kurtz ersa DISTRIBUTION
STATION-DE-SOUDAGE.FR

kurtz ersa

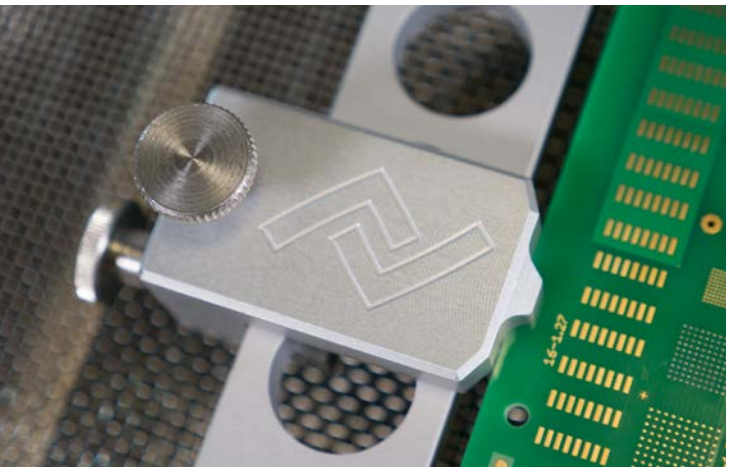
REWORK

& Inspection Systems 2026

GLOBAL. AHEAD. SUSTAINABLE.

CONTENTS

Ersa Rework Systems



Accessories

Ersa Inspection Systems

System configurations and options

ERSA REWORK AND INSPECTION SYSTEMS

Award-winning and a class of its own!

Jörg Nolte, Product Manager

With thousands of systems installed worldwide — from compact workstations to highly automated machines — Ersa has a unique base of equipment. Furthermore, Ersa rework systems cover an exceptionally wide range of applications. From the smallest 01005 chips to the largest SMT connectors (140 mm), from SMT flip chips and LEDs on aluminum carriers to MLFs, from µBGAs and CSPs on flex circuits to large AI processors (BGA 135 x 135 mm) on multi-layer assemblies, and from shielding plates to plastic processor sockets: Ersa rework technology handles all of this reliably.

The patented ERSASCOPE technology enables the inspection of hidden solder joints. Its importance is regognized by industry experts, including the IPC. In combination with X-ray technology, it provides a complete picture of potential sources of defects and thus adds significant value to any quality assurance program.

Selective reflow soldering processes, as in rework, are among the most demanding tasks in electronics manufacturing. They are sustainable, ensure added value, and, given the increasing complexity of assemblies, require highly trained specialists and high-performance equipment. Practice-oriented, innovative solutions are the key to success.

Common causes of selective reflow soldering:

- Defective component
- Wrong component has been assembled
- Component in incorrect orientation/ polarity
- Soldering errors (bridges, open/cold solder joints, etc.)
- Incorrect component programming
- Saving of component for reuse (recycling)
- Assembly modifications (redesign)
- Prototyping/replacement
- Tests, e.g., cross-exchange
- Data backup of a component from a defective assembly (forensics)
- Upgrading with more powerful, compatible components

Ersa Rework Portfolio
Key Values

CLOSED LOOP CONTROL
Safe processes

HYBRID HEAT
Material friendly

FIRST SHOT PROFILING
Immediate success

PRECISE PLACEMENT
Accurate alignment

NON-CONTACT SOLDER REMOVAL
Removal of residual solder

HIGHLY FLEXIBLE
All SMD components

AIDING SUSTAINABILITY
Rework is sustainable

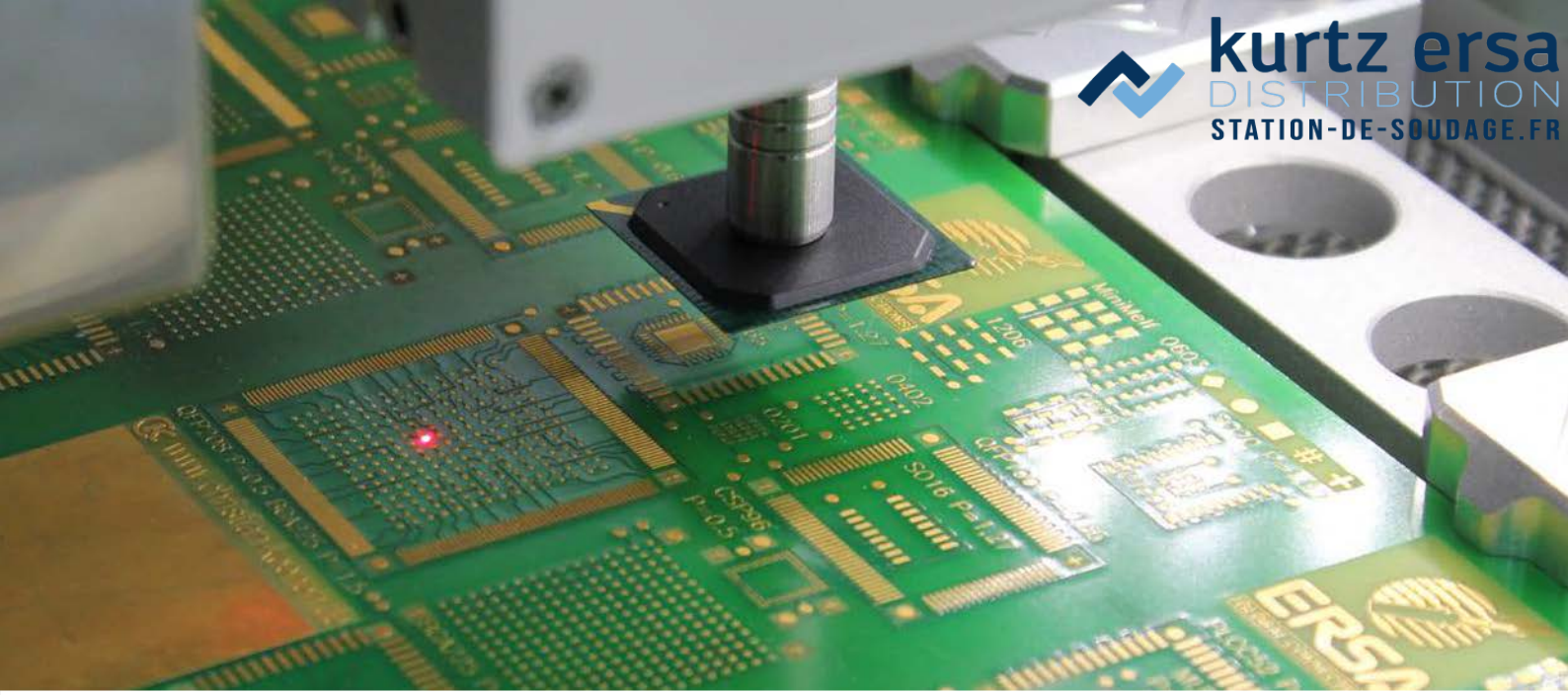
REWORK INNOVATION SINCE 1997
Long-term proven

Further information

kurtz ersa

HR SOFT.

GLOBAL. AHEAD. SUSTAINABLE.



ERSA HR SOFT

Automated rework with proven technology and innovative image processing

HR Soft is a universal operating software for the HR 600/2. All of the process steps of the HR 600/2 are supported by HR Soft in a user-friendly manner. Users can control individual functions and choose between a step-by-step mode and an automated process chain for the rework process. The library feature of HR Soft clearly displays the stored soldering and desoldering temperature profiles.

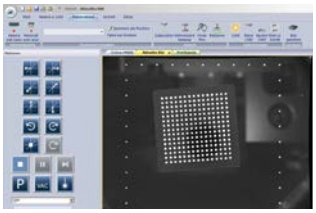
A soldering or desoldering process can be started either manually or automatically, whereas the results are automatically recorded regardless of the starting method. Heating head, vacuum pipette and compressed air cooling can be activated by a click of the mouse anytime. For placing the new component, the step-by-step mode or the automatic process mode are again available. At all times the individual functions of the system, axes and cameras can be manually controlled.

For HR 600/2

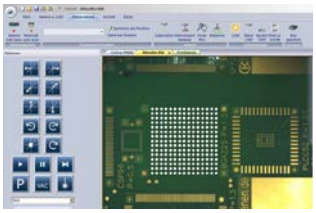
The high-resolution USB Reflow Process Camera (RPC) can be integrated as an option to visualize the soldering process in real time.

In addition to the automated operation of the HR 600/2, HR Soft offers an archive in which all recordings of rework processes are managed and stored.

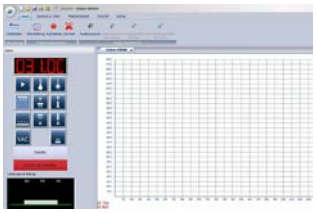
Image of the target position



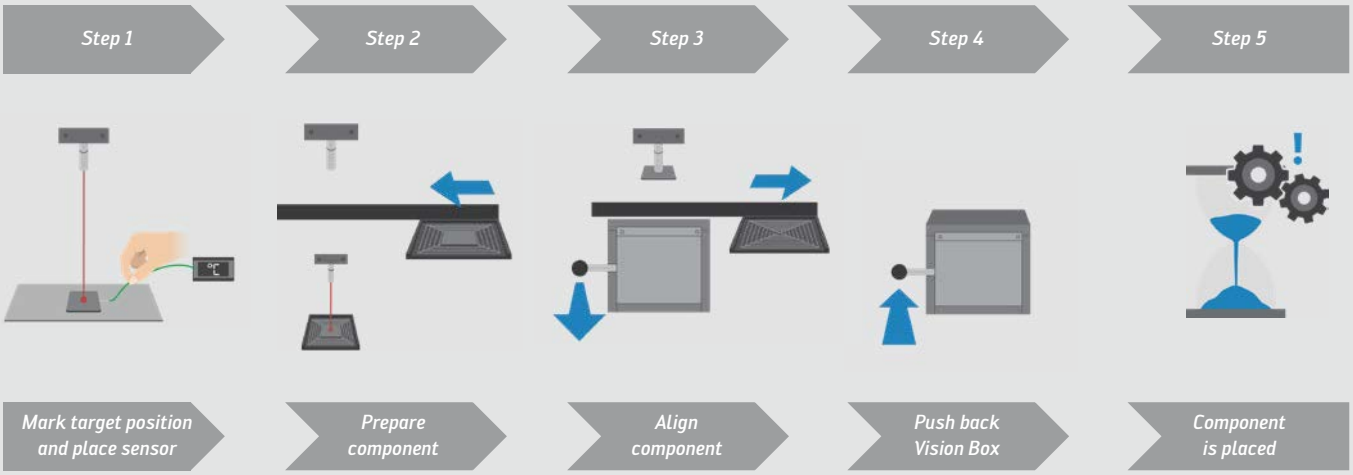
Determining the component connections



Superimposing of component and target position



HR Soft process recording



HR Soft 2 – User guidance via pictograms showing component placement as example

CLOSED LOOP CONTROL

ERSA HR SOFT 2

Transparent user guidance in rework

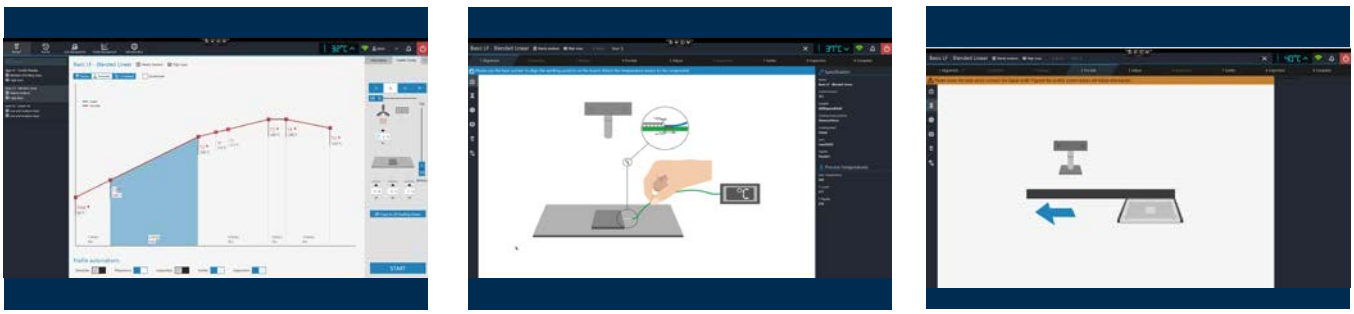
Under the motto Enhanced Visual Assistant (EVA), the HR Soft 2 user surface offers every assistance for completing rework tasks quickly and reliably. Even the novice user quickly becomes adept thanks to the well-structured and clearly laid out software.

Predefined soldering and desoldering profiles are simple to select and the user is guided through all the rework process steps. Easy-to-understand pictograms and instruction texts provide direction for the user. In the computer-aided placement of components, the HR Soft 2 rework software provides the user with brilliant, high-definition images of circuit boards and component leads. In this way, all SMD models can be aligned very quickly and with minimum fatigue for the user.

Compatible with all rework systems, except HR 600/2

Together with a database-supported archive and further useful functions, special aids such as a digital split optics for aligning large QFPs round off the features of HR Soft 2.

The HR Soft 2 is compatible with all Ersa rework systems except the HR 600/2.



