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CASE STUDY
STEREOLITHOGRAPHY

A Winning Blend of Speed and Automation

More business opportunities start with the Neo800+ SLA printer.

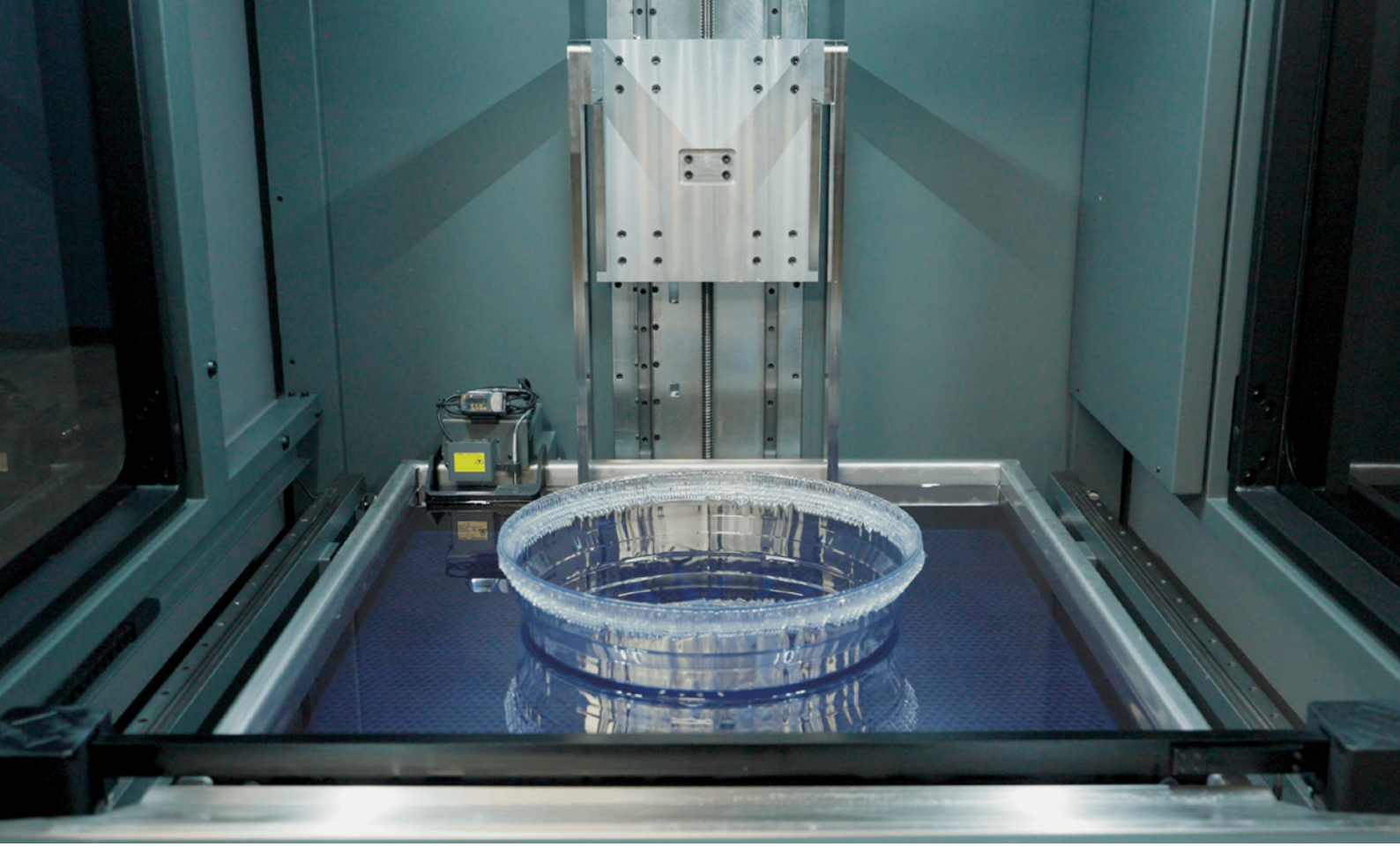
Staying ahead in the 3D printing services industry isn't easy. Low-cost, global competition erodes market share, driving the need to offer more value-added services. Increased customer demands strain capacity, while staying current with the latest material and printer technology requires constant investment. In short, a 3D printing service bureau's road to success can be a traffic jam of challenges.

