Lynxter

SILICONE 3D PRINTING & HEALTHCARE

INNOVATION

Silicone, known for its biocompatibility, flexibility, durability, and ease of sterilization, is ideal for medical devices. Its hypoallergenic nature makes it safe for skin and internal tissues. Easily washable, it ensures hygiene in long-term use, benefiting patients' well-being and simplifying daily care routines.

Silicone 3D printing offers a new solution to enhance patient care, providing innovative and improved medical devices that can significantly change patients' lives.

CHALLENGES

The current processes in healthcare and medication manufacturing often face challenges such as inaccuracy, prolonged production times, and limited patient customization.
For exemple traditional orthopedic manufacturing is complex, involving multiple steps, and manual medication preparation by pharmacists can be time-consuming and error-prone.

Silicone 3D printing simplifies this, offering faster production, data security, quality, and reproducibility.

IMPROVE

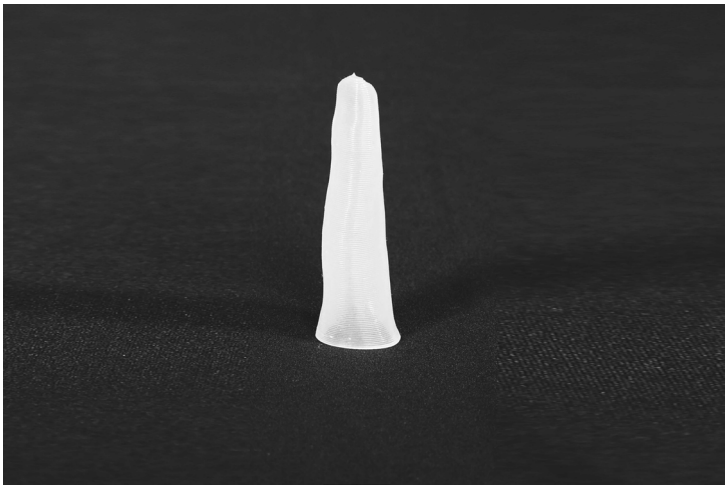
Silicone 3D printing revolutionizes healthcare by providing high performance, quality, and reproducibility. It enables the quicker, cost-effective production of custom medical devices tailored to each patient's unique morphology, enhancing comfort, improving effectiveness, and reducing delivery times. Silicone 3D printing offers precise digitization of medical device files, contrasting with traditional unpleasant and inaccurate patient molding. It reduces the need for molding storage and ensures patient data security, allowing for easy reproduction of the device if needed.

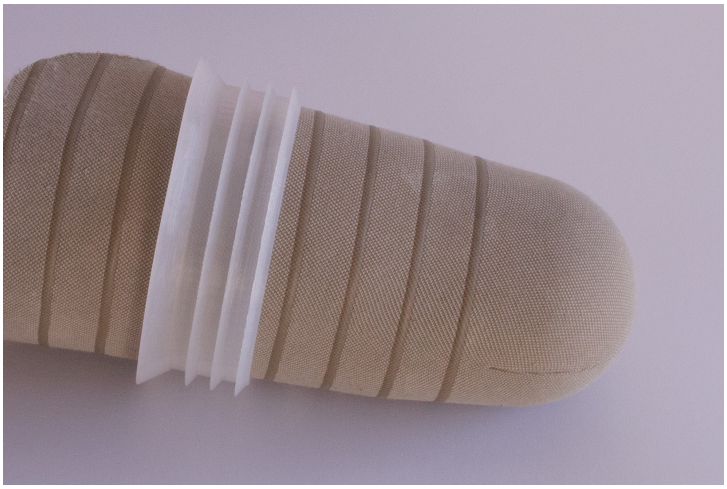
With its skin-like haptics, silicone is ideal for medical training devices. It enhances training before surgery, supports the development of new medical operation and surgical research, and ultimately contributes to saving more lives.

PERSONALIZE

Silicone 3D printing enables the creation of personalized medical device adapted to the patient needs, and morphology like assistive devices, such as customizable grip aids, enhancing autonomy for patients post-stroke or accident, or ostomy bag wafer offeres by Odapt, empowering users to design their own wafers using a smartphone app, making the process transparent and accessible.

Involving patients in the design and creation of prosthetics using 3D printing improves ownership, control, and self-esteem, aiding psychological and emotional rehabilitation.



