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Partner für Produktentwicklungen

ISO 27001+ ISO 9001 zertifiziert

Hauptstrasse 39 · CH - 4145 **Gempen** · **Switzerland** · Tel.: + 41 (0)61 / 703 17 77 · Fax: + 41 (0)61 / 703 17 79 · sauter@sautercar.ch
Rudolf- Diesel- Str. 23 · D – 71154 **Nufringen** · **Germany** · Tel.: + 49 (0)7032 / 913- 967 · Fax: + 49 (0)7032 / 913- 689 · info@sautercar.de

Sauter
Engineering + Design

Additive-Parts.com

DLP+

		Colour	Ultimate Tensile Strength (MPa)	Elongation at Break (%)	Tensile Modulus (MPa)	Shore Hardness	Flexural Strength (MPa)	Flexural Modulus (MPa)	Impact Properties Notched Izod (J/m)	Tear Strength (kN/m)	Rebound Resilience (%)	Heat Deflection (°C) at 0.45 MPa	Biocompatibility Cytotoxicity ISO 10993-5	Skin Irritation & Sensitization ISO 10993-10	Comparable Thermoplastic	Water Absorption, Short Term (24 hours %)	Viscosity (cps)	Density (g/cm³)
Rigid	High Tensile White	White	81	4.8	3060	92D	95	2200	22.7	-*	-*	95	-*	-*	PA12	-*	980	1.16
	Draft	Turquoise	84	4.4	3200	90D	109	2840	22.6	-*	-*	75	Passed	-*	PA12	-*	970	1.16
	Hard	Black	52	10	2600	86D	65	1550	55	-*	-*	85	-*	-*	PMMA	-*	450	1.10
	Concept	Green	61	3.7	2810	92D	87	2060	19.5	-*	-*	85	-*	-*	PA12	-*	690	1.10
	Dental Model White	White	63	4.3	3020	90D	95	2200	22.7	-*	-*	95	-*	-*	-*	-*	900	1.09
	Dental Model Beige	Beige	56	2.7	2750	84D	84	2570	19.5	-*	-*	-*	Passed	-*	-*	0.13	150	1.10
	HighTemp DL400	Amber	80	4	4000	95D	109	3300	15.6	-*	-*	230	Passed	-*	PA12	0.35	650	1.10
	Rigid DL240 Plant-Based	Dark Amber	64.5	6.1	2440	88D	108	2656	12.2	-*	-*	78.4	-*	-*	-*	0.47	580	1.10
Durable	Durable	Black	42	30	1570	60D	52	1460	91	-*	-*	45	Passed	-*	PLA	1	1200	1.09
	Duramax	Black	50	19	1760	70D	28	1600	51	-*	-*	60	-*	-*	ABS	1.4	395	1.11
	Durable DL110H	Black/ White/ Smoky Quartz	60	14	2100	85D	81	2080	110	-*	-*	80	-*	-*	ABS	1.06	480	1.14
Flexible	Flexible DL220B	Black Translucent	14	211	66.4	80A	-*	-*	-*	21	19.6	-*	-*	-*	-*	0.32	1600	1.06
BASF	EPD1006	Black	40	25	1500	79D	52	1460	35	-*	-*	44	Passed	-*	-*	0.83	1033	1.20
	EPD1086	Black	42	26	1800	81D	67	1620	28	-*	-*	53	-*	-*	-*	0.23	450	1.18
	EPD2006	Black	81	10.3	2370	80D	90	2210	11	-*	-*	81	Passed	Passed	-*	0.61	310	1.20
	EPD3500	Amber	60	19	2750	79D	110	2400	25	-*	-*	70	-*	-*	-*	0.5	600	1.18
	EPD4006	Black	45	45	1800	78D	70	1600	46	-*	-*	54	Passed	-*	-*	0.51	300	1.18
	FLD5006	Black	19.1	144	52.6	73A	-*	-*	-*	35.4	28	-*	-*	-*	TPU	2.26	470	1.07

Technical Data

Photocentric

Durable DL110H

Smoky Quartz Translucent

Properties

Impact Strength

Low — High

Tensile Modulus

Soft — Hard

Compatible Printers

Liquid Crystal
MAGNA

Colours

- Black- B
- White- W
- Smoky Quartz Translucent

Available in 5kg bottles

Introduction

Photocentric's Durable range is the most popular material among Photocentric's functional materials. They can handle impact, compression, bending and stress fatigue without breaking or deforming.

Best Used for:

- Jigs and fixtures requiring minimal deflection at elevated temperature such as drills holders and air intakes
- Cover-plates and enclosures like automotive and motorsport interiors
- Fastenings, tools & couplings
- Strong and stiff prototypes

Unique features

- Heat deflection temperature 80 °C
- High impact strength
- Tough, durable, and long lasting
- Simulating the strength and stiffness of ABS
- High definition and can hold fine details
- Smooth surface finish
- Print at 350 µm layer thickness (Translucent only)

UK Photocentric Ltd. Cambridge House, Oxney Rd, Peterborough, PE1 5YW email: *info@photocentric.co.uk*
USA Photocentric Inc. 2205 West Parkside Lane, Phoenix, 85027, AZ email: *info@photocentricusa.com*
www.photocentricgroup.com

Technical Data

Photocentric

Processing Instructions

- To print with Photocentric Liquid Crystal Magna, choose ‘Durable DL110HB’ or ‘Durable DL110HW’ or ‘Durable DL110HTR’ 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.

