snapmaker

PEBA 90A User Guide



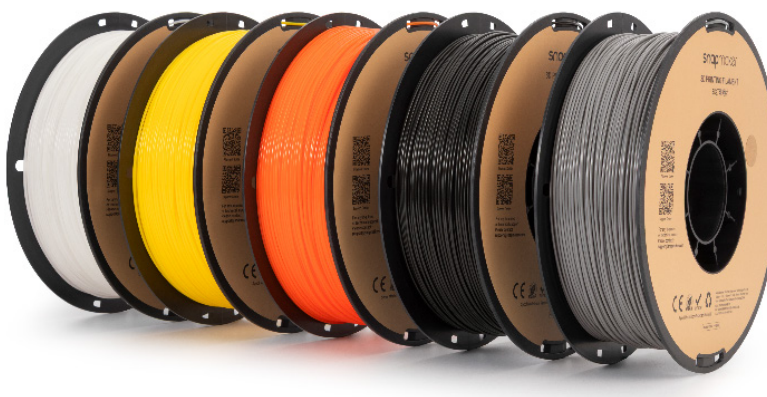
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Snapmaker PEBA 90A is a printing filament compatible with the full range of Snapmaker 3D printers and most mainstream FDM (Fused Deposition Modeling) 3D printers on the market. This guide covers the filament's technical specifications, usage procedure, storage instructions, common issues and troubleshooting, and safety precautions.

1 Product Overview

PEBA 90A is a performance material developed for high-rebound requirements. It offers a combination of good flexibility and outstanding rebound, making it ideal for sports and footwear applications. Its lightweight nature delivers improved energy return without adding weight, helping reduce the weight of finished products and meet lightweight demands in sports footwear, sporting goods, and related fields. PEBA also provides good wear resistance for durable, reliable performance under prolonged friction and repeated use. Multiple color options are available to meet diverse design requirements.



2 Specifications

Subjects	Data
Diameter	1.75 mm ± 0.1 mm
Net Filament Weight	800 g
Length	305 m
Spool Material	HIPS (Resistance: ≤ 80°C)
Spool Size	Diameter: 200 mm; Height: 64 mm

Recommended Printing Settings

Subjects	Data
Drying Settings Before Printing	75°C for 8 h
Printing and Storage Humidity	< 20% RH (Sealed, with Desiccant)
Nozzle Size	0.4 / 0.6 / 0.8 mm
Nozzle Temperature	220°C–250°C
Bed Type	Textured PEI Plate, Smooth PEI Plate
Bed Surface Preparation	Glue
Bed Temperature	90°C–100°C
Cooling Fan	ON
Printing Speed	Up to 107 mm/s
Retraction Length	1 mm–1.5 mm
Retraction Speed	15 mm/s–25 mm/s
Chamber Temperature	50°C–60°C
Max Overhang Angle	30°
Max Bridging Length	≤ 10 mm
Support Material	PETG / PLA

Physical Properties

Subjects	Testing Methods	Data
Density	ISO 1183	1.01 g/cm³–1.05 g/cm³
Shore A		90 A
Melt Index	210°C, 2.16 kg	8 g–16 g/10 min
Melting Temperature	DSC, 10°C/min	125°C–165°C
Glass Transition Temperature	DSC, 10°C/min	/
Decomposition Temperature	TGA, 20°C/min	/
Crystallization Temperature	DSC, 10°C/min	/
Vicat Softening Temperature	ISO 306, GB/T 1633	≥ 105°C
Heat Deflection Temperature	ISO 75 1.8 MPa	/
Heat Deflection Temperature	ISO 75 0.45 MPa	/
Saturated Water Absorption Ratex	25 °C, 55% RH	/

Mechanical Properties

Subjects	Testing Methods	Data
Young's Modulus (X-Y)	ISO 527, GB/T 1040	N/A
Young's Modulus (Z)	ISO 527, GB/T 1040	N/A
Tensile Strength (X-Y)	ISO 527, GB/T 1040	≥ 16.0 MPa
Tensile Strength (Z)	ISO 527, GB/T 1040	7.0 MPa
Breaking Elongation Rate (X-Y)	ISO 527, GB/T 1040	≥ 500%
Breaking Elongation Rate (Z)	ISO 527, GB/T 1040	140%
Bending Modulus (X-Y)	ISO 178, GB/T 9341	80 MPa
Bending Modulus (Z)	ISO 178, GB/T 9341	N/A

(continued)

Bending Strength (X-Y)	ISO 178, GB/T 9341	N/A
Bending Strength (Z)	ISO 178, GB/T 9341	N/A
Impact Strength (X-Y)	ISO 179, GB/T 1043	N/A
Impact Strength (Z)	ISO 179, GB/T 1043	N/A
Maximum Resilience	ASTM D2632	65%–70%
DIN Abrasion*	ISO 4649	< 50 mm^3

*Tested on raw material, not on printed parts.

