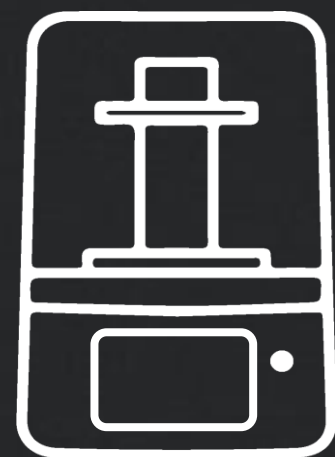


Large Format Resin 3D Printing for Modern Foundries

Presented by: **Charlie Anderson | Monocure3D**

**60th Australian Foundry Institute (AFI) National
Conference**

October 08 – 10, 2026 Crown Plaza, Surfers Paradise, Gold Coast

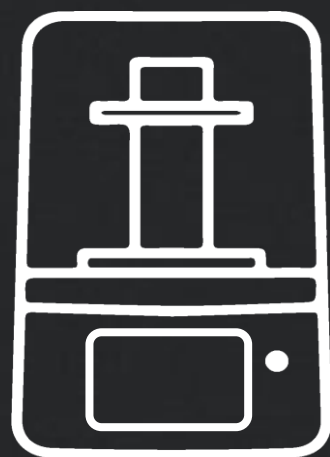


Australian Materials. Practical 3D Printing.

Introducing Monocure3D and Charlie Anderson

MONOCURE 3D

- 100% Australian family-owned and operated.
- Founded by Alan Anderson in 1979, specialising in UV coatings.
- Launched Monocure3D in 2016
- Resins developed and manufactured in-house in Sydney.
- More than 80 product lines supplied to customers in over 30 countries.
- In-house chemistry and custom material development.
- Supporting dental, engineering and industrial applications.
- Large format printers, training and technical support.



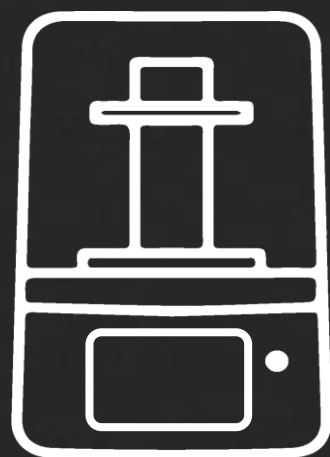
Australian Materials. Practical 3D Printing.

Introducing Monocure3D and Charlie Anderson

CHARLIE ANDERSON

- Founding Director of Monocure3D.
- Over 20 years in television production before joining the family business.
- Leads research and development alongside our chemists and production team.
- Focused on helping businesses put 3D printing to practical use.

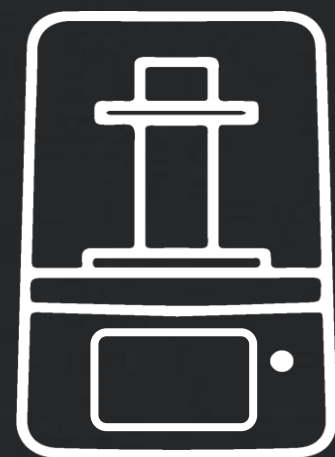




The Next Chapter in Foundry Patternmaking

Digital workflows for a stronger foundry future.

“A 3D printer belongs in every workshop. With the right support, it will shape the future of your business.”

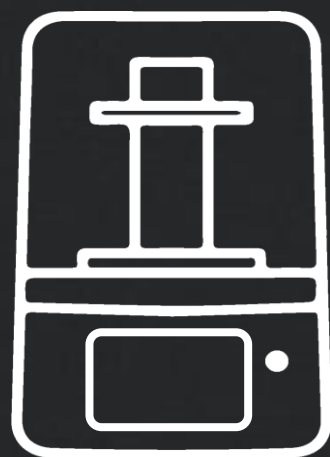


Foundry Patternmaking Enters a New Era

3D Printing helps bridge the skills gap.

- Large format SLA brings industrial scale to foundry patternmaking.
- Print larger, more complex patterns in a single build.
- Move from digital design to finished patterns with fewer assembly steps.
- More accessible technology opens new opportunities for foundries.





Why Digital Workflows Make Sense

Practical benefits for modern foundries.

Design flexibility

Create complex shapes and adapt designs more easily.

Skills support

Reduce repetitive work and make better use of skilled staff.

Faster development

Move from design to trial with fewer manual steps.

Repeatability

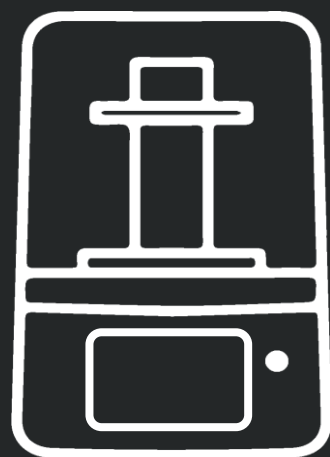
Use the same digital design for consistent repeat production.

Easier changes

Refine designs without rebuilding everything from scratch.

Digital storage

Save, share and retrieve pattern designs when needed.



3D Printing on an Industrial Scale

Different technologies. Different roles in manufacturing.



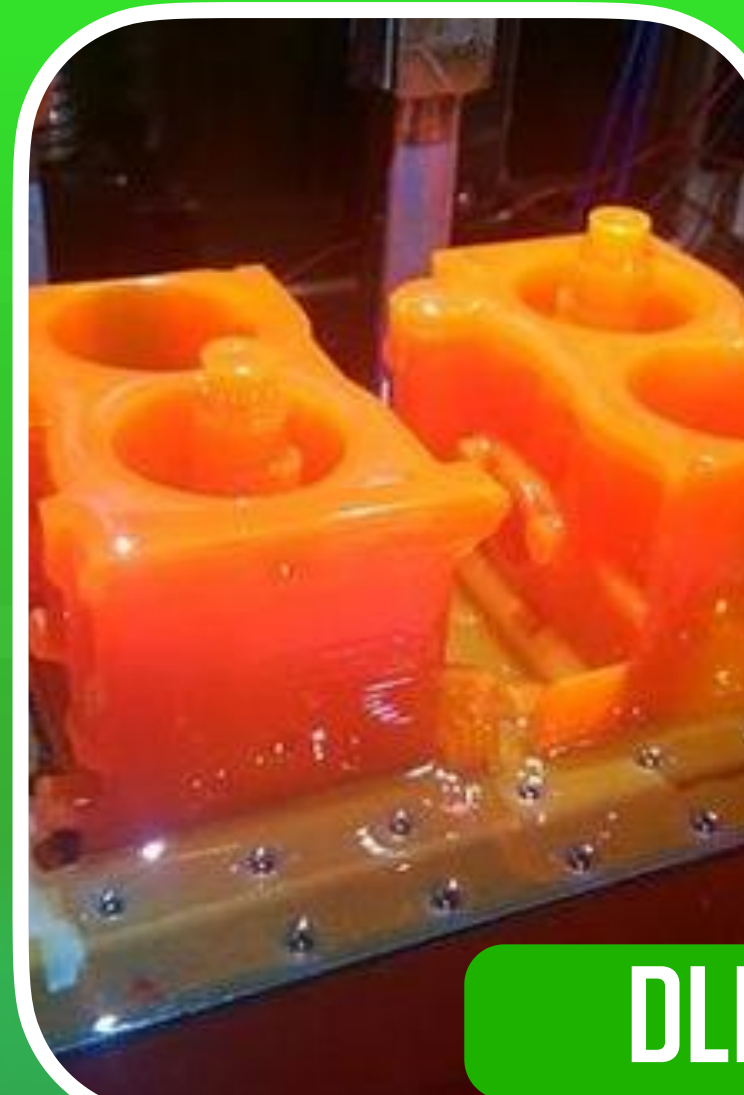
FDM

Extrudes melted plastic filament layer by layer through a heated nozzle.



