Stakeholderdialog Produktion und Material 2023

Das Themenfeld „Produktion und Material“ hat das Ziel die **digitale und grüne Transformation** der **österreichischen Sachgüterindustrie** voranzutreiben sowie die **Wettbewerbsfähigkeit Österreichs nachhaltig zu stärken**, um auf **internationalen Märkten konkurrenzfähig** zu bleiben.

LITHOZ®

We are ceramic 3D printing.

LITHOGRAPHIE-BASIERTER 3D-DRUCK ZUR HERSTELLUNG PRÄZISER BAUTEILE AUS HOCHLEISTUNGS-KERAMIK UND METALL

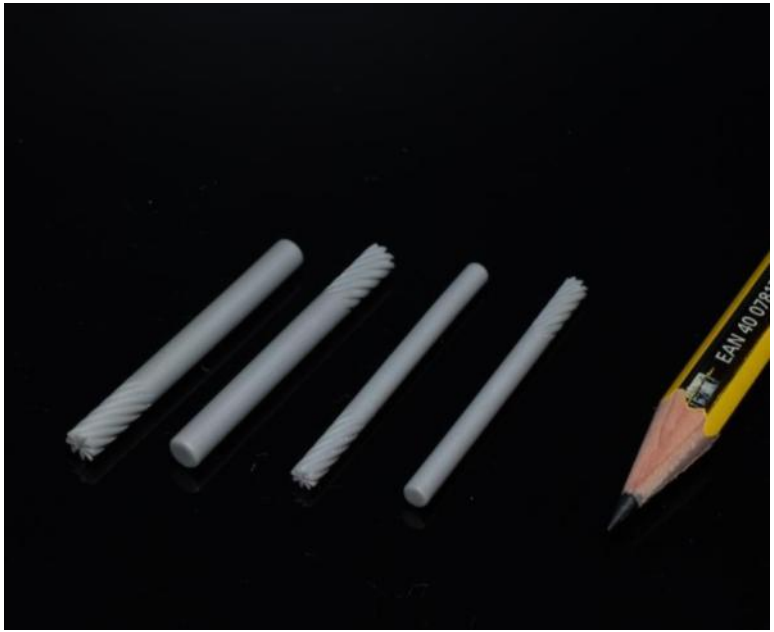
ADDIZWERK-
ADDITIVE FERTIGUNG VON ZERSPANUNGSWERKZEUGEN

LITHOZ
We are ceramic 3D printing.

This work was supported by the Austrian Research Promotion Agency (FFG) under the project number 859827.

AddiZwerk - Ziel

Entwicklung und Herstellung von Zerspanungswerkzeugen unter Verwendung Additiver Fertigungstechnologien



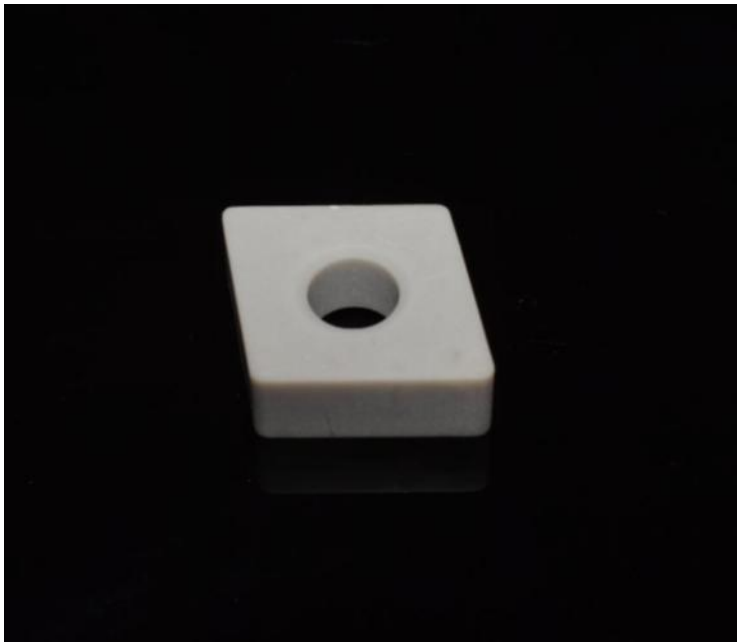
- Qualifizierung von Keramiken für die additive Fertigung
- Qualifizierung von Hartmetallen für die additive Fertigung
- Entwicklung innovativer Konzepte für Werkzeuggrundkörper aus Stahl.

