sinto 3DCERAM

3dceram.com

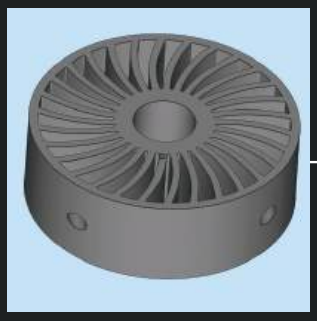
AM Process Provider for Technical Ceramics

Additive manufacturing of ceramics

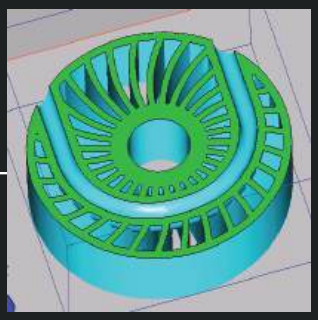
3DCeram introduces CERIA, an Artificial Intelligence, making ceramic 3D Printing easier for manufacturers

3DCeram is taking a significant step forwards in the additive manufacturing industry by integrating CERIA, an **Artificial Intelligence** system, into its ceramic 3D printers.
This development will bring advanced ceramic AM capabilities within reach of industrial users, addressing the complex demands of production-scale manufacturing (learn more p.10).

CERIA®



CREATION BY CAD



SLICING OF THE PARTS BEFORE PRINTING

3D PRINTING

RECYCLING

DEBINDING AND SINTERING

FUNCTIONAL PART

Machines

C101 EASY FAB

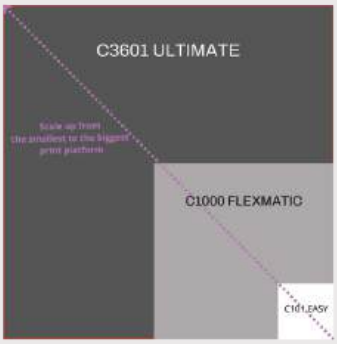
To develop, produce, and scale up to mass customization.

INDUSTRY

- Develop your parts on a C101 EASY FAB to scale up onto a C1000 FLEXMATIC or a C3601 ULTIMATE
- One-piece granite structure combining mechanical and optical elements for long-term stability
- Accurate slurry flow rate controlled through a peristaltic pump
- A pressurized tank feeding the material to provide only the quantity required for an optimized run (similar feeding process as the C3601 ULTIMATE and C1000 FLEXMATIC)
- Equipped for monitoring a production in real time
- Build platform: 100 * 100 * 150 mm
- CERIA, the AI by 3DCeram is available on the machine

Scale up on the C1000 FLEXMATIC or the C3601 ULTIMATE to reach

MASS CUSTOMIZATION



Machines

C1000 FLEXMATIC

An authentic industrial ceramic 3D printing machine

INDUSTRY

- 1 or 2 lasers to reach the adapted productivity level
- A build platfom that meets the needs for versatility: large parts and series of parts - 320*320*200 mm
- A removable tank that allows the processing of printed parts in a semi-automated line
- User-friendly, no engineering skills required to start a printing run
- Automation of the recycling process : uncured material and semi-automated cleaning step
- Easy and fast post-processing: no need for post-processing action thanks to the Top-down SLA technology requiring few or no supports
- CERIA, the AI by 3DCeram is available on the machine

"Designed for production, as a semi-automated line.

Machines

C3601 ULTIMATE

For mass production or big parts. Scale up from C101 EASY FAB.

INDUSTRY

- Industrial printer adapted to print big parts in **ONE PIECE**
- Also adapted to serial printing
- Build platform: 600*600*300 mm
- The biggest printing platform on the market for AM technical ceramics
- Stereolithography laser
- Reduced unit price / part
- Reduced recycling time
- CERIA, the AI by 3DCeram is available on the machine


Serial printing


Printed as ONE PIECE Ø 500 mm

C101 EASY LAB

The freedom to develop your own process.

