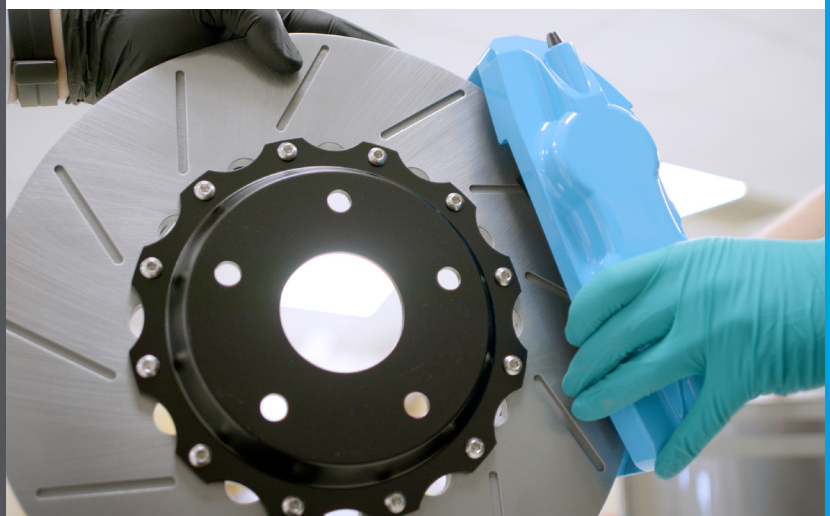
Ogle Models Turns to Next-Gen Stereolithography 3D Printing to Unlock Creativity and Efficiency

stratasys



Case Study

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Director, Ogle Models and Prototypes

Ogle Models and Prototypes began making models in 1954, the same year that Texas Instruments released the first commercial transistor radio and some years before the first functioning laser – a spark that would ignite the very earliest 3D printing technologies and change the modelmaking world so radically – was built. To stay ahead of the competition through this period of unprecedented technological advancement, the company had to constantly reassess the best ways of working and adopt new technologies on the cutting edge of what's possible. As part of that process, Ogle chose Stratasys' stereolithography 3D printing to maintain its position at the forefront of innovation, and it is now a central part of the company's ability to meet and exceed customer expectations.

Staying one step ahead of the customer

The Ogle office of the 1950s would have been full of technical drawings, models and parts made entirely by hand. Natural materials would have been the norm – primarily shapeable jelutong wood. Today, craftspeople still perform important tasks, but often not until the final part is ready to be finished and assembled. The design-to-part workflow is now almost completely digitized, bringing with it efficiencies and creative freedoms that would have seemed unimaginable in the middle of the last century.

As part of its constant forward gaze, Ogle was among the first model makers in the UK to recognize that 3D printing was going to revolutionize the way models and prototypes are created. With the emergence and rapid development of computer aided design (CAD) software, designs moved from drawing boards to motherboards and a fully digital design process started to make sense. In 1996, Ogle invested in its first stereolithography (SL) machine and has been 3D printing ever since.

Ogle uses two Stratasys Neo®800 systems and a Neo450s as the backbone of its 3D printer fleet, enabling the company to win new business and continue delivering on the evolving needs of its clients.

With Ogle's customer base ranging from automotive to architecture, Stratasys' Neo systems provide the versatility to deliver results across each of these different industry sectors and requirements.

