FLASHFORGE 3D PRINTER

Technical Data Sheet

PET-CF Filament

PET-CF is a FFF 3D printing filament, which is produced using LUVOCOM® 3F PET CF 9780 BK. PET-CF is a polyester modified material containing 15% carbon fiber, characterized by high temperature resistance, low shrinkage and easy-to-print property, with the ability to be printable on non-heated chamber FFF 3D printers. It has excellent rigidity and tensile strength and allows continues use up to 120℃.

Features:

High rigidity/Low warpage/Temperature resistance.

Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm3	1.4
Melt Index MFR (250℃/2.16Kg)	ISO 1133	g/10min	3~6
Water Absorption (23℃/24h)	ISO 62	%	< 0.3
Mechanical Properties			
Tensile Strength	ISO 527	Mpa	45~50
Elongation at Break	ISO 527	%	6~7
Modulus of Elasticity	ISO 527	Mpa	3600~4000
Bending Strength	ISO 178	Mpa	/
Izod Impact Strength	ISO 180	KJ/m²	5~6
Thermal Properties			
HDT@ 0.455 MPa (66 psi)	ISO 75	℃	100
Service Temperature (during lifetime max. 200h)		℃	125

Note: The above test parameter data are obtained from actual printing, and the printed model has not been annealed.

Testing Specimen Printing Conditions:

Test Equipment	Guider IIs (Flashforge)
Nozzle Diameter	0.6mm
Nozzle Temperature	290 °C
Printing Speed	50mm/s
Wall Thickness	1.8mm
Infill	100%
Standard Testing Specimen	Specific dimensions are shown in Attachment 1

Recommended Printing Conditions:

Parameter	
Nozzle Temperature	280~300℃ (290℃ recommended)
Build Platform Temperature	70~100℃ (90℃ recommended)
Build Surface Material	Tempered glass, BuildTak, Carbon fiber board
Nozzle Diameter	ϕ0.4/0.6mm (ϕ0.6mm recommended)
Nozzle&Gear Material	High-strength steel
Cooling Fan	Turn off
Layer Thickness	0.12~0.3mm
Printing Speed	40~60mm/s (50mm/s recommended)
Travel Speed	60~120mm/s
Ambient Temperature for Printing	Room temperature~50℃
Retraction Length	4~6mm
Retraction Speed	40~60mm/s
Recommended Support Material	PVA，PVOH，BVOH

Cautions:

In order to prevent moisture absorption and contamination, supplied packaging should be kept closed and undamaged. For the same reason, partially used filaments should be re-sealed before storage.

In case the filament has become wet, it should be dried before being used. Using a hot dry air oven at 80℃ for at least 12 hours is recommended in order to ensure the success rate and quality of the printed model.

If PET-CF is used as the support material for itself, please remove the support structure after the model cools down. Otherwise the support structure can be permanently bonded to the model, which makes the support hard to remove.

After the printing process, it is recommended to dry the model in an oven at 80-100℃ for 1-3 hours in order to increase the strength of the model.

Disclaimer:

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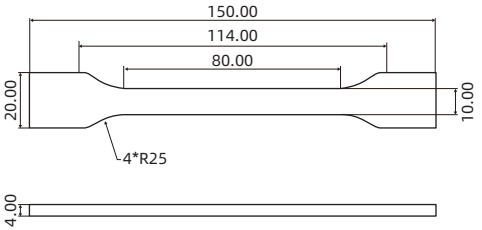
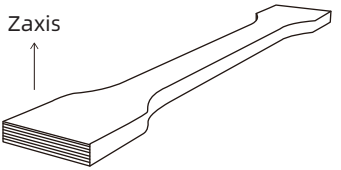
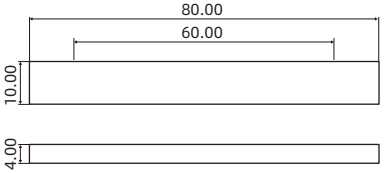
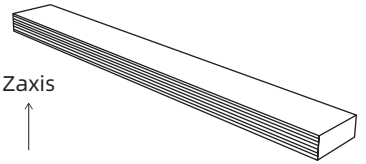
Attachment 1:
Testing Specimen Size and Printing Direction



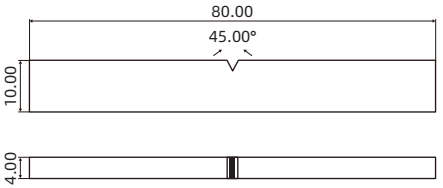


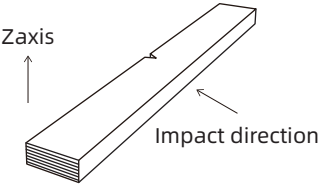
Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)





Flexural testing specimen; ASTM D790 (ISO 178, GB/T 9341)





Impact testing specimen; ASTM D256 (ISO 179, GB/T 1043)