Training Catalog 2020

Excellent Staff Trainings, Seminars
Technology-Days

Customized training and education for staff qualification in electronics production.
Up-to-date. Professional. Certified.

Register now!
Stencil printers
With its fully-integrated, full-area post-print at the speed of the line, VERSAPRINT 2 stencil printers offer unique technological and cost advantages. The new 3D camera features inspection functions which are one of a kind: soldering paste volumes, print offsets, bridging and smeared or blocked stencils are all recognised at the speed of the production line.

Reflow soldering
Ersa reflow machines have been convincing users for many years with their outstanding thermic performance, highest machine availability and lowest operating costs. With the Ersa HOTFLOW 4 series, it has been possible to reduce the N2 and energy consumption even further – with comparable performance.

Selective soldering
As market leader, Ersa presents perfect solutions for all selective soldering tasks: From start-up and/or high-end, inline, and/or cellular manufacturing, single and/or multirate, flexible and/or throughput, the range of VERSAFLOW, ECOSELECT, ECOCELL and SMARTFLOW models is ideally tailored to user requirements.

Wave soldering
Wave soldering still offers optimum value for money. However, user requirements are highly varied. This is why Ersa offers a comprehensive POWERFLOW range, from entry-level to high-end models, each of which can be individually configured.

SMT/BGA reworking
In over two decades, far more than 6,000 users worldwide have already benefitted from the patented Ersa IR rework technology. In addition to their outstanding value for money, the Ersa systems have attained their leading market position by delivering the best results, even in demanding rework applications.

Handling systems
Ersa handling systems can be tailored exactly to specific process requirements. A variety of modules are available such as lifting and lowering stations, height difference modules, turning stations and workstations which can be joined by conveyor belts to offer ideal PCB handling.

SMT/BGA inspection
Whether for inspecting the BGA just replaced in the rework system, or finding the right parameters in the line - ERSASCOPE inspection systems for non-destructive inspection of concealed solder joints have established themselves as standard and are indispensable in electronics manufacturing today.

Hand soldering and desoldering
Ersa soldering and desoldering stations impress with compact dimensions, high performance, energy efficiency and low operating costs as inexpensive replacement tips are used. The i-CON VARIO 4 is the current flagship, meeting the highest professional requirements with the possibility of using four tools at the same time.

Solder, solder wire & fluxes
Everything to do with soldering – all from a single source. In addition to special implements, tools and temperature measurement equipment, Ersa also offers auxiliary and expendable materials for the production and repair of high-end circuit boards. Ersa solder wire consists exclusively of high-quality raw materials. Due to production on the most modern of machinery, they meet all quality requirements.

Solder fume extraction
Ersa solder fume extraction units efficiently and economically ensure clean PCBs and healthy breathable air when hand soldering. They extract the fumes in the entire work area via large nozzles, available in a variety of versions, and effectively filter them.

Ersa SERVICES
In addition to a wide range of products, Ersa offers comprehensive system consulting for every aspect of soldering with services such as machine and process audits, maintenance contracts, ramp-up support, machine capability studies or online spare parts catalogs. The global Ersa service network with application centers, subsidiaries and representatives is unique.

Ersa training
Whether seminars on know-how, process technology or individual technology days - Ersa offers perfectly tailored knowledge transfer in line with current practices. As an accredited training institution, Ersa, a founding member of the Training Association for Soldering Technology Electronics (AVLE), trains your employees as “specialist in soldering technology” according to uniform standards.
The Key to Success: Qualification as a competitive advantage

Dear Ladies and Gentlemen,

Top soldering equipment delivers top performance, if the user as well has the latest technical knowledge. Always keep the know-how of your team up to date and put together a tailor-made course offer with the help of the new Ersa Training Catalog 2020. Whatever your needs, our training program covers all aspects of professional soldering - from paste printing to reflow, selective and wave soldering as well as rework and hand soldering.

During our exclusive Technology Days, you are welcome to explore the limits of the industrial soldering technology in theory and practice. These Technology Days are organized individually and carried out to your company's needs and requirements so that an exchange across departments and locations is also possible. Whether manufacturer-neutral or specifically aligned to Ersa soldering systems - with us you are the focus! Whether customer-specific Tech Days, process technology and optimization or further topics from the wide world of soldering - what would you like to focus on?

