

Micro Laser Sintering for highest quality standards - The future at your wrist

The watch manufacturing has in Europe a century old tradition and is the epitome of elegance, quality and precision. The production of precise serial components is carried out under the highest quality standards. Existing technologies for micro-machining already encounter the limits of feasibility. An additional individualization is only possible under enormous costs.

Example: Watch with individualized frame, watch face and crown wheel manufactured by Micro Laser Sintering; material 1.4404 (316L).



Figure 1: demonstration watch

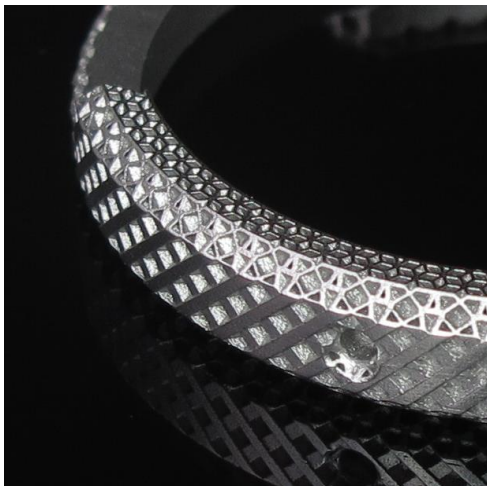


Figure 2: 3D printed filigree structures at the frame surface

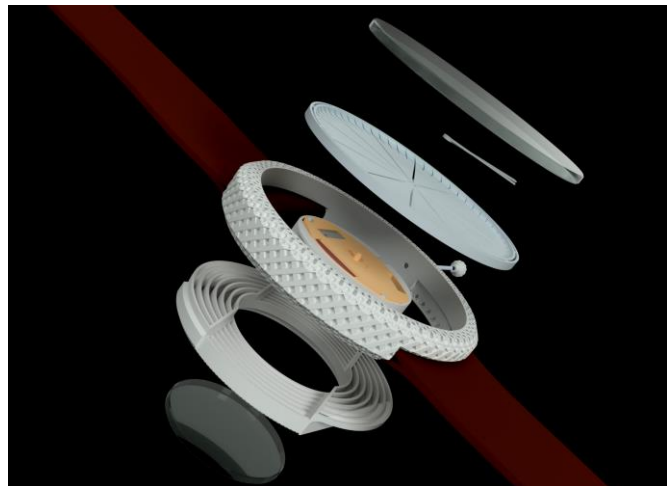


Figure 3: CAD explosion view of the micro laser sintered components (white)

Source: 3D MicroPrint GmbH (design: Niklas Reker)

3D MicroPrint GmbH carried out a feasibility study to examine the production of selected components of a watch with Micro Laser Sintering. The two-part housing, the dial and the crown wheel were process-adapted and light weighted designed and finally built. It was found out that Micro Laser Sintering opens up completely new design possibilities for part design. Also there is the chance to manufacture unique components and individualized small batches cost effective. Especially in the procurement of spare parts that are no longer available at the market, the machines of 3D MicroPrint GmbH offer an alternative.

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.