That's why Stratasys Direct, the service bureau arm of Stratasys, is always tuned into opportunities that will help it stay competitive. As a 3D printed parts-on-demand manufacturer, the company operates three U.S.-based facilities, offering seven different 3D printing technologies with more than 200 industrial printers. Its material portfolio spans over 50 engineering-grade polymers, complemented by full-service post processing, coatings, assembly, and quality inspection. But scale alone doesn't guarantee success. For Stratasys Direct, the key to longevity lies in continually upgrading its technology and capabilities, particularly where speed is a factor.

Why Speed Matters

For a service bureau, every job comes down to time. That's because meeting the customer's delivery schedule is paramount to retaining business and cementing the company's reputation as a dependable service provider. As Sean Schoonmaker, Director of Operations at Stratasys Direct in Tucson, Arizona, explains, "In the service bureau industry, speed is king."

He notes that faster turnaround often determines whether a customer places the order at all. "Our customers are looking for a quick turn, and jobs are won and lost on whether you can deliver on time or not," Schoonmaker says. For example, in industries like automotive, the stakes are high. "We do a lot of automotive parts and they're usually for C-suite demonstrations," he adds. "They may need parts quickly for a meeting, and if they don't get them in time, the meeting doesn't happen, and they don't buy the parts from us." In other words, speed isn't just a technical specification. It's often the deciding factor that wins or loses business.



Enter the Neo800+ Printer: Fast, Big, Reliable

In its ongoing quest to improve delivery speed, Stratasys Direct seized the opportunity to add the Neo®800+ stereolithography (SLA) printer to its arsenal of polymer printers. The company has extensive experience with SLA printers from multiple OEMs, providing a solid baseline for evaluating the Stratasys Neo800+ printer, the next generation in the Neo 3D printer lineup. Most notably, it boasts print speeds up to 50% faster than the Neo®800 printer, providing a more competitive turnaround time.

"We're always on the lookout for advantages in speed, size, quality, and reliability, and the Neo800+ checks all the boxes," says Schoonmaker. "The massive 800mm x 800mm build volume allows us to fit really large parts like automotive panels without the need for segmenting and bonding, which saves us a lot of time. We can also fit a larger number of small to mid-sized parts for high quantity orders, which allows us to shave days off of our production schedule.

The part quality is fantastic, and the machine has proven to be really low maintenance and just runs how you want your industrial 3D printer to run."

Compared to other SLA 3D printers, Schoonmaker sees the Neo product line as a step beyond the competition.

> "The Neo system is a night and day difference. It's bigger, it's faster, it produces parts with better fidelity and sidewall quality, and the software is intuitive and easy to use. It's an open material system which allows a lot of flexibility, and it's well designed and well made."

Sean Schoonmaker
Director of Operations
at Stratasys Direct

Stratasys Direct's confidence in the Neo800+ printer stemmed from the proven performance of its predecessor. "We've had our first Neo800 installed for over three years now without a single issue, and the part quality is as good as the day we installed it. It truly is a set-it-and-forget-it type system," says Schoonmaker. Building on that foundation, the Neo800+ maintains its large build volume while adding significantly faster print speeds. It can easily handle large parts and high-quantity orders of smaller parts.

"The most significant benefit of the Neo800+ over the previous Neo800 is its speed," Schoonmaker says. In some cases, build times have been reduced by as much as 50%, creating flexibility and new opportunities. "We're looking at offering a more competitive quick-turn lead time, like an expedited offering," Schoonmaker explains. "We may decide we're going to reserve the Neo800+ printer and hold it open for specific projects that it can build within 24 hours and ship the next day."

