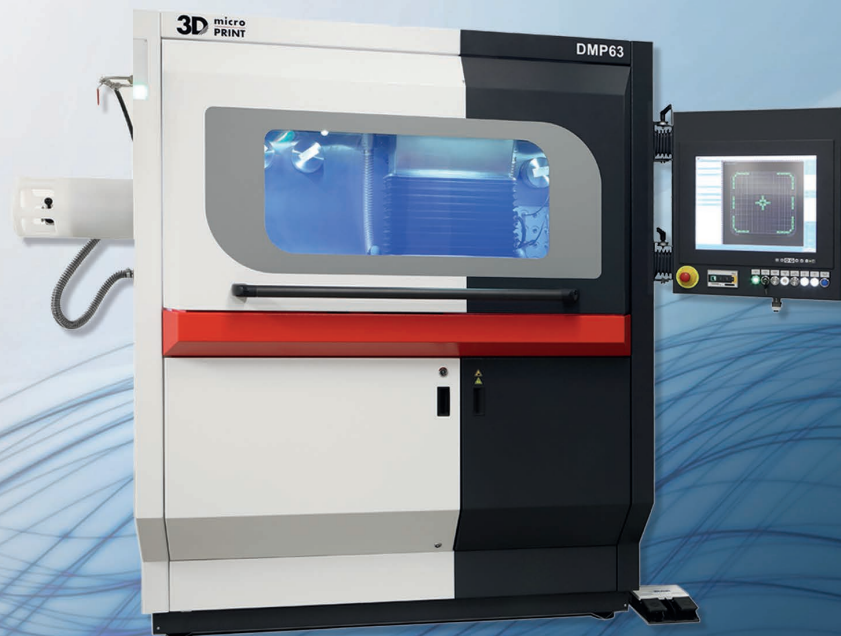


Micro Laser Sintering (MLS)

Powder Bed-Based Additive Manufacturing Technology

Micro Laser Sintering combines the advantages of additive manufacturing and micro machining for the first time. Micro metal parts of incredible accuracy, extraordinary detailed resolution and surface quality are manufactured this way. These advantages result in the ability to manufacture moveable parts and assemblies in a single step.

The basis of these outstanding results is the combination of a very small laser beam spot size, special micro powder and super thin layers.





Micro Laser Sintering (MLS) - Functional Principle

A 3D-CAD model of the target geometry contains all details of the final part. This CAD model is split into several cross sections, called layers. During manufacturing, a thin layer of powder is applied to a build platform. The powder is selectively fused by a laser beam according to each cross section. After that the building platform is lowered, the procedure of powder coating, fusing and platform lowering is repeated layer by layer, until the part completed.

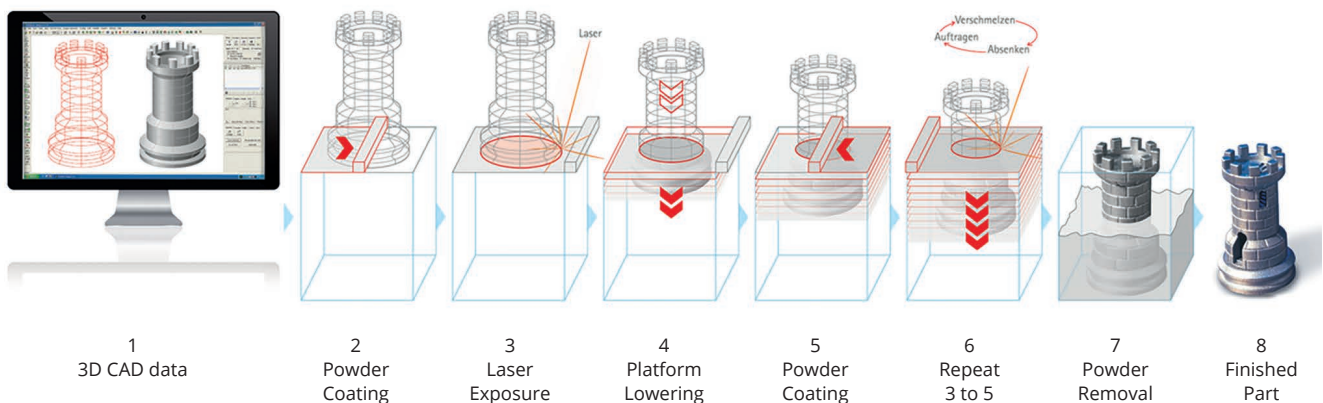


Image Source: EOS GmbH

Technical Overview

General Information

- Powder particle size: < 0.005 mm (196.85 µin)
- Layer thickness: < 0.005 mm (196.85 µin)
- Laser spot size: ≤ 0.03 mm / 0.015 mm (1181.10 µin / 590.55 µin)
- Inert argon atmosphere: ≤ 0,1ppm O₂ + H₂
- Platform size: 60 mm x 60 mm or Ø 60 mm (2.36 in)
- Built height: 30 mm (1.18 in) including support

Technical Specification of Micro-printed Parts

- Best detail resolution in the market
- Length tolerances ± 0.005 mm (196.85 µin) up to 10 mm (0.39 in)
- Mean surface roughness of R_a 0.002 mm (78.74 µin) (raw) and down to R_a 0.0008 mm (31.5 µin) (polished)
- Adjustable density up to 99.9 %

Benefits

Functional Integration:

- Moveable micro parts without any further assembly
- Several conventional parts = one printed part
- Saving assembly time, logistics and costs

Shortened Development Cycle

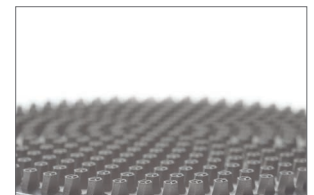
- Any parts can be built quickly
- Availability of parts just-in-time
- Reducing time-to market

Freedom of Design

- MLS enables a form-follows function design mentality
- Undercuts, complex cavities and shapes can be realized

Customization

- Flexible production
- Design alterations can be built without extra costs
- Product variations and personalization



Machines

Our machines deliver best results in terms of detailed resolution, accuracy, density and surface finishing of 3D printed micro metal parts by micro laser sintering. Our solutions merge the abilities of micro manufacturing with the advantages of 3D printing for the first time. Inspired by and made for Industry an R&D our machines satisfy a big bandwidth of user requirements. Low running costs, availability of industrial standards like zero-point clamping system, inert gas atmosphere including gas cleaning and remote service support ensure best technical and commercial results.



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