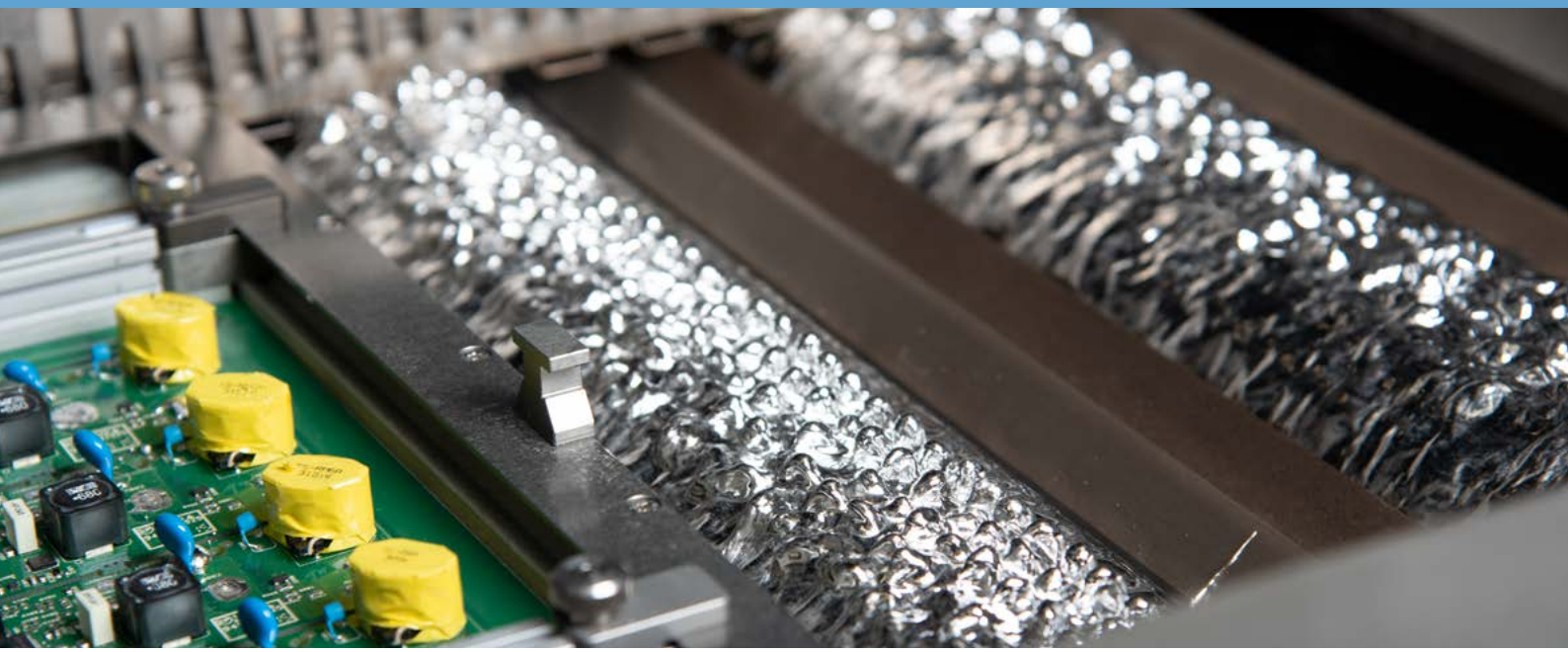
Ersa wave soldering systems
In a class of its own!



100 years ersa 1921 – 2021

kurtz ersa

Ersa wave soldering systems
In a class of its own!

POWERFLOW ULTRA

The electronics manufacturing industry is faced with constantly increasing demands for efficiency and flexibility. At the same time, its customers require highest quality at unbeatable cheap prices. Manufacturers respond to these increasing, and sometimes conflicting, challenges by adapting their manufacturing facilities and strategies. In this tense atmosphere, modern wave soldering systems are an important part of the economic processing of wired components in mass soldering processes.

The high demands that complex electronic assemblies place on the manufacturing process require modern manufacturing systems that are able to adapt flexibly to a wide variety of requirements.

The Ersa POWERFLOW concept allows to implement these different machine concepts into a system. Thanks to their modular design, Ersa POWERFLOW wave soldering systems are available in a variety of configurations, including a high-end full nitrogen tunnel soldering system and open atmosphere wave soldering systems, all of which stand out in terms of availability, cost effectiveness and quality.

The Ersa wave soldering line includes the following systems:

POWERFLOW ULTRA
POWERFLOW PRO
POWERFLOW

The POWERFLOW ULTRA wave soldering system with full nitrogen tunnel represents the maximum expansion stage of this new generation of machines, from which the POWERFLOW PRO derives as a partially modular full tunnel system. The POWERFLOW ULTRA comprises diverse features: fluxer, preheating sections and soldering module offer a wide range of options, thanks to which the system can be adapted for special customer requirements.

Particularly noteworthy are the preheating section and the soldering module. The available options are specifically customized for the requirements of lead-free soldering processes and offer a safe base in the production of highly sophisticated and complex electronic assemblies with a high heat capacity.

