

【 Phrozen Filament User Guide 】

SpiderMaker PLA Matte Series

Outline

Before printing the perfect object, it is important to first understand the material limitations we are handling and how it can be successfully printed under various conditions. With this in mind, Phrozen provides the following design suggestions to help you better understand the properties of each material and how you can best utilize them to bring your wildest creation to life.

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Section 1

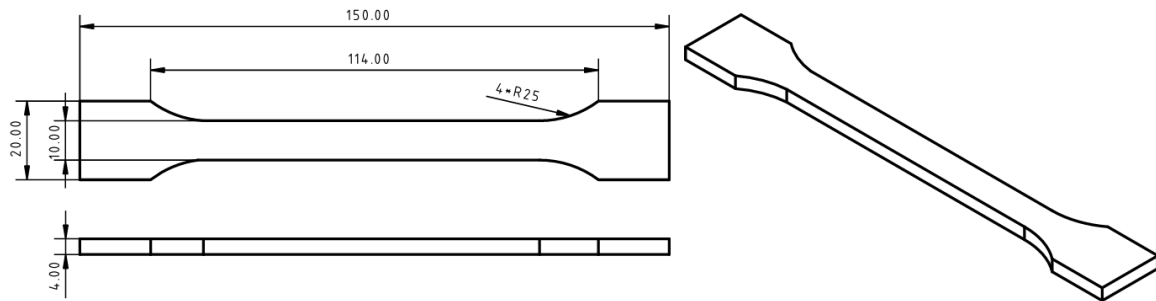
TDS

Tensile Properties	Norm	Values	
		Printing Direction (X-Y)	Printing Direction (X-Y)
Tensile Strength	ISO 527	14.2 – 16.2 MPa	7.8 – 9.2 MPa
Tensile Modulus	ISO 527	1072 - 2489 MPa	918 – 1457 MPa
Elongation at Break	ISO 527	19.1 – 52.5 %	1.6 – 5.4 %
Impact Properties	Norm	Values	
		Printing Direction (X-Y)	Printing Direction (X-Y)
Notched Izod Impact Strength	ISO 180	44.2 – 51.0 J/m	13.7 – 14.1 J/m
Impact Properties	Norm	Values	
		Printing Direction (X-Y)	Printing Direction (X-Y)
Flexural Strength	ISO 178	35.5 – 38.2 Mpa	14.0 – 14.5 Mpa
Flexural Modulus	ISO 178	1884 - 2015 Mpa	1313 - 1475 Mpa
Hardness	Norm	Values	
Shore D	ISO 7619-1	76 D	
Thermal properties	Norm	Values	
Melt Flow Index	ISO 1133(2.16kg)	5.5(210°C) g/10min	

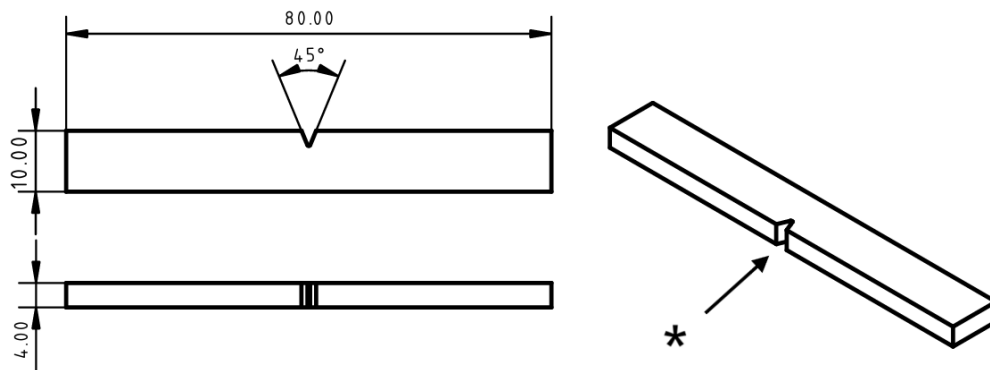
**All test pieces were printed in an environment of $25 \pm 2^{\circ}\text{C}$ and $\text{RH}55 \pm 10\%$ right after removing the vacuum bag and were set aside to cool down completely before testing.