AddiZwerk – Nutzen für die Industrie

- Keramiken und Hartmetalle sind Schneidstoffe, mit:
  - hoher Festigkeit
  - hoher Härte
  - hoher Wärmewiderstandsfähigkeit
  - hervorragende Verschleißeigenschaften

=> perfekter Einsatz für Zerspanungswerkzeuge

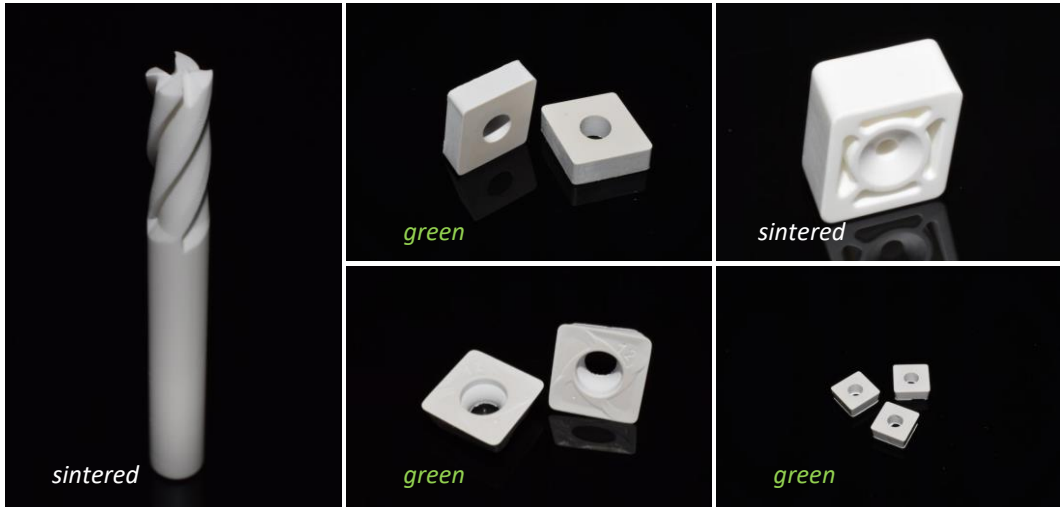
AddiZwerk – Nutzen für die Industrie

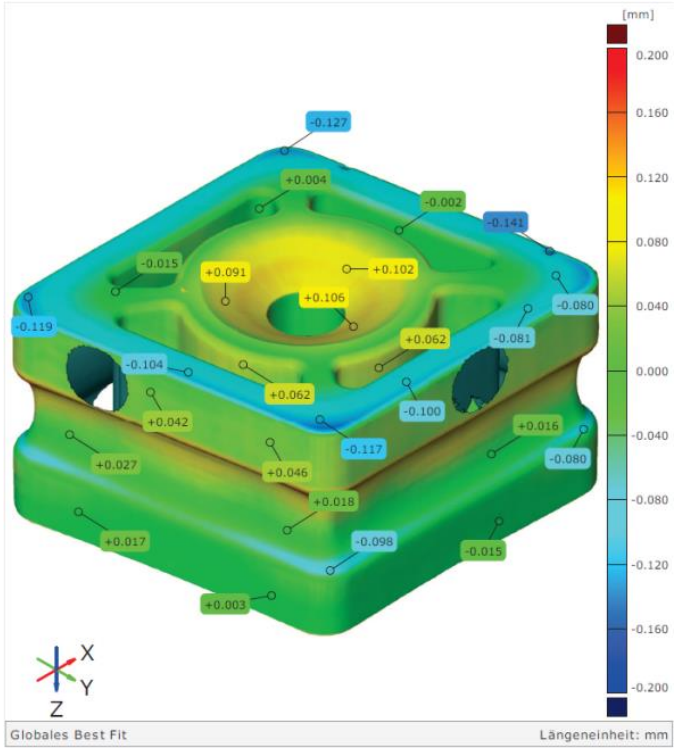


- Additive Fertigung ermöglicht:
  - ressourcenschonende Fertigung
  - funktionsoptimierter Bauteile
  - neue Geometrien
  - bessere Kühlung
  - schneller Protoypen
  - Materialkombinationen

