THERMAL SYSTEMS

8 processes with **infinite** possibilities!

Product overview

www.rehm-group.com

This is what we do.

Innovative thermal systems by Rehm

Rehm Thermal Systems, which has its headquarters in Blaubeuren in Swabia, specialises in thermal system solutions and produces innovative manufacturing equipment for the electronics and solar industry.

We tailor-make applications related to soldering, coating, testing and hardening of assemblies for our customers. With a comprehensive product portfolio, including reflow soldering systems with convection, condensation and vacuum, coating and drying systems, cold and warm function testing systems and systems for metallising solar cells, we offer manufacturing solutions for a wide range of fields. Our processes operate with temperatures from -50 °C to 1200 °C.

We have earned an international reputation for our company too, especially with the realisation of custom special systems, which are tailored specifically to customers' requirements. In connection with this, we place particular value on a high vertical range of manufacture and on professional assembly. We manufacture everything at a single location, from sheet metal forming and manufacturing the mechanical and electronic components to final assembly and commissioning.

Thanks to our intensive development work and partnerships with universities and renowned research institutes, we always have our finger on the pulse and we develop new and innovative solutions for reliable and future-oriented electronics manufacturing.

Consumer electronics

Lighting

Avionics

Solar

FIND OUT MORE HERE

We are experts in numerous sectors: Rehm Thermal Systems is a technology and innovation leader in the field of mechanical engineering for economical and modern electronics manufacturing.

Rehm quality
can be found in many industries and sectors

For more than 30 years, we have stood for in-depth expertise and know-how as well as process-safe systems and vision in the field of thermal system solutions.

Our portfolio includes eight different processes: soldering using convection, condensation or contact heat, dispensing | coating, drying | hardening, inspecting | testing, equipment for the metallisation of solar cells as well as for special plant engineering.

These processes can open up endless possibilities – for example, the electronic components for medical technology, 5G technology or electromobility. To produce these flawless electronics we have the perfect manufacturing equipment – with process reliability, high quality, and software technology for the future of smart electronics manufacturing. Our ongoing product and process development is always guided by trends in electronics manufacturing and by customer requirements – focusing on innovation, quality, efficiency and flexibility.

Electromobility
As a leading global supplier for thermal processes and coating technologies, we have been a strong global partner for the automobile industry for many years. Our customers place their trust in our experience when it comes to manufacturing high-performance electronics, lighting systems, camera technology, sensors or electrical drive units.

Medical technology
Germany is a high-tech centre for medical technology. The demand for highly-developed devices for medical care is the basis of a long and healthy life in an aging society. The highly diverse field of medical technology relies on numerous key technologies. Thanks to our wide range of systems and solutions, we can work with customers to master this challenge!

5G technology
5G technology plays a key role in the future digitalisation of many areas of our lives. This may be autonomous driving, how we use mobile devices, or networking in industry and communication: the new 5G mobile network standard creates unimaginable possibilities but also plenty of challenges when it comes to manufacturing electronic components. We provide suitable and reliable systems for all manufacturing environments for producing high-performance electronics, transmission masts, smartphones or electrical drive units.


E-mobility
Medical
5G

VICON
SOFTWARE

WITH VACUUM OPTION

Immediately after melting the solder, the VisionXP+ Vac with vacuum option reliably removes pores and gasses whilst the solder is still in the optimum molten state. With a vacuum value between 100 mbar and 10 mbar, void rates of less than 2% can be realised.

ENERGY-
EFFICIENT

Vision series

Convection soldering

Efficient and high-performance: Thanks to the diverse system configurations, you always achieve optimal quality with the Vision series systems with a high degree of flexibility in your production.

Our Vision series convection soldering systems are used, depending on type, for small or medium-sized batch sizes, as well as for high-end series production in the automotive, consumer electronic or power electronic sectors. With the VisionXC, VisionXS, VisionXP+ and Vision TripleX, we offer a wide range of systems for optimum soldering processes in a wide range of manufacturing environments. Different process zone lengths are available, depending on the system type. The pre-heating, peak and cooling zones have the same grid and are therefore constructed in a modular manner. Additional features, such as a vacuum unit for void-free soldering, pyrolysis for optimal residue separation, or lower side cooling for gentle processing of high-mass boards, are available as options and seamlessly fit into the system concept.

