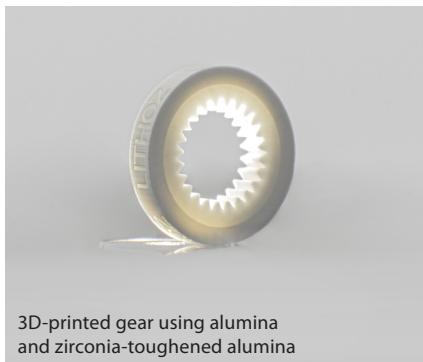


MULTI-MATERIAL 3D PRINTING



3D-printed gear using alumina and zirconia-toughened alumina



Bone replacement realized by combining two ceramics in a layer



With Lithoz's new multi-material 3D printer, additive manufacturing is no longer restricted to single-phase materials. The CeraFab Multi 2M30 uses the full capability of additive manufacturing (AM) to enable the combined processing of different materials, such as ceramics, metals and polymers, and their properties in one single component.

INNOVATIVE PLATFORM DRIVEN BY LITHOZ

It is now possible to produce highly complex multi-material structures using the CeraFab Multi 2M30, which can combine several materials not only in varying layers of printed components, but also within a single layer. This innovative machine completely eliminates the need for joining or assembly and makes it easy to replace assemblies with printed parts, while the freedom in geometrical design and producible structures is unmatched by any other technology currently available in the additive manufacturing world. Powered by industry-leading LCM technology, the CeraFab Multi 2M30 can manufacture multi-functional components for various applications, ranging from electronics and embedded sensors to biomedical implants and devices, as well as aerospace, automotive and energy storage systems.

Unlock new possibilities by combining properties:

- Dense | porous
- Bioresorbable | bioinert
- Hard | ductile
- Magnetic | non-magnetic
- Transparent | opaque
- Conductive | insulating

Making multi-material Additive Manufacturing work for you

- Innovative material combinations, unachievable using conventional technologies, allow for two materials between and within layers, advanced composites and more
- Open system for the development of own materials
- Automated cleaning step between material changes, with option to integrate own processes and software further expanding your range of capabilities

Ready to get started? Contact: sales@lithoz.com

MACHINES DESIGNED TO MATCH YOUR NEEDS

The innovative **ready to use system** consists of two vats, enhancing the speed, accuracy and effectiveness of a clean material switch between and within layers, and also includes a fully automated cleaning step to avoid cross contamination during material changes.



Additionally, two individually user-controlled platforms are included in the **ready to develop module**. The platforms can be customized, giving you for the first time the freedom to integrate own processes and technologies (e.g. ink jetting, coating, monitoring devices etc.) within a 3D printing job to drive innovation further than ever before.

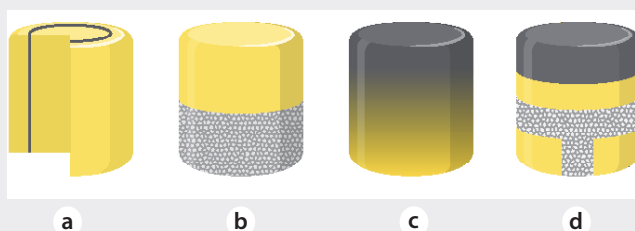
RESOURCE EFFICIENT AND COST-SAVING TECHNOLOGY

Innovative technology means that very little slurry is required for a full run and no material recovery operations or pumping systems are required to keep the slurry circulating, making this process very attractive in terms of cost and resource efficiency.

TECHNICAL PROPERTIES	
Lateral resolution:	40 µm (635 dpi)
Layer thickness:	10 – 100 µm
Number of pixels (X, Y):	1920x 1080
Build volume:	76 x 43 x 170 mm (x/y/z)
Data format:	.stl (binary)
Number of vats:	2
Light source:	LED
Build speed:	Up to 100 layers per hour
Size (L x W x H):	1,8 x 0,85 x 1,78m
Weight:	560 kg
Additional features:	Cleaning station included
Optional add-ons:	Own devices and software, CeraAccess, CeraTune

PAVING THE WAY FOR MATERIAL COMBINATION DESIGN INTO THE 3D WORLD

Powerful CeraFab Control software allows for several material combinations, both between and within layers. Special types of advanced composites with varying compositions and/or microstructures, known as functionally graded materials (FGMs) and functionally graded structures (FGSs), can be produced, as well as complex multi-material geometries unachievable using any other 3D printing technology. These new possibilities pave the way for further innovation in industrial, medical and dental applications.



Possible combinations for unlocking new functional applications include:

- a two materials in one layer
- b a dense material with a secondary porous material
- c two or multi-phase materials with gradual variation in material composition
- d gradual variations in both density and material

GIVING YOU COMPLETE CONTROL OVER YOUR PROJECTS

Two separate vats mean ceramics can be combined with other ceramics, polymers or metals. This technology can process any sinterable powder and the open material system makes it easy to develop customized materials and combinations thereof, opening the door to complete freedom in material design. Customers can specifically optimize parameters using open software technology.



Stainless steel combined with zirconia