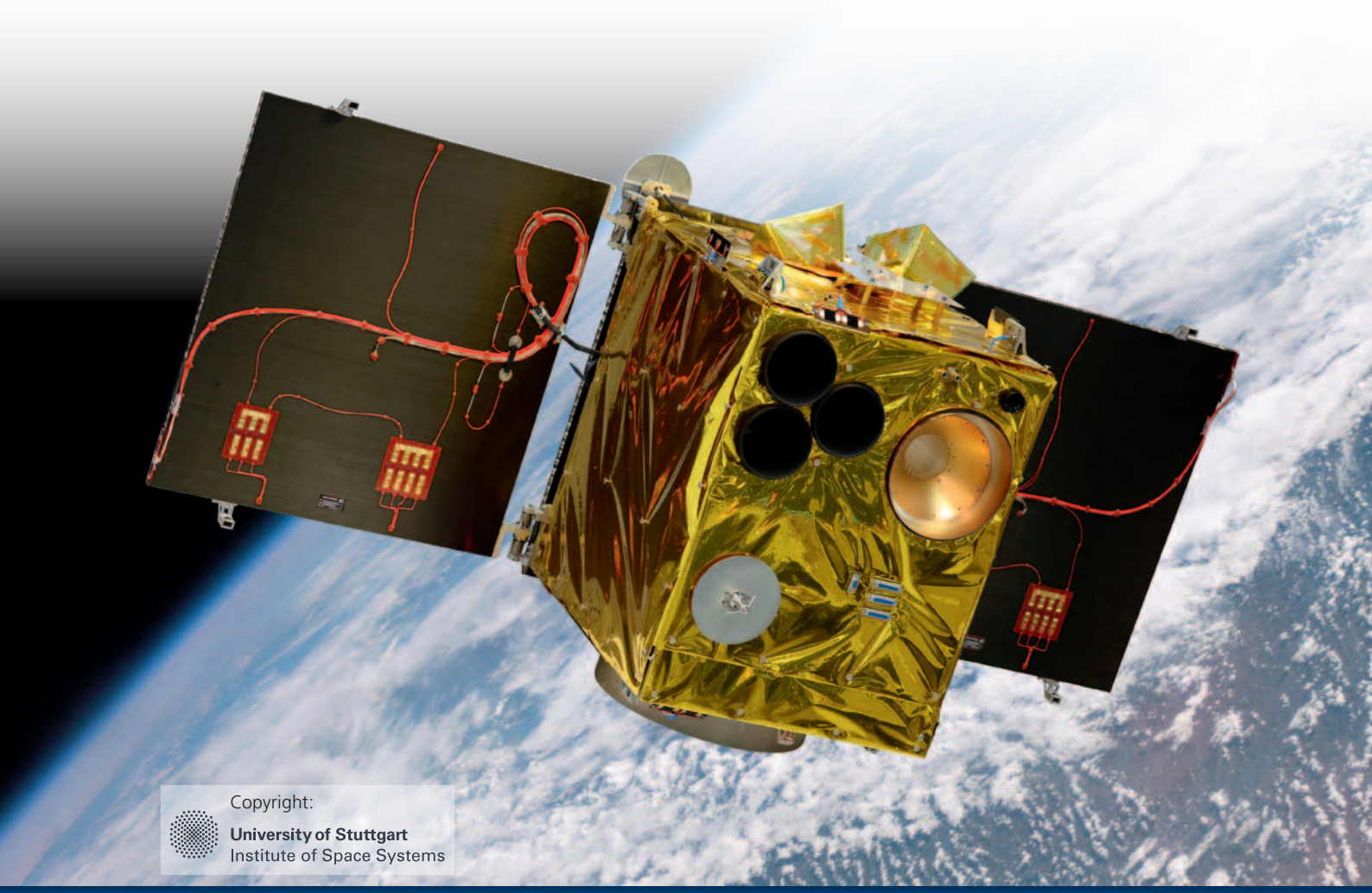
ALUMINA
3D SYSTEMS



HIGHLY COMPLEX 3D PRINTED CERAMICS FOR HIGHEST QUALITY STANDARDS

Alumina Systems GmbH manufactures dense ceramic components from prototype to series production using 3D printing from aluminum oxide 99.9% and zirconium oxide. Without tools, we can manufacture components in the shortest possible time that are not possible with any other manufacturing process such as injection molding, pressing or extrusion.

