

Dear Valued Customer,

We would like to thank you for using LPKF equipment for your in-house PCB prototyping. To keep you informed about new developments in our product line and applications as well as ongoing improvements in our technology, LPKF will now publish a newsletter on a regular basis. It will be designed for you and suggestions or comments are certainly encouraged.

Sincerely
Stephan H. Schmidt
General Manager North America



New Building accommodates LPKF's North American Sales & Service

Most of you probably know by now, that LPKF Laser & Electronics moved to a new address. At the end of 1999 LPKF moved into it's own 13000 sq. ft. building in Wilsonville, Oregon, 15 miles south of Portland. The new facility provides necessary space for this exciting business and its tremendous growth rate. It allows bigger and better warehouse capacity to ship products instantly. The Service department has also been significantly enlarged and improved to provide superior customer service.

Genuine LPKF Milling Tools

LPKF stocks all necessary tools, supplies and accessories for its North American circuit board plotter users at its Sales & Service facility in Wilsonville, Oregon. All supplies can be ordered and shipped either inexpensively on a daily basis by UPS Ground or overnight on your UPS or FedEx account.

We are dedicated to providing the highest quality at minimal cost therefore all LPKF tools are custom manufactured by the biggest and finest manufacturers in the tool industry to meet LPKF's high quality standards. If you haven't been using genuine LPKF tools with your circuit board plotter we want to invite you to give us a try.

PLEASE NOTE OUR NEW ADDRESS

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Wilsonville, OR 97070

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Fax: 1-503-682-7151

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info@lpkfcadcam.com

Tech Support Group:
1-503-454-4229
support@lpkfcadcam.com

System Sales:
1-503-454-4219
or toll free 1-800-345-LPKF
sales@lpkfcadcam.com

Tool Sales:
1-503-454-4242
or toll free 1-800-345-LPKF
tools@lpkfcadcam.com



Call our Tool Specialist Julia Newby at:
1-503-454-4242

or email her at tools@lpkfcadcam.com to find out what LPKF tools and accessories can do improve your in-house Prototyping.

RapidPCBPrototyping
Newsletter



Group Training Classes

LPKF now offers group training classes at its North American Sales & Service facility in Wilsonville, Oregon (near Portland). These highly effective and inexpensive classes are ideal to re-train staff or educate new employees on your LPKF equipment. Students will learn advanced software handling to streamline the prototyping process. Our group classes also contain many tips & tricks on using the circuit board plotter hardware. LPKF provides individual workstations and a sophisticated training book for each student during these full day classes..

There are three different classes on schedule:

Requirement	Refresher Course Some experience with CircuitCAM and plotter. Maybe student had a private training several years ago. Also appropriate to introduce new staff to LPKF equipment.	Advanced User Course Experienced user who creates regular double sided boards or users recently attended the refresher course and want to learn extra functions to become more efficient.	RF & MW User Course User involved in RF/Microwave design (also DXF data) on special substrates such as Taconic, Rogers, GIL, etc.
Contents	File Management, Gerber and NC Drill files, CircuitCAM, some machine operation and tool info. Discussions with Q&A.	Import assignment setup, insulation strategies, design manipulation, machine configuration and tool management.	How to operate with DXF files, properties of RF materials and required tools, RF Insulation strategies and material handling.
Date	Tuesday, Dec 5th, 2000	Wednesday, Dec 6th, 2000	Thursday, Dec 7th, 2000
Cost	US\$500	US\$500	US\$500

New in stock: 6 mil Endmill for RF Application

Now in stock after 9 months of close cooperation between LPKF and the tool manufacturer is the custom made 6 mil endmill. This tool allows superior design definition especially for RF and Microwave users who prefer soft board or ceramic filled substrates from manufacturers such as Rogers, Taconic, GIL or Arlon. It allows rectangular cutting edges, with minimal penetration into the substrate. The lifetime of this tool is approx. 3-5 times of any standard available endmill of this size.



Protection Sprays for Professional Board Finish

To give prototype boards a great finish they can be treated after milling with either of these new spray lacquers. Solderlac is a transparent protective coating and flux-agent whereas Plastik Spray is a transparent protective conformal coating based on an acrylic resin. Both finishes are solderable and prevent corrosion.