=> perfekter Einsatz für Zerspanungswerkzeuge

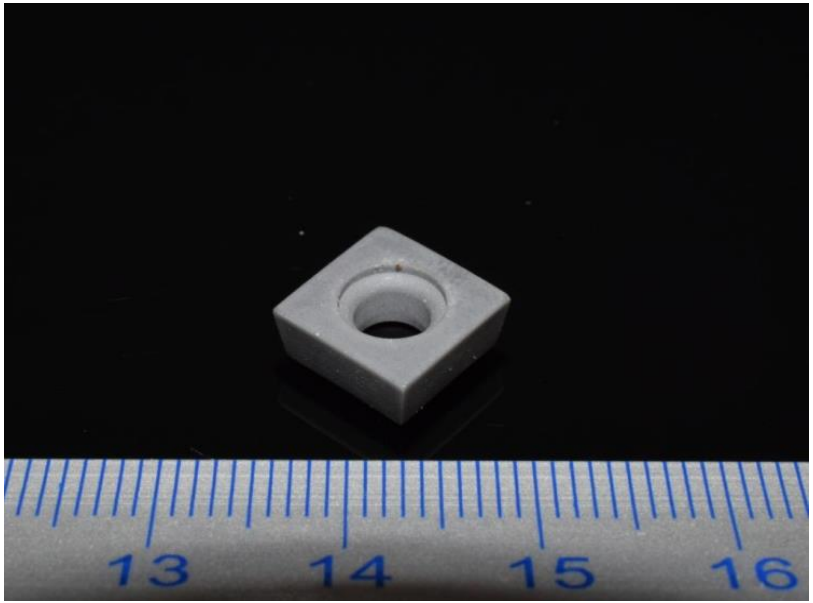
AddiZwerk – ZTA-10

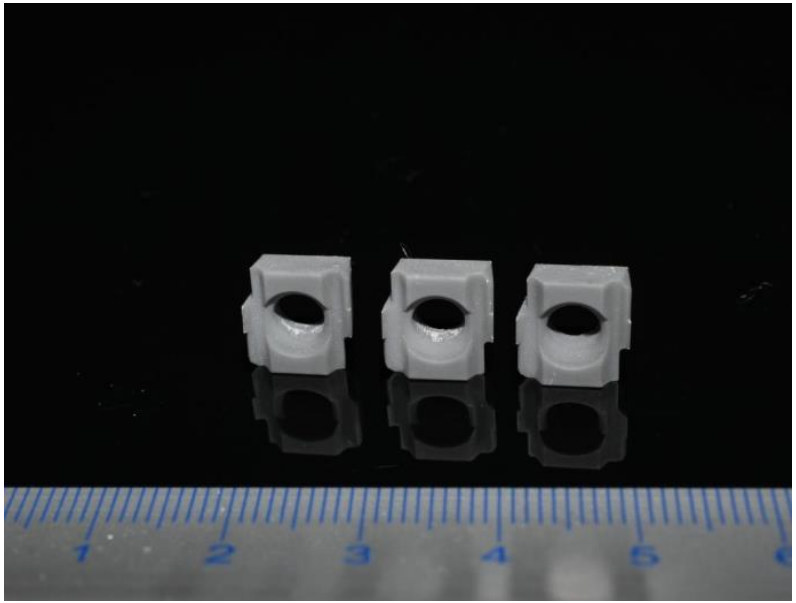




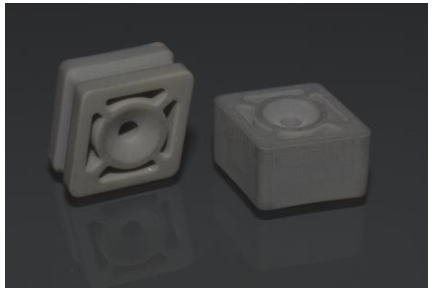
AddiZwerk – Si3N4

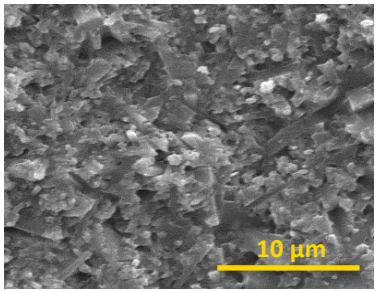
Verschiedene Schneidwerkzeugdesigns erfolgreichgedruckt und gesintert