Numerous global players have already benefited sustainably from our individual Technology Days - face the future demands of the market with the support of Ersa! In 2020, the exclusive Technology Days will also be available for the first time to users who purchase their products from EMS service providers or suppliers, such as auditors or quality managers.

Being the no. 1 system supplier for electronics manufacturing, we also offer you a wide range of soldering courses, including manufacturer-neutral seminars with seminars for beginners to machine experts. All courses consist of a balanced mix of theory and practice. Due to the small groups of participants, it is possible for the trainers to answer questions individually.

Rely on the latest technical knowledge for your soldering team and benefit from reproducible product quality, increasing productivity, higher availability on the tool and machine side, shorter cycle times and lower overall costs.

Your Rainer Krauss
General Sales Manager
Our training courses are perfectly tailored to today’s requirements in electronics production and are constantly adapted to the latest developments. Relevant standards, such as IPC-A-610, are the basis for evaluating soldering results.

High-quality training materials, professionally equipped training centers and qualified trainers with extensive practical experience supply each participant with important background knowledge along with the practical skills.

In this way you will improve quality, reliability and reproducibility of solder joints due to sophisticated soldering training.

Our Concept:
- Efficient, standardized training for beginners to machine experts
- IPC-certified trainers directly from the practice
- Certified training centers, equipped with high-quality equipment and the latest technologies
- Balanced mix of theory and practice (IPC-A-610, IPC-7711/IPC-7721)
- Training based on the latest findings from research and industry

Your benefit:
- Ensuring high quality by keeping costs as low as possible
- Higher process reliability due to
  - higher efficiency of the employees
  - increased reliability of machine soldering processes
- Know-how is distributed among several people
- Competitive advantages through certified staff
- High flexibility due to modular, individual training concept
- Great training success due to small groups
- Future-oriented market approach
Ersa Know-How Seminars
Already over 7,000 satisfied participants

More than ever before, economical production and the highest quality are what give your products that decisive competitive edge on the market. The know-how and qualifications of your staff are the key to success.

As experience shows, particularly in soldering, well-trained staff contribute to major performance enhancement in your production.

The Ersa Know-How Seminars are the ideal podium for further training and the exchange of experience with other participants. The seminar content is always completely up-to-date. Time and again, the trainers are highly successful in combining theory and practice in a way that greatly benefits seminar participants.

All Ersa Know-How Seminars and Workshops are held in a completely neutral way. They allow participants to update their knowledge and transfer the seminar content to their specific requirements.

Over 7,000 satisfied participants bear impressive witness to the quality and success of our seminar series.

New:
Exclusive technology days for users who are in the supply chain after the soldering process
Brief description

The two-day intensive “Lead-free wave and selective soldering” course with solder joint assessment teaches theoretical and practical know-how on the wave and selective soldering process, with the focus of these workshops being placed on practical applications.

During the practical parts, the participants acquire process-related knowledge by doing tests on different systems. In the theory section, the influencing variables affecting solder joint quality are examined in detail – reciprocal effects in the soldering systems as well as the quality indicators and process limits which are determined by PCBs, components and fluxes.

Process monitoring is also part of the course, as is the handling and treatment of soldering defects.

Practical section

Wave and selective soldering:
- System checks in preparation of production
- Setting and control of flux, preheating and soldering parameters
- Soldering of trial assemblies with different parameters and control of the effects on the soldering result
- Evaluation of the soldering result pursuant to IPC-A-610 E

Concluding discussion

All participants are given the opportunity to discuss their concluding questions on the topic of soldering together.

Do you want to optimise soldering processes in your own lead-free assemblies? Please bring these assemblies (in reasonable numbers) along to the seminar!

Documentation: Course documentation in printed form

Equipment: All the necessary tools and auxiliary materials will be provided by Ersa.

Participants: Maximum of 14 attendees

Certificate: Ersa Participation Certificate

Dates: 12 - 13 February 2020
28 - 29 October 2020

Fee: EUR 700 plus VAT

Requirements: Basic knowledge of industrial electronics manufacturing recommended

Target group: This workshop is the ideal platform for staff requiring up-to-date practical knowledge in their daily work with lead-free assemblies.