Other Physical and Chemical Properties

Subjects	Data
Odor	Odorless
Composition	Polyether Block Amide
Skin Hazards	No hazard
Chemical Stability	Long-term stable at 23 °C; chemical resistance markedly deteriorates above 100 °C, prone to hydrolysis/swelling.
Solubility	Insoluble in Water
Resistance to Acid	Weak Acids: Good
Resistance to Alkali	Excellent at RT
Resistance to Organic Solvent	Resistant to most non-polar/weakly polar organic solvents; not resistant to strongly polar solvents.
Resistance to Oil and Grease	Resistant to most kinds of oil and grease
Flammability	Flammable
Combustion Products	Water, Carbon Oxides, Nitrogen, minor nitrogen oxides (NO, NO_2)
Odor of Combustion Products	Slight Pungent Odor

Specimen Printing Conditions

Subjects	Data
Nozzle Temperature	240°C
Bed Temperature	90°C
Printing Speed	25 mm/s
Infill Density	100%

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

Disclaimer

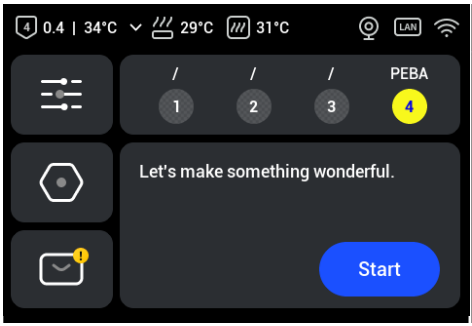
The performance and printing parameters of the aforementioned filaments are obtained by Snapmaker through testing filament samples with sample 3D printers. All data provided is for reference and comparison purposes only, and does not constitute design specifications or any warranty of quality. Actual 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.

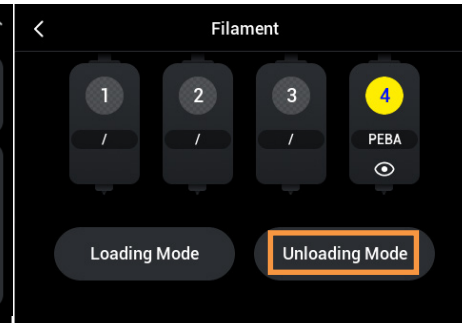
3 Usage Procedure

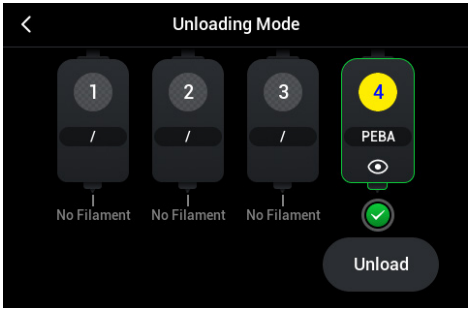
This section demonstrates the usage procedure using the Snapmaker U1 model.

Filament Unloading

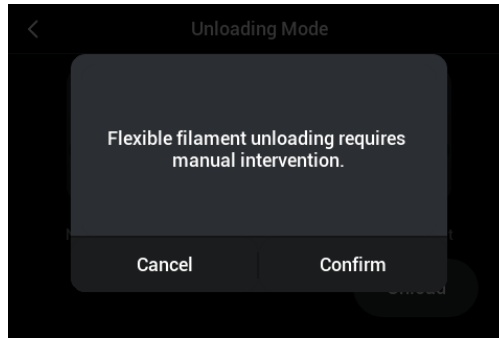
1. On the touchscreen main interface, navigate to the Filament page. Tap **Unloading Mode**. Select all toolheads requiring unloading, then tap **Unload**.