Fixing the Post-Processing Bottleneck

Accelerated print speed helps reduce production time, but it's only half the equation. The other half is post-processing, a necessary step in SLA 3D printing. Once printed, SLA parts must be cleaned using a solvent like isopropyl alcohol (IPA) to remove uncured resin, a task often accomplished by hand using rags and brushes. "The hand cleaning process is hazardous, messy, and time consuming, and it also lacks process control," Schoonmaker explains.

Hand cleaning means operators spend hours scrubbing parts, and solvents saturate quickly, requiring frequent refresh. Resin often gets tracked throughout the facility, creating both mess and safety concerns. For a business processing large quantities of SLA parts per month, the inefficiencies can result in a significant drag on productivity.

The DEMI 4100: Cleaner, Safer, Faster

Fortunately, Schoonmaker's team found a much better solution in the PostProcess DEMI 4100, an automated cleaning system for SLA parts that uses proprietary chemistry to optimize resin removal. The process is as easy as removing parts from the Neo printers and placing them into the DEMI 4100, minimizing operator touch time. Programmed cleaning cycles tailored to specific part types further reduce process time. Since its installation, it has become a central component of Stratasys Direct's SLA operations.

"We've had our DEMI 4100 installed and running for over a year and a half, and we're loving it," Schoonmaker says. "We're currently running eight different SLA resins through the system with an average throughput of around 2,000 parts, consuming a total of about 350 kg of resin per month."

The impact has been transformative. "The DEMI cleaning cycle is only 10 minutes long for a full platform of parts, which is a huge improvement from cleaning each part one at a time," Schoonmaker explains. "We've been able to increase our SLA throughput and revenue by 54% and didn't need to add any headcount."

The improvements extend beyond reduced cleaning time, however. "Our manual post-processing workflow was messy and tracked resin throughout the entire facility. Our facility is much cleaner since we've implemented the DEMI system," Schoonmaker says.

