

# Technical Data Sheet

## Silk Filament

Silk filament is an FFF 3D printing filament, which is produced using a toughened, high-gloss polylactic acid modified material. It offers excellent bending strength and rigidity, is easy to print, and outputs a silk-like surface finish, with the ability to be printable on various FFF 3D printers.

### Features:

High glossiness/Easy to print/High rigidity

### Properties:

Physical Properties	Test Method	Units	Typical Value
Density	ISO 1183	g/cm <sup>3</sup>	1.25~1.26
Melt Flow Rate (MFR) (190°C/2.16Kg)	ISO 1133	g/10min	5~10
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	%	10.5~12.5
Modulus of Elasticity (X-Y)	ISO 527	Mpa	1150~1250
Bending Strength (X-Y)	ISO 178	Mpa	72~75
Izod Impact Strength (X-Y)	ISO 180	KJ/m <sup>2</sup>	5~6
Thermal Properties			
HDT@ 0.455 MPa(66 psi)	ISO75	°C	53
Continuous Service Temperature	IEC 60216	°C	50

## Testing Specimen Printing Conditions:

Test Equipment	Guider IIs (Flashforge)
Nozzle Diameter	0.4mm
Nozzle Temperature	220 °C
Printing Speed	60mm/s
Wall Thickness	1.2mm
Infill	100%
Standard Testing Specimen	Specific dimensions are shown in Attachment 1

## Recommended Printing Conditions:

Parameter	
Nozzle Temperature	190~220°C (220°C recommended)
Build Platform Temperature	Room temperature~60°C (40°C recommended)
Build Surface Material	Tempered glass, BuildTak, Carbon fiber plate
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 Distance	1~2mm
Retraction Speed	30~50mm/s
Support Material	Self-supporting, PVA, BVOH

**Cautions:**

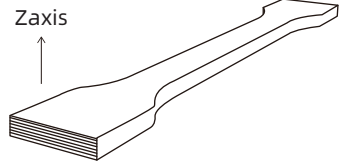
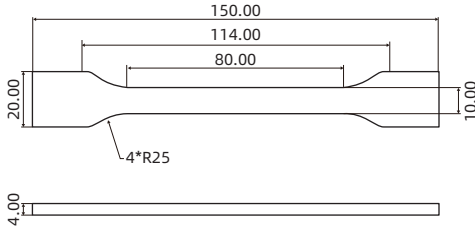
In order to prevent moisture absorption and contamination, supplied packaging should be kept closed and undamaged. For the same reason, partially used filaments should be re-sealed before storage.

Silk filament is primarily made of 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 Silk filament after its package being opened should be used up as soon as possible.

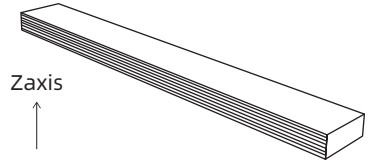
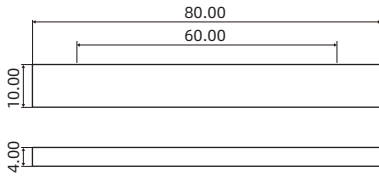
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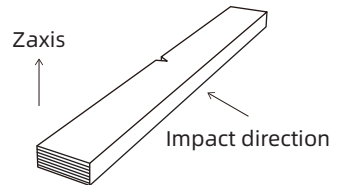
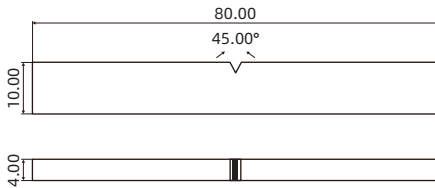
# Attachment 1: Testing Specimen Size and Printing Direction



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)