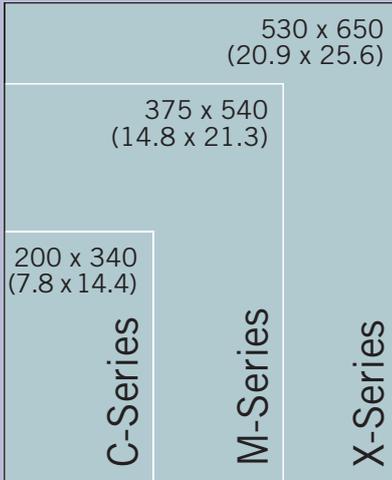


# LPKF ProtoMat® X-series



Working area in mm (inch)

## LPKF ProtoMat® X60

### Drilling, Routing & Depaneling

The ProtoMat® X60 is placed between two worlds – rapid PCB prototyping plotter on one hand and versatile production drilling and routing system on the other. The large table holds panel sizes of 650 mm x 530 mm (26" x 21"). The X60 is equipped with pneumatic z-stroke and non-contact air bearing depth limiter. The extended Z-axis range enables depaneling and milling of deep trenches for rigid and rigid-flex boards.

The ProtoMat® X60 is also ideal for producing anti-static inspection templates for circuit boards.



Applications	LPKF ProtoMat® X60
1 and 2-sided circuit boards	
FR3, FR4, FR5, G10	
Flexible substrates	
RF & microwave substrates	
Front panels/sign engraving	
Machining cut outs in front panels	
Contour routing of circuit boards	
Multilayer PCBs up to 4 layers*	
Multilayer PCBs up to 8 layers*	
Test adapter drilling	
Milling film artworks	
SMD solder stencil cutting	
Rigid-flex circuit milling	
Depanelization and reworking of bare and populated boards	
Solder frames for circuit board assembly	
Machining of enclosures	

■ Suitable for application

\* combined with MultiPress II and Contac III/MiniContac III

Model for use in series production.  
Working area matches standard  
PCB production panels



Specifications	LPKF ProtoMat® X60
Part number	109643
Minimum track width	0.1 mm (4 mil)
Minimum gap	0.1 mm (4 mil)
Minimum hole diameter	0.2 mm (8 mil)
Working area	650 mm x 530 mm (25.6" x 20.9")
Resolution	1 µm (0.04 mil)
Repeatability	± 0.001 mm (0.04 mil)
Front-to-back registration accuracy	± 0.02 mm (0.8 mil)
Milling motor	3-phase motor, 10,000 - 60,000 rpm, programmable
Tool change	Semi-automatic
Collet	1/8" collet
Drilling capacity	120 strokes/min
Positioning speed (max.)	50 mm/sec (1.97"/sec)
Depth adjustment	Non-contact air bearing
X/Y positioning system	stepper motors, precision ball screw assemblies with internal ball recirculating system
Z drive	pneumatic, 14 mm (0.55") movement
Machine table base	75mm (3") cast aluminum
X/Y linear system	precision linear bushings and dual shafts
Dimensions (W/H/D)	750 mm x 420 mm x 900 mm (29.5" x 16.5" x 35.4")
Weight	69 kg (151.8 lb)
Power supply	120/240V, 50 - 60 Hz/240VA
Compressed air supply	6 bar (87 psi), 100 l/min (3.528 cfm)
Options/accessories	
Software package CircuitCAM LITE	–
Software package CircuitCAM PCB	•
Dust extraction unit	+
Dust extraction AutoSwitch	+
Tooling starter kit (board material/tools etc.)	+
Measuring microscope	+
Mobile sound enclosure	–
Head illumination	++
CircuitView camera system	+
Micrometer depth adjustment	+
3-phase motor, 10,000 to 100,000 rpm	+
3-phase motor, 10,000 to 60,000 rpm	•
EC motor, 10,000 to 40,000 rpm	–
Pneumatic Z-stroke	•
Pneumatic non-contact air bearing	•
Raising Z-axis by 30 mm (1.2")	+

• standard equipment

+ optional (can be retrofitted)

++ optional (needs to be factory mounted)

– not available

■ recommended basic equipment