Post Processing

- Parts can be washed in 15 minutes using Photocentric Resin Cleaner or alternatively, in 10 minutes using Photocentric Resin Cleaner 30.
- Once washed, rinse with warm water for 2 minutes
- Dry with compressed air to remove any remaining water. Or alternatively, leave to air-dry.
- Place the platform into the Photocentric Cure L2 for
  - a minimum of 3 hours at 60°C for Durable DL110HW
  - a minimum of 4 hours at 60°C for Durable DL110HB.
  - a minimum of 2 hours at 60°C for Durable DL110HTR.
- For DL110HB & DL110HTR-Remove the platform from the Cure L2 and immediately submerge in cold water for thermal shocking. Parts can be removed from the platform with minimal effort.
- For DL110HW- Remove the platform from the Cure L2 and allow it cool to room temperature. Remove the printed parts with the supplied scraper or the soft spatula.

Properties

Tensile Properties		
Tensile Modulus *	2100 MPa	ASTM D638
Ultimate Tensile Strength *	60 MPa	ASTM D638
Elongation at break *	14%	ASTM D638
Flexural Properties		
Flexural Modulus *	2080 MPa	ASTM D790
Flexural Strength *	81 MPa	ASTM D790
Impact Properties		
Impact Strength Notched Izod *	110 J/m	ASTM D256
General Properties		
Hardness *	85 Shore D	ASTM D2240
Heat Deflection Temperature	80 °C	ASTM D648
Water Absorption (Short Term)	1.06%	ASTM D570
Viscosity	480 cPs	At 25°C Brookfield spindle 3
Density	1.14 g/cm3	
Storage	10<T>50°C	

*** Mechanical properties stated based on fully cured material.**

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www.photocentricgroup.com

Technical Data Sheet

Ultracur3D® EPD 2006

Rigid daylight resin with high stiffness and temperature resistance.

General Properties	Norm	Typical Values
Appearance	-	Black
Viscosity, 30 °C	Cone/Plate Rheometer[1]	310 mPas
Viscosity, 50 °C	Cone/Plate Rheometer[1]	88 mPas
Density	ASTM D792	1.2 g/cm^3

Tensile Properties	Norm	Typical Values
E Modulus	ASTM D638	2370 MPa
Ultimate Tensile Strength	ASTM D638	50 MPa
Elongation at Break	ASTM D638	10.3 %

Flexural Properties	Norm	Typical Values
Flexural Modulus	ASTM D790	2210 MPa
Flexural Strength	ASTM D790	90 MPa

Impact Properties	Norm	Typical Values
Notched Izod (Machined), -30 °C	ASTM D256	11 J/m
Notched Izod (Machined), 23 °C	ASTM D256	11 J/m
Charpy notched, 23 °C	ISO 179-1	0.7 kJ/m^2

Thermal Properties	Norm	Typical Values
HDT at 0.45 MPa	ASTM D648	81 °C
HDT at 1.82 MPa	ASTM D648	61 °C
Flammability	UL 94 1.5 mm	HB

Hardness	Norm	Typical Values
Shore D	ASTM D2240	80

1) Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s^{-1}

Version 2.0

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Photocentric

UK - Cambridge House, Oxney Road, Peterborough, PE1 5YW. +44 1733 349937. info@photocentric.co.uk
USA - 2205 West Parkside Lane, Phoenix, 85027, AZ. (623) 581-3220. info@photocentricusa.com
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Technical Data Sheet

Ultracur3D® EPD 1006

Easy-to-use daylight resin, ideal for prototyping.

General Properties	Norm	Typical Values
Appearance	-	Black
Viscosity, 30 °C	Cone/Plate Rheometer[1]	1033 mPas
Viscosity, 50 °C	Cone/Plate Rheometer[1]	268 mPas
Density (printed part)	ASTM D792	1.2 g/cm^3

Tensile Properties	Norm	Typical Values
E Modulus	ASTM D638	1500 MPa
Ultimate Tensile Strength	ASTM D638	40 MPa
Elongation at Break	ASTM D638	25 %

Flexural Properties	Norm	Typical Values
Flexural Modulus	ASTM D790	1460 MPa
Flexural Strength	ASTM D790	52 MPa

Impact Properties	Norm	Typical Values
Notched Izod (Machined), -30 °C	ASTM D256	20 J/m
Notched Izod (Machined), 23 °C	ASTM D256	35 J/m
Charpy notched, 23 °C	ISO 179-1	2.5 kJ/m^2

Thermal Properties	Norm	Typical Values
HDT at 0.45 MPa	ASTM D648	44 °C
HDT at 1.82 MPa	ASTM D648	40°C
Flammability	UL 94 1.5 mm	HB

Hardness	Norm	Typical Values
Shore D	ASTM D2240	79

Other	Norm	
Biocompatibility	ISO 10993	Information available on request
Water Absorption, Short Term (24 hours)	ASTM D570	0.83 %

1) Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s^{-1}

Version 4.0

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UK - Cambridge House, Oxney Road, Peterborough, PE1 5YW. +44 1733 349937. info@photocentric.co.uk
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Technical
Data Sheet

Ultracur3D® EPD 1086

Multi-purpose daylight resin targeting the lowest cost per part.

