50 August 2020

Kurtz Ersa Magazine

For Customers and Business Partners of Kurtz Ersa Corporation

GLOBAL. AHEAD. SUSTAINABLE.

DRIVEN BY KURTZ ERSA.

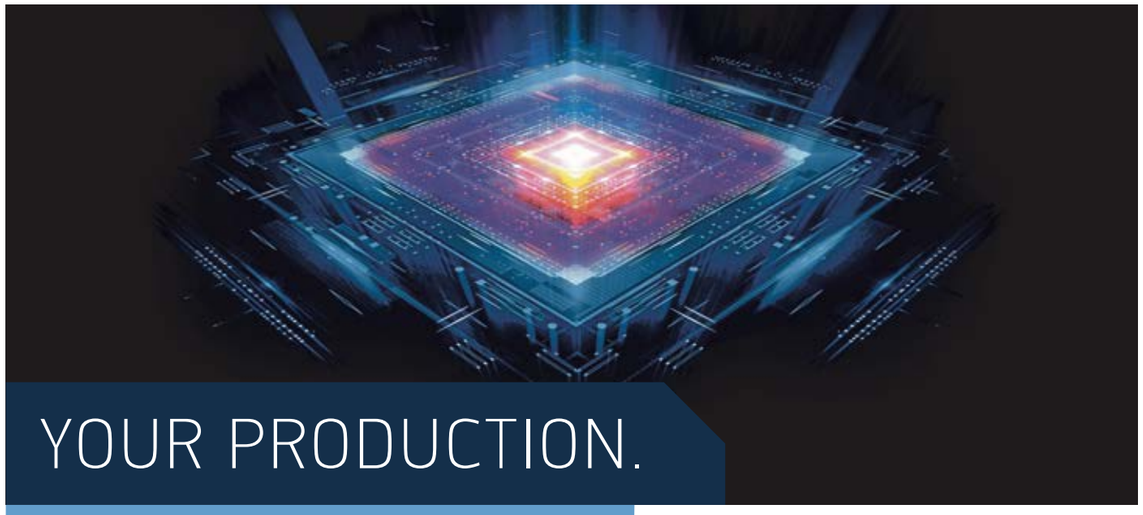
kurtz ersa

GLOBAL. AHEAD. SUSTAINABLE.

Rainer Kurtz,
Chief Executive Officer
of the Kurtz Ersa Corporation

We had so much planned for this year, but unfortunately a small virus "got in the way". A circumstance that has changed a lot, but has in no way diverted us from our ambitious goals. We have used the additional time for reflection in the home office or now beginning short-time work to rethink the positioning of Kurtz Ersa in our world markets. "Global." "Ahead." "Sustainable." will be terms that will allow us to position ourselves even more clearly in the market in the future. In this way, we will be able to position ourselves more clearly on the subject of sustainable business practices in the future. Our products will be examined even more closely with regard to environmental compatibility and we want to make our contribution to slowing down climate change worldwide. Like all market participants, we hope for a rapid recovery of the global economy. We feel better equipped for the future than ever before.
The Kurtz Ersa Magazine appears in this 50th issue as an anniversary issue with a new look. We would like to take this opportunity to thank all our loyal and interested readers as well as the team that has put together the reports for the Kurtz Ersa Magazine with great commitment since the first issue in 1992. Special mention should be made at this point of the initiator of the Kurtz Ersa Magazine, Walter Kurtz, who for many years shaped the editorial work and content of our customer magazine. We are particularly pleased to receive your feedback, dear readers, because we want to tailor our content even more specifically to your needs. Now enjoy reading and stay healthy!

GLÜCK AUF!
Rainer Kurtz



New brand identity

A key characteristic of strong brands is to develop further at regular intervals and proactively adapt to changing conditions. Kurtz Ersa has also done this several times in the past and is currently in the process of strategically realigning the brand.

The process of reviewing the positioning of the Kurtz Ersa brand began as early as summer 2019. The aim was to give more importance to the attributes that make us strong with customers, especially in branding. The result was a brand core that concisely describes the strengths of Kurtz Ersa – and clearly communicates to customers and business partners what our company stands for: "Global. Ahead. Sustainable."

Global – we are a global company. We provide our services around the globe, our customers ask for our services all over the world and are comprehensively supported locally.

Ahead – we have the claim and prove it every day that we are leading with our services, often benchmark for others. Our product is much more than just the individual machine or station, but rather the optimal, digitally networked combination of technology, service and know-how.

Sustainable – we are sustainable not only in the use of resources, but above all in our contact with our customers. Here we stand for maximum reliability, long-term partnerships and a business relationship based on mutual trust.

The implementation of "Global. Ahead. Sustainable." was already presented at Productronica 2019 and is now increasingly being used in online and print media. YOUR PRODUCTION. DRIVEN BY KURTZ ERSA is the strong statement to support our customers in all production processes in the best possible way.

LONG LASTING QUALITY
SINCE 1779
ALWAYS THERE WHEN NEEDED
SOLUTIONS
PROCESS RESPONSIBILITY
RESOURCE-SAVING PRODUCTS
LONG-TERM PARTNERSHIPS
ENERGY-EFFICIENT PRODUCTS
LONGSTANDING CONTACT PERSONS
RELIABILITY
SPARE PART AVAILABILITY

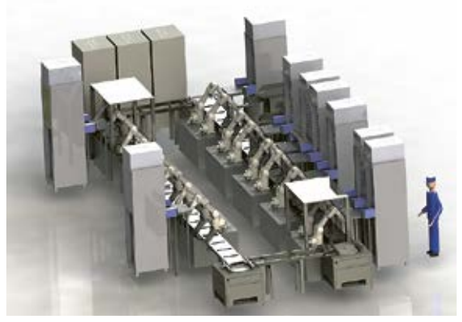
Expansion of the Kurtz Ersa Automation

Since January 2020, the smallest business unit in the Kurtz Ersa Group has been operating under the name Kurtz Ersa Automation. This was a clear sign of the future field of activity. Since then, the business unit has concentrated on automation projects for various production systems. In this context, there are both modular solutions for material flow and component handling as a supplement to soldering technology systems and customer-specific turnkey solutions for assembly and testing systems for complex assemblies.

The trend towards automated production solutions continues unabated. The requirements and complexity are constantly increasing. The networking of individual stand-alone solutions to form integrated systems, taking into account logistical aspects, is becoming increasingly important. Kurtz Ersa Automation is now also taking this trend into account, whether in the electronics sector or in other fields of application such as automotive. Kurtz Ersa Automation devotes particular attention to robot-based approaches to solutions, since this allows the highest degree of flexibility of solutions to be achieved. In addition, the solutions are designed in modular and cell construction. By concentrating on standardized automation components, customized production systems can be configured and implemented in a comparatively short time.

Robust, sustainable systems

Kurtz Ersa Automation relies on configurations that are as simple as possible and oriented towards the Lean concept, which allows for a quick set-up, so that the largest part of the delivery time can be spent on processes and their commissioning and optimisation. In the end, robust and thus sustainable systems must be created. The idea of sustainability is also reflected in the use of robot-based solutions. In contrast to classic solutions and custom-made products, robot-based solutions – combined with vision systems – can be adapted to new and different tasks with comparatively little effort. Of course, components in contact with the workpiece must be replaced, as must the programming. However, these scopes can be realized quickly and cost-efficiently in the case of holistically modular designs. A production system of the Kurtz Ersa Automation brand is therefore not obsolete after a product life cycle, but can be sustainably reused.



Strategic reorientation Kurtz GmbH

One of the great strengths of the Kurtz Ersa Group, whose roots go back to a hammer mill founded in Hasloch in 1779, is the ability to diversify into new business areas – i.e. to adapt to changing conditions in different markets in good time. Thus, the company, now in its sixth generation of owner-management, has been able to add new chapters to its more than 240-year success story time and again.

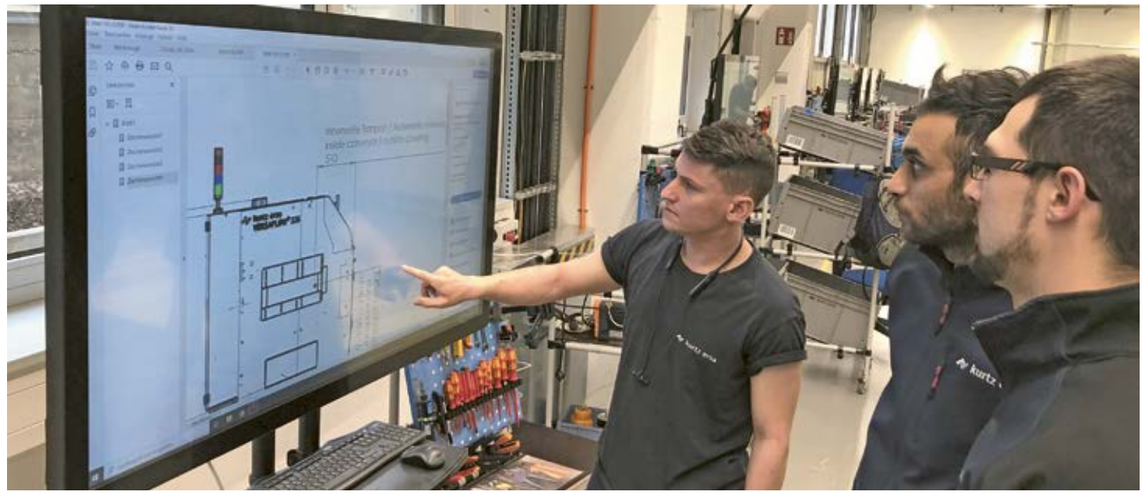
Currently, this is leading to the further optimization of processes in development, production and sales and to targeted investment in technologies that will ensure a successful future for the Group and its business partners in the long term. Unfortunately, this is also associated with the separation of business units that no longer fit into this strategy – in this context, the machine manufacturer Kurtz Ersa is planning to sell the "Mechanical Processing" division (welding, machining, surface treatment) of Kurtz GmbH. Despite the difficult circumstances of the Corona crisis, the management succeeded in finding a prospective buyer with experience in the field of contract manufacturing who intends to make Wiebelbach his new main location from July 1, 2020. In view of the existing machinery, the highly qualified employees and the commitments to continue to have a large part of the current in-house production parts manufactured locally, both sides see great opportunities to expand the contract manufacturing business in the long term with a new owner. Not least because the prospective customer himself brings along his own orders for contract manufacturing.