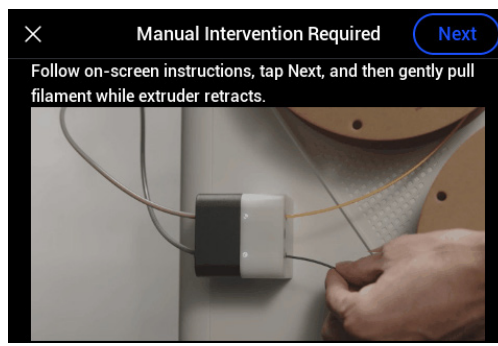
2. A prompt will appear. Tap **Confirm**.



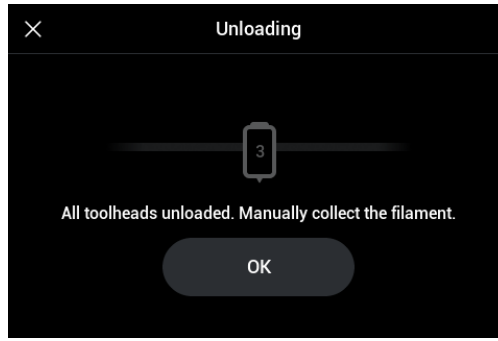
3. The printer will extract the selected toolhead and automatically heat the nozzle.

4. Once the nozzle reaches the target temperature, a dynamic guide will pop up on the screen. Tap **Next**, then manually pull the filament outward to assist with unloading.

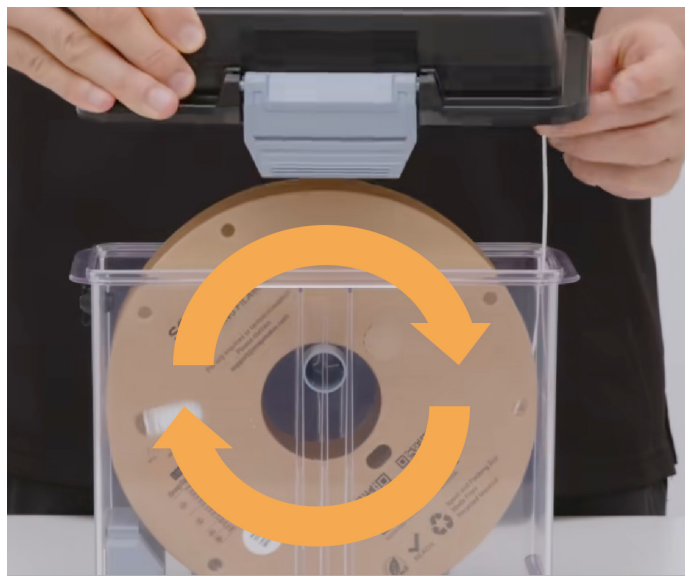
> The on-screen guidance on the touchscreen is for illustrative purposes only. The PEBA 90A filament cannot be used with the automatic filament feeder. Please pull the filament out directly from the guide tube.



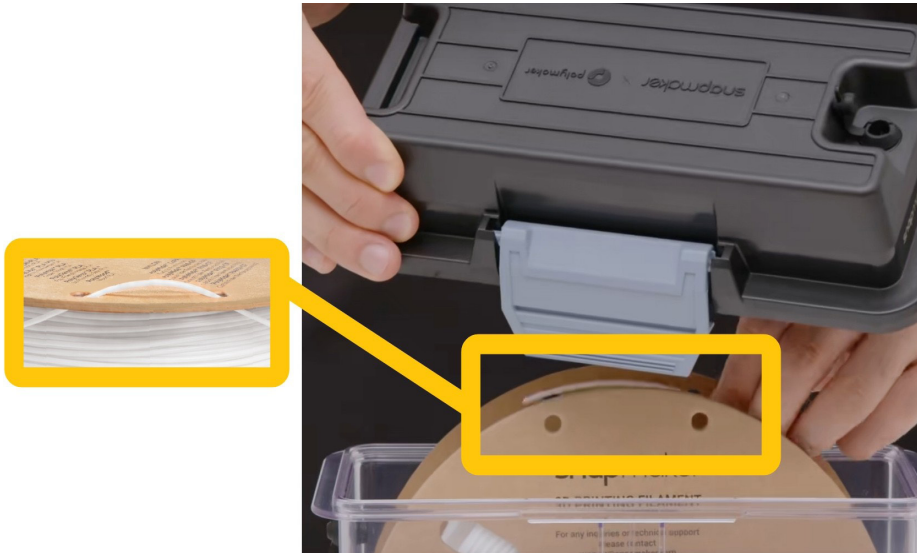
5. Once all unloading is complete, tap **OK**.



