Photocentric

Technical Datasheet

Flexible DL220

Daylight Resin

Flexible DL220B

Shore Hardness (Low – High)

Elongation (Low – High)

Compatible Printers

Liquid Crystal MAGNA

Colour

Black

Phone case

Creating complex geometries like lattices, with ‘Flexible’ materials, allows the user to maximise the benefits of 3D printing, making a part with dynamic properties with only one step manufacturing instead of several.

Photocentric is introducing its first ever industrial Daylight Flexible Resin- ‘Flexible DL220B’ – an optimised solution for applications which require a combination of impact absorption, high elongation, efficient energy damping, good tear strength and exceptionally low water absorption.

Printing of flexible materials has never been easier, owing to its superior green strength and excellent definition.

Optimised for

- Sport protection
- Shock and impact absorption
- Cushioning
- Vibration damping

Revision 1
09/07/2024

Unique features

Remarkable elongation at break >200%

Slow rebound and efficient energy damping

Exceptionally low water absorption (<1% after 7days)

High definition

Flexible DL220B Properties

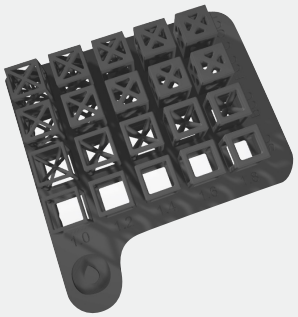
Tensile Properites	Green	Post-Cured	Method
Tensile Modulus	20 MPa	66.4 MPa	ASTM D412
Tensile Strength (Break)	2.6 MPa	14 MPa	ASTM D412
Elongation at Break	107%	211%	ASTM D412
Mechanical Properties			
Tear Strength	-	21 kN/m	ASTM 624 Type C
Rebound Resilience	-	19.6%	ASTM D7121
General Properties			
Shore Hardness	-	80 Shore A	ASTM D2240
Water absorption (%)* after 24 hrs	-	0.32%	ASTM D570
Water absorption (%)* after 72 hrs	-	0.53%	ASTM D570
Water absorption (%)* after 7 days	-	1.09%	ASTM D570

Liquid Properties	Value	Method
Viscosity	1600 cPs	At 25°C Brookfield spindle 3
Density	1.06 g/cm3	-
Storage	10<T>50°C	-

* Post cured for 10 hours at 60°C with Photocentric Cure L2

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

Properties	Parameters
Minimum feature size (pins)	0.6mm
Minimum hole diameter	1mm
Minimum slot thickness	0.7mm
Minimum wall thickness	0.5mm
Overhangs	Successful for overhangs ≤15°
Minimum wall thickness unsupported	Minimum wall thickness unsupported can be 2mm, while the Z built height should be <60mm Or can be 3mm, while the Z built height should be <110mm
Scaling factor	N/A
Lattice Parameters	Photocentric applications team designed the following different lattices test piece as a recommendation for user's first print with any flexible resin. By doing so, user will understand resin properties in relation to design parameters and assist them to design their next parts accordingly. To download the file please click here. 
Recommended orientations to print	45° angle or vertical as possible.
Recommended support structure to print	Depending on part size, choose a desired support profile in Photocentric Studio.