POWERFLOW PRO

POWERFLOW

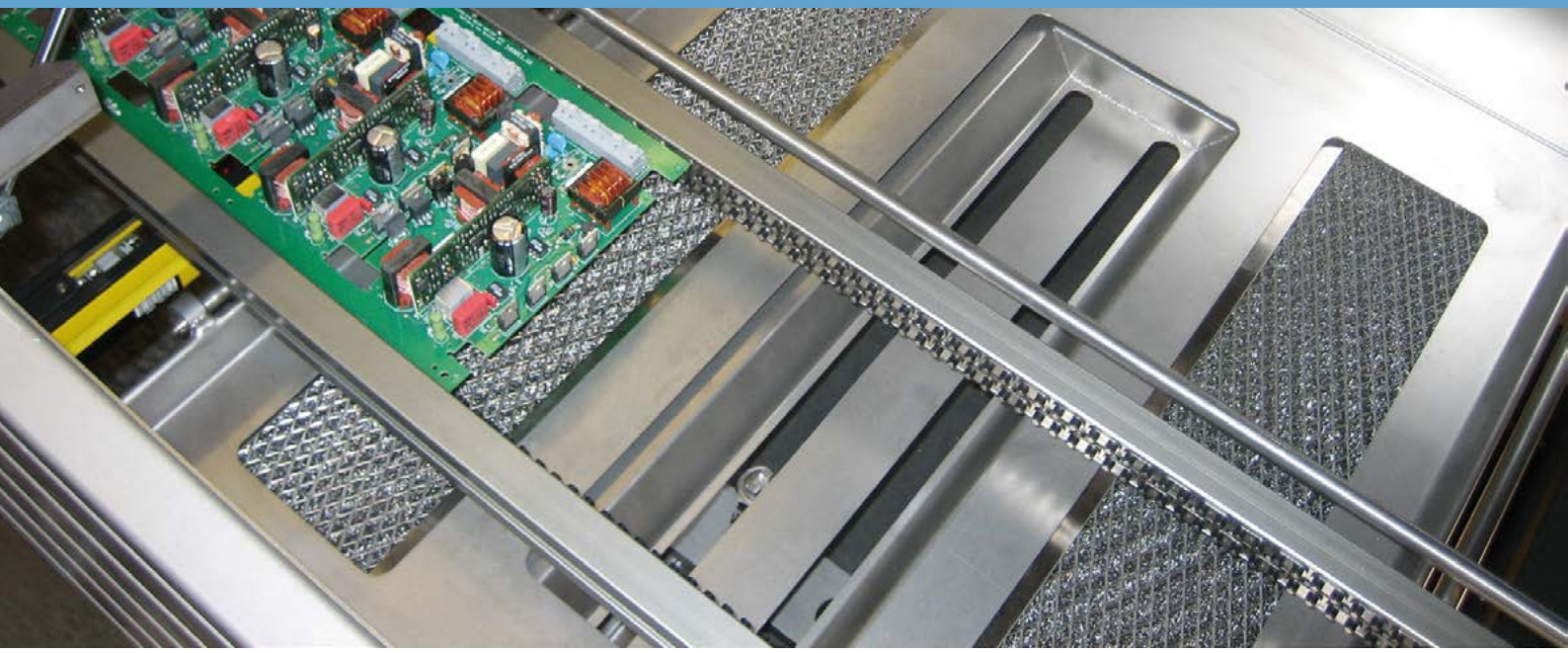
For manufacturing environments, in which floor space is the main priority, the POWERFLOW PRO represents an interesting version. The partially modular design of this machine provides all the essential options in a compressed form, which makes the entire system more compact, thus requiring less floor space.

The POWERFLOW has about the same number of features as the POWERFLOW ULTRA, but does not have a full nigtrogen tunnel. Optionally we offer a compact nitrogen tunnel over the solder wave. This creates a targeted and adjustable nitrogen atmosphere directly during the soldering process, which significantly reduces oxide formation. Due to the large capacity of its solder pot, long wetting times and a stable solder wave height of up to 16 mm, the POWERFLOW covers a very wide range of applications and offers solutions for almost all applications. Providing the security of absolutely stable processes and reproducible parameters, Ersa wave soldering systems optimize quality, costs and delivery service in the production process of our customers.

Technical highlights:

- Lowest cost of ownership
- Highest energy efficiency
- Lowest energy consumption
- Highest machine availability
- Extremely service friendly
- Enclosed fluxer with low maintenance
- Free programmable fluxing areas
- Powerful top and bottom heaters
- Individual configuration of the preheating section
- Wide range of soldering nozzles for all applications
- Sequential soldering
- Process gas cleaning
- Stable tunnel temperature
- N_2 level independent from the exhaust system
- Flexible conveyor systems to handle all carriers and frames
- Separated conveyor for optimal profiling
- User-friendly software
- Ready for traceability

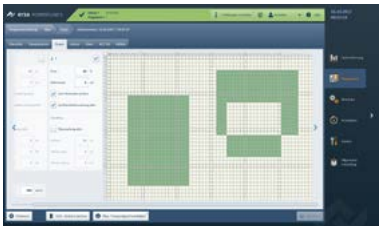
Fluxer
Best process safety, even with high throughput



Technical highlights:

- Economical
- Easy to maintain
- 2 spray heads
- Easy to program
- Standard containers up to 25 liters

Ultra sonic fluxer



Entry mask for sequential fluxing

Today, spray systems are standard equipment for any wave soldering machine, however they differ significantly in detail. Ersa offers many innovative solutions for the fluxer.

Particular attention is paid not only to the systems' safety, but also to their cost effectiveness, i.e. flux consumption and processing speed.

Using high quality materials Ersa wave soldering sytems can be operated with VOC-free fluxes.

Spray sections for specific products can be entered graphically on ERSASOFT. This highly convenient type of process planning helps to greatly reduce flux consumption.