6. Rotate the spool to retract the filament from the tube until it is fully withdrawn.



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



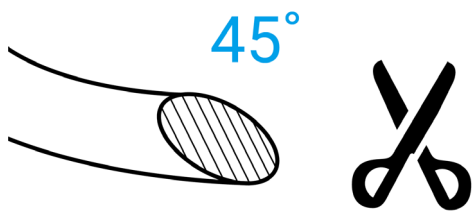
8. Keep the filament away from direct sunlight in a sealed container with desiccant.

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

Filament Loading

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

1. Trim the end of the filament to an approximately 45° angle using diagonal pliers.



This reduces feeding resistance and improves loading reliability.

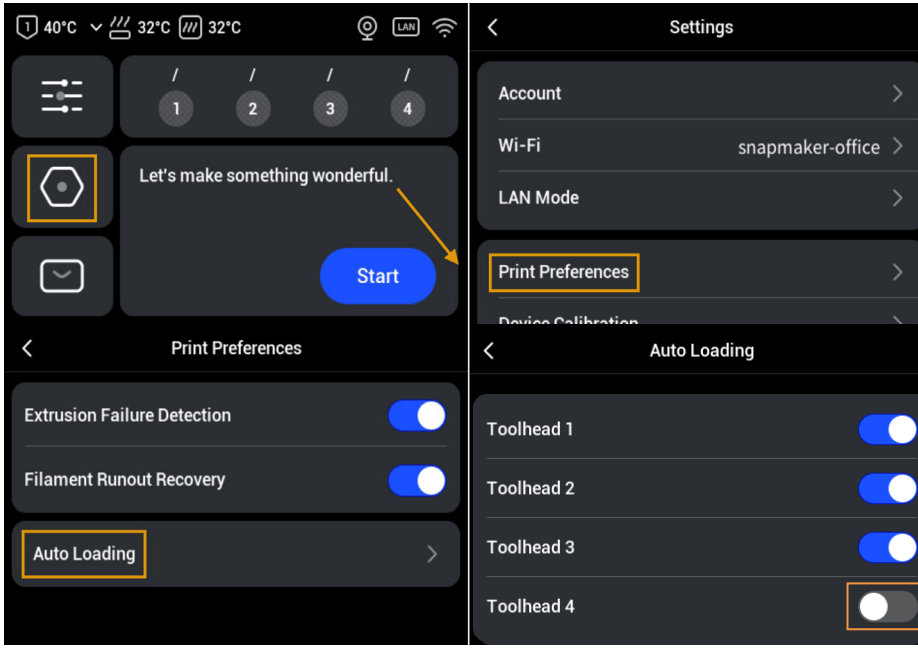
2. Place the filament into the dry box and seal the dry box.