SLS/M

High-power laser to fuse powdered nylon or metal layer by layer.



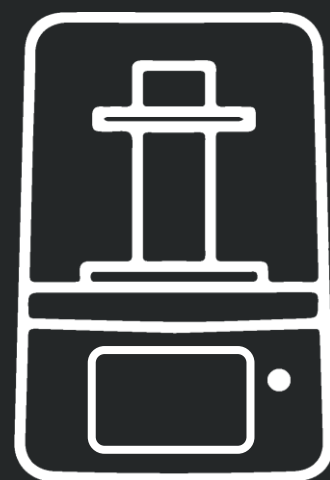
DLP

UV LEDs with an LCD screen that masks to cure each layer at once.



SLA

Focused UV laser to cure liquid resin point by point in a vat.



Understanding 3D Printing Technologies

Large patterns from thermoplastic materials

FDM



Extrudes melted plastic filament layer by layer through a heated nozzle.

Pros

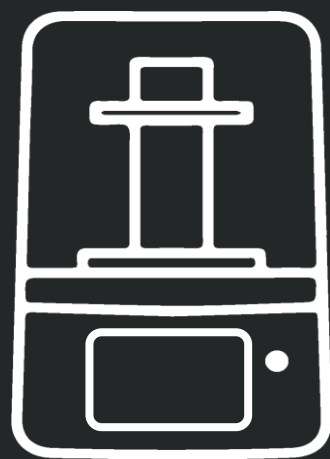


- ✓ Large build volumes
- ✓ Wide choice of thermoplastics

Cons



- ✗ Visible layer lines
- ✗ Large parts can warp
- ✗ More post-processing
- ✗ Speed is slow

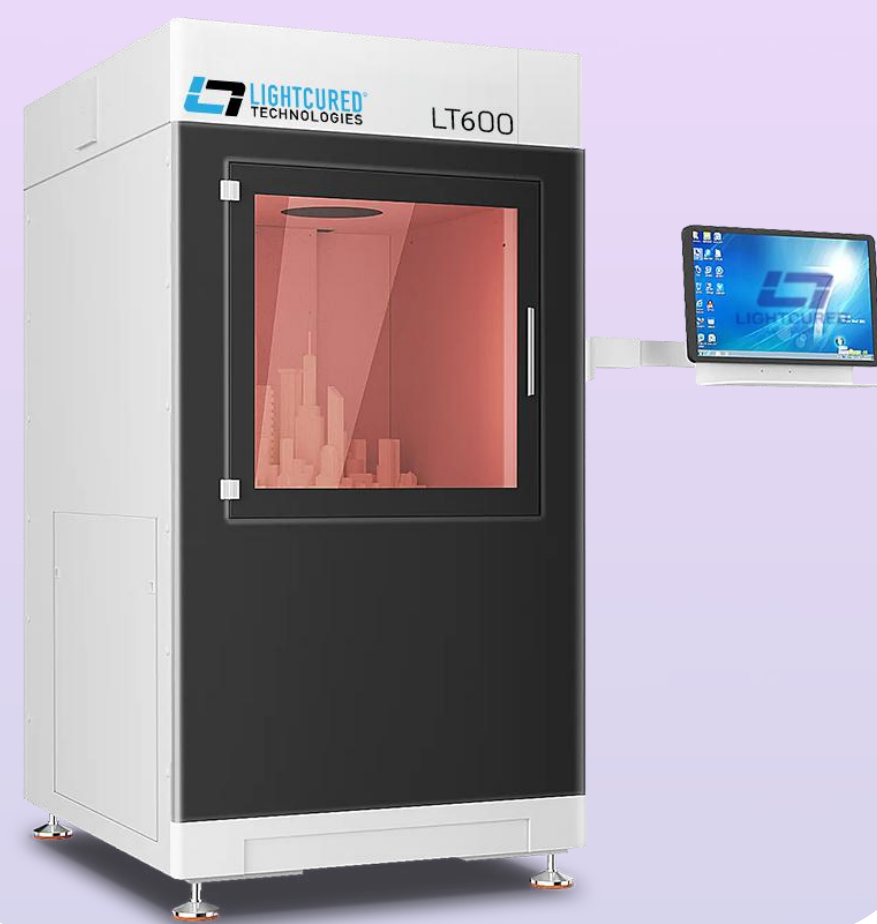


Understanding 3D Printing Technologies

Large patterns with fine detail and smooth surfaces

TOP
PICK

SLA



Focused UV laser
to cure liquid
resin point by
point in a vat.

Pros



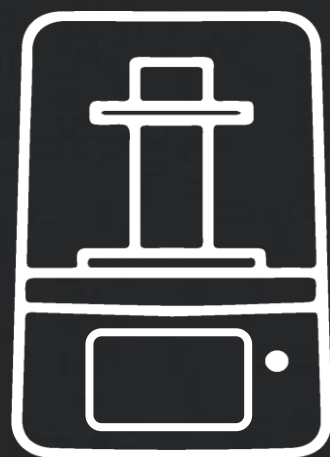
- ✓ Large patterns with fewer joins
- ✓ Fine detail and smooth surfaces
- ✓ No peel step against a bottom film
- ✓ Reduced sanding before pattern finishing