HR Soft 2 – Enhanced Visual Assistant

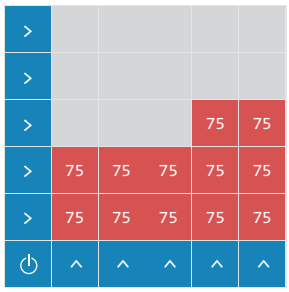
The modern operating platform for Ersa rework systems

The user interface of HR Soft 2 sets new standards in rework, both technologically and optically. Being a clearly structured software platform for current and future systems, it offers users all functions of the respective system and guides them through the single steps of the rework process.

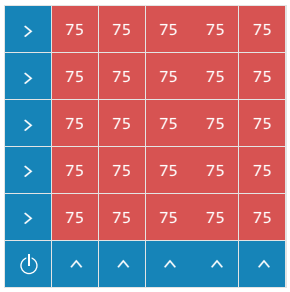
Innovative image processing and powerful database management for profile and process parameters as well as the modern handling are just some of the features of this software package.

The use of different Ersa rework systems is also simplified by the fact that the same functions are represented in the same way. There is no need for a time-consuming adaptation.

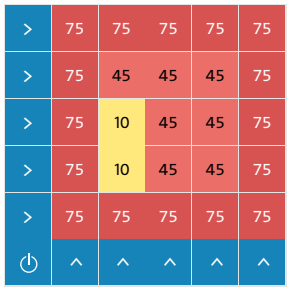
Currently, the HR 500, HR 550, HR 550 XL, HR 600P and HR 600 XL are operated by HR Soft 2. It is also the communication interface for connections to Manufacturing Execution Systems (MES).



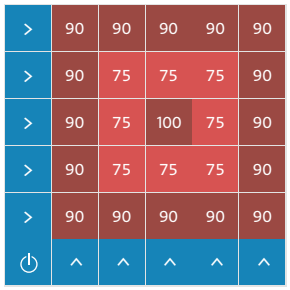
Segmented heating with homogenous power in all zones.



Full-size heating with homogenous power in all zones.



Full-size heating with edge enhancement and "cold spot".



Full-size heating with edge enhancement and "hot spot".

Profile setup with HR Soft 2 – Full-size heating with enhanced edge heating.

kurtz ersa

kurtz ersa
DISTRIBUTION
STATION-DE-SOUDAGE.FR

REWORK INNOVATION
SINCE 1997

REWORK-SYSTEMS.

GLOBAL. AHEAD. SUSTAINABLE.

ERSA HR 500

The entry into professional rework

PCB dimensions:
up to 380 x 300 mm (+x)
Component size:
1 x 1 mm to 50 x 50 mm

Technical highlights:

- 900 W high-performance hybrid heating head
- Full-area 1,600 W IR bottom heater
- High-resolution cameras for component placement and process monitoring
- Ergonomic system operation
- Operation via HR Soft 2

The Ersa HR 500 Hybrid Rework System covers common rework tasks such as desoldering, placement, and soldering of QFP, BGA, MLF, and bipolar components up to 1 × 1 mm on medium-sized SMD assemblies.

A hybrid top heater and a highly dynamic bottom-side infrared emitter with two switchable zones ensure precise control of the heating curve.

The component is aligned using fine drives and high-resolution camera images from the Vision Box; the component is positioned with virtually no force using a stepper motor.

The HR 500 is designed to accommodate an Ersa Dip&Print frame. The print of solder paste on the component is performed externally at the Ersa Dip&Print Station; the dip-in of a component into a flux depot is motor-driven.

A high-resolution reflow process camera is available as an option for visual process control. Process monitoring and documentation are performed using the HRSoft 2 operating software.

Order information:

Order no.	Description
0HR500	**Ersa HR 500** with PCB holder 380 x 300 mm (+x)
0HR510	**RPC (Reflow Process Camera)** for HR 500, HR 550 and HR 550 XL
0PR100	**Dip&Print Station,** complete

Product video

ERSA HR 550

Guided processes in rework and prototyping

FIRST SHOT PROFILING

Product video

Technical highlights:

- High-resolution cameras for placement and process monitoring
- Computer-supported component alignment, digital split optics
- 1,800 W high-performance hybrid heating head with medium-wave IR heating and additional convection heating with top heater
- Full-surface 2,400 W medium-wave IR bottom heating
- Motorized heating head with vacuum pipette
- Field of view placement camera with 70 x 70 mm (wide-angle) and 25 x 33 mm (telephoto)
- Operation via HR Soft 2

The Ersa Hybrid Rework System HR 550 combines precision and process reliability in the rework of electronic assemblies.

A 1,800 W hybrid heating head enables the desoldering and soldering of SMT components up to 70 × 70 mm, while the 2,400 W IR bottom heater with three zones guarantees homogeneous heating of the entire assembly. Non-contact and contacting temperature measurement on the component as well as optimized process control ensure ideal soldering processes.

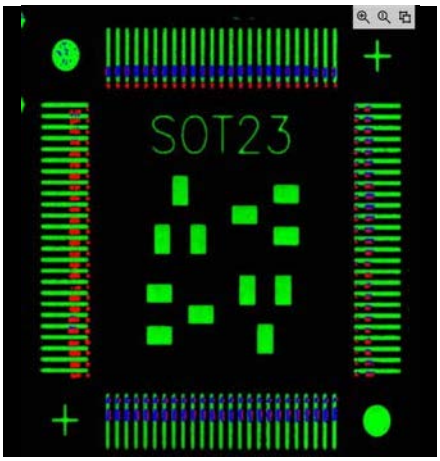
Component removal and placement are performed using a vacuum pipette which is integrated into the heating head. The exchangeable heating head and the pipette are each controlled by a stepper motor; an integrated force sensor recognizes contact between component and printed circuit board.

Ergonomic control elements and computer-assisted component alignment with high-contrast and high-resolution camera images simplify operation of the HR 550, which is also prepared for the Ersa Dip&Print Station and the use of a tape feeder. Operating software is the HR Soft 2 platform.

Order information:

Order no.	Description
0HR550	**Ersa HR 550** with PCB holder 400 x 300 mm (+x)
0HR550L	**Ersa HR 550** with PCB holder 520 x 360 (+x) mm
0HR510	**RPC (Reflow Process Camera)** for HR 500, HR 550 and HR 550 XL
OPR100	**Dip&Print Station,** complete

Processing an assembly in the HR 550



Computer-supported alignment of a QFP

Reflow Process Camera (RPC) on the HR 550

Tape feeder for micro components

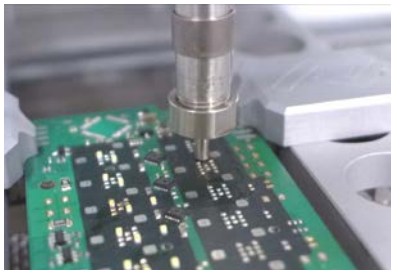
ERSA SCAVENGER

Non-contact residual solder removal for HR 550 and HR 550 XL

NON-CONTACT SOLDER REMOVAL

The semi-automated HR 550 and HR 550 XL hybrid rework systems can be equipped with the Ersa SCAVENGER for non-contact removal of residual solder. This separate module is linked to the Ersa Rework System and gently and safely removes any solder remaining on the pads of the PCB after desoldering. Following the desoldering process, the suction head of the SCAVENGER is moved to the working position and the suction nozzle is lowered to just above the board. Meanwhile, the bottom heater of the rework system keeps the board at the required temperature. Then the solder is remelted with the use of precisely metered hot gas and immediately sucked off while the user moves the PCB under the suction nozzle to clean all component lands.

The SCAVENGER can be retrofitted to both rework systems.



Order information:

Order no.	Description
0SC550	Ersa SCAVENGER module to remove residual solder, suitable for all HR 550 and HR 550 XL rework systems

ERSA HR 550 XL

Safe processing of large assemblies

PCB dimensions:
up to 610 x 530 mm (+x)
Option: up to 680 x 600 mm (+x)
Component size:
01005 to 70 x 70 mm

Ersa SCAVENGER, see page 11

Technical highlights:

- 1,800 W high-performance hybrid heating head
- Full area 6,400 W IR bottom heater in 8 zones
- High-resolution cameras for placement and process monitoring
- Computer-supported component alignment, digital split optics
- Ergonomic operation
- Operation via HR Soft 2
- Motorized component rotation and X/Y-adjustment
- Tip mode with resolution < 20 µm

Product video

The HR 550 XL hybrid rework system delivers precision and process reliability when reworking large assemblies.

It features a 1,800 W high-performance hybrid heating element that can be used to desolder and solder SMT components up to the size of 70 x 70 mm. The 6,400 W infrared bottom heater with eight zones ensures homogenous heating of the entire assembly. Non-contact and contacting temperature measurement on the component as well as optimized process control guarantee perfect soldering and desoldering processes.

Component removal and placement are performed using a precise vacuum pipette that is integrated into the heating head.

The exchangeable heating head and the pipette are each controlled by a stepper motor; an integrated force sensor detects the contact to the component and circuit board. The motorized and precise X/Y alignment of a component is performed using a joystick.

Ergonomic control elements and computer-assisted component alignment with high-contrast and high-resolution camera images simplify operation of the HR 550 XL, which is also prepared for the Ersa Dip&Print Station. Operating software is the HR Soft 2 platform.

Order information:

Order no.	Description
0HR550XL	**Ersa HR 550 XL** with PCB holder 610 x 530 mm (+x)
0HR550XLL	**Ersa HR 550 XL** with PCB holder 680 x 600 mm (+x)
0HR510	**RPC (Reflow Process Camera)** for HR 500, HR 550 and HR 550 XL
0PR100	**Dip&Print Station,** complete
0SC550	**Ersa Scavenger** module to remove residual solder, suitable for all HR 550 and HR 550 XL rework systems

ERSA HR 600/2

Flexible, efficient, automated, reliable!

PCB dimensions:
up to 390 x 300 mm (+x)
Option: up to 535 x 300 mm (+x)
Component size:
1 x 1 mm to 50 x 50 mm

Software HR Soft, see page 5

Technical highlights:

- Automated component placement
- Automated desoldering and soldering processes
- High-performance hybrid heating head with two heating zones for effective heat transfer
- Large-area, powerful IR bottom heating in three zones
- Non-contact temperature measurement with digital sensor
- Two interfaces for K-type thermocouples

Product video

With the HR 600/2 hybrid rework system, almost all high-pin-count component types on modern assemblies can be repaired automatically and reliably. Placement, lift-off, and defined deposition of components, as well as the soldering process, are core competences of this universal rework system.

The operator can either control every single rework process step; but the single steps can also be joined into automated processes that require only minimal operator intervention.

For component placement, image processing software is used to automatically calculate the required component position, and the component is placed user-independently with a vacuum gripper and axis system.

The system works with highly dynamic IR heating elements in the bottom heater to heat the entire surface of the assembly. A hybrid heating head combines infrared radiation and convection heating for targeted and efficient component warming. This results in fast and high-quality desoldering and soldering processes.

A reflow process camera (RPC) with LED lighting is available as an option for process monitoring and documentation.

The system is prepared for use of the Ersa Dip&Print Station.

Order information:

Order no.	Description
0HR600/2	**Ersa HR 600/2** with PCB holder 390 x 300 mm (+x)
0HR600/2BHL	**Ersa HR 600/2** with PCB holder 390 x 300 mm (+x) and lowered bottom heater
0HR600/2L	**Ersa HR 600/2** with PCB holder 535 x 300 mm (+x)
0HR600/2LBHL	**Ersa HR 600/2** with PCB holder 535 x 300 mm (+x) and lowered bottom heater
0HR610P	**RPC (Reflow Process Camera)** for HR 600/2
0PR100	**Dip&Print Station,** complete

ERSA HR 600 P

Automated rework precision for best results

PCB dimensions:
Up to 380 x 300 mm (+x)
Option:
up to 642 x 423 mm (+x)
Component size:
1 x 1 mm to
60 x 60 mm

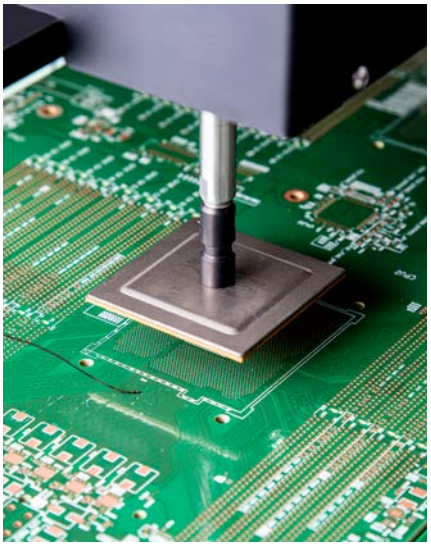
Scavenger module see page 20

Technical highlights:

- High-precision axis system and high-resolution cameras
- Automated component placement, soldering and desoldering processes
- High-performance hybrid heating head with two heating zones
- Process monitoring with Reflow Process Camera
- Powerful large-area IR bottom heating in six zones
- Three K-type thermocouple inputs for AccuTC sensor
- Effective assembly cooling with compressed air
- Optional residual solder removal with AUTO SCAVENGER (also retrofittable)
- Optional Dip & Print Station

Product video

Hybrid heating head while desoldering a metallic BGA

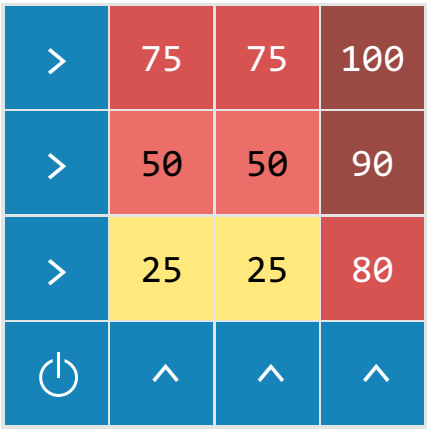


Handling of a metallic BGA

With the HR 600 P, Ersa continues to advance professional, automated repair of electronic assemblies. This system is particularly suitable for components with very fine pitches.