AddiZwerk – Si3N4

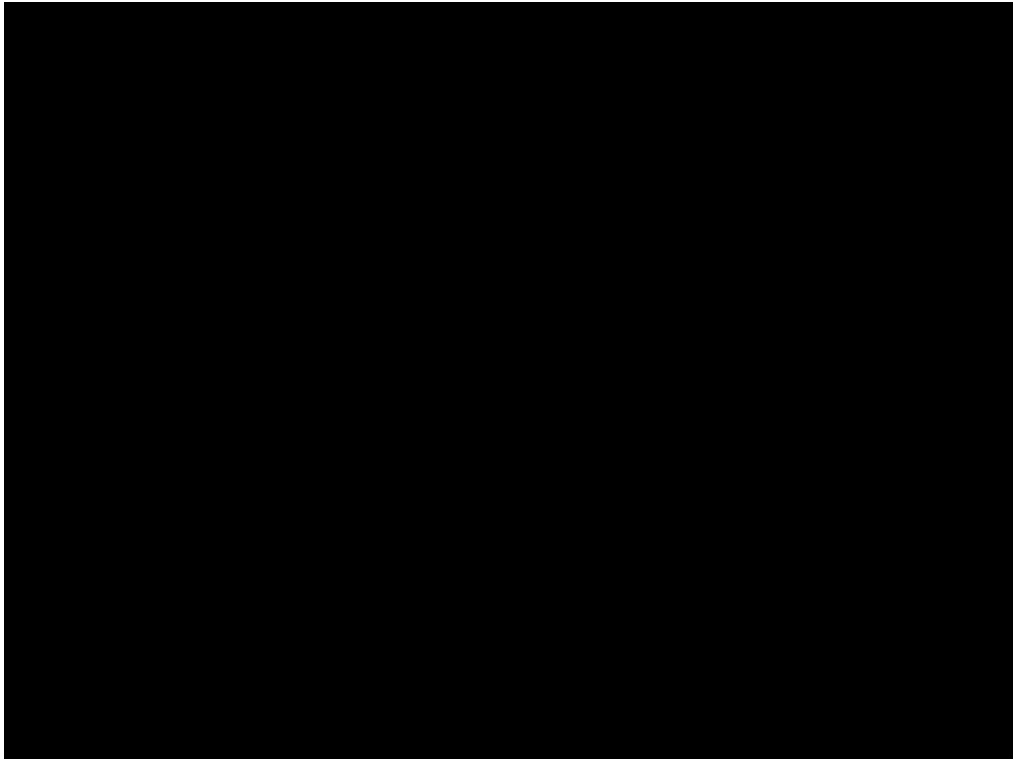




Process	Density [g/cm³]	Hardness (HV10)	Biaxial bending strength [MPa]	Thermal cond. [W/(mK)]
LCM	3.25	1500	764	28.2
Iso-pressed	3.25	1500	770	28

Source: PTW – TU Darmstadt

Drehen von Gusseisen



AddiZwerk – Halterung aus Edelstahl 316L

incus

Your Trusted Partner in Ceramic 3D Printing

Global Market Leader in **Ceramic** 3D Printing

We offer a full solution of **3D printers, materials, software, and customized solutions.**

