

Modular for Economical Production
Plastic Welding with the LPKF LQ-Vario





Growing in Importance ...

Laser plastic welding produces very precise welded seams in any pattern without harming the surrounding material. It is conquering more and more applications: from automotive engineering and medical technology, to electronics and the consumer goods sectors.

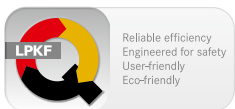
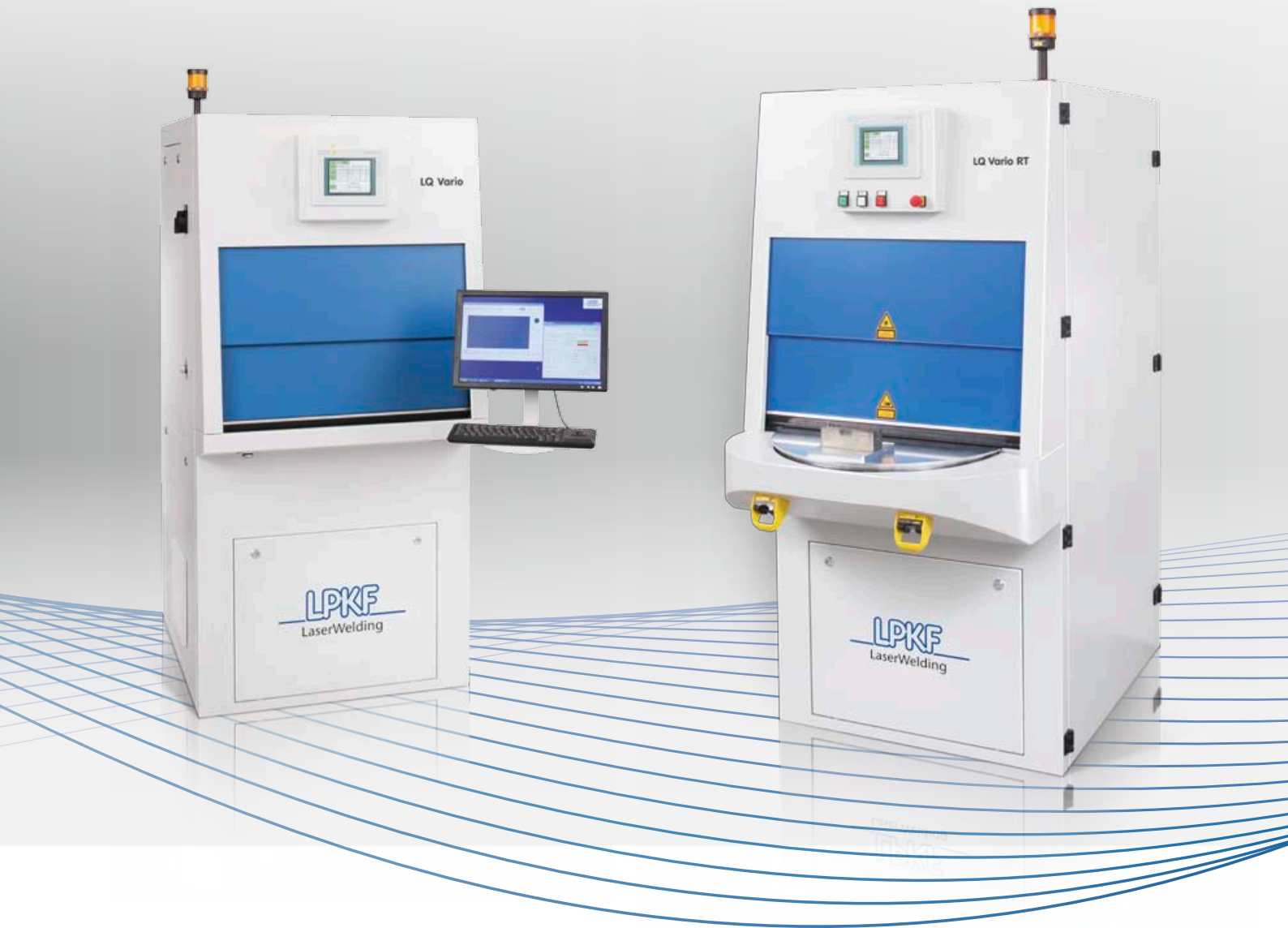
Built-in Adaptability

As a modular laser welding system, the name of the LPKF LQ-Vario gives away its most important benefit: it can be easily adapted to meet individual customer requirements. Different laser sources and feeding systems, combined with efficient controls and process monitoring systems ensure optimal workpiece quality and productivity. The LPKF LQ-Vario has the perfect equipment for each application.

