

Success Stories: How silicone 3D printing is reshaping industries

APS Coatings, Saprena, Odapt, Trinytec, Incxnnue; numerous businesses have partnered with Lynxter and are sharing their successful experiences with silicone 3D printing.

Lynxter's 3D printers (S600D with LIQ11/LIQ21, and 300X LIQ21 | LIQ11) enable the printing of industrial and medical-grade (certified skin-contact) silicones and polyurethanes that are both **easy to use** and offer **high-performance** characteristics, including heat resistance, chemical resistance, flexibility and elasticity.

All these advantages position silicone and PU as versatile materials which are suitable for a wide range of applications. Printed parts are thus well-suited to demanding environments and **exhibit excellent mechanical, thermal and chemical properties**. In summary, it is possible to produce robust and functional parts directly from the printer in materials that were previously not available in additive manufacturing.

Companies share their experiences in 3D printing with silicone

Below are some examples of application cases developed in collaboration with experts in their respective fields who have adopted Lynxter's silicone 3D printing technology.

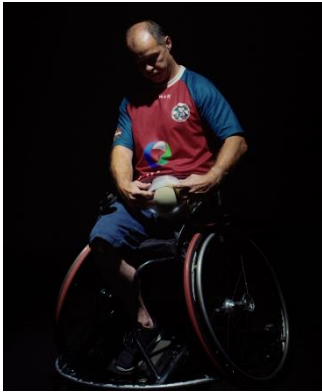
[Odapt x Lynxter](#)

By leveraging silicone 3D printing technology, Odapt is introducing a groundbreaking design for ostomates. The key component of Odapt is a wafer that is custom 3D printed in biocompatible silicone. This wafer is tailored to fit each patient's specific stoma, ensuring a perfect and comfortable seal and eliminating leaks.

To further improve adhesion to the skin, a layer of silicone adhesive is applied. Odapt's wafer is compatible with a wide range of pouches available on the market, providing patients with much better flexibility and convenience.



Trinytec x Lynxter



Every patient has a distinct morphology, making 3D printing with silicone an excellent choice for creating unique orthopedic devices tailored to individual needs. The objective of this application is to print a silicone liner that is tailored to the specific dimensions of the amputee in order to improve their comfort. The silicone part is positioned between the socket and the sleeve, thus enhancing daily well-being. The primary advantage of 3D printing is the ability to create and design personalized orthopedic devices in a shorter time frame and at a lower cost, with a simplified process.

Saprena x Lynxter

The item to be repaired is a screwing tool for detergent bottle caps. It consists of three non-slip flexible parts that make up the clamping "jaw" of the tool. SAPRENA's current supplier was unable to produce replacement parts quickly enough and left SAPRENA's production unable to meet customer commitments.

SAPRENA therefore called on Lynxter and its silicone 3D printing solutions to produce and replace the existing parts, which were incompatible with the new bottle caps and had become worn: new non-slip, silicone jaws for the screwing tool.



APS coating x Lynxter



APS uses silicone masks to protect parts during plasma spray coating. APS has found that certain silicone formulations will yield 3D-printed masks that can withstand sandblasting and plasma spraying with satisfactory durability. These silicone-printed masks also have the advantage of being easily fitted and removed, while guaranteeing the precise boundaries and positioning of the masked areas on the parts.

Most of the time, the volumes and the recurrence of the markets totally justify the investment made in the development and manufacturing of this type of masks by more traditional methods with our subcontractors.

[Incxnnue x Lynxter](#)

Several months of research, tests and workshops were required to create the PRYSME handbag. 3D printing is the perfect technology for expressing the strong product identity and unique design of accessories.

This handbag blends traditional manufacturing techniques with additive manufacturing.

Thanks to Lynxter's expertise in silicone 3D printing and Laura Deweilde's talent as a designer, the bags born from the Incxnnue x Lynxter collaboration are unique: silicone finishing printed on quality leather, and attached to a frame printed in recycled filament.



What are the typical applications of silicone 3D printing?

>Progress in healthcare

The possibility to 3D print epitheses, orthoses, prostheses and other custom-made medical devices in certified medical-grade silicones is transforming the healthcare sector. The result is a notable improvement in the quality of patients' lives with, in particular, widespread access to these customized solutions. The Lynxter S300X - LIQ21 | LIQ11 IDEX technology is particularly suited to this sector as it enables geometrically complex parts to be printed in skin-contact certified materials. Rapidity, personalization and comfort are well known advantages of 3D-printed silicone for the healthcare sector. Other benefits of this advanced technology are:

- Greater freedom in product conception and functionality
- Creativity and design diversity
- Improvement in precision and repeatability
- Optimized comfort
- Equipment standards compliance

>Impact on industry

Replacement of defective parts, emergency production, personalized production, rapid prototyping etc. , silicone and polyurethane 3D printing address all of these issues.

Silicone, with its mechanical properties, is an ideal material to meet the various demands of these sectors: withstanding extreme temperatures, chemical resistance, durability etc.

In addition to the material's properties, the S300X LIQ21 | LIQ11 enables the printing of complex shapes that are challenging to manufacture. This is notably the case for the treatment of surfaces. Masking, a common practice in the industry, aims to protect specific areas of a part, varying in complexity, during a surface treatment or coating process . To address post-treatment challenges associated with increasingly intricate shapes, 3D printing provides an unparalleled and cost-efficient solution. It enables the creation of customized masks suitable for both small and medium-scale series.

Other significant advantages arising from this solution include reduced lead times, improved labor ergonomics management and minimized waste production.

>Faster scientific research

Elastomeric 3D printing has become an essential tool in this process for accelerating scientific research. This solution enables researchers to craft intricate prototypes more quickly and cost-effectively, all while improving their flexibility and operational efficiency. This reduces the delay between the preliminary design phase, production and usage of a part.

A clear advantage of the S300X LIQ21 | LIQ11 for R&D is its openness. This openness frequently fosters more innovation and greater freedom, enabling a wider population to experiment, create, utilize and advance this technology.

>Source of creativity for design and fashion

In this sector, applications are multiplying. Designers are continually experimenting and seizing opportunities to push the boundaries of traditional textiles. Lace, macramé, scales, polygons etc: 3D printing offers limitless possibilities for sculpting materials, enabling the creation of infinite volumes and textures. Textiles are completely reinvented with silicon printed on fabrics or on leather. Creativity breaks free of technical limitations allowing the creation of extravagant shapes and unique prints.

Discover our applications of 3D-printed silicones at Formnext #12.0 C39

We will be present at FormNext, the global additive manufacturing exhibition in Frankfurt from 07 to 10 November, 2023.

Come and discuss silicone 3D printing and its applications with our team of experts and watch our live machine demonstrations.

>About Lynxter

Based in France, we design and build industry 4.0 additive manufacturing machine tools. Experts in our field, our aim is to democratize 3D printing by proposing quality tools and high-performance solutions to professionals.

The expertise of Lynxter's support and development services allows wide access to cutting edge know-how and ensures an optimal user experience.

Watch our video > [HERE](#)

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