General Properties	Norm	Typical Values
Appearance	-	Black
Viscosity, 30 °C	Cone/Plate Rheometer[1]	450 mPas
Viscosity, 50 °C	Cone/Plate Rheometer[1]	130 mPas
Density (printed part)	ASTM D792	1.18 g/cm^3

Tensile Properties	Norm	Typical Values
E Modulus	ASTM D638	1810 MPa
Ultimate Tensile Strength	ASTM D638	42 MPa
Elongation at Break	ASTM D638	26 %

Flexural Properties	Norm	Typical Values
Flexural Modulus	ASTM D790	1620 MPa
Flexural Strength	ASTM D790	67 MPa

Impact Properties	Norm	Typical Values
Notched Izod (Machined), 23 °C	ASTM D256	28 J/m
Unnotched Izod, 23 °C	ASTM D256	606 J/m
Charpy notched, 23 °C	ISO 179-1	2.6 kJ/m^2

Thermal Properties	Norm	Typical Values
HDT at 0.45 MPa	ASTM D648	53 °C
HDT at 1.82 MPa	ASTM D648	46 °C
Flammability	UL 94 1.5 mm	HB

Hardness	Norm	Typical Values
Shore D	ASTM D2240	81

1) Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s^{-1}

Version 1.1

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Technical
Data Sheet

Ultracur3D® EPD 4006

Durable daylight resin with superior toughness
and impact resistance.

General Properties	Norm	Typical Values
Appearance	-	Black
Viscosity, 30 °C	Cone/Plate Rheometer[1]	300 mPas
Viscosity, 50 °C	Cone/Plate Rheometer[1]	100 mPas
Density (printed part)	ASTM D792	1.18 g/cm^3

Tensile Properties	Norm	Typical Values
E Modulus	ASTM D638	1800 MPa
Ultimate Tensile Strength	ASTM D638	45 MPa
Elongation at Break	ASTM D638	45 %

Flexural Properties	Norm	Typical Values
Flexural Modulus	ASTM D790	1600 MPa
Flexural Strength	ASTM D790	70 MPa

Impact Properties	Norm	Typical Values
Notched Izod (Machined), 23 °C	ASTM D256	46 J/m
Unnotched Izod, 23 °C	ASTM D256	1004 J/m
Charpy notched, 23 °C	ISO 179-1	3.6 kJ/m^2

Thermal Properties	Norm	Typical Values
HDT at 0.45 MPa	ASTM D648	54 °C
HDT at 1.82 MPa	ASTM D648	43 °C
Flammability	UL 94 3 mm	HB

Hardness	Norm	Typical Values
Shore D	ASTM D2240	78

Other	Norm	Typical Values
Water Absorption, Short Term (24 hours)	ASTM D570	0.51 %

1) Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s^{-1}

Version 1.2

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USA - 2205 West Parkside Lane, Phoenix, 85027, AZ. (623) 581-3220. info@photocentricusa.com
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Technical
Data Sheet

Ultracur3D® EPD 3500

Strong daylight resin with superior strength and stiffness.

General Properties	Norm	Typical Values
Appearance	-	Amber
Viscosity, 30 °C	Cone/Plate Rheometer[1]	600 mPas
Viscosity, 50 °C	Cone/Plate Rheometer[1]	160 mPas
Density (printed part)	ASTM D792	1.18 g/cm^3

Tensile Properties	Norm	Typical Values
E Modulus	ASTM D638	2500 MPa
Ultimate Tensile Strength	ASTM D638	60 MPa
Elongation at Break	ASTM D638	18 %

Flexural Properties	Norm	Typical Values
Flexural Modulus	ASTM D790	2400 MPa
Flexural Strength	ASTM D790	110 MPa

Impact Properties	Norm	Typical Values
Notched Izod (Machined), 23 °C	ASTM D256	25 J/m
Unnotched Izod, 23 °C	ASTM D256	600 J/m
Charpy notched, 23 °C	ISO 179-1	1.5 kJ/m^2

Thermal Properties	Norm	Typical Values
HDT at 0.45 MPa	ASTM D648	70 °C
HDT at 1.82 MPa	ASTM D648	57 °C
Hardness	**Norm**	**Typical Values**
Shore D	ASTM D2240	79