Cons



- ✗ Resin Changes are slow
- ✗ Washing, support removal and curing required

Stereolithography



3D Applications in Foundries

Digital Designs to Foundry Solutions

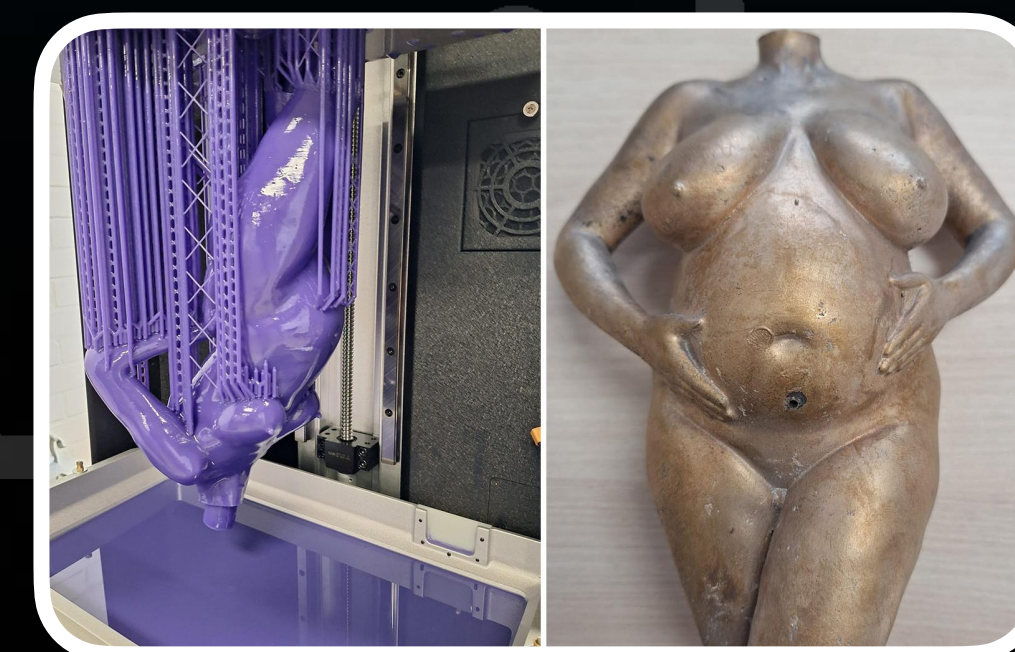
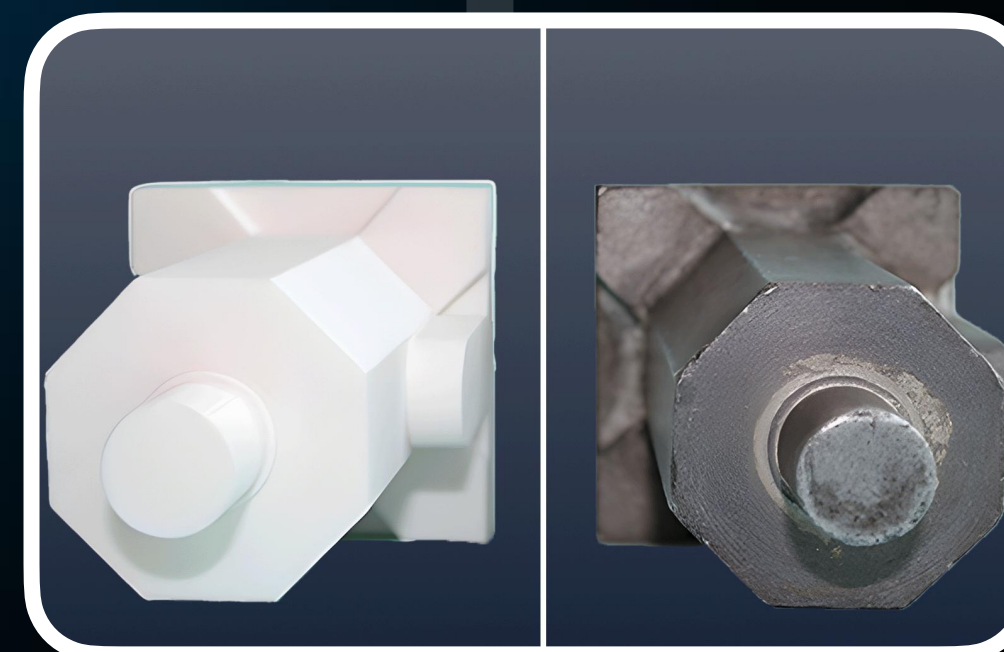
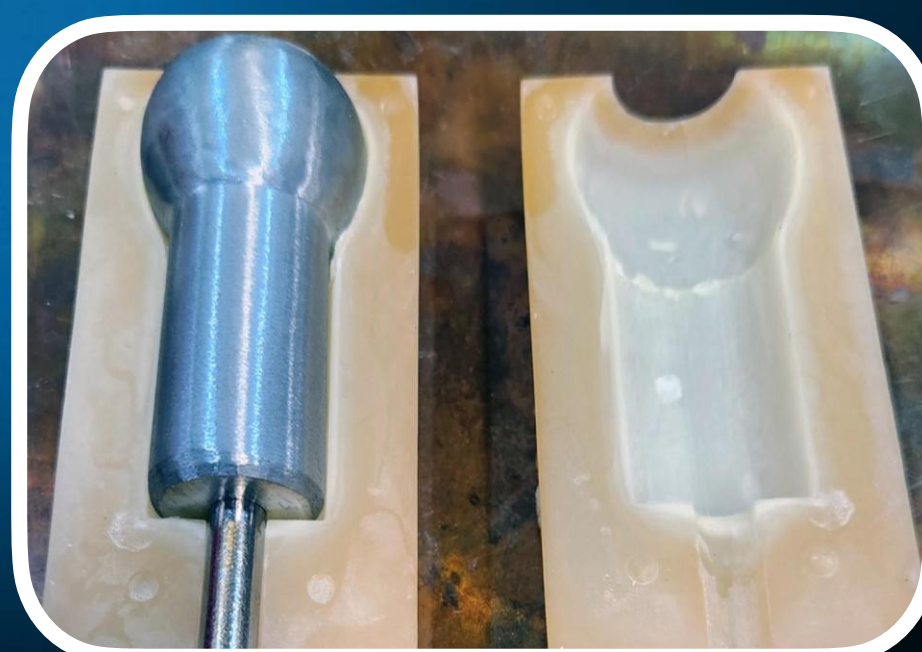
1. TOOLS, PATTERNS & CORES

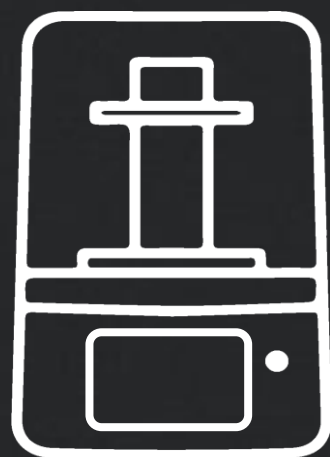
2. INVESTMENT CASTING

3. DIRECT MOULD CASTING

4. IN-HOUSE PROTOTYPING

“If we want them to cast locally, we need to help them prototype locally.”