The proven infrared heating elements in the bottom heater provide for a homogeneous heating of the entire PCB. The highly dynamic heating head combines IR radiation and convection heating for targeted and efficient component heating from above.

HR 600P with lowered bottom heating for more space during rework



Full-surface heating with increased heating power at the edges and reduced power at the "cold spot"

The component position is calculated automatically, and a vacuum gripper places the component via a precise axis system. The AUTO SCAVENGER gently and fully automatically removes residual solder before the new component is installed. This module can be retrofitted and is fully integrated into HRSoft 2.

The HR 600 P is available in different versions, e.g. with a large PCB holder for bigger assemblies or with a lowered heating cassette creating additional space for high component structures; both options can be combined.

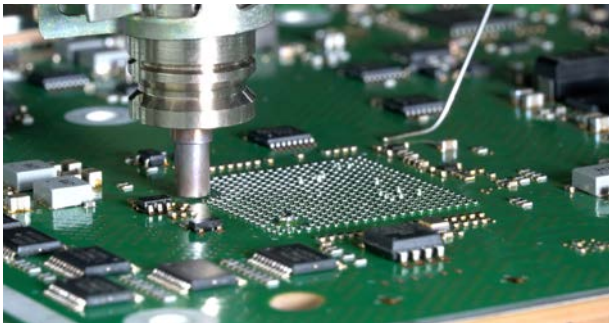
A powerful reflow process camera with LED lighting and the Windows software HRSoft 2, which guides and records all work steps, are available for process monitoring and documentation.

For a defined application of flux or solder paste on the components, the HR 600P is prepared for use with the Ersa Dip&Print Station

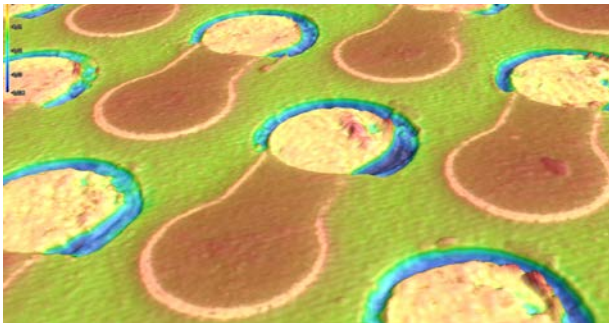
Order information:

Configurations available on request.

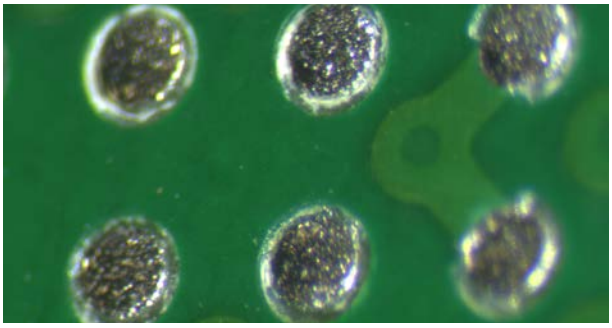
Automatic removal of residual solder



Auto Scavenger module on a BGA component



Cleaned pads with less than 20 µm residue (3D image)



Scavenger results on a BGA sample with 1 mm spacing

HR 600 XL

Professional repair of large circuit boards

PCB dimensions:
up to 625 x 625 mm (+x),
Option:
up to 625 x 1,250 mm (+x)
Component size:
0.5 x 0.5 mm to 60 x 60 mm
(01005 to 160 x 160 mm)

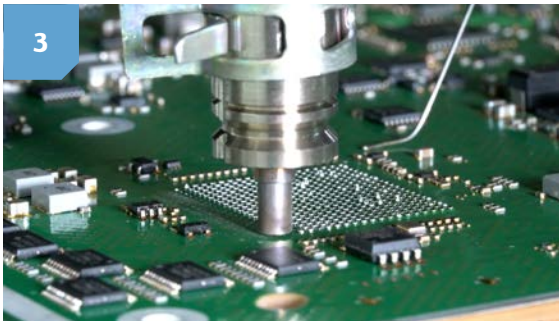
Technical highlights:

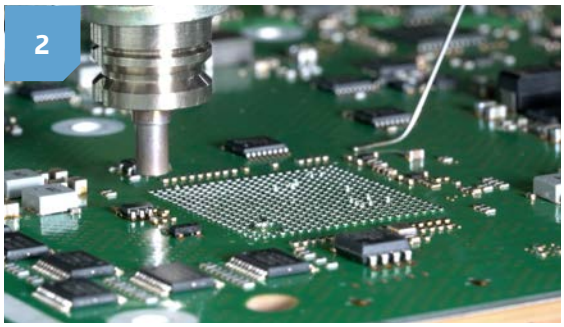
- Highly efficient high-performance hybrid heating heads from 60 x 60 mm to 160 x 160 mm, 800 to 4,800 W
- IR Matrix™ bottom heater (25 elements), 15 kW, expandable
- Process monitoring with up to 8 thermocouples
- Precise component alignment via image processing
- Motorized axis system for component placement (± 0.025 mm)
- Residual solder removal via integrated AUTO SCAVENGER
- User-independent, reproducible rework results guaranteed
- Process control and documentation via HR Soft 2
- Fully or semi-automatic operation
- Optional Dip & Print Station

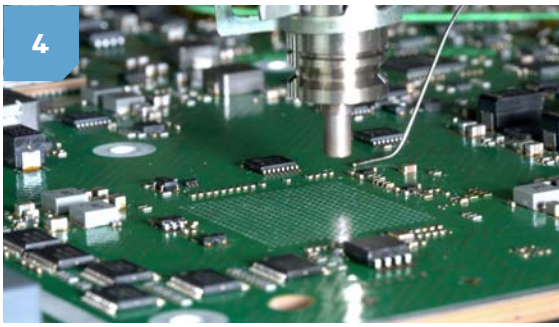
Scavenger module see page 20

Product video

Automatic processing of large assemblies, including residual solder removal and RPC camera







Process steps during scavenging:

1) *Lift-off of desoldered component*
2) *Vacuum nozzle moves to the component position*
3) *Non-contact sucking of residual solder whith the nozzle moving in defined tracks*
4) *Vacuum nozzle leaves the cleaned area*

The Ersa HR 600 XL is designed for professional rework of BTC (bottom-terminated components) using selective reflow soldering processes on big boards. Featuring an active heating area of 625 × 625 mm (24 × 24 inches) and the capability to process PCBs with a maximum thickness of up to 10 mm, the system is ideal for applications in telecommunications, network technology, as well as IT and AI infrastructure. The bottom-side IR Matrix™ heater (15 kW) with 25 individually controllable zones allows an application-specific heat distribution. The highly efficient 800 W hybrid heating head processes components such as chip components or BGAs (up to 60 × 60 mm / 2.36 × 2.36 inches). Three additional hybrid heating heads with up to 4,800 W and an active heating area of up to 160 × 160 mm allow the processing of very large components such as high-power AI processors.
SMDs are automatically aligned using image processing. The high-precision axis system provides a placement accuracy of up to ±0.025 mm. Operation can be effected fully or semi-automatic.
The HR 600 XL is prepared for the use of the Ersa Dip&Print Station. A high-resolution reflow process camera for visual process control is available as an option. Process monitoring and documentation is realized with the HRSoft 2 software plattform.

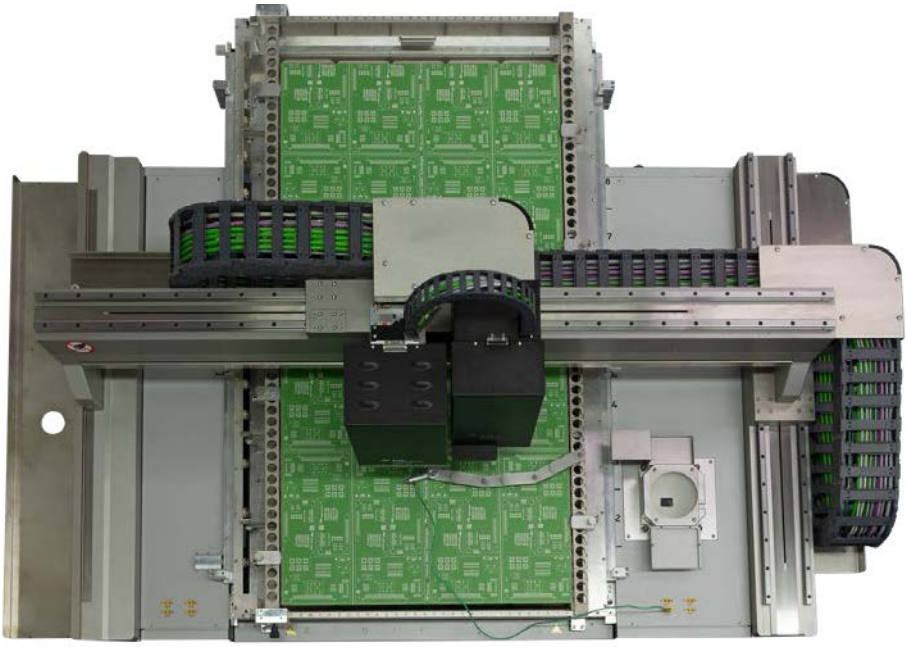
Order information:

Configurations available on request.

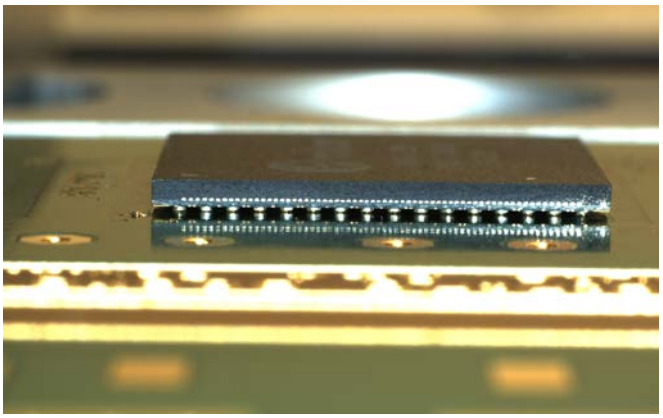
Available heating heads for the HR 600 XL – standard: 60 x 60 mm, L: 80 x 150 mm, XL: 120 x 150 mm, XXL: 160 x 160 mm

Optional extras:

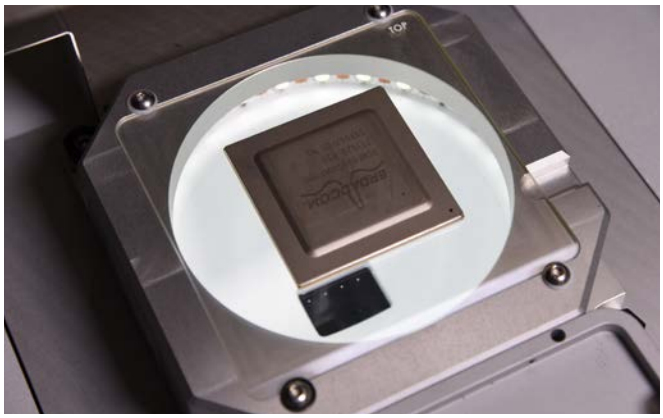
- SC 600 AUTO SCAVENGER for complete removal of residual solder
- Extended bottom heating for PCB formats up to 625 x 1250 mm
- L-heating head for a component size of 150 x 80 mm
- XL heating head for a component size of up to 150 x 120 mm
- XXL heating head for a component size of up to 160 x 160 mm



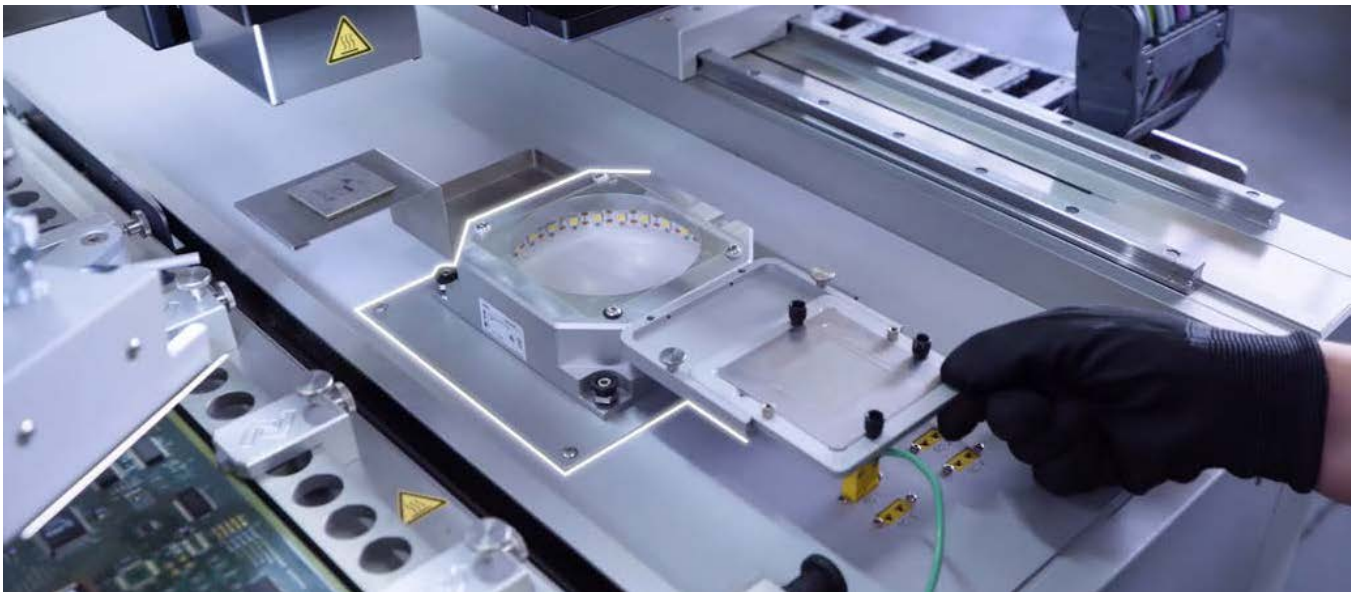
System with extended bottom heating: Clearly visible in the top view – the HR 600 XL can process circuit boards with enormous dimensions.