1) Determined with TA-Instrument DHR rheometer, cone/plate, diameter 60 mm, shear rate 100 s^{-1}

Version 1.1

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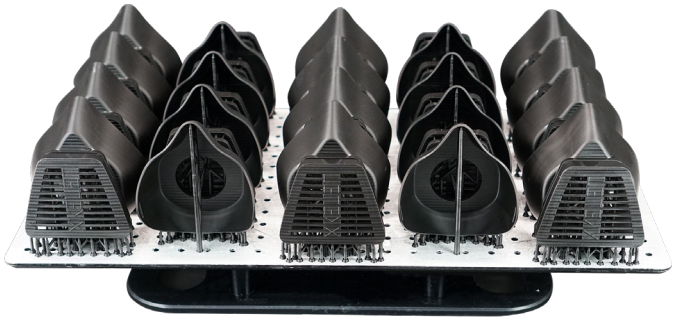
Technical Data

Photocentric

Daylight Magna Durable



SPECS

KEY FEATURES

Photocentric's Daylight Magna Durable formulation is ideal for 3D-printing functional parts that are durable and long-lasting, with high impact strength that can also bend without breaking. Thick objects are stiff but can be made to flex under strain, while returning to their original shape.

With excellent imaging in the LC Magna, this resin has fast exposure times and a wide exposure latitude. Allowing the parts to also hold the finest details possible from LC Magna. The finished material is tough, durable and long lasting provided it is stored in dry conditions away from strong UV light.

PRINTING (PROCESSING) INSTRUCTIONS

Follow the procedures laid out in the LC Magna user manual.
Shake resin prior to use, recommended 2 minutes. Avoid direct sunlight while pouring. The resin is reusable after pouring through the supplied filter and funnel to remove any solids. Always keep door closed when not in use to avoid curing or contamination.

Post Processing guidelines:

- Do not leave the platform in the ambient light before washing and post exposing, this may lead to liquid resin curing.
- Wash in the Wash 99L for a maximum of 15 minutes.
- Rinse with hot water to remove residue cleaner and resin
- Dry with air compressor to remove any remaining water.
- Post cure in a pre-heated Cure L for 2 hours at 60 degrees, for larger parts it can take up to 4 hours to post cure.

Support guidelines:

- Support profile for small parts – 0.4mm tips /1.5mm pole diameter / 2mm widening factor
- Support profile for large parts – 0.6mm tips / 2mm pole diameter / 2mm widening factor

Recommended resin temperature (pre-printing)

- 30°C

DATA

Viscosity (At 25°C Brookfield spindle 3)	1200 cPs
Hardness ASTM D2240 (After post exposure for 60 minutes at 60°C)	60 Shore D
Tensile strength ASTM D638 (After post exposure for 60 minutes at 60°C)	42 MPa
Elongation at break ASTM D638 (After post exposure)	14%
Young´s modulus ASTM D638 (After post exposure for 60 minutes at 60°C)	1570 MPa
Impact strength notched Izod ASTM D256 (After post exposure)	14 kJ/m2
Flexural strength ASTM D792 (After post exposure)	28 MPa
Flexural modulus ASTM D792 (After post exposure)	760 MPa
Water absorption (24 h at 60°C)	0.9 wt%
Heat deflection temperature	75°C
Storage	10<t>50°C
Density	1.09 g/cm3

AVAILABLE COLOURS

Black.

Available in 5kg bottles.

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Technical Data

Photocentric

Daylight Magna Duramax

Bike Saddle

SPECS

KEY FEATURES

Photocentric's Daylight Magna Duramax photopolymer formulation has been created for 3D-printing functional parts that are very durable and long-lasting, with high impact strength. Thick objects are stiff but can be made to flex under strain, while returning to their original shape. Duramax has a smooth surface finish, requiring only minimal post processing, even for end-user parts.

With excellent imaging in the LC Magna, this resin has fast exposure times and a wide exposure latitude. Allowing the parts to also hold the finest details possible from LC Magna. The finished material is tough, durable and long lasting provided it is stored in dry conditions away from strong UV light.

PRINTING (PROCESSING) INSTRUCTIONS

Follow the procedures laid out in the LC Magna user manual.

Shake resin prior to use, recommended 2 minutes. Avoid direct sunlight while pouring. The resin is reusable after pouring through the supplied filter and funnel to remove any solids. Always keep door closed when not in use to avoid curing or contamination.

Post Processing guidelines:

- Do not leave the platform in the ambient light before washing and post exposing, this may lead to liquid resin curing.
- Wash in the Wash 99 or Air Wash L for a maximum of 15 minutes.
- Rinse with hot water to remove residue cleaner and resin
- Dry with air compressor to remove any remaining water.
- Post cure in a pre-heated Cure L2 for 2 hours at 60 degrees, for larger parts it can take up to 5 hours to post cure.