3. Press the round clamp at the end of the corresponding feeder. Unplug the tube connected to the target toolhead.





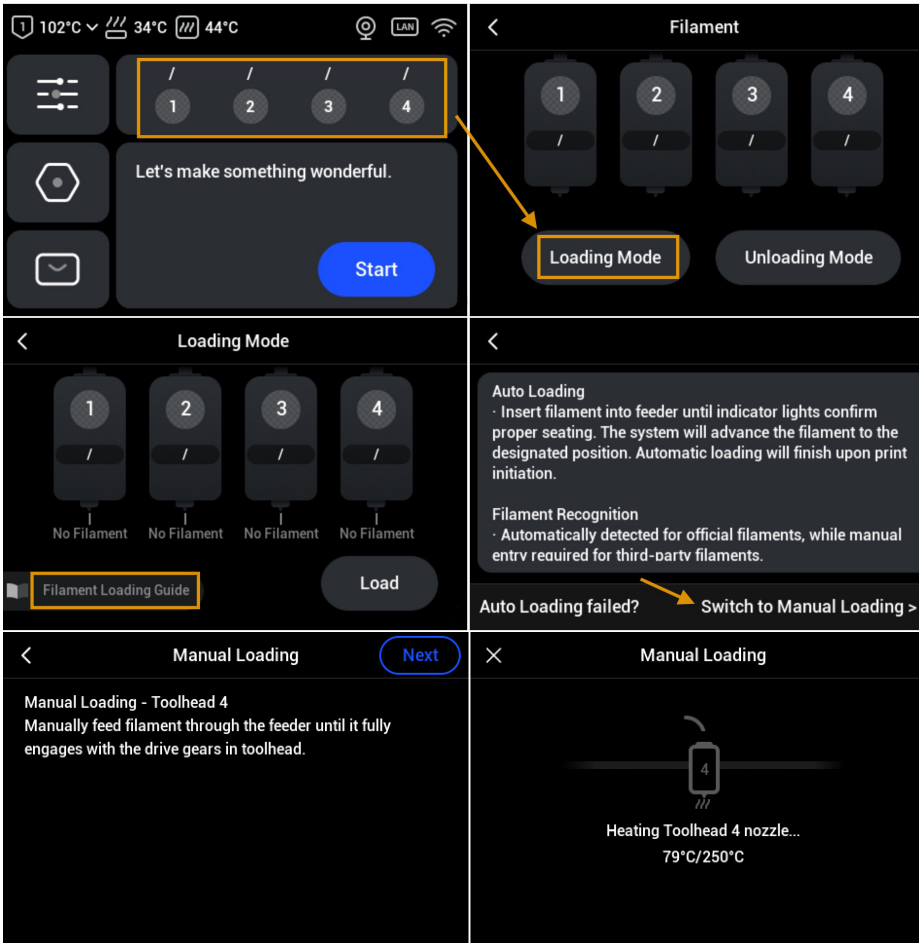
4. Before manual loading, Auto Loading mode should be disabled. On the touchscreen main interface, navigate to Settings > Print Preferences > Auto Loading, and disable Auto Loading for the corresponding toolhead.



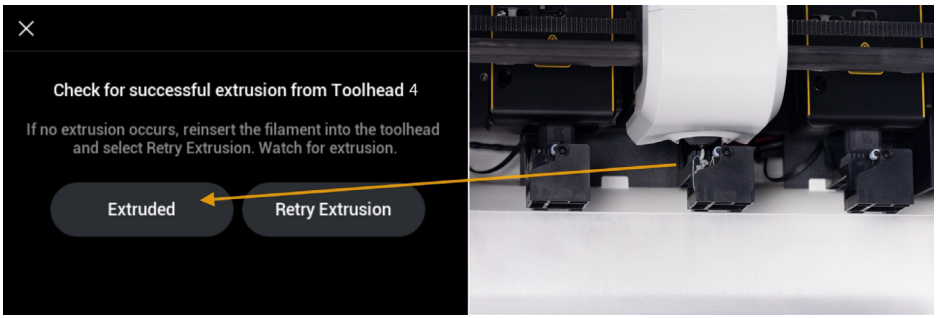
5. Follow the on-screen instructions to manually feed the filament through the tube into the toolhead. It is recommended to unplug the tube from the top of the toolhead, expose part of the filament, and push it downward manually to ensure proper contact with the extrusion gears.



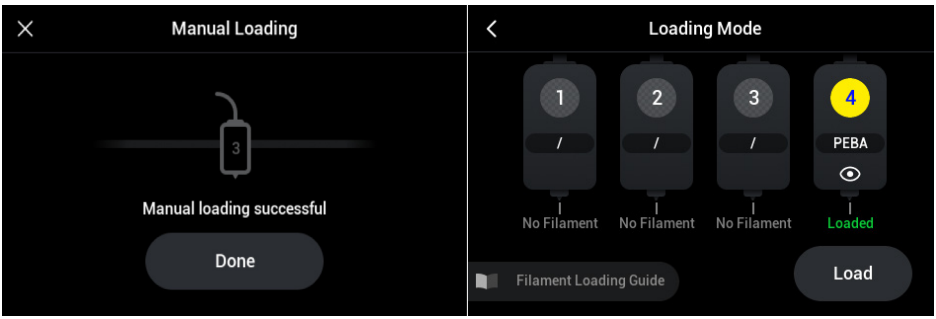
6. Return to the main interface and navigate to the Filament page. Tap Loading Mode > Filament Loading Guide > Switch to Manual Loading. Select the target toolhead and tap **Manual Loading**. The printer will extract the selected toolhead. Click **Next** to heat the nozzle and extrude filament.



