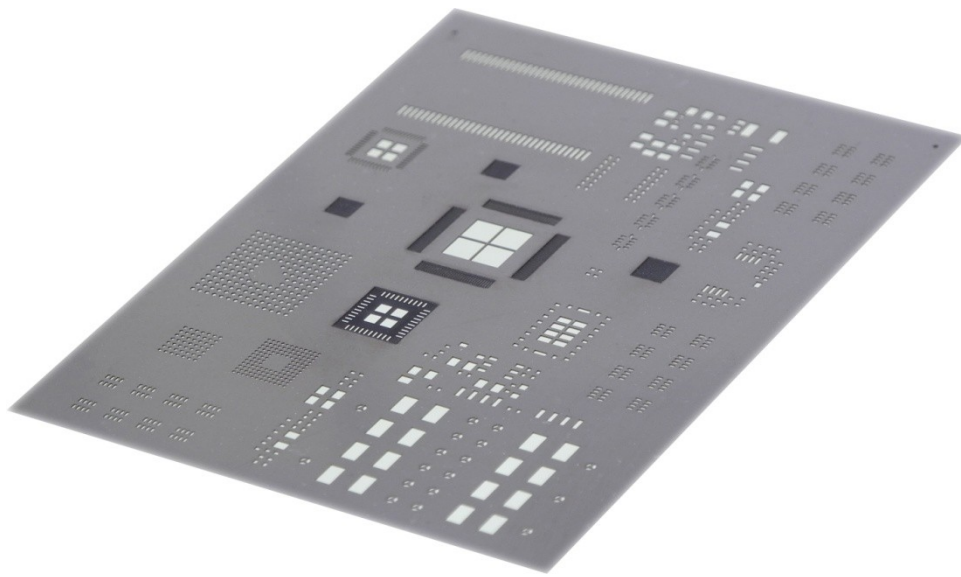


Step-Down Stencils

New processes with the LPKF laser systems
StencilLaser G 6080 & P 6060



LPKF

Laser & Electronics

Step-Down Stencils with LPKF Laser Systems

Even for conventional solder paste stencils, LPKF StencilLasers are known for their precision and speed. Now an application team at the laser manufacturer has developed and optimized a new production process, after extensive test runs. Through clever use of process parameters, the G 6080 and P 6060 laser systems are able to produce local recesses for components with tight contact surfaces in the cutting process for the apertures.

The LPKF StencilLasers are regarded as the most cost-effective and productive solutions for laser cutting of solder paste stencils. Now step-down stencils can also be reliably produced with a new set of parameters.

Until now, these local recesses were marked in the layout of the circuitry and created in separate production steps. However, that means additional expenditure of time and significantly increases the production costs.

The laser is always well-suited for removing defined amounts of material. However, for use as a step stencil it's a matter of a precise step height, low surface roughness and an acceptable duration of production.

The test runs discussed in the LPKF tech paper, "Production of Step Stencils," examine a complex conglomeration of influencing factors:

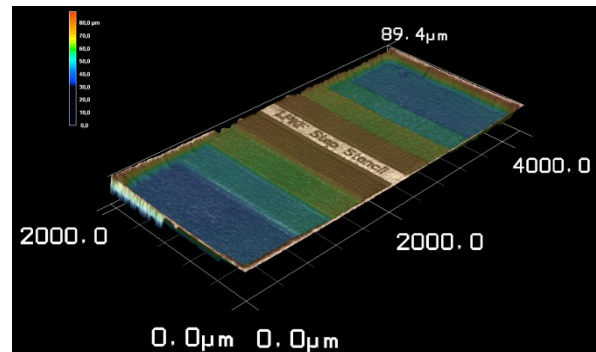
- Machine parameters
- CAM data
- Influence of process gas parameters
- Pulse spacing
- Average area covered
- Multiple markings
- Nonlinear effects of the pulse width

A system comparison of the two SL P 6060 and SL G 6080 LPKF StencilLasers completes the examination.

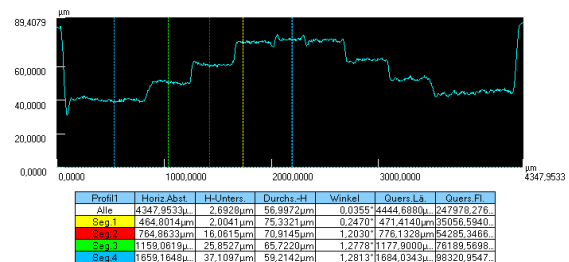
The first step of the investigation is to determine the influence of the individual parameters on the depth of the step. Nonlinear influences of individual settings can lead to unsatisfying results – e.g., increased surface roughness – but on the other hand also to especially effective structuring results.

In conclusion, the investigation records that the irradiated surface coverage is the decisive element when producing steps in thin materials.

Steps in standard depths of 20, 30 or 50 µm can be produced at a good quality.



Steps in stainless steel created by multiple marking



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LPKF Laser & Electronics AG produces machines and laser systems that are used in electronics manufacturing, medical technology, the automotive industry and the fabrication of solar panels. The internationally positioned company combines expertise from laser technology and optics, drive and control technology with extensive experience in laser micro-material processing.

The LPKF stencil lasers dominate the world market of laser systems for cutting solder paste stencils.