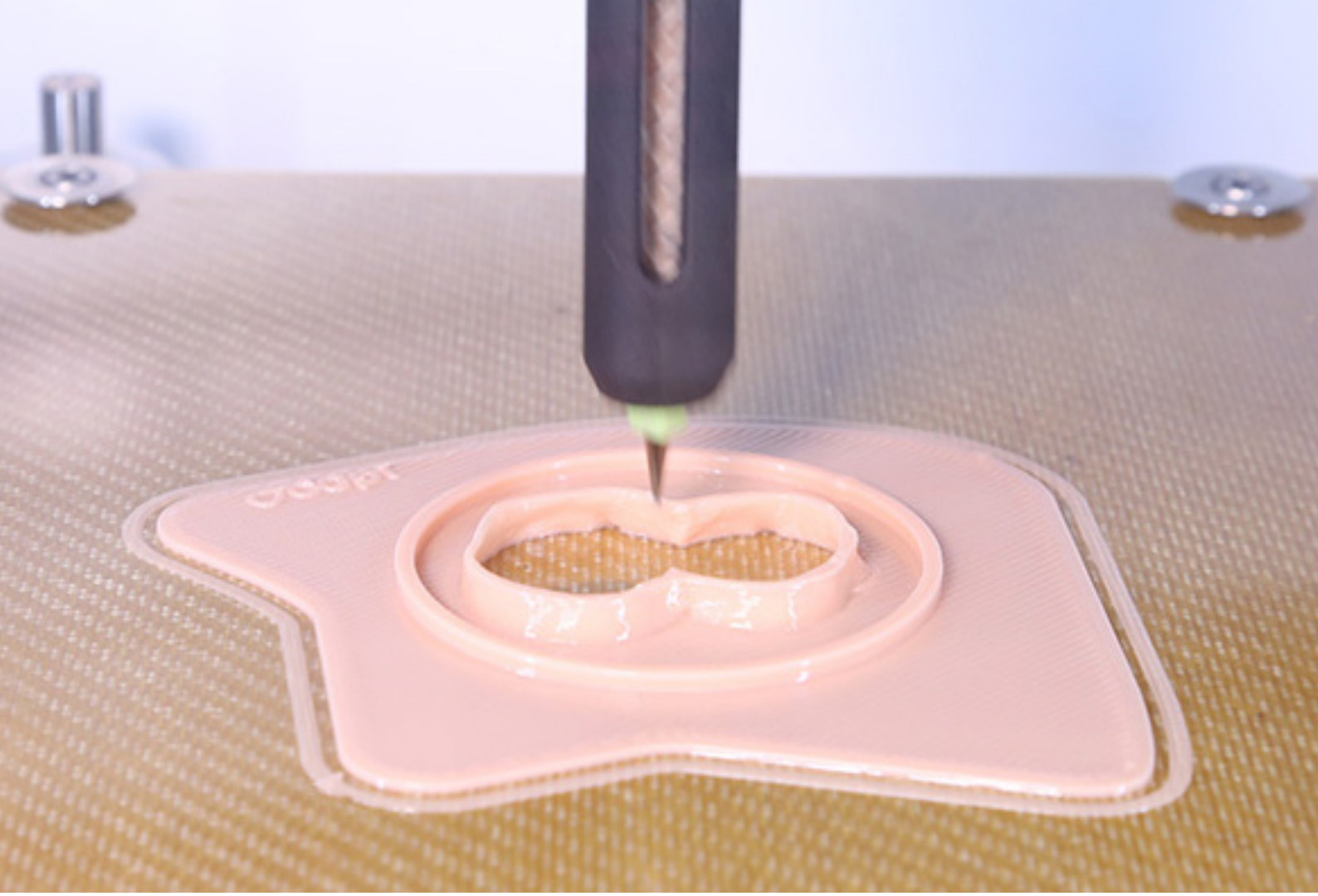


TECHNOLOGY

We offer additive manufacturing by material extrusion (MEX) . This unique technology provides both volume to the piece and allows 3D printing of any shapes. By adjusting extrusion flows, depth, trajectories, and material textures, we can achieve devices that cannot be realized with traditional processes.

Industrial and medical-grade silicones (RTV1, RTV2, LSR, etc.), polyurethanes, hydrogels, inks—we can adapt endless formulations to meet specific requirements, from color and fillers to rheology or specific reactivity. We can use bio-sourced materials, design recyclable materials, and adhere to strict HSE constraints for the user.

Lynxter can work on 3D printing of filled silicone, implantable silicone and many other possibilities.

