PROFESSIONAL LAB

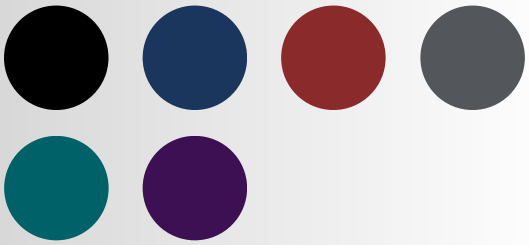
Technical Data Sheet

PET-G + CF

Product overview

PETG+CF filament is an advanced composite material designed for high-performance 3D printing applications requiring enhanced rigidity, dimensional stability, and professional surface quality.
The material combines the durability and chemical resistance of PETG with the reinforcing properties of carbon fiber, resulting in improved stiffness, reduced shrinkage, and a refined matte finish. PETG+CF is ideal for functional components, engineering prototypes, and technical parts where strength and precision are essential.
Its optimized formulation ensures reliable extrusion, strong layer adhesion, and excellent print consistency while maintaining the ease of printing associated with PETG-based materials.

Available colors



Product features

Carbon fiber reinforcement:
The addition of carbon fiber increases material rigidity, dimensional stability, and structural strength while reducing warping and shrinkage during printing.
Matte technical finish:
PETG+CF provides a premium matte surface that minimizes visible layer lines and reflections, giving printed parts a professional engineering appearance.
Mechanical performance:
The material offers high stiffness and excellent impact resistance, making it suitable for mechanically demanding applications and functional prototypes.
Dimensional stability:
Carbon fiber reinforcement improves precision and reduces deformation, especially in larger models and technical components.
Heat resistance:
PETG+CF maintains structural stability under moderate thermal loads and performs reliably in demanding printing conditions. Recommended printing temperature range is 240–270°C.
Professional applications:
Suitable for functional parts, brackets, housings, tools, automotive elements, engineering prototypes, and technical models requiring increased rigidity and durability.

Printing Recommendations

- Nozzle temperature: 240 - 260°C
- Build surface material: PEI, textured PEI, glass
- Build surface treatment: glue / adhesive spray
- Build plate temperature: 80 - 90°C
- Cooling fan: 0.3 – 0.5
- Printing speed: 30 - 80 mm/s
- Raft separation distance: 0.2 mm
- Retraction distance: 4 - 6 mm
- Retraction speed: 20 - 35 mm/s
- Environmental temperature: room temperature – 60°C
- Threshold overhang angle: 60°

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

Drying recommendations

PETG+CF is hygroscopic and may absorb moisture from the air, which can negatively affect print quality (e.g. bubbling, rough surface finish, poor layer adhesion).

Drying temperature: 65–75°C

Duration: typically 4–6 hours, depending on filament condition and equipment.

Recommended tools: use a dedicated filament dryer for best consistency. A controlled oven may also be used if monitored carefully.

After drying: use immediately or store in a sealed bag with desiccant to avoid moisture reabsorption.

Precautions

Printing temperature:
Too low temperature may cause insufficient layer bonding and poor extrusion consistency. Excessively high temperature may lead to material degradation and surface defects.

Printing speed:
Very high printing speeds may reduce layer adhesion and print accuracy. Moderate speeds are recommended for optimal surface quality and dimensional precision.

Build plate temperature:
Improper bed temperature may result in weak first-layer adhesion or part deformation.

Cooling control:
Moderate cooling is recommended. Excessive cooling may reduce interlayer adhesion and increase internal stress in functional parts.

Filament quality & storage:
Use high-quality filament with a consistent diameter and minimal impurities. Store unused filament in a dry place, in a tightly closed container, with desiccant. This will prevent moisture absorption and ensure consistent print quality.

Disclaimer of Liability

The typical values provided in this datasheet are for reference and comparison only. They should not be used as design specifications or for quality control. Actual values may vary depending on print conditions. The performance of printed parts depends not only on the material but also on design, environment, and print parameters.
Each user is responsible for evaluating the safety, legal compliance, technical suitability, and recycling/disposal of Professional Lab materials for their intended application. Professional Lab makes no warranty of any kind, unless stated otherwise, regarding the suitability for any specific use or application.
Professional Lab is not liable for any damage, injury, or loss resulting from the use of materials. The guidelines given in the card are indicative; always use the parameters given directly on the spool.