Technical Data Sheet

Siraya Tech Fibreheart ABS-GF

Black & Grey

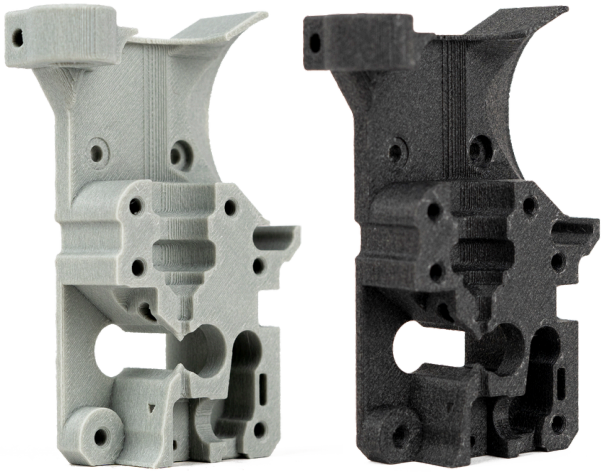
PRODUCT INTRODUCTION

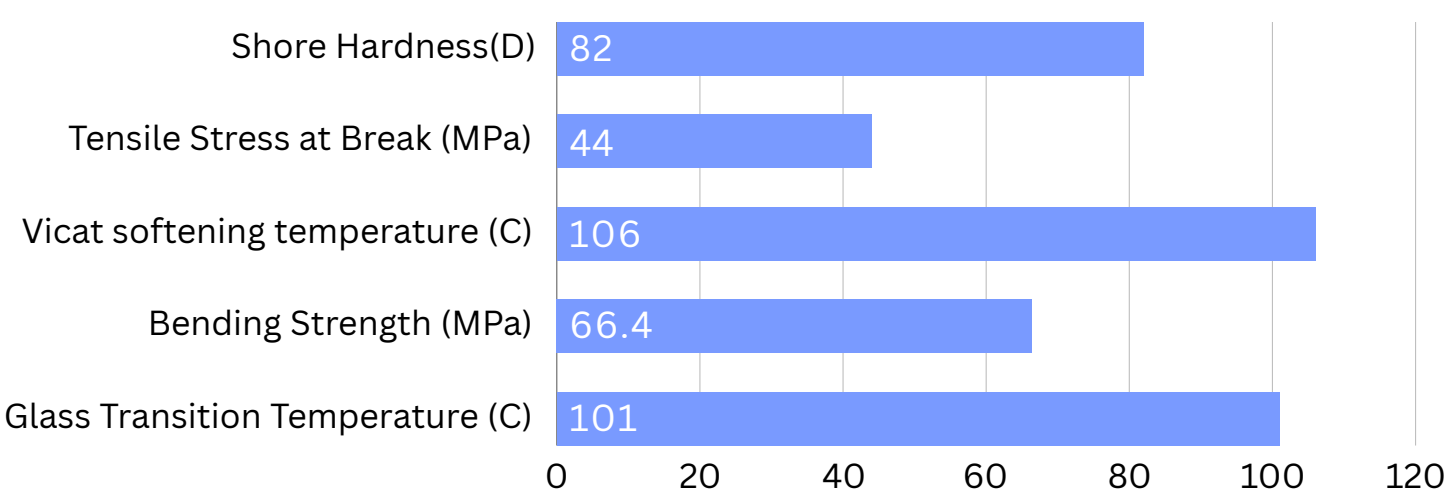
Features of ABS-GF

- **Superior Toughness:** Glass Fiber enhances durability and impact resistance.
- **Stability:** Maintains integrity under high temperatures and chemicals.
- **Precision Printing:** Glass fiber increases rigidity, brings dimensional stability, and reduces warpage.
- **Lightweight yet Strength:** Premium formula offers high strength without added weight.

Applications

- **Automotive Industry:** Interior and exterior trim parts, engine covers, dashboards, etc.
- **Consumer Electronics:** Casings for electronic products, etc.
- **Sports Equipment:** Used in manufacturing various sports equipment, such as bicycle parts, etc.
- **Industrial Applications:** Gears, valve components, various brackets, and mechanical parts, etc.





Property Data

Mechanical Properties	Measure	Method	Processed
Tensile Stress at Break (MPa)	46.5	ISO 527	Tested on X/Y axis
Young's Modulus (MPa)	2350	ASTM D638	-
Elongation at Break(%)	3	ASTM D638	Tested on X/Y axis
Charpy impact strength (KJ/m^2)	8.5	-	-
Bending Strength (MPa)	66.4	-	-
Bending Modulus (MPa)	2705	-	

Other Properties	Measure	Method	Processed
Vicat softening temperature ℃	106	ISO 306	-
Glass Transition Temperature	101	-	-
Shore Hardness (D)	82	-	-
HDT ℃	93℃/ 97℃	Method A/B	
Melting Point (C)	225	-	-
Biocompatibility	Not Tested	-	-

Filament Properties	Measure	Method	Processed
Filament Density g/cm³	1.08	ISO 1183	-

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Work Flow

Preparing for Printing

(1) Printer Compatibility

Fibreheart ABS-GF is optimized for FDM printers equipped with direct drive extruders, which are located on the tool head for enhanced filament control. This setup is crucial for successful ABS-GF printing.

(2) Print Bed Preparation

A clean, level print bed is essential. We recommend a heated bed temperature ranging from 100°C to 110°C, adjusted according to your printer's capabilities.

(3) Enclosure

An enclosure is crucial for maintaining consistent printing temperatures, ideally around 50°C, to significantly reduce issues like warping and failure rates, particularly in cold climates.

Printing with Fibreheart ABS-GF

(1) Temperature Settings

Ideal extrusion nozzle temperatures range from 250°C to 270°C, varying with printer models and environmental factors.

(2) Print Speed

Thanks to its high-flow formulation, Fibreheart ABS-GF can be printed at speeds between 30-120 mm/s. Start at the lower end and gradually increase speed for optimal results.

(3) Nozzle

For printing Fibreheart ABS-GF, use a hardened steel or diamond-tipped nozzle to withstand the abrasive nature of glass fiber. While nozzles larger than 0.2mm work, a 0.4mm nozzle often yields the best results, ensuring long-term printing consistency and quality.

(4) Retraction Settings

To prevent clogging, keep retraction speeds between 1800-3600 mm/min and retraction distances within 1-5 mm. Start with short and slow retraction first.

Work Flow

Printing with Fibreheart ABS-GF

(5) Build Platform Material

PEI or glass with glue stick application is recommended for best adhesion.

(6) Cooling Fan

Ensure the cooling fan is operational but running at low speed to maintain print quality. Users generally print at 0-30% fan speed. Adjust settings as needed for your specific printer.

Moisture Management

ABS filaments, including Fibreheart ABS-GF, are prone to moisture absorption, which can adversely affect print quality. Effective moisture management is therefore crucial.

(1) Storage: Store Fibreheart ABS-GF in the provided moisture-resistant aluminum bags when not in use. Using a dry box with desiccant, maintaining humidity below 15% is ideal for prolonged storage.

(2) Drying Filament: If moisture absorption is suspected, dry the filament at 65°C for 4-6 hours in a filament dryer or an oven.

Troubleshooting Common Issues

(1) Stringing: Adjust retraction settings and print speed to tackle stringing. Also, ensure the filament's moisture level is within acceptable limits.

(2) Poor Bed Adhesion: Improve bed adhesion using a glue stick or hairspray, or by slightly increasing the bed temperature. Make sure temperature is set to at least 100C and an enclosure can greatly help with the results.