If there is no guarantee that the assemblies are always inserted in the same position in the solder frames or carriers during the production process, the PCB scanner can automatically detect the outline of the PCB for a targeted flux application.

In addition to the standard spray head, an ultrasonic fluxer is available as an option for POWERFLOW ULTRA, POWERFLOW PRO and POWERFLOW. This spray head stands out by effective flux application and minimum maintenance.

Preheating
Efficient, uniform, repeatable

Fluxer – top view

Preheating – dynamic emitters

The preheating process is very important in wave soldering since this is where a significant proportion of the required soldering heat is transferred. The preheating section of the POWERFLOW series ensures that the preheating process is always absolutely stable and reproducible and that temperature profiles and process windows are maintained. Preheating can be freely configured to meet even the highest demands and can be composed of various modules:

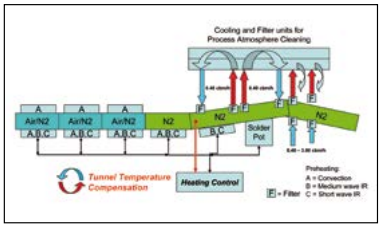
It is possible to heat the printed circuit boards gently, evenly and very effectively with convection modules that can be arranged above and below the PCB conveyor. This minimizes heat losses and high temperature differences. Speed-controlled fan motors implement different heat transfer rates at a constant temperature – a major advantage for the throughput of mixed assemblies.

Medium-wave emitters also support the homogeneous heating of high-mass printed circuit boards which protects temperature-sensitive components. Short-wave IR emitters transfer the different amounts of energy almost without inertia and are therefore ideal for mixed production.

The systems of the POWERFLOW series also feature automatic temperature compensation. Heating of the process tunnel is recorded at suitable points and algorithms are used to correct the temperatures of the preheating modules accordingly. Result: constant operating conditions are guaranteed despite variable energy output. Pyrometers for interactive temperature control, or documentation and subsequent traceability of the printed circuit board temperature complete the range of functions offered.

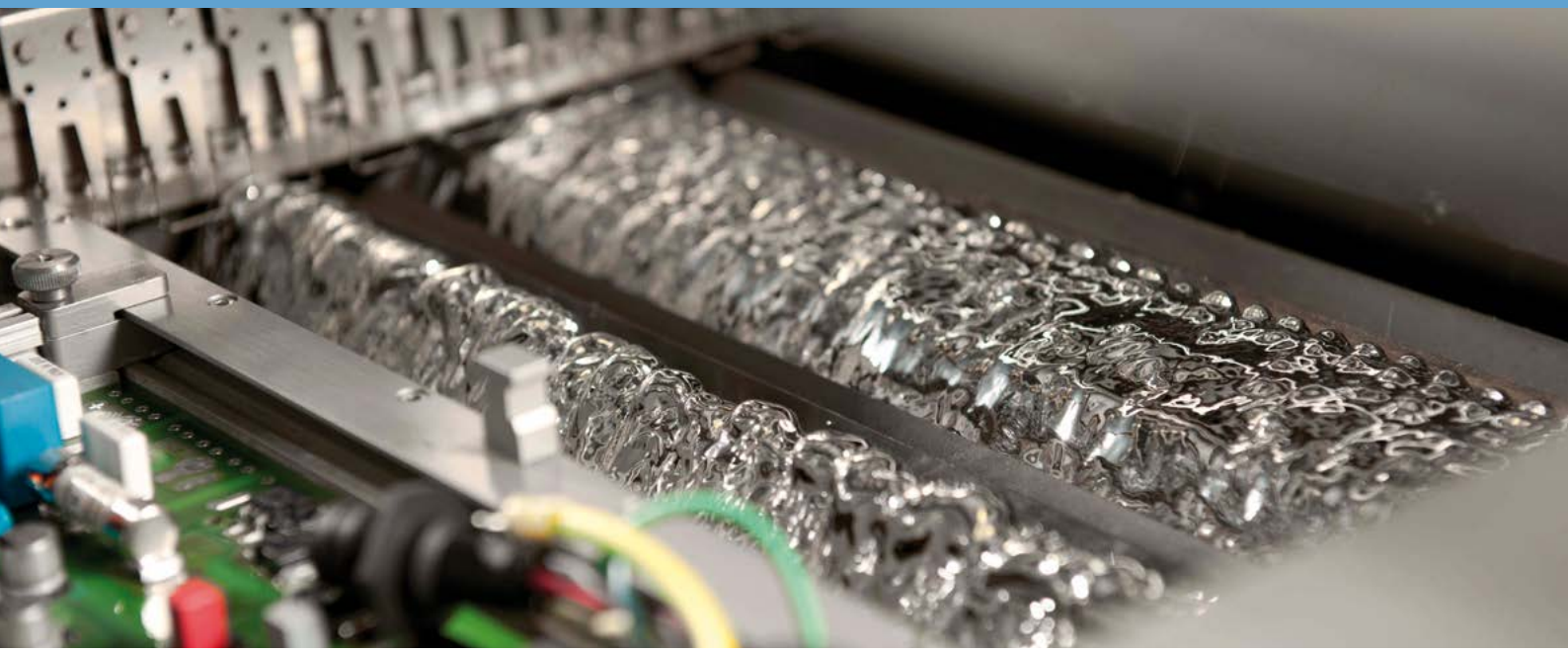
Technical highlights:

- Variable in length and combination
- Convection from below and above
- Pyrometer control
- Tunnel temperature compensation



