

## POLYMAKER Fiberon PA6-GF25

# Polymaker Fiberon PA6-GF25 Glass Fiber Nylon Filament Instruction Manual

Model: Fiberon PA6-GF25 | Diameter: 1.75mm | Weight: 0.5kg | Color: Grey

## 1. INTRODUCTION

This instruction manual provides essential information for the proper use and maintenance of Polymaker Fiberon PA6-GF25 Glass Fiber Nylon Filament. Fiberon PA6-GF25 is a high-performance composite material designed for 3D printing, offering enhanced thermal and mechanical properties. Adhering to these guidelines will help ensure optimal print quality and material performance.

## 2. PRODUCT OVERVIEW

Polymaker Fiberon PA6-GF25 is a glass fiber-reinforced Nylon 6 filament, engineered for applications requiring high stiffness, strength, and heat resistance. It is suitable for a wide range of functional parts.

- **Material Composition:** Glass fiber-reinforced Nylon 6.
- **Key Properties:** Excellent thermal and mechanical properties, high stiffness, strength, and heat resistance (Heat Deflection Temperature up to 191 °C).
- **Applications:** Ideal for parts requiring torsional, tensile, and impact strength, such as bicycle pedals, brackets, jigs, drone frames, prosthetics, and handles.
- **Precision:** Manufactured with a precision tolerance of  $\pm 0.02\text{mm}$  for consistent diameter.



Image: A spool of Polymaker Fiberon PA6-GF25 filament in grey, alongside a 3D printed carabiner made from the same material. The spool label shows product details and a QR code for more information.

[Scan for more product information](#)



Image: Infographic highlighting the key features of PA6-GF25: excellent heat resistance, warp-free printing, and excellent mechanical properties.



Image: A table presenting the mechanical properties of Glass Fiber Reinforced PA6 (Nylon), including Young's modulus ( $4431 \pm 184$  Mpa), Tensile strength ( $84.5 \pm 2.1$  Mpa), Charpy impact strength ( $16.5 \pm 0.5$  kJ/m<sup>2</sup>), and Heat deflection temperature (191 °C).



Image: A 3D printed component made from Fiberon PA6-GF25 undergoing a laser test, illustrating the material's performance under specific conditions.



Image: A close-up view of a functional carabiner 3D printed using Fiberon PA6-GF25 filament, showcasing the material's ability to produce strong and detailed parts.



Image: An illustration demonstrating the filament's precision tolerance of  $\pm 0.02\text{mm}$ , measured by a dual-axis laser gauge, ensuring consistent extrusion and print quality.

### 3. SETUP AND PREPARATION

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#### 3.1 Filament Drying

Fiberon PA6-GF25 is hygroscopic and can absorb moisture from the air, which may lead to printing issues such as bubbling, stringing, and reduced mechanical properties. It is highly recommended to dry the filament before use, especially if it has been exposed to ambient humidity for an extended period. A typical drying recommendation is 6 hours at  $50^{\circ}\text{C}$ .

#### 3.2 Printer Compatibility

This filament is compatible with most mainstream and entry-level 3D printers. However, due to its abrasive nature (glass fiber reinforcement), a hardened steel nozzle or equivalent wear-resistant nozzle is strongly recommended. Standard brass nozzles will wear down quickly, leading to inconsistent extrusion and print quality degradation.

#### 3.3 Build Plate Adhesion

Ensure your build plate is clean and properly prepared. Adhesion can be improved with a suitable adhesive (e.g., glue stick, PEI sheet, or specialized nylon adhesives) and maintaining a consistent bed temperature.

### 4. OPERATING INSTRUCTIONS (PRINTING GUIDELINES)

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Optimal printing parameters can vary depending on your specific 3D printer model and setup. The following are general guidelines for Polymaker Fiberon PA6-GF25:

#### Recommended Printing Parameters

Parameter	Recommended Value
Nozzle Temperature	260-280°C (Refer to printer's maximum temperature)
Bed Temperature	70-90°C
Print Speed	Up to 200mm/s for walls/infill (adjust for overhangs)
Cooling Fan	5-40% (adjust based on part geometry)
Nozzle Diameter	0.4mm or larger (hardened steel recommended)
Enclosure	Recommended for best results and warp prevention

#### 4.1 Layer Adhesion and Warping

To achieve strong layer adhesion and minimize warping, ensure your printer's enclosure is maintained at a stable temperature. For slicing software, consider enabling "alternate wall printing direction" or similar settings to mitigate potential pull or warp often associated with fiber-filled filaments.

## 4.2 Support Material

When using support structures, aim for a low-density support infill. For the support interface, ensure settings allow for easy removal while maintaining part integrity. Adjusting support flow to achieve approximately 0.2mm support line width can facilitate clean breakaway.

# 5. MAINTENANCE AND STORAGE

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## 5.1 Filament Storage

After opening, store the filament in its resealable ziplock bag with the included desiccant to prevent moisture absorption. Keep it in a cool, dry place away from direct sunlight. For long-term storage or if the filament has absorbed moisture, re-dry it as per the recommendations in Section 3.1.



Image: A 500g spool of Fiberon filament, illustrating neat winding and rubber-reinforced edges for durability and compatibility with AMS printers.

## 5.2 Spool Handling

The filament is carefully wound to prevent tangling. To maintain this, always pass the filament through the fixed hole on the spool when not in use. The cardboard spool features enhanced hard edges to prevent degradation and protect against deformation.



Image: An illustration of the Fiberon filament packaging, including the cardboard box, the cardboard spool, and the resealable bag with desiccant for moisture protection.

# 6. TROUBLESHOOTING

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Below are common issues encountered during 3D printing with fiber-reinforced nylon filaments and potential solutions:

- **Poor Layer Adhesion:**
  - Ensure filament is dry.
  - Increase nozzle temperature within the recommended range.
  - Verify bed temperature is stable and within range.
  - Use an enclosure to maintain ambient temperature.
- **Warping:**
  - Use a heated build plate and appropriate adhesive.
  - Ensure an enclosed print environment.
  - Reduce cooling fan speed, especially for the first layers.
  - Check for drafts around the printer.
- **Clogging/Under-extrusion:**
  - Confirm you are using a hardened steel or wear-resistant nozzle.

- Increase nozzle temperature slightly.
- Check for filament path obstructions.
- Ensure filament is dry.

- **Stringing:**

- Ensure filament is dry.
- Adjust retraction settings (distance and speed).
- Slightly reduce nozzle temperature.

For further assistance, refer to Polymaker's official support resources or community forums.

## 7. SPECIFICATIONS

Property	Value
Brand	POLYMAKER
Model	Fiberon PA6-GF25
Material Type	Glass Fiber Reinforced Nylon (PA6-GF)
Filament Diameter	1.75 mm
Item Weight	0.5 kg (1.1 pounds)
Color	Grey (Hex Code: #75787b)
Manufacturer Part Number	FG02001
Young's Modulus (X-Y)	4431 ± 184 Mpa
Tensile Strength (X-Y)	84.5 ± 2.1 Mpa
Charpy Impact Strength (X-Y)	16.5 ± 0.5 kJ/m <sup>2</sup>
Heat Deflection Temperature	191 °C

## 8. WARRANTY AND SUPPORT

Polymaker is committed to providing high-quality products. For information regarding product warranty, technical support, or any inquiries not covered in this manual, please visit the official Polymaker website or contact their customer service directly. You can also refer to the [Polymaker Store on Amazon](#) for additional resources.