Micro Laser Sintering

3D MicroPrint GmbH manufactures high-precision micro metal parts using Micro Laser Sintering technology. We offer a comprehensive service from product design and prototype development through to series production.

Why 3D MicroPrint GmbH?

- Micro Laser Sintering combines the advantages of additive manufacturing with those of micro machining
- Complex geometries with high resolution, high dimensional accuracy and low surface roughness
- Moving parts without further assembly - with our “print-as-one” solution
- Micro metal parts with entire value chain from engineering to post-processing
- DIN EN ISO 9001 certified and processing to DIN EN ISO 13485

Technical Key Figures

- Building platform:
  - 60 x 60 x 40 mm (LxWxH)
  - 120 x 120 x 100 mm (LxWxH)
- Layer thickness: 1 - 30 µm
- Laser spot size: < 30 µm
- Accuracy: 5 µm
- Minimum wall thickness: 30 µm
- Roughness: Ra: 1 µm Rz: 5 µm
- Part density: > 99.5 %

Materials

- Stainless steel:
  - 316L (1.4404)
  - 17-4PH (1.4542)
- Titanium:
  - Ti6Al4V (3.7164)
  - Ti (3.7035)
- Copper:
  - CuCr1Zr (2.1293)
  - Cu-OF (2.0040)
- Inconel® 718

Other materials within the scope of a development process

Case Studies

Merger Tree

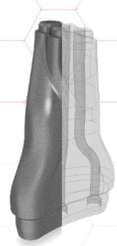
- 1,024 tubes with a Ø 120 µm are combined into a single tube with a Ø 7 mm
- min. 80 µm wall thickness
- Size: 13 x 13 x 16 mm
- Weight: 1.4 g
- Material: Ti6Al4V (3.7164)

Forceps/Gripper

- 1 part instead of 5 - no assembly
- Integrated channel for lighting
- Length: 30 mm
- Di
- Weight: 1.25 g
- Material: 1.4404 (316L)

Optical fiber guide

- Twisted fiber guide for modular system
- Complex channel with very good surface quality and geometry tolerances
- Inner channel diameter: 500 µm
- min. 200 µm wall thickness
- Height: 10 mm
- Material: 316L (1.4404)



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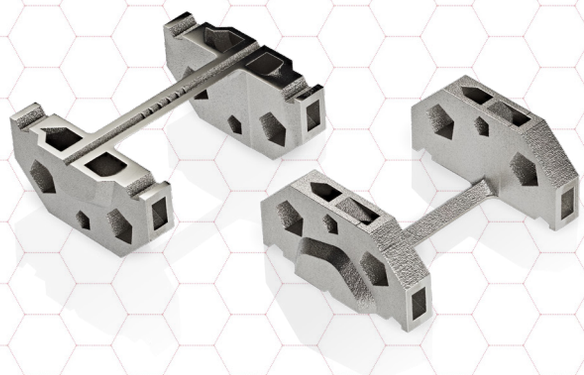
Rev. 2

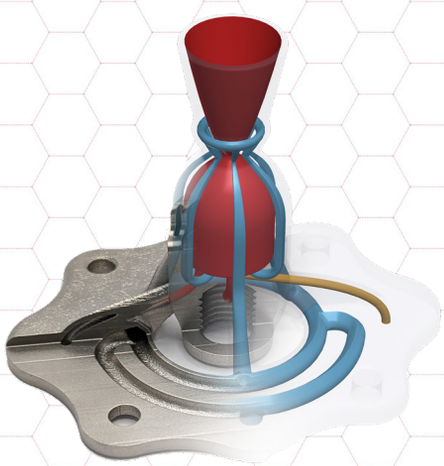
Applications - Aerospace

Microwave bandpass filter 180 GHz

Key data

- Smallest features: 200 µm
- Ra < 2 µm inner surface roughness
- Size: 18 x 18 x 23 mm
- Material: 1.4542 (17-4PH)
- Gold coating for final application
- Weight: 8.3 g
- Application approved by University of Birmingham, UK





Satellite engine

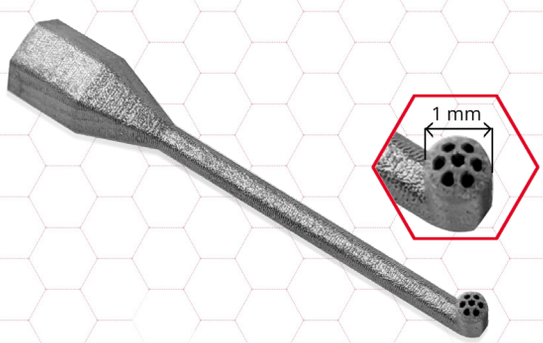
Key data

- Complex structures of inner channels
- Smallest features: 300 µm
- Size: 48 x 40 x 39 mm
- Material: 2.4668 (Inconel® 718)
- High temperature resistance up to 700 °C
- Weight: 43.0 g
- Application approved by DLR, Germany

7-hole flow measurement probe

Key data

- 7 internal 150 µm channels
- 120 µm wall thickness
- Ra < 2.0 µm surface roughness
- Head size: Ø 1 mm
- Material: 2.4668 (Inconel® 718)
- Weight: 2.2 g
- Approved application by Vectoflow GmbH, Germany



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