Reflow Process Camera for live process observation



Metallic BGA on the light dome



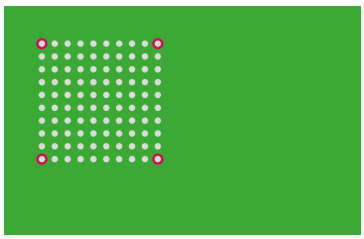
Dip&Print Station of the HR 600 XL – application of a defined amount of flux on BGA components

High-precision alignment with “Click to Place”: Optimized and camera-supported component placement

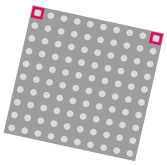
PRECISE PLACEMENT

In addition to the existing alignment process the HR Soft 2 of the HR 600 XL rework system offers an alternative process for component alignment based on image processing – the “Click to Place” function. This function is particularly suitable when handling very large components.

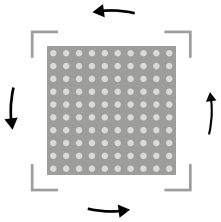
Using a high-resolution camera, the operator first marks four pads of the component’s target position on the circuit board. Next, he or she clicks on two of the component’s connections to compensate for rotation. The operator then marks all four corner pads of the component in the same way. Now, the system determines the best overlap of the marked pads to make sure the component is aligned precisely and then safely places the component on the circuit board. This tech allows for quick and error-free placement, especially for large BGAs sizing up to 160 x 160 mm, and it makes rework more efficient.



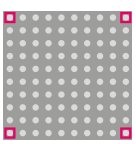
01) PCB, component target position: select 4 pads



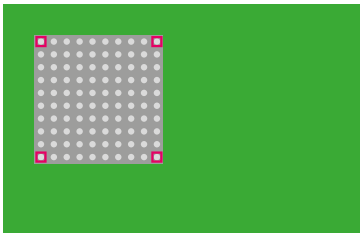
02) Component: select 2 pins



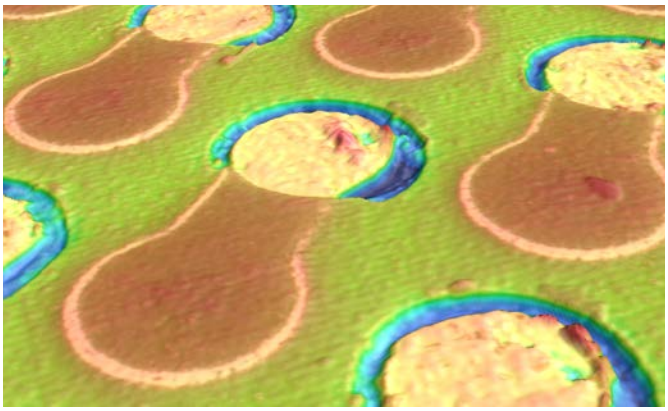
03) Correct rotation = precise alignment of component with target position on PCB



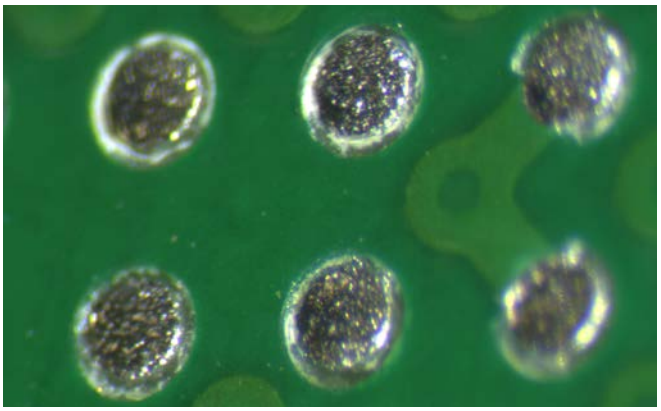
04) Component: select 4 pins



05) Placement of the component on the PCB



Cleaned pads with less than 20 µm of residue (3D image)



Scavenger results on a BGA sample with 1 mm spacing

SC 600 SCAVENGER MODULE

Automatic residual solder removal for HR 600 XL and HR 600 P

Technical Highlights:

- Automatic height adjustment
- Automatic track definition
- Individual setting of the suction parameters
- Operation with N_2 as protective gas
- Available as option or as retrofit for all HR 600 P or HR 600 XL systems

Before a new component can be installed on a PCB, the solder remaining on the board after desoldering must be removed. For this purpose, the high-end rework systems HR 600 P and HR 600 XL feature the SC 600 AUTO SCAVENGER module.

In an automated process, the scavenger gently removes the residual solder from the pads of the PCB. The module can also be retrofitted and is fully integrated into the HRSoft 2 software.

This is how the process works:

The bottom heater of the rework system automatically maintains the temperature of the assembly. The upper heating head gently melts the residual solder, which is then extracted by vacuum. An automatic height control ensures that the solder is extracted without the nozzle touching the surface of the printed circuit board.

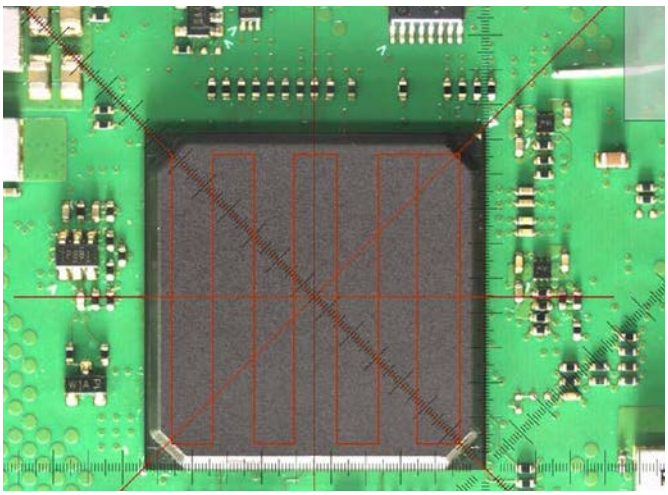
For optimal suction results, the user sets the suction parameters individually to the respective application. Once the residual solder has been removed, the assembly is ready for the installation of a new component.

Order information:

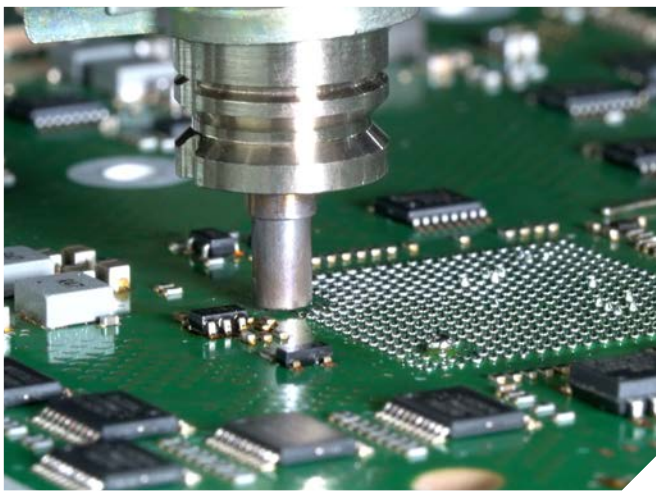
Order no.	Description
0SC600	**SC 600** Automatic residual solder extraction for HR 600 XL and HR 600 P rework systems

Further configurations on request

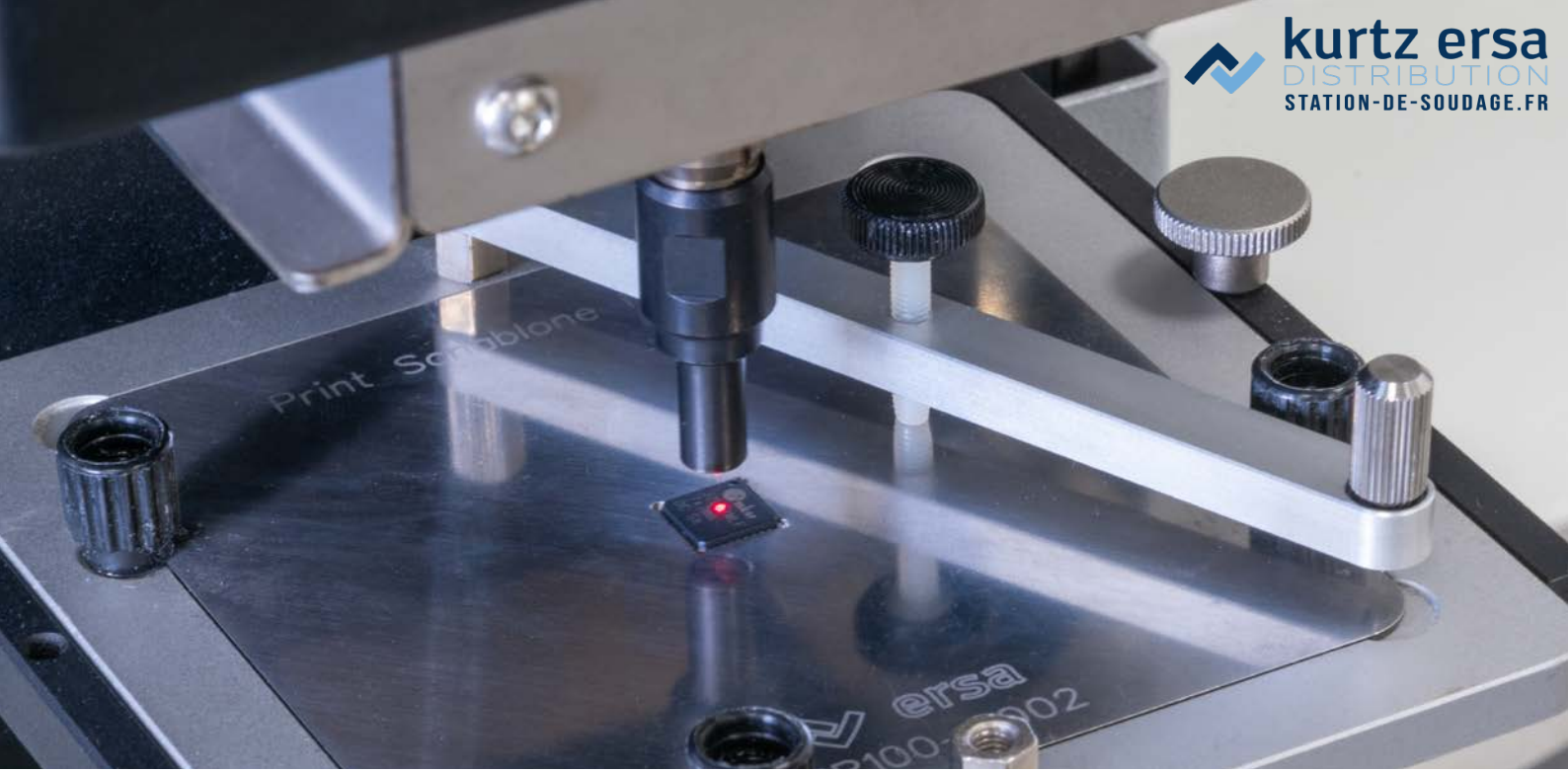
NON-CONTACT SOLDER REMOVAL



Automatic track definition on a BGA component



Process step: Sucking off residual solder



Placement nozzle lifts component off the print stencil

DIP&PRINT STATION

for Ersa rework systems

Technical highlights:

- Easy solder paste printing
- Component dip-in for flux and solder paste deposition
- Fits to all Ersa rework systems
- Easy to change stencils
- Integrated cleaning option

Flux application in dip stencil

The Ersa Dip&Print Station enables the user of an Ersa rework system to easily, reliably and reproducibly perform the preparatory work on the component (application of solder paste or flux).

