Cost reduction by saving assembling - Functional module built at-once by Micro laser sintering

Grabbers or manipulators are used in numerous branches from medical technology to aerospace. Using conventional technologies such a grabber has to be assembled at least of four single pieces. The smaller the parts become, the more difficult is the secure assembling of the tiny components.

Example: Demonstration parts of 3D-printed jaw grabbers for medical with integrated pivot joint; joint clearance 25 µm; material 1.4404 (316L)

Figure 1: side view

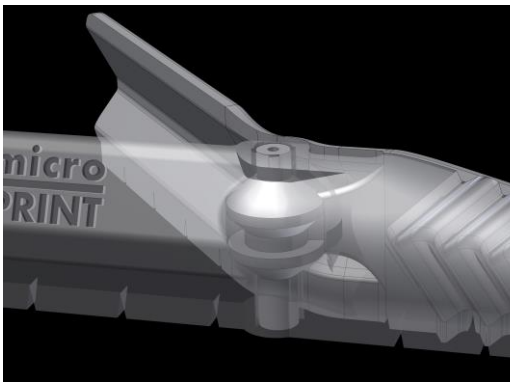

Figure 2: CAD view pivot joint

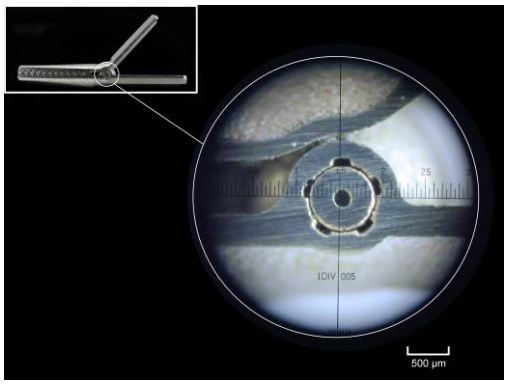

Figure 3: microscope view pivot joint

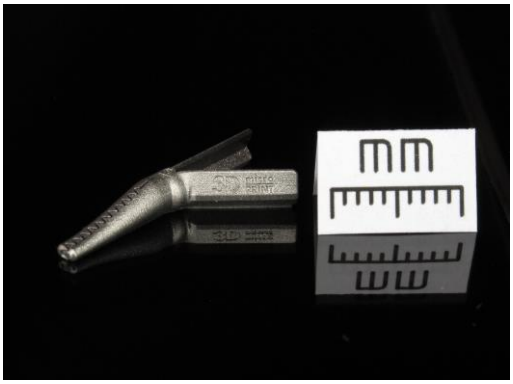

Figure 4: Comparison to a 10 mm scale

Figure 5: Several grabbers on a building platform

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Functional modules and mechanisms made of metal can be manufactured easily with Micro Laser Sintering. The functionality is being created directly during the building process. Afterwards no additional assembling is necessary, so the grabber can be used immediately afterwards. The Micro Laser Sintering systems provided by 3D MicroPrint GmbH introduce new possibilities to the customer in terms of innovative functional integration and miniaturization of their products. The absence of joints between the individual parts also increases the robustness of the construction.

The featured parts were manufactured with a DMP50 GP Micro Laser Sintering system developed by 3D MicroPrint GmbH.

The technology

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.

About 3D MicroPrint GmbH

3D MicroPrint GmbH is known for high-precision micro parts manufactured by Micro Laser Sintering. Since the company was founded in 2013 by EOS GmbH and 3D-Micromac AG, the additive manufacturing process has been further developed for micro parts and has been adapted to run an industrial production. Today we are providing our customers the entire portfolio of design consulting for additive manufacturing, feasibility studies and parts production up to their own 3D MicroPrint Micro Laser Sintering system. Furthermore 3D MicroPrint offers material developments for exclusive technologies on demand. The key applications for micro parts are medical industry, wearables, semiconductors and micro industries, high frequency applications as well as aerospace.

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