Theory Section

Fundamentals of lead-free wave and selective soldering:

Assemblies
- Requirements made of PCBs and components
- Process windows

Soldering system
- General construction of wave soldering systems
- Special features in fluxing, preheating and soldering

Soldering materials
- Features of lead-free soldering materials and their effect on wave and selective soldering

Process monitoring
- Process qualification
- Methods and measuring equipment in process monitoring
Ersa Know-How Seminar
Lead-Free Wave and Selective Soldering

Latest technology
Neutral lectures

- PCB - surface finish
  - HAL: Hot Air Solder Levelling
  - OSP: Organic Solderability Protection
  - NiAu: Nickel-gold
  - NiPdAu: Nickel-Palladium-Gold
  - Imm. Tin: Immersion Tin
  - Imm. Silver: Immersion Silver

- Error pattern - component damage / resistance to solder heat
  - Energy from the liquid solder via the component pins into the component may cause a plastic deformation of the component package. Time and temperature are the decisive factors.

- Copper leaching
  - If a solder joint requires additional heat, the solder temperature should be increased incrementally and very carefully.
  - Copper leaches very fast at higher solder temperatures. In the worst case the complete pad leaches into the

- Peel-off with wettable solder nozzle surfaces
  - Standard peel-off
  - Manipulated peel-off
    - Convex solder joints
    - Concave solder joints
Ersa Know-How Seminar
Lead-Free Wave and Selective Soldering
**Ersa Know-How Seminar**

**Reflow Soldering and Solder Paste Printing**

**Brief description**

This two-day intensive course “Reflow soldering and solder paste printing of multi-pole SMT and QFN components” teaches theoretical and practical know-how on solder paste printing and reflow soldering, with the focus of these workshops being placed on practical applications.

Working in separate practical trainings, participants build up process-related knowledge through experiments on different systems, where all participants undergo the same practical training.

The results of the solder paste printing are evaluated and assessed. In the subsequent reflow soldering, temperature profiles are initially determined before the test boards are soldered and visually inspected.

**Practical section**

- Elaboration of theoretical fundamentals based on practical examples.
  - Printing test PCBs
  - Soldering test PCBs with evaluation and assessment of the results.

The practical section of the workshop is divided into the two stations Solder Paste Printing and Reflow Soldering. Attendees participate in each of the stations.

**Concluding discussion**

All participants are given the opportunity to discuss their concluding questions on the topic of soldering together.

**Documentation:** Course documentation in printed form

**Equipment:** All the necessary tools and auxiliary materials will be provided by Ersa.

**Participants:** Maximum of 14 attendees

**Certificate:** Ersa Participation Certificate

**Dates:** 22 - 23 April 2020

**Fee:** EUR 700 plus VAT

**Requirements:** Basic knowledge of industrial electronics manufacturing recommended

**Target group:** This workshop is the ideal platform for staff requiring up-to-date practical knowledge in their daily work with lead-free assemblies.

**Theory section**

**Fundamentals of solder paste printing:**

- Stencils – types, layout, aspect ratio, coating, multi-stage stencils
- Print media
  - Solder paste – print-related properties, grain sizes
  - Adhesives – epoxies, conductive adhesives
- Cleaning: Media, paper, process
- Squeegee: Types and sizes
- PCB support: Manual and automatic systems
- PCB attachment: Types
- PCB: Quality, solder masks, surfaces, stretching, warping
- Printing parameters: Squeegee pressure, squeegee speed, separation speed
- Printing errors and their causes

**Fundamentals of reflow soldering:**

- Construction of reflow soldering systems
- Definition of process windows
- Compilation of temperature profiles giving consideration to the assembly
- Measurement of temperature profiles and preparation of measuring boards
- Soldering errors and their causes
Ersa Know-How Seminar
Reflow Soldering and Solder Paste Printing

Component range of modern SMT assemblies
- Metal surface
- Plastic surface
- Ceramic surface

Heat transfer by convection
The transfer of heat energy takes place in the boundary layer to the component and circuit board surface and is independent of their condition.

Gradient ramp rate in the peak zone – depending on the machine setup

Soldering defects in reflow soldering
Error pattern – tombstoning / manhattan
Different pad geometries cause solder paste to melt earlier at the small pad. Surface tension may move the component upwards.
Exemplary pad design to avoid different melting times of the pads.
Ersa Know-How Seminar
Reflow Soldering and Solder Paste Printing
Customer-Specific Technology Days in Theory and Practice

Exclusively for users who follow in the supply chain after the soldering process, we offer technology days where you take center stage. Our experts will give you an insight into our technology processes and will explain, for example, what you need to consider when auditing suppliers for these processes. In addition, we take the time to answer any questions about joining technology that you have always wanted answered.

