









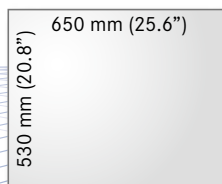
# LPKF ProtoMat X60

## Big in Rapid PCB Prototyping

Product: LPKF ProtoMat X60  
Part no.: 109643  
Ordering info: See front sleeve

### Applications

-  Milling/drilling 1- & 2-sided PCBs
-  Multilayer PCBs up to 8 layers
-  Contour routing circuit boards
-  Front panels/sign engraving
-  Machining cut-outs in front panels
-  SMD stencil cutting
-  Depanelizing
-  Inspection templates



**Specifically for  
large substrates**



The LPKF ProtoMat X60 is the pro for machining large substrates. Despite the large working space it offers the stability, speed and precision LPKF machines are known for. It features a non-contact, pneumatic depth working limiter for delicate substrates.

- For large material sizes up to 650 mm x 530 mm (25.5" x 20.8")
- Spindle speed up to 60,000 rpm, resolution 1  $\mu$ m, repeatability 0.001 mm
- Optical fiducial recognition optional
- Pneumatic non-contact working depth limiter
- Reliable, solid technology

# Features

## Maximum material size

The ProtoMat X60 features an extended layout area of 650 mm x 530 mm (25.6" x 20.8") and is ideal for large PCBs, antennas and depanelizing, but also for engraving plastics and soft metals. The ProtoMat X60 can quickly and easily engrave or mill 19" front plates.

## 60,000 rpm spindle motor

The ProtoMat X60 delivers superior precision: the resolution of the ProtoMat X60 yields up to 1 µm (0.04 mil). The circuit board plotter is ideal for producing fine structures in any material including RF- and microwave PCBs. The powerful 60,000 rpm spindle motor makes the X60 the first choice for Rapid PCB Prototyping large, high-quality PCBs.

## Non-contact working depth limiter

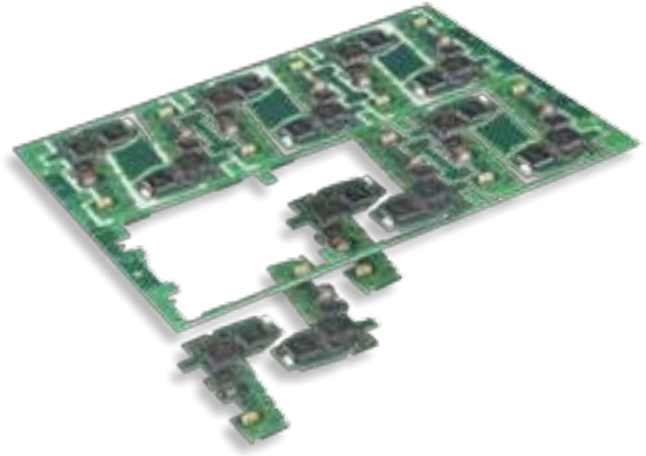
The pneumatic non-contact working depth limiter glides across the surface of the base material on an air cushion. Only the tool touches the base material for machining.

## Options & accessories

- Dust extraction (Part no. 114647)
- Compressor incl. 50 l tank (Part no. 104863)
- Optical fiducial recognition (Part no. 114487)
- Brush head (Part no. 113815 plus 109688 [micrometer screw])

Other options and tools start on page 19.

# Applications



The LPKF ProtoMat X60 is a cost-effective and flexible option in utilizing production lines to full capacity, for example when depanelizing unpopulated PCBs. Even complex contours, cut-outs and other routings can easily be programmed.



Technical Specifications: LPKF ProtoMat X60	
Part no.	109643
Max. material size and layout area (X/Y/Z)	650 mm x 530 mm x 14 mm (25.6" x 20.8" x 0.55")
Resolution (X/Y)	1 µm (0.04 mil)
Repeatability	± 0.001 mm (± 0.04 mil)
Precision of front-to-back alignment	± 0.02 mm (± 0.8 mil)
Milling spindle	Max. 60,000 rpm, software controlled
Tool change	Manual, quick-change holder
Milling width adjustment	Manual
Tool holder	3.175 mm (1/8")
Drilling speed	120 strokes/min
Travel speed (X/Y)	Max. 100 mm/s (3.94"/s)
X/Y-drive	3-phase stepper motor
Z-drive	Pneumatic, 14 mm (0.55")
Machine baseplate	Al-Plan precision plate
Dimensions (W x H x D)	750 mm x 420 mm x 900 mm (29.5" x 16.5" x 35.4")
Weight	69 kg (151.8 lbs)
Operating conditions	
Power supply	115/230 V, 50 – 60 Hz, 300 W
Compressed air supply	6 bar (87 psi), 100 l/min (3.5 cfm)
Required accessories	Exhaust, please refer to page 21