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Support for Umeantech now
also in stencil printing

*Alexander Sigler, owner Umeantech,
and Moshe Levy, owner MemTech.*

Ersa launches VERSAPRINT 2 in Israel

Author
Wolfram Hübsch
Product Manager
Ersa GmbH

The Productronica in November 2019 marks the twelfth anniversary of the market launch of stencil printers made by Ersa. Time flies …! The highlight of the first edition in 2007 was the integrated 2D print control, which enabled a 100% statement about the quality achieved. After printing, the PCB was completely captured using a scanner and examined for paste application and possible short-circuits.

What was state-of-the-art in 2D inspection then was gradually pushed to its limits by miniaturization and a much narrower grid of components. Ersa answered this by capturing the printed solder paste in three dimensions – known as SPI, short for "Solder Paste Inspection". The technology integrated in the VERSAPRINT 2 recently also convinced the Israeli company Umeantech.

kurtz ersa

Being a system supplier, Ersa GmbH is known for innovation and technological leadership in many areas of electronics manufacturing. Thus it was a logical step for Ersa to serve the current market requirements with regard to stencil printing. And true to this philosophy, Ersa engineers have approached the topic of 3D-SPI. Of course it was clear from the beginning that it had to be an integrated solution in the printer again.

Development started about four years ago, the successful integration of a specially developed camera took place two and a half years ago. The laser-based triangulation method is used to capture the height of the printed solder depot. The camera permits both the positioning of the PCB for the printing process and the subsequent inspection of the entire layout.

REDESIGN OF THE PRINTER PLATFORM AFTER TEN YEARS

The 3D-SPI feature was integrated in the platform of the VERSAPRINT 1 series and quickly established itself on the market. Over the past two years, numerous systems with 2D inspection have been converted to 3D – which also confirms that the Ersa Development had taken the right path towards an integrated 3D inspection. After ten years of VERSAPRINT 1, Ersa decided to redesign the existing printer platform. Many new options that had been developed in the meantime could no longer be easily integrated into the existing structure. Increased assembly times and greater additional expenses for retrofits at the

customer's were a sign that the company was moving in the direction of the second printer platform generation. The control concept had reached its limits as well and the software interface was no longer state-of-the-art. Ersa reacted to this situation and introduced the VERSAPRINT 2 stencil printer at the last Productronica two years ago. With its new, modern look, success was not long in coming. With the new printer plattform, Ersa has developed a product which fully meets requirements and demands - especially with regard to the Asian and American markets.

EXTENSIVE INSTALLATION BASE IN ISRAEL

As a global player, Ersa has local partners in countries where there is no Ersa subsidiary. Most of them are not specialists in printing technology, but they are in the soldering process. These partners had to be trained and advantages and sales arguments had to be communicated in order to gain access to the respective market. For example, MemTech, Ersa's long-standing partner for Israel, is a leading supplier for the EMS sector and high-tech companies in Israel. Numerous international companies, recognized worldwide for their first-class products, are on MemTech's customer list as references. Together, MemTech and Ersa have built a strong and extensive installation base since 2006, enabling Ersa rework stations and selective soldering machines to become the standard in Israel's EMS industry.

Loading the machine with an assembly.

In order to start the stencil printer project in Israel, valuable know-how was built up in numerous meetings and sales seminars. This process was necessary and unavoidable for the VERSAPRINT 2 series. And so it was only a matter of time before Umeantech Engineering and Production Services, an Israeli company, became aware of the new product and came to Germany for product tests at the Ersa Application Center in Wertheim am Main. Umeantech is anything but a stranger to Ersa, as the Israelis are already using an ECOSELECT 1 selective soldering system successfully as well as several repair systems.