7. If the filament is successfully extruded, tap **Extruded** > **Done**.
If not, re-insert the filament into the toolhead, tap **Retry Extrusion**, and keep monitoring the extrusion.



8. After the nozzle is automatically cleaned, tap **Done**.

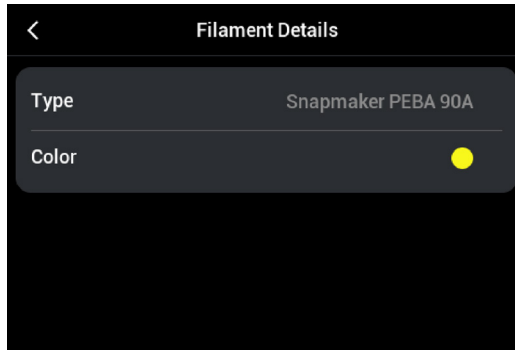


The filament status is now updated to Loaded.

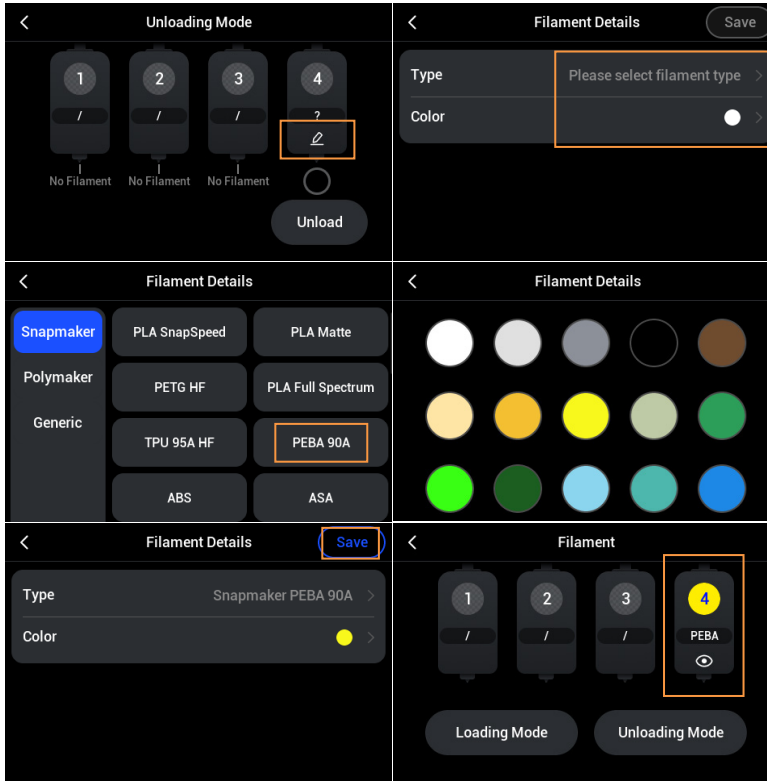
9. After successful loading, re-insert the tube into the top of the toolhead.



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, and tap **Save**.



10. Repeat the steps above to load filament for other toolheads.

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 mm × 20 mm × 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

- **Dry Before Printing:** PEBA 90A High Rebound Filament is sensitive to moisture. Thoroughly dry the filament before printing to reduce surface bubbles, stringing, and other issues. Recommended drying setting: 75°C for 8 hours.
- **Store Properly:** After opening, store the filament in a sealed container with desiccant. Keep the humidity below 20% during printing and storage, and avoid direct sunlight. Dry the filament again before reuse.

2. Printing

- **Use Manual Loading:** As a flexible filament, PEBA 90A may experience feeding issues or nozzle clogging during automatic loading and unloading. Do not use an automatic filament feeder. Load the filament manually to improve the print success rate.
- **Choose a Suitable Nozzle Size:** Do not use a hot end with a nozzle smaller than 0.4 mm. Recommended nozzle sizes are 0.4 mm, 0.6 mm, and 0.8 mm.
- **Disable Dynamic Flow Calibration:** Before printing, turn off "Dynamic Flow Calibration" to prevent the compression and deformation of the flexible filament from affecting calibration results and print quality.
- **Reduce Bubbles and Stringing:** Bubbles or excessive stringing on the printed surface usually indicate that the filament has absorbed moisture. Thoroughly dry the filament using the recommended settings before printing again.

