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BEDROCK 3D PET CF15

Carbon Fiber Reinforced. Lightweight. Strong. Heat-Resistant.

Technical Documentation Sheet

version 1.0

Technical Data Sheet

PET CF15

Carbon Fiber Reinforced. Lightweight. Strong. Heat-Resistant.

BEDROCK 3D PET CF15 blends the ease of printing with the performance of carbon fiber reinforcement. With 15% carbon fiber, this filament delivers the strength, rigidity, and heat resistance you need for industrial-grade applications, while staying easy to process and reliable, print after print.

Filament Properties		
Filament Diameter	1.75 mm	2.85 mm
Diameter Tolerance	±0.050 mm	±0.1 mm
Average ovality	<0.050 mm	<0.050 mm
Available Spool size	750 g, 2.0 kg, 4.0 kg, 8.0 kg	750 g, 2.0 kg, 4.0 kg, 8.0 kg
Available colors	black	

Spool Properties				
Spool size	750 g	2.0 kg	4.0 kg	8.0 kg
Outer diameter	200 mm	300 mm	350 mm	355 mm
Inner diameter	50.5 mm	51.5 mm	51.7 mm	36 mm
Width	55 mm	103 mm	103 mm	167 mm

Recommended 3D-Print processing parameters		Used for test specimens
Printer	FFF printer	Ultimaker S5
Nozzle Temperature[1)]	250 – 270 °C	275 °C
Build Chamber Temperature	-	-

[1] Fast printing might require an additional increase of the nozzle temperature; the stated printing speed of 300 mm/s is based on current validations. As equipment and technology continues to evolve, it is possible that even higher printing speeds may be attainable in the future.

Bed Temperature	65 – 85 °C	65 °C
Bed Material	Glass, PEI	Glass
Nozzle Diameter	≥ 0.6 mm	0.6 mm
Print Speed	30 - 80 mm/s	45 mm/s
Max Volumetric Speed[2)]	8 mm^3/s	//

Please check your standard and/or high speed print profile availability for an easy start at www.bedrock3d.com.

Further Recommendations	
Drying recommendations to ensure printability and best mechanical properties[3)]	65 °C in a hot air dryer or vacuum oven 4 to 16 hours.
Support material compatibility	Single material breakaway, BEDROCK 3D BVOH
Warehousing	BEDROCK 3D PET CF15 filament should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

General Properties	Standard	Average Values
Filament Density[4)]	ISO 1183-1	1357 kg/m^3

Tensile Properties[5)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Tensile strength[6)]	ISO 527	63.2 MPa	-	12.5 MPa
Elongation at Break[6)]	ISO 527	3.7 %	-	0.5 %
Young's Modulus[7)]	ISO 527	6178 MPa	-	2822 MPa

[2] Based on Bambu Lab X1C with a nozzle diameter of XX mm

[3] Please note: To ensure constant material properties the material should always be kept dry.

[4] measured on filament

[5] Samples were conditioned in standard climate (23°C, 50% RH 72h)

[6] Testing speed: 5 / 200 mm/min

[7] Testing speed: 1 mm/min

Flexural Properties[6) 8)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Flexural Strength	ISO 178	108 MPa	145 MPa	19.7 MPa
Flexural Modulus	ISO 178	5452 MPa	6293 MPa	2253 MPa
Flexural Elongation at Break	ISO 178	3.7 %	2.8 %	0.9 %

Impact Properties[6)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Impact Strength Charpy (notched)	ISO 179-2	5.4 kJ/m²	4.8 kJ/m²	0.5 kJ/m²
Impact Strength Charpy (unnotched)	ISO 179-2	27.8 kJ/m²	32.0 kJ/m²	1.3 kJ/m²
Impact Strength Izod (notched)	ISO 180	5.7 kJ/m²	5.0 kJ/m²	2.0 kJ/m²
Impact Strength Izod (unnotched)	ISO 180	25.1 kJ/m²	22.6 kJ/m²	2.4 kJ/m²

Thermal Properties[6)]	Standard	Average Values
HDT A at 1.8 MPa	ISO 75-2	72 °C
HDT B at 0.45 MPa	ISO 75-2	74 °C
Vicat softening point at 50 N	ISO 306	203 °C
Vicat softening point at 10 N	ISO 306	243 °C
Glass Transition Temperature	ISO 11357-2	79 °C

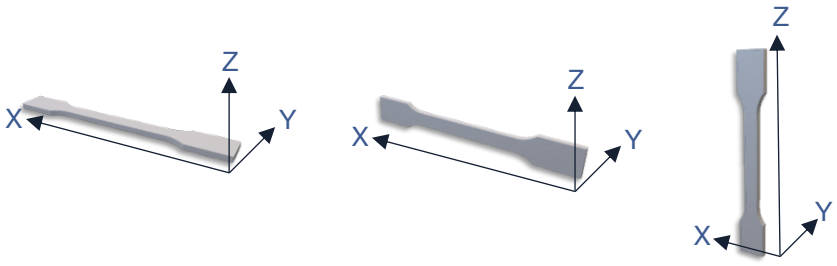
[8] Testing speed: 2 mm/min
Measured on milled specimens

Crystallization Temperature	ISO 11357-3	204 °C
Melting Temperature	ISO 11357-3	245 °C
Melt Volume-Flow Rate (MVR)	ISO 1133	25 cm^3/10 min (260 °C, 2.16 kg)

Hardness and Abrasion	Standard	Typical Values
Shore Hardness D (15s)	DIN ISO 7619-1	67

Print direction explanation

The orientation of the 3D printed part in the printer is always aligned with the longest axis first. The print direction is consistently along the Z-axis.



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Please contact us for further product information, like for example REACH, RoHS, FCS.

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Process materials in a well-ventilated room,or use professional extraction systems.