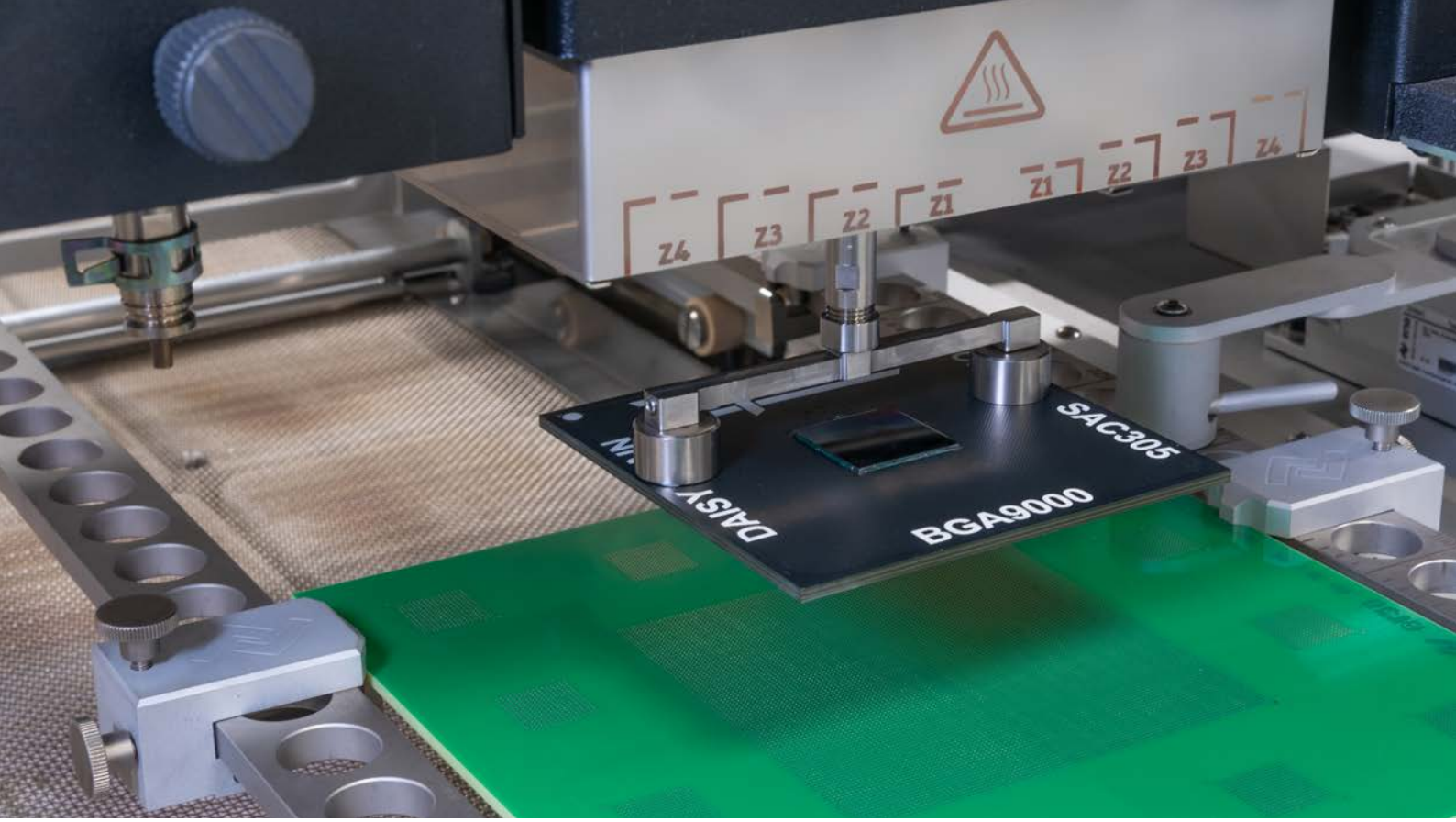
Optional dip stencils permit to immerse the components into flux and in solder paste using defined parameters in order to build up a defined depot on the contacts to be soldered. This method is suitable for BGAs and many Fine-Pitch components. For example, using a component-specific stencil, solder paste depots on QFN/MLF connections and those of other SMD components can be added easily and precisely.

To apply solder paste, the component is fixed in the print stencil at first. Then the solder paste is printed on the component. Afterwards, the placement unit lifts the component out of the stencil and places it on the target position.

A suitable rack fixation is available for each Ersa rework system to mount the stencil frame of the Dip&Print Station on the placment system.

	Order no.	Description
	0PR100	Dip&Print Station incl. stencil frame and squeegee
	0PR100-D001	Dip stencil, 40 x 40 mm/300 µm
	0PR100-D002	Dip stencil, 20 x 20 mm/150 µm
	0PR100-D003	Dip stencil, 20 x 20 mm/100 µm
	0PR100-D004	Dip stencil, 40 x 40 mm/100 µm
	0PR100-D015	Dip stencil, 55 x 55 mm/100 µm
	0PR100-D016	Dip stencil, 55 x 55 mm/150 µm
	0PR100-D017	Dip stencil, 55 x 55 mm/200 µm
	0PR100-D018	Dip stencil, 55 x 55 mm/250 µm
	0PR100-S001	Print stencil, type 1, BGA 225
	0PR100-S002	Print stencil, type 2, MLF 32

Customer-specific stencils on request



Entlöten eines Leistungshableiters mit einer kundenspezifischen Düse

ERSA REWORK

Up to all requirements!

AIDING SUSTAINABILITY

In order to meet all requirements for selective reflow processes, it is important to select a system that can handle the most diverse and difficult rework applications. Our experts have proven the flexibility of Ersa systems many times over.

The applications included multilayer BGAs (RAM, DIMM modules), RF shielding, rework on aluminum composite boards, BGA heat exchangers, replacement of THT sockets, BGAs on flex circuits, reworkable epoxy resin material, and large BGA processor sockets or AI processors, etc.

Ask for the best solution for your tasks. We will be glad to help you!


IPC 7711

Number: 5.7.3

BGA Reballing Procedure

EQUIPMENT REQUIRED

OPTIONAL EQUIPMENT

MATERIALS

NOTE

CAUTION

PROCEDURE

Figure 1

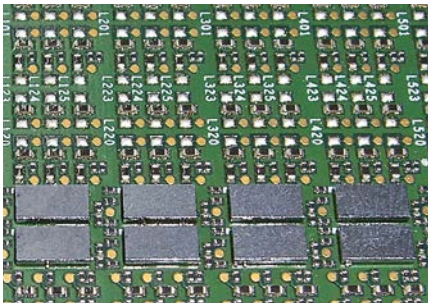
Figure 2

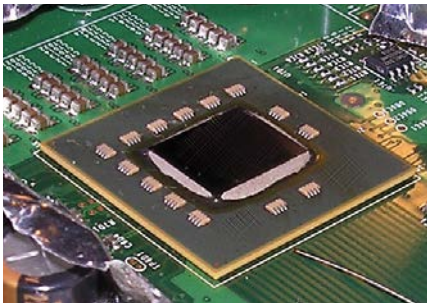
Figure 3

Figure 4

Page 1 of 2

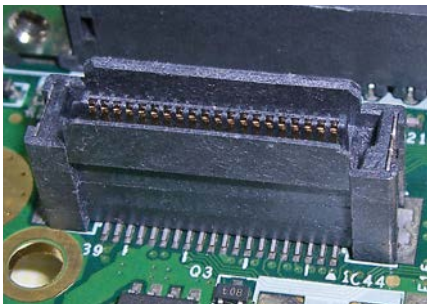
Ersa Rework Systems recommended for BGA reballing (source IPC 7711)

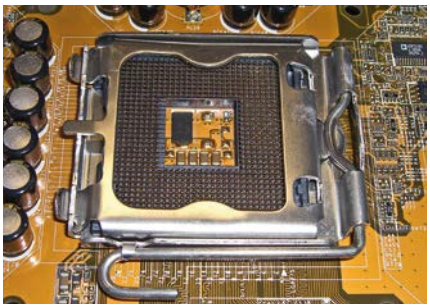

CSP, Micro-BGA 01005, 0201, 0402 chips

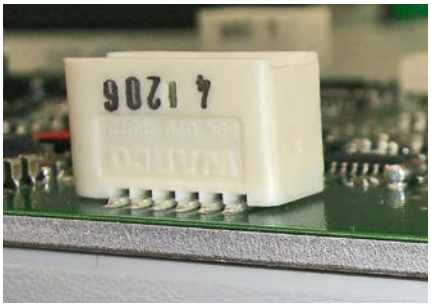

FCBGA

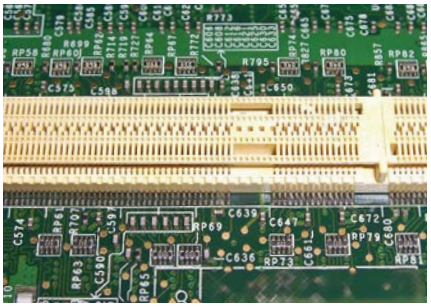

PBGA on aluminium carrier

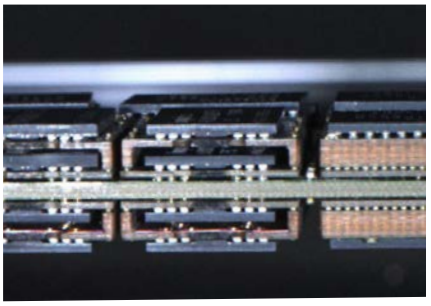

CGA with heat sink


Plastic SMD connector

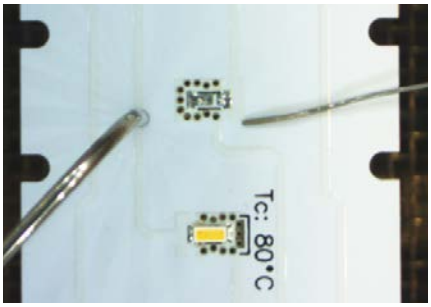

LGA 775-Prozessorsockel


Plastic SMD on aluminium carrier


Large plastic SMD connector


Package on Package module

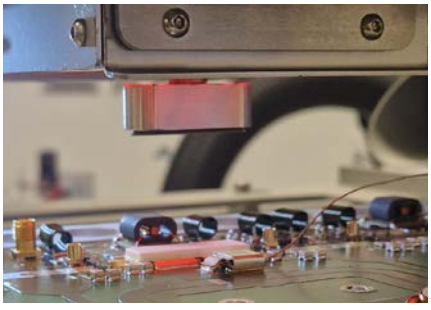

BGA processor socket



Light-emitting diodes on aluminum-laminated substrate

Heavy-mass aluminium carriers, metal plates and shields, ceramic substrates and even plastic components can be safely reworked with the Ersa Rework Heating Technology!


BGA plastic socket


Desoldering a power semiconductor with a custom nozzle.

kurtz ersa

ACCESSORIES.

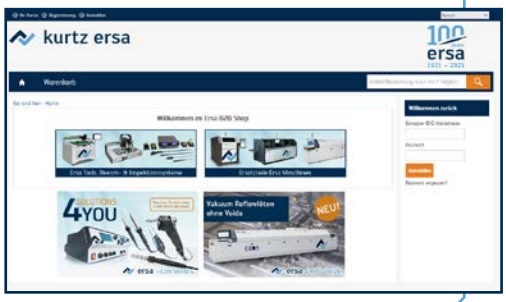
GLOBAL. AHEAD. SUSTAINABLE.

Accessories & spare parts in the Ersa Webshop

You need another PCB holder for your Ersa rework system, or a suction nozzle has to be replaced? An additional thermocouple with holder is required for the new customer order?

The Ersa web shop offers a wide range of accessories and spare parts for your Ersa rework system. To identify the part you are looking for, navigate to your system using the corresponding tabs. Or, enter the order number or search term in the search window. As an end customer, please contact your Ersa distributor or Ersa directly to place your order.

ersashop.com



SUCTION NOZZLES & SUCTION CUPS

Suction cups and suction nozzles for Ersa rework systems

In order to lift off components after desoldering and to place new components safely, Ersa offers an extensive range of suction nozzles and suction cups.
Pure metallic nozzles as well as nozzles with silicone suction cups or Viton® suction cups are available.

Please note when selecting in the Ersa shop whether the respective nozzle or suction cup is suitable for your rework system.

For more information, please refer to our homepage at **www.ersashop.com**

TEMPERATURE SENSORS

Thermocouples and holders for Ersa rework systems

In order to accurately measure the temperature at the components, Ersa rework systems work with K-type thermocouples. Sheathed thermocouples as well as thermocouple wires are available.
Convenient thermocouple holders are also offered for additional sensors.

Please note when selecting in the Ersa shop whether the respective sensors or holders are suitable for your rework system.

For more information, please refer to our homepage at **www.ersashop.com**

DTM 110 TEMPERATURE MEASURING DEVICE

In certified companies and from a quality point of view, the recording and monitoring of the process temperature is obligatory.
When repairing assemblies, the DTM 110 is used to record the soldering temperature in addition to the measuring channels of the Ersa rework systems.
With all K-type thermocouples, the temperature can be measured on sensitive components or on the underside of the assembly.

The DTM 110 is also suitable for controlling the temperature of soldering tips.

For more information, please refer to our Ersa soldering tools catalog or our homepage at **www.ersashop.com**

CONSUMABLES

Fluxes, tapes and solders

Ersa provides a proven range of auxiliary materials for the rework of assemblies. Heat-resistant, special adhesive tapes, solders and fluxes can be found in our on-line webshop, as well as flux removers or a special cooling pad to protect sensitive components.