For its part, Kurtz GmbH is intensifying its activities with a sustainable forward strategy and investments in the "Automotive" and "Protective Solutions" divisions, which provide the respective industries with comprehensive solution concepts based on new materials and new processes. In addition, new technologies are analysed and developed to market maturity in the competence centre "Future Business". As powerful, Industry 4.0-capable systems, these systems set trends in their markets and win customers and approval through uncompromising quality, impressive savings rates in terms of energy and material use, and the sustainable use of resources.

CRUCIAL MEGATRENDS

In the plastics sector:
- Recycling
- Circular Economy
- Biodegradable materials

In the automotive sector:
- Lightweight construction (especially electric mobility)
- Autonomous driving



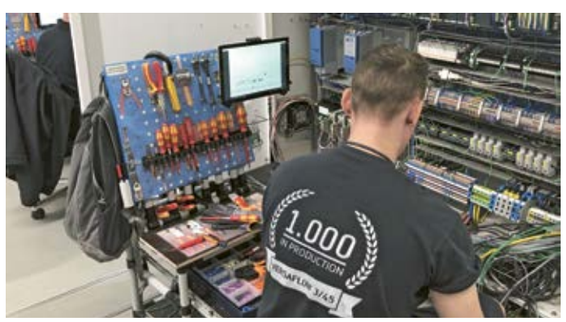
The Worker Information System (WIS) provides all necessary documents for a current order.

Industry 4.0 at Ersa in production

The move to the new production hall represents a milestone not only in terms of production facilities, but also with regard to the digitization of production. Our new Worker Information System (WIS) went live shortly after the start of the new production. At the cycle workstations of line 2, large 55-inch touch monitors now display all important customer order-related information to the employees. By linking our detailed planning system, which was introduced in 2018, with the higher-level ERP system, all the necessary information is always up-to-date. The information from the planning system tells the production line which order is at which workstation, and all data such as parts lists, work plans, assembly and test instructions are provided automatically. The employees can display all design documents and relevant documents for the current order. They are supported by a comfortable search function and an intuitive GUI (short for Graphical User Interface). The quality inspection takes place directly in the line at the end of each cycle, which leads to an outstanding quality standard of our products. In addition, the effort in the test field is reduced and also the throughput time is significantly shortened.

The WIS represents the next consistent step on our way to digitization. At the beginning of 2019 the first tablets were used in the final assembly machines. The main focus was the electrical installation of our soldering machines, where the electrical plan was previously provided in a DIN A4 folder. Today our colleagues work with a digital circuit diagram and can thus carry out the wiring faster and more effectively. In particular, the effort required to change the documentation has been reduced, the resulting increase in process reliability and the direct search option have contributed to the rapid acceptance of the system. After the first ten devices were used in final assembly, the colleagues from the switch cabinet construction department immediately followed suit. The devices can be attached to the tool trolley as well as directly in the switch cabinet with a mounting bracket, so that ergonomics is not neglected either. In the meantime, 30 units are in use, and further expansion stages are being planned. The WIS will be further expanded in the future – we look forward to new functions, which we will be happy to report on.

Poled on digital: the Ersa production in the new production hall.



Always at hand: trays on the tool trolley or directly on the control cabinet.

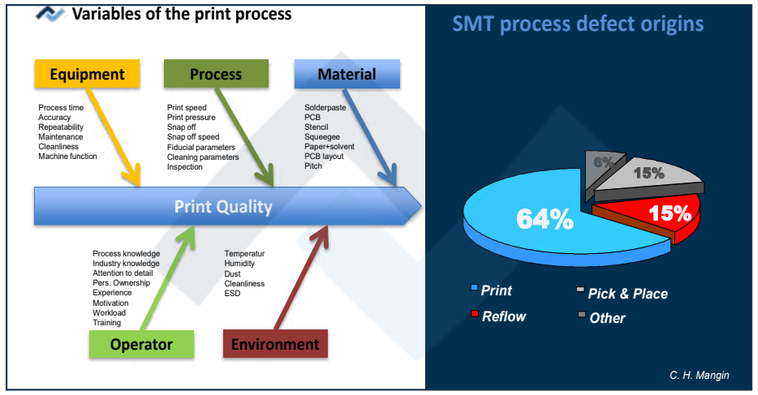
Webinar "stencil printing"

As a system supplier, Ersa also covers the entire spectrum of electronics production in its webinar series – including the topic "Defects in the printing process and their consequences in the SMT line". In the fully booked 60-minute webinar, Ersa Product Manager Wolfram Hübsch illuminated stencil printing from all sides.

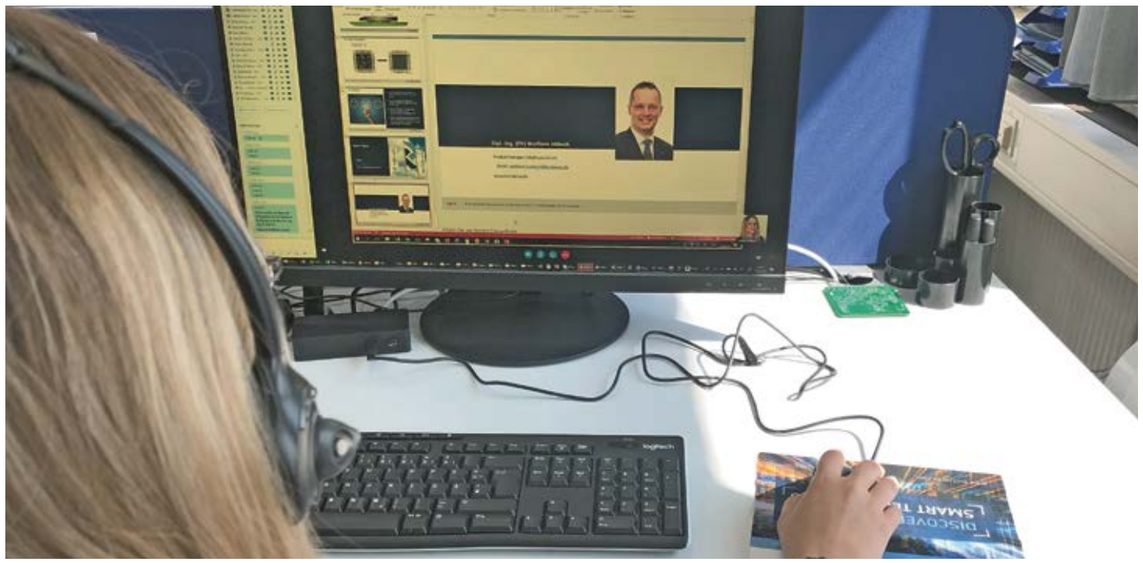
The aim of the printing process is to reduce errors to a minimum right from the start and thus keep costs within reasonable limits. In addition to the printing and reflow process, there are numerous influencing factors that can cause qualitative problems – such as the PCB, components, process, equipment used, environment and operator. For a high first pass yield (FPY), a sophisticated strategy is needed to balance productivity and quality.

Above all, it is worthwhile to take a closer look at the influencing variables of the printing process, since error potentials in the SMT process can account for almost two thirds – here too, zooming in on equipment (process times/capability, tolerances), process (squeegee parameters, cleaning, inspection), material (PCB, solder paste, stencil), environment and operator reveal possible improvements. Meanwhile, full-surface 3D inspection is considered standard – especially for the volume determination of small, very fine pads.

What is perfect stencil printing? It should be precisely shaped and print sharp-edged, flat solder depots with constant volume – an area printed up to 90 % is considered "perfect", up to 70 % "sufficient" – with less than half the area printed the result is "unacceptable". The aim of the SMT printing process is to achieve a sufficient volume for solder connections without solder bridges and with a constant solder volume after reflow soldering. The limit values for solder paste printing are determined by the printed solder area, bridging (not higher than 20 %), volume and height. "Ersa carries out a machine capability test on all machines before leaving the factory – this means that at least 50 PCBs are measured and the repeatability is determined with two external cameras," explains Wolfram Hübsch. In addition to tips on printing errors and stencil underside cleaning, there were also tried-and-tested tips on how to avoid gas inclusions called "gravestones", solder beads or "voids" in QFN components.



