

【Phrozen Resin User Guide】

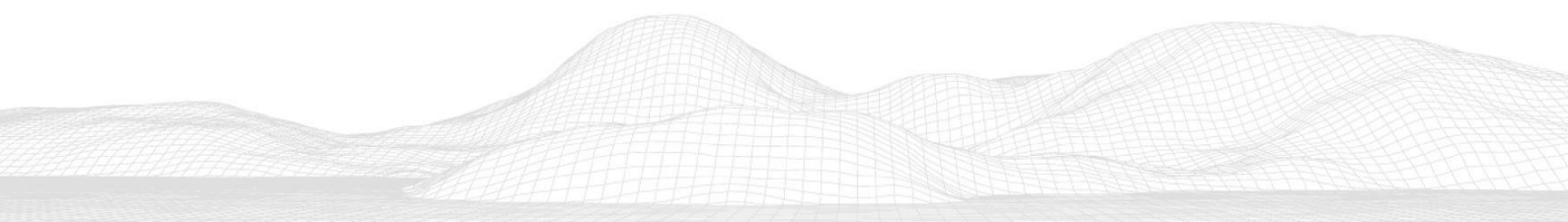
Neon Resin- Peach / Lime / Pumpkin / Lemon

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

General Properties	Norm	Typical values
Appearance	-	Pink, Green, Yellow, Orange
Viscosity, 30	Cone/Plate Rheometer ¹	200-350 mPas
Density (liquid resin)	ASTM D4052-18a	1.1-1.5 g/cm ³
Tensile Properties	Norm	Typical values (UV post-cured)
E Modulus	ASTM D638	800-1150 MPa
Ultimate Tensile Strength	ASTM D638	19-23 MPa
Elongation at Break	ASTM D638	20.63 %
Impact Properties	Norm	Typical values (UV post-cured)
Notched Izod (Machined), 23 °C	ASTM D256	40.51-47.98 J/m
Thermal Properties	Norm	Typical values (UV post-cured)
HDT at 0.45 MPa	ASTM D648	70 °C
Hardness	Norm	Typical values (UV post-cured)
Shore D	ASTM D2240	72-82

** All testing specimens are printed using Phrozen Sonic Mighty 8K or Sonic Mini 8K, and post-cured using Phrozen Cure & Wash.*

Section 2

Printing

Printing Parameters

Printer	Sonic mini / Sonic mini 4K
Layer Height	50μm
Exposure Time	2.0-3.0 s
Bottom Exposure Time	20~25 s
Light-off Delay	12 s
Lift Distance	6 mm
Lifting Speed	60 mm/min

Printer	Sonic Mini 8K
Layer Height	50μm
Exposure Time	2.5~3.5 s
Bottom Exposure Time	20~25 s
Rest Time After Retract	3 s
Lift Distance	6 mm
Lifting Speed	60 mm/min

Printer	Sonic Mini 8KS
Layer Height	50μm

Exposure Time	1.5~2.5 s
Bottom Exposure Time	15~20 s
Rest Time After Retract	3 s
Lift Distance	6 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty 4K
Layer Height	50μm
Exposure Time	2.5~3.5 s
Bottom Exposure Time	20~25 s
Light-off Delay	11 s
Lift Distance	8 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty 8K
Layer Height	50μm
Exposure Time	2.5~3.5 s
Bottom Exposure Time	20~25 s
Rest Time After Retract	3 s
Lift Distance	8 mm
Lifting Speed	60 mm/min

Printer	Sonic Mighty 12K(Upgrade Kit)
Layer Height	50μm
Exposure Time	2.5~3.5 s
Bottom Exposure Time	20~25 s
Rest Time After Retract	3 s
Lift Distance	8 mm
Lifting Speed	60 mm/min

Printer	Sonic Mega 8K*
Layer Height	50μm
Exposure Time	3~4 s
Bottom Exposure Time	20~25 s
Rest Time After Retract	5 s
Lift Distance	8 mm
Lifting Speed	45 mm/min

* Mega 8K has a higher peeling force. Therefore, a longer exposure time is necessary to increase the success rate.

Cleaning

1. After removing the printed object from the building stage, use Phrozen Wash and Cure Kit for post-processing.
2. Soak the object in the Washing Station filled with 95% alcohol for 35–40 seconds to remove uncured resin from the surface.
3. **Do not soak in alcohol or other solvent (such as IPA) for more than 60 seconds, as it may damage the surface of the objects.**
4. Make sure to clean the inner parts of hollow objects completely.
5. Make sure that the object has been thoroughly cleaned, then leave it in a cool, well-ventilated place for at least 30 minutes without exposure to light. Alternatively, you may gently apply compressed air to dry the printed object.

*When printing flat on the building plate, remove the printed objects carefully to avoid

deformation on the objects.

Post-Curing

1. Use Phrozen post-curing lamps (Phrozen Cure & Wash、 Phrozen Cure、 Phrozen Mega Cure) or other post-curing lamps with the same wavelength to cure printed objects.
2. Cure the printed objects for 30 minutes for the best results.

