

Technical Data Sheet

PLA Filament

PLA is a FFF 3D printing filament, which is produced using a reinforced and toughened polylactic acid modified material. PLA has excellent dimensional stability, bending strength and rigidity, no warping, no cracking and easy-to-print property, which is generally applicable to various FFF 3D printers.

Features:

Easy-to-print property/Dimensional stability/High rigidity.

Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm ³	1.25~1.26
Melt Index MFR (190°C/2.16Kg)	ISO 1133	g/10min	4~8
Water Absorption (23°C/24h)	ISO 62	%	< 0.3
Mechanical Properties			
Tensile Strength (X-Y)	ISO 527	Mpa	45~49
Elongation at Break (X-Y)	ISO 527	%	13.5~15.5
Modulus of Elasticity (X-Y)	ISO 527	Mpa	1000~1100
Bending Strength (X-Y)	ISO 178	Mpa	69~75
Izod Impact Strength (X-Y)	ISO 180	KJ/m ²	4.5~5
Thermal Properties			
HDT@ 0.455 MPa (66 psi)	ISO 75	°C	53
Continuous Service Temperature	IEC 60216	°C	50

Testing Specimen Printing Conditions:

Test Equipment	Guider IIs (Flashforge)
Nozzle Diameter	0.4mm
Nozzle Temperature	210 °C
Printing Speed	60mm/s
Wall Thickness	1.2mm
Infill	100%
Standard Testing Specimen	Specific dimensions are shown in Attachment 1

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

Recommended Printing Conditions:

Parameter	
Nozzle Temperature	190~220°C (210°C recommended)
Build Platform Temperature	Room temperature~60°C (40°C recommended)
Build Surface Material	Tempered glass, BuildTak, Carbon fiber board
Nozzle Diameter	φ0.4/0.6mm (φ0.4mm recommended)
Cooling Fan	50~100%
Layer Thickness	0.12~0.3mm
Printing Speed	60~90mm/s (60mm/s recommended)
Travel Speed	60~120mm/s
Ambient Temperature for Printing	Room temperature~40°C
Retraction Length	1~2mm
Retraction Speed	30~50mm/s
Recommended Support Material	Self-supporting, PVA, BVOH

Cautions:

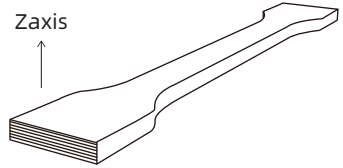
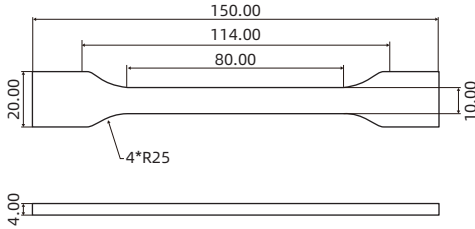
In order to prevent moisture absorption and contamination, supplied packaging should be kept closed and undamaged. For the same reason, partially used filaments should be re-sealed before storage.

PLA is a biodegradable material. The moisture and oxygen in the air and ultraviolet rays will accelerate the aging of the material. In order not to affect the final printing quality, the PLA filament after its package being opened should be used up as soon as possible.

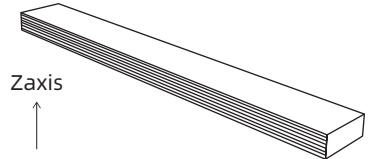
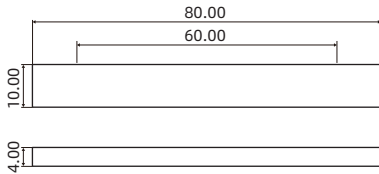
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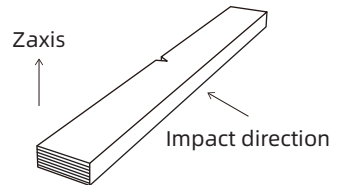
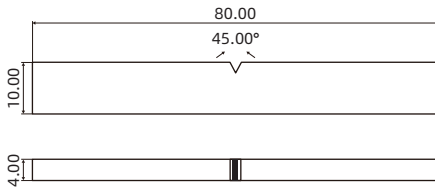
Attachment 1: Testing Specimen Size and Printing Direction



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)