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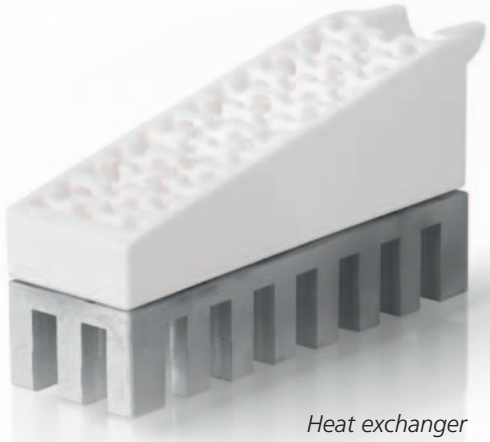
THE ADVANTAGES OF 3D PRINTED COMPONENTS

- Precise components with a hard, smooth surface and low density compared to metal parts
- chemical resistance to acids, alkalis and temperatures up to 1000 ° C
- very good electrical insulation properties
- high modulus of elasticity up to high temperatures
- biocompatible
- wear-resistant and gas-tight
- Ressource-saving process
- Production of components in series quality
- no tool costs
- Flexibility in adapting the CAD models



Heat exchanger
Biochemical engineering

Small satellite engine
Aerospace

Wire bending tool
Sensor construction /
engine construction

Adjustment device
Device construction

Vacuum gripper
Electrical engineering

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APPLICATIONS FOR 3D-PRINTED HIGH-PERFORMANCE CERAMICS

- Aerospace
- Medical technology
- Plasma technology
- Milli reaction technology
- Microelectronics
- Chemical industry
- Automotive industry
- Mechanical engineering

Soldering device
Medical technology

Catalyst carrier
Biochemical engineering

Fixing device screen printing
Sensor construction

Soldering device
Vacuum technology

Assembly device
X-ray technology

Jet
Application of abrasive suspensions
(Ceramics industry)

Jet
Application of abrasive suspensions
(Ceramics industry)

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CERAMIC 3D-PRINTER LITHOZ CERAFAB 8500

THE LCM TECHNOLOGY FOR EFFICIENT PRODUCTION OF HIGH-PERFORMANCE CERAMICS

The lithography-based ceramic manufacturing technology (LCM) enables the efficient production of high-performance ceramics with improved design and excellent quality. This innovative process offers a cost-efficient and fast production method for the 3D printing of components for millireaction technology, chip manufacturing technology and many other industrial applications. This printer was used, for example, to produce our gas distribution ring for coating wafers, for which we received the „Best Components Award“ from the specialist magazine „Ceramic Applications“.

With this 3D printer, components can be made from the following materials:

- Aluminum oxide (electrically insulating, puncture-proof and corrosion-resistant, e.g. in the electrical industry)
- Zirconium oxide (for extreme loads, e.g. cutting tools, bearings; biocompatible, e.g. implants in medical technology)
- silicon nitride (resistant to thermal shock and chemical resistance, e.g. in turbines or medical technology)

Technical Data CeraFab 8500	
Machine Size	800 x 1200 x 1700 mm
Installation Space Size	115 x 64 x 150 mm
Weight	approx. 250 kg
Light Source	LED
Layer Thikness	10 – 100 µm
Number of Pixels	1920 x 1080
Laterale Resolution	60 µm (423 dpi)
Construction Speed	up to 100 layers per hour
Data format	.stl

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3D-PRINTER 3DCERAM C3600 ULTIMATE

THE PRINTER FOR EXTREMELY LARGE PARTS OR SERIES PRODUCTION

The 3D printer C3600 Ultimate is currently the largest 3D printer in the world for the production of ceramic parts. It can be used to manufacture products up to 600 x 600 x 300 mm in size.

This printer is not only the solution for large to very large prototypes. Ceramic parts can also be mass-produced inexpensively with it. Stereolithography allows a part to be built up step by step from the bottom up. After each order, the print bed moves one step down, which ensures even shrinkage during hardening and thus greater precision and allows the smallest details to be reproduced. This also ensures consistently high quality, which is a prerequisite for series production. The materials used ensure uniform layer thicknesses and maximum product quality.

Technische Daten 3DCeram C3600 Ultimate	
Maschinengröße	2100 x 1800 x 2500 mm
Bauraumgröße	600 x 600 x 300 mm
Gewicht	ca. 4000 kg
Lichtquelle	4 UV Laser
Ø Laserstrahl	~ 60 µm
UV-Wellenlänge	405 nm
Leistungsaufnahme	4 kW
Schichtdicke	25 – 125 µm
Datenformat	.stl

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ALUMINA SYSTEMS GMBH

From the high-performance material aluminum oxide, Alumina Systems GmbH manufactures customer-specific ceramic-metal-Composite components. In the field of semiconductor packages with a chip diameter of up to 6 inches, we supply around 60% of the world market and produce more than 200,000 components per year in the series soldering process. With core technologies such as dry pressing, metallizing, passive and active soldering in a continuous furnace and electroplating, we also manufacture products for our other business areas such as vacuum, laser, X-ray, energy, plasma, medical, accelerator and measurement technology .

The roots and experience of Alumina Systems GmbH go back to the ceramics division of the world-famous Siemens. In addition to transistor and diode housings, the employees of Alumina Systems GmbH in Redwitz also produce vacuum switching tube ceramics as well as vacuum feedthroughs and customer-specific special components. For the area of vacuum feedthroughs, standards have been developed that allow easy adaptation to the designs applicable in vacuum technology (ISO, CF).

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We develop and produce vacuum-tight ceramic-metal composite components in close cooperation with our customers. We will be happy to advise you and plan the right component with you - 3D-printed or conventionally manufactured.

ALUMINA SYSTEMS
A Brilliant Idea behind Every Product

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