

www.lithoz.com

LITHOZ®

Manufacture the future.



—
COMMITTED
TO YOUR
VISION OF
INNOVATION
—

ADDITIVE MANUFACTURING FOR CERAMICS



TECHNOLOGY AND INNOVATION LEADER FOR CERAMIC 3D PRINTING SOLUTIONS

Breaking the boundaries of technological innovation. Together.

We understand that only by working together can a vision be transformed into reality. We also know that overcoming limitations requires free space to grow and learn. With these beliefs, we foster new ideas, cherish creativity and encourage open communication with every team member and every partner.

The results of this engaging work environment and our reliable partnerships just go to show how much the little details matter. And that is how we ensure that you stay ahead of your competition.

Reaching beyond ourselves, breaking the boundaries of technological innovation and thinking ahead to the future. That is what additive manufacturing means to us.



Dr. Johannes Benedikt, CTO and Dr. Johannes Homa, CEO

CERAFAB SYSTEMS

THE INDUSTRIAL STANDARD



READY FOR SERIAL
PRODUCTION

Boosted productivity, unmatched precision, consolidated reliability.

The **CeraFab System** is the answer to the industrial serial production of additively manufactured high-performance ceramics. The CeraFab System can incorporate up to four production units with an increased building speed compared to previous models, allowing for a significant increase in productivity. A central element of the CeraFab System creates a database for storing and handling process data, which facilitates the seamless documentation of print jobs. Furthermore, machine and process monitoring is carried out in real time. The current generation of projectors with WQXGA resolution (2560x1600 pixels) ensures the absolute precision of the printed component (particularly in the micrometer range), in combination with an objective lens specially developed for the process.

S230

S65

S25

Build Area

S230 192 × 120 mm (Resolution: 75 μm)

S65 103 × 64 mm (Resolution: 40 μm)

S25 64 × 40 mm (Resolution: 25 μm)

Build Height

320 mm

DIVERSE NEEDS, TAILORED SOLUTIONS, ONE SOURCE



A FULL SOLUTION THROUGH INNOVATION TO INDUSTRIAL SERIAL PRODUCTION

With over 10 years experience in the field, it is our goal to support our customers with a complete solution for ceramic additive manufacturing. The different process steps are supported with tried and trusted industrial equipment and manufacturing parameters (i.e. printing, debinding, sintering) which have been developed based on longstanding experience of our engineers and experts. We enable our customers to turn their vision into reality. Contact us with your irresistible application or with your own material.

OPT FOR
CERAMICS



PRINT



CLEAN



DEBIND
AND SINTER



CERAMIC MATERIALS

With their outstanding properties, ceramics demonstrate their unique advantages in all kind of products and devices, in all industries and environments. The success of applications using high-performance ceramics lies in the particular properties of ceramic materials. Often referred to as the material of tomorrow, ceramics are more powerful and robust than any other material, clearly setting itself apart and above all the rest. The decision to choose ceramics as a manufacturing material is often the first step in the printing process and Lithoz, who have the widest range of trusted 3D printing materials on the market, are the top choice of company.

3D PRINTERS: CERAFAB SYSTEM

3D printing is the second step. Powered by the Lithography-based Ceramic Manufacturing (LCM), our industry-oriented equipment for repeatable, accurate and high-performance 3D printed parts are the basis. The layer formation method, typical for the LCM increases productivity irrespective of shape, complexity or exposure area. The databased-driven software supports the simple preparation, optimisation of printing, storing and processing data. The CeraDoc module is the solution for 100% traceability of your production. Open access to all parameters goes without saying. The CeraFab System printers come in 3 different sizes of the build platform and with different resolutions depending on applications.

CERACLEANING STATION ULTRA

The ideal working area for cleaning printed components. The CeraCleaning Station Ultra comes with yellow glass and a suction unit and an airbrush gun to facilitate the cleaning process.

FURNACES

Process and industrial equipment for optimal debinding and sintering temperature profiles are tuned by our experts to every material for fully dense ceramics with homogenous microstructure.

YOUR TAILORED 3D PRINTED SOLUTION

Fully-dense ceramic parts with outstanding material properties and surface finish in a highly precise and reproducible process.



EXPERT CONSULTING AND CONTINUOUS PARTNERSHIP

Our customers count on us as a technology owner for the development of ceramic additive manufacturing expertise towards building competency with individual focuses. Lithoz wants to support you on your way to becoming an innovation leader and realizing your visions. Get in touch to discuss your project and receive in-house expertise from our team.