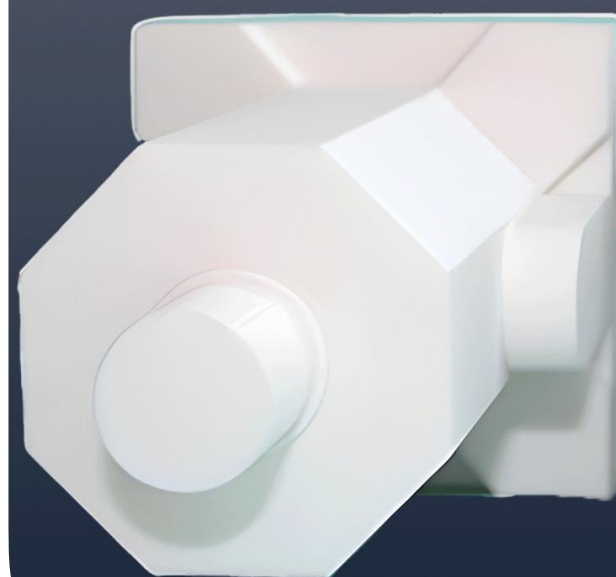




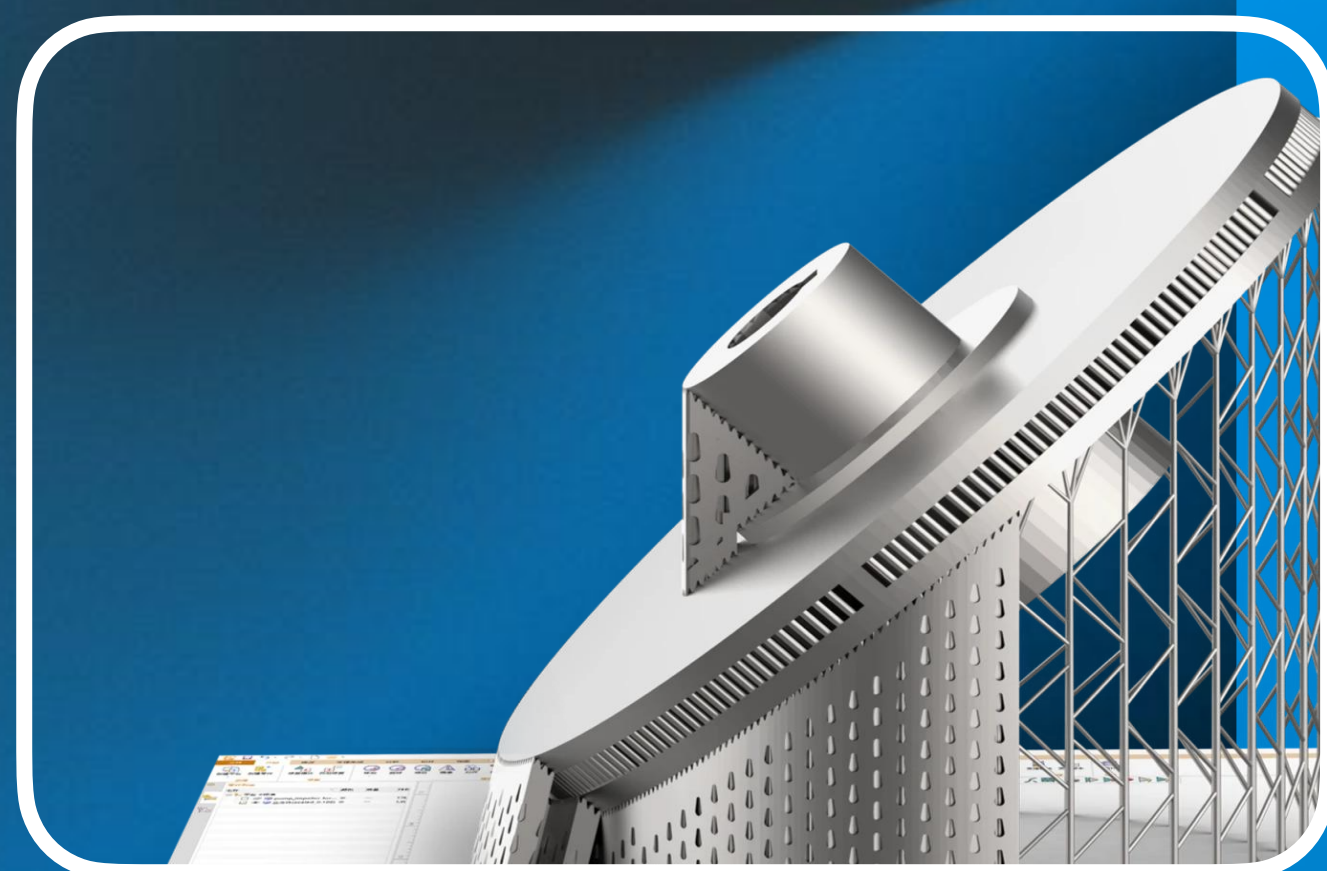
Resin Options for Casting Applications

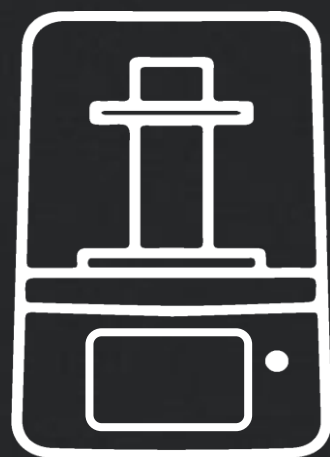
Bringing digital production into the pattern shop

1. TOOLS, PATTERNS & CORES



- Produce patterns for sand casting directly from CAD.
- Print larger patterns with fewer sections to assemble.
- Create core boxes and masters for tooling production.
- Modify designs and print replacement patterns when needed.
- Trial new designs before committing to production tooling.