Defects in the printing process and their consequences in the SMT line" with stencil printing expert Wolfram Hübsch.



In the printing process in the SMT line, a variety of influencing factors must be mastered.

International teamwork: German-American trade fair team for Ersa.

APEX – 20 years of trade fair presence in North America

IPC APEX EXPO traditionally opens the exhibition year for the electronics industry – and this year is no exception. For three days at the beginning of February 2020, North America´s largest electronics manufacturing event once again became a melting pot for the entire industry – over 9,000 experts from 45 countries made their way to San Diego, California, to take a look at the latest trends and applications for printed circuit boards.

Around 500 exhibitors presented their innovations and services at the 14,000 m² trade fair, and the high proportion of decision-makers generated numerous qualified leads, projects were defined and sales were made. Systems supplier Ersa was also present with an attractive exhibition stand, which was managed by a German-American exhibition team – some of them came from Ersa headquarters in Wertheim, others from the US subsidiary Kurtz Ersa, Inc. based in Plymouth. "IPC APEX EXPO has played a crucial role in the development of our market in North America. We've been here for twenty years and are seeing more leads every year," said Ernie Grice, Vice President Sales at Kurtz Ersa, Inc. who was pleased to receive an award for 20 years of participation in the show in front of a large audience. Ersa demonstrated its complete range of products, including new tools from the soldering tools division, the three new representatives of the continually growing rework family (HR 500, HR 550 XL and HR 600/3P) and intelligent automation solutions. The new EXOS 10/26 inline reflow soldering system with 22 heating and four cooling zones as well as a vacuum chamber after the peak zone received an overwhelming response. The system achieves the highest values in process reliability and machine availability – the latter, for example, through fast removal of the transport unit in the vacuum module, lubricant-free roller transport in the vacuum module and the innovative SMART ELEMENTS® cleaning system. Albrecht Beck, Managing Director Kurtz Ersa, Inc., expressed his satisfaction at the end of the trade fair: "We are already looking forward to APEX 2021 – this will be a very special year in which we will celebrate '100 years of Ersa' and present further innovations from which our customers will benefit in the long term."

Qualified top results

Hardly any other market is as dynamic as the electronics industry. That is why it is so important, especially in this industry, that employees are always qualified to the latest technological standards. Electronics manufacturers at all levels are required to use available resources in the best possible way for reproducible results at the highest level. The solution is qualification!

As the No.1 system supplier for electronics production, Ersa also offers a wide variety of soldering courses, with the topics lead-free wave and selective soldering and solder paste printing and reflow soldering. The Ersa know-how seminars are an ideal platform for further training and for exchanging experiences with other participants. All know-how seminars and workshops are held in neutral lectures. Ersa attaches great importance to a balanced mix of theory and practice – and thanks to small groups of participants, the trainers can also respond to questions individually.

The Ersa Technology Days are put together and held individually for a company, so that an exchange of information is also possible across departments and locations. Whether manufacturer-independent or specifically geared to Ersa soldering systems – the Technology Days focus on the customer and his requirements. Whether customer-specific tech days, process technology and optimization or other topics from the field of soldering technology, the focus variations are as diverse as the soldering technology itself.

Numerous Ersa customers have already benefited from the individual Technology Days. In 2020, the exclusive Technology Days will also be available for the first time to users who purchase their products from EMS service providers or suppliers, e.g. auditors or quality managers. In addition to the face-to-face seminars, Ersa offers various online courses. The 60-minute webinars provide information on current topics in soldering technology, and questions can be put directly to the product managers. Soon, e-learning courses with direct help on the Ersa systems will supplement the extensive range of training courses. Whatever individual training needs may be, Ersa is prepared with a well thought-out qualification catalog for hand soldering, wave, reflow and selective soldering, stencil printing, basic training and customer-specific workshops.
> www.kurtzersa.com/qualification-training

ADVANTAGES ERSA TRAININGS

- Highest quality through lowest possible costs
- Higher process reliability through trained employees
- Cross-department/location platform exchange for employees
- Distribution of know-how to several people
- Always one step ahead by using the latest technologies
- Future-oriented appearance on the market
- Individually combinable modular training courses (processes/plants) for stable manufacturing processes

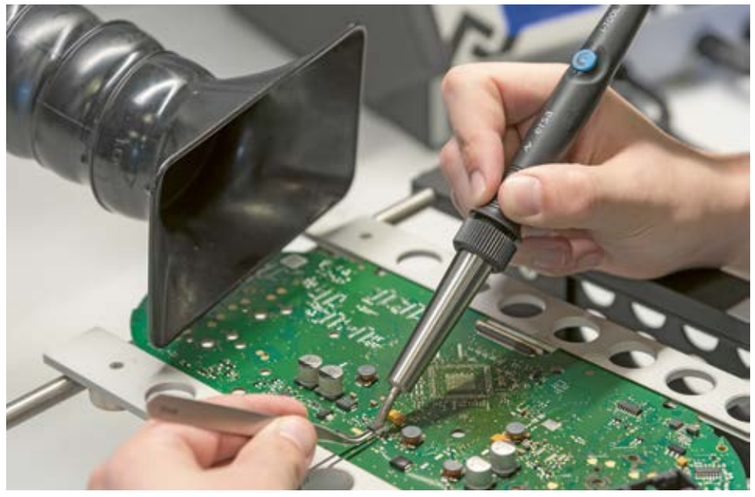
The participants of the second "International Ersa Know-how Seminar Lead-Free Wave and Selective Soldering" on February 12 and 13 in Wertheim.

The goal is the perfect solder joint!

As head of Ersa Application Technology, Jürgen Friedrich welcomed a total of 34 participants to the second international know-how seminar for "Lead-Free Wave and Selective Soldering" on 12 February. The two-day Ersa technology seminar on lead-free wave and selective soldering was attended by soldering experts from customers and international Ersa subsidiaries from ten countries, including Belgium, Denmark, Finland, France, Luxembourg, the Netherlands, Poland, Russia, Spain and the Czech Republic. In the first theory part, the interaction of relevant process parameters was discussed, as well as process monitoring and handling of solder defects. The goal of any electronics production should always be to eliminate soldering defects in advance by means of an optimally adjusted soldering process, thus clearing the way for the perfect solder joint.

In the afternoon the change to the adjacent Application Centers took place, where theory was consolidated in groups in hands-on units for wave and selective soldering. After a concluding question and answer session, the day ended with dinner together in the manor house, followed by further theory and practice blocks on wave and selective soldering on the second day. "The international soldering expertise that comes together here is invaluable – on behalf of Ersa GmbH I would like to thank all participants for the extremely stimulating exchange," said Ersa Applications Technology Manager Jürgen Friedrich at the end of the seminar.

Flap open, ready for immersion in the soldering system matter.



Webinar Trilogy Hand Soldering

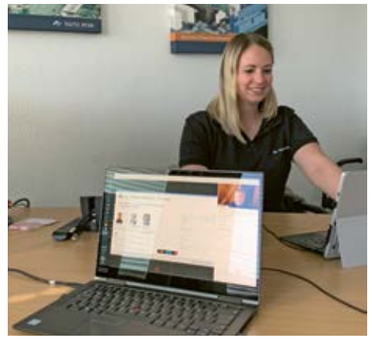
After the brilliant start of the webinar channel, Ersa presented their trilogy on soldering tools a little later. Three 90 minute sessions were scheduled as Webex meeting to dive into the world of hand soldering and to address variables like solder, flux, PCB, soldering iron and soldering process.

The first webinar imparted basic knowledge so that in the future it would be possible to identify optimum solder joints for oneself – and with repeated practice one could also produce them themselves. For this purpose, the solder is used as a filler metal whose melting temperature is below that of the base material (less than 450 °C). Solder alloys of tin, silver and copper are frequently used. Also important is the flux, which promotes wetting and ensures a well-formed solder joint. Another topic of discussion was the PCB as a base substrate, which is available in single-sided, double-sided or multilayer versions and, depending on the quality, consists of phenolic resin hard paper (FR2), epoxy hard paper (FR3), epoxy glass fabric (FR4/5) or polyester glass mat (FR6).

The second webinar dealt with the useful equipment of a soldering workstation, which also covers the basics of occupational health and safety. "In this context we show what is possible in a professional environment," Ersa hand soldering expert Frank Kappel outlined the content of the webinar. The pivotal point is a soldering station which can be heated up quickly and which enables the precise setting and control of the soldering temperature on the soldering device. Its performance should be between 80 and 150 watts. With increasingly demanding tasks, a multifunctional soldering station is recommended, where several soldering tools can be operated in parallel.

Finally, the third webinar focused on the soldering iron and matching soldering tips. The shape and size of the soldering iron must fit the soldering joint best and thus ensure optimum heat transfer. The advantages and disadvantages of heating technologies that can be used in the soldering iron were also addressed – changing systems with internal heating technology were recommended, which are more powerful and efficient. To ensure that the soldering tip – available in shapes such as pencil, chisel, knife, concave and special shapes – always delivers good results and remains usable for as long as possible, soldering tip care should not be neglected.

All three webinars closed with a question and answer session in which further details were clarified. Due to the great interest and many inquiries, further Ersa webinar dates have already been scheduled.



