

Z3Dlabs – specialist in high-precision 3D-printing technology

Specialising in advanced 3D-printing solutions for technical and medical ceramics, Z3Dlabs is at the forefront of innovation, enabling high-precision manufacturing for various industries.

Company profile

Located in Oirschot (NL), Z3Dlabs is dedicated to pushing the boundaries of additive manufacturing by leveraging high-performance resin and ceramic materials. The company's expertise lies in developing cutting-edge solutions for micron-level prototyping and especially end parts production, addressing the needs of demanding applications from industrial and medical sectors.

Core products of Z3Dlabs include:

- Technical ceramics: specialising in materials such as alumina, zirconia, cordierite and hydroxyapatite for the medical sector, and providing exceptional thermal, mechanical, and chemical properties.
- High-resolution 3D printing: utilising advanced additive manufacturing technologies to enable the creation of complex geometries with outstanding precision.
- Customised products such as heat exchangers, insulators, waver solutions, and medical class III implants.

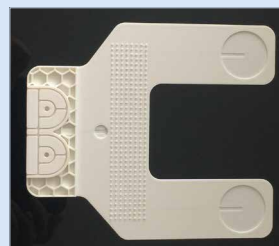
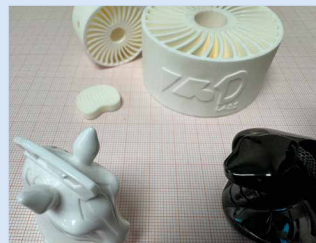
The key competencies of Z3Dlabs are:

- Precision engineering: ensuring dimensional accuracy at the micron scale, essential for high-performance applications.
- Material innovation: collaborating with research institutes and industry partners to enhance ceramic 3D-printing capabilities.
- Future scope of end-to-end manufacturing: providing complete 3D-printing solutions, from material development to sintering and final product.

Markets and customers

Z3Dlabs serves industries where precision and material performance are critical, including:

- Semiconductor and Electronics: microfabricated ceramic components for high-performance applications.
- Medical and Dental: biocompatible ceramics



for implants, prosthetics, and dental applications.

- Energy and Catalysis: advanced ceramic structures for fuel cells and catalytic applications.
- Aerospace and Defence: lightweight, heat-resistant ceramic components for extreme environments.

The dedicated team of specialists is open for collaboration with R&D institutes, high-tech manufacturing companies, and OEMs, offering tailored solutions that enhance product performance.

Precision engineering aspects

Z3Dlabs' approach integrates:

- High-resolution SLA and DLP 3D printing for ceramics, ensuring smooth surfaces and intricate details.
- Post-processing techniques, including de-binding and sintering, to achieve final material properties.
- Quality control concerning the shape and tolerances, ensuring consistency and repeatability in production.

Case examples

One of Z3Dlabs' recent developments involves a prototype 3D-printed part with long inner channels and complex structures with excellent surface finish. Another example is a medical class III implant that is not only biocompatible with the human body but also compatible with CT- and MRI-scanning.

Future outlook

Z3Dlabs aims to drive innovation and precision in additive manufacturing.

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