For more information, please refer to our homepage at **www.ersashop.com**

i-CON VARIO 2 MK2

i-CON NANO MK2

SOLDERING STATIONS AND TIPS

Ersa soldering stations and soldering tips for rework applications can be found in our Ersa soldering tools catalogue or on our homepage at:
www.ersashop.com

PCB exchange frame HR 600 (390 x 300 mm (+x))

CIRCUIT BOARD HOLDERS AND MORE

Support rails, additional holders, interchangeable frames

Various additional holders or support elements are available for the Ersa rework systems in order to ideally accommodate assemblies in the rework system. They ensure that circuit boards can be processed without distortion and can be easily fixed in the system. You can find additional holders and exchangeable frames in our online webshop.

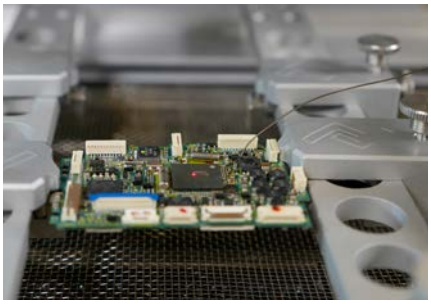
Please note when selecting in the Ersa shop whether the respective PCB holders or support rails are suitable for your rework system.

If you have any questions, please do not hesitate to contact the Ersa team.

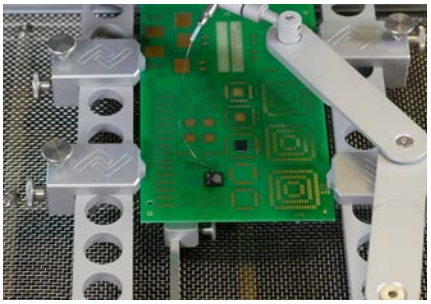
For more information, please refer to our homepage at **www.ersashop.com**

Support rail for HR 550 with one support pin

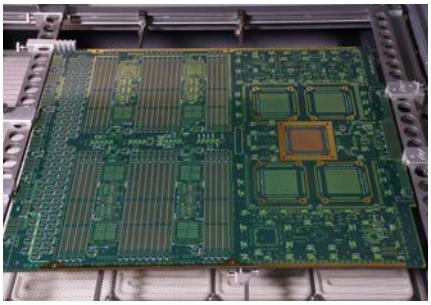
PCB holder, clamping of small PCBs, recommended PCB size up to 170 x 170 mm



Flexible board holders adapt to size and structure of an assembly.



Support rails with pins prevent PCB warpage...



...so that even XL PCB formats can be safely fixed in the rework system.

kurtz ersa

INSPECTION SYSTEMS.

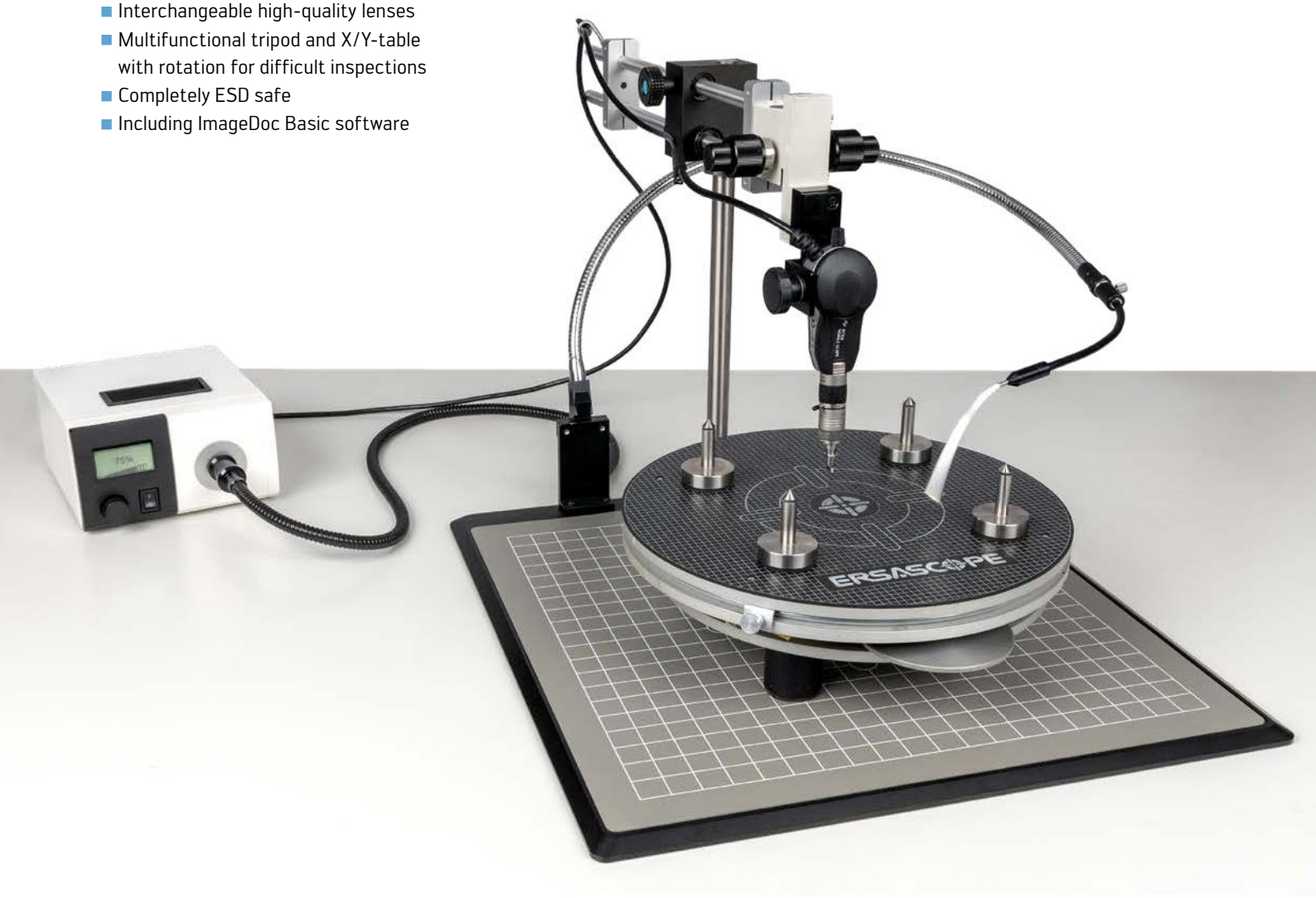
GLOBAL. AHEAD. SUSTAINABLE.

ERSASCOPE X

Optical inspection systems for hidden solder joints

Technical highlights:

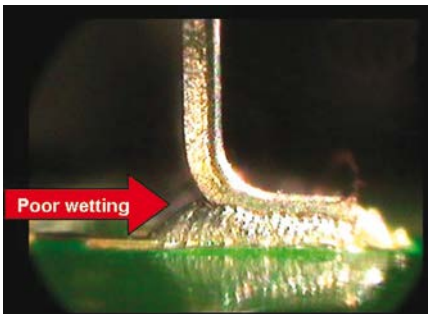
- High-resolution 5 MP USB camera
- Interchangeable high-quality lenses
- Multifunctional tripod and X/Y-table with rotation for difficult inspections
- Completely ESD safe
- Including ImageDoc Basic software



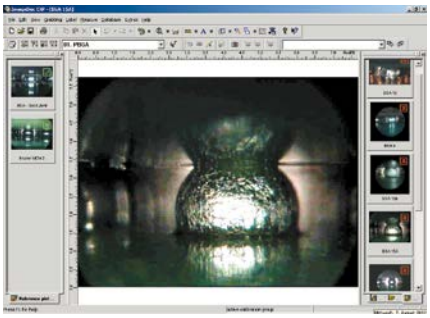
The ERSASCOPE X is an inspection video microscope to analyze hidden solder joints in electronic production environments. It has been designed for optical inspection and digital image recording including measurements of solder joints on Ball Grid Array (BGA) and many other SMT packages. Furthermore, the application field also covers the visual inspection of PCB lands or solder paste prints. The device can be used in quality assurance, production, laboratories or R&D departments. The ERSASCOPE X connects with a PC or any portable computer via a USB interface, and within minutes it is ready for operation.

Thanks to high-quality BGA optical heads, the inspection of components with hidden solder joints is easy. A MACROZOOM lens allows top-view surface inspection in various magnifications. All optical heads are plugged onto the high-resolution digital color camera hand piece with a “Quick Snap” connection and can be changed within seconds.

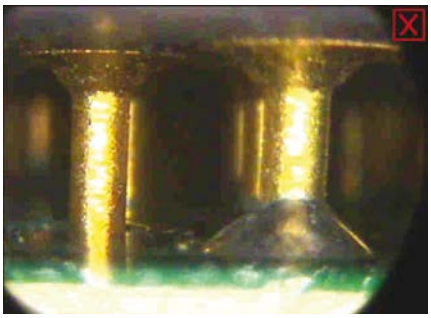
Long-life and very bright controllable LED lights are integrated in all optical heads and provide optimal illumination of the solder joints. The ERSASCOPE X includes a powerful external LED light source plus gooseneck light fibers as well as a



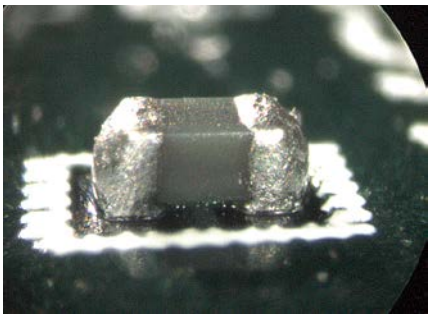
PQFP interior heel fillet inspection: non-wetting with lead-free paste



BGA inspection with reference pictures

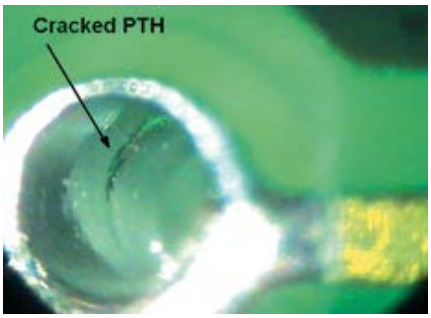


THT inspection under PGA



High magnification inspection of 0201s

ImageDoc Basic inspection software



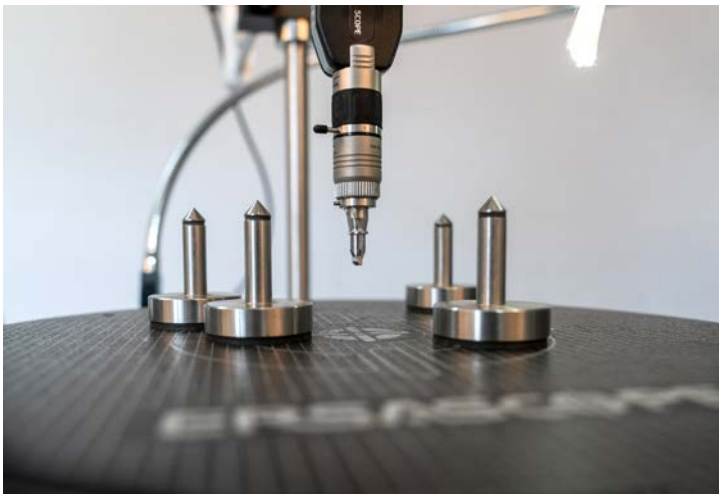
PCB inspection inside via hole

light brush for optimized BGA inspection. This is essential for backlight illumination or to light up very hidden or hard to reach areas.

The ERSASCOPE X comes with the ImageDoc inspection software. This proven and well-established software not only displays the live images, but also offers the operator various possibilities for documentation and analysis of the inspection results.

Order information:

Order no.	Description
0VSSC085X	ERSASCOPE X inspection system



BGA inspection head with four PCB supports to handle double-sided assemblies

Camera unit with optical head. Adjustable tripod and gooseneck light guide with light brush.

ERSA MOBILE SCOPE

Mobile optical inspection system for electronics production

Technical highlights:

- High-resolution USB camera
- Interchangeable high-quality lenses
- Optional 0° optical head (80x)
- Integrated, adjustable LED lighting
- Optional LED fiber optic lighting
- Stand units and further accessories
- ImageDoc Basic or ImageDoc EXP software for both beginners and advanced operators
- Recording, measurement and reporting functions
- Mobile application

Mobile quality assurance in no time at all

The Ersa MOBILE SCOPE is a compact and handy, portable video microscope to inspect solder joints in electronic production environments. It has been designed for optical inspection and digital image recording including measurements of solder joints on Ball Grid Array (BGA), µBGA, CSP and Flip-Chip packages.

Furthermore, the Ersa MOBILE SCOPE can also be used to visually inspect lands, solder paste prints or, in general, to visually inspect components in Surface Mount Technology (SMT) or in Trough-Hole Technology (THT) on the board. The device can be used in quality control, production, laboratories or R&D departments.

The compact Ersa MOBILE SCOPE connects with a PC or any portable computer via a USB interface and is ready for operation within minutes in any location.

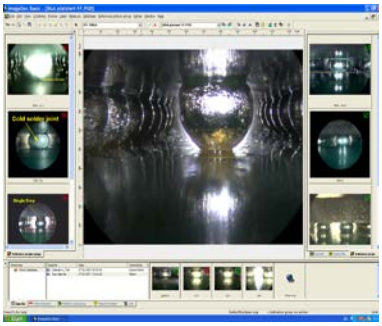
By means of the high-quality BGA optical heads, components with hidden solder joints can easily be inspected, a MACROZOOM lens allows top-view surface inspection in various magnifications. All optical heads are plugged onto the high-resolution digital color camera hand piece with a “Quick Snap” connection. Changing the optical heads in accordance with the inspection task is a matter of seconds.