More than just Systems

LPKF has in-depth laser welding experience. A specialized Application Center in Erlangen/Germany supports interested parties on process design questions, and can carry out job production to help iron out production peaks.

In addition to machines, customers benefit from a great deal of professional expertise – integrated in productive software specially developed for plastic welding.



Possible Applications



SEAGsens (sold by Siemens AG Austria under "SensoTag")

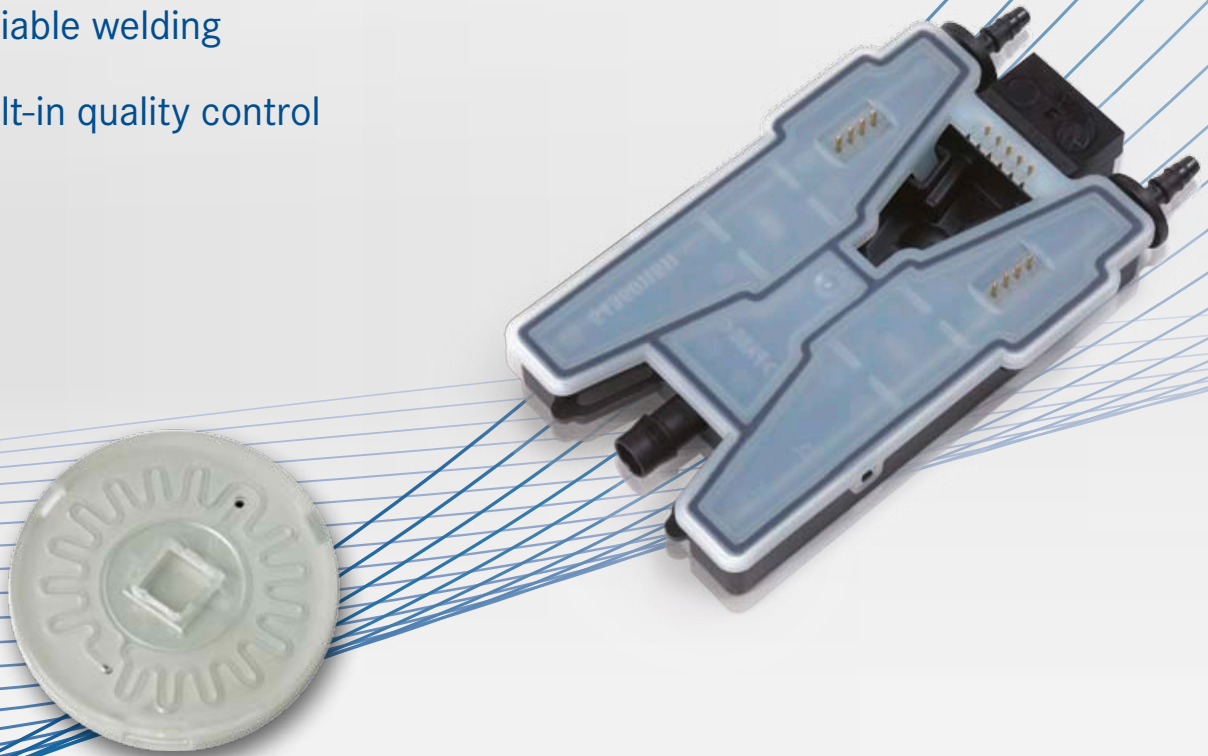


Valve insert (automotive part)



Safe joining of consumer products

- Super-efficient and flexible
- Reliable welding
- Built-in quality control



Safety for Products and Production

The LPKF LQ-Vario laser system was designed to be a flexible solution for a wide spectrum of plastic welding specifications. High quality components in a compact housing ensure maximum machine availability, while integrated online process monitoring assures product quality. The system requires no extra cooling, has a CE safety certificate, and uses class IV safety components.

