

Cold Laser Processing

LPKF ProtoLaser R

- Picosecond laser for the research lab
- Cold ablation of different thin-film layers
- Intuitive CAM software
- Field-proven housing concept



Short Laser Pulses – Gentle Material Processing

LPKF ProtoLaser R with Ultrafast Laser Source

A key parameter in micro-material processing by laser is the pulse duration. The LPKF ProtoLaser R is capable of accurately structuring thin-film applications and delicate substrates – the “R” stands for “research.”

Laser Ablation with Virtually No Heat Input

In laser technology, the shorter the pulse, the lower the heat input into the surrounding material. A picosecond laser breaks down an important barrier. It practically eliminates heat transfer; the targeted material evaporates immediately.

Proven Housing

The new ProtoLaser R is packaged in the familiar third-generation ProtoLaser system housing. It is structurally decoupled from the effects of the environment and can be rolled through any lab door.

Micro-Material Processing Specialist

Unlike pure cutting applications, micro material processing does not require high powers. Instead, stable laser parameters in the lower output range are crucial. The LPKF ProtoLaser R features a laser source with a laser power of up to 4 W. This allows even complex thin film systems, temperature-sensitive substrates, and OLED coatings on glass to be ablated or structured with a high degree of control. The laser system requires no masks or films to accomplish these tasks.

Established System Software

The LPKF ProtoLaser R comes with tried and true system software. Support of all common CAD formats is enabled through the combination of LPKF CircuitPro and LPKF CircuitMaster.



Minimum thermal impact on FR4 material

Technical Data: LPKF ProtoLaser R	
Max. material size and layout area (X x Y x Z)	229 mm x 305 mm x 10 mm (9" x 12 " x 0.4")
Laser wavelength	1030 nm
Laser pulse frequency	Max. 200 kHz
Laser pulse duration	1 ps
Laser power	Max. 4 W
Laser spot diameter in focus position	15 μm (0.6 mil)
Table move speed (X x Y x Z)	100 mm/s x 100 mm/s x 10 mm/s (4"/s x 4"/s x 0.4"/s)
Dimensions (W x H x D)	875 x 1430 x 820 mm (34.5" x 56.3" x 32.3")
Weight	280 kg
Electrical consumption	110 V – 230 V; 1.4 kW
Required accessories	Exhaust unit, compressor, PC

