



3D dental printing materials prove a challenge to pump

- **Shear sensitive media protected during transfer**
- **Material viscosities up to 10,000 cP needs high suction**

Light-curing liquid materials are used in many 3D printing processes in the medical technology industry, especially in dentistry. However, processing and delivering these complex composites presents a considerable challenge for pump technology.

DMG Dental-Material GmbH, based in Hamburg, Germany, relies on the Certa Sine pump to not only protect the high-viscosity materials during transfer, but to enable rapid cleaning and maintenance.

Wide range of 3D dental printing materials

DMG manufacture a range of light-curing liquid resins for 3D dental printing covering a multitude of application areas in additive digital prosthetics, from individual impression trays to occlusal splints.

The Certa Sine pump allows the liquid 3D printing materials to be dispersed as they are dispensed, an essential step to prevent the component parts from separating out.

Handling high-viscosity with low shear

With material viscosities of up to 10,000 cP, the pump provides high levels of suction, as well as gentle handling to prevent spikes in pulsation.

“Throughout the test period, we were really impressed with the sinusoidal principle“, said Karsten Lamott, Production Technician at DMG. The 0.85 bar suction generated by the pump is not only more than sufficient for processing high-viscosity media, but also transports the media with the reliability DMG required. “The shearing forces generated are exceptionally low and any pulsation is almost undetectable. As a result, we can achieve maximum precision at the filling valve“.





Pumps successfully protect and transfer media whilst simplifying maintenance and cleaning processes. Variation in flow could reduce the precision of the filling valve, resulting in time-consuming topping up or costly over-filling.

“We’ve already successfully performed tests with greater filling volumes. Thanks to the Certa Sine pump’s ease of handling and the options for retrofitting cooling or heating elements to cope with temperature-sensitive media, we can be sure that our filling station will be future-proof for many years to come!” stated Karsten Lamott.

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