

05/2025

Automated Handling and Silicone 3D-Printing

Functional prototype gripper

Soft robotics

Individual gripper develop for complex part handling

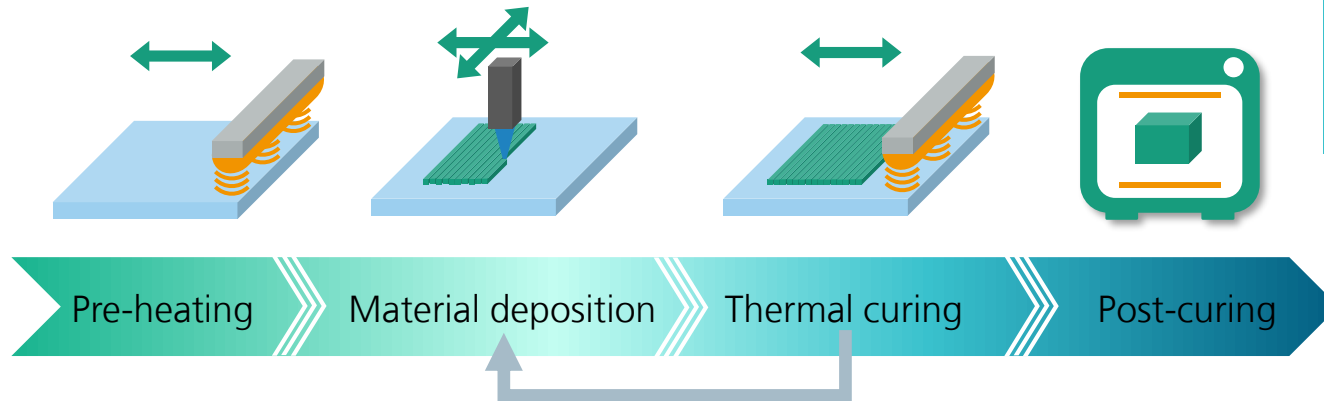
- ▶ 3D-Printing enables gripping and suction function in one design
- ▶ Gripper design is directly derived of part geometries
- ▶ Softness enables handling of filigree structures



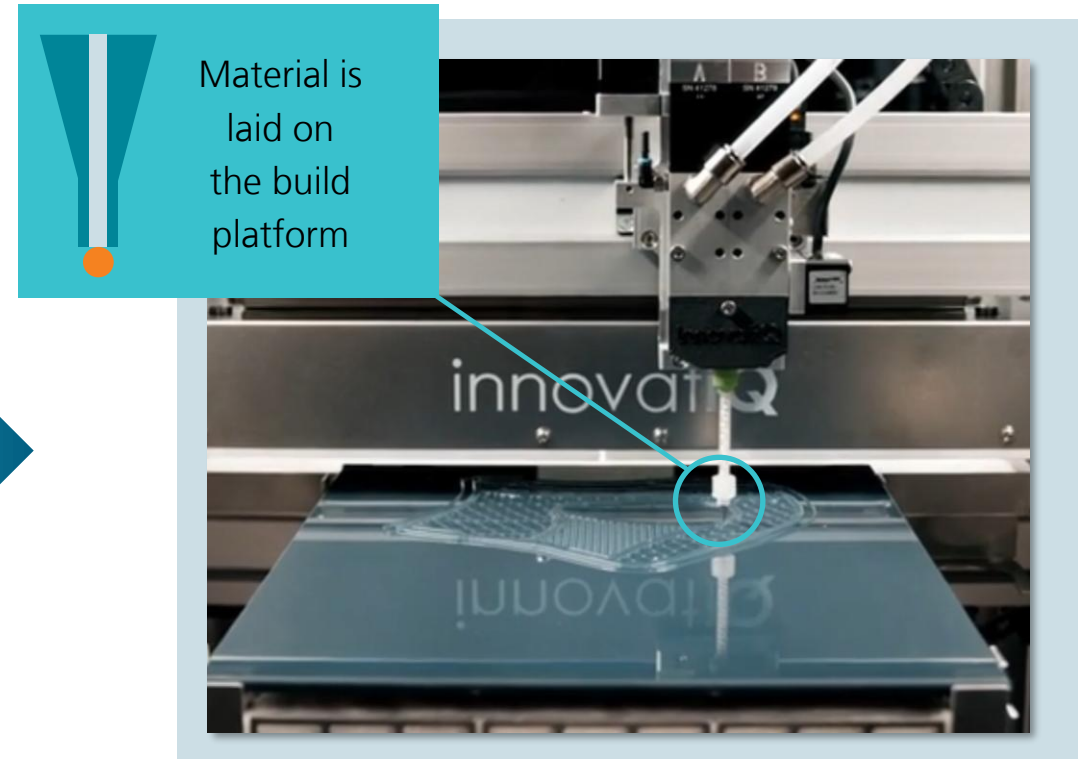
Silicone 3D printing @Fraunhofer IAPT

Process basics

Process steps



Manufacturing system



- Process and technology are similar to fused filament fabrication (FFF) – differences in material and extruder systems

Silicone 3D printing @Fraunhofer IAPT

Material and applications

1K & 2K silicone



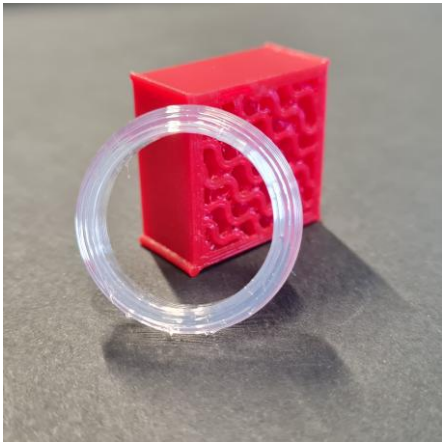
Quelle: <https://www.innovatiq.com/>

very soft (Shore A5)

Hardness range

very hard (Shore A95)

Sealing technology



Soft robotics



Consumer goods



Medical technology



Automated Handling for AM Post-processing steps

Achieve connected end-to-end process chains

Automated handling solutions for AM technologies

- ▶ **Holistic** part and platform handling for AM post-process steps with smart toolpath planning
- ▶ **Automation** by industrial robots, cobots and tool changers
- ▶ **Individual** gripper develop for complex part handling



Grinding

Automated tool changer

Quality inspection

Milling

Cutting



Flexible silicone gripper

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