The LPKF LQ-Vario has intuitive operation via a touch panel. Siemens PLC components mean smooth series operation. ProSeT software is supplied as standard for quick set up of welding contours, a pilot laser visualizes the weld contours.

LPKF Supports Tool Making and Setting Up Optimal Processes

Tool making:

- Expertise from hundreds of standard molds helps customers determine the optimal layout
- Patented clamping technology, the result of years of development, optimize the welding process
- Upon request LPKF produces the tools for welding tasks

Process setup and optimization:

- Ideal cycles and welding results, set up by application engineers with experience in more than 1,000 processes
- Welding systems optionally delivered with preset method ex works or on site in the customer production environment

Additional Options for Added Performance



The basic version of the laser welding system LPKF LQ-Vario is already designed for reliable and quick welding results. Additional options reduce cycle times and facilitate quality control:

- Clamping module
- Rotary indexing table
- Dual clamping device
- Remote maintenance module
- Automatic clamping tension control unit
- Data acquisition computer including additional software (ProSeT, ProCaT etc.)
- LPKF contour management software for an infinite number of welding contours
- Pyrometer for process monitoring, optionally also for process control
- Equipment package “Radial welding”

Optimized Delivery Rate

A clamping module developed specifically for the LQ-Vario ensures ergonomic assembly loading and unloading, as well as repeatable welding positions.

Fill a cavity, weld a cavity: while components are fed and removed outside of the welding chamber, production proceeds inside. This is the advantage of the optional rotary indexing table.

The rotary indexing table can be combined with the dual clamping unit, a clear performance boost and job simplification.

Monitored Quality

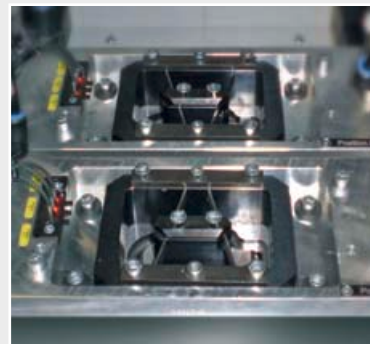
For extensive tracking & tracing the LPKF LQ-Vario can be equipped with optional equipment. For example the analogue data capture provides a data stream for each individual component. The pyrometer monitor measures heat build-up inside the component and compares it with the upper and lower limit throughout the welding process. This not only serves monitoring but as an error sensing device also helps to compensate material variations.

The modular configuration of the LPKF LQ-Vario leaves room for upgrades – a good basis for optimal customization to all production requirements.

Two Specialists

LPKF LQ-Vario MF – a model featuring a high-precision fiber laser, specifically for microfluidics welding.

LPKF LQ-Vario RT-d – a model featuring a round indexing table and dual clamping. Developed for a high output of small component assemblies. Feeding two components in one nest increases performance: it eliminates the time required for one of the clamping and delivery processes. Joining paths, weld times and limit stop can be set individually for both components – indispensable for complete quality control.



Dual clamping technology for increased output.

Greater Productivity and Speed

24/7 in an industrial environment – no problem for LPKF’s tried and tested laser welding technology. Well trained service staff are available around the world for commissioning and customer care services, not to mention an Application Center to help prepare feasibility studies and machine concepts, job production to help with production peaks, or ramp up of batch production. More than just laser welding. LPKF creates solutions – together with its clients.

| Technical Data: LPKF LQ-Vario | |
|------------------------------------|--|
| Laser safety class | 1 |
| Laser power | 30 W, 120 W, 200 W (other options available) |
| Laser wavelength | 980 nm (other options available) |
| 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 | Max. operating temperature: up to 40 °C (104 °F) Max. humidity: up to 80 % at 25 °C (77 °F) |
| Cooling system | Integrated water/air recooling unit |
| Options | Clamping module Rotary indexing table Dual clamping device Remote maintenance Automatic clamping tension control unit Data acquisition computer including additional software (ProSeT, ProCaT etc.) LPKF contour management software for an infinite number of welding contours Pyrometer for process monitoring, optionally also for process control Equipment package “Radial welding” |
| Main dimensions (W x H x D) | 900 mm x 2,000 mm x 1,000 mm (35" x 79" x 39") |
| Weight | 500 kg (1,100 pounds) |

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