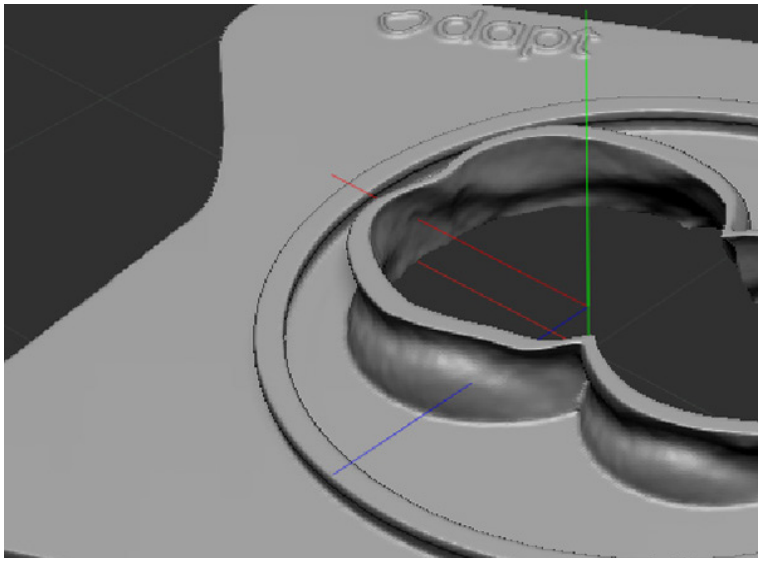


PROCESS

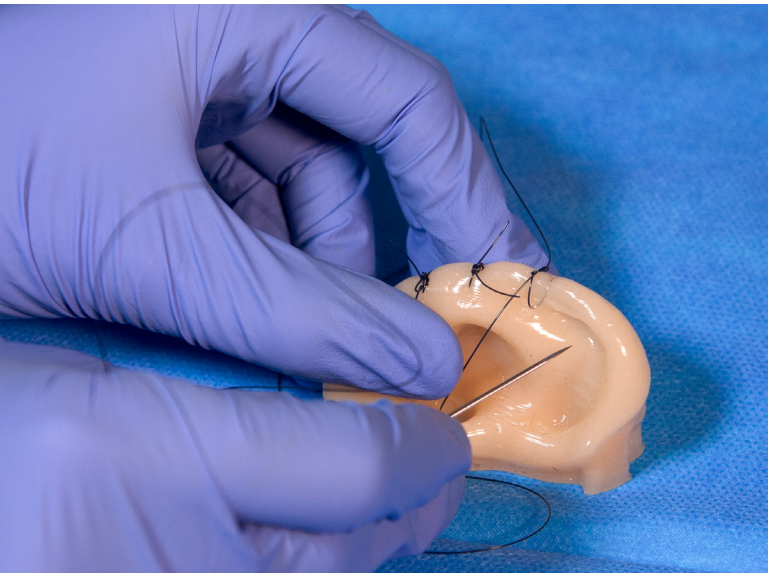
Before printing, digitize your designs in dedicated software using any CAD software or 3D scan.

Those ostomy waffers are made by skin contact silicone extrusion through a precise nozzle that moves via multi-axis programming. We can also change their physical state during or after printing using various techniques: mixing, heat, humidity, coatings or UV exposure as needed.

The support material, which is completely water-soluble, can be easily removed.



ANATOMY



Silicone 3D printing is reshaping the creation of anatomical models and surgical training tools. Unlike other 3D printing processes, this innovative approach enables the production of highly detailed and lifelike models that closely mimic the texture of skin and the flexibility, elasticity, and softness of human tissues. This level of realism enhances the experience of surgical suturing and training for medical professionals, allowing them to practice complex surgical procedures with greater accuracy and confidence. Additionally, the customization capability of 3D printing ensures that models can be tailored to specific patient anatomies, improving pre-surgical planning and potentially leading to better surgical outcomes.

ORTHOPEDICS

Silicone 3D printing offers substantial advantages in orthopedics by simplifying the production process, reducing costs, and ensuring high-quality, customized devices. The technology expands design possibilities, improves precision, and optimizes comfort, making it ideal for individualized orthopedic solutions. This approach not only enhances device functionality but also speeds up delivery times.

