Technical Datasheet

Cast DL60

Daylight Resin

Photocentric

Cast DL60

Tensile Modulus (Low – High)

Ash Content (Low – High)

Compatible Printers

Liquid Crystal TITAN

Liquid Crystal MAGNA

Colour

Black

Available in

5kg bottle

Cast DL60 is an affordable, high-performance, antimony-free castable resin designed to deliver clean and reliable investment casting results. It has been engineered to exhibit wax-like behaviour at elevated temperatures without the use of wax additives, eliminating the dimensional instability and difficult processing conditions often associated with wax-filled resins. With its excellent printability, low viscosity, and high accuracy, it is simple to process on LC Magna and LC Titan. The result is a resin that produces stable, precise patterns and consistent casting performance from initial print to final cast part.

Best Used for:

Variety of investment casting techniques

Suitable for both shell casting and flask casting

Shell casting

For medium to large, complex patterns without the need for tooling

Flask casting

For small to medium, complex patterns, including latticed geometries

Casting of all common metals

Broad compatibility enabled by its low burnout temperature

Revision 1
02/10/2025

Unique Features

Wax-free formulation
Avoids the dimensional instability and processing issues associated with wax additives.

Clean burnout
Ultra-low ash content (<0.1%), which can be easily removed to ensure contamination-free castings.

Moisture and humidity resistance
Excellent stability after post-curing, ensuring consistent results in demanding environments.

Low thermal expansion
Minimises the risk of shell cracking during burnout

Excellent processability
Low viscosity for easy printing and fast drainage.

High green strength (>700 MPa)
Self-supporting parts that retain dimensional stability before casting.

Antimony-free
No trace metals

Cast DL60 Properties

Tensile Properties	Green	Post-cured*	Test Method
Tensile Modulus	790 MPa	2200 MPa	ASTM D638
Ultimate Tensile Strength	22 MPa	40 MPa	ASTM D638
Elongation at break	48%	40%	ASTM D638
Flexural Properties			
Flexural Modulus	-	76 MPa	ASTM D790
Flexural Strength	-	1880 MPa	ASTM D790
Impact Properties			
Impact Strength Notched Izod	-	50 J/m	ASTM D256
General Properties			
Shore Hardness	-	85 Shore D	ASTM D2240
HDT (@ 0.455 MPa)	-	61°C	ASTM D648
Coefficient of Linear Thermal Expansion (20°C - 120°C)		66µm/m/°C	Internal
Coefficient of Linear Thermal Expansion (120°C - 200°C)		180µm/m/°C	Internal
Ash Residue		0.1%	Internal
Antimony content		0%	-
Water absorption after 24 hrs		0.22%	Internal
Water absorption after 48 hrs		0.24%	Internal
Water absorption after 7 days		0.43%	Internal
Liquid Properties	**Value**		Method
Viscosity	630 cPs		At 25°C Brookfield spindle 3
Density	1.06g/cm3		Internal
Storage	10<T<50°C		-

*Post cured for 5 hrs at 40°C in Photocentric Cure L2/Cure XL.

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

Pre-Print Instructions

Printing on LC Magna

1. To print with Photocentric LC Magna, choose Cast DL60 - Black and the desired layer thickness when preparing your print file in a Slicer software (like Photocentric Studio Pro).

2. Shake the resin bottle for 2 minutes before pouring into the LC Magna resin vat.

Printing on LC Titan

1. To print with LC Titan, choose Cast DL60 - Black and the desired layer thickness when preparing your print file in a Slicer software (like Photocentric Studio Pro).

2. Shake the resin bottle for 2 minutes before pouring into the LC Titan resin tank.

Post-Print Instructions

Post-Processing on LC Magna

1. Place the platform into the Photocentric Air Wash L.

2. Parts can be washed for no more than 10 minutes using Photocentric Resin Cleaner 30.

3. Once washed, rinse with warm water for maximum of 10 minutes.

4. It is important for parts to dry fully, prior to post-curing. Dry with compressed air to remove any remaining water and allow the part to drain fully.

5. Place the platform into the Cure L2 set to 40 °C with no UV light. Allow the part to reach temperature, then hold for 1 hour for small parts or 3 hours for large parts.

6. Turn on the light and cure for minimum of 5 hours at 40°C with light on in Cure L2.

8. Remove the platform from the Cure L2, allow to cool down and remove parts from the platform.

Post-Processing on LC Titan

1. Place the platform into the Photocentric Wash XL.

2. Each part can be washed for 10 minutes using Photocentric Resin Cleaner 30.

3. Once washed, rinse with warm water for maximum of 10 minutes.

4. It is important for parts to dry fully, prior to post-curing. Dry with compressed air to remove any remaining water and allow the part to drain fully.

5. Place the platform into the Photocentric Cure XL, start ‘Dry’ cycle for 1 hour at 40°C (with no UV light) to ensure parts are fully dry (we recommend 1 hour for small parts and 3 hours for large parts).

6. Start ‘Cure’ cycle, and leave to cure for minimum of 5 hours at 40°C.

7. Remove the platform from the Cure XL, allow to cool down and remove parts from the platform.

Casting Guidelines

Shell Casting - Preparation & Burnout

1. Remove the supports and polish the surfaces as required.
2. Seal drain holes in the foundry using wax. Verify the pattern is fully sealed by blowing air or smoke into one of the drain holes.
3. Apply 7–8 layers of ceramic slurry coats.
4. Add sufficient vent to prevent shell cracking.
5. Casting with aerospace aluminium alloy – Skip the autoclave step and follow the burnout cycle below.
6. Proceed with normal cool-down and casting steps.

Foundry Burnout Cycle - Shell Casting of Aerospace Aluminium

Target Temp (°C)	Ramp Rate (°C/min)	Ramp Time	Hold Time
RT → 200	30	5 minutes	–
200 → 300	5	20 minutes	–
300 → 400	2.2	45 minutes	–
400 → 465	0.8	1 hour 20 mins	–
465 → 800	1.1	6 hours	4 hours

Flask Casting- Preparation & Burnout

1. Remove the supports and polish the surfaces as required.
2. Seal drain holes in the foundry using wax. Verify the pattern is fully sealed by blowing air or smoke into one of the drain holes.
3. Continue with normal flask casting setup.
4. Casting with aerospace aluminium alloys – follow the burnout cycle below.
5. Proceed with normal cool-down and casting steps.

Foundry Burnout Cycle - Flask Casting of Aerospace Aluminium

Target Temp (°C)	Ramp Rate (°C/min)	Ramp Time	Hold Time
RT → 150	30	5 minutes	–
150 → 300	0.5	5 hours	–
300 → 700	3.3	2 hours	8 hours

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