FIND OUT MORE HERE

HIGHLIGHTS

- Patented injection principle
- Hermetically sealed process chamber
- Controllable vacuum process
- Horizontal transport
- No Galden® spreading
- Active Galden® filtering
- Active process monitoring

VOID RATES UNDER 2%

FLEXIBLE LOADING

STABLE PROCESS

Condenso series

Vapour phase soldering

In reflow vapour phase soldering, soldering is accomplished with the aid of a hot vapour. Heat transfer in condensation soldering is up to ten times higher than with convection soldering.

The Condenso series system versions can be integrated into a wide range of manufacturing environments. Regardless of whether you are using batch operation, in-line connection or continuous soldering, we offer the highest degree of process reliability for all areas! The application options for the Condenso series are as varied as your production. We would be happy to determine the most efficient system for your manufacturing process, taking into account all relevant processes such as throughput, assembly size, thermal mass and follow-up processes. The inert heat transfer medium used is perfluoropolyether (Galden®). To improve control of the condensation phase, Rehm has developed a patented injection process that allows the soldering procedure to be individually regulated.

MODULAR CHAMBER SYSTEM

The Condenso Multicore has four identical process chambers to achieve both the highest throughput rates and continuous process operation during maintenance work. Since the chambers can be operated independently of each other, preventive maintenance can be performed on a process chamber without causing a line stop.

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SEMICON-
DUCTOR

POWER
ELECTRONICS

HIGHLIGHTS

- Void-free soldering with vacuum
- Reliable soldering process
- Direct heat transfer
- Various media
- Integrated heating and cooling in one position

Nexus

Contact soldering

The Nexus soldering system guarantees the best results with contact soldering under vacuum. This enables it to meet the highest requirements in the field of advanced packaging and power electronics.

Our Nexus contact soldering system with vacuum is best suited for void-free soldering of different components (e.g. IGBT) on DBC substrates. Materials that are normally highly dissimilar are fused under vacuum at temperatures up to 400 °C. The reduced pressure helps to minimise oxidation on the components and on the solder itself. The heat is transferred both via thermal conduction and optionally by radiation. Typically, nitrogen (N_2) is used to protect against oxidation. The forming gas is also used in combination with 5 to 10% hydrogen to reduce oxides. All necessary safety devices are already integrated in the system for this mixing ratio. Its compact dimensions and high level of user-friendliness mean that the Nexus is particularly suitable for use in small-scale and medium-scale production, as well as in laboratories.

FORMIC ACID

For stable, flux-free soldering or the removal of oxides, the inert carrier gas nitrogen (N_2) is enriched with formic acid (HCOOH) and routed into the process chamber.

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HIGHLIGHTS

- Tempering sensitive electronics for function tests
- Optimal combination of systems with other measuring equipment
- Outstanding heating and cooling capacity
- Optimum housing insulation
- Easy accessibility
- Isolated or in-line solutions

COOLING FUNCTION TEST

SAFE ELECTRONICS

HEATING FUNCTION TEST

Securo

Inspection | Testing

With Securo Plus and Securo Minus, we offer systems that can simulate extreme environmental conditions with targeted heating or cooling of the assembly.

Safe testing and measuring methods are thus becoming increasingly relevant and have become standard today in order to analyse the resistance of electronic components. Here is an example from the field of aviation and the aerospace industry: The side of a spacecraft that is facing the sun can get very hot, since the vacuum of space has no air to cool it. However, since space itself has a temperature of −270 °C, it is also subjected to extreme cold at the same time. The technology needs to be totally reliable despite these high temperature fluctuations.

Our Securo series has a modular construction and can be integrated into your production landscape as an in-line or isolated solution. In both solutions, targeted heating and cooling and subsequent temperature measurement is reliably ensured in multiple work steps.

FLEXIBLE LOADING CONCEPTS

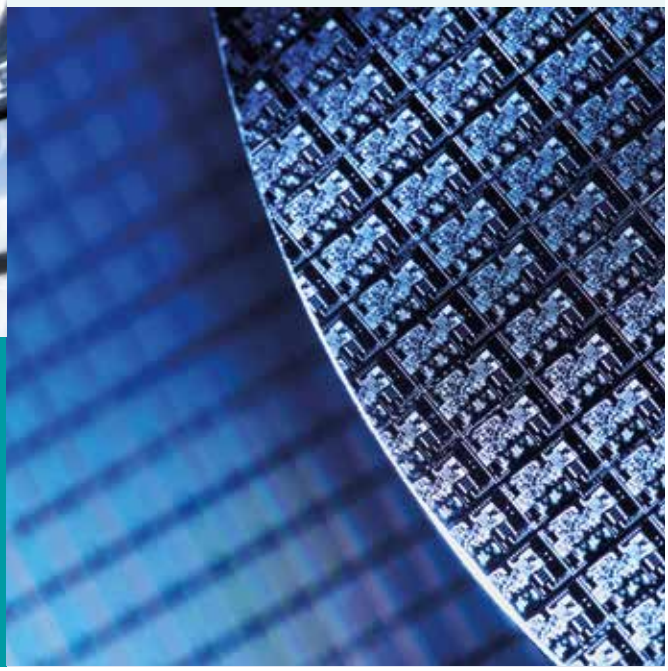
The Securo systems offer you full flexibility and security in designing and implementing your testing tasks. A stable circulating goods carrier ensures the safe transportation of the assembly through the system and absolute process stability with sufficient capacity to reliably bring even large parts to the desired test temperature, even in a short cycle time.