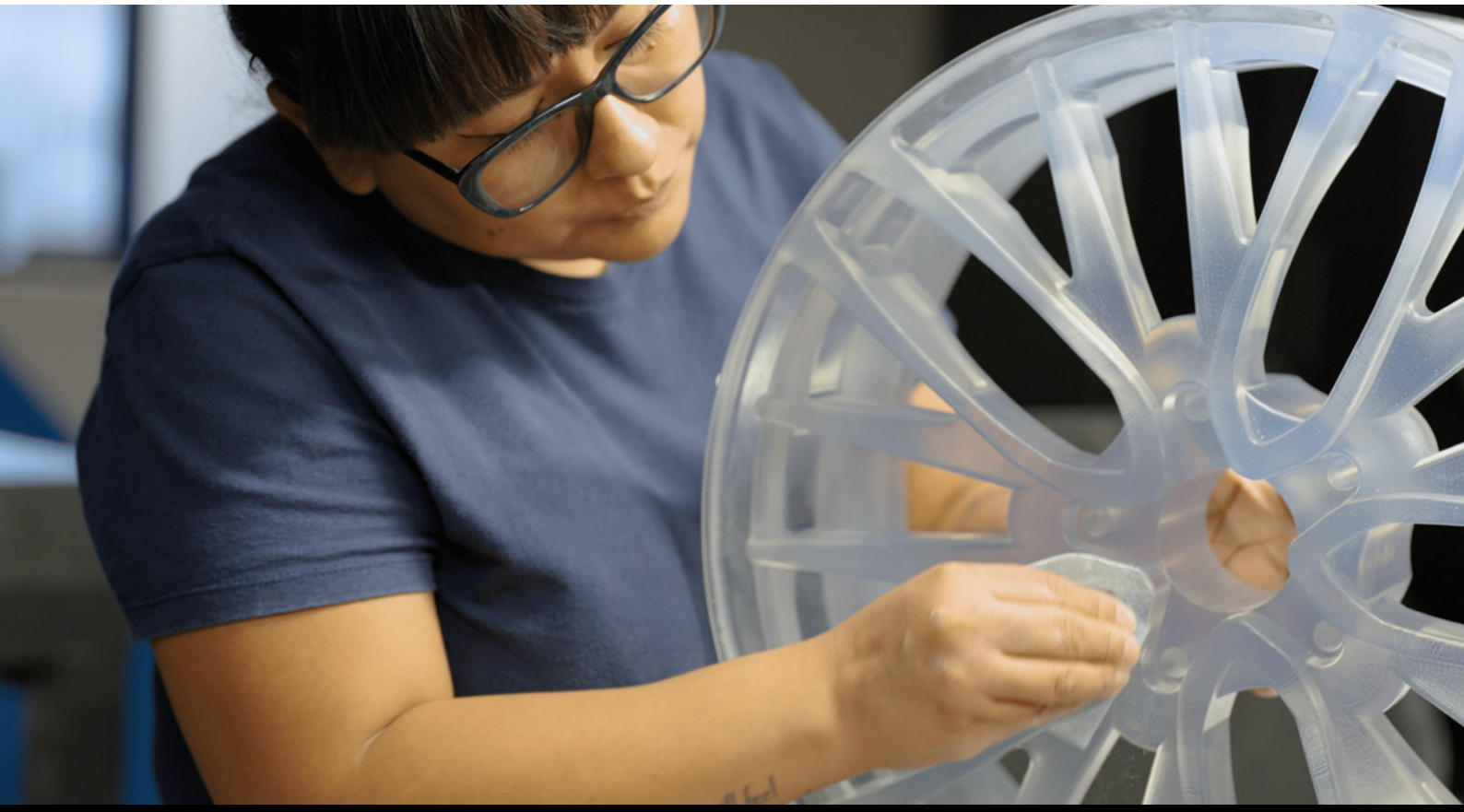
He also emphasizes the safety advantages. "As far as safety from a flammability standpoint, the DEMI cleaning fluid has a much higher flash point, so the risk of fire is greatly reduced." In addition, the automated process avoids extended exposure to cleaning solvent vapors, a common issue with hand cleaning.

Together, the Stratasys Neo800+ printer and PostProcess DEMI 4100 streamline two significant elements in the production process: print time and post-processing. Builds that once took nearly a week now finish in three days, and cleaning that previously consumed hours of manual labor is finished in minutes. The workflow is not only faster but also safer, cleaner, and more consistent, with throughput increasing by more than 50% without requiring additional headcount. For Schoonmaker, the business impact is clear – more wins on opportunities with tight deadlines, increased throughput, more open capacity, and the potential to offer expedited services.

Investing in Competitiveness

Stratasys Direct didn't add the Neo800+ printer and DEMI-4100 to fix a broken workflow. It did so to seize an opportunity. Faster builds, a large capacity, and automated post-processing position the company to win more projects, offer new levels of service, and maintain leadership in a crowded service bureau market. When asked about the significance of these improvements for the business, Schoonmaker notes, "The capability expansion is probably the big one. The speed and size open up opportunities we didn't have before."

In an industry where the road to success is crowded with competitors, Schoonmaker's team has found a fast lane with the speed of the Neo800+ printer and the efficiency of the DEMI 4100. And this powerful combination is helping them stay ahead of the competition.



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stratasys.com
ISO 9001:2015
Certified

Stratasys Headquarters

5995 Opus Parkway,
Minnetonka, MN 55343
+1 800 801 6491 (US Toll Free)
+1 952 937-3000 (Intl)
+1 952 937-0070 (Fax)

1 Holtzman St.
Science Park
Rehovot, 7670401
Israel
+972 74 745 4000
+972 74 745 5000 (Fax)

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