

Photocentric



Technical Datasheet

Model Maker

385-405nm

Developed with



TITAN FORGE

Optimised for:

Tabletop Gaming Miniatures

Display Figurines

Scale Models

Repeatable Performance



Models
by Titan Forge



Model Maker is a precision 3D printing resin engineered for miniatures, figurines and scale models. Formulated to produce fine features with a smooth matt surface finish, it delivers excellent dimensional accuracy, durability and minimal post-processing.

Designed for high-resolution LCD 3D printing, this Technical Data Sheet details the resin's mechanical properties, processing parameters and performance characteristics.

Compatible:

385-405nm
LCD 3D Printers

Colour
Grey



Available:

1 & 5kg bottles



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to Learn More

Key Features



Strong and Durable

Combines strength and toughness for durable, resilient printed models and parts.



Smooth Matt Finish

Produces smooth matt surfaces with reduced layer lines for easier finishing.



Precision Printing

Captures intricate details, sharp edges and fine textures with exceptional precision.



Easy to Print

Low viscosity ensures reliable printing, dimensional accuracy and clean support removal.



Model Maker Properties

Tensile Properties*	Green	Post-cured	Method
Tensile Modulus	1040 MPa	2090 MPa	ASTM D638
Tensile Strength (Break)	26 MPa	36 MPa	ASTM D638
Tensile Strength (Yield)	29 MPa	45 MPa	ASTM D638
Elongation at Break	5.5%	35%	ASTM D638
Flexural Properties*			
Flexural Strength	-	75 MPa	ASTM D790
Flexural Modulus	-	1950 MPa	ASTM D790
Impact Properties*			
Impact Strength Notched Izod	-	41J/m	ASTM D256
General Properties*			
Shore Hardness	-	83 Shore D	ASTM D2240
HDT (@ 0.455 MPa)	-	52°C	ASTM D648
Water absorption (%) after 24 hrs		0.91%	ASTM D570
Water absorption (%) after 72 hrs		1.42%	ASTM D570
Water absorption (%) after 7 days		2.07%	ASTM D570

*Post cured for 1 hr at 60°C in Photocentric CureM+.

Liquid Properties	Value	Method
Viscosity	450 cPs	At 25°C Brookfield spindle 3
Density	1.11 g/cm ³	Internal
Storage	10<T<50°C	

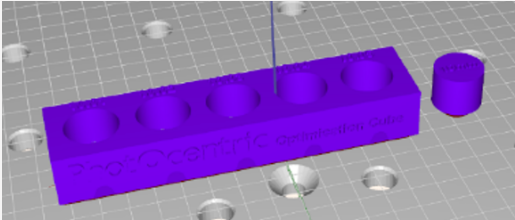
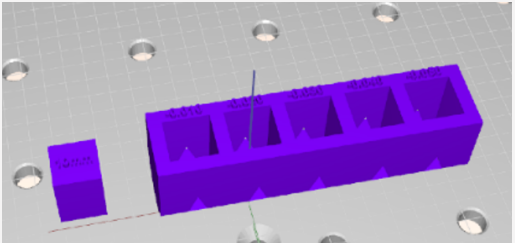


We are constantly reviewing and improving our range of high-performance materials. For the very latest information, please visit the Photocentric website



Design Consideration Parameters

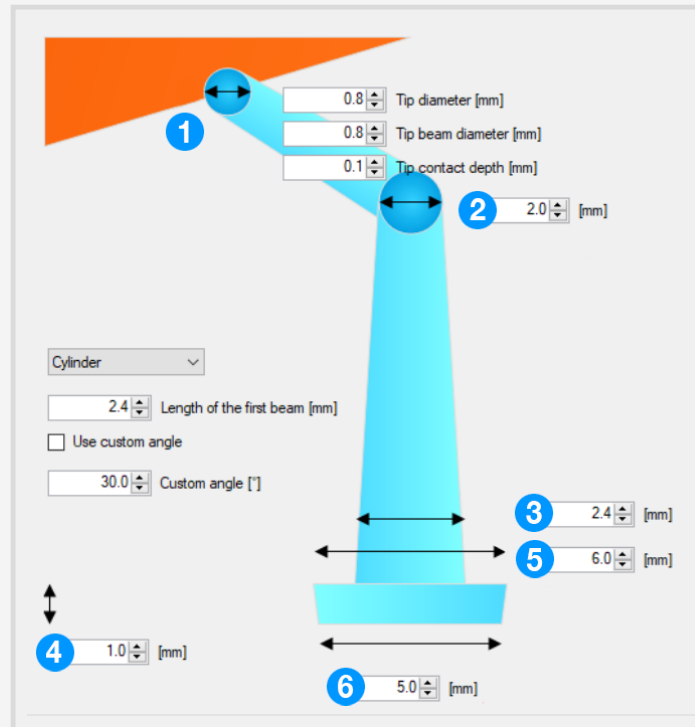
These are example parameters in relation to a UV LCD printer with $<50\mu\text{m}$ XY resolution.