**Your benefit**
- Understand and interpret your supplier’s processes
- Being one step ahead and demanding the latest technologies
- High quality at the lowest possible cost
- Future-oriented market approach

**Program:** Individually arranged according to your needs and requirements

**Participants:** Minimum of 6 attendees

**Dates:** On request

**References:** Automobile manufacturers, industrial electronics, consumer electronics
Customer-Specific Technology Days in Theory and Practice

Brief description

For technology companies, we offer exclusive technology days consisting of a theoretical and a hands-on part.

The Technology Days are individually arranged according to your wishes and needs. All seminars are planned and carried out exclusively for your company, so that the theoretical and practical parts can be tailored precisely to the needs of your employees. In addition, the exchange of knowledge and experience between your employees and locations is supported.

The perfect infrastructure of our Application Centers with the wide range of machinery and systems originating in different production technologies makes it possible to follow up the morning’s theory session with the practical “hands on” session on the machinery, in a number of groups.

The focus of the one- or two-day intensive course is on analysing all the boundary conditions that affect the soldering process.

Theory section:

**Solder paste printing**
- Stencil types, layout
- Print media and parameters
- Print errors and their causes

**Reflow soldering**
- Definition of process windows
- Soldering errors and their causes
- Quality parameters in reflow soldering

**Selective and wave soldering**
- Requirements of PCBs and PCB design
- Selective miniwave or multiwave soldering
- Process windows and production throughput

Practical section:

In groups, the machine construction and the practical application are presented. The main focus is on the setting of parameters and monitoring, as well as the effect on the soldering result when the parameters are within or outside of the limits.

Program: Individually arranged according to your needs and requirements

Documentation: Course documentation in printed form

Participants: Minimum of 6 attendees

Dates: On request

Fee:
- 1st day: EUR 475 per person plus VAT
- 2nd day: EUR 375 per person plus VAT

Target group: The seminar is geared to executives from the area of quality assurance, development and production as well as supervisory staff from production, process planning and product planning.

References: Automobile manufacturers, industrial electronics, consumer electronics
Ersa SERVICES
LIVE demonstrations and tests on your assemblies in the Ersa Application Center

Brief description
Your electronics production is humming, the soldering systems are working at the limit of productivity – with constant product change, highest flexibility, classic high mix, low volume. An attractive offer for a high-quality assembly which you definitely want to produce and which at the same time represents a real soldering challenge has just landed on your table.

What to do? The product must be manufactured as quickly as possible – but nobody in your team is available?

Ersa, your partner and system supplier No.1 for electronics production, has the solution. Simply send us your PCB, Ersa engineers will immediately create the corresponding soldering programs and temperature profiles – we will present this solution to you directly in the live stream.

Your Ersa live stream from the Application Center
That’s how it works:
- Make an appointment
- Connect to the live stream
- Introduction of the participants
- Overview Ersa soldering system
- Explanation of the settings made
- Print/solder assembly and track cycle
- Presentation of results

Program: Individually arranged according to your requirements
Dates: On request
Fee: Free of charge
Process Technology and Optimisation
Practical Training Course: Service and Maintenance

Brief description
Customer-specific training course on Ersa machines and systems in the area of process technology and optimisation. The course is carried out in our Application Center.

Your benefit
- Best possible quality due to professional consultation
- Assured process stability due to ideally-combined process and system training course
- Higher productivity due to lower resp. shorter machine downtimes
- Higher productivity due to lower error rate
- Know-how is distributed across a number of people
- Quality optimisation

Content
- **Training for machine operators**
  Here machine operators learn the fundamental operation of their systems; in addition, specific features of the machinery are addressed.
- **Training for staff in the area of service/maintenance**
  The servicing of the soldering system is most clearly demonstrated in a training session directly at the machine. Tricks and tips for effective troubleshooting are also covered.

| Equipment: | All the necessary tools and auxiliary materials will be provided by Ersa. |
| Participants: | Maximum of 6 attendees from one company |
| Certificate: | Ersa Participation Certificate |
| Dates: | On request |
| Fee: | EUR 1,000 per day plus VAT |
| Target group: | This training course is the ideal platform for staff from the area of manufacturing and production who, in their daily dealings with the equipment, require first-hand, practice-related knowledge. |
Think global, act local!

