

Technical Data Sheet

Metal Fill PLA Filament

Metal Fill PLA is a 3D printing filament produced using a polylactic acid modified material filled with nano-metal powder. Depending on the metal powder filled, it can be divided into three materials: copper, bronze and aluminum. Metal Fill has a metallic texture and excellent dimensional stability, does not warp or crack, is easy to print, and is generally suitable for different FDM 3D printers.

Main features:

Metallic texture/easy to print/dimensionally stable

Main Specifications:

Physical Properties	Test Means		
Density	ISO 1183	g/cm ³	1.26~1.28
MFR(190°C/2.16Kg)	ISO 1133	g/10min	20~30
Moisture Absorption(23°C/24h)	ISO 62	%	<0.5
Mechanical Properties			
Tensile strength(X-Y)	ISO 527	Mpa	40~45
Elongation at break(X-Y)	ISO 527	%	3~5
Flexural Modulus(X-Y)	ISO 527	Mpa	1000~1100
Flexural Strength(X-Y)	ISO178	Mpa	50~60
Impact Strength(X-Y)	ISO180	KJ/m ²	4.5~5
Thermodynamic Properties			
HDT@ 0.455 MPa(66 psi)	ISO75	°C	53
Continuous Use Temperature	IEC 60216	°C	50

Test Sample Printing Conditions:

3D Printer	Guider IIS (Flashforge)
Nozzle Diameter	0.4mm
Nozzle Temperature	210 °C
Printing Speed	60mm/s
Layer	1.2mm
Infill	100%
Standard Printed Sample	See blew attachment

Recommended Printing Parameters:

Parameters	
Nozzle Temperature	190~220℃(210℃ recommended)
Bed Temperature	Room Temperature to 60℃(40℃ recommended)
Bed Materials	Tempered glass, BuildTak, Carbon fiber board
Nozzle Diameter	φ 0.4/0.6mm(φ 0.4mm recommended)
Model Cooling Fan	50~100%
Layer	0.12~0.3mm
Printing Speed	60~90mm/s(60mm/s recommended)
Idle Speed	60~120mm/s
Printing Environmental Temperature	Room Temperature to 40℃
Retraction Distance	1~2mm
Retraction Speed	30~50mm/s
Supporting Materials	Itself、PVA、BVOH

Note:

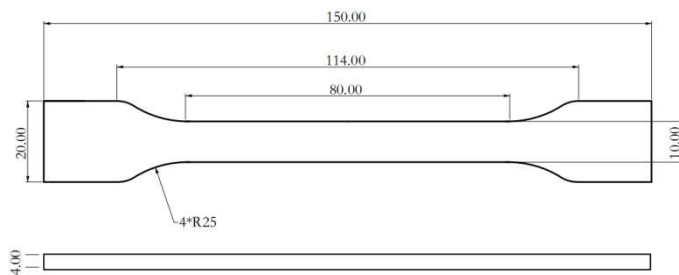
To prevent moisture absorption and contamination, the packaging of filament should be kept airtight and undamaged until they are opened for use. For the same reason, some used filament should be resealed before storage.

The main component of Metal Fill is biodegradable material. Moisture, oxygen and ultraviolet rays in the air will accelerate the aging of the material. In order not to affect the final printing quality, Metal Fill filament need to be used as soon as possible after opening.

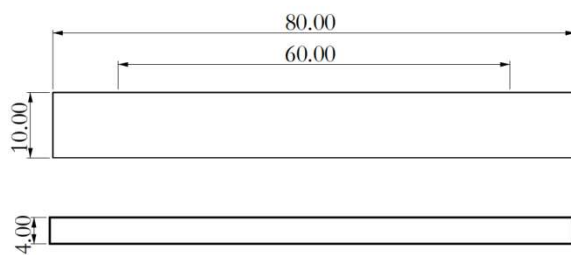
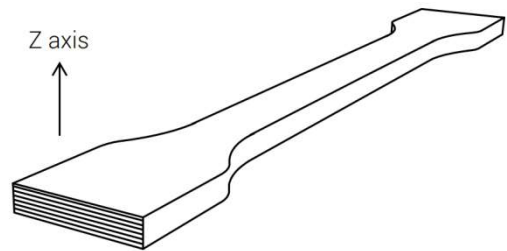
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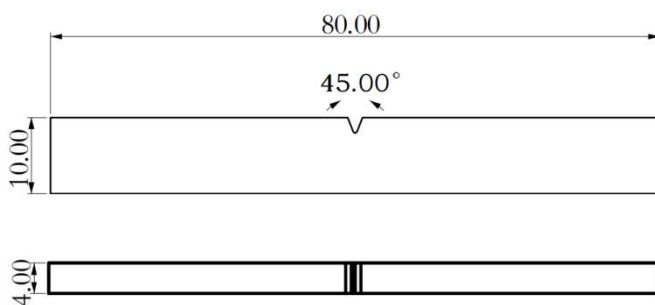
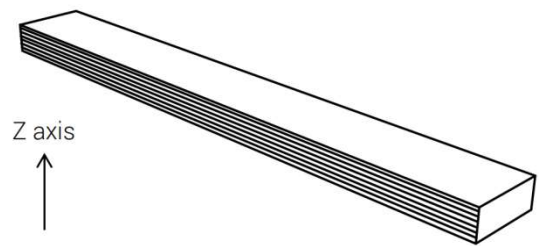
Attachment: Test sample dimensions and printing direction



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)