POWERFLOW ULTRA nitrogen tunnel: with atmospheric cleaning and temperature compensation of preheating sections

Soldering module
Innovations for demanding lead-free applications



Technical highlights:

- Lead-free
- Double soldering module
- Nozzle height adjustment (manual and automatic)
- Easy maintenance: The nozzle shaft can be removed without tools; the support stand is housed in the machine
- Solder nozzle combinations for different applications/Vario Wave
- Exchange solder pot with trolley and heat-up station
- Solder bar feeder with monitoring for all commercially available bar formats
- Sequential soldering
- User-friendly
- Flexible solder nozzle configuration
- Optimal soldering results

With regard to soldering modules, the POWERFLOW systems resort to the proven Ersa double-wave soldering technology, on the basis of which the solder unit has been completely redesigned in order to meet the increasing market requirements and needs.

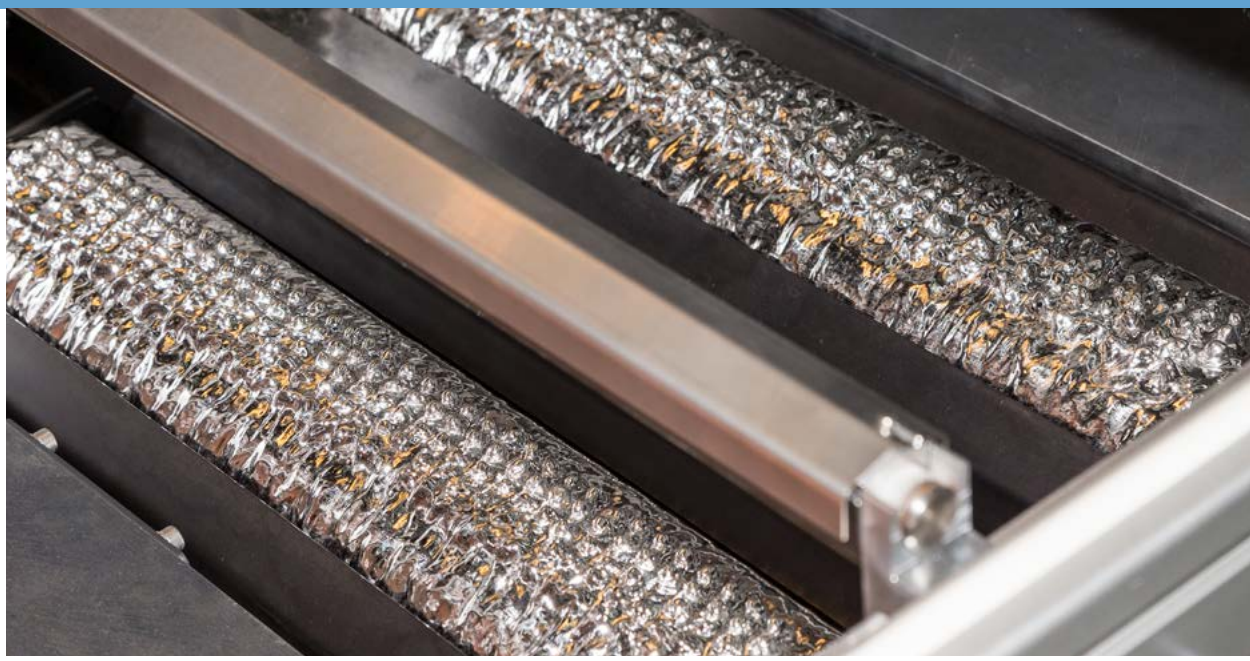
The solder unit is designed to be user-friendly and allows the use of a wide range of different soldering nozzles. The combination of soldering nozzles can be optimally adapted to user needs.

All relevant parameters of the solder units are continuously monitored, including the temperature of the solder, the solder level in the solder pot, the speed of the solder pump drive, the supply of solder bars in the automatic solder bar feeder, as well as residual oxygen content of the nitrogen atmosphere in full-tunnel systems.

The distance between the soldering nozzle and the PCB - the pass-through height - can be easily adjusted from the outside, without having to open the process tunnel. Alternatively, this can also be done automatically through optional actuators, whereby these parameters, as well as all other assembly-specific soldering parameters, are stored in the soldering program used.

In this way it is possible to adjust the pass-through height specifically for each assembly in a mixed production, which leads to a higher machine uptime.

Power Wave nozzle



Combination of Vario Wave solder nozzles

For maintenance work, the solder unit is electrically lowered and positioned out of the machine on a support stand. The support stand is integrated directly into the soldering module and, in order to be used, it only needs to be pulled out from the machine. Accessibility of the solder pot for maintenance or repair work can be easily achieved. For example, solder pump, canal and soldering nozzle units can be removed from the solder pot without using tools. In addition, during assembly, no tools or any kind of adjustment work are required.

Naturally, a high-quality protective coating on all parts that come into contact with the solder, providing protection against aggressive substances, is included in all Ersa wave soldering systems.

A new generation of solder nozzles

The newly developed and patented Vario Wave soldering nozzle has been especially adapted and optimized in order to meet the various market requirements. It is suitable as a pre-solder wave and/or final solder wave and offers a variable wetting length of 35 or 65 mm.

The use of two nozzles in a double-wave solder unit allows a variable wetting length of 35/65/100/135 mm. Thanks to the combination of the flexible wetting lengths with a high flow speed of the solder, this soldering nozzle is also suitable to process assemblies with high heat capacity in the field of power electronics, as well as for assemblies with low energy requirements.

