Technology seminar

Valuable know-how transfer in the Ersa "Design for Manufacturing" technology seminar

A break during the technology seminar – participants keep their strength up in the Ersa Demo and Application Centre.

100 % quality in component manufacturing!

In pleasant early-summer temperatures, Hansjürgen Bolg, Head of Soldering Tools, Rework & Inspection, welcomed participants to the technology seminar "Design for Manufacturing from the Soldering Perspective" at Ersa headquarters on 7 May. A densely-packed programme awaited the 58 knowledgeable participants who had travelled to Wertheim am Main from other parts of Germany as well as from Austria and Switzerland.

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Jürgen Friedrich, Head of Applications Engineering at Ersa, introduces the topic "Design for Manufacturing".

Arnold Wiemers, Technical Director of the LeiterplattenAkademie in Berlin, during his lecture on PCB technology.

Following an initial few words and the presentation of the Kurtz Ersa Group, the topic was introduced by Jürgen Friedrich, Head of Application Engineering, who has been working for the system supplier Ersa for the last 20 years. The European electronics industry must face up to numerous challenges if it is to survive and remain competitive in a climate of global competition. In Europe, the branch primarily produces components and appliances in mid-range lots for demanding industrial applications – highest quality whether in large or mini format, is the real challenge. The focus of all measures must always remain on premium quality.

First and foremost, this demands manufacturing-specific design and flexible production lines, so that even small lots can be produced efficiently and in top quality. "As a manufacturer of soldering systems, we have huge numbers of layouts submitted to us and have to decide what will work and what not – always in close cooperation with the customer, but of course also complying with the generally-accepted rules of technology, said Jürgen Friedrich. The two-day seminar examined important aspects of component manufacturing which are to be established as standards in order to achieve highest quality within a cost-efficient framework. The span of topics in the subsequent lectures extended from CAD-design and PCB technology and components to production processes – with the focal points ranging from the complex interplay of the board layout and solder joint quality to quality assurance and the traceability of process parameters.

The aim of the seminar was to show the influence of individual procedures on the buildability and reliability of electronic components in design engineering, production and testing. Above all, however, the interdependency of individual sub-processes was to be highlighted, such as how the PCB layout affects the capillary fill of THT components or how reliability depends on the design of the component use. Participants learned how to design electronic components taking manufacturing-specific aspects into account, how to select material and components and how to evaluate manufacturing processes. "Those who invest in the developers' know-how benefit in the end – because optimised circuit board layout is the basic prerequisite for the cost-effective manufacture of high-performance and reliable PCBs. "Quality therefore begins with the design engineering phase," emphasises Jürgen Friedrich. A topic which exercises many electronics manufacturers – as demonstrated by the response when the seminar was advertised: The two-day seminar was completely booked out almost immediately.

Break well used: Dialogue at expert level during the Ersa technology seminar.

Helge Schimanski from Fraunhofer ISIT during his lecture on component trends.

CONSISTENTLY HIGH-PRECISION PROCESSES REQUIRED

"CAD design and PCB technology" was the topic of the talk by Arnold Wiemers, proven PCB expert and Technical Director of the LeiterplattenAkademie in Berlin. "Internet of Things, Industry 4.0, IT-security, big data, autonomous systems, cloud computing, smart home, heterogeneous networks and collaborating robots – all these strategies and tasks are only possible on the basis of functioning electronic components, implemented with the aid of far-sighted expertise which begins with the PCB design," explained the co-owner of the LeiterplattenAkademie, Arnold Wiemers.

Helge Schimanski from the Fraunhofer Institute for Silicon Technology (ISIT) in Itzehoe looked, among other things, at component trends, the soldering of temperature-sensitive components and the challenges involved in processing new configurations. At ISIT, the drivers of miniaturisation are also examined closely, a trend which is strongly user-driven.

"No matter where they are in use – component sizes of 0402, 0201 or smaller demand high-precision processes in all the component manufacturing steps," emphasised the Head of the ISIT Application Centre for Process Technology in Assembly Manufacturing. The official programme for the first day of the seminar came to an end at 5 p.m. – at 7 p.m. shuttle busses ferried the participants to Hasloch, where they had the chance to look around the Eisenhammer, the origins of Kurtz Ersa. After the tour of the Hammer Museum, they experienced the power of the tilt hammer which roars down with compelling power onto the flowing iron, forcing it into shape, under conditions vastly different to those in electronics production. During the dinner which followed in the old manor house, the Herrenhaus, the talk was once again of components, base materials such as FR4 and solder heat resistance. 10 p.m saw the official end of a fully-packed day.

On the second day, the speakers took up the previous day's thread and presented further current topics from the areas of research, CAD design and PCB technology – as well as looking at the challenges for soldering engineering. In addition, Hans-Jürgen Lütter, Managing Director of ANS answer elektronik Service- & Vertriebs GmbH lectured on optimum component placement. At the end of the event, the 58 participants headed home with lots of specific input for their own manufacturing processes and a wealth of ideas for further optimising their production. Given the enormous demand for "Design for Manufacturing", and the increasing challenges in electronics manufacturing – miniaturisation, large format! – it is highly conceivable that this seminar will be repeated. ■

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