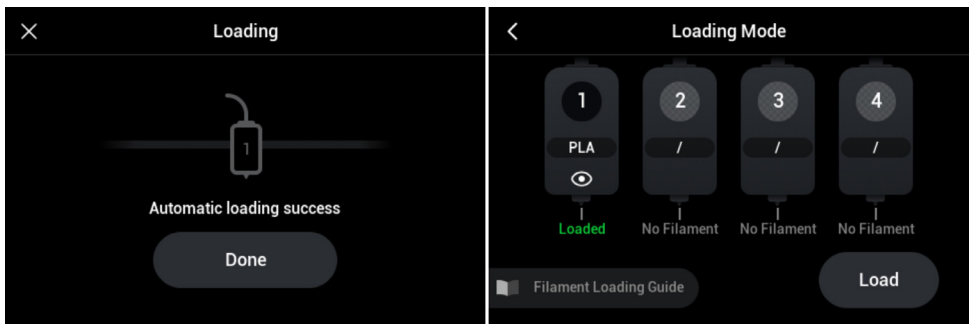
For third-party filament or Snapmaker filament without RFID, manual editing is required. Tap the icon below the corresponding filament > Select filament type and color > **Save**.




5. On the Filament page, tap **Loading Mode** > Select the corresponding filament > **Load**.



6. The printer will automatically perform the following steps: extract the toolhead, feed filament into the nozzle, heat the nozzle, extrude filament, and cleanse old material from the toolhead. Upon completion, tap **Done** on the screen.



 The filament status is now updated to **Loaded**.

Test Print and Final Print

1. **Test Print:** Before printing a final part, it is recommended to print a small test model (e.g., a 20 × 20 × 20 mm calibration cube) to verify smooth extrusion, proper formation, and nozzle condition. Proceed to the final print only if no abnormalities are observed.

2. **Final Print:** Import the model file into the 3D printer and start the printing process. Ensure the filament spool is securely positioned to prevent it from falling off the spool holder during printing, which could disrupt the process.

Printing Tips

1. Drying & Storage

- **Pre-Dry:** This filament is pre-dried and vacuum-sealed for immediate use upon opening. However, PETG is sensitive to moisture; if left exposed for a long time, we recommend drying it at 65°C for 6 hours before printing to ensure the best results.
- **Re-Dry:** If the filament has been left out for a while, always re-dry it before use.
- **Storage:** Once unboxed, it is best to keep the filament in a sealed container with desiccant.

2. Printing

- **Moisture Control:** Due to its high hygroscopicity, we recommend printing PETG directly from a sealed container with desiccant to ensure optimal quality. If exposed to air for a long time, print quality may significantly degrade. If you hear popping or crackling sounds during extrusion, the filament must be dried.
- **If a Sealed Container with Desiccant Is Unavailable:** Consider shortening the print time by reducing the overall model size, lowering the infill density, or increasing the layer height to minimize moisture exposure.
- **Cooling & Adhesion:** Print with the cooling fan turned off or at a very low speed. Rapid cooling can significantly weaken layer adhesion in PETG. If you still encounter adhesion issues while the fan is off, try increasing the printing temperature.
- **Flow Rate:** For optimal performance, we recommend a maximum volumetric speed of 15 mm³/s.

4 Storage Instructions

3D printing filament storage conditions directly affect print quality. To extend filament service life, strictly follow the guidelines below:

1. PETG is hygroscopic and will absorb moisture from the air if stored for extended periods in humid environments, potentially causing issues such as stringing, bubbling, and rough surface finish during printing. Store PETG HF filament and printed parts in a dry, cool, well-ventilated area, away from direct sunlight, high temperature, and high humidity (recommended ambient temperature: 10–30°C, humidity <20% RH). Keep away from open flames, heat sources (e.g., heaters, ovens), and corrosive substances.
2. Unopened filament: Keep sealed in its original packaging to prevent moisture absorption and contamination. Filament may degrade in performance and cause printing anomalies if stored for overly extended periods. Use promptly after purchase.
3. Opened filament: PETG is relatively prone to moisture absorption. After use, promptly reseal the remaining filament in a sealed bag or a dedicated storage container, adding desiccant (e.g., silica gel). It is recommended to use opened filament within one month. If stored for an extended period, dry the filament before printing: 55–65°C for 4–8 hours. In humid regions, use the filament as soon as possible or ensure it is properly sealed.
4. Spool care: Avoid dropping, crushing, or impacting the spool to prevent deformation that may cause filament tangling. If tangling occurs, do not force the filament. Gently straighten it before use to avoid breakage.