Other advantages include:

- Optimal wetting characteristics for critical SMD layouts on the soldering side
- Particularly suitable for selective solder masks with different structure height on the soldering side, where a pressure compensation takes place due to the construction design of the solder nozzle
- Reduced risk of tearing thanks to optimal flow characteristics
- Consistent positive feedback from customers
- Compatible with older Ersa soldering systems
- Suitable for leaded/unleaded double soldering modules, since the functions of pre solder waves and main solder waves are summarized in one soldering nozzle

Conveyor
flexible concepts for all requirements

Technical highlights:

- Frame or finger conveyor
- Separated conveyor
- Use of third-party frames
- Sturdy chain instead of conveyor belts
- Low maintenance
- Flexible speeds
- Precision

For PCB conveying in the soldering machine, Ersa offers systems for solder frames or finger conveyors.

The solder frame conveyor is based on a robust chain that is guided in a profile. By simple adjustments of the system the transport of solder frames from other manufacturers is also possible. Existing solder frames can therefore still be used when replacing a third-party product with an Ersa wave soldering machine - there is no need to invest in new solder frames.

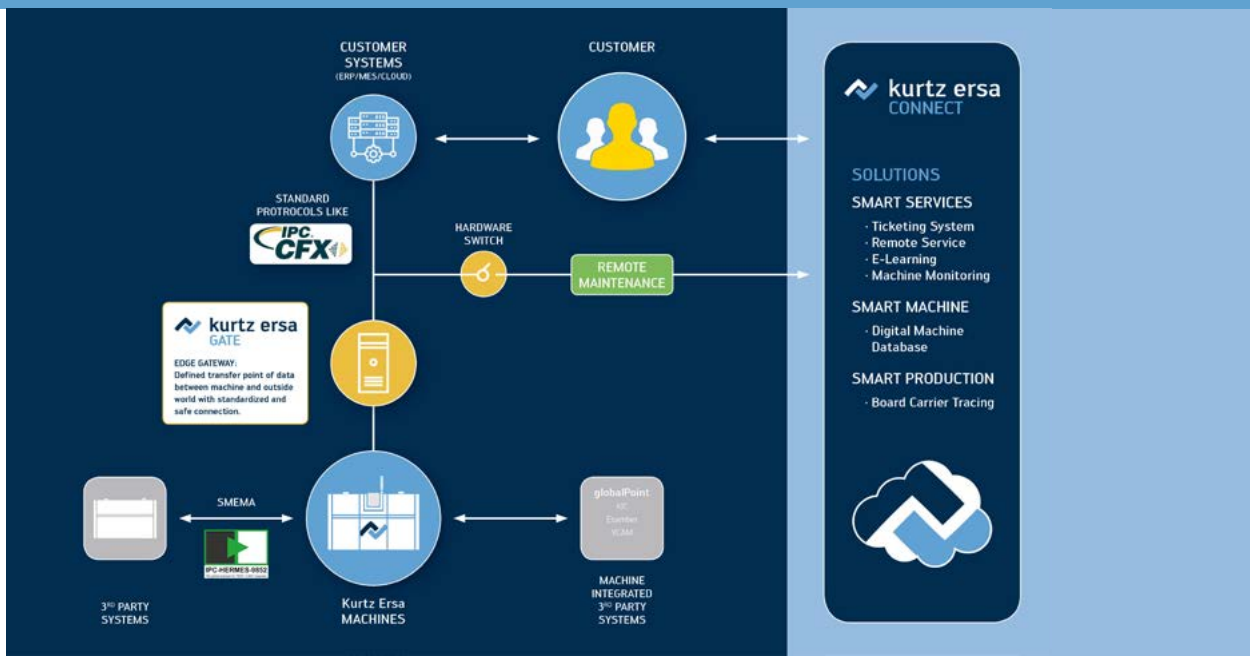
As an option, the frame conveyor can be separated after preheating. In this case, soldering module conveying has a separate drive. Hence, different speeds can be set in the flux, preheating and soldering sections.

The finger conveyor can be used for conveying bare PCBs, as well as solder masks. A motor-driven center support can be positioned and con-trolled by a program in order to prevent bending of wide PCBs.

Precise PCB tracking allows maximum throughput rates, since PCBs or solder frames are conveyed through the machine almost without separation gaps. Standardized interfaces ensure a smooth transition of PCBs from and to the connected peripheral devices.

Innovative ERSASOFT 5
The data always in sight

Full nitrogen tunnel wave soldering system – a look into the process tunnel



Industry 4.0 Kurtz Ersa Connect

The operating software of the POWERFLOW ULTRA and POWERFLOW PRO wave soldering systems is ERSASOFT 5. This proven software platform is based on a databank. In addition to machine control, it also stores production data. Therefore, information such as process parameters, operating, fault and maintenance messages is available in a structured way and can be retrieved quickly and easily later on, for example for long-term evaluations or trend analyses. Thanks to an adjustable automatic backup interval, the database offers a high level of data security.

In addition, the database can be installed in the customer's data center.

This allows several machines to access the database and exchange data via the company network. If, for example, a product is manufactured at several locations, this ensures that the process is the same at all production sites - no matter where the machine is located in the world. Data records can also be subsequently modified to eliminate existing errors.

Thus ERSASOFT 5 is the foundation for Industry 4.0. We offer you future-proof Industry 4.0 solutions and services with added value for production, process monitoring and quality assurance. Among other things through standardized connectivity with the greatest possible security using Kurtz Ersa CONNECT and Kurtz Ersa GATE.