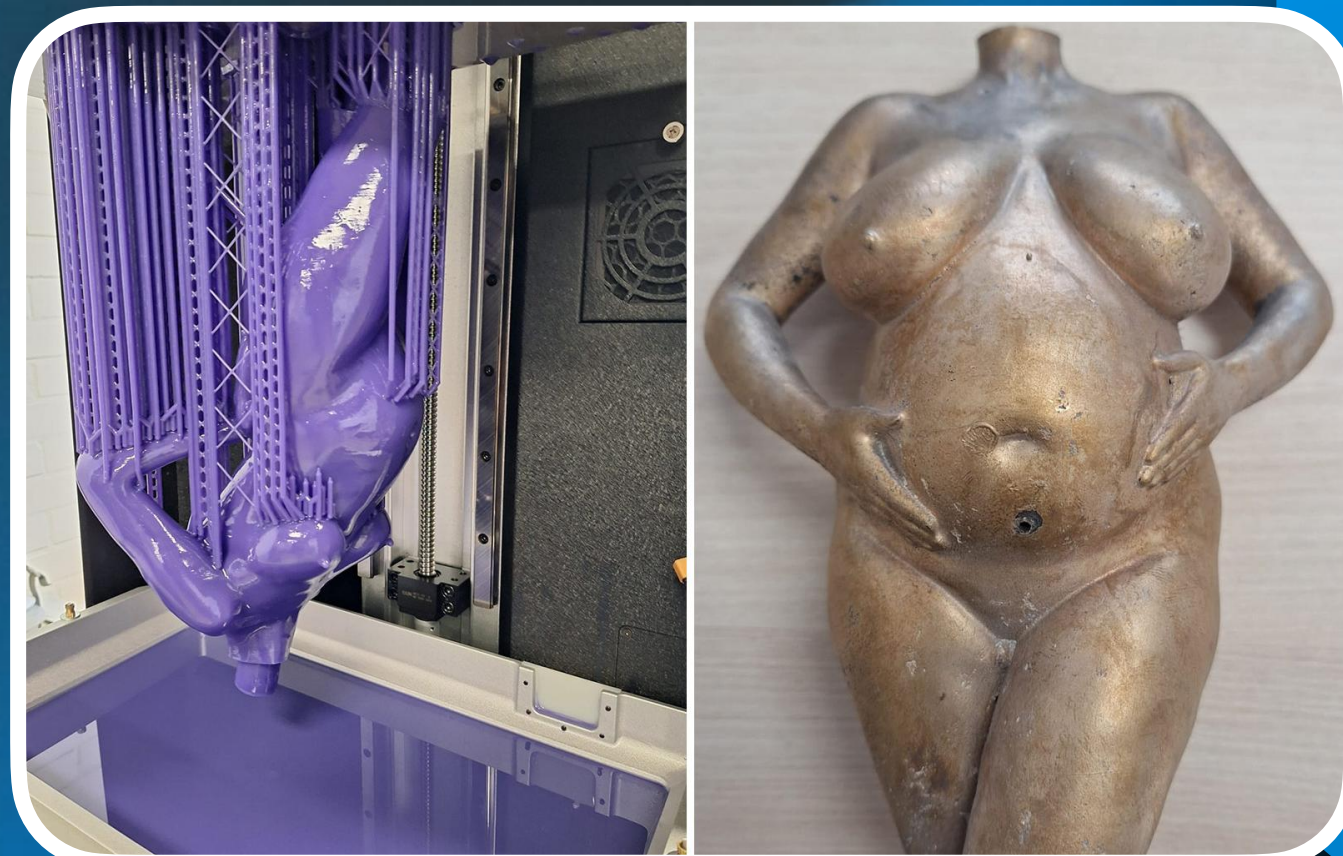
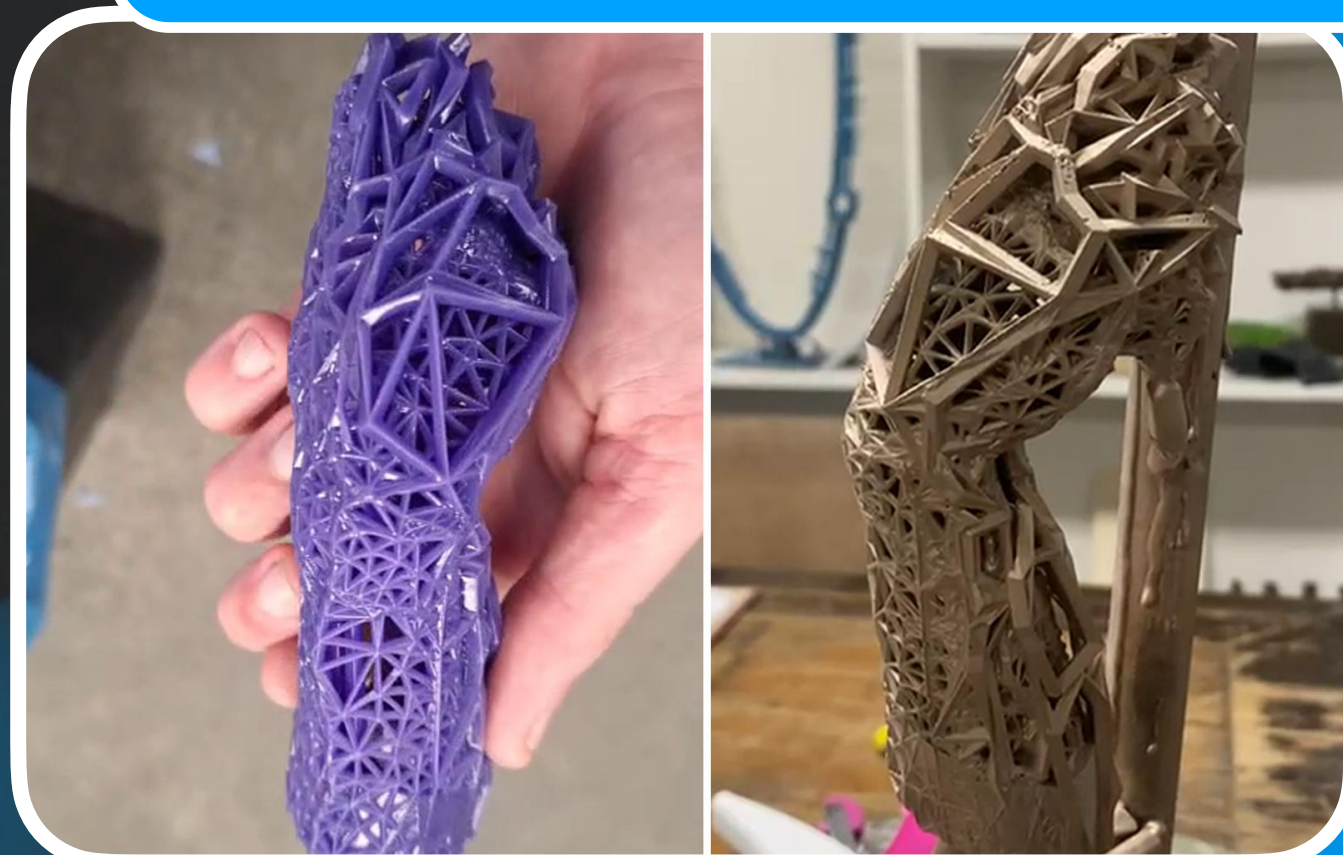




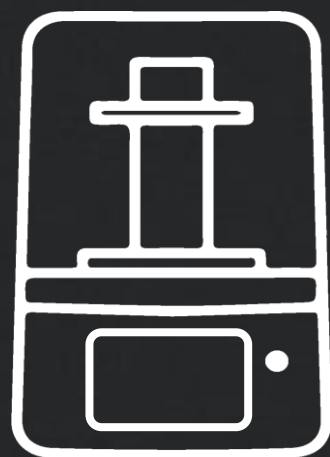
3D Printing for Investment Casting

From digital design to a sacrificial pattern

2. INVESTMENT CASTING



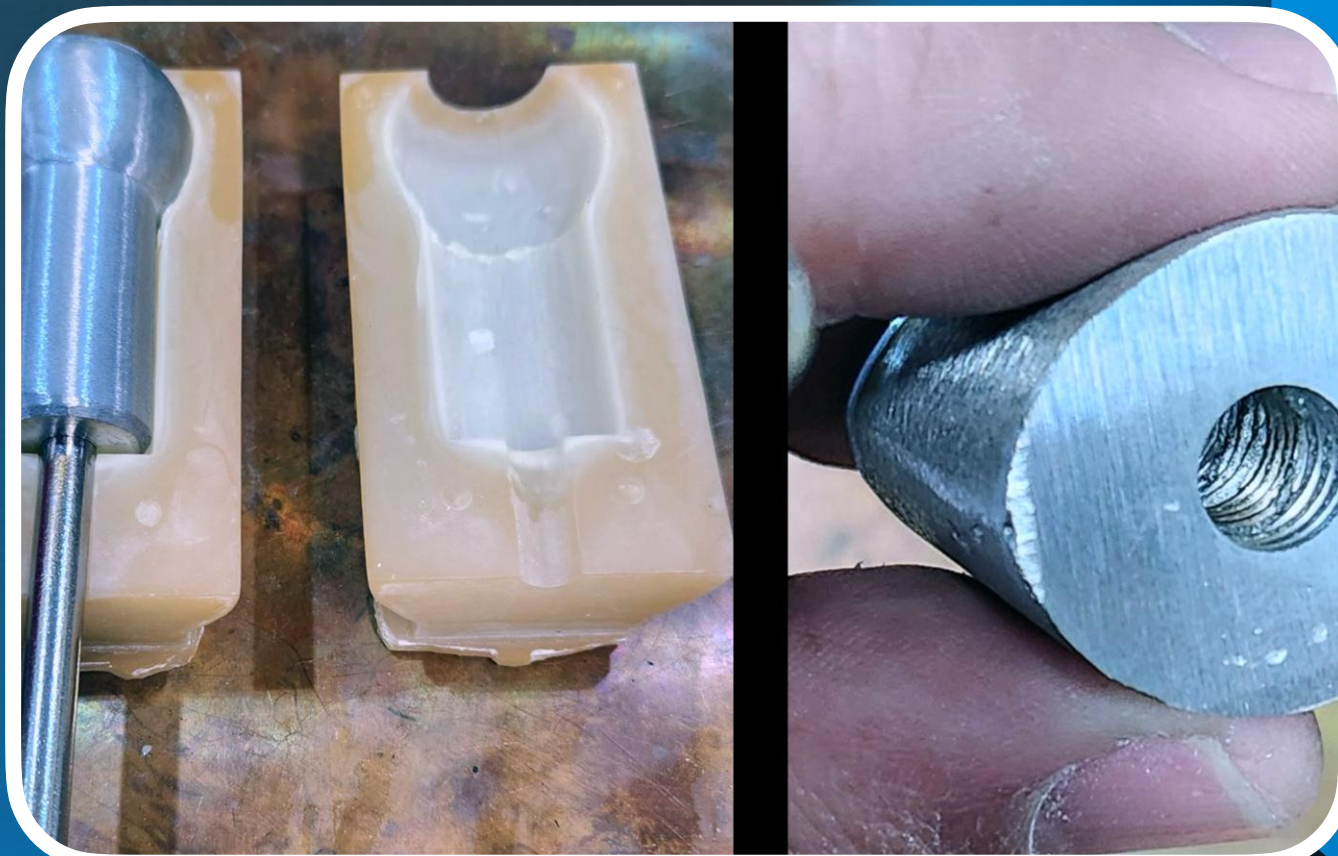
- Print patterns directly, without first making a wax injection tool.
- Produce complex shapes and fine details.
- Create prototypes, one-off castings and short production runs.
- Scale up to larger patterns, with fewer joins where practical.
- Match the pattern material and burnout process to your shell system.