Everything ready: Presenter Katharina Fertig is looking forward to the first Ersa Tools webinar.

Two slides from the accompanying presentation at the Ersa Webinar "Hand Soldering – First Steps" on 06 May 2020.

Location of Laudren Electronique in Lanester in the district of Lorient (Bretagne).

With permanent change to success

Stencil printing is the most important process in electronics production. 70 percent of all process errors in the SMT line are due to it. Most errors in stencil printing can be easily corrected by inspecting the printed result. This is exactly what the Breton EMS service provider Laudren Electronique attaches great importance to – the French already wanted to have an integrated 3D-SPI when it was not yet available. Today, two Ersa VERSAPRINT 2 Ultra³ machines with this feature are in use.

Laudren Electronique, active in electronics production since 1975, specializes in assemblies in small and medium series. The company has over 7,000 m² of production space at its Lanester site, and 160 employees convert demanding high-tech projects into electronic assemblies – as an EMS full-service provider from procurement to production, integration and testing to customer service and logistics. With 40 years of experience, Laudren Electronique produces electronic circuit boards and assemblies for customers in France and abroad in the fields of energy, defence, transport, aeronautics, optics and networks, automation and lighting.

Business relationship starts with VERSAFLOW 3/66

Laudren Electronique and Ersa have known each other for eight years – in 2014 this became a business relationship with the purchase of a VERSAFLOW 3/66 for big boards. The French EMS service provider´s set requirement was: selective soldering technology. Understandable, because current PCBs are becoming increasingly complex in design – more and more components are installed on them, high-mix, low-volume is increasingly becoming standard for assemblies. In this case, an XL format was added to the circuit board, which the Ersa machine perfectly masters with a maximum circuit board size of 610 x 610 mm. "With Ersa technology, each solder point can be treated individually – i.e. with its own parameters – to achieve optimum quality," says the process engineer responsible at Laudren Electronique. After tests, the system was designed with a double-pot system for mixed production, and since its installation it has delivered greater productivity and quality in production.

Ersa VERSAPRINT S1 with option on 3D-SPI

Convinced of the efficiency of the selective soldering system, the first inquiry for a stencil printer followed almost two years later. Already the first generation was no longer a simple printer, but as a multifunctional system it fulfilled further functions along the production line. Even then, Laudren Electronique was interested in integrated 3D-SPI – even though this feature was not yet available. However, it was known on the French side that Ersa Development was working to bring this module to market as quickly as possible. So those in charge at Laudren Electronique decided to purchase a VERSAPRINT S1 stencil printer. Special features: 100 % Solder Paste Inspection (SPI), user-oriented interface according to SEMI standard (SEMI short for Semiconductor Equipment and Materials International), automatic stencil underside cleaning, optional retrofittable features.

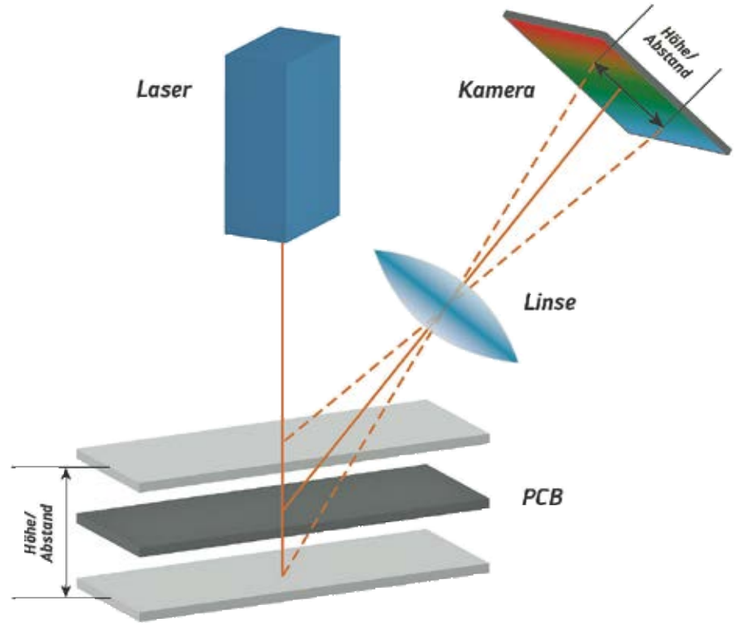
VERSAFLOW 3/66 – Inline selective soldering machine for processing especially large electronic board formats up to 610 mm working width.

In 2018, after the launch of the VERSAPRINT 2 stencil printer generation, which in the Ultra³ expansion stage had the 3D-SPI function, Laudren Electronique promptly retrofitted the existing S1. This was carried out at Ersa headquarters in Wertheim – a VERSAPRINT 2 Ultra³ was provided on loan.

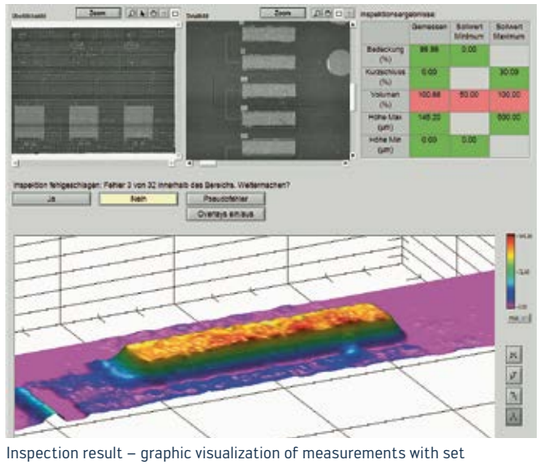
Good business partners, fast service

After the return of the upgraded VERSAPRINT S1, there were a few tuning sessions until everything worked. However, the rental period had convinced the French so much that Ersa took the system back and Laudren Electronique ordered two VERSAPRINT 2 Ultra³ in return. "The changeover resulted in a further increase in reliability and also greater flexibility through faster processes," says the engineer responsible for the process. It is also appreciated that no additional external SPI is required, which saves valuable production space. Since the machines were installed, which run in 3-shift operation, service and maintenance have not been a big issue: five minutes per shift are spent on cleaning, and every six months some grease is applied to the axles.

In addition to the good business relationship, Laudren Electronique particularly appreciates the fast response of the central Ersa Service. Despite all the soldering system competence, the fact that the Ersa France team is at home in the printing process and has stencil printing expertise is well received in Brittany. They are also impressed by the flexible programming that is often required for small and medium batch sizes – and is done quickly, thanks to the interface in French.



In the measuring method for 3D inspection, laser triangulation, a laser beam is projected onto the object to be measured, the light reflected from there is imaged on the camera's sensor at a triangulation angle and the height information is calculated from the geometry of the optical setup.


Inspection result – graphic visualization of measurements with set and actual values.

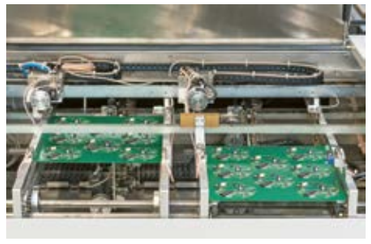
Process engineer on the VERSAPRINT 2 Ultra³

Very satisfied with the drastically reduced void rates after reflow soldering: Herkules-Resotec managing director Günter Reginka and Michael Haas, product manager reflow at Ersa, in front of the vacuum reflow soldering machine Ersa EXOS 10/26.

Vacuum reflow soldering - Absolute quality in LED

When it comes to highly sophisticated lighting technology assemblies for the automotive industry or microprocessor controls in mechanical engineering, a name quickly comes into play: Hercules-Resotec. The company from Baunatal develops, programs and manufactures customer-specific solutions for OEM and series products at automotive level. For this purpose, the North Hesse company has been relying on Ersa hardware again since mid-2019: an EXOS 10/26 vacuum reflow soldering system.

Zero parts per million as a goal, little room for compromise. Neither does EMS service provider Herkules-Resotec need to: "Our strength is to translate customer ideas into electronics in such a way that successful products are created on the basis of absolutely reliable functionality," says Günter Reginka, one of three managing directors. The lynchpin of this approach are state-of-the-art SMD assembly lines, on which batch size-independent assemblies are produced in reproducible top quality. Customers from the automotive world in particular appreciate the reliability of assemblies from Herkules-Resotec, but also general mechanical and plant engineering, print post-processing, medical technology and industrial electronics. Automotive core competence in Baunatal is LED processing – from daytime running lights, indicators, brake lights and taillights to ambient lighting, Herkules-Resotec produces quality in large series. The industrial products are complemented by mass-produced power electronics components such as metal oxide semiconductor field effect transistors (MOS-FET) and bipolar transistors (IGBT). For this purpose, the production of the reflow soldering connection must be reliably mastered throughout the entire process, because the development of the components with increasing miniaturization makes high demands. At Herkules-Resotec, the production hall, which was opened in 2018, offers ideal material and workflow and provides the best production conditions.



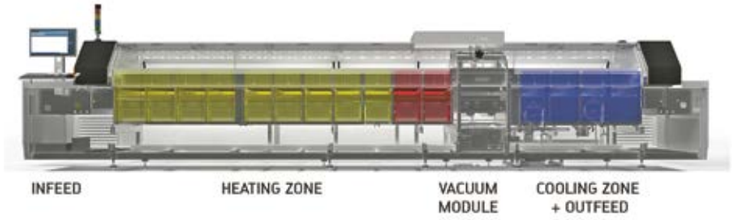
Process reliability through synchronization and maximum throughput is offered by the double-track transport – 2x 285 mm working width are available. The single-track transport allows 630 mm working width.