Innovative ERSASOFT 5

GERMAN DESIGN AWARD

Ersa POWERFLOW ULTRA
The solution for demanding jobs

POWERFLOW ULTRA is the technology carrier in the wave soldering field. The system is characterized by its wide range of options and can be individually adapted to the most diverse reqirements.

The fluxer can be equipped with two independent flux supply systems. Exhaust units above and below the assembly and a separate conveyor system guarantee maximum cleanliness for the process tunnel. The entire spray unit can be pulled out of the machine for maintenance.

An individually configurable preheating section up to 3 m in length allows the production of high-mass assemblies with high throughput at the same time. Medium-wave and short-wave IR emitters as well as convection heaters are available as heating modules.

The POWERFLOW ULTRA uses the proven Ersa double-wave soldering technology. Its soldering module has been completely redeveloped on this basis. Using various combinations of soldering nozzles, the user-friendly soldering unit is optimally adjustable to each application. High wave heights and also long wetting times are possible.

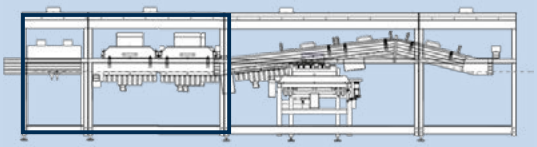
The machine is available with both frame and finger conveyor. Working widths range from 330 mm up to 610 mm in the XXL version.

The process tunnel is equipped with process gas cleaning which permanently filters out any impurities. The residual oxygen content of the nitrogen atmosphere is optionally monitored and/or controlled.

POWERFLOW ULTRA is controlled via a PC with touchscreen. The new version of the established ERSASOFT 5 software with user-friendly interface visualizes, controls and monitors the entire system. Individual user interfaces provide each operator group at a glance with the data and information it needs.

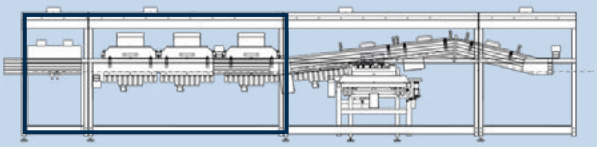
The process recorder continuously logs all the soldering system's relevant data and production-relevant data can be made available to a higher-level system.

Ersa POWERFLOW ULTRA
Maximum flexibility – the right solution for every requirement



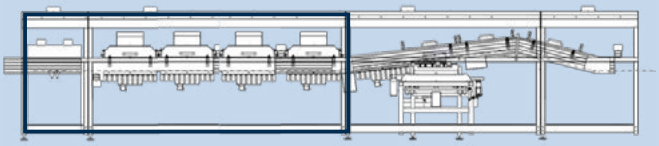
3 preheating modules

*Total machine length: 6,200 mm (incl. infeed 500 mm)**



4 preheating modules

*Total machine length: 6,950 mm (incl. infeed 500 mm)**



5 preheating modules

Total machine length: 7,700 mm (incl. infeed 500 mm)

**The machine lengths above are indicated without outfeed.*

Thanks to the modular machine design, the POWERFLOW ULTRA can be individually adapted to customer requirements. For this purpose, three different preheating lengths of 1.8 m, 2.4 m and 3 m are available. This configuration option ensures that the preheating throughput does not affect cycle time in a negative way.

In addition, the POWERFLOW ULTRA scores with different conveyor systems: A frame transport is available for working widths of 330 mm and 400 mm. Using a finger conveyor, the working width is max. 406 mm.

The POWERFLOW XL offers larger working widths of 500 mm for frame conveyor and max. 520 mm for finger conveyor. But it can also be even larger:

The POWERFLOW ULTRA XXL provides a working width of 610 mm. In addition, PCB lengths of up to 715 mm are possible. However, this machine version is only available with finger conveyor and a preheating length of 2.4 m.

Technical highlights:

- XXL version for processing PCB sizes of up to 715 x 610 mm/ 28" x 24" (L x W)
- Modular preheating concept with convection heating and emitters; variable in configuration
- Up to 5 preheating modules possible (heating length 3,000 mm)
- Sequential soldering
- Automatic production with code operation possible
- ERSASOFT 5 operating software on database basis
- Ready for Industry 4.0
- Ultrasonic fluxer

Ersa POWERFLOW PRO
The compact solution

Technical highlights:

- Low investment volumes
- Convenient floor space
- Modern control concept
- Extractable flux module
- Full nitrogen tunnel
- Different preheating systems available
- Finger or frame conveyor
- ERSASOFT 5 operating software on database basis

For manufacturing environments, in which floor space is the main priority, the POWERFLOW PRO represents an interesting version. The partially modular design of this machine provides all the essential options in a compressed form, which makes the entire system more compact, thus requiring less floor space.

The pneumatically-driven flexible and programmable spray fluxer is equipped with a spray head and supplied with flux from the original container.

With regard to pre-heating, the POWERFLOW PRO offers the option to extend process length. Options include medium or short-wave infrared emitters or convection modules. Furthermore, convection heaters can be installed above the conveyor in the process tunnel, as well.

The soldering module is designed as a double-wave unit and offers, without limitation, the opportunity to use the wide range of proven Ersa soldering nozzles. The parameters of the soldering module, which are relevant for manufacturing, are continuously monitored by the system control.

Frame conveyors or finger conveyors are available for this wave soldering system.

