

### Technical Data: LPKF ProtoLaser LDI

<b>Substrate size</b>	up to 100 mm x 100 mm
<b>Laser wavelength</b>	375 nm
<b>Laser spot size (TEM<sub>00</sub>)</b>	1 μm and/or 3 μm (user selectable)
<b>Laser spot positioning resolution</b>	< 1 nm
<b>Writing speed</b>	up to 100,000 spots per second
<b>Structure size</b>	down to 1 μm
<b>Rayleigh length</b>	2.1 μm or 18.8 μm
<b>Data input formats</b>	DXF
<b>Power supply</b>	230 V / 50 Hz 100 VA
<b>Dimensions (W x H x D)</b>	650 mm x 522 mm x 626 mm
<b>Weight</b>	62 kg
<b>Integrated camera for sample alignment and inspection</b>	

www.jenko-sternberg.de

Latest Evolution of Laser Direct Imaging  
Microstructures on UV Sensitive Resist by  
LPKF ProtoLaser LDI



LPKF AG, 128251-0610-EN

## Typical Applications

Research, prototyping and small batches in field of:

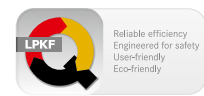
- Analysis in biology: DNA, blood, cell ...
- Diagnostic and screening tests in medicine
- Sensors (chemicals, bio, environment, weapons, ...)
- Synthesis, new chemicals testing, hazardous chemicals experiments
- MEMS, BioMEMS
- Microelectronics
- Photonics, study of physics at micro-scale
- Integrated optics
- Nanotechnology

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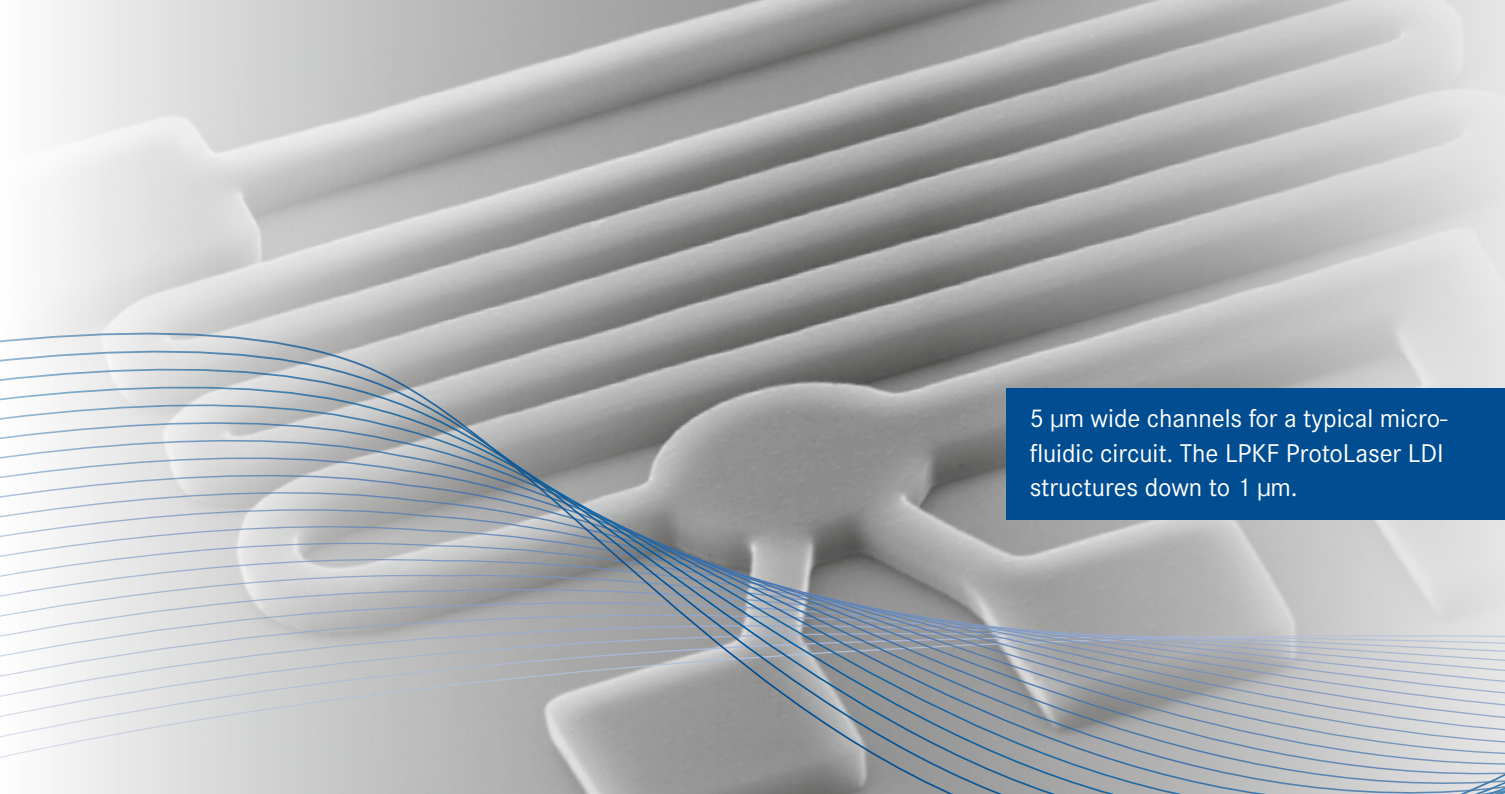
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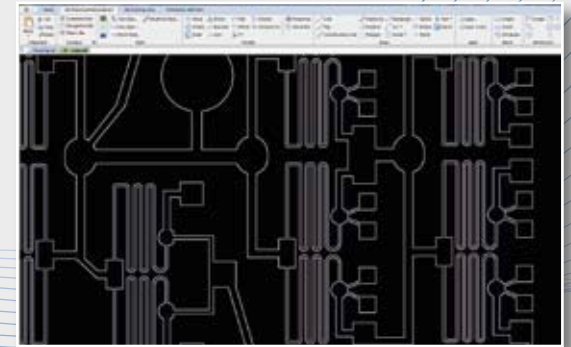
World Premiere at  
LASYS Fair 2010





