



LFK Werkzeug- und  
Maschinenfertigung GmbH



# 3D-PRINTING

## ADDITIVE MANUFACTURING





Our additive manufacturing method is based on SLM-Technology (short for **selective laser melting**). It is a beam melting procedure and is commonly known as 3D printing of metal.



## PROCEDURE

The part is built in layers on a substrate panel within the construction chamber. The measures of our largest construction chamber is 500 x 280 x 350 mm.

Every layer is between 30 to 100  $\mu\text{m}$  and consists of metal powder. It is melted and welded onto the layer beneath by a laser which moves according to a beforehand written layer program. The substrate panel lowers itself by the height of the layer thickness and the process is repeated.

## CONSTRUCTION

The mechanical properties of laser beam melted products reach up to 100 % of conventionally manufactured parts. This means more freedom in construction for the designers. Requirements for fitted geometric parts such as difficult shaped coolant passage or undercuts are easily achievable with additive manufacturing while conventional methods struggle.

Additive manufacturing has no bounds for designers and manufacturing of highly complex shapes, and parts can be produced quickly.

## MATERIAL

For every area of application exists the matching material.

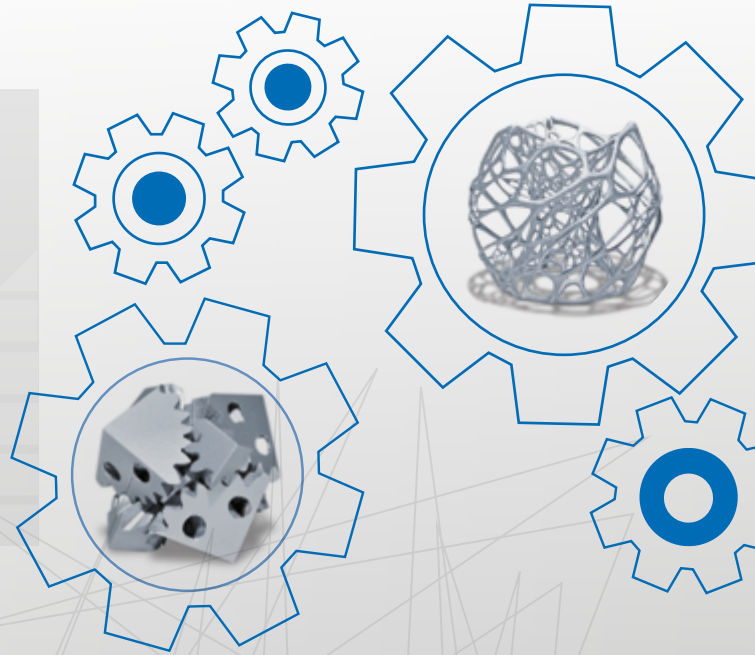
The metal powder is made by atomising the raw material to a grain size of 10 - 60µm. Parts made of following materials can be produced:

- ▶ Stainless steel 1.4404 (316L)
- ▶ Tool steel 1.2344 and 1.2709
- ▶ Titanium alloys TiAl6V4
- ▶ Aluminium AlSi10Mg and AlSi9Cu3
- ▶ Hastelloy X
- ▶ Inconel 625/718

## APPLICATION RANGE

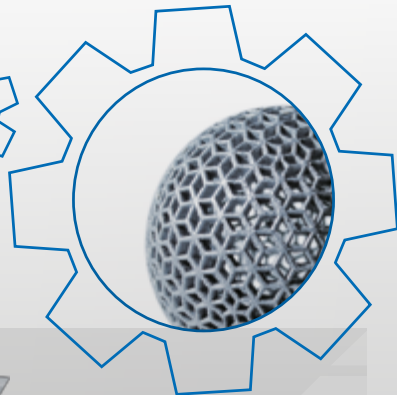
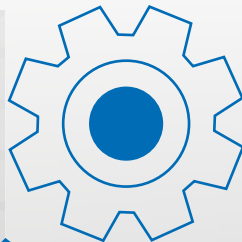
The range of application in which additive manufacturing is used is wide and varied. From dental technology to body implants to tools, spare parts or experimental models in aerospace and automobile industries.

3D printing is suited for single part or small batch productions and, of course, for prototypes. Parts with nearly identical dimensions and properties can be easily produced for operating tests, test stands and stress tests.



## POST-PROCESSING

We can ensure short lead times due to our in-house production depth of eroding, lathing, milling, drilling, grinding and thermal treatment.



## QUALITY

Parts are produced with an accuracy according to DIN/ISO 2768-1, class „medium“. The finish roughness is between Rz 20 - 65  $\mu\text{m}$ .



*We are your partner for additive manufacturing your metal parts in every shape!*

We are available for consulting talks and any questions any time. We are looking forward to supporting you, even before the start of the development processes.

You can find everything from designing to preparation and manufacturing to post-processing under our umbrella. We are your competent service provider with decades of experiences. Feel free to contact us!

LFK Werkzeug- und Maschinenfertigung  
GmbH

Kornkamp 26  
22926 Ahrensburg  
Germany

Tel: + 49.4102.69588.0  
Fax: + 49.4102.50768

info@lfkwm.de  
www.lfkwm.de

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DIN ISO 13485:2016