Properties	Parameters
Minimum feature size (pins)	0.4mm
Minimum hole diameter	0.7mm
Minimum slot thickness	0.5mm
Minimum wall thickness	0.3mm
Overhangs	Successful for overhangs $\leq 45^\circ$
Round Dim Fit	Parts fit with resistance at 1mm Click to view sample
	
Square Dim Fit	Parts fit perfectly with no resistance at 0.06mm offset Click to view sample
	
Scaling factor	X +0.6% Y+0.6% Z+0.6%



Recommended Support Parameters & Orientation

These are recommended support settings in relation to a UV LCD printer with <50µm XY resolution.



Large Models

Small Models

Diagram Ref. Nr	Parameters	Values	Parameters	Values
	Density	80%	Density	50%
1	Tip Diameter (mm)	0.5	Tip Diameter (mm)	0.5
	Critical Build Angle	47°	Critical Build Angle	47°
2	Pole Diameter (mm)	2	Pole Diameter (mm)	1.5
3	Pole Widening Factor	1.5	Pole Widening Factor	2
	Model Height from Base (mm)	10	Model Height from Base (mm)	10
4	Height of Support Foot (mm)	2	Height of Support Foot (mm)	2
5	Top of Foot Diameter (mm)	7	Top of Foot Diameter (mm)	7
6	Bottom of Foot Diameter (mm)	5	Bottom of Foot Diameter (mm)	5

- Recommended orientation around all axes is 45 °.



Printer and Resin Profiling

- Photocentric UV high-performance resins have been formulated to be compatible with a wide range of 3rd Party Printers. This list is continually updated, for the most up-to-date information, please visit our [UV Resin Compatibility Page](#). All resins are functional at a wavelength of 385-405 nm.
- Please see below instruction on how to calculate appropriate exposure time with regards to your 3rd party UV printer and purchased resin



Layer Exposure Guidelines

This guide will assist you in establishing a layer exposure time for a desired resin and layer thickness based on the characteristics of Photocentric's UV Resin range and your UV 3D printer.

Each resin requires a specific energy (E_c) to cure a certain layer thickness (D_p). 'Energy' is defined by multiplying 'light output intensity' of your printer and a 'given time of exposure'. The equation below simply explains the matter.

$$\text{Energy [mJ/cm}^2\text{]} = \text{Light Output Intensity [mW/cm}^2\text{]} \times \text{Exposure Time [s]}$$

Your UV 3D printer manufacturer will provide you with light output intensity value.

Layer Thickness (μm)

100

Exposure time for a UV 3D printer with 5mW/cm² light output intensity

3 sec

E_c (mJ/cm²)

15



Bear in mind the exposure time vs energy is not a linear trend, and this data is intended strictly as a guideline. Settings may need to be further optimised to suit each printer.



Pre-Print Instructions

1. Heat the resin to 30°C in the bottle.
2. Shake the resin bottle for 2 minutes before pouring into the resin vat.
3. Stir resin in vat with vat cleaning tool for pigment drop out etc. before and between prints if the print is immediate and vat is not being emptied.
4. Visit <https://photocentricgroup.com/print-settings/> for print settings recommendation.



Post-Print Instructions

To reach the full mechanical properties of the material, parts printed using 'Model Maker- Grey' resin will need to be post-processed.

1. Remove the print platform from the printer and place into the wash unit.
2. Wash the printed parts following the instructions for the cleaning solvent. For example, when using Photocentric Resin Cleaner 30, wash for 5 minutes. Alternatively, wash the parts in IPA for approximately 5 minutes in an ultrasonic cleaner.
3. Do not exceed the recommended wash time, as excessive washing may negatively affect the mechanical properties of the printed parts.
4. Rinse the parts with warm water for 1–2 minutes to remove any remaining cleaning solvent.
5. Dry the parts thoroughly. Where possible, use compressed air; alternatively allow the parts to air dry completely.
6. Part removal (two options):
 - For best dimensional accuracy: Leave parts on the build platform during curing to minimise distortion or warpage.
 - For easier support removal: Remove parts from the platform before curing using a scraper or suitable cutters, taking care not to damage the parts.
7. Post-cure the printed parts in a UV curing unit for 1 hour at 60 °C.