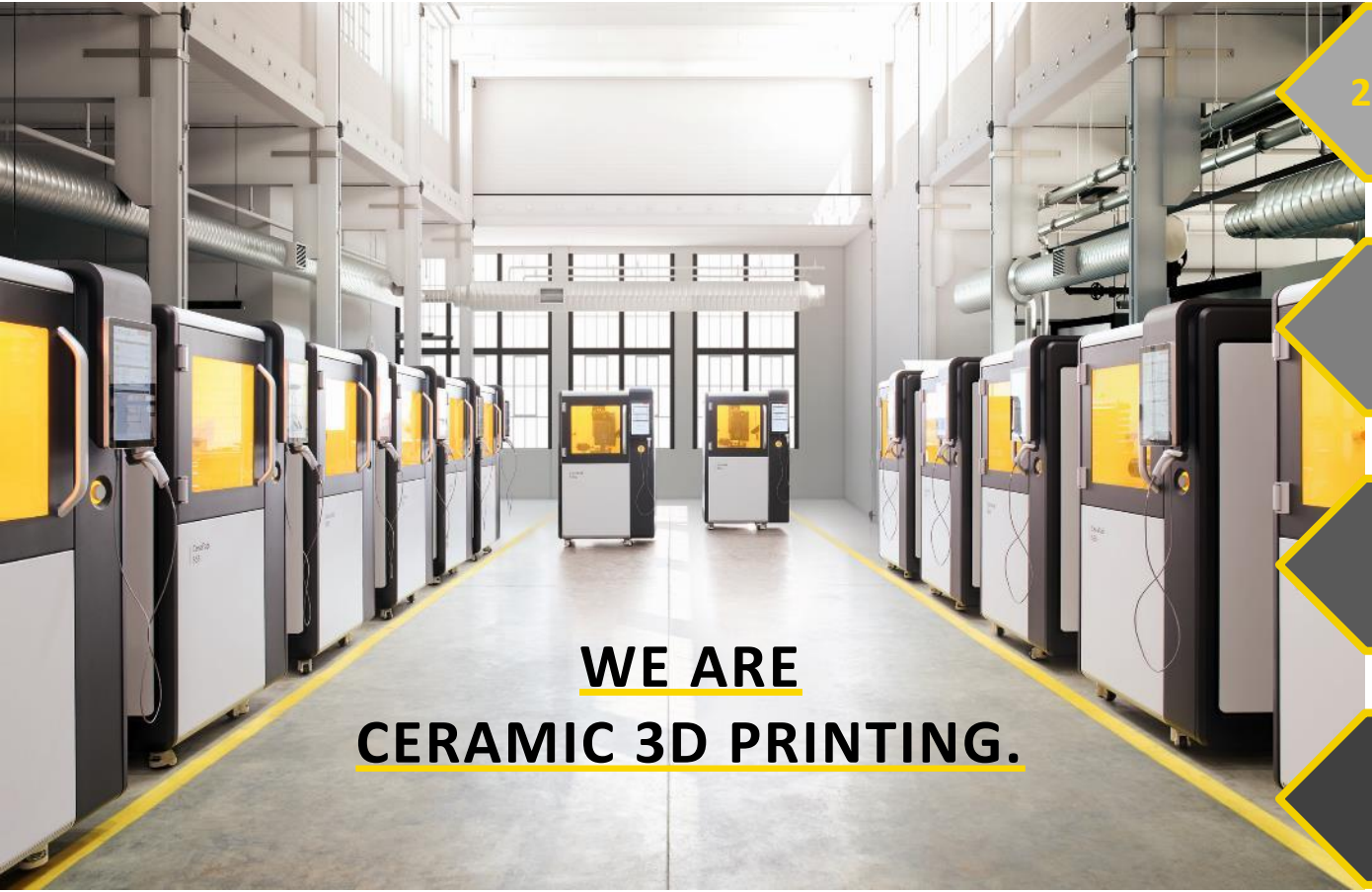
Quality management system ISO 9001:2015

150+ employees
4 locations (Austria, USA and China)

150+ machines worldwide
25 % of **customers with 2** or more machines

We Pioneered Ceramic 3D Mass Production

LITHOZ



WE ARE
CERAMIC 3D PRINTING.

N.1 Customer:
25 Printers Soon in Operation

24 / 7 Production Run

3M+ Parts / Year

LCM = The Industrial Standard in Ceramic 3D Printing

12,000 Parts p.a. Serial Production for the Da Vinci Surgical Robot

Steinbach AG

- Steinbach AG, Germany
- 12,000 parts serial production per year
- Development time 6 months
- High-precision serial production at scale
- Da Vinci robot for endoscopic surgery

