

One machine as a one-stop source for respiration valves and sample racks

Additive manufacturing paves the way for agile production in health technology

Vienna, June 2, 2021. Thanks to additive manufacturing, also known as 3D printing, batch changes are quicker than ever and lead times are reduced to the blink of an eye. Over the last year, production has been particularly characterized by supply problems and bottlenecks. Time and again, 3D printing proved to be the savior in the hour of need. The future looks bright: The Hot Lithography process patented by Cubicure enables the production of highly precise structures for complex medical applications as well as the additive manufacturing of simple utensils. These printed parts can be sterilized without any issues.

Quick production of prototypes and small batches

Small production batches aren't cost-effective for injection molding. The molds are too expensive, and lead times are way too long. When MacroArray Diagnostics, a company specialized in immunodiagnosics, urgently needed custom-made holders and adapters for their samples, going forward seemed to be impossible without breaking the bank. The sample holders for their testing apparatus would have to be specially designed so they wouldn't conceal the samples' bar codes. They also needed mounts for a different type of samples.

Their solution to save time and money: Additive manufacturing. Cubicure offered to conduct feasibility studies for the production of small batches and developed 3D printing models according to their specifications. Using the Caligma 200, a Hot Lithography unit which processes high-performance polymers, all items were produced in next to no time.

3D printed sensors

Laser systems have become so exact that additive manufacturing can achieve excellent surface quality and high edge definition which is suitable for intricate applications with micrometer precision. Even complex geometries, which are difficult or impossible to manufacture using traditional production processes, can be brought to market very quickly thanks to 3D printing.

In 2020, Cubicure cooperated with FDX Fluid Dynamix, a specialist for nozzles and fluid mechanics, to develop an acoustic flow sensor for ventilators which accurately determines the amount of air that passes through the sensor. High precision 3D printing is indispensable to ensure the sensor's function: It only works if its inner edges are sharp enough to cause the flowing air to oscillate. "For the first time, Cubicure's Hot Lithography processes high-grade polymers which we can use for serial production, and the high manufacturing precision of the 3D prints enables production of surfaces for use in flow fields without any additional processing", says Oliver Krüger, CTO of FDX. This means that in the future, additive manufacturing can help avoid life-threatening shortages in the medical field.

Press release

High-precision lasers for medical engineering

When parts are designed specifically to be 3D printed, modern laser systems can move from geometrically complex, functional prototypes to small batch production in a trice. Printed polymer parts now meet the exacting demands of medical technology: They can be sterilized and remain stable without evaporating moisture at temperatures of over 100 °C or 212 °F. This allows a variety of parts to be produced on one single 3D printer in one single day, from simple tools to complex prototypes and delicate components for life-saving machines. Cubicure is now working on opening the door to mass customization of medical products made from polymers.



A selection of parts for use in the medical sector, printed on the Cubicure Caligma 200.

Image: Cubicure GmbH

Cubicure GmbH develops, produces and distributes industrial 3D printing solutions for polymer parts. With roots in academia and the ambition to help shape the digital future of manufacturing, this Vienna-based company has been setting the course for agile production since 2015. Cubicure's Hot Lithography process enables the unprecedented additive manufacturing of resilient precision components. Learn more at cubicure.com/en.

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