Technical Data Sheet

PET-GF Filament

PET-GF is an FFF 3D printing filament, which is produced using LUVOCOM® 3F's modified PET GF material. It is a polyester-based composite containing 15% glass fiber, offering excellent temperature resistance, low shrinkage, and ease of printing, with the ability to be printable on non-heated chamber FFF 3D printers. PET-GF delivers outstanding rigidity and tensile strength, with a softening point reaching up to 200°C.

Features:

High rigidity/Low warping/Temperature resistance/High Z-axis strength

Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm^3	1.39~1.40
Melt Flow Rate (MFR) (250℃/5Kg)	ISO 1133	g/10min	3~6
Water Absorption (23℃/24h)	ISO 62	%	＜0.05
Mechanical Properties			
Tensile Strength (X-Y)	ISO 527	Mpa	76~82
Elongation at Break (X-Y)	ISO 527	%	5.5~6.5
Elongation at Break (X-Z)	ISO 527	%	1.5~2.5
Bending Modulus (X-Y)	ISO 527	Mpa	4500~4600
Bending Modulus (X-Z)			1900~2100
Bending Strength (X-Y)	ISO178	Mpa	132~138
Bending Strength (X-Z)			60~65
Izod Impact Strength (X-Y)	ISO180	KJ/m^2	14~15.5
Thermal Properties			
HDT@ 0.455 MPa (66 psi)	ISO75	℃	200

Continuous Service Temperature	IEC 60216	℃	120

Testing Specimen Printing Conditions:

Test Equipment	Flashforge Guider 3 Ultra
Nozzle Diameter	0.4mm
Nozzle Temperature	275 °C
Printing Speed	150mm/s
Wall Thickness	1.8mm
Infill	100%
Standard Testing Specimen	Specific dimensions are shown in Appendix 1.

Recommended Printing Conditions:

Parameter	
Nozzle Temperature	260~280℃ (275℃ recommended)
Build Platform Temperature	70~100℃ (90℃ recommended)
Build Surface Material	Tempered glass, BuildTak, Carbon fiber plate
Nozzle Diameter	ϕ0.4/0.6mm
Nozzle & Gear Material	Hardened steel
Cooling Fan	Turn off
Layer Thickness	0.2~0.3mm
Printing Speed	60~200mm/s (150mm/s recommended)
Travel Speed	60~250mm/s
Ambient Temperature for Printing	Room temperature~50℃
Retraction Distance	0.3~0.8mm
Retraction Speed	30~40mm/s

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 90℃-100℃ for at least 12 hours is recommended in order to ensure the print success rate and quality.

If PET-GF is used as the support material for itself, please remove the support structure as soon as the model cools down. Otherwise, the support structure can be bonded to the model, which will make the support hard to remove.

After the printing process, it is recommended to dry the model in the oven at 120-130°C for 6-8 hours to increase the strength of the model.

Disclaimer:

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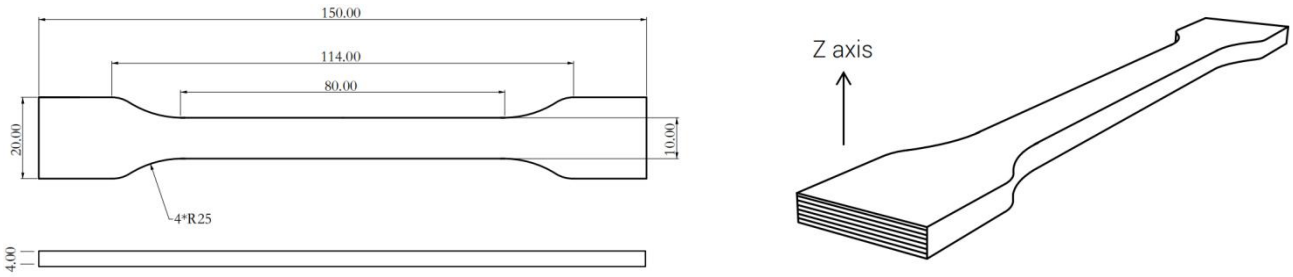
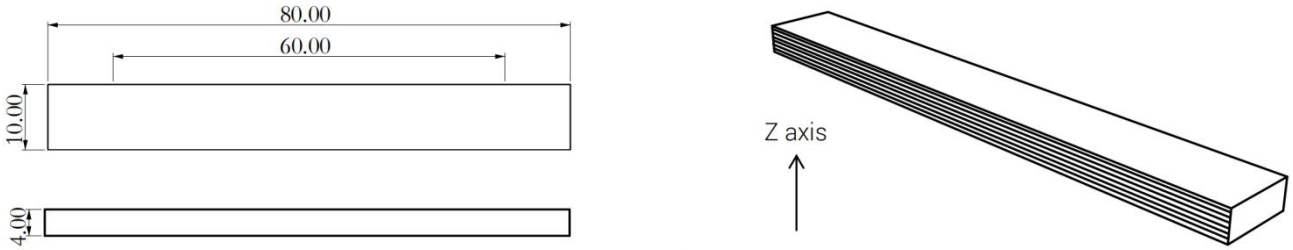
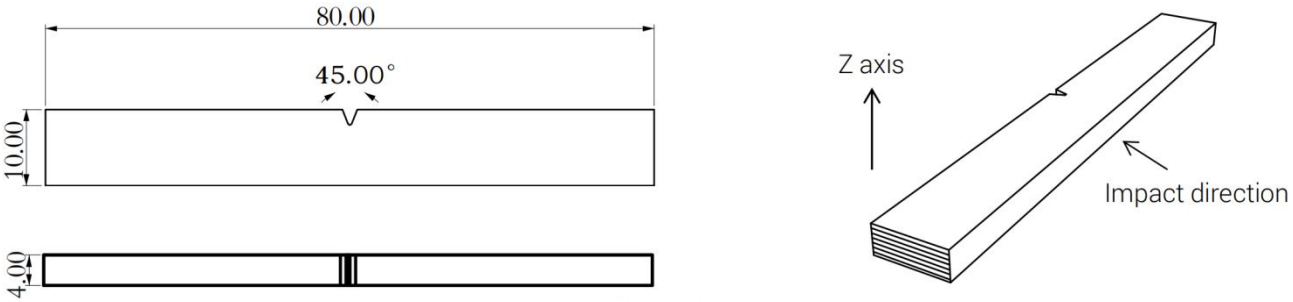
Attachment 1:
Testing Specimen Size and Printing Direction



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



Flexural testing specimen; ASTMD790 (ISO 178, GB/T 9341)



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