The POWERFLOW PRO is operated via touch panel or PC. The optional machine PC offers an extensive range of functions for the user, such as a display for the process recorder and the soldering report.

The ERSASOFT 5 software is neatly designed and allows intuitive and safe handling of the machine for the user.

Soldering programs can be stored in the software and activated manually or via a coding on the solder frame later on. A weekly time switch ensures operational readiness in time for the start of a shift. The control system continuously monitors all relevant unit states and shows their actual values and operating conditions on the operating panel.

All these features ensure a safe, stable and repeatable soldering process.

Ersa POWERFLOW
The powerhouse

Technical highlights:

- Spray fluxer with intelligent spray pattern programming
- Modular, flexible and individually expandable preheating concept with convection heating and emitters; variable configuration in length and performance (also possible at a later date)
- Motorized height adjustment of the soldering nozzle
- Long wetting period
- Extremely stable solder wave height (up to 16 mm)
- 3 nozzle combinations for every requirement
- Automatic production with code operation possible
- Ready for Traceability

Ersa's POWERFLOW is a high-performance wave soldering system with flexible solder bath technology and an attractive price-performance ratio. The system has a modular design and features state-of-the-art technology. Manufactured with the proven components of the POWERFLOW series and with a maximum working width of 508 mm, it is also designed for medium to high production throughputs.

Spray systems are nowadays part of every wave soldering machine's standard equipment. So, the POWERFLOW is also equipped with a spray fluxer which ensures reliable and efficient flux application. The operator simply specifies the spray areas graphically in ERSASOFT. This allows significant savings in flux consumption.

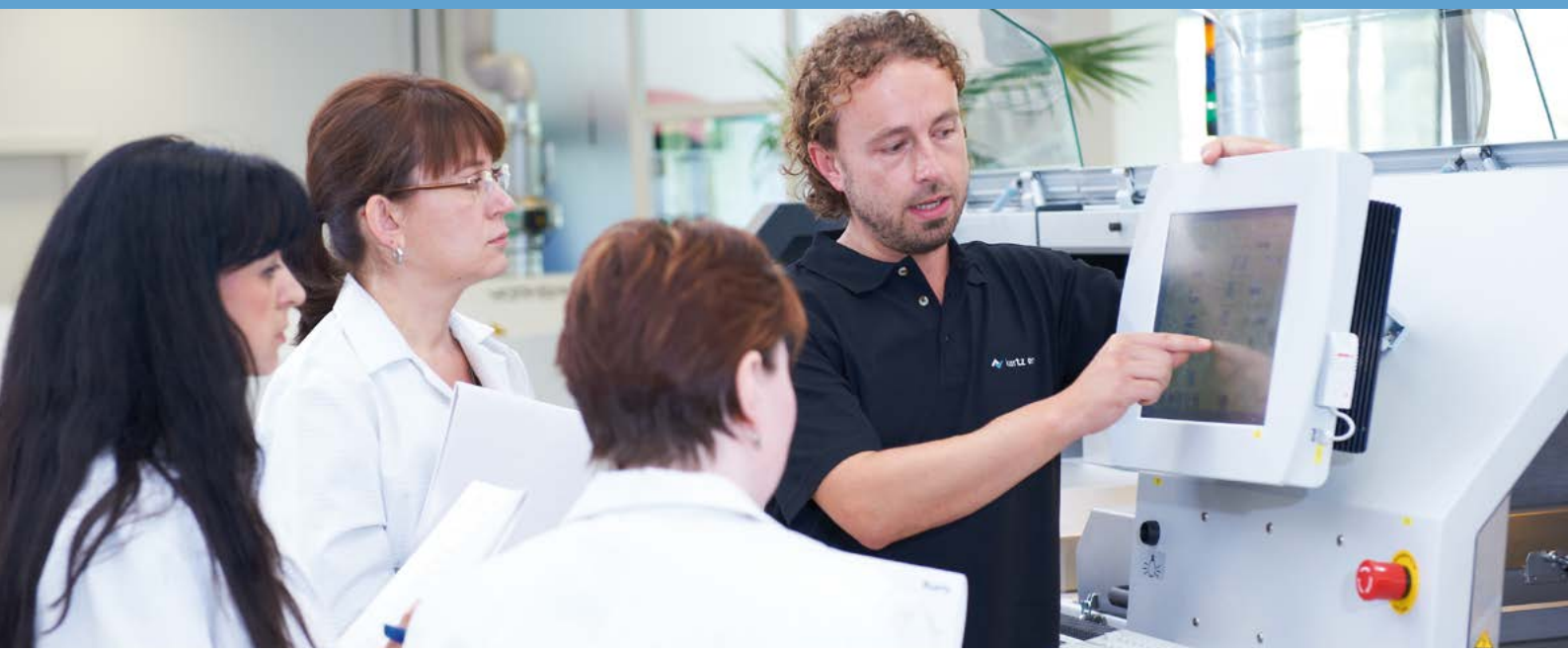
Medium-wave and short-wave emitters as well as convection heaters are available for preheating. Short-wave IR modules respond highly dynamically and are therefore excellent for mixed production. The inert medium-wave heating modules ensure gentle heating of the printed circuit board without temperature shock.