Significant influence: Void content in the solder joint

In addition to the electrical connection, the heat dissipation behavior of LEDs and power components is decisive. During operation, high-power LEDs generate a very high energy density, which is mainly dissipated into the circuit board via the surface of the solder joints. The void portion of the solder joint is a significant influencing factor here – depending on size and position, these "voids" reduce the cross-section of the joint, which leads to considerably reduced heat dissipation in BTC power semiconductors or LEDs, for example. In relation to the thermal limit values of the component manufacturers, developers define the maximum permissible void content of a solder joint in order not to exceed the maximum operating temperature of the components. The common upper limit is 25 % - if exceeded, components can be damaged and the service life of the components shortened. A better dissipation capability by reducing the void content to 10 to 15 % counteracts this effect.

Herkules-Resotec and Ersa: High know-how potential

Against this background, Herkules-Resotec invested in a reflow oven with a vacuum soldering chamber: an Ersa EXOS 10/26 with eleven conventional heating zones, three heating circuits for the vacuum chamber and four cooling zones.



The transport system of the EXOS is divided into four autarkic segments, thus ensuring perfect synchronization and optimal throughput.

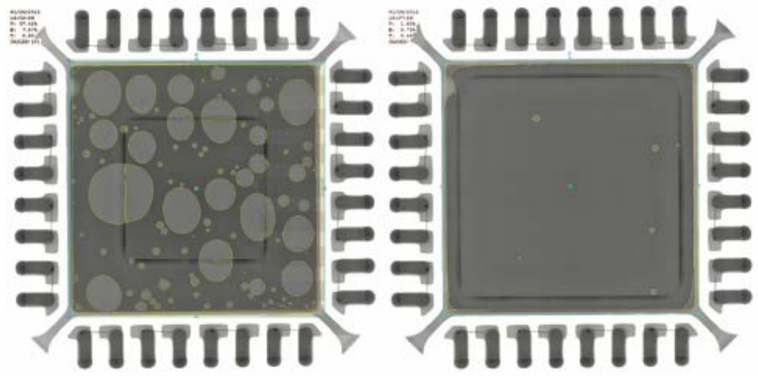
The modular system convenience with features such as four-segment transport system with infeed, preheating zone with peak zone, vacuum module and cooling module, each with its own transport.

The same applies to the medium wave emitters in the vacuum process with stable temperature profiles – the heat transfer of the EXOS, based on the technically advanced Ersa multi-jet convection technology, guarantees a minimum △T with the lowest possible energy consumption. In the vacuum chamber itself, a stable, easily exchangeable and lubricant-free roller conveyor is used – the best conditions for low-maintenance transport and zero lubricant deposit on the assembly.

Optimum temperature profiles due to medium wave radiant heaters in the vacuum module. Its lubricant-free roller transport is extremely easy to maintain and can be removed with a few hand movements.

Almost the entire soldering technology of the electronics production at Herkules-Resotec comes from Ersa – the beginning was marked by an EWS 330 wave soldering machine, from 2004 on HOTFLOW 2 machines were installed. From 2014, one HOTFLOW 3/14 followed in a 2-year cycle, before the EXOS 10/26 expanded the Herkules-Resotec machine park. Thanks to intelligent features, the Ersa EXOS 10/26 allows "void-free" production to be carried out particularly economically – with an LED module produced on it, the void rate dropped from 8.5 % to an impressive 0.5 %!

As a pilot user of the EXOS 10/26, Herkules-Resotec provided important information on productivity, traceability, service and maintenance. In terms of productivity, for example, the vacuum soldering system must achieve the same throughput as the classic reflow process. Key point maintenance friendliness: The entire vacuum unit with pump, filters and valves is largely integrated in the machine room, so that the additional footprint is less than 2 m^2 – pending maintenance work can be conveniently carried out outside the electronics production area, as the complete unit is mounted on a separate, movable module. Downtimes are reduced to an absolute minimum.



Proof of the efficiency of the EXOS vacuum module in reflow soldering: depending on the solder paste used, voids can be reduced by up to 99 %. Left in the picture the soldering result without, right with vacuum module.

Data basis for transparent production

Traceability was an absolute must for Herkules-Resotec – the Management Execution System (MES) enables traceability down to component level. For the EXOS, in addition to the furnace zone temperatures, the vacuum level achieved and the process times used are also included – all data is provided by the MES data interface. Another important requirement was predictive maintenance, in which maintenance intervals are adapted to throughput and performance. The reflow system "knows" exactly how long the vacuum pump was active and signals when an oil change is due. Elementary for a three-shift operation like Herkules-Resotec!

HIGHLIGHTS ERSA EXOS 10/26

- Perfect synchronization and transitions through four-part transport
- Maintenance-friendly and lubricant-free roller transport in the vacuum module
- Optimum accessibility to the vacuum chamber through drives from above
- Optimum temperature profiles due to medium wave radiant heaters in the vacuum module
- Highest machine availability through quick removal of the transport unit in the vacuum module
- Innovative Ersa SMART ELEMENTS cleaning system

The entire spectrum of component and board sizes: With the HR 500, HR 550 XL and HR 600/3P, Ersa sets standards in component repair.

Ersa Rework-Evolution

From fine-pitch components such as µBGA and 01005 miniature devices to large components, Ersa Rework Systems have continuously adapted to the changes in electronics manufacturing. At productronica 2019 Ersa presented three hybrid rework systems for the precise, reliable processing of electronic assemblies.

Since the introduction of the first IR rework system in 1997, thousands of rework systems and stations have been installed. Today they are active in electronics production, product development, analysis and testing. With the HR 500, HR 550 XL and HR 600/3P hybrid rework systems, Ersa is pushing the development of the technology. Continuous new developments in electronics constantly lead to new soldering and repair tasks. Drivers are miniaturization and new techniques such as 5G with extremely powerful components. Increasingly important in this context is the preheating of components to avoid board distortion.

"Zero defect" is not always achievable in production. To cover the widest possible range of applications, the flexibility of rework systems is important. In classic rework, components such as BGA, MLF or QFP are desoldered and replaced by new ones. In service operations, defective assemblies are partially repaired by simple re-soldering.

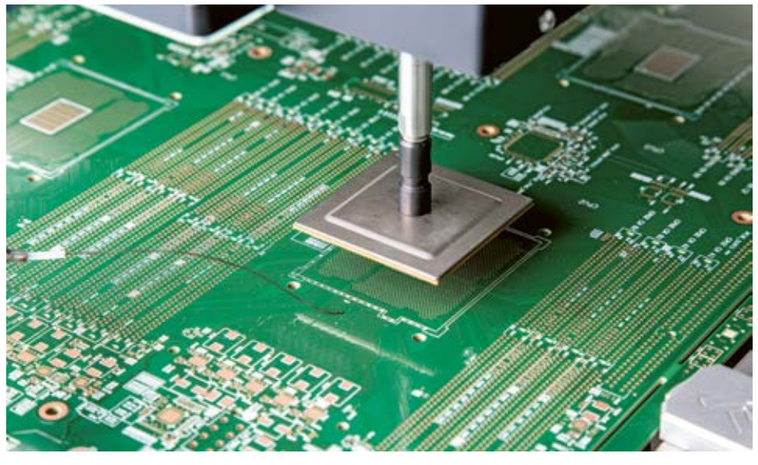
More developments, more systems

Many development departments use Ersa Rework Systems for prototyping. New housing shapes or components are assembled and soldered for the first time. Even more frequently, first assemblies are fitted with newly programmed or modified components. It is only logical that Ersa provides the customer with suitable systems. The ideal field of application may well overlap – for example, BGA repair tasks can be solved with HR 600/2 or HR 550. The current rework spectrum covers practically all SMD components, such as those found in smartphones, notebooks, industrial controls or server boards.

High quality soldering and desoldering processes

Ersa hybrid heating technology has been established on the market for many years. The energy input for soldering is a combination of medium wave infrared radiation and a convection component. This ensures gentle, homogeneous heating of assemblies. The sensor-guided, closed control loop guarantees repeatable soldering and desoldering processes. External influences are automatically controlled and largely compensated. The Ersa heating technology without component-specific nozzles is universally applicable.

The continuous development is reflected in even more efficient heating systems and in the preparation of the connection surfaces. The component connections – for example with BGA, QFP – are automatically dipped in flux or solder paste before soldering. Alternatively, components such as LGA or MLF can be printed with paste. For highly polarized components, precise placement is an elementary process step that allows only slight deviations from the ideal position. Ersa systems feature automatic placement with image processing or optical systems with excellent image quality for manual alignment.

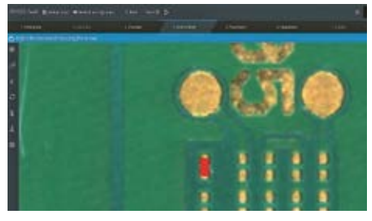


The screenshot shows how the HRSoft 2 operating platform enables process visualization: with the display of the 25 IR matrix radiators of the HR 600 XL for segmented and tuned heat output.

