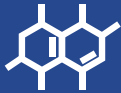




Technical Datasheet

Basics HD Black



UV Resin



UV Basics HD Black

Tensile Modulus (Low – High)



Accuracy (Low – High)



Compatible Printers

UV LCD & DLP 3D
Printers



Liquid Crystal
OPUS

Colour



Black

Available
1kg bottles



Photocentric's UV Basics HD Black resin is the first choice for low-cost, accurate printing. The zero-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 UV Basics HD Black works with a variety of UV LCD and DLP 3D printers, as well as the Photocentric Liquid Crystal Opus printer.

Optimised for:

- | | |
|--|---|
| ☐ Accurate models | ☐ Fast prototyping |
| ☐ Suitable for end use | ☐ Fastenings, tools and couplings |

Unique features:



Lowest cost
available on market



Strong



Easy and safe to use



High precision



Fast curing



Low shrinkage



Low odour



UV Basics HD Black

Tensile Properites	Green	Post-cured	Method
Tensile Modulus *	837 MPa	2330 MPa	ASTM D638
Ultimate Tensile Strength *	25.3 MPa	57.8 MPa	ASTM D638
Elongation at Break *	15.9%	6%	ASTM D638
Flexural Properties			
Flexural Strength *	-	86.6 MPa	ASTM D790
Flexural Modulus *	-	2190 MPa	ASTM D790
Impact Properties			
Impact Strength Notched Izod *	-	42.4 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/cm ³	
Storage Temperature	-	10<T>50°C	

* Mechanical properties stated based on fully cured material.

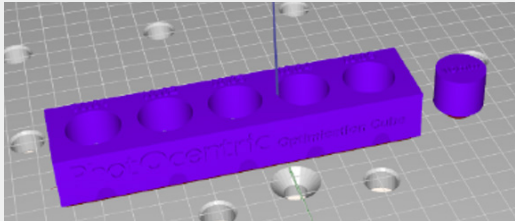
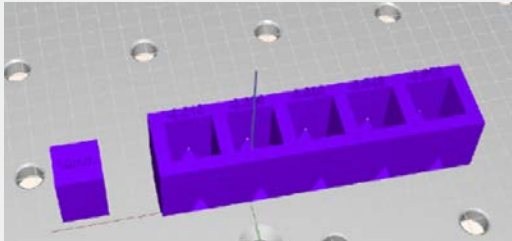


We are constantly reviewing and improving our range of high-performance materials.
For the very latest information, please visit the Photocentric website



Design Consideration Parameters

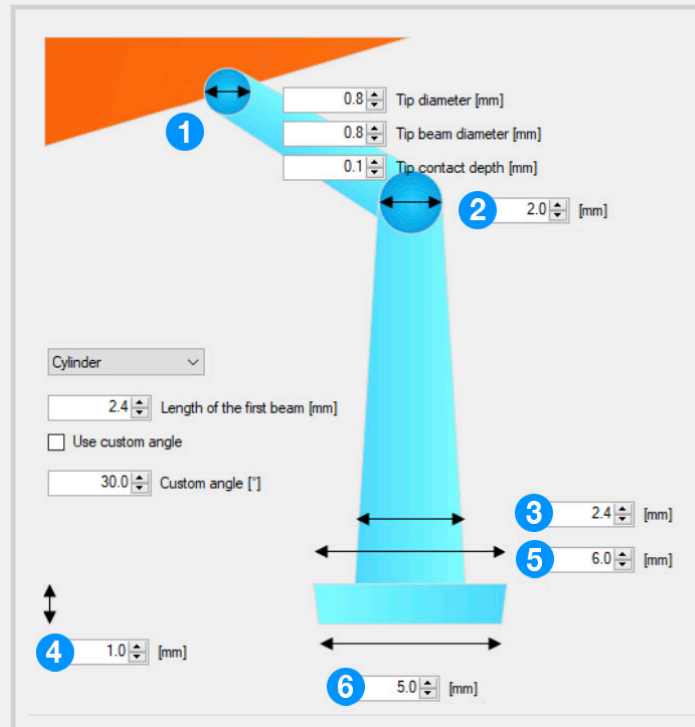
These are example parameters in relation to a UV LCD printer with 81µm XY resolution.

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 $\leq 45^\circ$
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
	
Minimum wall thickness unsupported	When printing a 1mm, 2mm, 3mm wall thickness unsupported, the Z height should be <XXmm.
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 °.



Printer and Resin Profiling

Photocentric UV Printers

To print with Photocentric UV printers, choose UV Basics HD Black and the desired layer thickness when preparing your print file in Photocentric Studio.

3rd Party UV Printers

- 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.
- Basic print settings for a 100 µm layer of Photocentric's UV Basics HD Black have been found for the 3rd Party UV Printers below:

Printer	Software Used	Exposure Time Normal Layers (s)	Exposure Time Bottom Layers (s)	Z Axis Lift Speed (mm/min)	Bottom Retract Speed (mm/min)
LC Opus	Photocentric Studio	2	30	100	50
UniFormation GKtwo	Formware 3D	5	60	100	50
BQ	Chitubox	3.5	50	100	50
Flashforge	Chitubox	6.3	70	100	50
Elegoo Mars 3	Formware 3D	6	60	100	50
Elegoo Saturn S	Formware 3D	7	60	100	50
Elegoo Saturn 2	Formware 3D	6	60	100	50
Anycubic Photon Mono 4K	Formware 3D	5.5	60	100	50
Anycubic Photon Mono X2	Formware 3D	4	60	100	50
Anycubic Photon Mono X6K	Formware 3D	4.5	60	100	50
Anycubic Photon M3 Premium	Formware 3D	5.8	60	100	50
Anycubic Photon M5s	Formware 3D	4	60	100	50
Phrozen Sonic Mini 8K	Formware 3D	6	60	100	50
Phrozen Sonic Mighty 8K	Formware 3D	8	60	100	50
CL-60 Creality Halot One	Halot Box	8	60	100	50
CL-103L Creality Halot Mage	Halot Box	4	60	100	50



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.



Post-Print Instructions

To reach the full mechanical properties of the material, parts printed using UV Basics HD Black resin will need to be post-processed.

1. Remove the print platform from the printer and place in to the wash unit. You can use 'Photocentric Wash 15' or 'Photocentric Air Wash L' as wash units.
2. Follow resin cleaner/solvent TDS for relevant wash cycles. You can use 'Photocentric Resin Cleaner' 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. You can use 'Photocentric Cure M+' for 4 hours at 60°C, or longer for very thick parts.
7. Parts printed with 'UV Basics HD Black' are suitable for thermal shocking. To remove parts from the platform, remove from the 60°C 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.