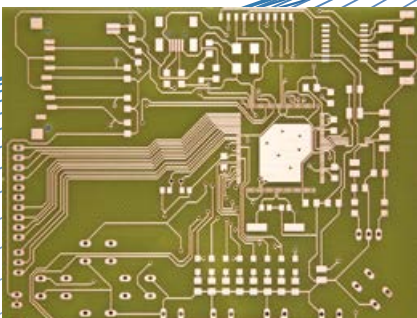


Specialist for HF and Microwave Applications

Machining PCBs with LPKF ProtoMat S104

- Top-class model with fully automatic operation
- Available rotation speed up to 100 000 RPM
- 20 tool change positions
- Optical register mark recognition
- Integrated vacuum table
- Easy-to-use package
- Granite base für highest accuracy results



LPKF ProtoMat S104 – Specialist for HF and Microwave Applications

The LPKF ProtoMat S104 for PCB processing is fully equipped for the electronics laboratory. Thanks to the high-performance spindle and vacuum table, it is also suitable for HF applications and thin laminates as well as substrates with sensitive surfaces (conductor path widths up to 100 µm on FR4 18/18 Cu). The system software considers the special requirements of HF materials.

Fast and Precise

The ProtoMat S104 works particularly fast and precisely with a speed of 100 000 RPM, high positioning speed and high mechanical resolution. In combination with the machine's stable granite base, this ensures optimum accuracy for drilling and milling of even very fine structures. The high-frequency milling spindle and the milling depth sensor are self-cleaning and therefore low-maintenance.

Fully Automatic

The easy-to-use package makes things easy for users of the ProtoMat S104. Sensor-controlled, the material and copper thickness are measured automatically and enable the exact calculation of the required milling depth. The machine, which is well equipped with 20 tool positions, automatically changes the corresponding tools during the production process. Depending on the intrusion depth, the conical milling cutters generate different insulation channels. The automatic milling width adjustment also ensures that the milling contour has a constant and correct width.

If required, the integrated dispenser can then apply solder paste to solder pads fully automatically. An additional data calculation is not necessary. The short set-up time and the operator-free machining enable the user to achieve short process times.

2,5 Dimensional

With its Z-axis drive, the ProtoMat S104 is ideal for machining front panels and enclosures – or for depth milling in printed circuit boards. It is also easy to machine assembled PCBs and to produce plastic mounts.

Intuitive: The Software

The system software in the ProtoMat S104 is highly flexible and easy to operate. The software is designed in order to meet the particularly high requirements of RF applications. A parameter library for different materials supports user-friendly operation.

LPKF ProtoMat S104

Max. material size and layout area (X/Y/Z)	229 mm x 305 mm x 8 mm (9" x 12" x 0.3")
Mechanical resolution (X/Y)	0.5 µm (0.02 mil)
Repeatability	± 0.001 mm (± 0.04 mil)
Milling spindle	Max. 100 000 RPM, software-controlled
Tool change	Automatic, 20 positions
Milling width adjustment	Automatic, micro switch ± 1 µm
Tool holder	3.175 mm (1/8")
Drilling speed	100 strokes/min
Travel speed (X/Y)	150 mm/s (6"/s)
X/Y-drive, Z-drive, tool feed	3-phase stepper motor, 2-phase stepper motor, 2-phase stepper motor
Solder paste dispense rate	≥ 0.3 mm (≥ 0,011") (solder point), ≥ 0.4 mm (≥ 0.015") (pad)
Dimensions (W x H x D), weight	680 mm x 560 mm x 800 mm (26.8" x 22.0" x 31.5"), 95 kg (210 lbs)
Operating conditions	
Power supply	90 – 240 V, 50 – 60 Hz, 450 W
Compressed air supply	6 bar; 200 Liter @ atmospheric pressure