HRSoft 2: Uniform platform

The software package for rework systems has also been further developed – the current HR-Soft 2 is the uniform platform for all new rework systems with clear operation, clear user guidance and little getting used to when using different Ersa devices. New features such as "minimap" and "click into picture" shorten the time needed to find the working position for large assemblies. A scaled crosshair helps to grip components centrally during the desoldering process. In HRSoft 2, all process steps and system statuses are documented transparently and comprehensively at all times.

In the meantime, many manufacturers have recognized that rework and repair are part of the production process. The connection of rework systems to the existing MES infrastructure is a logical consequence. HRSoft 2 provides process parameters required by the customer and links them to the respective order.



This screenshot shows a 01005 component after automatic alignment.

Hybrid rework family at its best

The best-selling Ersa IR 550 and the hybrid rework stations HR 100 and HR 200 have been on the market for many years. Likewise, the first automated rework system HR 600/2 and HR 550 are Standard in the industry. The HR 600 XL with its large IR matrix bottom heater has created a buzz. All heating zones can be individually adjusted and the assembly can be ideally preheated. The system – equipped with an extra-large heating head – enables the automatic repair of very large PCBs up to 625 x 625 mm with component sizes up to approx. 120 x 120 mm.

The latest members of the Ersa Rework family offer technologically advanced heating and placement technology. The semi-automatic HR 500 is tailored to budget-oriented users and allows the flexible repair of standard assemblies up to 380 x 300 mm and component sizes of 50 x 50 mm. The big brother is the semi-automatic HR 550 XL with eight bottom heater heating zones, motorized X/Y fine adjustment and motorized component rotation. The system is suitable for industrial and power electronics as well as large-format boards up to 530 x 530 mm. In the semi-automatic systems, component alignment is carried out by the operator using a vision box. In the fully automatic systems, image processing calculates the placement position and an axis system places the component.

Those who demand the highest precision from a rework system choose the HR 600/3P, which enables the automatic repair of fine pitch components such as µBGA and the smallest chip components of size 01005. The high-precision axis system and 5-MP cameras offer the most accurate desoldering and placement technology currently available in the rework process.

The Ersa HR 500 offers hybrid rework technology for budget-oriented users – without sacrificing precision and quality when processing electronic assemblies.

Powerful precision: the HR 550 XL semi-automatic machine with eight bottom heater heating zones, motorised X/Y fine adjustment and component rotation.

The entire spectrum of component and board sizes: With the HR 500, HR 550 XL and HR 600/3P, Ersa sets standards in component repair.

The Ersa Rework-Portfolio

ERSA HYBRID REWORK			
Stations	**Systems (with component placement)**		
S	**M**	**L**	**XL**
HR 100 HR 200 IR 550 (REIN IR)	HR 500 (NEU)	HR 550 HR 600/2 HR 600/3P (NEU)	HR 550 XL (NEU) HR 600 XL (NEU)

semi-automatic
HR 500 HR 550 HR 550 XL
automatic
HR 600/2 HR 600/3P HR 600 XL

Overview Ersa rework family – the sizes S to XL refer to the machinable board size. In the semi-automatic systems, component alignment is carried out by the operator using a vision box; in the fully automatic systems, image processing calculates the set-down position and an axis system places the component.

Die-Casting Application Center in Uzwil, left the Carat 105 cell, right the Kurtz press.

Innovative Die-Casting Technology Center at Bühler

Bühler's Die Casting Business Area is the global technology partner for all high-pressure die-casting needs and supports its customers through all phases of their investment. The Swiss company provides optimized die-casting solutions, fully integrated process controls, plant layout know-how, process knowledge and global assistance. Bühler supports its customers with a strong global service network, modern application centers and technology sites in Europe, Asia, and North America. Die-casting machines with locking forces from 340 to 5,600 metric tons are manufactured at three production sites.

In recent years, Bühler has invested heavily in new Technology Centers at its headquarters in Switzerland. In the die-casting divison, die-casting cells are available for trials and training on over 1,200 m². Every year, more than 100 training courses with more than 1,000 participants are offered on site. One of the cells in the new technology center is the Carat, which also serves as a test environment for the SmartCMS cell management system. This will include a Kurtz press of type KPS 500/16-10.

Kurtz and Bühler have much in common – such as company history, tradition, vision, global thinking and action, technological leadership, and above all, a focus on the customer. On that basis, Bühler and Kurtz have already successfully handled many projects together in the past. This link and, above all, the shared view of future opportunities prompted both companies to install a Kurtz KPS 500 next to the Carat in the Technology Center in Uzwil.

Focus on cell management

To keep the competitiveness of the die-casting industry in the future, Bühler is taking first steps toward its vision: 0 % scrap, 40 % less cycle time, and 24/7 uptime. The goal of the "Digital Cell" vision is to monitor, control and manage the entire cell. Why is the management of the die-casting cell as a whole relevant? Production losses and scrap are issues that must be minimized in a die-casting cell. Treating the cell as a system and not as a machine with many peripheral devices, such challenges can be solved more easily and quickly with digital technologies. Bühler's SmartCMS (Smart Cell Management System) now extends digital control to the entire die-casting cell.

SmartCMS can increase productivity and traceability. This is achieved through improved product tracking thanks to centralized data processing, monitoring and analysis. Accelerated set-up and production changeovers, as well as less diagnostic and time spent, can increase efficiency and improve the OEE (Overall Equipment Effectiveness) of the cell. SmartCMS also provides connectivity to Industry 4.0 Smart Factory Systems and Digital Services.

Bühler FlexInterface as major step

Thanks to its interfaces with standard protocol – called Bühler FlexInterface – SmartCMS can exchange data with almost all intelligent devices, sensors and components that have implemented the interface. By means of FlexInterface, signals and data values such as status, energy consumption or alarms of each device are transmitted via PROFINET and in the future via OPC-UA. The interface is created separately for each device type. Kurtz GmbH is one of the first companies to implement the Bühler FlexInterface.

SmartCMS implemented on the Kurtz KPS 500

Kurtz has long been involved with the "digital idea" in all products, for example also in low-pressure applications – and Industry 4.0. OEE and networking via standardized interfaces is a decisive topic. We have already shown this at GIFA in June 2019.

In addition to energy and consumption data, Kurtz is also able to send information that provides conclusions about the trimming tool. In this way, the maintenance intervals of the tool can be determined, blunt knives and thus poor cutting can be avoided. In addition to the intelligence, the Kurtz KPS 500, which was implemented in the SmartCMS, has achieved a significant reduction of the cycle time by 60 % compared to its predecessor model.

Bühler and Kurtz – together into the future

In the future Kurtz presses can be connected via FlexInterface to the SmartCMS. Customers that are interested in this topic can visit Bühler in Uzwil at anytime to experience the capabilities of the Bühler Carat and the Kurtz KPS 500 in connection with SmartCMS. Make an appointment with us to discuss the future of die-casting together on site!

Kurtz GmbH focuses on Circular Economy

The Moulding Machines of Kurtz GmbH are facing massive technological changes – the markets in which the Kurtz divisions "Automotive" and "Protective Solutions" operate are subject to dramatic change and business is increasingly influenced by megatrends such as electromobility and lightweight construction. In addition, the corona pandemic has influenced business in these and many other sectors massively.

Automobile production and the registration of new vehicles in Europe are declining and, according to many experts, will not recover permanently. Important reasons are demographic change and an ageing population structure.

The plastics industry has also suffered massive declines or is experiencing dramatic slumps. This is also making itself painfully felt in particle foam machines. The plastics sector has to struggle with environmental and image reasons – one thinks of "plastic waste" in the sea, which damages the oceans, endangers the habitat of countless species and has had a very negative impact on the image of plastics in society. The necessary and sensible use of plastics, for example in medical technology, is, on the other hand, receiving little public attention.

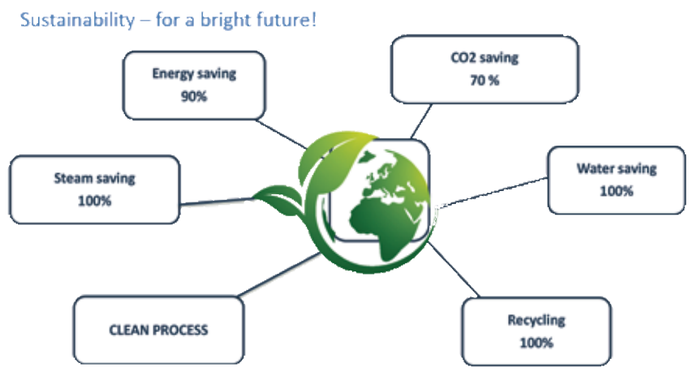
A change in this view is hardly to be expected. In addition, a ban on disposable plastic products will apply from 3 July 2021 – not only in Germany, but throughout Europe. As a company, we are strongly committed to avoiding waste at an early stage, using resources more efficiently overall and advancing the issue of recycling management with optimized processes.

