

Redefining Laser PCB Depaneling

New LPKF CuttingMaster Laser systems at IPC APEX Show 2020

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San Diego, CA, LPKF Laser & Electronics is introducing the LPKF CuttingMaster family of laser depaneling systems for rigid and flex PCBs. Available with different laser sources, power levels and two different working areas, the CuttingMaster 2000 and CuttingMaster 3000 systems are suited to achieve the highest quality results for nearly every depaneling task. LPKF’s proprietary CleanCut Technology allows for even the most demanding applications which require absolute cleanliness of the cutting edges to be processed with lasers.

The **CuttingMaster 2000 series** (Fig. 1) is a highly cost-effective laser depaneling system. Its very compact footprint saves valuable space on the production floor while it still provides an effective working area to handle panels up to 350 mm x 250 mm (13.8” x 9.8”). It is available either as a stand-alone system or as an in-line configuration (Fig. 2) with integrated conveyor system. The high-throughput and clean cutting quality is comparable to mechanical depaneling methods, but with none of the dust or debris, while the low investment cost allows for a very attractive ROI.

The **CuttingMaster 3000 series** provides a larger working area to handle panels up to 500 mm x 350 mm (19.7” x 13.8”) and high speed and high precision linear motor drive system with a rigid granite construction that provides exceptional positioning accuracy for high-end-applications. The CuttingMaster 3000 is also available in a stand-alone configuration or in-line integration for SMT lines. The ability to integrate a wide range of different laser sources with different wave lengths and pulse durations in both the nanosecond and picosecond range allows these systems to be deployed for a wide range of applications and materials including drilling applications.

The systems come with powerful **LPKF CircuitPro system software**, which is perfectly matched to the hardware and designed for easy-to-use operation without expert knowledge. CircuitPro is compatible with all standard data formats and standard interfaces used in PCB production. Custom MES

connectivity, multi-fiducial detection, bad-board recognition and full product traceability are also available to optimize the production efficiency of the LPKF CuttingMaster system in the SMT assembly process.

All LPKF CuttingMaster systems are available as a stand-alone or inline solution. (Fig. 2) They are prepared for 24/7 production.

Why considering Laser Depaneling at all?

Laser depaneling has numerous advantages compared to conventional depaneling processes: The contactless processing is completely a stress-free method for the workpiece. As the surrounding material is not affected, cutting edges can be made directly next to components, which increases the usable space on the circuit board and saves material, especially in the case of full cuts. Laser depaneling is also avoiding any airborne dust and debris contamination of the work piece, which completely eliminates any post-processing or cleaning, and improves both production yield and long-term product reliability. LPKF's CleanCut technology mitigates carbonization and produces clean, sealed sidewalls without any chipping or frayed glass fibers that are often seen with mechanical depaneling methods. (Fig. 3)

The laser produces very narrow cutting channels with very high precision and no limitation to the shape or design of the cut. It can process a wide variety of flexible and rigid materials. The laser-beam-guided process requires no tooling and does not wear which can result in considerable savings in consumable expenses.

LPKF laser depaneling systems are designed and built for 24/7 production and are perfectly suited to sensitive applications in a wide variety of industries such as medical technology, automotive, and consumer electronics.

Photos:



Fig. 1: LPKF CuttingMaster



Fig. 2: LPKF CuttingMaster – available for integration into production lines

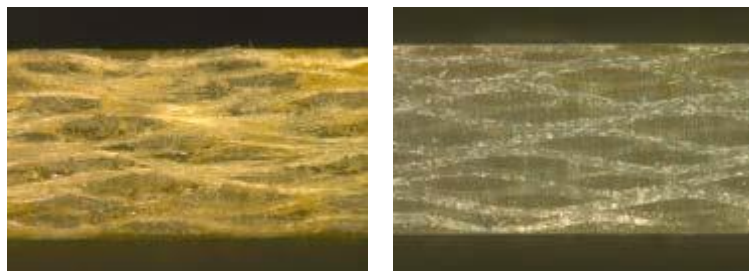


Fig. 3: Cut edges of milled (left) and laser-cut (right) FR4 material. Clearly visible: After the milling process, the edge shows open structures with chipping; laser cutting produces a closed surface.

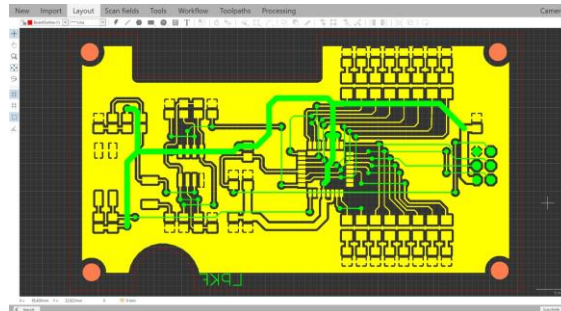


Fig. 4: The easy-to-use software LPKF CircuitPro has a clearly structured user interface.

About LPKF

LPKF Laser & Electronics AG is a leading provider of laser-based solutions for the technology industry. Laser systems from LPKF are of central importance for the manufacturing of printed circuit boards, microchips, automotive parts, solar modules and many other components. Founded in 1976, the company has its headquarters in Garbsen near Hanover and operates worldwide through subsidiaries and agencies. Around 20 percent of the workforce is engaged in research and development.