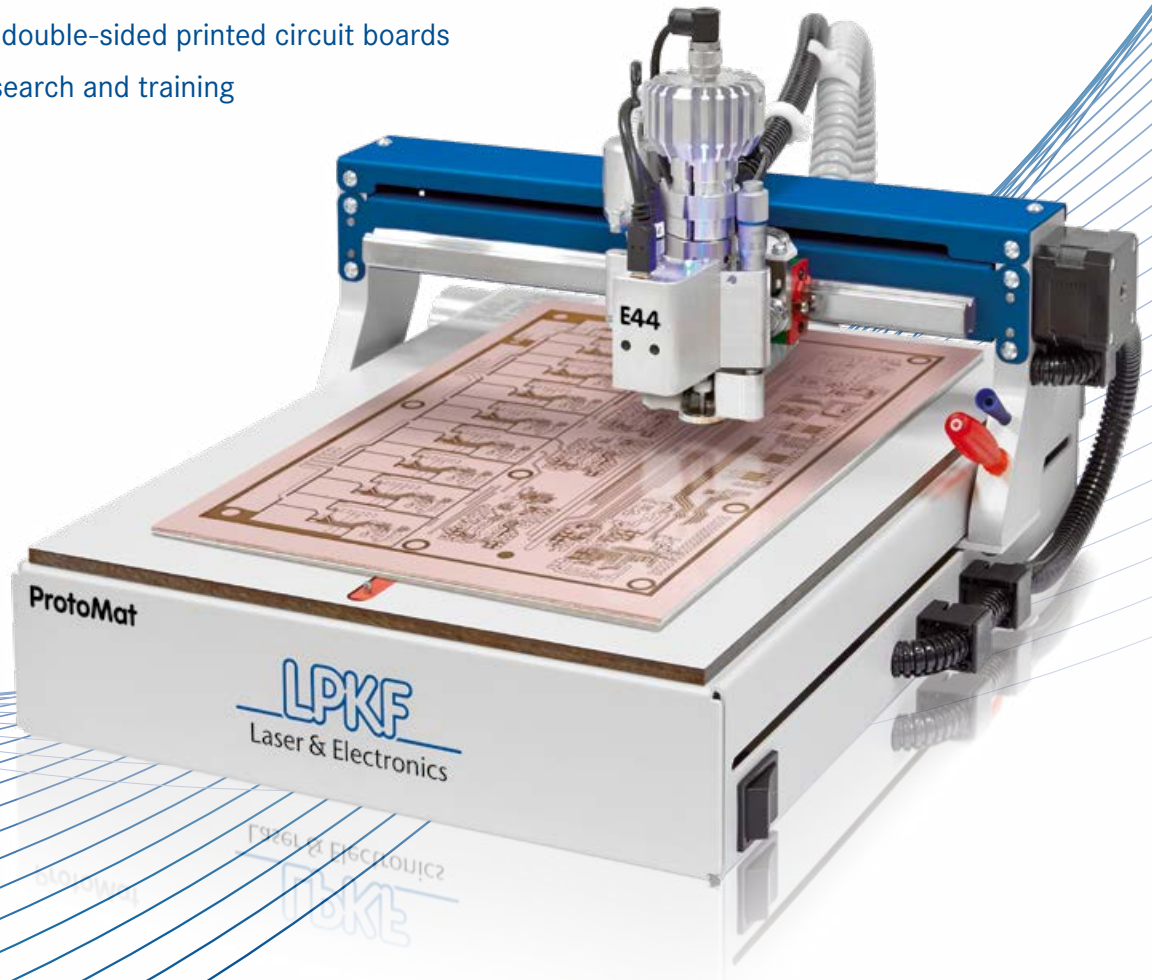


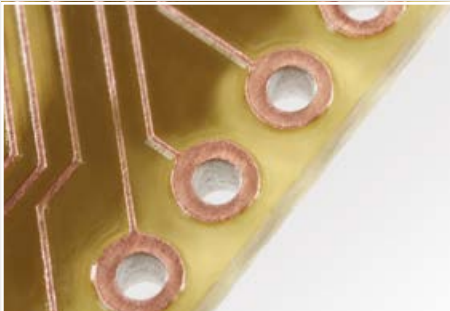
# In-House Rapid PCB Prototyping

## Reliable, Precise, Cost-effective: LPKF ProtoMat E44

- LPKF quality at an entry-level price
- With high-performance CAM software
- Single- and double-sided printed circuit boards
- Ideal for research and training



### Ideal for Training and Development



LPKF ProtoMat E44: For rapid and uncomplicated structuring, drilling, and depanelization of single- and double-sided printed circuit boards.

**LPKF**  
Laser & Electronics

distributor  
years  
**23** of  
Turkey

**tamara**  
electronics design

# Small and Powerful

With a high precision spindle motor up to 40 000 rpm, pristine copper milling is achieved from the base material. The LPKF ProtoMat E44 is a low-cost introduction to the world of professional printed circuit board prototyping. The LPKF CircuitPro software also provides easy operations for successful PCB prototype development.

## Milling Printed Circuit Boards in Training and the Electronics Lab

The main area is milling structures in copper-coated circuit board material, drilling through-holes, and milling out individual circuit boards from larger panels.

Even with smaller piece numbers or occasional use, the advantages of the ProtoMat E44 are obvious: It offers a level of precision similar to that of the high-speed systems of the S-series ProtoMats, but concentrates on the basics. The LPKF ProtoMat E44 has a 40 000 rpm milling spindle. For manual tool change it possesses a collet with a precise height adjustment by micrometer screw.

## Registry System and Camera

In addition to increased positioning accuracy with double-sided printed circuit boards, the camera with its measuring function enables milled slots to be set more easily. After the measuring process, the machine software helps the user arrive at the optimum setting.