Strategic realignment in relevant markets

As a result of all the above-mentioned influences, the real market for Kurtz GmbH, which has existed up to now, has developed strongly downwards. For this reason, Kurtz GmbH is strategically re-orienting itself to future megatrends in relevant markets – for the plastics sector, the focus is on circular economy, recycling and biodegradable materials; for the automotive sector, the focus is primarily on lightweight construction. Huge opportunities are opening up in the areas of CO_2 reduction, recycling or water conservation. This means both an optimization of processes in production, sales and development for existing customers and sustainable investment in technologies that will ensure a successful future in the long term. The revolutionary Kurtz RF technology ("RF" short for radio frequency), which enables perfect core welding of particle foams from the inside to the outside using electromagnetic waves and which eliminates the need for complex media installations, is of the utmost importance here. In combination with the WAVE FOAMER, no steam generation system or cooling tower installation is required. High temperature resistant particle foams with welding temperatures of up to 250 °C can be processed. Using RF technology, we achieve a recycling rate of 100 % for EPS, for example. In addition, water, the most important resource, is conserved during the processing with up to 100 % steam and water savings. RF makes a further contribution to climate protection by reducing greenhouse emissions and energy consumption: The RF process saves 70 % CO_2 and 90 % energy. The RF technology is Kurtz´ contribution to climate protection.

Energy-efficient steamless moulding process of the Kurtz WAVE FOAMER.

The unique development performance was honored with the presentation of the "Excellence in EPS Recycling Award", which is held annually at the plastics industry trade fair EPS EXPO in Charleston (USA). Kurtz Ersa received an award in the category "Technology Innovations" for his revolutionary RF technology. This award of the EPS Industry Alliance honours outstanding achievements and innovative processes in foam recycling. We are delighted about the recycling award and will do everything in our power to make the process available for other materials as quickly as possible.



Digital twin brings many advantages

International competition and cost pressure mean that there is less and less time between ordering and delivery. What used to be largely individual machines are now completely networked systems with automation, which are supplied by Kurtz for the production of cast or particle foam parts and commissioned on site. Our goals are to minimize errors in advance and to reduce construction site times.

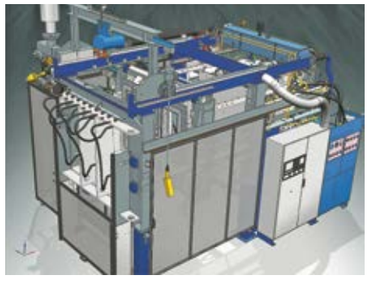
The digital twin plays a key role in meeting these challenges. Kurtz has been working on the implementation of this project in cooperation with Siemens AG for a good year now. First of all, the various data from mechanical design, electrical engineering and software had to be brought together in one system.

Kurtz uses the Mechatronics Concept Designer (MCD) in combination with PLC Advanced from Siemens as a tool for this. This not only brings together the various data sources, but also simulates the mechanical and electrical behavior of machines in a system and integrates automation. Once the machines have been brought into the virtual world, software, functions and interfaces to other systems can be tested without the associated hardware being available. This provides Kurtz with a number of advantages – the reduction of costs and risks during new commissioning is only one aspect here. In the event of a fault, the system data is read out and the situation in the digital twin is simulated. As a result, the problem can be analysed more quickly and often resolved without an employee being on site. Likewise, new software functions can be tested offline and then installed remotely at the customer´s site without causing long downtimes.

Machine presentation via 3D model

Already during the conceptual design with the sales configurator developed by Kurtz on the basis of MCD, the sales department can present the future plant layouts with moving 3D models of the machines. The digital twin also opens up completely new possibilities for service. Training is simply carried out on the digital twin while the customer´s equipment may be on its way to him or her in a container. After installation on site, the trained personnel can start production immediately.

In the future, Kurtz would like to expand the scope of the digital machine twins to include the process module. By connecting SIMT – a simulation system with libraries from Siemens – to MCD, not only mechanical movements or signal exchanges are to be simulated, but also process sequences. This should bring the behavior of, for example, hydraulic or fluid systems during the process even closer to reality. A FLOWNET library is available as a basis, which already contains some standard values for thermodynamic variables and can be extended with own real values.



Digital twin of a Kurtz Moulding Machine.

The speed of development is increasing and with the virtual commissioning we keep up the pace and even go ahead. Together with Siemens, we have taken the first step into the digital age of machine development – with many advantages for our customers.

Away from water vapor: The new technology uses radio-frequency to sinter foam beads into moulded parts – with melting points of up to more than 240 °C, completely new applications are coming to the fore, for example as insulating materials, packaging and in lightweight construction for mobility.

Cooperation with institutes

Sustainability and efficient use of resources are currently a focus of research and development policy – also at Kurtz GmbH. In order to obtain further external competences, we are in constant exchange with different partners, especially in the field of research and development, particularly in applied research. In cooperation with recognized independent research institutes, such as the Fraunhofer Institute for Chemical Technology or Neue Materialien Bayreuth GmbH, we as Kurtz GmbH benefit from a mutual transfer through close cooperation with these external experts.

Foam pattern from RF automat.

The focus of the cooperation with ICT and NMB is the further development of the RF process, a particularly environmentally friendly process for welding particle foams. The focus is on well-known foams such as EPS, EPP, E-TPU etc., but particle foams that could not be welded up to now are also considered. The research institutes support us with the production of corresponding test specimens, their characteristics and with the subsequent evaluation of the results obtained. As Kurtz GmbH we use the additional resources and possibilities offered by the laboratories located there. This allows, for example, the rapid execution of various pre-expansion processes, but also material modifications to achieve tailor-made particle foam properties, which in turn contribute to the optimization of our RF process. Basic tests based on compact materials also play a significant role. Thus, conclusions about the processing behavior of the particle foam can already be drawn on a cell basis. This information can then be incorporated into our joint process simulation, which ultimately enables us to optimize the manufacturing process.

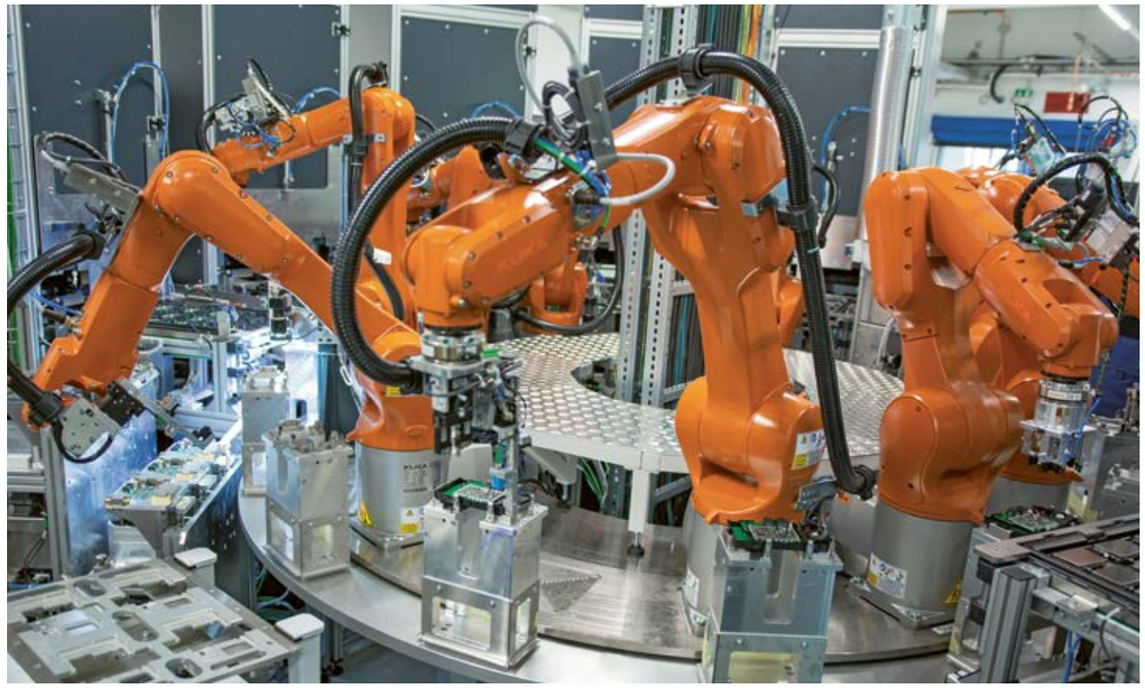
The parties involved would like to intensify their successful cooperation in the context of publicly funded development projects. The expertise of users from the automotive and transport, energy and environment, and chemical and process engineering sectors should also be incorporated. In these projects, the research institution often takes over the coordination, while Kurtz GmbH is a partner as a mechanical engineer and expert in the production of moulded parts.

Fraunhofer ICT

The Fraunhofer Institute for Chemical Technology ICT, founded in 1959 and based in Pfinztal near Karlsruhe, conducts research primarily in the fields of chemical processes, energy systems, new propulsion systems, explosives technology and plastics technology. Well-equipped laboratories, equipped with the latest findings in safety and energy technology, as well as all analysis and test procedures required in research are established at the Fraunhofer ICT. Currently, the focus in the field of foams is on the production of compounds based on renewable raw materials. The ICT has an RF WAVE FOAMER C, which enables the processing of particle foams by RF welding in laboratory operation.