Recommended resin temperature (pre-printing)

- 30°C

DATA

Viscosity (At 25°C Brookfield spindle 3)	395 cPs
Hardness ASTM D2240 (After post exposure)	70 Shore D
Tensile strength ASTM D638 (After post exposure)	50 MPa
Elongation at break ASTM D638 (After post exposure)	19%
Tensile Modulus ASTM D638 (After post exposure)	1760 MPa
Impact strength (Notched Izod-ISO 180)	5.4 kJ/m2
Flexural strength ASTM D790 (After post exposure)	28 MPa
Flexural modulus ASTM D790 (After post exposure)	760 MPa
Heat deflection temperature	65°C
Storage	10<t>50°C
Density	1.11 g/cm3

AVAILABLE COLOURS

Black.

Available in 5kg bottles.

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Technical Data

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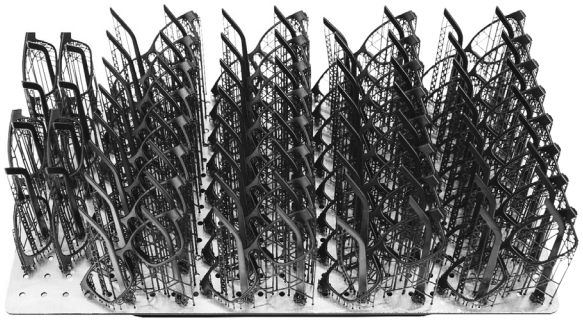
Daylight Magna Hard



SPECS

KEY FEATURES

Photocentric's Daylight Magna Hard formulation is ideal for making large scale objects displaying extreme hardness with no compression under high force, plastic deformation due to yield strength before breaking, and minimal shrinkage over varied areas. This minimal shrinkage now allows scale to be possible. Parts printed also exhibit exceptionally high tensile shear properties, with reasonable elongation. With excellent imaging in the LC Magna, this resin has fast exposure times and a wide exposure latitude. Allowing the parts to also hold the finest details possible from LC Magna. The finished material is tough, durable and long lasting provided it is stored in dry conditions away from strong UV light.

PRINTING (PROCESSING) INSTRUCTIONS

Follow the procedures laid out in the LC Magna user manual.
Shake resin prior to use, recommended 2 minutes. Avoid direct sunlight while pouring. The resin is reusable after pouring through the supplied filter and funnel to remove any solids. Always keep door closed when not in use to avoid curing or contamination.

Post Processing guidelines:

- Do not leave the platform in the ambient light before washing and post exposing, this could lead to liquid resin curing prematurely.
- Wash in the wash 99L for approximately 15 minutes (as a maximum)
- Rinse with hot water to remove residue cleaner and resin
- Dry with air compressor to remove any remaining water from the part
- Post cure in a pre-heated Cure L for 2 hours at 60 degrees, for larger parts it can take up to 4 hours to post cure.

Support guidelines:

- Support profile for small parts – 0.6mm tips /1.5mm pole diameter / 2mm widening factor
- Support profile for large parts – 0.6mm tips / 2mm pole diameter / 2mm widening factor

Recommended resin temperature (pre-printing)

- 30°C

DATA

Viscosity (At 25ºC Brookfield spindle 3)	450 cPs
Hardness ASTM D2240 (After post exposure)	86 Shore D
Tensile strength ASTM D638 (After post exposure, 1h UV)	52 MPa
Impact strength notched Izod ASTM D256 (After post exposure)	2.01 kJ/m2
Flexural strength ASTM D792 (After post exposure)	65 MPa
Young´s modulus ASTM D638 (After post exposure Poscured 120 mins UV and heat 60ºC water)	2600 MPa
Flexural modulus ASTM D792 (After post exposure)	1550 MPa
Elongation at break ASTM D638 (After post exposure, 1h UV)	8-10%
Heat deflection temperature	65°C
Water absorption (24 h)	<0.2 wt%
Storage	10<t>50°C
Density	1.1 g/cm3

AVAILABLE COLOURS

Black

Available in 5kg bottles.

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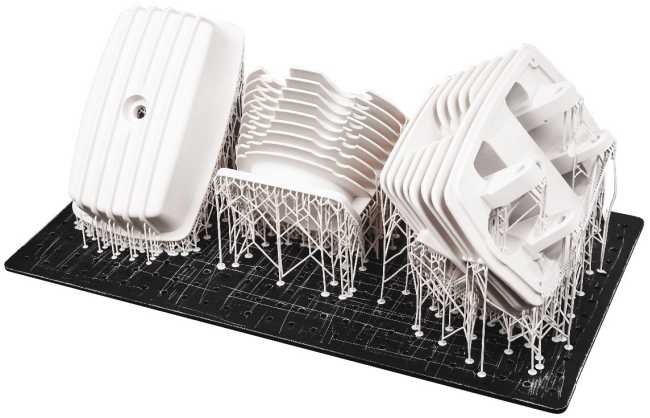
www.photocentricgroup.com

Technical Data

Photocentric

Daylight Magna High Tensile



SPECS

KEY FEATURES

Photocentric's Daylight Magna High Tensile formulation has been created for producing objects exhibiting exceptional tensile strength and elongation comparable to acrylic and polyimide. These rigid parts cannot be bent or compressed easily, while having minimal shrinkage and high accuracy.
With excellent imaging in the LC Magna, this resin has fast exposure times and a wide exposure latitude. Allowing the parts to also hold the finest details possible from LC Magna. The finished material is tough, durable and long lasting provided it is stored in dry conditions away from strong UV light.