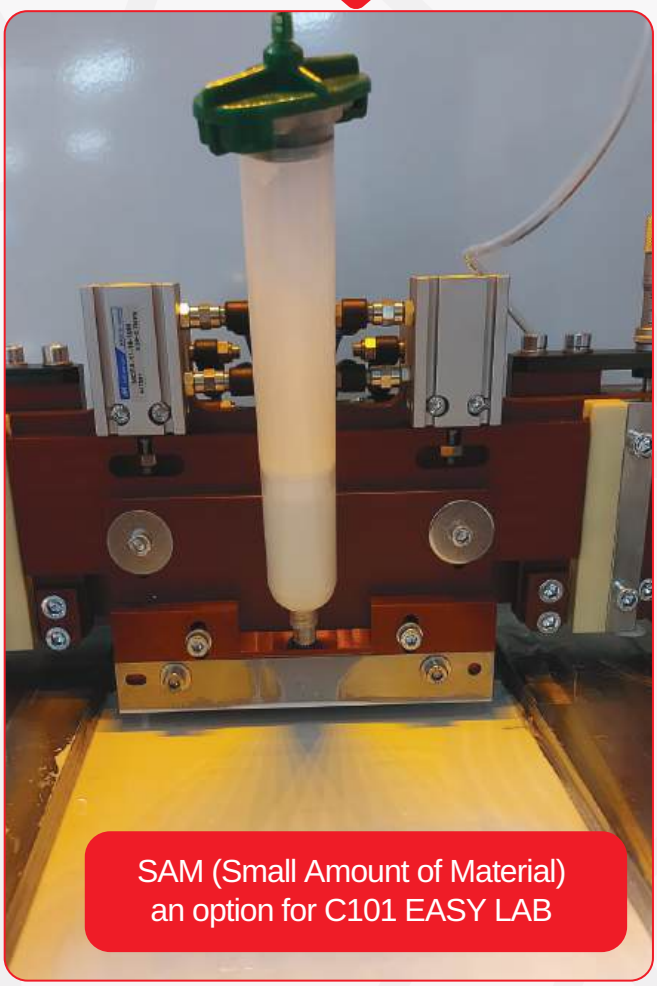
Dedicated to R&D, the C101 EASY LAB opens up opportunities to :

- Develop materials with a low quantity of substance
- To qualify designs
- Print parts to showcase
- Build platform: 100*100*150 mm
- Lab mode for your developments
- 15 mL of ceramic slurry to start a printing run with the SAM option
- Option : Smaller build platform of 60*60*150 mm

RESEARCH

Build to Develop

C101 EASY LAB - Internal View



SAM (Small Amount of Material) an option for C101 EASY LAB

C101 HYBRID

3D PRINTING HYBRID

Print 2 materials simultaneously on the same layer

The second material could be a ceramic, a metal, or a polymer

Mutliple advantages of this hybrid system are

multiple:

- The deposition of the second material can be adjusted according to your needs and specifications.
- Hybrid functions integrated into the CPS 2.0 software (one software to control the printer and hybrid)
- A multi-technology machine for your project developments

A version of C900 HYBRID is available

RESEARCH

C900 FLEX

For small series and prototyping

- The C900 FLEX benefits from 15 years of know-how and optimization
- Print functional parts or small series
- Ceramic printed parts have the same properties as those produced in conventional ways (moulding, machining and injection)
- 3 sizes of building platform: 100 * 300 mm, 200 * 300 mm and 300 * 300 mm
- Free link technology
- SAM (Small Amount of Material) option : launch a fast printing run with only 100 mL of paste

INDUSTRY & RESEARCH

3DMIX BY 3DCERAM

We offer a wide range of oxide and non-oxide formulations that meet the high performance properties required by demanding applications.

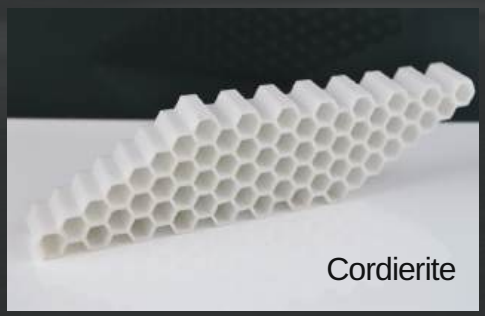
OXIDE

- Zirconia 3Y: excellent mechanical properties and chemical inertness
- Zirconia 8Y: a ionic conductor used for oxygen sensors, and fuel cell applications
- Alumina Toughened Zirconia: resistance to wear, and thermal shock, and biocompatibility
- Silica: For investment casting use
- Alumina: good mechanical behavior and thermal conductivity
- Hydroxyapatite: Chemical composition close to bone for a good osseointegration in biomedical applications
- Tricalcium Phosphate: Chemical composition close to bone and resorbable, for biomedical applications
- Cordierite: low CTE and thermal conductivity, good for optical parts for aerospace applications, and electrical insulator
- Silicore (Silica based ceramic): porous ceramic, leachable,with good mechanical resistance for investment casting use

NON-OXIDE

- Aluminium Nitride: high thermal conductivity, and good electrical, and mechanical properties
- Silicon Nitride: very resistant, low density, excellent resistance to thermal shocks, wear, and corrosion, good electrical insulator.

Industrial quality 3D printing ceramic material for 3DCeram's printers.


Cordierite


Silicore


Tricalcium Phosphate


Zirconia 8Y


Aluminium Nitride

Services

CERIA® the groundbreaking AI solution

Developed specifically to meet industrial needs, CERIA aims to accelerate the adoption of 3D ceramic printing across industries.

