

Material Micro-processing in Medical Research

LPKF facilitates development with direct laser processing

Research on flexible biomedical sensors, implant prototypes made of biocompatible materials, or combinations of microfluidics and electronics for lab-on-chip applications is extremely challenging. With in-house direct laser processing, it can be considerably simplified and accelerated.

The laser technology for material processing in an in-house lab offers a number of advantages: Different materials or layouts can be tested in a very short time. There are no setup times for the laser systems; the process can be started directly after the data has been entered. No chemicals are used; as a result, there are no detrimental effects on biocompatible materials or sensors. These factors all contribute to accelerating the process, yielding research results that meet the highest quality standards.

LPKF offers a portfolio of compact laser systems and supplementary equipment that can be used in labs for research projects in the field of biomedical engineering. For example, the LPKF ProtoLaser U4 with an integrated UV laser can process a multitude of different materials rapidly and reliably. The ProtoLaser R4 has been designed especially for research involving sensitive materials. It works with picosecond-fast laser pulses that allow for extremely precise structuring of delicate materials and cutting of hardened or fired substrates.

The Laser Systems of the LPKF ProtoLaser series have been successfully used in electronics research projects around the world for many years. Now the laser technology from LPKF is also catching on in biomedical engineering, where it is being used more and more to accelerate research projects through in-house material processing. Basic research on new innovative materials, transfer of existing products to smaller dimensions with added functionality, or just the time and cost savings afforded for development are the main reasons for using a ProtoLaser system in the in-house lab.

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All LPKF systems are Class 1 laser systems with the lasers themselves safely enclosed in their housings. Thanks to the intuitive software, laser processing is easy to implement – even for occasional users.

For more information, please visit www.lpkf.com/medical-research.



Fig. 1: The high-precision LPKF ProtoLaser R4 ensures gentle material processing. The laser system is especially predestined for innovative research with thermally sensitive materials.

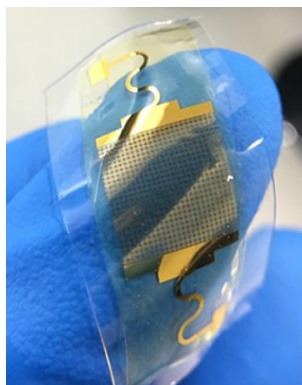


Fig. 2: Integrated wearable made using LPKF ProtoLaser technology

About LPKF

LPKF Laser & Electronics AG is a leading provider of laser-based solutions for the technology industry. Laser systems from LPKF are key elements in the manufacturing of printed circuit boards, microchips, automotive parts, solar modules, and many other components. Founded in 1976, the company is headquartered in Garbsen, near Hannover, Germany, and has subsidiaries and representative offices throughout the world. Around 20 percent of the workforce is engaged in research and development.