Industrial Success Story

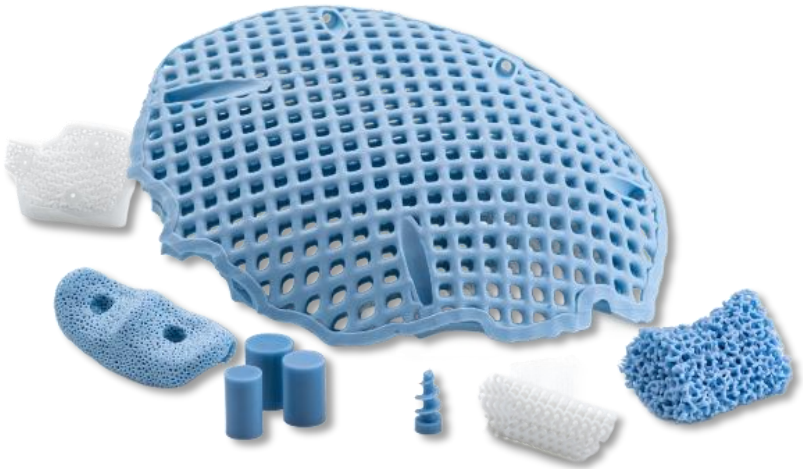
Lithium Disilicate – Revolutionizing Dental Aesthetics

- Highest aesthetics
- Excellent mechanical strength
- Easy to colorize
- Biocompatible

Lithium disilicate – jointly developed with Ivoclar

Bioresorbable, Patient-Specific Ceramic Implants

- Materials used by KLS Martin in humans since 2015
- Patient-individual design
- Bioresorbable ceramic (TCP & Hydroxyapatite)



