










# LPKF ProtoMat S103

## The Specialist for RF- and Microwave Applications

**Product:** LPKF ProtoMat S103  
**Part no.:** 127410  
**Ordering info:** See front sleeve

### Applications

-  Milling/drilling 1- & 2-sided PCBs
-  Milling/drilling RF- & microwave substrates
-  Multilayer PCBs up to 8 layers
-  Contour routing of circuit boards
-  Flexible and rigid-flex circuit milling
-  Front panels/sign engraving
-  Machining cut-outs in front panels
-  SMD stencil cutting
-  Housing production
-  Wave solder pallets
-  Depanelizing, reworking PCBs
-  Test adapter drilling
-  Inspection templates
-  Dispensing solder paste

**High travel speed:**  
max. 150 mm/s (6"/s)



The ProtoMat S103 is one of the top of the line LPKF circuit board plotters. The extensively equipped system is suitable for all application areas including multilayer and RF – in FR4 18/18 Cu material it can achieve PCB track widths up to 100 µm. The high rotation speed and precision ensures production of the latest generation of PCBs. The pneumatic non-contact working depth limiter allows substrates with delicate surfaces to be machined.

The ProtoMat S103 is an indispensable tool for any prototype or small batch production. Ease-of-use and utmost reliability are the basis for cost-effective and high-quality production.

- Fully automated operation
- Highest available speed (100,000 rpm), highest resolution (0.5 µm) and repeatability ( $\pm 0.001$  mm)
- Automatic 15-position tool changer
- Automatic milling width adjustment
- Pneumatic non-contact working depth limiter
- Optical fiducial recognition
- Built-in vacuum table
- Dispenser option

# Features

## 2.5-dimensional operation with Z-axis control

The sophisticated Z-axis drive makes the ProtoMat S103 perfect for finishing front panels and housings as well as depth milling microwave PCBs. Even machining populated PCBs is no problem at all.

## 100,000 rpm spindle motor

The ProtoMat S103 is extremely fast and accurate with a spindle speed of 100,000 rpm, a max. travel speed of 150 mm/s and a resolution of 0.5 µm. This ensures the accuracy required for drilling and milling ultra fine structures – especially for high-end applications in the RF- and microwave field.

## Dispensing

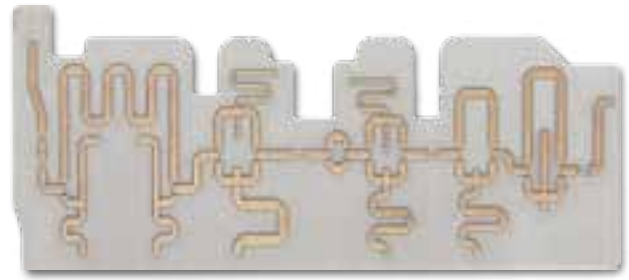
The built-in dispenser applies solder paste onto the substrates fully automatically with minimum data preparation.

## Options & accessories

- Dust extraction (Part no. 114647)
- Compressor incl. 50 l tank (Part no. 104863)
- Status light (Part no. 120128)
- Measuring microscope (Part no. 113495)

Other options and tools start on page 19.

# Applications



## RF- and microwave PCB

The ProtoMat S103 meets the highest standards in geometry and accuracy for structuring RF- and microwave prototypes. Special carbide tools produce straight sidewalls and reduce the penetration depth in the substrate.

## Contour routing and cut-outs

The S103 also routes complex shapes and cut-outs, or depanelizes populated circuit boards, housing parts or front panels.



Technical Specifications: LPKF ProtoMat S103	
Part no.	127410
Max. material size and layout area (X/Y/Z)	229 mm x 305 mm x 35/22 mm (9" x 12" x 1.4/0.9")*
Resolution (X/Y)	0.5 µm (0.02 mil)
Repeatability	± 0.001 mm (± 0.04 mil)
Precision of front-to-back alignment	± 0.02 mm (± 0.8 mil)
Milling spindle	Max. 100,000 rpm, software controlled
Tool change	Automatic, 15 positions
Milling width adjustment	Automatic
Tool holder	3.175 mm (1/8"), automatic holder
Drilling speed	120 strokes/min
Travel speed (X/Y)	Max. 150 mm/s (6"/s)
X/Y-drive	3-phase stepper motor
Z-drive	2-phase stepper motor
Dimensions (W x H x D)	670 mm x 540 mm x 840 mm (26.4" x 21.3" x 33")
Weight	60 kg (132 lbs)
Operating conditions	
Power supply	90 – 240 V, 50 – 60 Hz, 450 W
Compressed air supply	6 bar (87 psi), 100 l/min (3.5 cfm)
Required accessories	Exhaust, please refer to page 21

\* Value for Z without/with vacuum table

Technical specifications subject to change.