Plastic Spray, 6.66 fl oz (200 ml) can
Part # 12014 US\$ 19.80

Solderlac Spray, 6.66 fl oz (200 ml) can
Part # 12514 US\$ 19.80



New Backing Material and Spray Adhesive

Underlay material is used to raise the copper board off the machine table to protect it from damage when drilling holes or cutting the board's contour. The new LPKF back-up boards are free of phenolic resin or formaldehyde additives. The LPKF underlay material is very flat and has a smooth surface with a very hard, thin, white coating on both sides to meet the highest demands for drilling quality. Only conifers are used to manufacture these boards and they are free of carcinogenic oak or beech fibers, bark and ashes. Our new backing material does not absorb moisture and therefore doesn't warp when stored.

Thickness: 2 mm (79 mil) +/- 0.1 mm.

9" x 12", Pkg. of 10 boards

Part # B102 US\$ 49.00

15.5" x 18", Pkg. of 10 boards

Part # B103 US\$ 99.00

Also new: Repositionable spray adhesive to affix thin or soft substrates to the backing material.

Spray Adhesive 15 fl oz (450 ml)

Part # 6065 US\$ 10.00

Instant SMD Stencil Production with ProtoMat® Systems

New precision and efficiency for in-house PCB prototyping



The artwork from Gerber or DXF* data will be processed in CircuitCAM to generate the necessary milling vectors to cut the apertures into the polymer material using a fine line cutter (part # C500). Such stencils can accommodate pads as small as 10 mils in diameter with a minimum pitch of 20 mils between pad centers. Stencil thickness can be selected in the range from 3 mil to 5 mil.

To use the polymer stencil more easily, especially for prototyping, LPKF offers the ZelFlex stretching frame to mount the stencil for use in a printer. Solder paste can be applied with a screen printer

LPKF ProtoMat mills prototype stencil

For the first time, the entire process of SMD prototyping can be done in the security and convenience of your own lab, at a fraction of the time and cost of outsource alternatives. LPKF Laser & Electronics has added solder stencil capability to its line of environmentally friendly systems for the production of prototype circuit boards. Stencils ensure the application of precisely defined amounts of solder paste to circuit boards for optimum SMD connections, replacing tedious compressed air techniques that often result in bubbles and bridges.

Until now, the production of solder paste stencils was too expensive and time consuming for short run prototyping work in design labs. The new LPKF mechanical etching technology mills stencils from polymer foil at a fraction of the cost of laser techniques. The process creates stencils using the same LPKF ProtoMat® Circuit Board Plotters that produce prototype boards, directly from CAD/CAE design files. A typical stencil can be produced in less than 10 minutes.

Such as LPKF's ZelPrint LT300 low cost manual screen printer that can be set for either contact or non-contact operation. A low cost pick and place system is also available to complete the sophisticated in-house SMT component assembly.

