Manufacturing High-Performance Printed Circuit Boards

From design to the finished PCB prototype in just a few hours – with the versatile circuit board plotters in the LPKF ProtoMat S series, it’s possible. As tabletop systems, they fit into any development environment and cover the complete range of applications from analog to RF.

For more than three decades, LPKF circuit board plotters have been regarded as the benchmark in milling, drilling, and contour milling of circuit boards. The precision, flexibility, and user-friendliness of LPKF systems are very useful for the fast in-house production of printed circuit board prototypes or low volumes. Various iterations can thereby be realized in a short time. The high speed of the low-maintenance milling spindles in the LPKF systems guarantees production of fine structures down to 100 μm and provides multilayer fabrication capability.

With the new ProtoMat S64, LPKF offers a basic system for nearly all PCB prototyping applications. The fast milling-drilling spindle guarantees ultrafast machining times and superior geometric accuracy. The machine is low-maintenance thanks to the new pneumatic self-cleaning function for the milling spindle and the milling depth sensor. Tool change, milling width setting, and dispensing are all automated.

For additional structuring of flexible or rigid-flexible materials, the new ProtoMat S104 is the system of choice. The versatile high-end circuit board plotter has a comprehensive range of equipment for the electronics laboratory. Thanks to the high-speed spindle and the vacuum table, it is also suitable for RF applications and thin laminates as well as substrates with delicate surfaces (trace widths down to 100 μm on FR4 18/18 Cu). The system software takes the special requirements of RF materials into account. Sensor-controlled automated material and copper thickness measurements enable precise determination of the required milling depth. The well-equipped machine with 20 tool positions automatically changes the appropriate tools during the fabrication process. The conical milling tools generate different insulating channels depending on the penetration.
depth. The milling width setting, which is also automated, provides for a uniform milling contour width.

Every LPKF structuring system has a comprehensive software package that has been optimized for ease of use, top quality, and speedy results. The software imports all common CAD data formats and transmits the production data to the systems. A parameter library for different materials supports easy operation. If necessary, the integrated Process Guide can lead the user step by step through the machining process.

Fig.: LPKF ProtoMat Series S circuit board plotters can be used to process a wide variety of materials.

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.