

PLA-Metal

Technical Data Sheet

PLA-Metal is a silver-colored material that combines high-end texture and environmental attributes. The product is entirely in pure silver color. Through material design and craftsmanship, it gains a strong metallic texture. Without any additional post-processing, it can present a delicate and rich metallic luster, comparable to real metal, completely eliminating the plastic feel of ordinary imitation metal materials. As a modified PLA material, it has excellent biodegradability. After being discarded, it can naturally degrade without harmful residues, practicing the concept of low-carbon and environmental protection. The material has good processability and is compatible with mainstream 3D printing equipment. The printing is smooth, and it can accurately reproduce the details of the shape. It is widely used in cultural and creative products, models, accessories, etc., balancing appearance level, practicality, and environmental friendliness, achieving a win-win situation of texture and environmental protection.

Basic Information

Characteristics	• Strong metallic texture • Good mechanical strength and toughness • Excellent biodegradability	• Excellent printing performance
Applications	• Electronic digital casings and accessories • Personalized accessories • Home decoration and ornaments	• Tools and tooling fixtures • Film and television props and cosplay gear • Exhibition display props
Manufacturing processes	• 3D printing	• FDM printing

Basic physical properties	Test methods	Data
Density	GB/T 1033	<1.24 g/cm ³
Melt index (190°C, 2.16 kg)	GB/T 3682	5.7 g/10 min
Tensile strength	GB/T 1040	60 MPa
Elongation at break	GB/T 1040	5.2%
Flexural strength	GB/T 9341	95 MPa
Flexural modulus	GB/T 9341	3422 MPa
IZOD Impact strength	GB/T 1843	8.4 kJ/m ²
Heat distortion temperature	GB/T 1634	53°C

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Printing performance	Test method	Data
Tensile strength (XY axis)	GB/T 1040	57 MPa
Elongation at break (XY axis)	GB/T 1040	5.1%
Tensile strength (Z axis)	GB/T 1040	30 MPa
Elongation at break (Z axis)	GB/T 1040	2.9%
Flexural strength (XY axis)	GB/T 9341	93 MPa
Flexural modulus (XY axis)	GB/T 9341	3240 MPa
Flexural strength (Z axis)	GB/T 9341	50 MPa
Flexural modulus (Z axis)	GB/T 9341	2679 MPa
IZOD Impact strength (XY axis)	GB/T 1843	15.2 kJ/m ²
IZOD Impact strength (Z axis)	GB/T 1843	2.1 kJ/m ²
Heat distortion temperature (XY axis)	GB/T 1634	53°C
Heat distortion temperature (Z axis)	GB/T 1634	51°C

Chemical Properties

Data

The PLA spray-free silver wire material has stable chemical properties, is resistant to weak acids and weak alkalis, does not dissolve in water, but can be dissolved in some organic solvents (such as dichloromethane), and may degrade under ultraviolet radiation.

Recommended printing parameters

Data

Drying conditions	55°C, 4~5 hours
Nozzle temperature	200~220°C
Nozzle size	0.4 mm
Baseplate material	PEI
Bed temperature	45~65°C
Fan size	100%
Printing speed	≤250 mm/s

Printing Precautions

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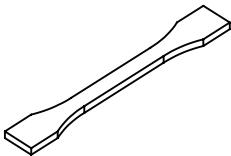
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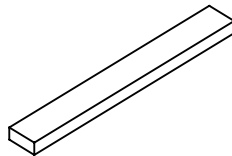
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1. It is recommended to re-dry the filament upon receipt. After the filament has been exposed to air for a period following unpacking, re-drying is advised to enhance printing results.
2. It is recommended to use a brand-new hotend. Do not use a hotend that has previously printed fibre-reinforced filament to print PLA-Metal.
3. Ensure the extruder is free of foreign objects and that the feed gears show no signs of wear, as these issues may cause material slippage and prevent consistent, uniform extrusion.

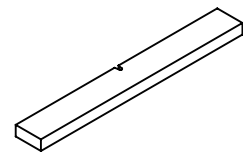
Mechanical Properties Test Conditions



Tensile test specimens GB/T 1040



Bending test specimens GB/T 9341



Impact test specimen GB/T 1843

Wire performance is tested using eSUN's standard printed samples for design reference purposes. Actual printability may be influenced by various factors including printer type, print parameters, and printing environment.

Printing Test Conditions

Nozzle temperature	200~220°C
Bed temperature	45~65°C
Number of outer layers	2
Number of top/bottom layers	5/3
Internal filling	100%
Fan speed	100%

*Based on testing with Bambu P1S 0.4 mm nozzle and Orcaslicer 2.1.0.

Note

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