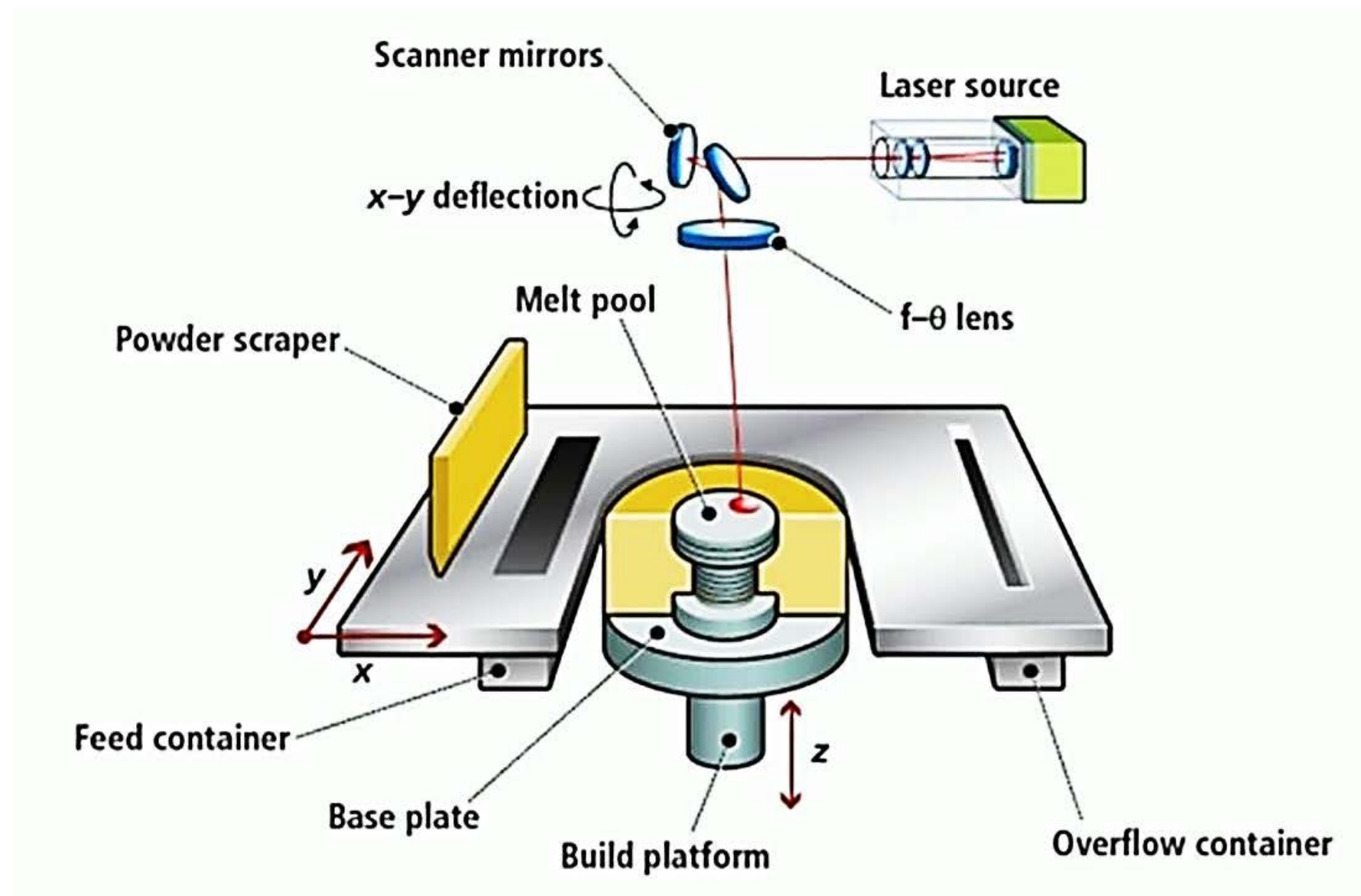


SLM- Selective Laser Melting



Source: <http://www.flugrevue.de>, 2017

Materials

- **Stainless Steel**
great hardness and high ductility with corrosion resistance
- **Aluminium**
low weight with good strength
- **Titanium**
high strength, low density, corrosion resistance and bio-compatibility
- **Copper**
- **Tool steel**
- **Cobalt chrome**
- **Tungsten**

Advantages

- Manufactured parts in standard metals with high density (above 99%) with high and good mechanical properties
- can be further processed like any welding part.
- Easy fabrication of complex geometries which would be challenging or even impossible for conventional production methods.
- With direct metal 3D printing even thin wall thicknesses are possible (0.3 mm)
- A constantly widening set of standard metals is available

