



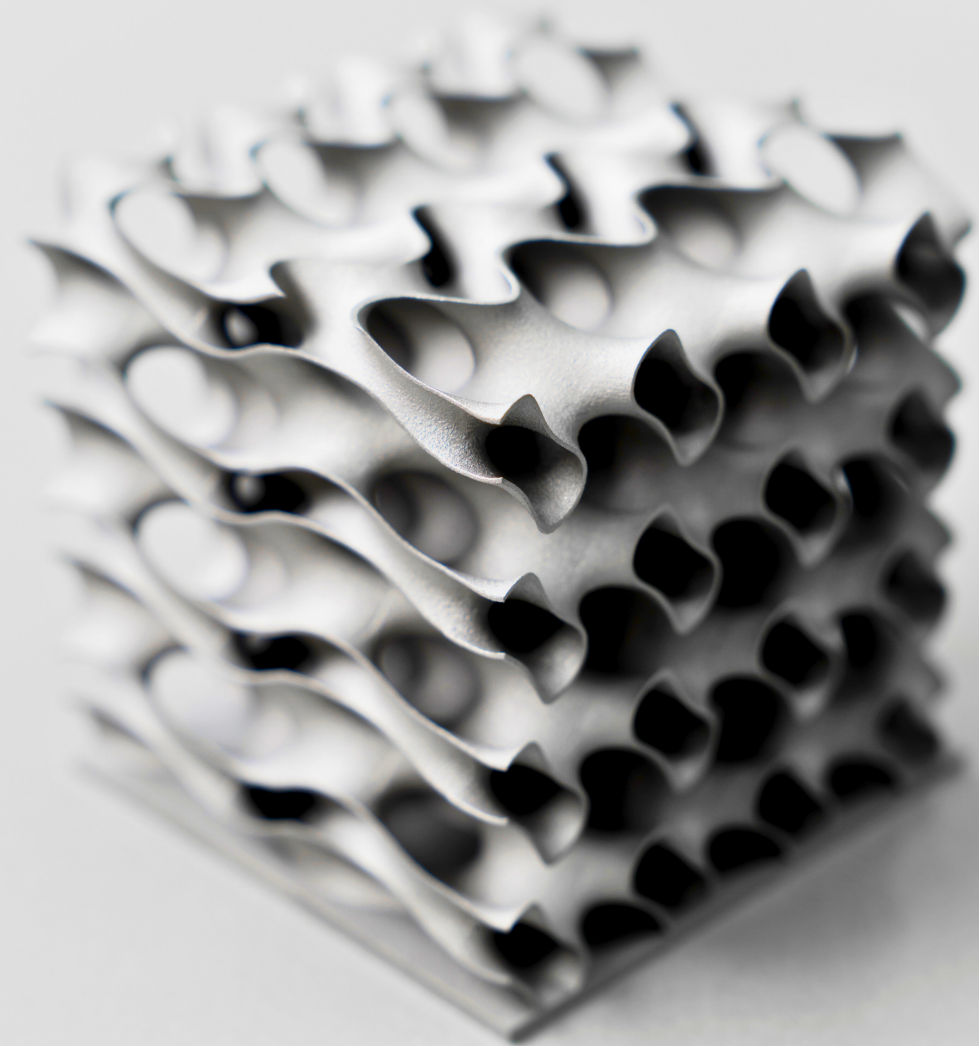
PDF brochure



# Additive Manufacturing with Zamak 5

The solution for your next zinc project

- Product development and series production
- Manufacturing directly from 3D data
- Reduced time and costs