Ersa Application Centers worldwide

Around the world, our customers and business partners have access to spacious demonstration, application and training centers with the most modern of facilities. There are seven Ersa Application Centers of this kind in total, all of them boasting the complete soldering systems product portfolio, as well as the Ersa “Tools, Rework and Inspection” business line. Regardless of the Ersa Application Center you choose. Experienced application engineers are on hand to demonstrate the Ersa hardware and test it for specific purposes. The icing on the cake for Ersa is when, in cooperation with you, we are allowed to optimize your assembly under exactly-defined conditions!

Directly adjacent, modern training and conference rooms permit an intensive exchange of experience and transfer of know-how. Both facilities, Application Center and conference rooms are also used for the Ersa Know-How Seminars or Technology Days, tailored specifically to customer requirements. The Ersa Service Team is already looking forward to welcoming you to our Application Centers - whether for testing, training, Technology Days or our Know-How Seminars.

You will find an Ersa Application Center within your reach!

Application Centers
- Wertheim, Germany
- Plymouth, USA
- Guadalajara, Mexico
- Shanghai, China
- Shenzhen, China
- Penang, Malaysia
- Ho-Chi-Minh-City, Vietnam
Wertheim
Germany

Shanghai
China

Penang
Malaysia

Shenzhen
China
Hotels and Inns in Wertheim and Surroundings

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www.bestenheider-stuben.de

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garni.wertheim@la-flamme.de  
www.la-flamme.de/wertheim

Further hotels are available in the Internet:  
www.tourismus-wertheim.de/wertheims-hosts/?L=1
Registration by E-Mail

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Fax +49 9342 800-100
ersa-training@kurtzersa.com
www.ersa.com

Conditions of participation

1. Participants
Participation is open to everyone meeting the requirements for each course specified in the program catalog.

2. Registration
Registration for courses must ensue in written form. The details you provide will be stored in an address file for internal processing. Registrations will be processed in the order in which they reach us. The registration deadline ends two weeks before the beginning of the respective course. Registrations reaching us later will be taken into account should places still be available.

3. Fees and payment
3.1 The fees are subject to VAT and are payable by five days prior to the beginning of the course at the latest. The course fees also cover the course documentation and break-time snacks during the event. Travel expenses and any costs for accommodation and the evening meal on multi-day courses will be borne by the participants or the registering party.
3.2 For cancellations up to two weeks prior to the beginning of the course, a handling charge of EUR 120 plus VAT will be levied per participant.
3.3 In the case of cancellations at a later point, or non-participation, the full course fee will be charged.
3.4 Participation authorisation can be transferred at any time to a substitute participant specified in writing. Notification of cancellation must be submitted by post, e-mail or telefax.
3.5 Interrupting or discontinuing participation in a course which has already commenced does not release the party concerned from the obligation to pay the course fee in full.

4. Rules
The participant is obliged to acknowledge and observe the rules for the course. He must also comply with the instructions of the training staff. An infringement of these obligations can lead to the attendee being excluded from further participation in the course without their being released from the obligation to pay the fee.

5. Cancellation of lessons
Should the training facility be prevented from holding lessons by events which are outside its sphere of influence, no entitlement to replacement sessions at a later date shall apply.

6. Cancellation of courses
The training facility is entitled to cancel a course for economic or organisational reasons. In this event, the training facility shall refund the fees already paid. Further claims, e.g. reimbursing of cancellation or change of reservation fees for transport or overnight stays booked by the participant are excluded.

7. Use of course documents
Course documentation is protected by copyright. Participants are granted only a simple, non-transferable right of use for personal purposes. In particular, participants and third parties are not permitted to amend the course documents, or extracts thereof - either in editorial terms or with regard to content - or to use amended versions, to copy them for third parties, make them publicly accessible, post them on the internet or on other networks, either with or without charge, to reproduce them, sell them or use them for commercial purposes.

Ersa, as the organizer, shall not be liable for damage to, or the loss or theft of personal items or the vehicle.
Electronics Production Equipment
Worldwide presence

Production plants/subsidiaries
Local agents
Other presence
Demo centres
Wertheim, Germany
Wisconsin, USA
Guadalajara, Mexico
Shanghai, China
Shenzhen, China
Penang, Malaysia
Ho-Chi-Minh-City, Vietnam

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Pune, India
Chennai, India

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