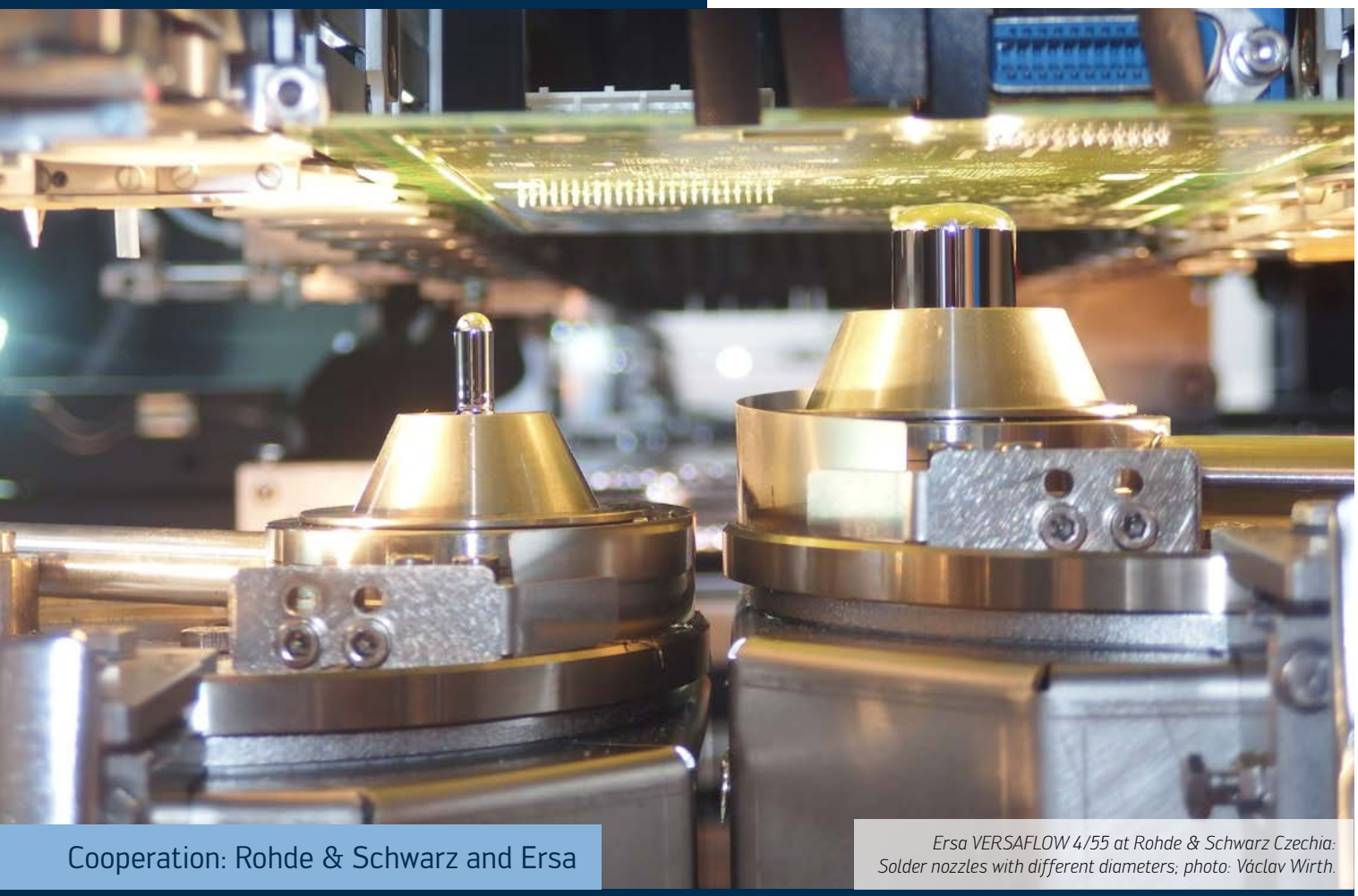
Application report | Best practice



Ersa VERSAFLOW 4/55 at Rohde & Schwarz Czechia: Solder nozzles with different diameters; photo: Václav Wirth.

Cooperation: Rohde & Schwarz and Ersa

Selective soldering, the automated step to greater quality!

In its Czech branch, Rohde & Schwarz started using a new technology for printed circuit board assembly in June 2017 that none of the other plants belonging to the communication technology experts yet have available: the automatic selective soldering of wired THT components. Rohde & Schwarz employee Václav Wirth presents the new technology.

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Operator at the Ersa VERSAFLOW 4/55, photo: Václav Wirth.

Printed circuit boards contain two basic types of components: (non-wired) SMT and (wired) THT. The non-wired components are soldered on automated assembly lines, the wired components must be soldered manually or with the wave. There are several complications and restrictions associated with this: manual soldering is a slow and unstable process, the resulting quality depends entirely on operator experience. Only one-sided boards can be soldered automatically on the wave – a special tool is required to solder double-sided boards. Manufacturing such a tool is very time-consuming, however, and is not possible at all for some assemblies.

POSITIONING AND SOLDERING WITHOUT SPECIAL TOOL

This was how Rohde & Schwarz assembled printed circuit boards up to June 2017. The newly purchased selective soldering technology now permits the automatic positioning and soldering of wired components without a special tool having to be used. In practice, this means that we now have an automated process available which solders assemblies that previously could not be soldered with the wave and had to be soldered manually.

The newly installed system runs through three basic manufacturing steps completely automatically. First step: the flux is applied to the solder spot. Second step: the assembly is preheated to the required temperature. Third step: soldering takes place.

Rohde & Schwarz had been considering purchasing selective soldering technology for quite some time. The deciding incentive was our visit to the Productronica fair in autumn 2015. There, it was confirmed that our investment ideas were on the right track. In January 2017 we started looking for potential suppliers and started first comparisons. Among five companies selected, we made the journey to test products personally on two nominated systems. This was the most difficult phase of the whole project.

Selective soldering technology

Most important advantages

- Automation of the soldering process
- Soldering under nitrogen atmosphere
- Higher quality compared with manual soldering
- Reproducibility and traceability of the process
- Machine soldering of components that cannot be wave soldered
- Possibility of processing new products without soldering mask
- Flexibility for smaller series and frequent product changeover
- Eco-friendly

ERSA VERSAFLOW 4/55 CAME OUT THE WINNER

In the end, the performance and modular design of the Ersa selective soldering systems – not to mention the obliging impression made by the entire Ersa team – tipped the scales in favour of a VERSAFLOW 4/55. The technology was integrated extremely quickly in the Zero Alfa production line and has been working without a hitch since June 2017. What were the goals associated with using selective soldering technology? We wanted to improve the quality of our products, reduce the number of faults and cut operating costs. All the requirements have been fulfilled completely, without compromise – the decision in favour of Ersa was dead right. ■

Ersa VERSAFLOW 4/55

Key data

- Inline machine
- Product changeover without loss of production time
- Printed circuit board format 508 × 508 mm (20 × 20 inch)
- Automatic adjustment of y/z soldering module
- Processing of several printed circuit boards in one machine
- 1 PCB in each module
- Offline programming – SW-CAD wizard

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