Registry systems are indispensable for processing double-sided printed circuit boards. They hold the processed circuit boards securely in position, even after the boards are turned over for structuring the second side. The camera helps with positioning: It detects fiducials or geometric structures and orients the structuring process accordingly.

With a resolution of less than 1  $\mu\text{m}$ , a repeat accuracy of  $\pm 5 \mu\text{m}$ , and a precision of  $\pm 20 \mu\text{m}$  in the fitting hole system, the small ProtoMat circuit board plotter is more than able to meet the demands of milling single- and double-sided printed circuit boards.

## Software Package

The supplied CAM software LPKF CircuitPro Basic simplifies the process of arriving at solutions for production requirements, providing extensive access to all process parameters. A comprehensive parameter library for many commonly used materials supports the users in their own projects.

### LPKF ProtoMat E44

Max. material size and layout area (X x Y x Z)	229 mm x 305 mm x 5 mm ( 9" x 12" x 0.2")
Travel speed diagonal (X x Y)	100 mm/s (3.9"/s)
Milling spindle	Max. 40 000 rpm
Drilling speed	100 holes/min
Tool holder	3.175 mm (1/8"), manual tool change
Repeatability	$\pm 5 \mu\text{m}$ ( $\pm 0.2 \text{ mil}$ )
Mechanical resolution (X/Y)	$\pm 0.8 \mu\text{m}$ ( $\pm 0.04 \text{ mil}$ )
Accuracy in the fitting hold system	$\pm 20 \mu\text{m}$ ( $\pm 0.8 \text{ mil}$ )
Resolution camera	1.3 Mpx
Dimensions (W x H x D)	370 mm x 300 mm x 450 mm ( 14.6" x 11.8" x 17.7")
Weight	15 kg (33 lbs)
Ambient temperature	15 °C - 25 °C (59 °F - 77 °F)
Power supply	100 - 240 V, 50 - 60 Hz, 120 W
Required USB ports	2
Required accessories	Exhaust unit