

The microfluidic biosensor and the compact analyser from pes diagnosesysteme GmbH enable blood to be analysed without extensive laboratory equipment.



Built-in microfluidics

At the heart of the LPKF LQ-Vario MF lies a precise fibre laser for creating ultra-fine welding seams lines in the micrometer range – perfect for microfluidics applications. Other advantages include:

- System and processes are clean-room compatible.
- Process tracking & tracing is carried out during production.
- The LPKF LQ-Vario MF is capable of modular expansion and can be fitted with additional options.

Technical Data: LPKF LQ-Vario MF

Laser power	100 W/250 W
Laser wavelength	980 nm
Maximum scanfield	210 mm x 210 mm (8" x 8"), optional 110 mm x 110 mm (4" x 4")
Voltage	400 V – 3 Ph/N/PE, 16 A, max. 3 kW
Air supply	6 bar
Ambient conditions	Maximum operating temperature: up to 40 °C (104 °F) Maximum humidity: up to 80 % at 25 °C (77 °F)
Cooling system	Integrated water/air recooling unit
Options	Clamping module Automatic pressure regulation Remote maintenance Data capturing software Contour management Analogue data capturing
Machine dimensions (W x H x D)	900 mm x 2.000 mm x 1.000 mm (35" x 79" x 39")
Machine weight	500 kg (1102 pounds)

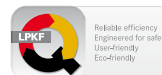
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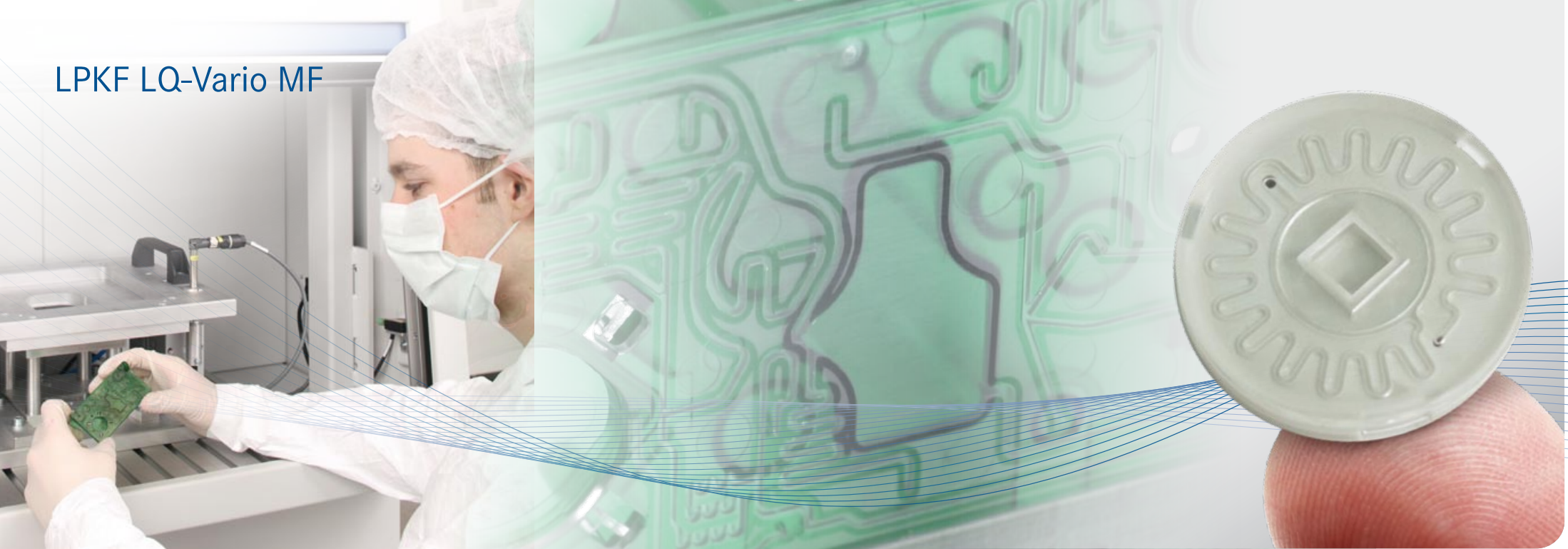
Laser plastic welding in microfluidics applications LPKF LQ-Vario MF



LPKF AG, 125746-0209-EN



LPKF LQ-Vario MF



Micrometer precise welds

Microfluidic components tolerate no errors. These devices require a strong hermetic seal with no particulates or additives allowed to contaminate the intricate network of channels.

Precise welding geometries are a precondition for this innovative technology – this accuracy is essential for achieving reliable results in microfluidics. Laser plastic welding is ideal here for many reasons.

Two-meter-long welded seam

Using LPKF welding technology, a two-meter long welded seam was produced on a cartridge barely the size of a cellphone. During the welding process, the LQ-Vario MF monitors the whole procedure and records the parameters for seamless tracking & tracing.

No other sector demands such a high level of processing safety as the medical technology industry. Laser plastic welding has successfully proved its suitability for medical products in the highest risk category: Risk Class III (e.g. intracardiac catheters).

Laser system and know-how

Laser plastic welding creates precisely welded seams in any pattern without harming the surrounding material. The integrity of the fine channel cross-sections is not affected. The laser also has built-in flexibility: if the weld contours must be modified, this can be simply done by loading the new layout data. Changing from one product to the next requires minimal time and effort.

LPKF has a great deal of in-depth experience in the laser welding of medical products. A specialized application center in Erlangen supports interested parties with answers to construction questions, and process design assistance.