Pre-Print Instructions

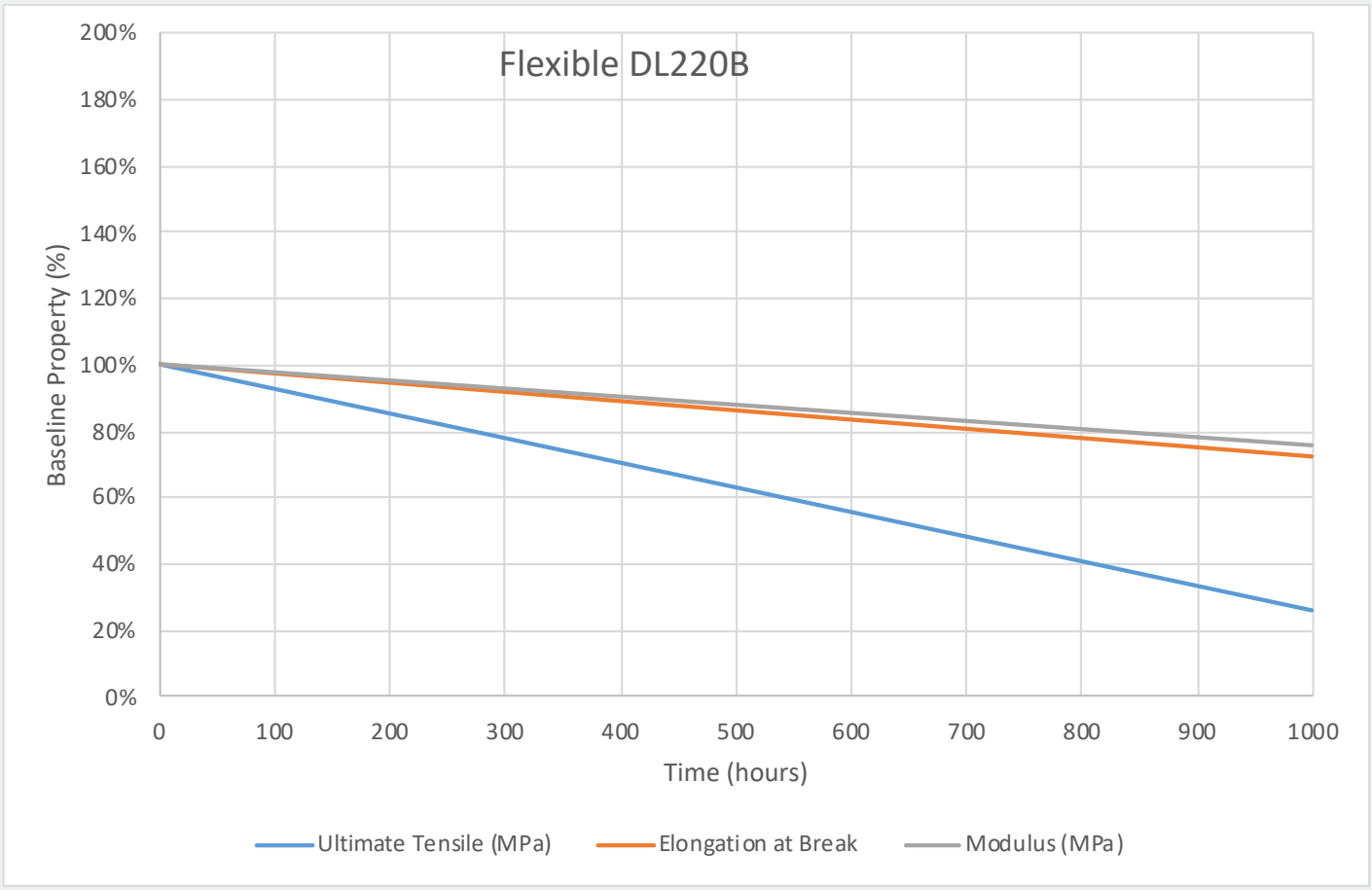
- To print with Photocentric Liquid Crystal Magna, choose Flexible DL220 (Black) at desired layer thickness when preparing your print file in Photocentric Studio.
- Heat the resin to 30°C in the bottle.
- Shake the resin bottle for 2 minutes before pouring into the resin vat.
- Shaking the resin before it's poured into the vat ensures pigments and other constituents of the resin are evenly dispersed.

Post-Print Instructions

1. Parts can be washed in 'Photocentric Air Wash L' for no longer than 15 minutes using 'Photocentric Resin Cleaner' or 'Photocentric Resin Cleaner 30'.
2. Make sure you do not exceed the recommended wash cycles as it might have an adverse effect on the mechanical properties.
3. Once washed, rinse with warm water for 1-2 minutes
4. Gently dry with compressed air to remove any remaining water. Or alternatively, leave to air-dry.
5. To reach the ultimate mechanical properties: Place the platform into the Photocentric Cure L2 for a minimum of 10 hours at 60°C.
6. Remove the platform from the Cure L2 and remove the part/s from the platform with using a scraper. It is easier to remove parts when they are still warm.

Flexible DL220 (Black) Aging

Specific UV ageing testing was externally performed on Photocentric Flexible DL220 (Black) Resin.
Mechanical properties including Tensile Modulus, Tensile Strength at Break and Elongation at Break were evaluated after 1000 hours of exposure and compared against a zero-hour control.*



*All mechanical testing was carried out under ASTM D412 (Type C) for flexible/elastomeric materials, and ASTM D638 (Type IV) for rigid/durable materials.

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