Performance values obtained in standard sample tests conducted by Phrozen are for design reference and comparison only. The actual performance of each 3D printed model might be impacted by other variables, including the printer, printing model, printing environment, printing parameters, etc.

Users are responsible for their legality, safety, and performance indicators when printing with Phrozen's material. Phrozen is not responsible for the materials and usage scenarios, nor is it responsible for any damage that occurs during the use of our materials.



ISO 527 Tensile Test Bar (unit: mm)



ISO 180 Impact Test Bar (unit: mm)

*Impact test direction

Filament Specifications

Diameter	1.75 mm
Weight	700 g

Recommended Printing Parameters

Printer	Phrozen ARCO
Nozzle Temperature	220 ± 10 °C
Heat Bed Temperature	60 °C
Printing Speed	<200 mm/s
Fan Speed	100 %

Specimen Printing Parameters

Nozzle Diameter	0.4 mm
Nozzle Temperature	210 °C
Heat Bed Temperature	60 °C
Layer Height	0.2 mm
Printing Speed	100 mm/s
Fan Speed	100 %
Infill Percentage	100 %

Drying Recommendations

Drying Temperature	45 - 55°C
Drying Time	4 – 6 hours

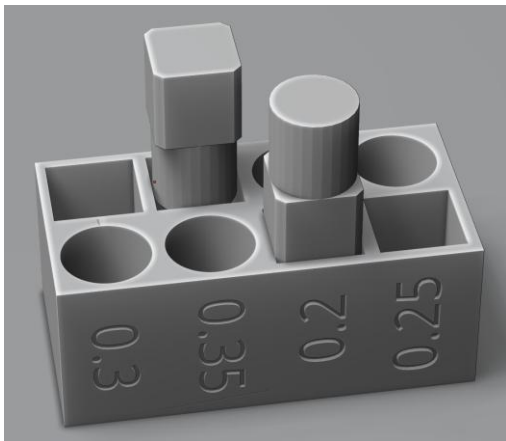
Section 2

Design Specifications

※Note: All indicators are the limit values of PLA and will vary depending on the machine, parameters, operating environment, and printing model used※

Size Tolerance, X-Y plane

This indicator is the minimum tolerance allowed when printing the pin and hole connection.

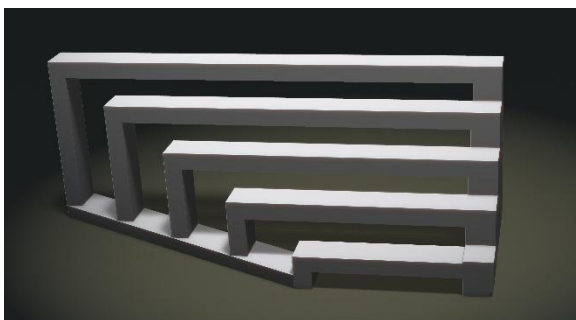


Recommended square aperture : ≥ 0.1 mm

Recommended circular aperture : ≥ 0.1 mm

Maximum Horizontal Bridge Span

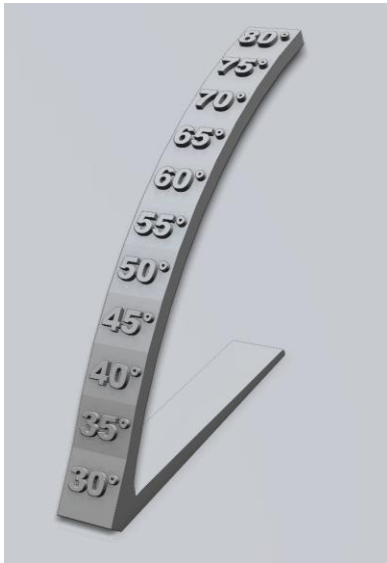
This indicator shows the maximum width between the supporting walls that can be printed without deforming the bridge.



Recommended distance : ≤ 15 mm

Maximum Hanging Angle

This indicator is the maximum angle that can be printed completely without support.



Recommended angle : $< 45^\circ$