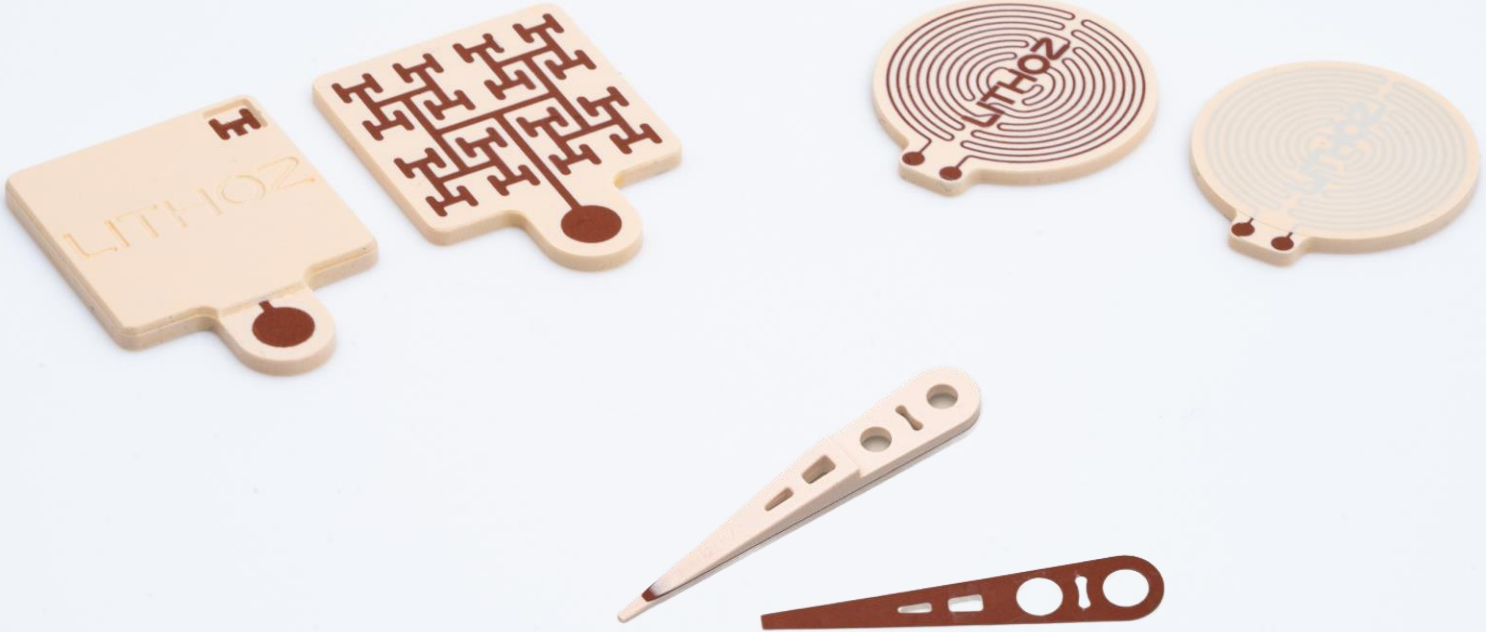
LITHOZ

KLS martin GROUP

Combining Ceramics with Ceramics

2K Gyroid (left) and multi-colored alumina ring

Combining Ceramics with Metals

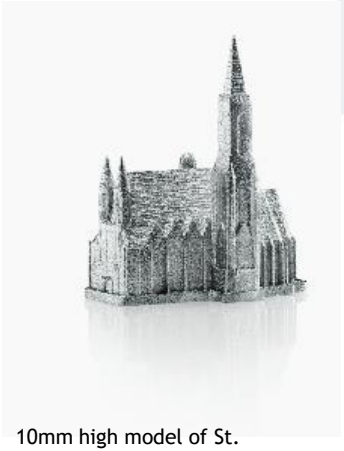


Glass ceramic with pure copper

incus

Who is Incus?

- Austrian engineering company founded in 2019
- System provider for the unique Lithography-based Metal Manufacturing technology selling printers and materials
- Founding team in 3D printing with lithography since 2008
- 26 professionals from 14 countries
- Spin-off of ceramic additive manufacturer LITHOZ

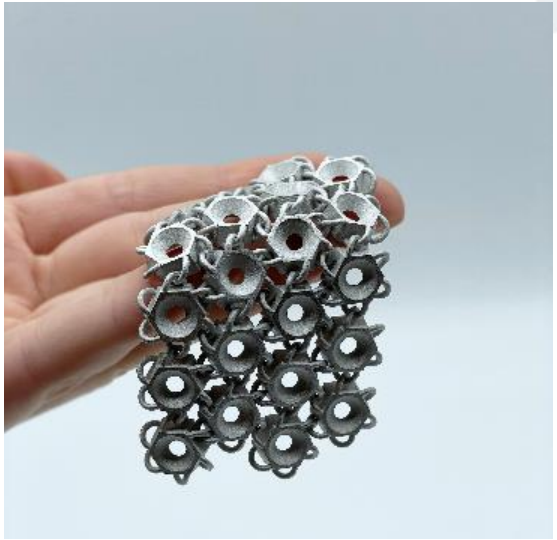


10mm high model of St. Stephen's Cathedral, Vienna

Sintered parts

46 mm height

33 x 27 x 7 mm



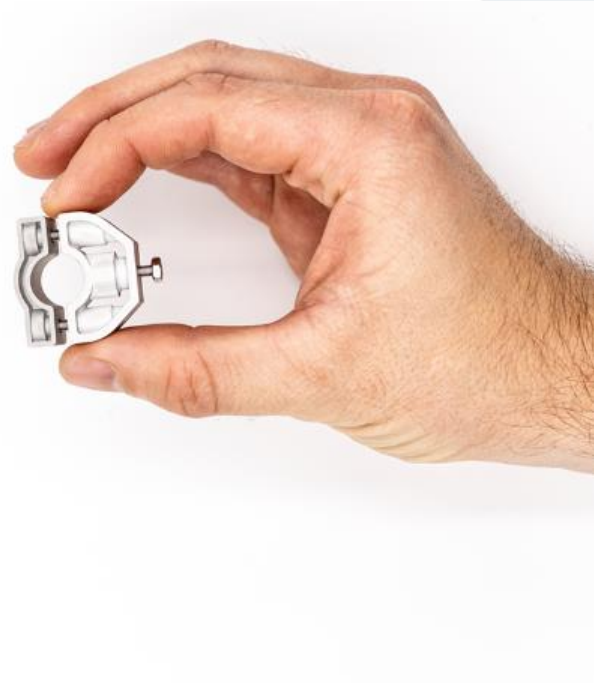
incus

Gold printing

incus

Advantages of LMM technology

- **Complex green parts** in MIM size range (1–200 g component mass)
- **Highest resolution & superb surface aesthetics** for metal AM
- **Wide range of materials** with the possibility of processing nor flowable and non-weldable materials
- **Simple production process** with easy preparation of printing jobs and quick exchange of materials
- **Safe working environment** with no metal dust or high-power laser



Acknowledgement

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