PRINTING (PROCESSING) INSTRUCTIONS

Follow the procedures laid out in the LC Magna user manual.
Shake resin prior to use, recommended 2 minutes. Avoid direct sunlight while pouring. The resin is reusable after pouring through the supplied filter and funnel to remove any solids. Always keep door closed when not in use to avoid curing or contamination.

Post Processing guidelines:

- Do not leave the platform in the ambient light before washing and post exposing, this could lead to liquid resin curing prematurely.
- Wash in the wash 99L for approximately 15 minutes (as a maximum)
- Rinse with hot water to remove residue cleaner and resin
- Dry with air compressor to remove any remaining water from the part
- Post cure in a pre-heated Cure L for 2 hours at 60 degrees, for larger parts it can take up to 4 hours to post cure.

Support guidelines:

- Support profile for small parts – 0.6mm tips /1.5mm pole diameter / 2mm widening factor
- Support profile for large parts – 0.8mm tips / 2mm pole diameter / 2mm widening factor

Recommended resin temperature (pre-printing)

- 30°C

DATA

Viscosity (At 25ºC Brookfield spindle 3)	980 cPs
Hardness ASTM D2240 (After post exposure)	92 Shore D
Tensile strength ASTM D638 (After post exposure Postcured 120 mins UV and heat 60°C water)	81 MPa
Impact strength notched Izod ASTM D256 (After post exposure)	3.2 kJ/m2
Flexural strength ASTM D792 (After post exposure)	95 MPa
Young´s modulus ASTM D638 (After post exposure Poscured 120 mins UV and heat 60ºC water)	3060 MPa
Flexural modulus ASTM D792 (After post exposure)	2200 MPa
Elongation at break ASTM D638 (Postcured 120 mins UV and heat 60°C water)	4.8%
Heat deflection temperature	95°C
Storage	10<t>50°C
Density	1.16 g/cm3

AVAILABLE COLOURS

White.

Available in 5kg bottles.

UK Photocentric Ltd. Cambridge House, Oxney Rd, Peterborough, PE1 5YW email: *info@photocentric.co.uk*
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www.photocentricgroup.com

Technical Data

Photocentric

HighTemp DL400

Full size motorcycle fuel tank

Properties

Temperature resistance

Low — High

Tensile Modulus

Low — High

Compatible

Daylight 3D Printers

Liquid Crystal
MAGNA

Colours

Amber

Available in 5kg bottles

Introduction

Photocentric HighTemp DL400 is the first Photocentric temperature resistant resin possessing superior properties of both strength and stiffness. It can handle impact, compression, fatigue, high temperatures and moisture without bending or deforming. Photocentric's HighTemp DL400 can be used for quick printing applications with an impressive layer thickness of 350 µm.

Best Used for:

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

USPs

- Temperature resistant (Heat Deflection Temperature of 230 °C)
- Excellent long-lasting performance under heat and stress
- Quick and fast prototyping 350 µm layer
- Simulating the strength and stiffness of glass filled Nylon 6
- Smooth surface finish and ability to print fine details
- Minimal shrinkage

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Technical Data

Photocentric

Processing Instructions

- Working Temperature should be above 23 °C. Below this temperature the resin may crystalize.

Post Processing

- Draining and cleaning the vat is recommended after print completion as the ambient temperature may drop below 23 °C when the printer is not in use.
- Keep parts on the platform. Wash in the Photocentric Resin Cleaner until the parts are clean and for no longer than 15 minutes. 1 minute warm water rinse and then air dry the parts. Post cure them for 1hr at 60°C in CureL2.

Properties

Tensile Properties		
Tensile Modulus *	3800-4000 MPa	ASTM D638
Ultimate Tensile Strength *	80 MPa	ASTM D638
Elongation at break *	4%	ASTM D638
Flexural Properties		
Flexural Strength *	109 MPa	ASTM D790
Flexural Modulus *	3300 MPa	ASTM D790
Impact Properties		
Impact Strength Notched Izod *	3.1 kJ/m2	ISO 180
General Properties		
Hardness *	95 Shore D	ASTM D2240
Heat Deflection Temperature *	230 °C	ASTM D648 (0.455 MPa)
Viscosity	650 cPs	At 25°C Brookfield spindle 3
Density	1.10 g/cm3	
Storage	10<T>50°C	

