

Technical Data Sheet

PLA LW Filament

PLA LW is an FFF 3D printing filament, which is produced using a toughened PLA-based composite blended with foaming microspheres. Within a certain temperature range, the filament exhibits varying degrees of foaming during printing. Generally, the higher the printing temperature, the greater the foaming ratio. By adjusting the printing temperature and extrusion flow rate, users can achieve models with different densities. In general, higher temperatures and lower flow rates result in lower-density prints. Models printed with PLA LW have a matte surface finish and are easier to paint compared to those printed with standard PLA. Using PLA LW requires some printing experience, and the filament is highly susceptible to moisture. It is recommended to dry it in an oven at 50°C for at least 5 hours before use, and to keep it stored in a dry box during printing.

Features:

Foaming/Lightweight/Matte finish/Easy to paint.

Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm ³	1.1~1.2
Melt Flow Rate (MFR) (190°C/2.16Kg)	ISO 1133	g/10min	8~15
Water Absorption (23°C/24h)	ISO 62	%	<0.3
Mechanical Properties			
Tensile Strength (X-Y)	ISO 527	Mpa	39.2-40
Elongation at Break (X-Y)	ISO 527	%	6.9-7.3
Bending Modulus (X-Y)	ISO 178	Mpa	2512-2723
Bending Modulus (X-Z)			1908-2317
Bending Strength (X-Y)	ISO 178	Mpa	78.9-80.2



Bending Strength (X-Z)			55.2-60.9
Izod Impact Strength (X-Y)			5.2-5.5
Izod Impact Strength (X-Z)	ISO 180	KJ/m ²	3.2-4.1
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	Flashforge AD5X
Slicing Software	Orca-Flashforge V1.4.0
Nozzle Diameter	0.4mm
Printing Preset	0.02mm Standard @FF AD5X
Infill Density	100%
Infill Pattern	Concentric
Standard Testing Specimen	Specific dimensions are shown in Attachment 1.

Recommended Printing Conditions:

Parameter	
Nozzle Temperature	210~240°C (220°C recommended)
Build Platform Temperature	Room temperature~60°C
Build Surface Material	Tempered glass, PEI, Carbon fiber plate
Nozzle Diameter	φ0.4/0.6mm (φ0.4mm recommended)
Cooling Fan	50~100%
Flow Rate	0.6~0.8 (0.7 recommended)
First Layer Flow Rate	1.3
Layer Thickness	0.12~0.3mm
Printing Speed	40~100mm/s
Travel Speed	150~250mm/s
Ambient Temperature for Printing	Room temperature~40°C
Retraction Length	0.3~1mm
Retraction Speed	30~50mm/s
Recommended Support Material	Self-supporting, PVA, BVOH



Cautions:

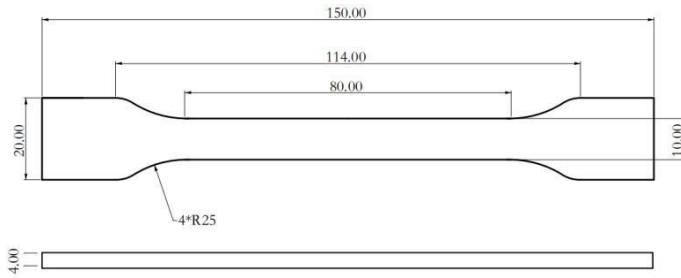
In order to prevent moisture absorption and contamination, supplied packaging should be kept closed and undamaged. For the same reason, partially used filaments should be re-sealed before storage.

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

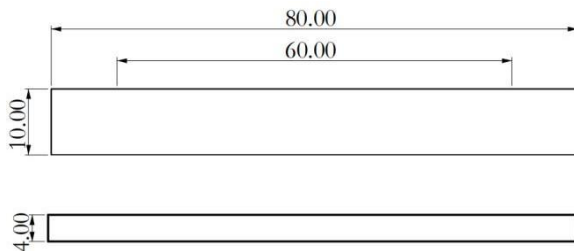
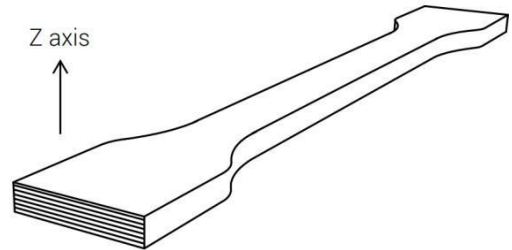
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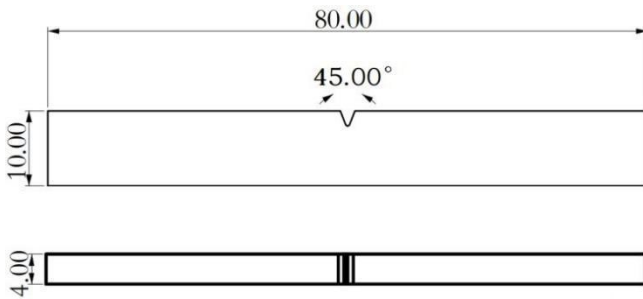
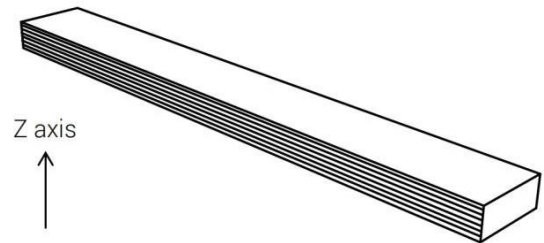
Attachment 1: Testing Specimen Size and Printing Direction



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)