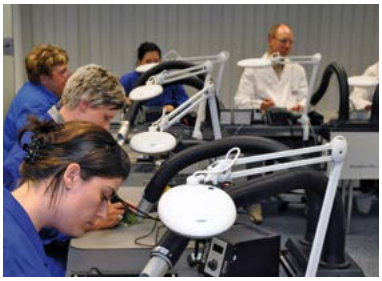
Convection modules demonstrate their strengths when there is a need to heat densely populated assemblies or when using temperature-sensitive components that must not be overheated during the preheating process. The separate modules can be individually combined for perfect configuration of the preheating section and, if required, preheating can also be adapted retrospectively.

Like all Ersa wave soldering systems, the POWERFLOW works with the proven double-wave soldering technology. With three combinations of the soldering nozzles, the user-friendly soldering unit allows optimum adjustment of the process to the user's needs. In addition to a long wetting period, it also permits a wave height of 16 mm.

A compact nitrogen tunnel above the solder wave is available as an option. This creates a specific and adjustable nitrogen atmosphere directly where the soldering process takes place which significantly reduces oxide formation.

Ersa Services
Our global commitment for your success





Ersa is particularly renowned for providing know-how in the form of staff training and seminars

Customers and interested parties are pleased to use Ersa application centres in order to perform test solderings or to test the efficiency of systems

Around the world, our customers and business partners have access to spacious demonstration, application and training centers outfitted with the most modern equipment. 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: Our experienced application engineers are glad to welcome you in all of them, ready to demonstrate the Ersa hardware and test it for specific purposes. The chance to really prove our mettle comes for Ersa when, in cooperation with you, we are allowed to optimize your assembly under exactly defined conditions!

Additional modern training and conference facilities in the immediate vicinity permit an intensive exchange of experience and transfer of know-how. Both facilities, the Application Centers and the conference rooms are 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 one of our Application Centers – whether for testing, training, Technology Days or for the Know-How Seminar. You will find an Ersa Application Center within striking distance!

The Ersa **product portfolio**

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 EXOS 10/26, reflow soldering under vacuum can reduce voids by up to 99 %.

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 multiwave, 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 ULTRA 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

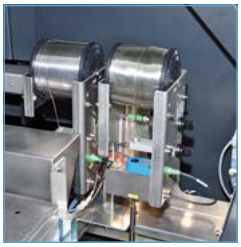
Ersa handling systems can be tailored exactly to specific process requirements. A variety of modules are available such as lifting and lowering stations, height difference modules, turning stations and workstations which can be joined by conveyor belts to offer ideal PCB handling.

SMT/BGA inspection

Whether for inspecting the BGAs 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 indispensible 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.

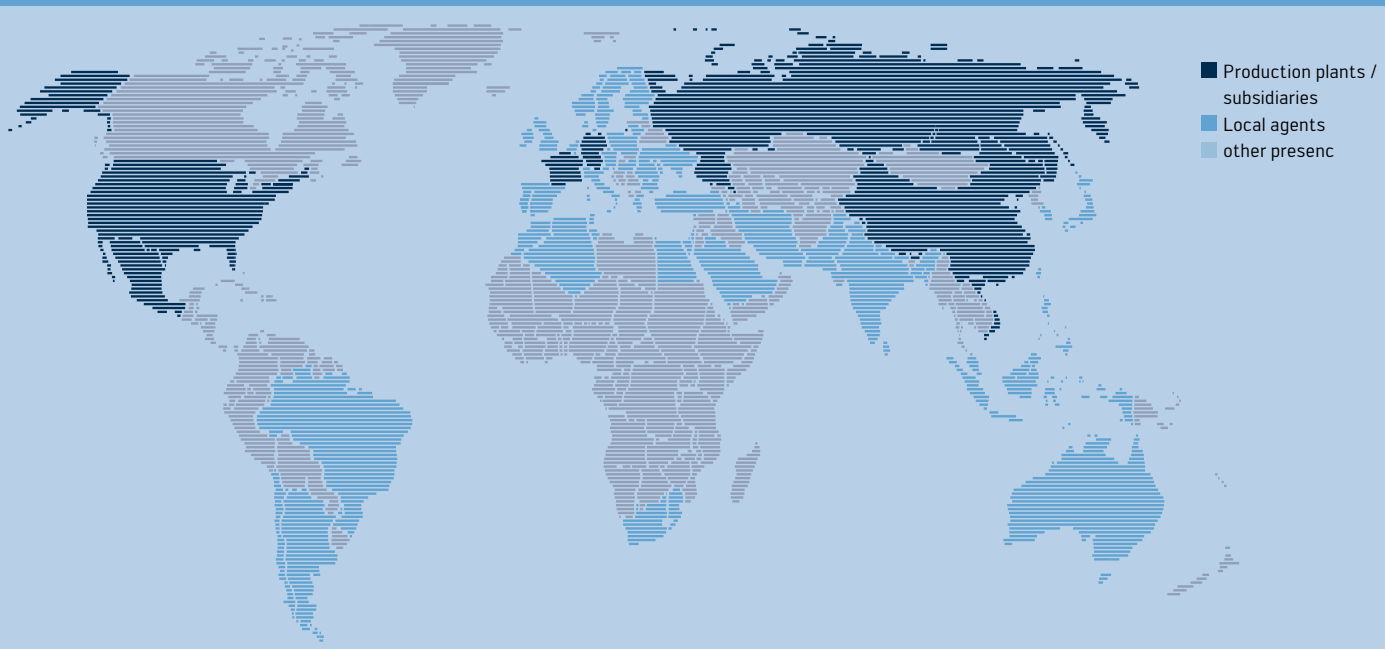
Ersa SERVICES

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.

Electronics Production Equipment
Worldwide Presence



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