MORE

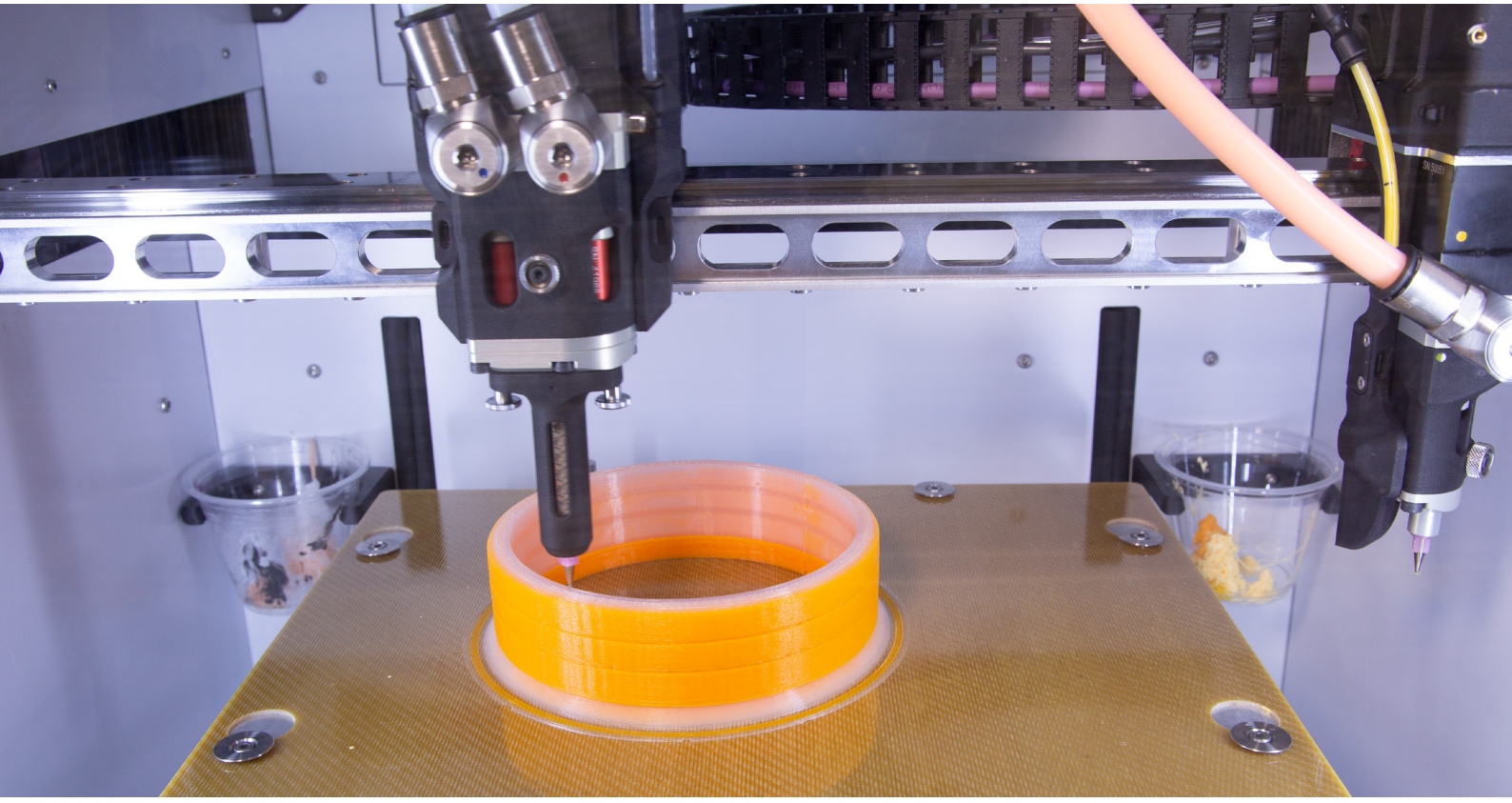
Learn more about our uses case in those three articles:

PHYSICAL SWALLOWING SIMULATOR : https://lynxter.fr/en/blog/chronicles/french-researchers-use-3d-silicone-printing-to-design-a-physical-swallowing-simulator/

DISABILITY SUPPORT : https://lynxter.fr/en/blog/chronicles/using-silicone-3d-printing-for-disability-support/

PERSONALIZED MEDECINES : https://lynxter.fr/en/blog/chroniques/3d-printing-rise-of-personalized-medecines/

CHANGING OSTOMY CARE: https://lynxter.fr/en/blog/chronicles/from-concept-to-comforthow-silicone-3d-printingis-changing-ostomy-care/



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