

English translation of the [Device Med March/April edition article](#)

### « Silicone 3D printing : more than a decision-making tool”

Silicones – Prototyping is the first application that comes up to one’s mind when referring to 3D printing. This technology allows the client to reduce its development cost and secure its investment. Indeed, it offers him the possibility to visualize and test a real copy of its final piece, then validate its project without having to engage immediately high costs, such as the ones inherent to the making of a machined mold used for large series manufacturing. A valuable asset in the era where sustainable investment and limiting one’s carbon footprint is a consideration.

But silicone 3D printing can go far beyond this application. Expert in the silicone since 1996, Sterne is convinced of this. The company has developed three additive manufacturing technologies (SiO-Shaping 1601 / SiO-Shaping 2201 / Low-pressure molding) which multiply the possibilities. They are intended to provide unique or small volumes of tailor-made pieces, in a short delay and at lower costs than those generated by the making of a machined mold.

Their specificities vary :

- Dimensions and complexity of the printable pieces,
- Hardness,
- Possibility to print over thermos-sensitive materials...



Heart printed using Sterne's 3D SiO-Shaping technique

The SiO-Shaping technologies can be used with large panels of silicone : LSR (Liquid Silicone Rubber), fluorinated, UV-cured, but also anti-microbial...

As to low-pressure molding, it allows the making of pieces difficult to print using 3D technologies because of their complexity. This technology consists of making a 3D printed plastic mold in which the piece will be molded by low pressure injection. It enables notably to validate the demolding principle.



For complex pieces, Sterne proposes a silicone low-pressure molding technology in a 3D printed plastic mold.

Concerned about bringing a real service plus to its clients, Sterne has written a silicone 3D whitepaper, downloadable on its website ([www.sterne-elastomere.com](http://www.sterne-elastomere.com)). This whitepaper explains the mode of operation of the technologies that she offers (SiO-Shaping 1601® dedicated to UV cured silicones, SiO-Shaping 2201® to large dimensions LSR and fluorinated silicones, and finally the low-pressure molding technology) and their advantages.