Section 3

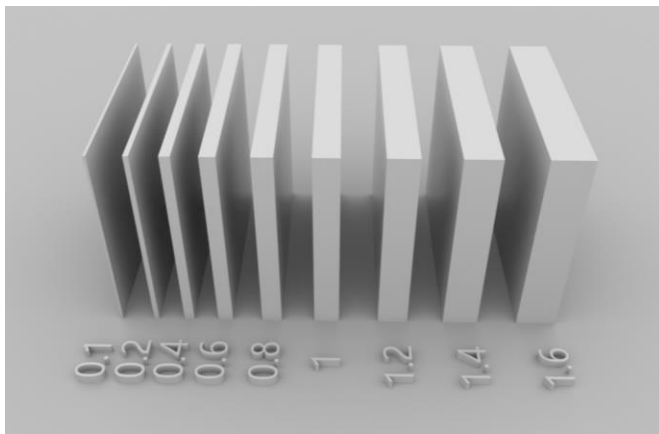
Design Specifications

※Note: All indicators are limited to each resin; the value will vary with different machines and environmental conditions.※

Minimum Unsupported Wall Thickness

This indicator shows the minimum wall thickness that can be printed independently with no support without causing any bending or breaking.

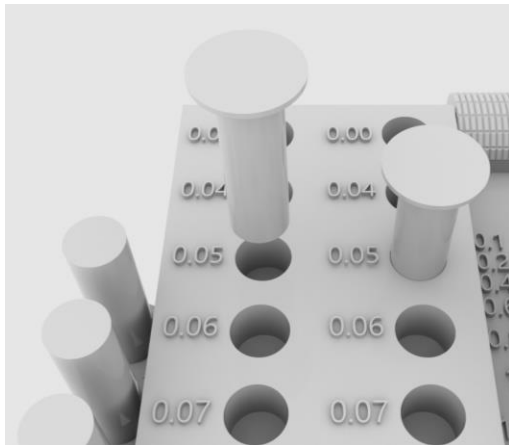
Recommended thickness : ≥ 0.2 mm



Size Tolerance, X-Y plane

This indicator shows the minimum dimensional tolerance between the hole and the column parallel to the XY plane.

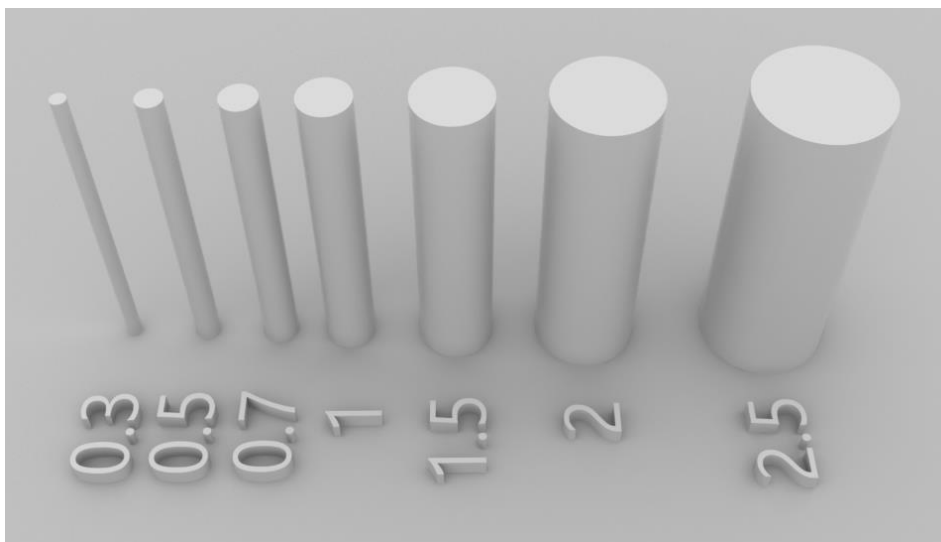
Recommended tolerance : ≥ 0.1 mm



Minimum Pin Diameter

This indicator shows the minimum column diameter of pillars and supports that can be printed independently without bending or breaking.

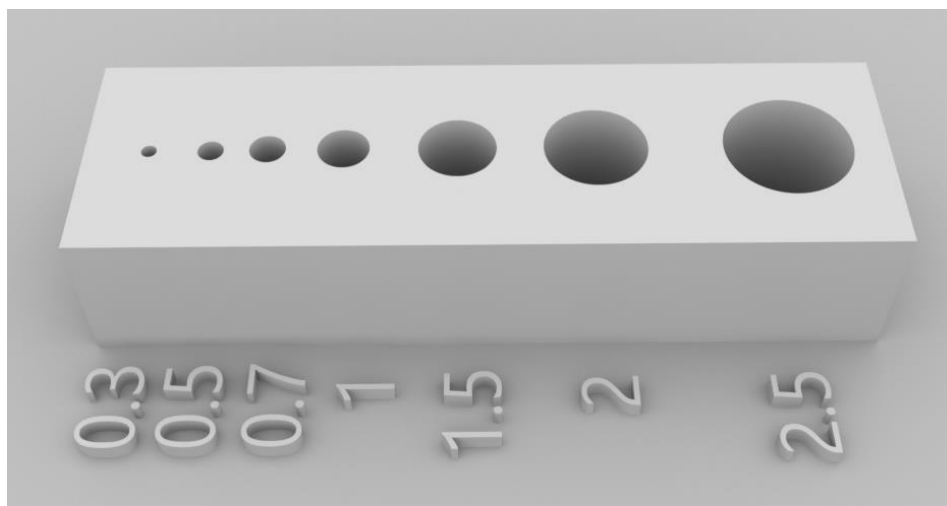
Recommended diameter : ≥ 0.3 mm



Minimum Hole Diameter, X-Y plane

This indicator shows the minimum hole diameter that can be successfully printed parallel to the XY plane.