FIND OUT MORE HERE

INNOVATIVE PROCESS

HIGHLIGHTS

- Combined heating methods for flexible profiles
- Reliable, robust hardening and drying
- Exceptional energy efficiency
- IR or UV radiation and/or convection
- Simple profiling capability
- Traceability of processes



STABLE PROCESSES

RDS

Drying | Hardening

Our RDS drying systems are used predominantly for drying and hardening lacquers, adhesives and casting compounds.

An optimal drying process plays an important role in electronics manufacturing. Depending on the chemicals used in their materials, electronic products have different requirements for reliable hardening during manufacture. The RDS drying systems are configured individually according to the customer's requirements. Different basic physical principles of heat transfer are used here to make drying processes as efficient as possible. Each day we rise to the new challenge of converting innovative technologies into series-production-ready systems and we are happy to evaluate the optimum technology parameters together with customers during the conception phase.

FIND OUT MORE HERE

TURNKEY SOLUTIONS

DIVERSE APPLICATORS

HIGHLIGHTS

- Greatest possible process reliability
- All-in-one lacquering
- Multifunctional lacquer applicator
- Highly selective coating
- Long-lasting fault-free lacquering
- Minimal maintenance
- Also available as a line concept
- Smart software

Protecto

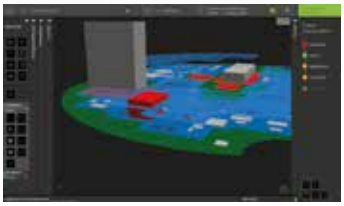
Coating

Highly selective dispensing and conformal coating is the key to reliable functionality of electronic components and has now become a key component of everyday modern manufacturing work.

The protective lacquer coating serves to maintain the functionality of the PCB in the long term – the application fields of the assemblies here range from offshore wind farms to shipbuilding, military products, telecommunications, medical technology, industrial control, automotive systems, and electronics in private households. Would you like to combine optimal coating solutions and reliable drying methods in your manufacturing process? Or are you looking for a system that can be integrated perfectly into small manufacturing spaces, is ideally suited for coating small batch sizes, and requires manageable investment costs – yet still offers high performance? The coating systems by Rehm are impressive thanks to their process reliability in large and small batch sizes. Our line concept consists of the Protecto coating unit and an RDS coating dryer, including handling based on customer requirements.

VICON SOFTWARE

With the ViCON Protecto system software, we provide the optimum software solution for our systems, which even enable ECAD data imports.



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HIGHLIGHTS

- Individual system solutions tailored to your requirements
- High-quality mechanical engineering backed by more than 30 years of experience
- Skilled process consultation
- Flexible options for your production facility

VACUUM SYSTEMS

FLEXIBLE COOLING

CUSTOMER-SPECIFIC

RSS
Special equipment

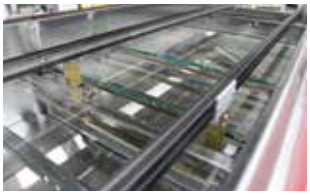
Have you not found a system suitable for your process? Then commission us to design and build one that is optimised for your requirements.

We develop individual thermal solutions matched exactly to your production needs. These include, among others, pallet flow furnaces, vacuum dryers, high-temperature soldering systems, drying systems and curing systems.

Our special RSS systems offer you a system concept that allows technically flexible and economically attractive solutions for various areas of application to be realised quickly. We will be happy to advise you on the thermal systems that we can custom-develop for your field of industry.

INDIVIDUAL PROCESS TECHNOLOGY

The technical design of Rehm systems is largely determined by part dimensions, thermal mass, materials, process specifications and throughput volume and/or cycle times. This enables us to construct thermal system solutions precisely tailored to your individual application using convection, IR radiation or a combination of both heat sources.



