Technical Datasheet

Polycarbonate-like 405nm

UV Resin

Polycarbonate-like 405nm

Tensile Modulus (Low – High)

Accuracy (Low – High)

Colours

Black

Available

5kg bottles

T-Rex Skull 3D File designed by MakerBot
https://www.thingiverse.com/thing:308335

Photocentric's Polycarbonate-like, 405nm resin is the first choice for low-cost, accurate printing. The low-irritancy and low odour make printing and post- processing safer and easier, while printed parts exhibit the precision and strength of conventional hard plastics. Photocentric's Polycarbonate-like, 405nm works with a variety of UV LCD and DLP 3D printers.

Optimised for:

- Accurate models
- Fast prototyping and model making
- Suitable for end use
- Fastenings, tools and couplings

Version
09/04/2025

Photocentric

Unique features:

Low cost

Strong

Easy and safe to use

High precision

Fast curing

Low shrinkage

Low odour

High heat resistance of 110˚C

Polycarbonate-like 405nm Black

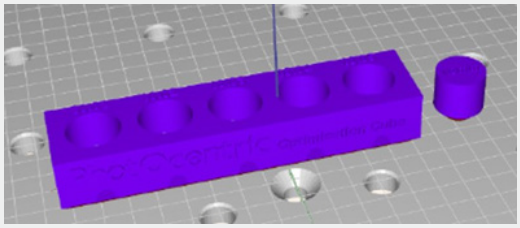
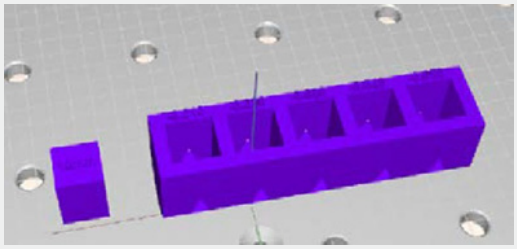
Tensile Properites	**Green**	**Post-cured**	**Method**
Tensile Modulus *	837 MPa	2330 MPa	ASTM D638
Ultimate Tensile Strength *	25 MPa	58 MPa	ASTM D638
Elongation at Break *	16%	6%	ASTM D638
Flexural Properties			
Flexural Strength *	-	87 MPa	ASTM D790
Flexural Modulus *	-	2190 MPa	ASTM D790
Impact Properties			
Impact Strength Notched Izod *	-	43 J/m	ASTM D256
General Properties			
Shore Hardness *	75D	87D	ASTM D2240
Heat Deflection Temperature*	-	110°C	ASTM D648
Water absorption (%)* after 24 hrs	-	0.1%	Internal
Water absorption (%)* after 72 hrs	-	0.4%	Internal
Water absorption (%)* after 7 days	-	0.6%	Internal
Liquid Properties			
Viscosity	-	740 cPs	At 25°C Brookfield spindle 3
Density	-	1.10 g/cm3	
Storage Temperature	-	10<T<50°C	

* Mechanical properties stated based on fully cured material.

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

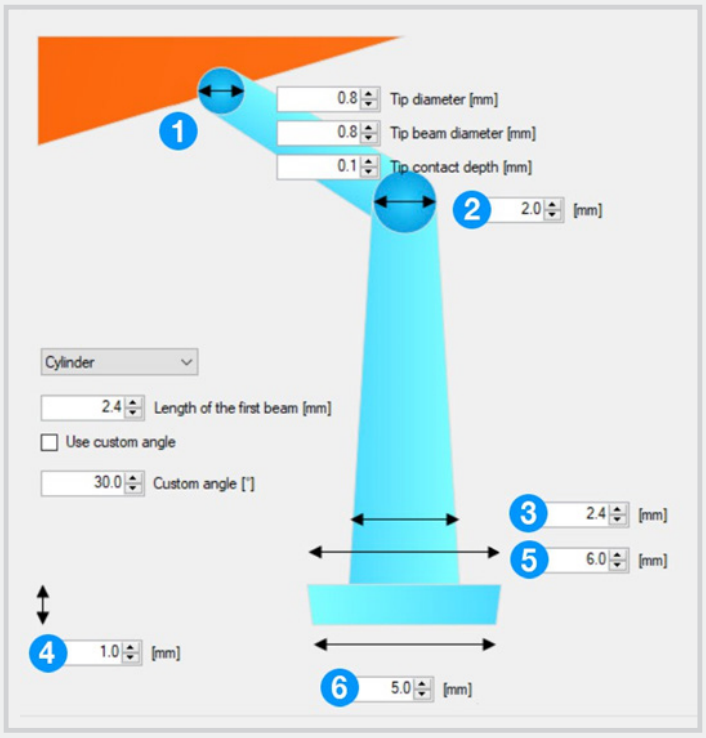
Design Consideration Parameters

These are example parameters in relation to a UV LCD printer with 81μm 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 ≤45°
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 81µm 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 °.

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 photocentricgroup.com/product/polycarbonate-like-3d-resin/ for print settings recommendation.

Post-Print Instructions

To reach the full mechanical properties of the material, parts printed using 'Polycarbonate-like, 405nm Black' resin will need to be post-processed.

1. Remove the print platform from the printer and place in to the wash unit.
2. Follow resin cleaner/solvent TDS for relevant wash cycles. You can use 'Photocentric Resin Cleaner 30' as the cleaning medium. For 'Photocentric Resin Cleaner 30', the washing cycle is 10 minutes.
3. Make sure you do not exceed the recommended wash cycles as it may have an adverse effect on the mechanical properties.
4. Rinse parts with warm water for 1-2 minutes.
5. Where possible, use compressed air to dry the parts, if not, leave them to dry naturally.
6. The printed parts can be cured in any UV post-curing unit.
7. Parts printed with 'Polycarbonate-like, 405nm- Black' are suitable for thermal shocking. To remove parts from the platform, remove from the cure unit and submerge immediately in cold water. The parts will become easily free. Repeat if necessary.
8. Alternatively, remove the platform from the cure unit and place on to a suitable flat surface. use a scraper or suitable cutters and take care to not damage the part(s) when removing them from the platform.