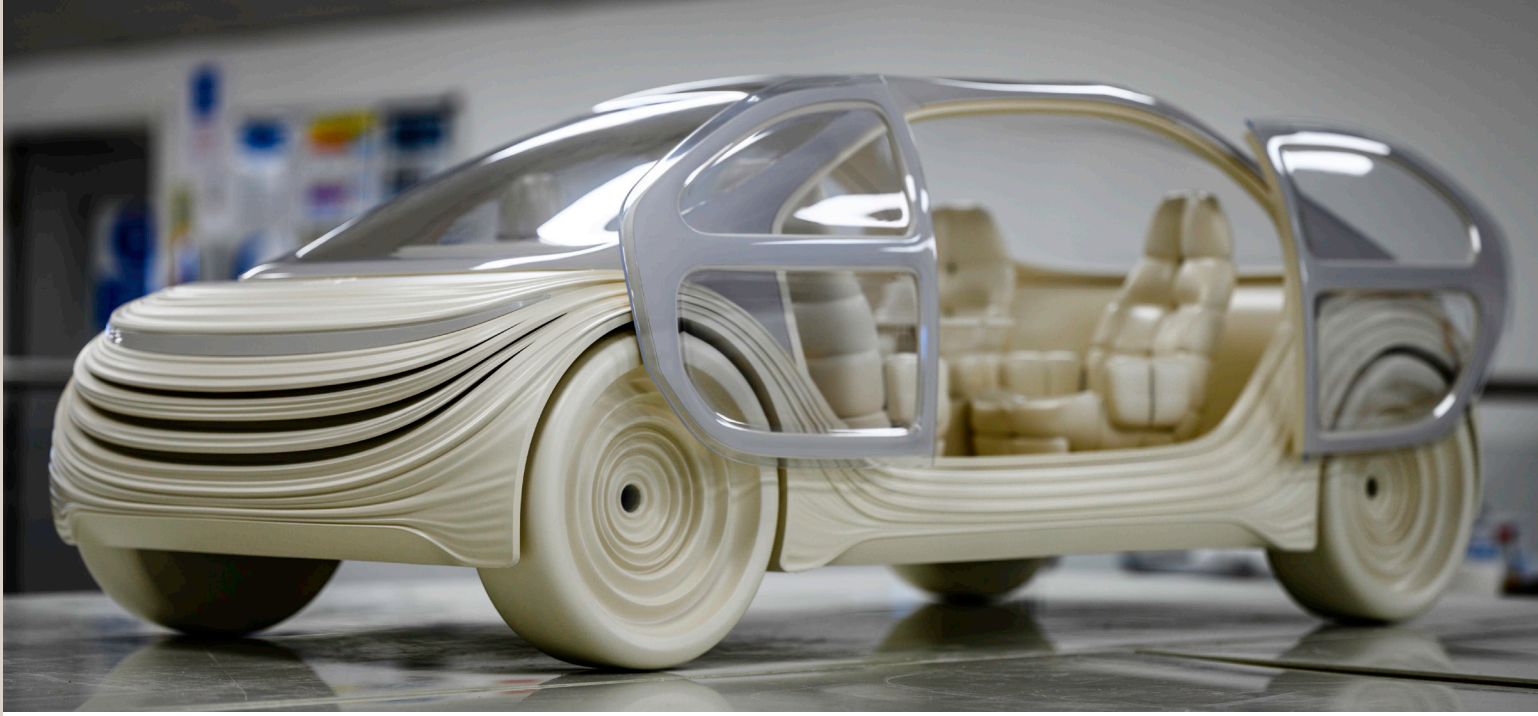
Advancing with 21st century technology

More than 25 years later, SL 3D printers are still used at Ogle, but they are nothing like the ones from the last century. Ogle uses two Stratasys Neo®800 systems and a Neo450s as the backbone of its 3D printer fleet, having installed the first of these machines in 2018 and soon followed this up with two additional purchases based on its success. These printers produce parts with a level of accuracy and surface finish rivaling injection molding, and do so quickly and consistently. The Neo800's larger build chamber – 800mm x 800mm x 600mm – allows for larger parts to be made, but also higher throughput for smaller parts. The Neo450s has a smaller build chamber – 450mm x 450mm x 400mm – allowing greater capacity and flexibility in Ogle's SL offering.

"Ogle Models has always moved with the times, looking to adopt new technologies to continue delivering on the evolving needs of our clients. With client demand for 3D printing increasing across the product development cycle, we looked to update and expand our capacity with the latest SL technology. Stratasys' Neo systems proved to be the best solution with a larger build size, faster print speed, and more flexibility, quality and reliability," explains Philip Martin, Director, Ogle Models and Prototypes. "In other words, they were a vast improvement on our older SL technology in all areas."

Driving new business

Ogle's arsenal of cutting-edge technologies has enabled the company to win business from market-leading customers, including award-winning British design and architecture giant Heatherwick Studios. As part of a recent commission by IM Motors, Heatherwick approached Ogle to produce a 1200mm-long model of a visionary all-electric concept car, created entirely with Stratasys' SL technology. Featuring autonomous controls, the new environmentally friendly 'Airo' vehicle was designed to include a HEPA filtering system to actively remove pollutants from the surrounding air as it travels – and naturally featured an impressive, futuristic design comprising an incredibly high level of detail. Employing two of Stratasys' Neo800 3D printers, the team was able to 3D print the main body parts in white on one machine, whilst the second machine produced the clear parts for the windows. The parts were then sent for painting and assembly, ultimately resulting in a show-stopping 1:4 scale model that went above and beyond the customers' expectations.



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One tool to meet multiple requirements

Ogle's customer base extends far beyond automotive, covering everything from medical devices to prop design and architecture. Naturally, such a diverse clientele comes with a diverse set of needs. Some clients may want true models, others fit/form/function prototypes, and still others may require end-use parts. The Neo 3D printers can be used in each of these scenarios by using different materials, build parameters and finishing techniques – combined, in some cases, with other processes. Stratasys Neo stereolithography provides the critical versatility to be used either as a standalone solution or alongside Ogle's other processes, such as SLS, vacuum casting and CNC machining, to create models for each of these different industry sectors and requirements, proving an invaluable asset in the company's portfolio.

When making a master for vacuum casting, multiple parts all need to fit together. These masters are then used to create a silicone tool, from which the end-use part is made by pouring resin into the cavity. If the 3D printed master is inaccurate, then all the parts subsequently created will also be inaccurate. Essentially, the more care that's taken around the master, the better the end product will be – with the Neo 3D printers able to deliver accurate, repeatable results. Each 3D printed master creates a tool that can facilitate a 15- to 50-part run, allowing a fully functioning prototype to be made without the large investment in final production tools.

In other cases, the challenge is large part size. Prints that make full use of the entire build envelope can take multiple days to complete, putting a premium on printer reliability. "As we had experienced occasionally with our previous systems, any failure during the build results in lost time, lost materials and impacts on the scheduling of other jobs, making it something we were keen to avoid moving forward," says Martin. Combining the inherent reliability of the Neo platform with Ogle's decades of experience in setting up individual SL 3D prints in a production environment gives the team confidence that a part started on a Friday will still be printing correctly through to completion on Monday morning.

"Stratasys' Neo 3D printers fit well with Ogle's processes because consistency is a key driver for us," he adds. "Typically, the engineering side of 3D printers can be overcomplicated, which leads to reliability issues. The Neo printers, however, are simpler and more refined, so are just more efficient. Ultimately, we can rely on these systems to keep going build after build and continue printing when the lights are out."

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