

## Technical Article

### ERSA Stencil Printer

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## 5 Years ERSa Stencil Printer – where and how everything got started

*ERSA GmbH, Wertheim & manroland, Augsburg*

Five years have passed by since ERSa installed its first stencil printer. At that time, the Augsburg plant of manroland served as the beta site for the printer, and its input on the performance of the printer was instrumental in making its subsequent introduction to the market such an overwhelming success. The official introduction of the new business unit of ERSa, its stencil printer division, followed in November 2007, on the occasion of the Productronica exhibition in Munich. Since then, more than 100 systems have been installed in production facilities world-wide.

The manroland AG is amongst the leading manufacturers of printing systems, being the world leader in web-fed offset printing units.

Web offset and sheet-fed presses manufactured in Augsburg and Offenbach provide for custom-made solutions for advertising-, publishing- and packaging prints. Its international sales- and service network of about 100 companies distributes, aside from manroland's own products, inkjet-based digital printing solutions from Océ as well as process compliant components, consumables which are required in the printing process and pressroom products.



*Fig. 1: manroland AG*

The electronic assemblies required to automate manroland's web offset and sheet-fed presses are being developed and produced in house. This factor made manroland the ideal partner for ERSa as the beta site to bring its new printer up to a level fit for series production.

Interestingly, a "tiny" ERSa printer in their electronic production in Augsburg is required to get the "huge" ones from manroland up and running!

The installation of the VERSAPRINT S1 stencil printer was, for manroland, a step in the right direction, considering that, as one of the leading manufacturer of printing presses, the quality of their product was of

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paramount interest. The systems had to offer the highest level of quality to their customers, and only quality (of the stencil printer) produces quality (in the printing presses).

But let's look back to the beginning, to the year 2005, when everything began. ERSA, at that time already one of the leading manufacturers of automated wave soldering, selective soldering as well as reflow soldering systems, saw the opportunity to augment its product range.

Developments over the past years in the electronic manufacturing industry involved with surface mount technology had indicated, that more and more manufacturers were interested in reducing the total number of different equipment suppliers, substituting the number of contact persons with a single contact. When it came to implement increasingly complex manufacturing concepts, the idea of a single contact for everything seemed very attractive. The rapid development of increasingly smaller and more complex circuit assemblies, which lead to substantially higher demands on their employees, has not allowed customers sufficient time to build up the in-house competency to select, from an array of different suppliers, the equipment best suited for their production needs. Equipment manufacturers had recognized and reacted to this, and initially started to form alliances to satisfy their customers' persistent demand for a general contractor – i.e. a single contact person for all requests and questions. The problem was that these alliances consisted - most of them still do today - of a conglomerate of independent companies, each speaking for itself only. ERSA had closely observed this development and analyzed the issue, drawing the conclusion that, considering this demand of the market place and combining it with its own plans for diversification, the time was ripe for entering another core area of the surface mount manufacturing process. The decision as to which area of the process to enter, was quickly taken – it was to be the printing process. This was to prove to be a strategic step, since with assuming responsibility for the soldering process and the printing process the two most important processes steps during board assembly were being addressed. 75% - 85% of all potential defects originate in these two process steps, and by taking this decision, ERSA was in the position to optimally advise the customer and, what is even more important, provide for solutions when problems occur. This from one source, from a single contact.

The kick-off was in September 2005. The project "stencil printer" was started. Never was there any doubt that it was going to be a veritable ERSA product, which implies that an innovative printer paired with an excellent price/performance ratio would be brought to the equipment market.

The VERSAPRINT series of printers duly fulfilled these demands. In line with ERSA's corporate philosophy, new venues were taken in order to satisfy the demands of the market.

The core feature of the VERSAPRINT series of printers is the camera technology applied. In order to allow for a 100% paste inspection at the speed of the line, the development of a line scan camera was initiated. Only by using this new technology was it considered possible to optically grab 100% of the substrate, in order to be able to gain a full analysis of the print results.

The LIST (Line Scan Technology) allows for the introduction of extensive new functions, which visually support the operator during set-up, operation and process optimization: Fast image capture even of large areas, optimized results of the analysis through variable illumination and analysis, areal determination of positional information for an optimized board alignment.

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With the introduction of the LIST for 100% inspection, the need for a separate stand-alone inspection unit after the printer has been eliminated.

Manroland is one of those corporations which greatly benefits from the philosophy of „as many processes as possible form one source“ described earlier. In its Augsburg facility, the wave soldering system, the selective soldering system as well as the reflow system, they all are supplied by ERSA.

“The support as well as the technical assistance we have received from ERSA, which has the overall responsibility for our process, has been excellent. By just calling one number we always have reached the correct contact, regardless of whether it was about a process or an equipment issue”, states Christian Sieber, manager of the pick-and-place operation at manroland.

The decision had been made to integrate a HOTFLOW 2/12 reflow system into the surface mount line, a system, which excels on account of its very low consumption values and minimized maintenance needs.

The selective soldering process is handled by the ECOSELECT, operating as a stand-alone unit and thus being highly suitable for small batch sizes.

For larger volume needs, the customer relies on the N-Wave 330 wave soldering system.

“This combination of ERSA equipment gives us maximum flexibility while maintaining a very high level of quality. It is ideally suitable for our production concept”, concludes Mr. Sieber.



*Fig. 2: ECOSELECT 350 and POWERFLOW N-Wave 330*

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*Fig. 3: VERSAPRINT S1 and HOTFLOW 2/12*



*Fig. 4: Christian Sieber, Supervisor pick-and-place department manroland AG*