

Next-generation LPKF Circuit Board Plotters

Entry-Level Systems for Training and Development Labs

PCB prototyping is an essential step in electronics development.

With the ProtoMat E34 and the ProtoMat E44, LPKF offers multifunctional machines for structuring, drilling, and milling of circuit boards.

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The ProtoMat E44 (left) and the ProtoMat E34 (right) differ in terms of spindle speed and the camera feature.

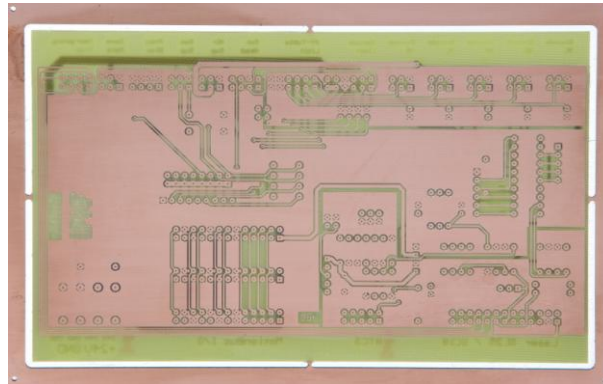
The plotter eats through the copper of the base material at up to 40,000 RPM. LPKF's E series ProtoMats are the low-cost entry-level solutions for professional PCB prototyping without the need for etching chemicals.

They are also extremely user-friendly and compact, with a footprint barely larger than a DIN A3 sheet.

Even when only used occasionally, the ProtoMats in the E series show their advantages. They offer a similar precision to that of high-speed systems in the ProtoMat S series but concentrate on the core task. The LPKF ProtoMat E34 has a spindle speed of 30,000 RPM, and the E44 even reaches 40,000 RPM. In both systems, a chuck with a micrometer screw gauge for precise height adjustment is available to speed up tool change.

Registration systems are indispensable for the processing of double-sided PCBs. With them, the boards are kept in a defined position, even after being flipped over for structuring of the other side. A resolution of less than 1 µm, a repeatability of +/-5 µm, and a registration hole system pre-

cision of $\pm 20\text{ }\mu\text{m}$ make the compact circuit board plotters more than capable of meeting the requirements for single- or double-sided PCBs.



Structuring, drilling, and milling – all are easy tasks for the two new E series ProtoMats.

The E44 has a camera to assist in positioning. The camera detects fiducials and geometric structures and uses these features as reference points for structuring, thereby increasing the positioning accuracy in double-sided PCBs. In addition, the camera on the ProtoMat E44 has a measurement function to facilitate milling channel adjustment. After the measurement operation the machine software gives the user exact values for making optimal adjustments.

The supplied LPKF CircuitPro CAM software makes it easier to meet production demands. It offers broad access to all process parameters. Users can draw on a comprehensive parameter library for numerous common and exotic materials for their projects. And there's more – when the user enters information on the lab equipment available, LPKF CircuitPro will optimize the work steps for the entire manufacturing process.

Ease of operation, high precision, and an outstanding price-to-performance ratio all combine to make the ProtoMat E34 and the ProtoMat E44 valuable assistants in any electronics lab.

About LPKF

LPKF Laser & Electronics AG manufactures machines and laser systems used in electronics fabrication, medical technology, the automotive sector, and the production of solar cells. Around 20 percent of the workforce is engaged in research and development.