

# HIGHER QUALITY LEVEL BY ELECTROPOLISHING

## Optimisation of stencil printing

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**The trend in electronics production is towards ever smaller and thinner packages, whereby the housings are only slightly larger than the chip.**

This development also increases the risk of errors in assembly production in connection with solder paste printing through the use of SMD print stencils. This is why Berliner Photo-cad subjects its SMD printing stencils from the "Advanced" and "Performance" product lines to standard surface finishing and testing processes. At the end of the production process, a stencil check with optical scans ensures 100 per cent implementation of the customer order data.

In a special finishing step, these templates are brushed on both sides. This is followed by specific electropolishing. This is to ensure that the quality of the solder joints meets the requirements of IPC-A-610 class 2 and 3 and that even the finest burrs, dust and dirt particles as well as all metal ions are removed and the inner walls of the pad openings are smoothed - an important prerequisite for reliable assembly in small to medium quantities.

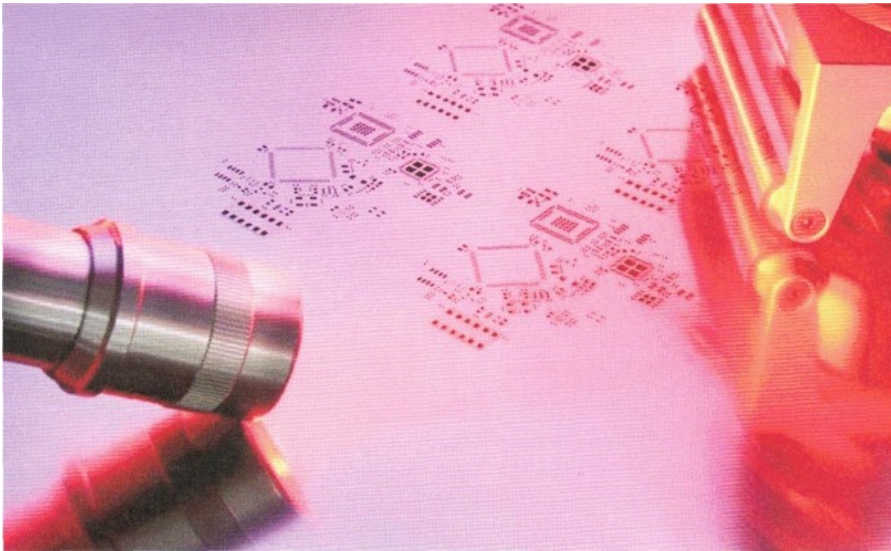
The electrochemical polishing of SMD printing stencils requires special machines that guarantee precise and uniform results over the entire surface of the stencils. Automated systems achieve high efficiency and ensure reproducible quality. With the Poligrat EP 110 electropolishing system, Photocad uses an automatic system for the electrochemical processing of SMD printing stencils. In this system, the polishing process takes place in a closed chamber, controlled by a Siemens CNC controller. This guarantees consistently high quality - and occupational safety is significantly improved.

With this principle, the SMD printing stencil is surrounded by an electrolyte solution and positively charged so that it acts as an anode. The cathode moves over the stencil in the electrolyte. When direct current is applied, metal ions are removed from the anodic template and move in the direction of the cathode. In this way, the entire surface - including and especially the laser-cut inner walls - is perfectly **smoothed** and finely deburred.

The specific advantages of this automatic electropolishing process are that these SMD stencils are not exposed to any mechanical or thermal stress.



**SMD printing stencil production machines**



**SMD pressure scrapers Quality inspection**



**Continuous washing system: precise cleaning as a prerequisite for exact apertures**



**Stencil electropolishing in the machine ensures placement reliability**

are. The quality of the solder paste print in the assembly process is significantly improved, as the consistently smooth walls improve the release behaviour of the solder paste - bridging is eliminated. The stencils are easier and quicker to clean. The work results are reproducible with a high degree of accuracy and thus also ensure the important traceability. The service life of the "Advanced" and "Performance" product lines is extended. Photo-cad electropolishing is certified in accordance with DIN EN ISO 9001.

"We have noticed a growing proportion of electropolished SMD print stencils in recent years - according to our ERP system, this has been precisely 29 per cent of

48,200 in total," as Axel Meyer, Head of Sales and Marketing, emphasises.

"The increased production reliability with smaller packages, medium-sized production batches and favourable Photocad conditions is becoming increasingly important for our customers".

• [www.siegler.digital](http://www.siegler.digital)

**Photocad is a leading German digital manufacturer of laser-cut SMD stencils for high-quality paste printing that guarantees maximum process reliability in electronics production. All processes, from incoming orders to production and same-day delivery, are fully digitalised and thus in the zero-defect range. The product portfolio includes**

- SMD printing stencils
- Basic Plus for standard structures
- Advanced for fine structures
- Performance for fine structures in large quantities
- Step templates
- Functional model
- Surface finishes such as nanocoatings and electropolishing

**Production location is Berlin, production capacity: 30,000 stencils p.a.**

Target markets are industrial electronics, energy, environment, medicine, automation in the EU with a focus on the D-A-CH region

Quality management according to ISO 9001: 2015, EN 9100: 2018

• [www.photocad.de](http://www.photocad.de)