5  $\mu\text{m}$  wide channels for a typical microfluidic circuit. The LPKF ProtoLaser LDI structures down to 1  $\mu\text{m}$ .

- Works with various substrates
- Processing straight from CAD
- Fast positioning
- Compact tabletop design
- Affordable prototyping tool



## Maskless Lithography

Very fine structures required – growing markets for microfluidic applications and research in chemistry, biology, life-sciences, medicine, physics and photonics demand flexible and fast in-house prototyping possibilities.

The ProtoLaser LDI is an universal, high-resolution, table top laser direct imaging (LDI) system for prototyping on resist-covered substrates. A transferred image has even better defined edges compared to conventional lithography. With a working area of up to 100 x 100 mm and structures down to 1  $\mu\text{m}$  it is an ideal tool for microfluidic designs.

## Built-in Know-how

Using 100 kHz beam positioning by acousto-optic deflectors, extremely fast writing is possible. Illumination of a typical microfluidic circuit only takes a few minutes. Automated measurements compensate for unevenness of the substrate and applied resists: Best conditions for excellent results.

The ProtoLaser LDI dedicated user interface supports DXF files and also enables CAD design. A variety of built-in functions makes designing of a microfluidic circuit very easy and efficient. Different laser tools and algorithms can be selected to optimize the process for speed and the finest structures. All job preparation steps are controlled via very intuitive software controls.

## Faster Time to Market

The UV laser based LPKF ProtoLaser LDI structures on UV resist-covered substrate – directly from CAD. There is no need for expensive mask alignment equipment and to wait for costly masks. The process can be utilized on different flat substrates without any special environment conditions. The substrate is just inserted using a standard or custom designed cartridge, which is simply pushed into the ProtoLaser LDI slot.

As the process is contact-less, there is no tool wear-out. No maintenance is necessary for years. This virtually eliminates running costs. It makes the system just a perfect and very affordable tool to produce and test the most daring designs. The LPKF ProtoLaser LDI drastically increases possibilities for innovations.