FLEXIBLE MANUFACTURING TECHNOLOGIES, CUSTOMER-SPECIFIC SOLUTIONS

Umeantech, founded in 2004, is a leading EMS provider serving demanding customers in the industrial, communications, security and medical markets with a comprehensive range of engineering and electronics manufacturing services for products and systems. The company has state-of-the-art electronics manufacturing facilities and employs 40 qualified engineers, technicians and professional staff. Using numerous flexible manufacturing technologies conclusive solutions are developed, which are individually tailored to the customer's need. The company sees it as its main task to supply an exact, customer-specific prototype and the corresponding production services.
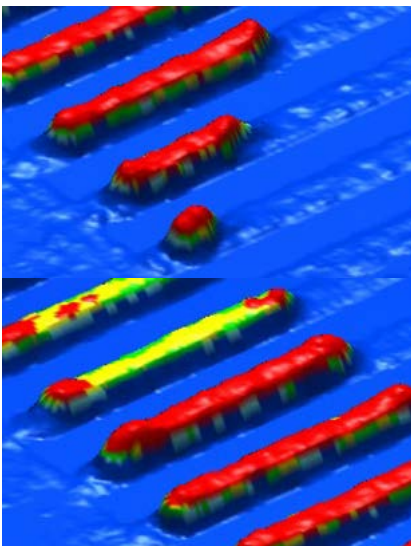
While at the beginning it was not clear which direction the journey should take,
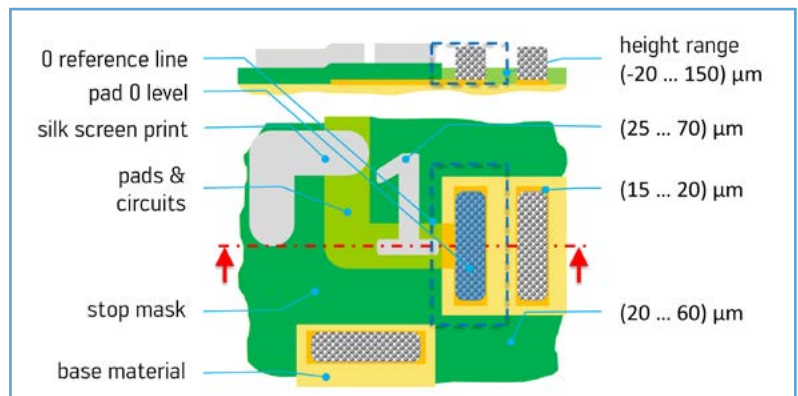
the tests quickly showed that the integrated 3D inspection exactly met Umeantech's requirements and expectations. "To see the result immediately after printing is very important for us," Umeantech owner Alexander Sigler says. He continues: "With a downstream SPI, at least one circuit board is already printed while the SPI is inspecting. Very often, we run very small series, so this is extremely important for us. I particularly like the compact machine and the uniform software interface for printing and inspection, especially the space requirement is decisive in our production in Netanya."

The integration of the inspection into the printer has even more to offer. Frequently, insufficient paste transfer to the pad occurs when starting up production or a new product due to a lack of optimum conditioning of the paste. If this is detected immediately and the printed circuit board is still in the print nest, the best solution is often to reprint the PCB.

If the printed circuit board is inspected again afterwards, the process chain is not interrupted and the PCB can be forwarded to the subsequent process after successful reprinting. This is different when removing the PCB from the line – it can be fed in again and printed again. Or you can clean and print again. In both cases, however, 100 % traceability is no longer possible.

Another problem during inspection is the reference height measurement: Typically an area to be measured is defined within the area of the pad.

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Certifications:

- ISO 9001:2008
  Quality Management
- ISO 13485:2003
  Quality Management
  Medical Devices
- AS9100D Aerospace
  Quality Management
- IPC-A-610 Class III
  Processing Standard

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Ersa IR/PL 650 rework system.

This area is set in relation to the un-printed pad as the reference height in order to determine the difference and thus the height of the paste after printing. If one then evaluates the entire area of the pad, one obtains the resulting volume. This works well as long as the layout of the PCB does not change.

However, the thickness and position of the stop mask often changes, especially when PCBs are purchased from different sources – this can also happen when changing batches from the same supplier. Circuit positions or further changes with regard to of the height reference measurement are directly included in the calculation of the volume. The solution is to re-measure the unprinted PCBs before printing. This is easily possible in the printer. Using an external SPI, re-measuring can only be carried out manually and is thus not practicable for regular measurements.

0 reference line	height range (-20 … 150) µm
pad 0 level	
silk screen print	(25 … 70) µm
pads & circuits	(15 … 20) µm
stop mask	(20 … 60) µm
base material	

Example Pad 0-height.

Of course, a possible print offset can also be detected and corrected. The strategy here is typically to correct a percentage value of the determined offset, for example 20 %, and thus approach the optimum print result. Of course, the whole process is dependent on the print direction. "The use of the VERSAPRINT 2 ULTRA[3] stencil printer increases our process window considerably – it was absolutely the right choice for us," says Umeantech boss Alexander Sigler, expressing his satisfaction with the latest acquisition, with which the Israeli company has set the course for the future. ∎

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