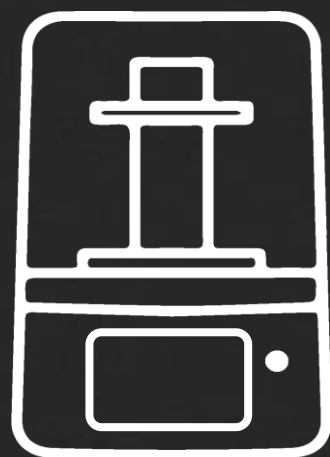
3D Printed Moulds for Direct Casting

ThermaCAST Resin will handle 550c

3. DIRECT MOULD CASTING



- Print the mould cavity directly from a digital design.
- Trial suitable low-melting-point alloys in specialist resin moulds.
- Produce sample parts and small batches.
- Modify the cavity and reprint to test design changes.
- Validate resin, alloy, pouring temperature and mould life together.



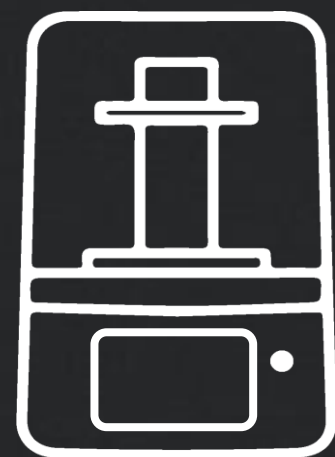
Winning the Work Starts with the Prototype

Help customers develop locally and keep production close.

4. IN-HOUSE PROTOTYPING



- Give customers a local starting point for their next project.
- Use 3D printing to turn ideas into physical prototypes.
- Work together to check fit, refine designs and prepare for casting.
- Build the customer relationship before production goes overseas.



Overcoming the Myths

Resins are now strong, stable & odour-free

2015

Vs

2026

Unpleasant

Odour

Odourless Formulas

Fragile, Prone to Cracking

Brittleness

Tough, Impact Resistant

Prone to Distortion

Warping

High dimensional stability

Weak, Poor Properties

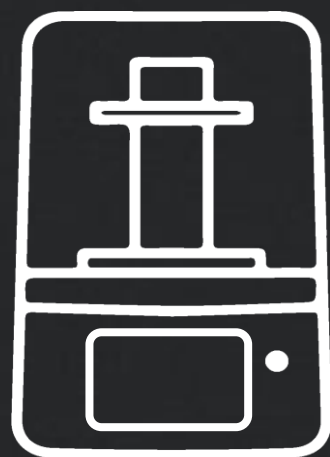
Strength

Strong, durable

Expensive, High-Cost

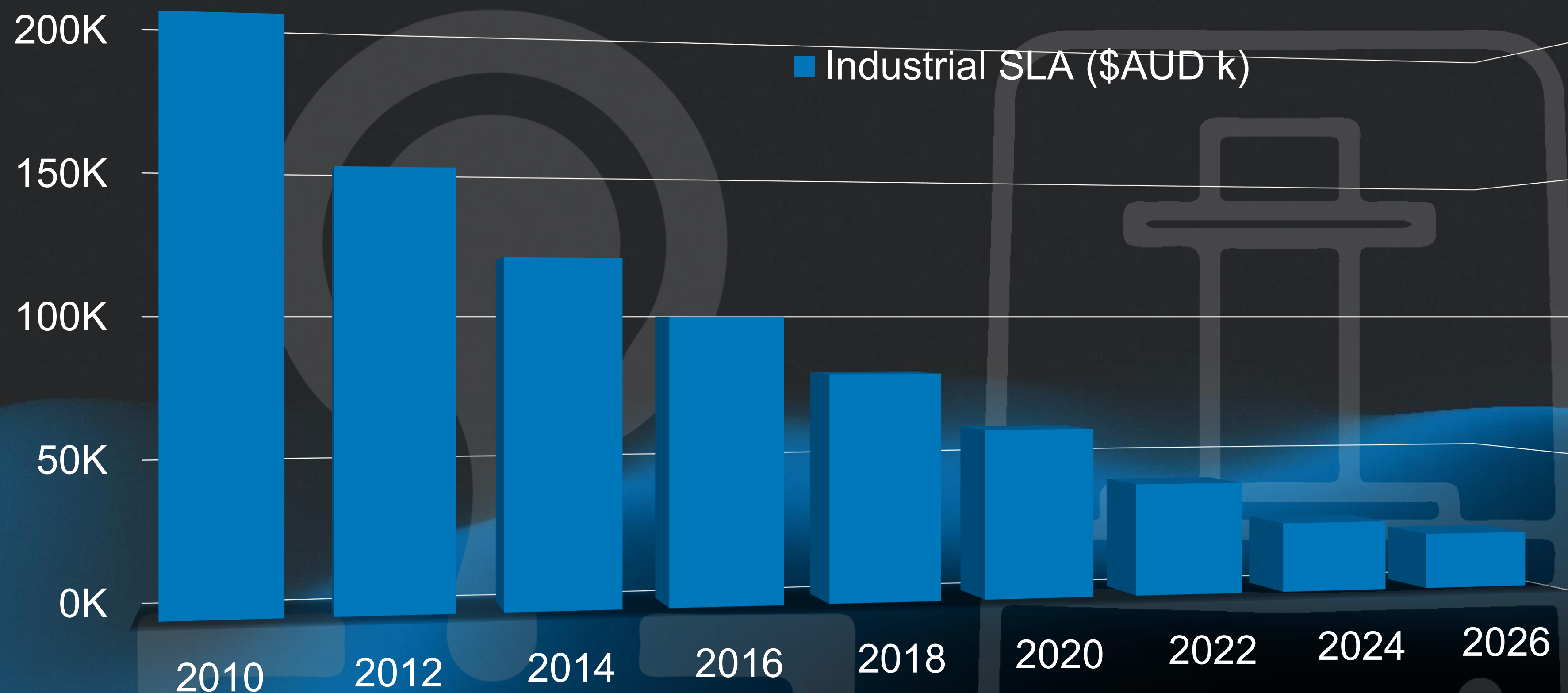
Price

Low-Cost, Affordable

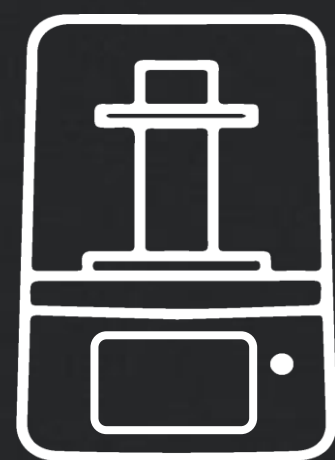


The Cost Curve Has Dropped

Accuracy & quality & speed at a fraction of past cost



- ✓ Hardware prices have plummeted
- ✓ Speed and resolution have soared
- ✓ Anyone can start



More Accessible Than Ever

Curing box, slicing software and 12-month warranty included.