CERAMIC MATERIALS

THERE IS NO
BETTER OR WORSE
MATERIAL, BUT ONLY
THE RIGHT MATERIAL
FOR THE RESPECTIVE
APPLICATION.

H. FORD

Lithoz' materials have been tested to meet and exceed conventionally produced ceramics. From industrial to medical grades, a broad range of materials are available for your fully-dense, high-performance or bioresorbable ceramic products.

Best in-class materials for your high-quality product:

- Aluminium oxide: LithaLox 350 and HP500
- Zirconium oxide: LithaCon 3Y 230
- Silicon Nitride: LithaNit 720
- Tricalcium phosphate: LithaBone TCP 300
- Hydroxyapatite: LithaBone HA 400
- Silica-based: LithaCore 450

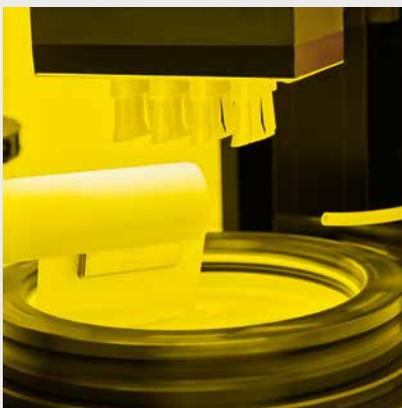


Printed research materials:

Piezoceramics, Alumina toughened zirconia, Zirconia toughened alumina, Aluminum nitride, Bioglass, Cermets, Cordierite, Porcelain, Magnesia, Transparent ceramics, RF dielectric ceramics, Diamond, Moondust, Titanium dioxide

THE LCM TECHNOLOGY

LITHOGRAPHY-BASED CERAMIC MANUFACTURING



The ceramic-loaded liquid (or slurry) is automatically dosed and coated on top of a transparent vat. The movable building platform is dipped into the slurry, which is then selectively exposed to visible light from below the vat. The layer image is generated via a digital micromirror device (DMD) coupled with a state-of-the-art projection system. By repeating this process, a three-dimensional green part can be generated layer-by-layer. Following thermal post-processing, the binder is removed and the green parts are sintered, resulting in fully-dense ceramic parts with outstanding mechanical properties and surface quality.

INDUSTRIES AND APPLICATIONS

Diverse industry sectors employ Lithoz additive manufacturing solutions to increase functionality of products and accelerate their innovation and efficiency.



Medical and Dental

Medical grade bioceramics are available for a range of applications such as patient-specific implants for cranio-maxillofacial and orthopaedic surgery; scaffolds with defined geometry and size for boosting bone regeneration, high-precision minimally invasive instruments and surgical tools. Metal-free solution for dental implants, crowns and load-bearing bone defects as well for ultra-thin occlusal veneer with fine edges down to 100 μm .



Aerospace and Industrial Gas Turbine

Applications include cores for EDX, DS and SX casting of nickel-alloy turbine blades. Core sizes up to 300 mm, complex branching structures and trailing edges with thickness below 200 μm can be produced fast and at low cost with consistent dimensional accuracy and surface finishing.



Industrial and Machinery

From semiconductor through to machinery, CeraFab System machines enable the serial production of demanding applications. Products with boosted functions and value-driven applications are produced with guaranteed consistency and quality.



Education and Research

Expose students to professional-level technology that prepares them for the future. Easily accelerate material research and develop cutting-edge applications that offer a comprehensive understanding and practical expertise in advanced manufacturing of ceramic, as well as other emerging materials and move research to the marketplace.





CONTACT

LITHOZ OFFICES

Lithoz GmbH

Mollardgasse 85a/2/64 - 69
1060 Vienna, Austria
+ 43 1 9346612 - 200
+ 43 1 9346612 - 99
office@lithoz.com

Lithoz America

Lithoz America, LLC
165 Jordan Road
Troy, NY 12180
+1 518 308 - 8382
sallan@lithoz-america.com

SALES PARTNERS

AS ONE CORPORATION | JAPAN

t-yu@so.as-1.co.jp

BIBUS MENOS | POLAND

pmi@bibusmenos.pl

CHINA OFFICE | CHINA

xzhou@lithoz.com

L. R. P. S. | ISRAEL

mordi@digital-cut.co.il

ZD PRINTER | SOUTH KOREA

zdprinter.com@gmail.com

SALES REPRESENTATIVES

Contact us for details

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