Neue Materialien Bayreuth

Neue Materialien Bayreuth GmbH (NMB) is a non-academic state research institution, which is engaged in application-oriented material and process development for polymers, composites and metals. The main focus of its work is the development of new types of lightweight construction materials and associated processes as well as the clarification of the underlying process structure and property relationships. One focus is on tailor-made moulded parts made of foamed and fibre-reinforced plastics as well as on sandwich structures based on these materials. Experience in the use of modern polymer processing technologies and the availability of a well-equipped laboratory are incorporated in the development process. In addition to development work, NMB also carries out mould trials in the field of injection moulding and particle foam processing. In addition, it is possible to produce extrusion and autoclave foamed raw material using pre-expanders and automatic moulding machines. At NMB an X-3 pre-expander, an ENERGY FOAMER and an RF WAVE FOAMER C are currently in laboratory operation.



Kurtz Ersa Automation

With the modular periphery system, the team at Kurtz Ersa Automation GmbH offers individual solutions to handle almost any conceivable automation task quickly and efficiently. The following application examples show how this is solved in practice.

Ersa Automation
Transport periphery system in a circulating structure – worker lift, transport section with workstation system, rotation module, buffer transport section and lowering station.

Conventional horizontal transport solutions
The respective transport section length can be configured individually. The option of a return transport section is always available, which allows a compact realization of the bidirectional component transport in order to realize a circulation solution. Optionally, route enclosure, integrated cooling, workplace connection, signal-controlled shutdown and other features can be implemented.

Conventional vertical transport solutions
In the area of lift systems, both fully enclosed solutions and freely accessible worker systems are available in the portfolio, which allow inspection tasks or assembly activities. In combination with bidirectional transport systems, circulation solutions from the modular system can be created that can be used in the production area within a short time.

VERSAGUIDE
System for support and control during PCB assembly or for assembly work, which helps to avoid assembly errors and thus costs for time-consuming reworking. The

smart camera of the VERSAGUIDE has its own processor and therefore requires no additional PC. Using image recognition software, the features to be inspected can be easily defined and monitored. Deviations in character strings, patterns, colours and textures are reliably detected. Individual components or assembly instructions can be read in and provided as an image in the software. VERSAGUIDE then guides the user through the individual work steps and provides immediate feedback. Only when everything is correct the next step is displayed. To ensure traceability, log data is backed up for each step. VERSAGUIDE is available in

Designed for recurring placement and assembly work: the Ersa ROBOPLACE.

combination with Kurtz Ersa transport solutions and expands conventional manual workstations to semi-automated test stations – if desired with release lock until the desired assembly result has been detected.

ROBOPLACE
THT components continue to be an integral part of technically sophisticated flat modules for industry and the automotive sector, even in SMT-dominated electronics production. The number of these components per assembly – such as connector strips, capacitors, chokes, relays – is usually small, so their manual assembly is often carried out in the inlet of the selective soldering machines. For these simple assembly operations, several people are often employed to achieve short cycle times. The ROBOPLACE from Ersa is specially designed for such monotonously recurring assembly and mounting work. Small to medium quantities are the strength of this system, with guaranteed stable quality. The employees have free space for other, more complex tasks. The closed, safety-monitored robot cell enables extremely fast placement speeds with high precision, resulting in very short cycle times. Component feeding is based on standard systems available on the market, the selection is component and process-specific. Modern image processing systems check the components before placement and reject defective components with regard to deformed pins or other quality parameters. This ensures that defective components do not enter the production process.

Industrial and collaborative robotics solutions
Whether "pick and place" application, human-robot collaboration, parts handling or automated testing tasks – the application possibilities of robotics are almost unlimited. Kurtz Ersa Automation develops the appropriate solution for every problem in order to meet today´s customer requirements in a modern and efficient way. We would be pleased to support you in your individual automation solution!

Excellent commitment against corona virus

When it became known that Covid-19 was becoming a worldwide problem, Kurtz Ersa immediately reacted with a comprehensive crisis program. Travel restrictions, social distancing and the observance of important hygiene regulations were important measures that were brought to direct implementation. Home office was the order of the day – and wherever possible, our employees were able to work from home immediately thanks to our excellent IT infrastructure. Many of our colleagues have also been privately involved in the fight against the virus – whether in non-profit organizations or in company initiatives. Here we present three examples:

Chinese business partners donate protective masks

Especially in difficult times, it becomes clear how well business relationships can work in partnership. After the workers in China gradually returned to their production facilities at the end of March and the economy slowly started to pick up again, we received free mouth-nose protection masks from two business partners in China shortly afterwards, which we sent directly to the BRK. The company Suzhou Etron donated 600 masks, and 1,000 masks came from the company Anshan Baocheng. The management of the Kurtz Ersa Group spontaneously decided to procure additional protective equipment of the same value, also for charitable purposes. The transaction was handled by Dagmar Gramlich (Einkauf Ersa GmbH), the delivery was bundled and made available through the central warehouse of Kurtz Ersa Logistik in Wiebelbach and went directly to the BRK disctric association Main-Spessart. The handover was handled by Hans-Peter Blum (IT), himself an active paramedic at the BRK Main-Spessart and part of the pandemic crisis team there. We thank the teams of Suzhou Etron and Anshan Baocheng for the great idea and the great support.

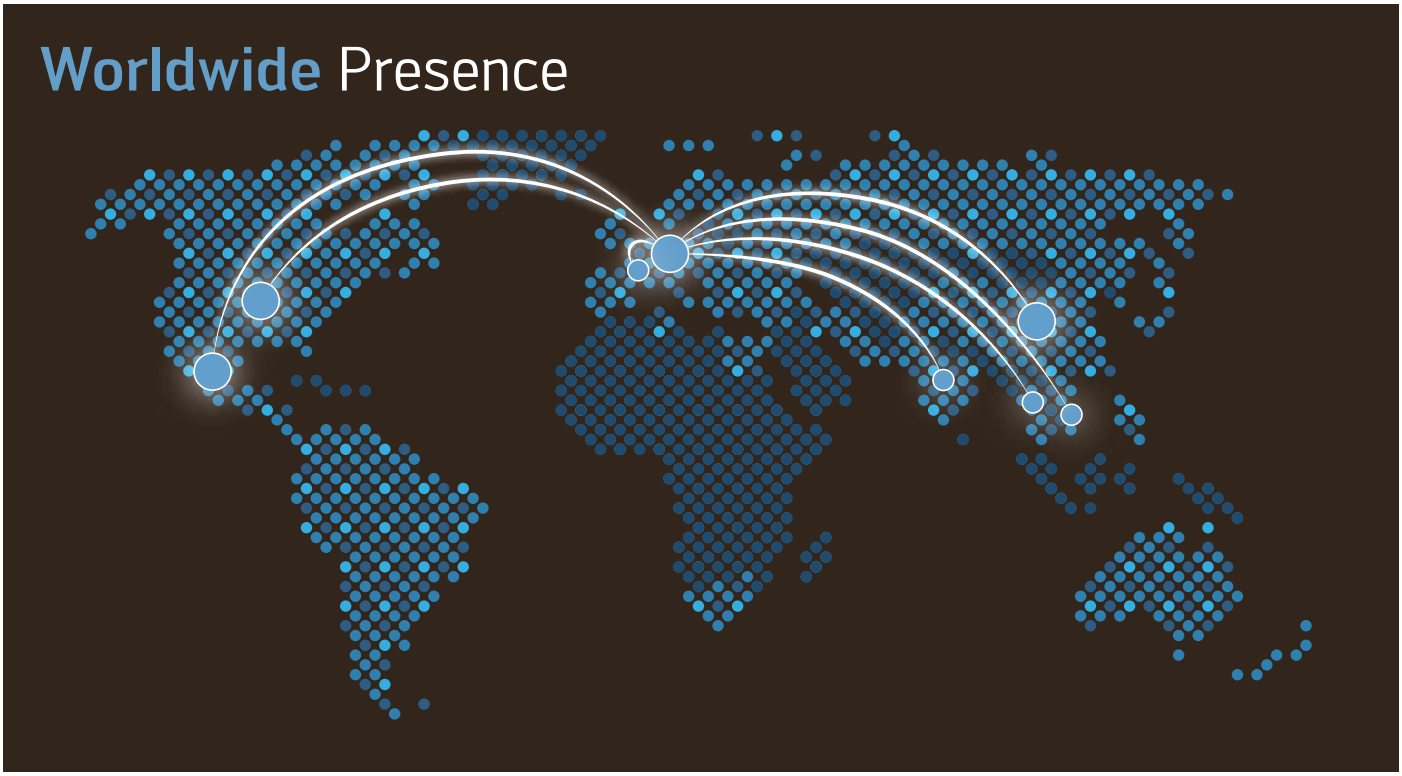
Volunteering with Ersa!

Our colleague Martin Krichbaum organised the production of protective masks on a voluntary basis. These were then distributed at cost price to retirement homes, nursing services or medical practices. Where soldering tips are usually packed and made ready for dispatch, several thousand masks were shrink-wrapped and prepared for dispatch. Many thanks to Martin Krichbaum!

IT colleague Maik Richter supports Würzburg civil protection

Our colleague Maik Richter, who in his job as System Manager CAD/PDM is responsible for the development of well thought-out business process solutions, is also involved in the fight against Corona. Maik volunteers as a THW expert advisor in the management group for disaster control in the city of Würzburg. In this function, he advises the command staff on the THW's deployment options (THW short for technical assistance service) and supports in the preparatory planning of measures regarding Covid-19 – whether in logistical activities or the selection and preliminary planning of a drive-in test track for the public health department. Many thanks to Maik Richter and all THW members!

Worldwide Presence



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