*** Post cured for 1hr at 60°C in CureL2**

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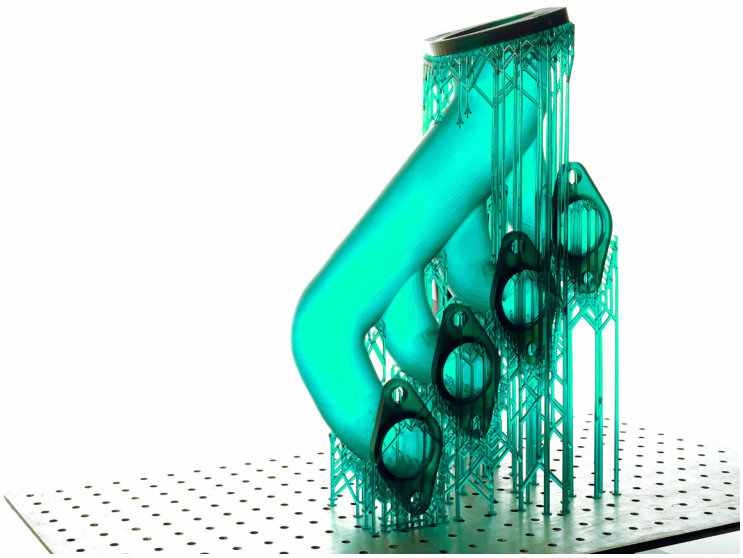
Technical Data

Photocentric

Daylight Magna Draft



Fluid Manifold

SPECS

KEY FEATURES

Photocentric's Draft resin is our fastest printing resin yet. Specifically designed to allow for detailed, large parts to printed in shorter times for rapid prototyping or even production. This resin works up to a 350 µm layer height with low curing times, reducing print times dramatically. The end parts manufactured exhibit very high strength comparable to Nylon 6. The parts can't be bent or compressed easily and exhibit minimal shrinkage and high accuracy.

With excellent imaging in the LC Magna, this resin has fast exposure times and a wide exposure latitude. Allowing the parts to also hold the finest details possible from LC Magna. The finished material is tough, durable and long lasting provided it is stored in dry conditions away from strong UV light.

PRINTING (PROCESSING) INSTRUCTIONS

Follow the procedures laid out in the LC Magna user manual. Shake resin prior to use, recommended 2 minutes. Avoid direct sunlight while pouring. The resin is reusable after pouring through the supplied filter and funnel to remove any solids. Always keep door closed when not in use to avoid curing or contamination.

Post Processing guidelines:

- Do not leave the platform in the ambient light before washing and post exposing, this could lead to liquid resin curing prematurely.
- Wash in Wash99 or Air Wash L for approximately 15 minutes (as a maximum)
- Rinse with hot water to remove residue cleaner and resin
- Dry with air compressor to remove any remaining water from the part
- Post cure in a pre-heated Cure L for 2 hours at 60 degrees, for larger parts it can take up to 4 hours to post cure

Recommended resin temperature (pre-printing)

- 30°C

DATA

(Test pieces post cure: Cure L 405, 60 minutes 60°C)

Viscosity (At 25°C Brookfield spindle 3)	970 cPs
Hardness ASTM D2240 (After post exposure for 60 minutes at 60°C)	90 Shore D
Tensile strength ASTM D638 (After post exposure for 60 minutes at 60°C)	84 MPa
Elongation at break ASTM D638 (After post exposure)	4.4%
Tensile Modulus ASTM D638 (After post exposure for 60 minutes at 60°C)	3200 MPa
Impact strength (Notched Izod-ISO 180)	4.1kJ/m2
Flexural strength ASTM D792 (After post exposure)	109 MPa
Flexural modulus ASTM D792 (After post exposure)	2840 MPa
Water absorption (24 h at 60°C)	<0.2 wt%
Storage	10<t>50°C
Density	1.16 g/cm3

AVAILABLE COLOURS

Turquoise.

Available in 5kg bottles.

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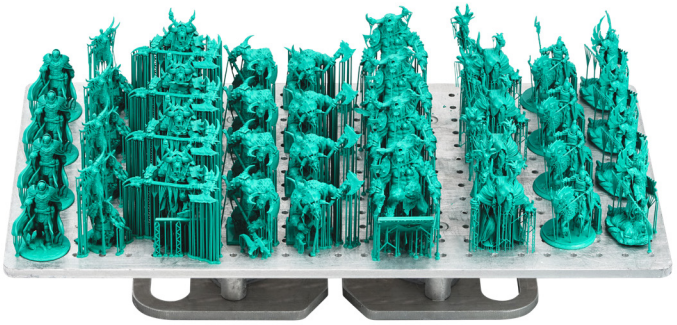
Technical Data

Photocentric

Daylight Magna Concept



SPECS

KEY FEATURES

Magna Concept Green has been designed for producing high definition modelling parts, solely for LC Magna. The printed parts display high tensile strength, durability, high accuracy and detail perfect for modern figurine and modelling market. With high print speeds this resin, also, allows testing designs and modifying to be streamlined. The smooth surface finish is easy to work with can be covered in various primer paints.

