



Technical Datasheet

# HighTemp DL401

 Daylight Resin

## Photocentric

### HighTemp DL401

Tensile Modulus (Low – High)



Temperature Resistance (Low – High)



Compatible Printers



Liquid Crystal  
MAGNA



Liquid Crystal  
TITAN

Colour



Amber

Available in  
5kg bottle



Shoe mould

Photocentric HighTemp DL401 is a rigid resin designed for moulding applications, possessing both high stiffness and ductility, and capable of withstanding high temperatures. Parts created in DL401 show superior compression behaviour, and resistance to fatigue, temperature, and moisture without bending or deforming. HighTemp DL401 can be used for quick printing applications and can print with an impressive layer thickness of 350 microns. HighTemp DL401 works on Photocentric's Daylight 3D Printers.

#### Optimised for:

- Hot fluid and gas manifolds
- Moulds and inserts
- Heat resistant housings and fixtures
- Outdoor applications

#### Unique features:



Excellent long-lasting performance under heat and stress



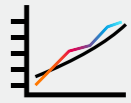
Smooth surface finish and ability to print fine detail



Quick and fast prototyping 350 µm layer



Minimal shrinkage, dry surface touch



Simulating the strength and stiffness of glass filled Nylon 6



Ideal for plastic injection moulding

### HighTemp DL401 Properties

#### Tensile Properties

Tensile Modulus *	3180 MPa	ASTM D638
Ultimate Tensile Strength *	76.9 MPa	ASTM D638
Elongation at break *	4.8%	ASTM D638

#### Flexural Properties

Flexural Modulus *	3240 MPa	ASTM D790
Flexural Strength *	123 MPa	ASTM D790

#### Impact Properties

Impact Strength Notched Izod *	15.8 J/m	ASTM D256
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#### Advanced Thermal Properties

Thermal Conductivity, 23°C	0.20 W/(m.K)	ASTM D7984
Thermal Conductivity, 100°C	0.21 W/(m.K)	ASTM D7984
Specific Heat Capacity, 23°C	1.36 J/(g.K)	ASTM D7984
Specific Heat Capacity, 100°C	1.69 J/(g.K)	ASTM D7984

#### Dielectric Properties

Relative Permittivity, 20°C	3.5	-
Relative Permittivity, 100°C	4.05	-
Dielectric Loss Factor, 20°C	30 x 10 <sup>-3</sup>	-
Dielectric Loss Factor, 100°C	31 x 10 <sup>-3</sup>	-

#### General Properties

Hardness *	92 D	ASTM D2240
Heat Deflection Temperature **	Please contact Photocentric for more information	ASTM D648 (0.455 MPa)
Water Absorption (Short Term)	0.28 wt%	ASTM D570
Viscosity	700 cPs	At 25°C Brookfield spindle 3
Density	1.10 g/cm <sup>3</sup>	Internal
Storage	10<T>50°C	

\*Mechanical properties stated based on fully cured material. Post cured for 2hrs at 60°C in Cure L2 or Cure XL

\*\*Exact figure to be confirmed



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



## Design & Print Orientation Consideration Parameters

Printed on Photocentric LC Magna (100 µm layer height)

Properties	Parameters
Minimum feature size (pins)	0.6mm
Minimum hole diameter	0.6mm
Minimum slot thickness	0.3mm
Minimum wall thickness	0.3mm
Overhangs	Successful for overhangs $\leq 15^\circ$
Recommended Orientations	45°



## Pre-Print Instructions

### Printing on LC Magna

1. To print with Photocentric Liquid Crystal Magna, choose 'HighTemp DL401' and the desired layer thickness when preparing your print file in Photocentric Studio.
2. Heat the resin to 60°C for 5 hours or until the resin is fully liquified in the bottle. Failure to do so prior to printing may result in the resin crystalizing, leading to print failures.
3. Shake the resin bottle for 2 minutes before pouring into the LC Magna resin vat.

### Printing on LC Titan

1. To print with Photocentric Liquid Crystal Titan, choose 'HighTemp DL401' and the desired layer thickness when preparing your print file in Photocentric Studio.
2. Heat the resin to 60°C for 5 hours or until the resin is fully liquified in the bottle. Failure to do so prior to printing may result in the resin crystalizing, leading to print failures.
3. Shake the resin bottle for 2 minutes before pouring into the LC Titan resin tank.



## Post-Print Instructions

### Printing on LC Magna

1. It is recommended to drain and clean the vat after printing if ambient temperatures are below 23°C.
2. Place the platform into the Photocentric Air Wash L.
3. Parts can be washed in 10 minutes using Photocentric Resin Cleaner 30.
4. Once washed, rinse with warm water for maximum of 10 minutes.
5. Dry well with compressed air to remove any remaining water.
6. Cure for 1 hour at 60°C in Cure L2.
7. Remove the platform from the Cure L2, allow to cool down and remove parts from the platform. Parts printed in DL401 can be thermally shocked for easier removal.

### Printing on LC Titan

1. Place the platform into the Photocentric Wash XL.
2. Parts can be washed in 10 minutes using Photocentric Resin Cleaner 30.
3. Once washed, rinse with warm water for maximum of 10 minutes.
4. Dry with compressed air to remove any remaining water.
5. Place the platform into the Photocentric Cure XL, start 'Dry' cycle for 1 hour at 60°C (WITH NO UV LIGHT) to ensure parts are fully dry.
6. Start 'Cure' cycle, and leave to cure for 1 hour at 60°C.
7. Remove the platform from the Cure XL, allow to cool down and remove parts from the platform. Parts printed in DL401 can be thermally shocked for easier removal.

Photocentric

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