* DXF input not available in CircuitCAM Lite

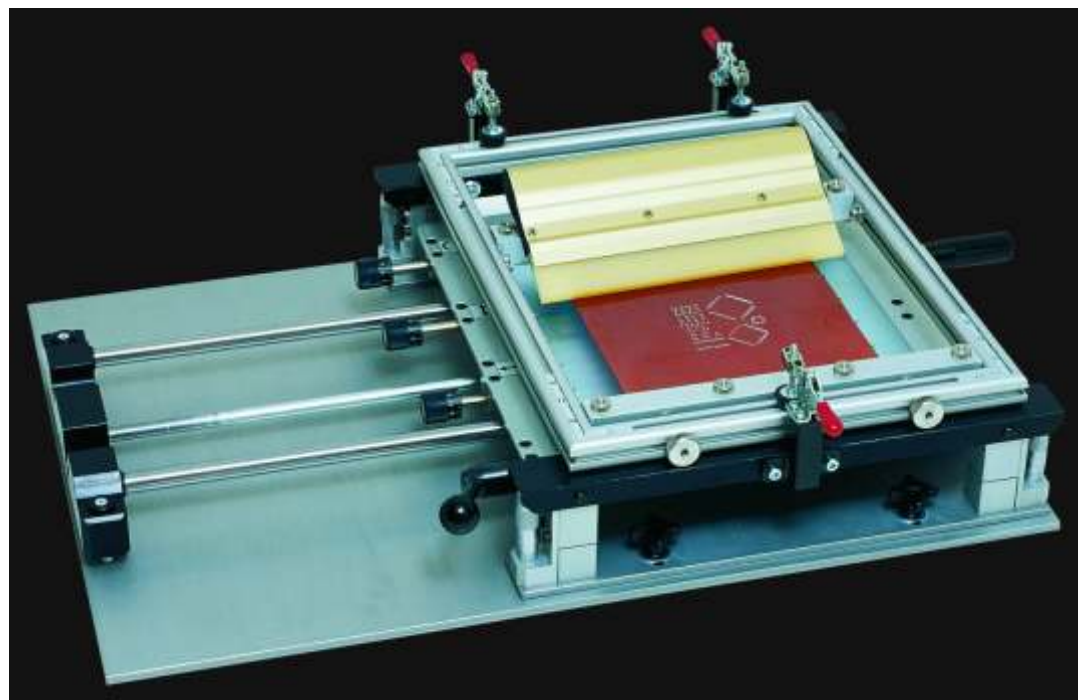


New in stock: Metal Free PCB Cleaning Pads

LPKF now provides metal free PCB cleaning pads for deburring and a great board finish. These pads are made out of polymer material and feature a very fine grid. They can be used in both wet and dry conditions and are superior to steel wool and sand paper. Our PCB pads allow very gentle cleaning of the copper and remove any oxidation without damaging the surface.

Polymer PCB cleaning pads are available in packs of 10 pieces.

Part #07448 US\$10



LPKF ZelPrint LT300 with milled polymer stencil

NEW: Circuit Board Plotter Designed for RF/Microwave Applications

Advances extend rapid PCB prototyping to high performance surface-sensitive materials

The LPKF ProtoMat® C100/HF circuit board plotter introduces significant new precision and control technology to the production of high performance RF/microwave circuits. The new plotter extends the speed, safety and convenience of mechanical PCB prototyping to surface-sensitive materials and substrates used in demanding high frequency applications.

The C100/HF replaces older magnetic methods with a unique pneumatic system to control the cutting process. The adjustable pneumatic stroke movement and depth delimiter define penetration very accurately. A micrometer screw allows finer control of the cutting depth. Surfaces are processed far more precisely and gently than with previous methods, making it possible for the first time to create circuits in highly sensitive surface materials. The pneumatic stroke also greatly extends the service life of cutting tools.

Tool service life and geometric precision are also enhanced through the use of new drive system in the ProtoMat® C100/HF. An adjustable speed 3-phase motor operates up to a maximum of 100,000 rpm compared to 60,000 rpm in previous models.

The new plotter produces structures as small as 100-micron track width with very precise cutting channels. The improved system ensures the faithful reproduction of circuits and supports the post-processing of assembled PCBs.

The LPKF ProtoMat® C100/HF is the newest member of the LPKF ProtoMat® family of high-precision rapid PCB prototyping systems, representing 24 years of leadership in designing and producing environmentally safe in-house PCB prototyping systems.

More information is available at LPKF's web site: www.lpkfcadcam.com

Multilayer Prototype PCB's in the Lab

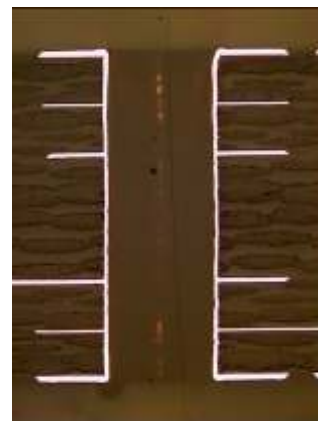
New compact multilayer press for rapid prototyping



LPKF introduced a new table top press for the production of multilayer PCB's. The LPKF MultiPress II is especially designed for use with LPKF circuit board plotters and through-hole plating systems such as the LPKF MiniContac electroplating tank. LPKF has designed these systems to be used in virtually any environment, including an engineering lab, to produce up to 6-layer finished prototypes in only a few hours.

The microprocessor-controlled system laminates layers to suit the characteristics of individual materials and board sizes. The MultiPress II automatically monitors and optimizes process parameters, including the critical cooling phase, to allow proper out-gassing and to maintain consistent dielectric behavior within the multilayer PCB. It can also laminate instant solder mask.

The LPKF MultiPress II is compact and powerful. It generates 15 Tons of hydraulic force (100 N/cm²) to laminate board sizes up to 10" x 12" (254 mm x 305 mm). It also accommodates all common laminates (FR-4) as well as specialized microwave prepregs such as ROGERS RO 4003, RO 4350 and RO 4403 used in the construction of standard multilayer boards. Visit www.lpkfcadcam.com to learn more about in-house multilayer prototyping.



\$19,950
or
\$436.11* a month

LPKF ProtoMat® C100/HF

*Leasing Terms: Requires first and last month's payment at lease signing. Leasing rate is based on a 60 month lease with a 10% purchase option and are subject to credit approval by Trinity Capital. Other terms are available. Additional Fees may apply. Leasing rates shown are examples and don't include shipping, tools, accessories, training or expendables.