5 Common Issues and Troubleshooting

Common Issue	Potential Cause	Recommended Solution
No extrusion/filament breakage	<ol style="list-style-type: none"> 1. Filament absorbed moisture/clumped. 2. Nozzle temperature too low, filament not fully melted. 3. Extruder gear pressure insufficient or slipping. 4. Nozzle clogged. 	<ol style="list-style-type: none"> 1. Dry the filament. 2. Increase nozzle temperature by 5–10°C. 3. Adjust extruder gear tension; clean debris from the gear. 4. Clear nozzle clog using appropriate tools.
Bubbles or stringing on surface	<ol style="list-style-type: none"> 1. Filament absorbed moisture. 2. Nozzle temperature too high. 3. Cooling fan off or inadequate airflow. 4. Printing speed too fast. 	<ol style="list-style-type: none"> 1. Dry the filament. 2. Decrease nozzle temperature by 5–10°C. 3. Turn on cooling fan and adjust fan speed. 4. Reduce printing speed appropriately.
Edge warping/part detaching from bed	<ol style="list-style-type: none"> 1. Bed temperature too low. 2. Bed surface not clean, poor adhesion. 3. Large temperature fluctuations or drafts in printing environment. 4. Filament shrinkage rate too high. 	<ol style="list-style-type: none"> 1. Increase bed temperature. 2. Clean bed with isopropyl alcohol; apply dedicated bed adhesive if needed. 3. Maintain stable ambient temperature, avoid drafts. 4. Adjust print parameters, reduce cooling fan speed.
Filament tangle/feeding jam	<ol style="list-style-type: none"> 1. Spool deformed. 2. Spool placed at an incorrect angle. 3. Filament kinked or damaged. 	<ol style="list-style-type: none"> 1. Replace with an undamaged spool. 2. Adjust spool placement angle to ensure smooth feeding. 3. Cut away damaged/kinked sections and reload filament.
Weak layer adhesion/delamination	<ol style="list-style-type: none"> 1. Nozzle temperature too low. 2. Printing speed too high. 3. Cooling fan speed too high. 	<ol style="list-style-type: none"> 1. Increase nozzle temperature. 2. Reduce printing speed. 3. Lower cooling fan appropriately.

6 Safety Precautions

1. High-Temperature Protection: During printing, the nozzle and molten filament reach extremely high temperatures. Do not touch the nozzle, filament guide tube, or freshly printed hot models to prevent burns. PETG HF requires a relatively high printing temperature, and the heated components take longer to cool down. After printing, always wait for the nozzle and heated bed to cool completely before handling. Children must be supervised by an adult at all times.

2. Environmental Ventilation: When heated, PETG emits trace amounts of volatile organic compounds (VOCs) and ultrafine particles. Although its emission levels are significantly lower than those of ABS, prolonged printing in an enclosed space may still lead to accumulation. It is recommended to use the printer in a well-ventilated area or with an air purification system. When printing reinforced versions such as PETG-CF, use an enclosed printer and ensure adequate ventilation.

3. Equipment Operation: Strictly follow the printer's operating guidelines. Do not disassemble or modify the printer arbitrarily. When installing or changing filament, ensure the printer is powered off or in standby mode to prevent accidental injury.

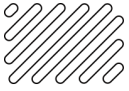
7 Additional Notes

1. This document is the user guide for Snapmaker PETG HF filament. For issues not covered in this guide, contact Snapmaker official customer support for professional technical assistance.

2. Regular printer maintenance (cleaning nozzle, extruder gear, and build plate) together with high-quality filament is recommended to improve printing outcomes and extend the lifespan of both the equipment and the filament.

8 After-sales Service

For questions regarding printing techniques or filament usage, please contact Snapmaker official customer support for one-on-one operational guidance.



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"The world is but a canvas to our imagination."
— Henry David Thoreau