Long-life and very bright, controllable LED lights are integrated in both optical heads and provide optimal illumination of the solder joints. In BGA inspection an additional LED light brush is essential for backlight illumination or to light up very hidden and hard-to-reach areas. Thus, soldering errors can be detected quickly and easily with the Ersa MOBILE SCOPE.

The Ersa MOBILE SCOPE is supplied together with the well-established ImageDoc Basic inspection software. This software not only displays the live images but also provides various possibilities to document and analyze inspection results.

Extensive accessories allow the operator to compose his individual Ersa MOBILE SCOPE inspection system according to his needs. A practical aluminum case offers safe storage of the inspection equipment and facilitates the transportation of the system to any location wherever it is needed.

QFP solder joints – taken with the Ersa MOBILE SCOPE MACROZOOM optical head



ImageDoc inspection software

Order information:

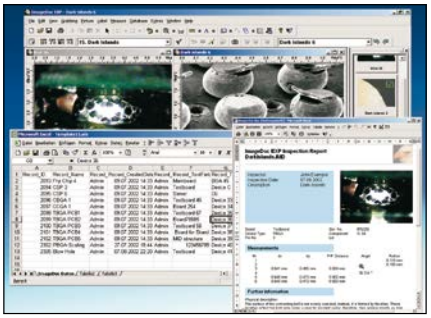
Order no.	Description
0VSCA060	Basic camera unit
0VSSC060VK1	Sales kit 1, for details see page 35
0VSSC060VK2	Sales kit 2, for details see page 35
0VSSC060VK3	Sales kit 3, for details see page 35

ERSA IMAGEDOC

Inspection software for inspection staff with documentation from experts!

Based on the four fundamental principles of "Inspect, Classify, Analyse and Document", the ImageDoc software platform was designed especially for the inspection personnel. It guides the operator through the process of determining whether a defect exists, and then directs the operator where to look in the process in order to correct the problem.

Inspection subjectivity is reduced, problems are solved more quickly and valuable process information is documented for future use. The included database can be modified and extended at any time, i.e.



Database & reporting modules to store process information and failure analyses

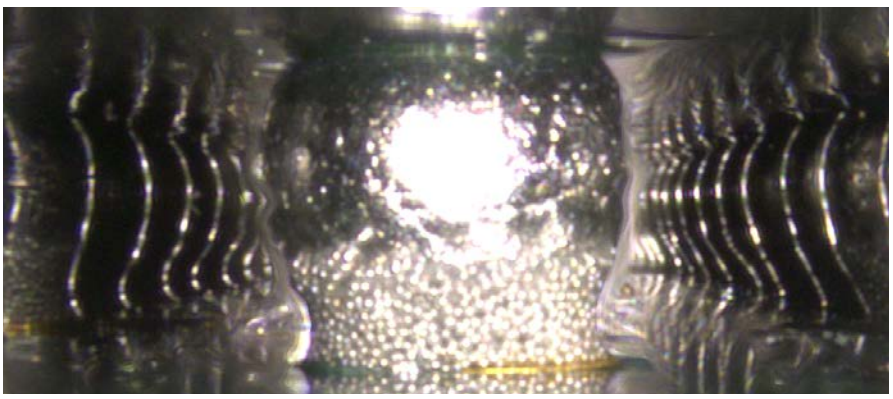
users can add reference pictures (with good/bad marking) and problem/solution references.

Technical highlights:

- Live and still picture window for documentation and control
- Image database
- Basic problem/solution database, set up by Ersa, Fraunhofer and the industry
- Measurements and automatic measurement control function/calibration
- Image processing and labelling
- Basic reporting/e-mail out of application
- Plug-and-Play setup

ERSA IMAGEDOC EXP

Additional functions for sharper views at even more depth



"Focus Fusion" – view of a BGA printed with solder after it has been placed

The "Best Focus" image processing function automatically determines the optimal sharpness for freely selectable sections of an image, thereby supporting precise in-image measurements.

For improved display and documentation, "Focus Fusion" combines several previously captured individual images into a single image with a high depth of field. This means that all BGA balls in a row can be in focus at the same time, making soldering errors or irregular solder joints easier to detect. The inspection results of a component with high pin-out can therefore be documented in a single image.

Both functions are available starting with version 3.0 of the ImageDoc EXP inspection software, and an update is available for existing ERSASCOPE users.

Technical highlights:

- Live and still picture, AVI recording, sequence module, presentation mode
- "Best Focus" and "Focus Fusion"
- Guided failure analysis, supported by an extensive expert database
- Reference pictures
- Large problem/solution database, set up by Ersa, Fraunhofer and the industry
- Measurements, automatic measurement control function/calibration
- Image processing/labelling, filters and macros
- Network operability, multi-user licensing
- User administration
- Report generation in MS Word and statistics in MS Excel/database, import/export, e-mail
- Online updates and user forum

SYSTEM COMPONENTS

for Ersa MOBILE SCOPE, ERSASCOPE X

Order no.	Descritpion	Technical data	Part
0VSLS400	**Dimmable LED light source** Energy-saving LED illumination for all ERSASCOPE inspection systems	approx. 170 x 196 x 98 mm (W x H x D), 12 VDC, 5,420 mA, max. 65 W weight approx. 2.1 kg	
0VSLF200	**Light brush**	length 35 mm, width 5 mm	
0VSRM100	**Glass calibration scale**	10 µm lines at 100 µm pitch	
0VSLC100	**Lens cleaning kit**	cleaning cloth, papers and liquid	
0VSXY100	**x/y-table with fine adjustment** and 4 PCB supports	X-Y-ϑ-movement with fine adjustment and antistatic mat with grid dimensions: ø 320 mm; weight: approx. 5 kg	
0VSID300L	**ImageDoc EXP 3.x**	upgrade licence for ImageDoc EXP professional inspection software	
0VSID135	**ImageDoc Basic**	general inspection software	

Basic camera unit

Image sensor	1/3" N-MOS solid state color image sensor
Resolution	2592 (H) x 1944 (V) pixels (5.0 MP)
Interface	USB 2.0 serial bus
Dimensions	114 (L) x 36 (W) x 51 mm (H), without cable

0VSCA060

BGA lens, 90° optical head

Magnification	5x up to 280x
Working distance	0.5 mm - 100 mm (focusing range)
Field of view (FoV)	1.2 - 50 mm
Footprint	0.8 x 7.1 mm

0VSSE060-90K

BGA lens small, 90° optical head

Magnification	25x to 350x
Working distance	0.3 - 40 mm (focusing range)
Field of view (FoV)	1.0 - 20 mm
Footprint	0.8 x 6 mm

0VSSE060-90KS

BGA lens ultra small, 90° optical head

Magnification	25x to 350x
Working distance	0.2 - 40 mm (focusing range)
Field of view (FoV)	1.0 - 20 mm
Footprint	0.4 mm x 3,4 mm

0VSSE060-90KUS

MACROZOOM lens 80x, with LED

Magnification	8x to approx. 80x on 14" monitor
Working distance	approx. 5 mm - 200 mm (focusing range)
Field of view (FoV)	approx. 5 - 45 mm
Dimensions	43 (L) x 19 (Ø) mm (85 x 35 mm max. incl. tel-escopic support)

0VSSE060-MZ80

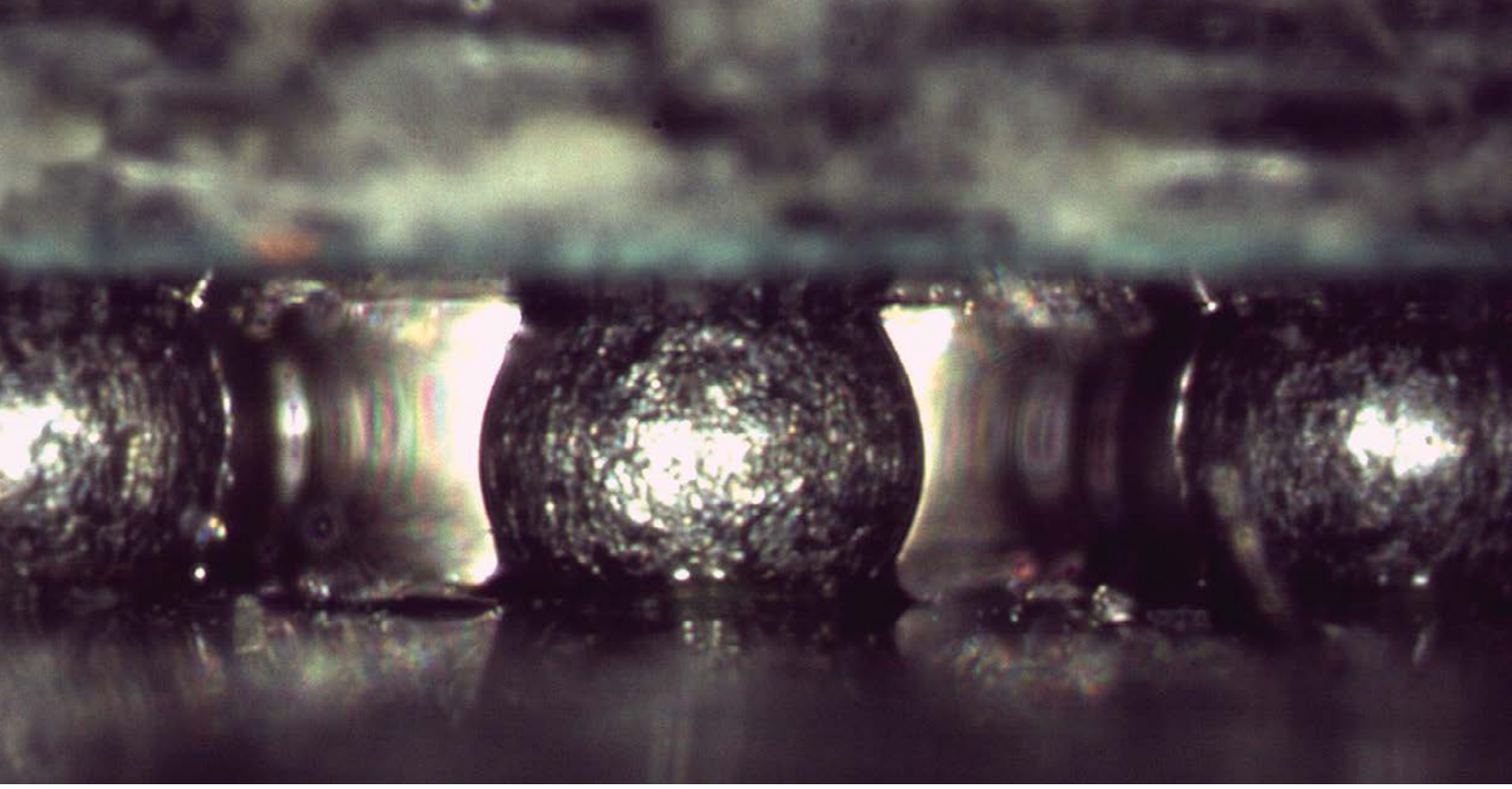
LED brush light

Illumination	Cool white LED illumination
Illumination level	64 x 0.250 mm (ø) plastic optical fibers
Power source	3 x AA (LR06) batteries (alcaline cells recommended)
Dimensions	ø 26 x 250 mm (max. 40 x 250 mm)

0VSLS030

Ersa MOBILE SCOPE sales kits

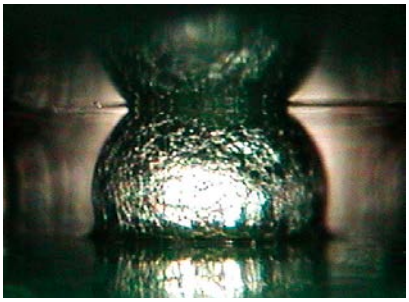
Order number	0VSSC060VK1	0VSSC060VK2	0VSSC060VK3
Basic camera unit, digital	1x	1x	1x
BGA lens, 90° optical head	1x	--	1x
MACROZOOM lens 80x with LED light	--	1x	1x
LED light brush with dimmer	1x	--	1x
Desktop holder for camera unit	1x	--	1x
Operating manual	1x	1x	1x
ImageDoc Basic (inspection software)	1x	1x	1x
Aluminium case for Ersa MOBILE SCOPE	--	--	1x



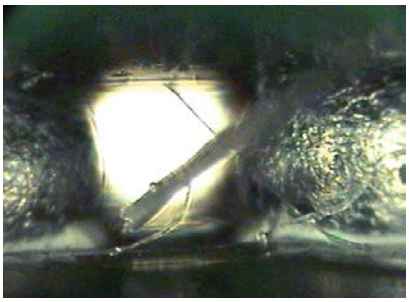
APPLICATIONS

Hidden solder joints and further applications

The inspection of hidden solder joints is one of the most important areas in a quality assurance program. The images shown on these pages underscore the flexibility of the ERSASCOPE inspection systems.
Whether SMDs or THTs, BGAs or Flip Chips: the ERSASCOPE offers the perfect complement to existing microscopes and X-ray systems for a total quality assurance program.