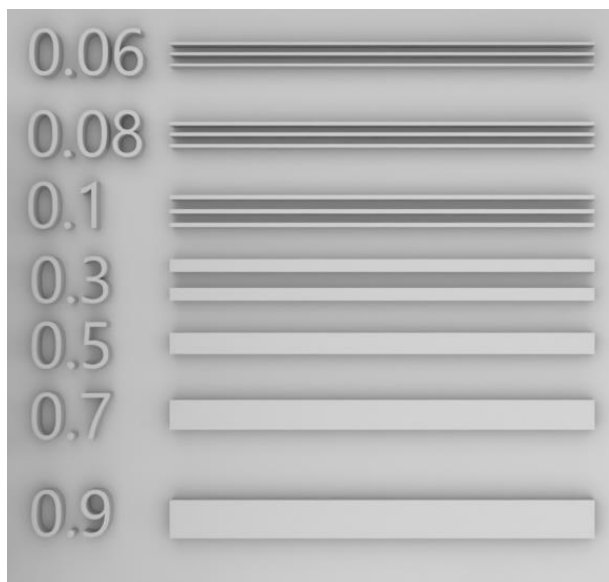
Recommended diameter : ≥ 0.7 mm



Minimum Embossed Detail Width, X-Y plane

This indicator shows the minimum line width that can successfully be printed with embossed details.

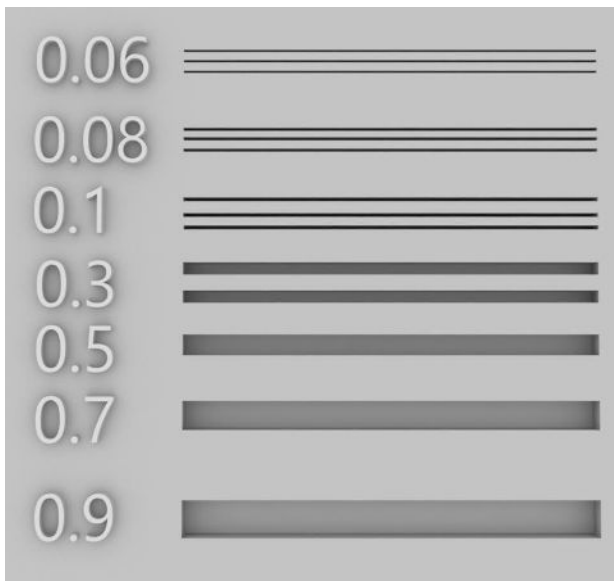
Recommended width : 0.08 mm



Minimum Engraved Detail Width, X-Y plane

This indicator shows the minimum line width that can successfully be printed with engraved details.

Recommended width : ≥ 0.3 mm



Maximum Horizontal Bridge Span

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

Recommended width : ≤ 6 mm

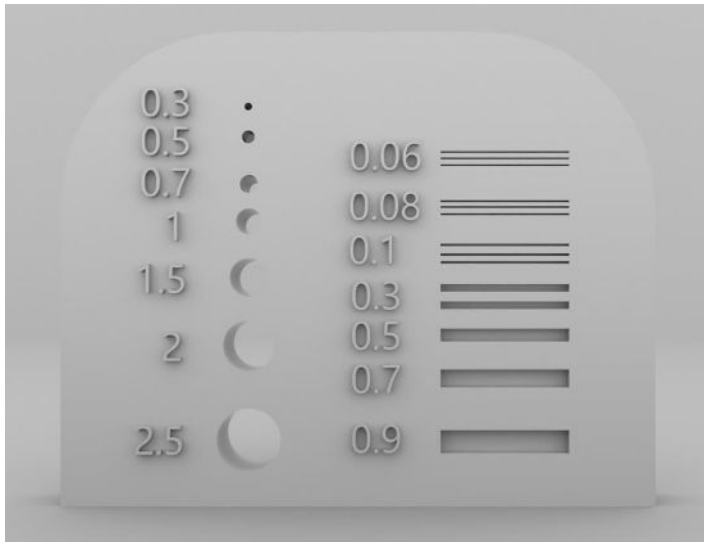


Minimum Hole Diameter and Engraved Detail Width, Z-Axis, at 0.05mm Layer Height

This indicator shows the minimum hole diameter and engraving groove width that can be successfully printed on the Z-axis with a layer thickness of 0.05mm.

Recommended diameter : ≥ 0.7 mm

Recommended width : ≥ 0.06 mm



Section 4

Applications

