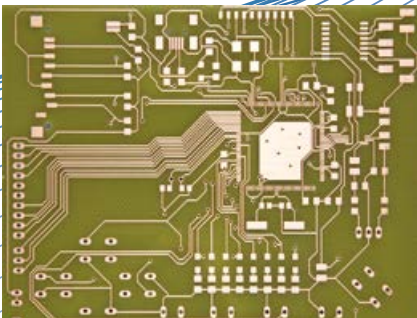


# Specialist for RF and Microwave Applications

## Machining PCBs with LPKF ProtoMat S104

- Top-class model with fully automatic operation
- Spindle speed up to 100 000 RPM
- 20 tool change positions
- Optical fiducial recognition
- Integrated vacuum table
- Easy-to-use package
- Granite base for highest accuracy



# LPKF ProtoMat S104 – Specialist for RF and Microwave Applications

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

## Fast and Precise

The ProtoMat S104 is particularly fast and precise due to the 100 000 RPM spindle motor which allows for higher travel speeds with a mechanical resolution of just 0.5 µm. In combination with the machine's stable granite base, this ensures optimum accuracy for drilling and milling of even very fine structures. The high-speed milling motor and the milling depth sensor are self-cleaning and therefore low-maintenance.

## Fully Automatic

Automated operation 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. The automatic milling width adjustment also ensures that any conical tools being used will always have a constant and correct width.

If required, the integrated dispenser can automatically apply solder paste to solder pads without any additional data preparation. 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 pocket milling in printed circuit boards. It is also easy to machine assembled PCBs and to produce aluminum enclosures and faceplates.

## 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. layout area (X/Y/Z)	229 mm x 305 mm x 8 mm (9" x 12" x 0.3")
Max. material size (X/Y/Z)	250 mm x 330 mm x 26 mm ( 9.8" x 13" x 1")
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)
Power supply	90 – 240 V, 50 – 60 Hz, 450 W
Compressed air supply	Min. 6 bar; 75 l/min @ 6 bar (min. 90 PSI; 75 l/min @ 90 PSI)