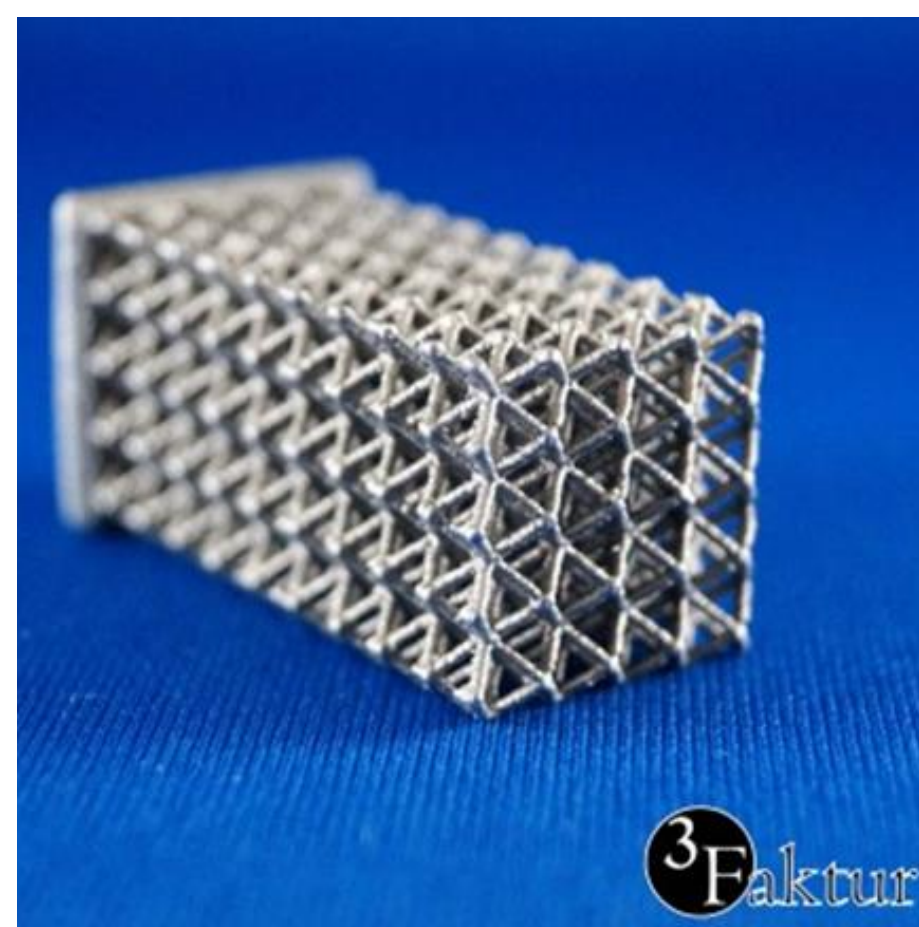
Disadvantages

- The technology is rather slow and expensive
- Tolerances and finished surfaces are limited, however they can be improved through post-processing.

Applications

prototypes and small-series production of parts for:

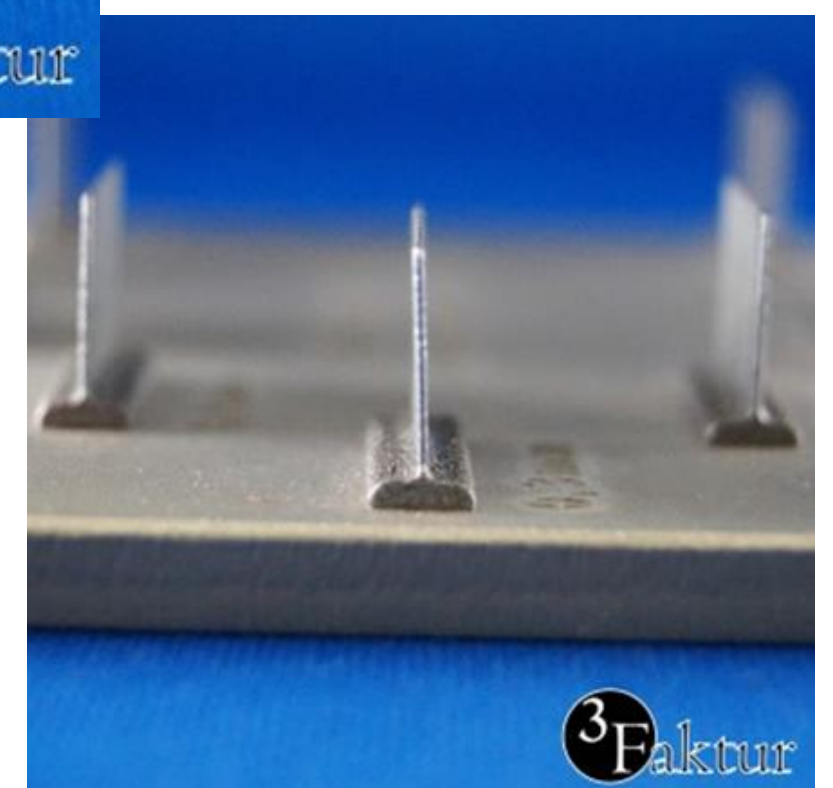
- Aerospace
- Dentistry
- Medical Implants
- Automotive Components
- Jewellery
- Machine parts



3Faktur

Costs

- Printers are expensive to purchase and operate.
- The main cost factor for **steel** and **aluminium** is printing time and post-production time; material use is a less critical factor. For smaller pieces, the printing costs for one item or multiple copies are often similar.
- For **titanium** the raw material cost is significantly higher than steel or aluminium.



3Faktur

Source: <https://3faktur.com>, 2017