

IPCON FILA™ PC CF
Carbon Fiber Reinforced Polycarbonate Filament



This is the filament's Technical Data Sheet (TDS). If you want the Material Safety Data Sheet (MSDS), please contact the customer service to download.

• Product Information

| Item | Data |
|---------------------|---|
| Filament Diameter | 1.75 ± 0.05 mm |
| Net Filament Weight | 1 kg ± 0.5% |
| Filament Length | 335 m ± 2% |
| Spool Material | Cardboard (max heat resistance: 150 °C) |
| Spool Size | Outer Cardboard's diameter: 200 mm; Inner roller's diameter: 90 mm |

• Filament's Properties

| Physical Properties | Testing Methods | Data |
|---------------------------------|-------------------------|------------------------|
| Density | ISO 1183-3 | 1.24 g/cm ³ |
| Saturated Water Absorption Rate | 25 °C, 55% RH, room air | 0.21% |
| Melt Index | 290 °C, 2.16 kg | 14.7 g/ 10 min |
| Melting Temperature | DSC, 10 °C/min | 226 °C |
| Vicar Softening Temperature | ISO 306, GB/T 1633 | 107 °C |
| Heat Deflection Temperature | ISO 75, 0.45 MPa | 113 °C |

| Mechanical Properties* | Testing Methods | Data* |
|-----------------------------|--------------------|------------------------|
| Tensile Strength XY | ISO 527, GB/T 1040 | 65 MPa |
| Tensile Strength Z | ISO 527, GB/T 1040 | 49 MPa |
| Young's Modulus XY | ISO 527, GB/T 1040 | 6248 MPa |
| Young's Modulus Z | ISO 527, GB/T 1040 | 2362 MPa |
| Breaking Elongation Rate XY | ISO 527, GB/T 1040 | 6.5% |
| Breaking Elongation Rate Z | ISO 527, GB/T 1040 | 2.1% |
| Flexural Strength XY | ISO 178, GB/T 9341 | 116 MPa |
| Flexural Strength Z | ISO 178, GB/T 9341 | 73 MPa |
| Flexural Modulus XY | ISO 178, GB/T 9341 | 5482 MPa |
| Flexural Modulus Z | ISO 178, GB/T 9341 | 2362 MPa |
| Impact Strength XY | ISO 179, GB/T 1043 | 23.7 kJ/m ² |
| Impact Strength Z | ISO 179, GB/T 1043 | 16.1 kJ/m ² |

*The mechanical properties were tested on specimens printed by IPCON using a Bambu P1S printer (nozzle temperature: 290 °C, bed temperature: 100 °C, printing speed: 100 mm/s, infill density: 100%, infill pattern: concentric) and black PC CF Filament. The data is for user reference and comparison only. When using it, users are responsible for the safety, legal compliance and product performance.

• Main Features and Application Scenarios

1. Ultra-low warping (No heated chamber needed); ultra-high layer strength; excellent surface quality and accuracy; ultra-low water absorption rate, everlasting strength and stiffness; ultra-high print speed (up to 350 mm/s); upgraded weather resistance.
2. High strength and stiffness prints for water environment applications such as surfboards and water pumps, as well as outdoor applications such as small wind turbines; precise and wear-resistant accessories such as gears.

• Recommended Printing Settings

| | |
|-----------------------------------|---|
| Drying Settings Before Printing | 80 - 100 °C, 8 - 12 h |
| Printing Temperature and Humidity | ≤ 80 °C, ≤ 20% RH (Sealed with desiccant) |
| Storage Temperature and Humidity | ≤ 35 °C, ≤ 20% RH (Sealed with desiccant) |
| Compatible Support Material | Itself or support filament for PC |
| Compatible Printer Type | Enclosed-frame (recommended), open-frame, |
| AMS or CFS | Not Compatible |
| Compatible Nozzle Material | Hardened steel, diamond, tungsten carbide, etc |
| Compatible Nozzle Size | 0.6 mm (recommended) / 0.4 mm / 0.8 mm |
| Compatible Plate Type | Smooth / Textured PEI Plate or other plate |
| Plate Surface Preparation | Apply liquid glue or PVP solid glue stick if the first layer bonding is not firm enough |
| Nozzle Temperature | 280 - 300 °C |
| Bed Temperature | 100 - 120 °C |
| Fan Speed | 0 - 40% |
| Max Print Speed | 350 mm/s |

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