LT600

A\$37,775*

**600 × 600 × 400 mm build size
Includes 230 kg of resin**

LT800

A\$48,013*

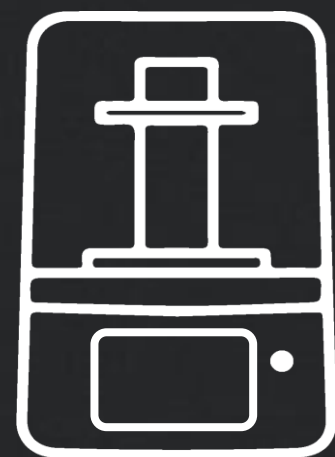
**800 × 800 × 500 mm build size
Includes 480 kg of resin**

LT1200

A\$98,502*

**1200 × 600 × 500 mm build size
Includes 560 kg of resin**

AUD, excluding GST. FOB pricing excludes freight and duties. Optional setup and training: A\$1,500, plus technician travel and accommodation. Prices subject to confirmation.



Adopting Large Format 3D Printing

A practical path from first pattern to production

1

Choose the Right System



1. Match the printer to your largest patterns, required detail and production workload. Plan for future demand as well as today's needs. Without the post processing.

2

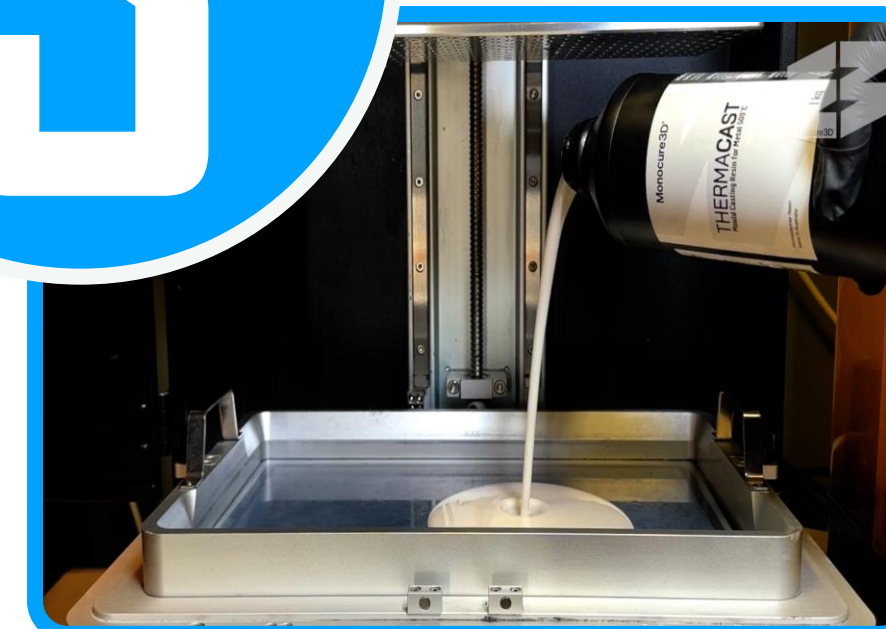
Prepare Your Workflow



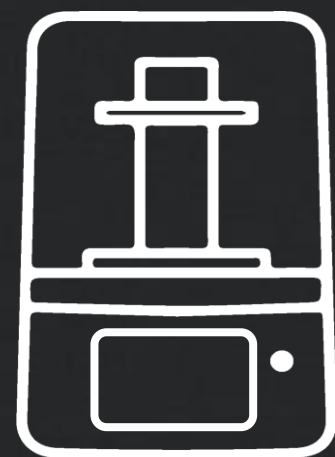
2. Plan space for printing, washing, curing and finishing. Build on your team's existing foundry knowledge with digital design and operator training.

3

Prove the Application



3. Choose a suitable resin and trial a representative pattern. Check dimensions, surface finish and performance in your moulding process before scaling up.



Adopting Large Format 3D Printing

A practical path from first pattern to production

4

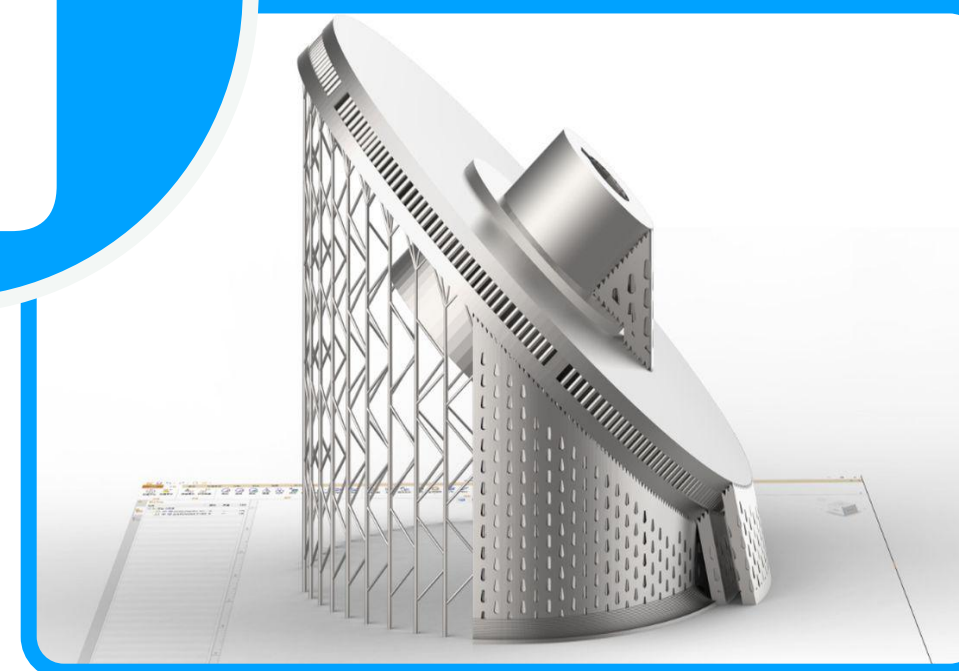
Design the Pattern



4. Create or adapt your CAD model for the casting process. Include draft angles, shrinkage allowances and parting features where required.