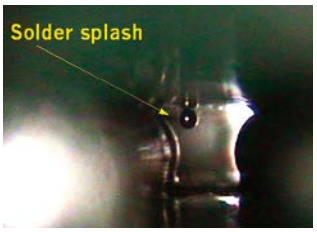


PBGA – scaling: insufficient heat

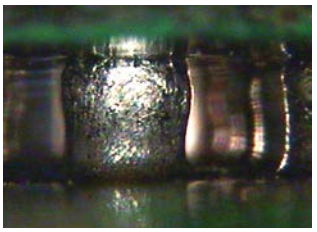


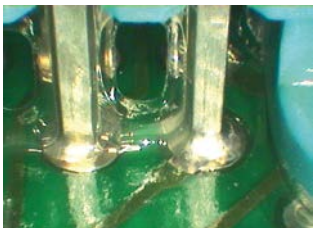
BGA: contamination (fibre)

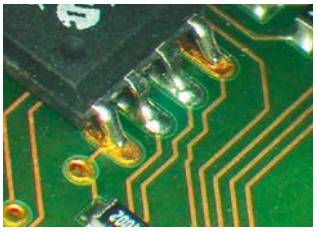

BGA – "dark islands": overheat

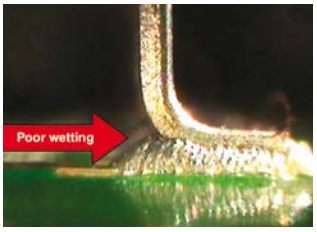


BGA: via hole solder splash

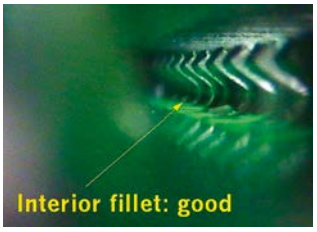

CBGA: good wetting angle


Conformal coating inspection

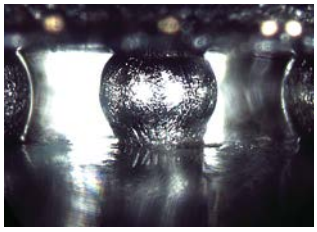

Lead-free assembly: non-wetting



PQFP – interior fillet: poor wetting

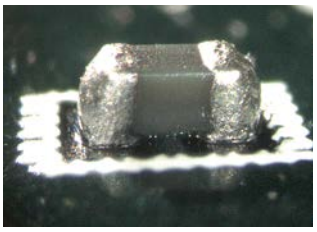


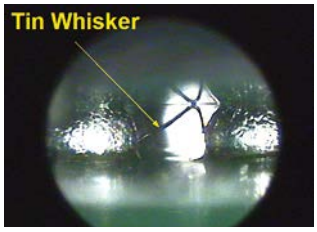
PLCC – interior fillet inspection


PBGA – cold joint: insufficient heat

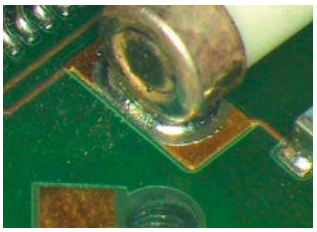

CCGA: insufficient solder

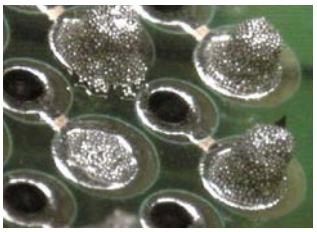

BGA – piggy back: bad alignment

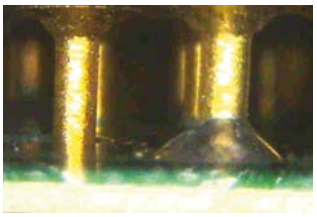

0402: bulbous solder joint

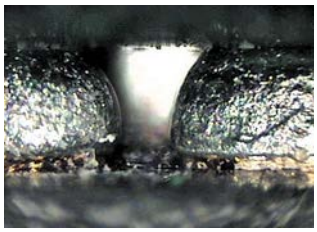


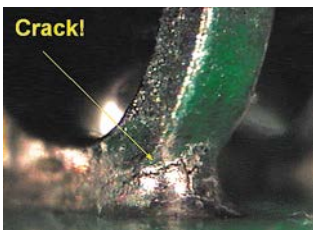
PBGA: tin whisker


Lead-free assembly: non-wetting

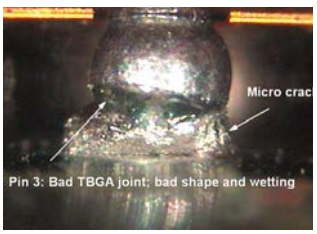

Isufficient solder paste print


PGA – no flow thru: insufficient heat

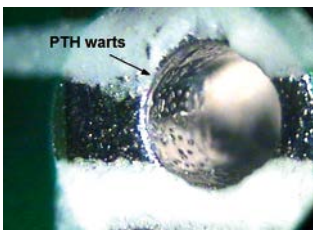

PBGA – scaling: insufficient heat



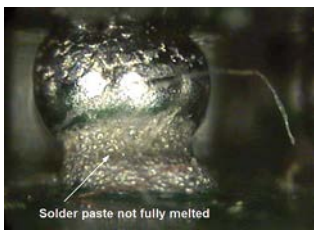
Lead-free PLCC: micro crack



TBGA: disrupted joint & micro crack

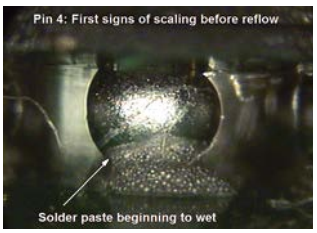


Plated thru-hole: disrupted wall

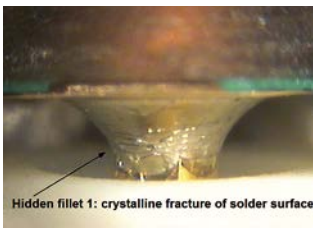


PBGA – scaling: insufficient heat

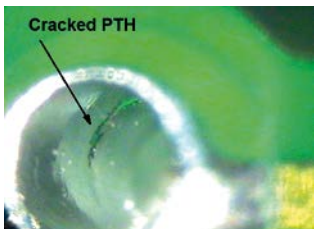

SMD LED inspection



PBGA – scaling: insufficient heat



THT joint: crystalline fracture



Plated thru-hole: cracked wall

PERSONNEL QUALIFICATION AND SERVICES

For over 100 years, Ersa has been the first address for all soldering needs. Ersa equipment is designed for top performance – but for top soldering results the user also needs the latest tech knowledge. We provide you with the appropriate know-how to make your electronics production even better. Whatever your needs, our training program covers all aspects of professional soldering – from solder paste printing, reflow, selective and wave soldering to rework and hand soldering.

You can join any time! Our wide range of digital and on-site trainings certainly offers the fitting qualification measure for your needs.

Some examples:

- Process trainings and practical training courses
- Customer-specific technology days
- Operation and maintenance trainings
- WEBinERSA webinars
- Live demonstrations and test soldering

Further information

Your benefit

- Quality increase in the production of electronic assemblies
- Increased process safety due to higher efficiency of employees and more reliable hand and machine soldering processes
- Competitive advantages due to certified personnel
- Personal, modular certificate
- High training success due to small groups of participants
- Flexible due to modular training concept
- Up-to-date, standardized training materials
- Provides security for audits and verification requirements

WEBinERSA
WEBINAR PROGRAM

Our goal is to give all interested parties access to the desired soldering know-how – or in short: With the WEBinERSA we want to make your production even stronger!

Our webinars, each lasting 60 to 90 minutes, provide information on current topics in soldering technology and offer a wide variety: Whether stencil printing, high-end soldering machines, rework and inspection systems or intelligent solutions in classical hand soldering – there is something for everyone.

In the field of rework and hand soldering for example, we'll be covering the basics as well as specific topics such as soldering of PTHs and SMDs on high thermal mass assemblies or big board rework.

Our current WEBinERSA program is available online at www.webinar.ersa.com.

WEBinERSA webinars

Your benefit

- Worldwide and location-independent access to technology know-how
- Qualification of employees through digital system and process training
- Increased flexibility due to online trainings
- Exchange with experts on current topics in electronics production

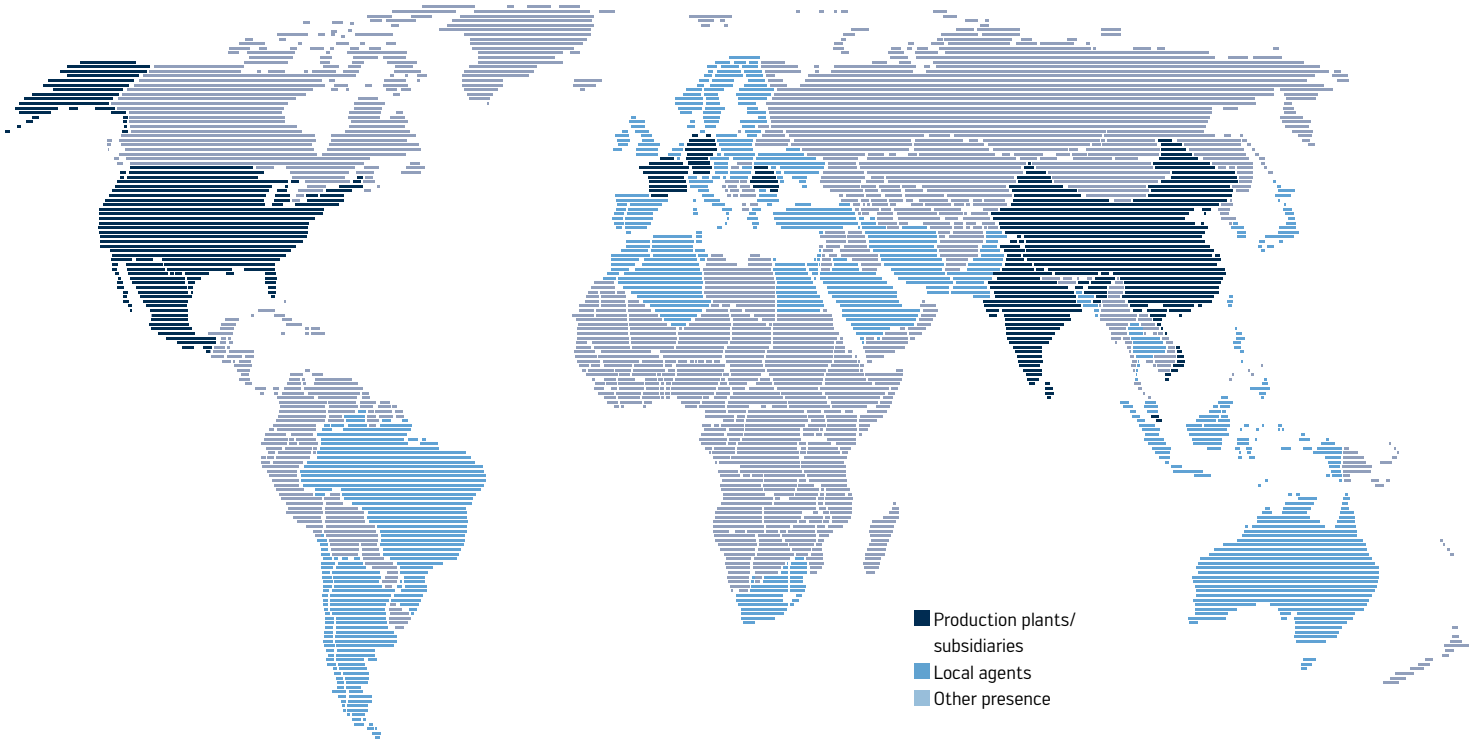
THAT'S HOW IT WORKS

- Register via our homepage
- Receive confirmation and a link to access your WEBinERSA
- Dial in 5 minutes before the WEBinERSA starts
- Listen to the presentation and get directly in touch with the experts
- Note: The software does not have to be available in the company, it is a web link

kurtz ersa
DISTRIBUTION
STATION-DE-SOUDAGE.FR

ELECTRONICS PRODUCTION EQUIPMENT

Worldwide presence



USA
Kurtz Ersa, Inc.
Plymouth, WI
usa@kurtzersa.com

Mexico
Kurtz Ersa, S.A. de C.V.
Guadalajara
info-kmx@kurtzersa.com

Kurtz Ersa Manufacturing Mexico
Ciudad Juárez
info-kemm@kurtzersa.com

China
Kurtz Ersa Asia Ltd.
Hongkong
asia@kurtzersa.com

Ersa Shanghai
Shanghai
info-esh@kurtzersa.com

Vietnam
Kurtz Ersa Vietnam Company Limited
Bac Ninh
info-kev@kurtzersa.com

Singapore
Kurtz Ersa Singapore (Pte. Ltd.)
info.kes@kurtzersa.com

India
Kurtz Ersa India
Smart Production Technologies
Private Limited
Bangalore
india@kurtzersa.com

France
Kurtz Ersa FRANCE
Haguenau
kefrance@kurtzersa.com

Romania
KURTZ ERSA ROMANIA S.R.L.
300748 Timisoara
info.romania@kurtzersa.com

Ersa GmbH
Leonhard-Karl-Str. 24
97877 Wertheim/Germany

Phone +49 9342 800-0
Fax +49 9342 800-127
info@ersa.de
www.ersa.com

www.ersa.de
www.ersa.com

kurtz ersa