PRINTING (PROCESSING) INSTRUCTIONS

Follow the procedures laid out in the LC Magna user manual.
Shake resin prior to use, recommended 2 minutes. Avoid direct sunlight while pouring. The resin is reusable after pouring through the supplied filter and funnel to remove any solids. Always keep door closed when not in use to avoid curing or contamination.

Post Processing guidelines:

- Do not leave the platform in the ambient light before washing and post exposing, this could lead to liquid resin curing prematurely.
- Wash in the wash 99L for approximately 15 minutes (as a maximum)
- Rinse with hot water to remove residue cleaner and resin
- Dry with air compressor to remove any remaining water from the part
- Post cure in a pre-heated Cure L for 2 hours at 60 degrees, for larger parts it can take up to 4 hours to post cure.

Support guidelines:

- Support profile for small parts – 0.6mm tips /1.5mm pole diameter / 2mm widening factor
- Support profile for large parts – 0.8mm tips / 2mm pole diameter / 2mm widening factor

Recommended resin temperature (pre-printing)

- 30°C

DATA

Viscosity (At 25ºC Brookfield spindle 3)	690cPs
Hardness ASTM D2240 (After post exposure)	92 Shore D
Tensile strength ASTM D638 (After post exposure, 1h UV)	61 MPa
Elongation at break ASTM D638 (After post exposure, 1h UV)	3.7 %
Young's modulus ASTM D638 (After post exposure, 1h UV)	2810 MPa
Impact strength notched Izod ASTM D256 (After post exposure)	1.97 kJ/m2
Flexural strength ASTM D792 (After post exposure)	87 MPa
Flexural modulus ASTM D792 (After post exposure)	2060 MPa
Heat deflection temperature	85°C
Water absorption (24 h)	<0.2 wt%
Storage	10<t>50°C
Density	1.1 g/cm3

AVAILABLE COLOURS

Green

Available in 5 kg bottles.

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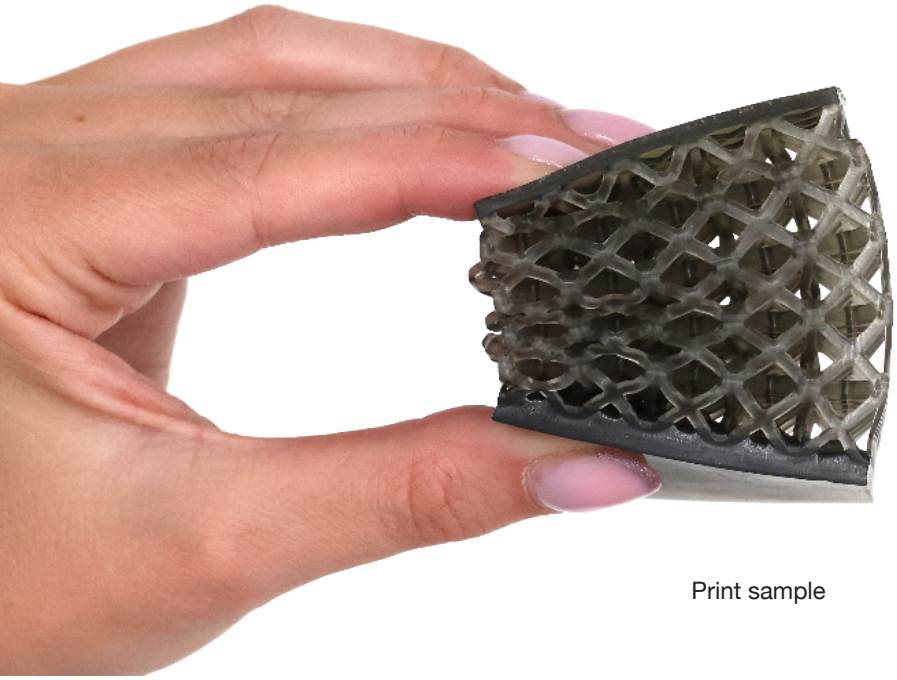
Technical Data

Photocentric

Flexible DL220B



Print sample

Compatible Printers

Liquid Crystal MAGNA

Colours

Black Translucent

Available in 5kg bottle

Introduction

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.

Best Used for:

- Sport protection, e.g., shin pads
- Shock and impact absorption, e.g., phone cases
- Cushioning
- Vibration damping, e.g., industrial machinery feet

Unique Features:

- Remarkable elongation at break >200%
- Slow rebound and efficient energy damping
- Exceptionally low water absorption (<1% after 7 days)
- High definition and resolution
- Easy to print due to its high green strength

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Technical Data

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Properties

Tensile Properties	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**

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Technical Data

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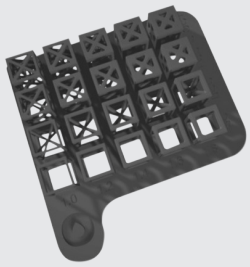
Design & Print Consideration Parameters

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.

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Pre-Print Instructions

- To print with Photocentric Liquid Crystal Magna, choose ‘Flexible DL220B’ 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.

Pre-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.

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