- **Improve Overhang Cooling**: If the surface of an overhang begins to sag, make sure the cooling fan is set to 100%. You can also orient the affected area toward the fan and move the model closer to it to improve local cooling.

- **Prevent Excessive Build Plate Adhesion**: PEBA 90A may adhere too strongly to the build plate, and removing the model directly may damage the bottom surface of the print. Apply an even layer of glue stick to the build plate before printing. After printing, spray a small amount of alcohol around the contact area between the model and the build plate. Allow it to seep underneath the model before carefully removing the print.

- **Improve Support Results**: For better overhang surface quality and easier support removal, use PETG/PLA as the support material.

4 Storage Instructions

The storage environment significantly affects the performance of 3D printing filament. Flexible filaments are particularly sensitive to moisture. Follow these guidelines to extend the filament's usable life:

1. Storage Environment: PEBA is highly hygroscopic and will absorb moisture when exposed to humid air, which may cause issues such as stringing, bubbling, and reduced layer adhesion. Store the filament and printed parts in a dry, cool, well-ventilated area, away from direct sunlight, high temperature, and high humidity (recommended ambient temperature: 10°C–30°C, humidity ≤ 20%). Keep away from open flames, heat sources (e.g., heaters, ovens), and corrosive substances. A sealed storage container with desiccant is recommended.

2. Unopened Filament: Keep the filament sealed in its original packaging to prevent moisture absorption and contamination. Performance may degrade and printing issues may arise if stored for excessively long periods. Use the filament promptly after purchase.

3. Opened Filament: PEBA absorbs moisture very easily. Reseal any unused filament immediately, placing it in a sealed bag or dedicated storage container with an adequate amount of desiccant (e.g., silica gel). It is recommended to maintain storage humidity below 20%. For best results, dried filament should be printed from a dry box; extended open-air feeding (sideload) is not recommended. If stored for an extended period, the filament must be dried before printing: dry at 75°C for 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 bumping the spool to prevent deformation which could cause filament tangling. If tangles occur, do not pull aggressively. Gently untangle the filament before use to prevent breakage.

5 Common Issues and Troubleshooting

Common Issue	Potential Cause	Recommended Solution
No extrusion/filament breakage	1. Filament absorbed moisture/ clumped. 2. Nozzle temperature too low, filament not fully melted. 3. Extruder gear pressure insufficient or slipping. 4. Nozzle clogged.	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 clogs using appropriate tools.
Bubbles or stringing on surface	1. Filament absorbed moisture. 2. Nozzle temperature too high. 3. Cooling fan off or inadequate airflow.	1. Dry the filament. 2. Decrease nozzle temperature by 5–10°C. 3. Turn on cooling fan and adjust fan speed.
Edge warping/part detaching from bed	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.	1. Increase bed temperature. 2. Clean bed with ethyl 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	1. Knots and Tangles. 2. Spool placed at an incorrect angle. 3. Filament kinked or damaged.	1. Untangle the knots, straighten the filament end, and secure the end in the spool's locking holes. 2. Adjust spool placement angle to ensure smooth feeding. 3. Cut away damaged/kinked sections and reload filament.
Weak layer adhesion/ delamination	1. Nozzle temperature too low. 2. Printing speed too high. 3. Cooling fan speed too high.	1. Increase nozzle temperature. 2. Reduce printing speed. 3. Lower cooling fan speed 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. Children should be supervised by an adult at all times.

2. Environmental Safety: Some materials may emit odors, ultrafine particles, or volatile substances when heated. It is recommended to use the device in a well-ventilated area.

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.

4. Filament Usage: Do not use damaged, deteriorated, or expired filament, as this may clog the nozzle, damage the printer, and compromise print quality. When cutting filament, use sharp cutters to ensure a clean, even cut.

5. Disposal: Discard used filament and print waste in recyclable or general waste bins according to local regulations.

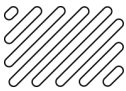
7 Additional Notes

1. This document is the user guide for Snapmaker PEBA 90A 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

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