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LOW POWER CONSUMPTION

HIGHLIGHTS

- Continuously optimised system for stable processes
- Compact construction
- Short pre-heating and cooling times due to high radiation power
- High energy efficiency and low heat loss
- Low-maintenance for long operating hours

INNOVATIVE CONCEPTS

RFS Speedfire and RDS

Solar equipment

With our systems we provide efficient equipment for use in photovoltaics, in particular for typical mono-crystalline and multi-crystalline metallisation of solar cells.

Our solar equipment has been developed and manufactured to the highest quality standards, based on our decades of experience with thermal system solutions. As a result of the development of the cell technology and the associated different requirements for the thermal systems, our solar systems have been optimised for the different processes, and new concepts have been implemented. For example, the Rehm magazine dryer was developed for HJT cell technology to meet the requirements of long dwell times and low temperatures. For the established solar cell concepts, Rehm expanded the portfolio with the RFS Speedfire to meet the requirements for high throughputs and cycle times of ≤ 1.0 s. With the use of new technologies and radiation sources, a system that needs very little space has been made available for the regeneration of light-induced defects.

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Resource management

We care about the environment

The field of energy is one of the most relevant topics affecting the economy. Regardless of whether we are talking about competitiveness, social responsibility or cost savings, managing energy usage is one of the most complex challenges for all companies nowadays.

As an international company, Rehm Thermal Systems acts on its responsibility to implement sustainable resource management. For us, looking after the environment means taking responsibility for our products over their entire life cycle.

Save the future: Working to protect nature and our climate

Our energy use concept combines efficient technologies and expertise with the demands of a modern manufacturing company. Here tradition meets globalisation – we use raw materials from local suppliers to create systems that hold their ground on the global market. Low material consumption, reliable recycling of the recyclable materials and short transport pathways – i.e. we manufacture in Germany for Europe and in China for the Asian market – make Rehm stand out from the crowd. High-quality, durable systems with low energy consumption and minimal emissions are the foundation of our system development and manufacturing. Both the environment and our customers profit from our work!

Certified quality

Rehm Thermal Systems and its subsidiary Rehm BlechTec have been regularly certified in accordance with DIN EN ISO 9001 since 2004. We also plan and design all our machines with CE conformity in accordance with machinery directives. We are regularly certified in the energy audit according to DIN EN 16247-1 and have now set another milestone towards climate neutrality with the introduction of the environmental management system according to DIN EN ISO 14001:2015.

As a company with its headquarters on the edge of a biosphere region in the Swabian Alb, we are aware of what it means to use resources responsibly. Consequently, the topic of sustainability is integrated into our company processes.

Environmentally friendly product development

At Rehm, protecting the environment starts as early as the idea stage for a new system. Our development engineers engage with pioneering, sustainable solutions for innovative products. We work together with scientific institutes, universities, customers and partners to develop product optimisation and development concepts, primarily with regard to energy management and the protection of resources. Our customers already profit significantly from the use of efficient technologies in our systems, which enables them to work sustainably and economically. The modular construction of our systems guarantees all electronics manufacturers an almost fully customised system that can be operated at high usage rates with a long service life. This protects our environment, both now and in the future.

Sustainable mechanical engineering

We are particularly passionate about environmentally friendly manufacturing strategies in the development, design and production of our system technology. With intelligent system features, our customers are able to demonstrably lower their operating costs. The waste heat from the cooling water and the exhaust air from our reflow systems can, for example, be used for energy recovery. Standby functions and eco-mode, as well as nitrogen regulation, save on electricity and nitrogen should production operations have to be interrupted. Thanks to the reliable residue management in our reflow systems, clean processes during soldering are guaranteed. With pyrolysis, our reflow convection soldering systems achieve high separation rates and guarantee low maintenance costs.

Act local, think global

Thinking holistically for us is all about manufacturing in the locations where thermal equipment is used. With the development of our global presence and new key locations internationally, we are utilising attractive growth potential and economic stimuli.
We work with business partners on all continents. With manufacturing locations in Blaubeuren and Dongguan and additional branches in Europe, Asia and the Americas, we are a global presence nowadays and can act locally where this is advisable from a sales and economic point of view – from material procurement and manufacturing to marketing, advice and the comprehensive service that is provided on-site. This means that we can always be there for customers where they need us.

THERMAL SYSTEMS

Rehm Worldwide

As a leading manufacturer of innovative thermal system solutions, we have customers on every continent. With our own locations in Europe, the Americas and Asia as well as 27 agencies in 24 countries we are in position to serve the international markets quickly and to offer outstanding on-site service – worldwide and round the clock!

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