5

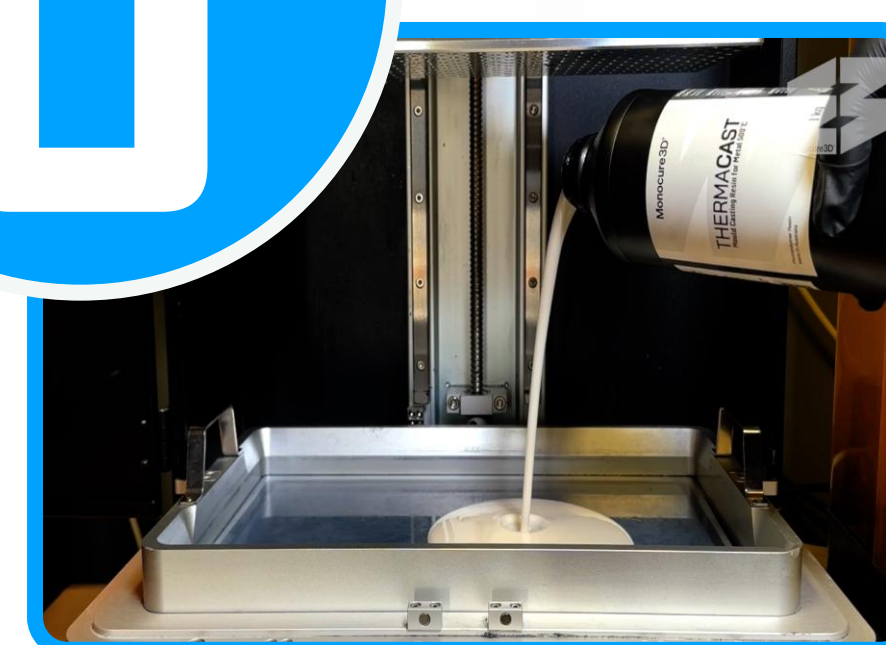
Prepare and Slice



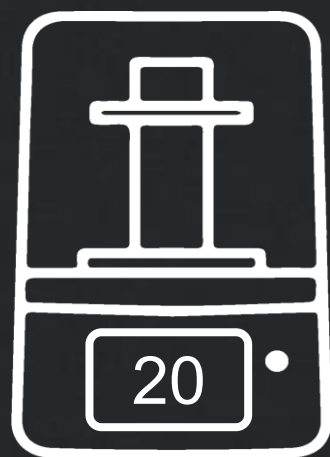
5. Orient the model, add supports and select the print settings. Slice the file into layers and check the build before sending it to the printer.

6

3D Print & Finish



6. Print the pattern, then wash, remove supports and post-cure. Finish critical surfaces and check dimensions before trialling it in the foundry.

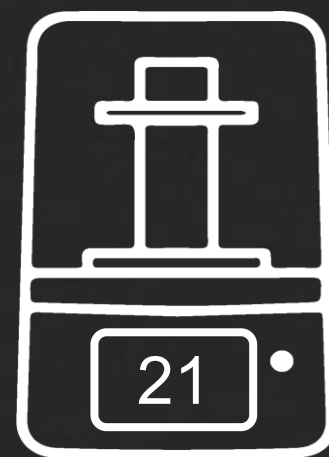


Why Monocure3D?

Our success depends on your printer being productive

- ✓ Large format SLA printers backed by Australian Developed & Manufactured Materials
- ✓ Custom resin options to suit your foundry applications.
- ✓ Free on-site consultation to assess your needs and plan your setup.
- ✓ Training in 3D printing and designing parts for print.
- ✓ Support across the workflow, from CAD and slicing to printing and finishing.
- ✓ Ongoing technical support to help keep you printing.

“We don’t just supply the printer. We help you make it a productive part of your business.”

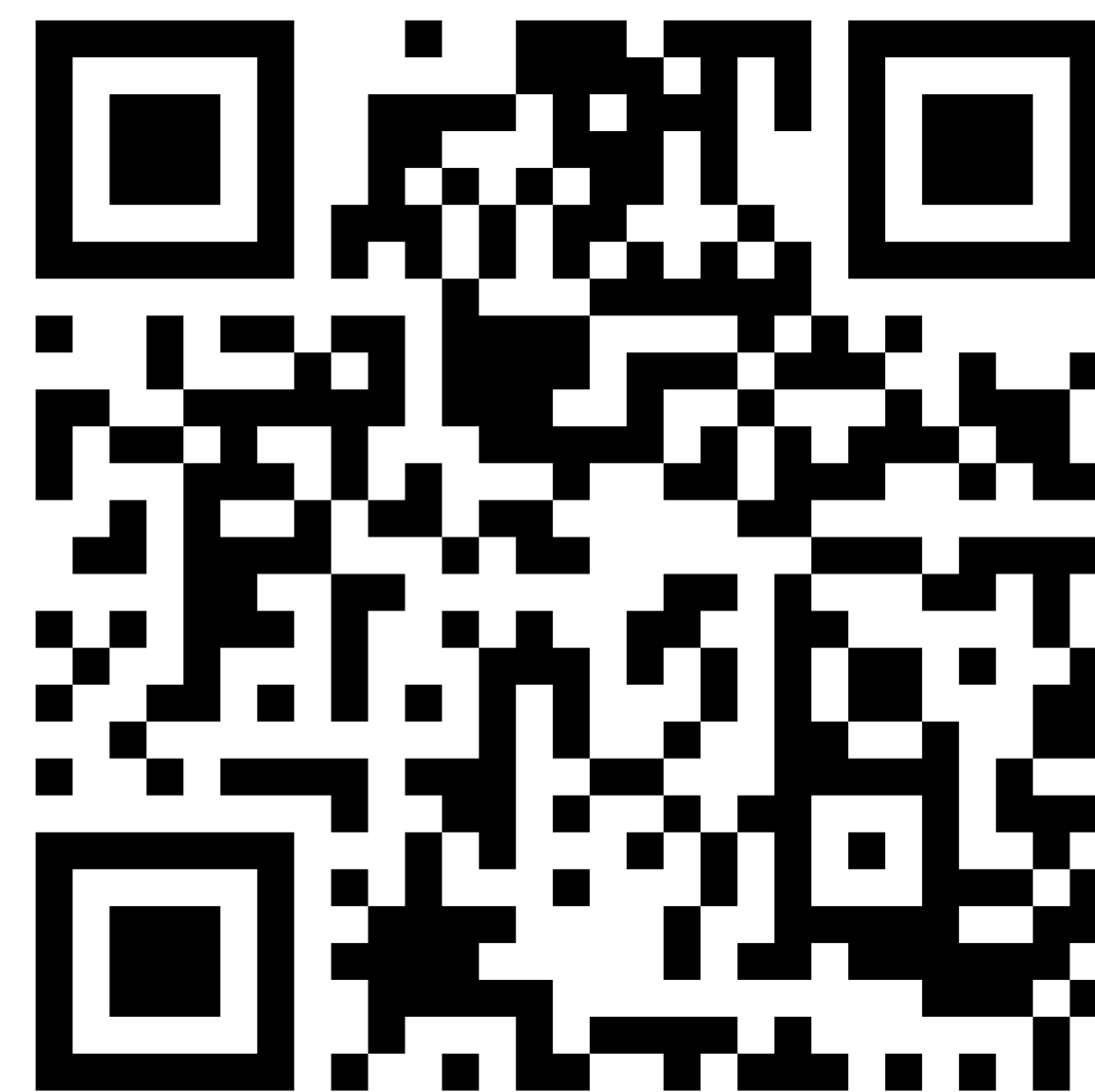


Let's Put 3D Printing to Work in Your Foundry
Send us a pattern, a challenge or an idea.

Thank you. Any questions?



Special thanks to the AFI for
giving me the opportunity to
present.



For more information, contact me at
charlie@monocure3d.com.au

www.Monocure3D.com.au