

Press Release



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3D printing on the road to mass production

Covestro partners with Silicon Valley based tech company, Carbon

3D printing offers unique opportunities to produce three-dimensional, often complex shaped parts in one single step. While predominantly prototypes and sample parts have been produced in small numbers so far, many industries are increasingly interested in industrial mass production.

Silicon Valley based company [Carbon](#) has developed Digital Light Synthesis™ (DLS™) technology, which can accelerate the production of parts up to a hundredfold compared to previous processes. After years of R&D, Carbon developed a novel polyurethane liquid resin suitable for production parts.

[Covestro](#) is a key partner in the scale-up and high-volume production of this material. The company invested a significant sum to enable the production in commercial quantity. As a result, joint forces proving mass production viability of the 3D-printing process and the respective material, and this is a current success of the partnership.

Wanted: suitable materials for mass production

"Our biggest challenge in the upscaling of additive manufacturing until series production lies in the supply of suitable materials in the required quality and quantity," explains Patrick Rosso, global head of additive manufacturing at Covestro. "By partnering with companies like Carbon, we are pushing existing scale boundaries and supporting various industries along the value chain on their way to digital mass production."

Covestro is currently researching [materials](#) to enable an extended range of industrial applications. To this end, the company is upgrading laboratories for 3D printing at its Leverkusen, Pittsburgh and Shanghai sites, where it develops and



tests material solutions for serial additive manufacturing in collaboration with different customers.

Efficient manufacturing process

DLS™ technology developed by Carbon, is now being used for the first time on a large scale. Similar to stereolithography, the workpiece is created in a vat of liquid plastic resin that is cured by means of UV radiation.

At Carbon's DLS™ technology, oxygen is supplied from below to counteract the curing and thus creating a liquid dead zone. For this purpose, the bottom of the vessel is made of a light- and air-permeable membrane, similar to a contact lens. Due to this dead zone, the printed part can be pulled continuously upward without the formation of individual layers.

Production using DLS™ technology is up to 100 times faster than with stereolithography – another important prerequisite for industrial mass production. In that context, a proprietary process combines software, hardware and materials. It imparts the desired technical and mechanical properties to the finished parts.

About Covestro:

With 2018 sales of EUR 14.6 billion, Covestro is among the world's largest polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative solutions for products used in many areas of daily life. The main segments served are the automotive, construction, wood processing and furniture, and electrical and electronics industries. Other sectors include sports and leisure, cosmetics, health and the chemical industry itself. Covestro has 30 production sites worldwide and employs approximately 16,800 people (calculated as full-time equivalents) at the end of 2018.

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