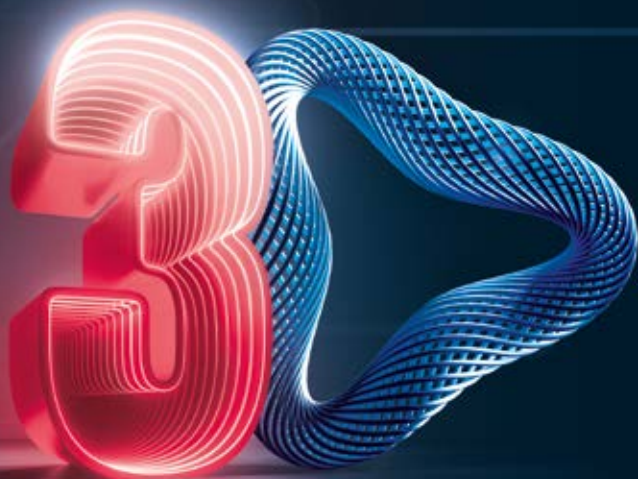


CeramTec

SNAPSHOT



3D Printing Solutions for Industrial Applications

T H E C E R A M I C E X P E R T S

A large, glowing 3D printed ring structure composed of many thin, parallel lines. The left half of the ring is red and the right half is blue. The ring is set against a dark blue background with faint grid lines and light spots.

Let's talk 3D printing

CeramTec is a world-leading manufacturer of technical ceramics and is specialised in the development and manufacturing of components made from ceramic materials. With more than a century of experience in technical ceramics, we offer our customers unique globally networked engineering and solution competence.

Our comprehensive solution portfolio covers highly customised ceramic components for different industry areas such as electronics, process engineering, equipment, machine and plant construction to ensure more precision, reliability and efficiency. Advanced ceramics

significantly contribute to increasing operating life and performance capabilities of machines and systems, especially if customer specific application demands and harsh environmental conditions require individual solutions. CeramTec is combining long-lasting expertise in traditional ceramic manufacturing with one of the most innovative production processes of our time: 3D printing. When conventional production methods reach their limits, additive manufacturing can still meet our customers' requirements. Experience complete design freedom with silicon carbide (SiSiC) – precise, highly customised, time efficient and sustainable.

Exemplary products in additive manufacturing



Spray nozzles for the process industry



End effectors / Wafer handling



Radiant heaters



ROCAR 3D Semicon parts



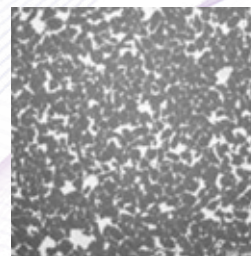
Ceramic pump impellers

SiSiC – outstanding material properties

CeramTec has succeeded in optimizing the material properties of additively manufactured SiSiC components in such a way that the material characteristics correspond to conventionally manufactured components except for a few percentage points. The use of fine silicon carbide powder enables free structures and demanding surface finishes. The very high hardness combined with the temperature and chemical resistance withstand the most demanding operating conditions. The 10% lower density than metal, together with the reduced material usage in the additive process, results in low component weights.

Material Properties:

- + Temperature resistance up to 1,350 °C
- + High hardness, stiffness and flexural strength
- + Lower density than metal
- + Very abrasion-resistant
- + Thermal expansion near zero
- + High thermal conductivity
- + Resistant to oxidation
- + Erodible



*ROCAR 3D microstructure
Maximum homogeneity: the layer structure is no longer detectable in the microstructure.*

Benefit from a streamlined process for your success

Our additive manufacturing team will accompany you along the entire process chain. From the technological evaluation of the 3D model to the finished product you can benefit from the following 3D printing process advantages:

- + Print directly from CAD data
- + No tooling required
- + Cavities and undercuts possible
- + Maximum flexibility: make design changes with a mouse click
- + Digitalization of existing components possible
- + Competent service team



SiSiC additive manufacturing without compromise

Experience complete design freedom with silicon carbide (SiSiC), a unique material in one of the most innovative manufacturing processes of our time: 3D printing. Together with us you can create lightweight structural and functional parts, reduced in their design to include only absolutely necessary elements. Get your finished parts faster without time- and cost-intensive processing steps such as green machining, milling and joining and enhance further cost-saving potential through component optimization.

Ready for your additive manufacturing solution?

Get in touch with us or send your enquiry online at ceramtec-industrial.com/3d. We are looking forward to discuss your individual application requirements.

*Exciting
ceramics!*

CeramTec

THE CERAMIC EXPERTS

Industrial Solutions
CeramTec-Platz 1-9
73207 Plochingen, Germany

Telefon +49 (0) 7153.611-11900
Email myceramtec@ceramtec.de
Web www.ceramtec-group.com

