

New LPKF Contac S4 for Galvanic Through-hole Plating

In the manufacturing of double-sided or multilayer PCBs, reliable electrical connection of the conductive networks is essential. At Embedded World in February 2016, LPKF presented the compact Contac S4 system for galvanic through-hole plating without the need for any knowledge of chemistry.



Complex electronic circuits have outgrown single-sided boards. The backs of the boards must also transmit current or signals; in addition, as complexity increases, the number of layers required also increases. Currently prototypes with up to eight layers can be produced in the lab. Various methods are available for connecting the layers.

Copper rivets can be used in a few cases for through holes with relatively large hole diameters. Copper rivets and punch tools with various diameters are available.

Another method uses a specially designed paste that is pulled through the holes by a vacuum and then cured in a furnace. Holes with diameters of up to 0.4 mm can be contacted reliably with a resistance of 20 m Ω .

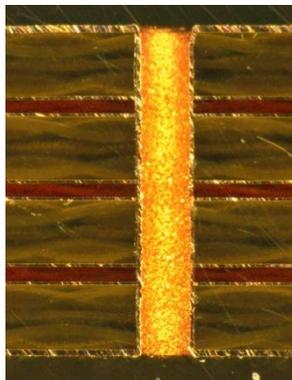
For assembly production prototypes, multilayers, and small holes with diameters of up to 0.2 mm, galvanic through-hole plating is the best option. In this process, holes are introduced into the unstructured base material, which is then given a conductive coating. The boards are electrically contacted and suspended in a galvanic bath. Copper is built up on every

conductive surface in a galvanic process. The LPKF Contac S4 has six baths for performing all the necessary steps: activation, cleaning, and galvanization. In addition, tin plating can be performed in one of the baths to provide surface protection and improve solderability.

The LPKF Contac S4 underwent a number of changes from the predecessor models: A new anode plate design in conjunction with reverse pulse plating ensures highly homogeneous copper layer buildup with a layer tolerance of a mere $\pm 2 \mu\text{m}$. Boards contacted in this way can be structured easily, e.g., with the LPKF ProtoLaser S4 (laser source in the green range of the visible light spectrum) without any damage being done to the organic substrate. A cleaning step for microvias also guarantees the quality of the contacts, even with fine holes with an aspect ratio of 1:10.

A new operating concept with a touch panel is being used for the first time in the LPKF Contac S4. The wizard guides the user through each step of the process and ensures that the process can be performed by any user, with or without any knowledge of chemistry.

The system requires very little maintenance and is made of high-quality discoloration-resistant materials.



The LPKF Contac S4 can be used for reliable, homogeneous through-hole plating of up to eight layers in the lab.

About LPKF

LPKF Laser & Electronics AG manufactures machines and laser systems used in electronics fabrication, medical technology, the automotive sector, and the production of solar cells. Around 20 percent of the workforce is engaged in research and development.