**PROTIQ GmbH**

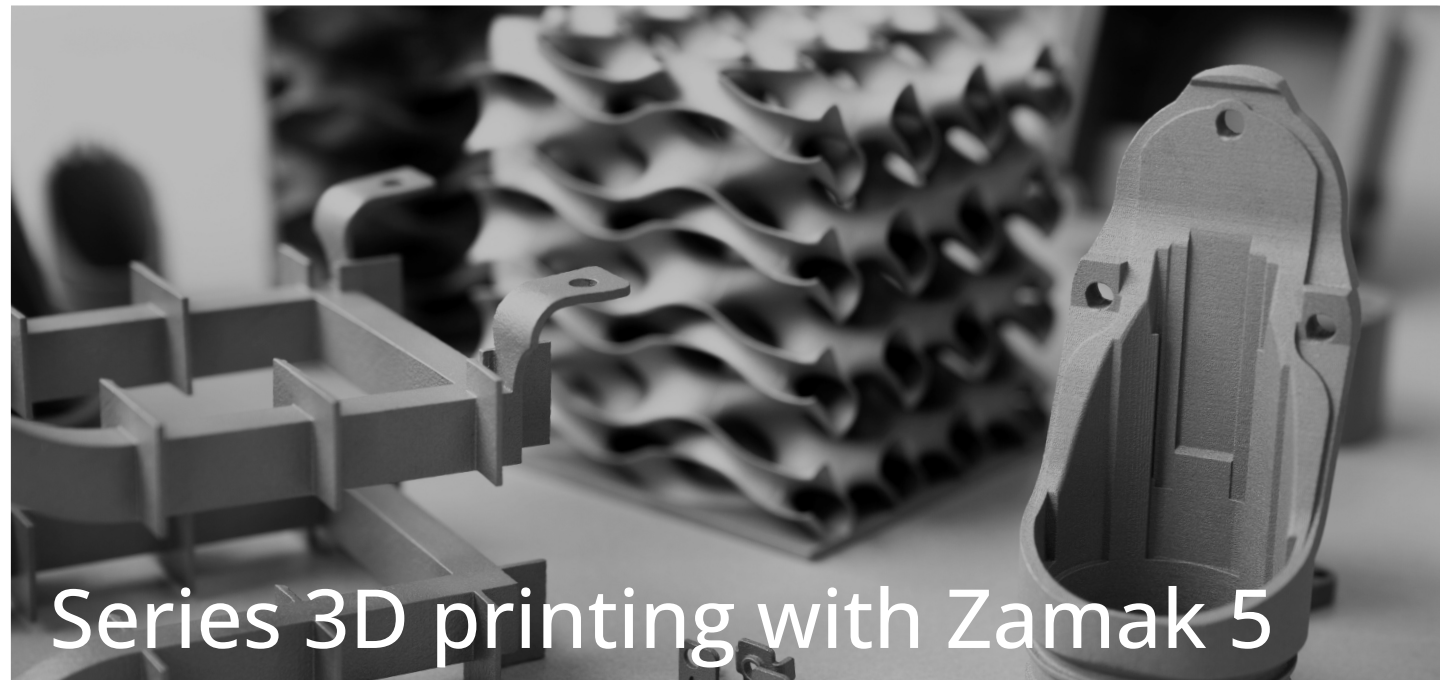
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## Series 3D printing with Zamak 5

Components made from the zinc alloy Zamak 5 are widely found in industrial applications. This material is an established standard for zinc die casting. This manufacturing process makes it possible to produce large series of components economically. Molten metal is pressed into a pre-prepared steel mold under high pressure. This "original mold" – the tool – predefines the geometry of the component and is the biggest cost factor in zinc die casting. Any change to the component geometry necessitates adjustment or even new production of the tool. For this reason, in product development, prototypes are manufac-

tured from the series material only once the component geometry has been finalized to the greatest extent possible. This presents an unnecessary limitation for the product development process.

PROTIQ is the world's first 3D printing provider to develop a process for the additive processing of Zamak 5 that overcomes the high time and cost requirements typical of zinc die casting. In 2022, PROTIQ was therefore honoured with the award for "Intelligent Manufacturing" at the International Zinc Die Casting Competition.

### From an idea to a series product – Zamak 5 in 3D printing



### A comparison: Zamak 5 in zinc die casting



### Technical properties of Zamak 5

Tensile strength	Elongation at break	E-modulus	Precision	Min. wall thickness
218 ± 40 MPa	1,5 ± 0,5 %	28 ± 3 GPa	±0,7 %, min. 0,1mm	0,6 mm

### Prototypes and series components through 3D printing

With the help of additive manufacturing, functional prototypes made of Zamak 5 with the properties of the later series component can be produced at an early stage of product development. No expensive tools are required for this, as production takes place directly from 3D CAD data.

time and allows them to perform meaningful tests much earlier. In addition, any change to the 3D model can be quickly and cost-effectively applied to a new prototype, resulting in greater flexibility and significant added value in product development.

The workpieces from 3D printing can be electroplated as usual, for example to achieve a noble high-gloss chrome look. In contrast to zinc die casting, which is only profitable for very large quantities, additive manufacturing enables cost-effective production of individual pieces and small series, so-called lowrunners.

Thanks to the standardized and digitized processes at PROTIQ, the Zamak 5 components are ready for delivery within a few working days. This saves product developers weeks of waiting



### Advantages of 3D printing compared to zinc die casting

- ✓ Reduced time and costs
- ✓ Direct production from the 3D model, without expensive tooling
- ✓ Economical production from batch size one
- ✓ Great design freedom

▶ Visit the PROTIQ Marketplace now and have your individual 3D object made of Zamak 5 or over 100 other materials! [www.protiq.com](http://www.protiq.com)