Why choose CERIA?

- Streamlined Printing Preparation: Simplify your workflow
- Empowered Design Rules: Optimize your parts
- Custom-made Recommendations: Tailored to industrial requirements
- Maximized Productivity: Increase your manufacturing capacity
- Decreased Production Costs: Enhance your ROI

“Transferring Technology with Artificial Intelligence for 3D Printing Success

Simplify, Create, Perform

CPS 2.0

The CPS 2.0 is the software developed in alignment with the requirements of 3D printing and the goals of development and production, adhering to the ‘From Lab to Fab’ philosophy by 3DCeram.

A Simple and User-Friendly Interface, to optimizing the process from design to printing, CPS 2.0 provides two levels of usage:

- C-PRINT
- C-PERFORM

BUILD-IT

A versatile software to prepare your files for 3D Printing on Ceramaker printers.
It is an integrated plug-in, developed by 3DCeram, to edit your STL file and make the CAD file preparation much easier.

Services

We do more than provide 3D printers; we deliver a true expertise-sharing experience built on 20 years of know-how.

TRAINING

A training that combines theory and practical sessions:

- 3D Ceramic Pre-Processing
- Ceramaker® Operation & Maintenance (technical training)
- Ceramic Post-Processing – cleaning, debinding, and sintering
- Commissioning & On-Site Training

INSTALLATION & MAINTENANCE

We provide tailored maintenance services for each Ceramaker printer to ensure reliability.
The printers' installation is done by our technical team on site or by one of our DSQ - Distributor Service Qualified - trained and experienced to start up the machines.

DISTRIBUTOR SERVICE QUALIFIED

Through our network of DSQ - Distributor Service Qualified - all over the world, we manage installation and support services:

- For industrials who need to think in mass customization terms
- For manufacturers who are looking to produce in short series
- For universities and those needing to develop and scale-up

> Regular maintenance is crucial for optimal performance of your Ceramaker printers.

Applications

3DCeram has developed an extended expertise to serve demanding applications such as:

SEMICONDUCTOR

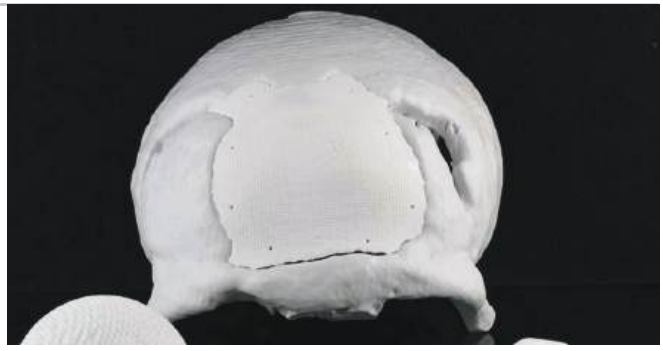
In the semiconductor industry, 3D printed ceramic components are increasingly utilized due to their exceptional thermal, chemical, and electrical properties. Their durability and resistance to extreme environments make them ideal for applications in semiconductor manufacturing, enhancing performance and reliability in processes like etching, deposition, and wafer handling.

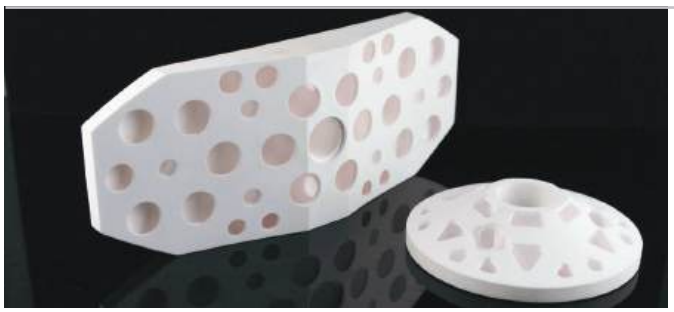
GREEN HYDROGEN

Green hydrogen is a key initiative for achieving the reduction of CO_2 emissions in the world.
The corrugated structure increases the surface area for better exchange, enhancing the overall efficiency of the hydrogen production process, especially under high-pressure conditions.
This corrugated design, improves significantly the mechanical strength of the cells by withstanding two types of pressure—both at the inlet and the outlet.

BIOMEDICAL

For 20 years, 3DCeram has been at the forefront, developing advanced printers and materials like HAP and TCP. 3D Printed implants enhance osteointegration making it ideal for applications in dental, orthopedic, and reconstructive surgery.





AEROSPACE/NEW SPACE

Additive manufacting has also been embraced by early adopters, particularly in the aerospace industry. For :

- scientific instruments
- ceramic antennas and supports
- optical instruments
- thrusters...

30 PARTNERS WORLDWIDE

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3DCERAM

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