



THERMAL SYSTEMS

ECONOMY

ECOLOGY

AWARENESS

Future made by Rehm.



[www.rehm-group.com](http://www.rehm-group.com)



## Rehm shapes the future with sustainable ideas and technical know-how

The Centre for Coastal Research at the Helmholtz-Zentrum Geesthacht (HZG) predicts that the southern Baltic Sea will have risen by 80 cm by the end of the century. This might not sound like much, but in some places 80 cm is enough to send floodwaters rushing into homes.

What does this have to do with Rehm? The climate targets of Paris 2015, namely limiting global warming to 1.5 – 2 °C, can only be achieved through mutual efforts to reduce CO<sub>2</sub> emissions and to conserve primary energy resources – we can do

this in our field of mechanical engineering just as you can in your production of electronics. Together with our clients and partners, Rehm has already implemented various sustainability projects e.g. the world's first cooling water-free reflow soldering system with  $\leq 10$  kWh operating performance and the QuadLane, a space-saving and resource-saving reflow soldering system.

Our passion is building sustainable thermal systems that are characterised by high availability, responsible use of resources and long service life.

**Yours,  
Rehm Thermal Systems GmbH**



# Energy efficiency and resource management

## We focus on environmental awareness

**Today no economic issue is hotter than energy. Whether competitiveness, social responsibility or cost savings: autonomous energy management is one of the most exciting challenges that every company is facing today.**

As an internationally active company, Rehm Thermal Systems meets its responsibility in sustainable resource management. To us, environmental awareness means taking responsibility for our products throughout their entire life cycle.

### **Save the future: commitment to nature and climate**

Our energy concept combines efficient technologies and know-how with the requirements of a modern production company. Tradition meets globalisation – using raw materials from regional suppliers we manufacture systems that successfully hold their ground on the global market.

Rehm is characterised by lower material consumption, reliable recycling of reusable materials, and short transport routes i.e. we produce in Germany for Europe and in China for the Asian market. High-quality, durable plants with low energy consumption and minimal emissions are the basis for our plant development and construction. Both the environment and our clients benefit from our approach!

### **Certified quality**

Since 2004, Rehm Thermal Systems and the subsidiary Rehm BlechTec have been regularly certified in accordance with DIN EN ISO 9001. We also plan and design all machines in compliance with CE and in accordance with the machinery directives. We are regularly certified in the energy audit in accordance with DIN EN 16247-1.



1. Know-how for more than 25 years: the Rehm development team
2. Focus on sustainability
3. Current company premises of Rehm Thermal Systems at Blaubeuren

# Sustainable system engineering

## Quality throughout the entire product life cycle



### Environmentally friendly product development

At Rehm, environmental awareness starts already at the first concept for a new system. Our development engineers focus on viable, sustainable solutions for innovative products. Working in conjunction with scientific institutes, universities of applied sciences, clients and partners, we develop concepts for product optimisation and enhancement, with a particular focus on energy management and resource preservation. Today, our clients benefit considerably from the use of efficient technologies in our plants, thus enabling them to work sustainably and efficiently. Thanks to the modular construction of our systems, each electronics manufacturer is guaranteed a virtually custom-made plant showing high capacity and maximum service life. This protects our environment, today and tomorrow.

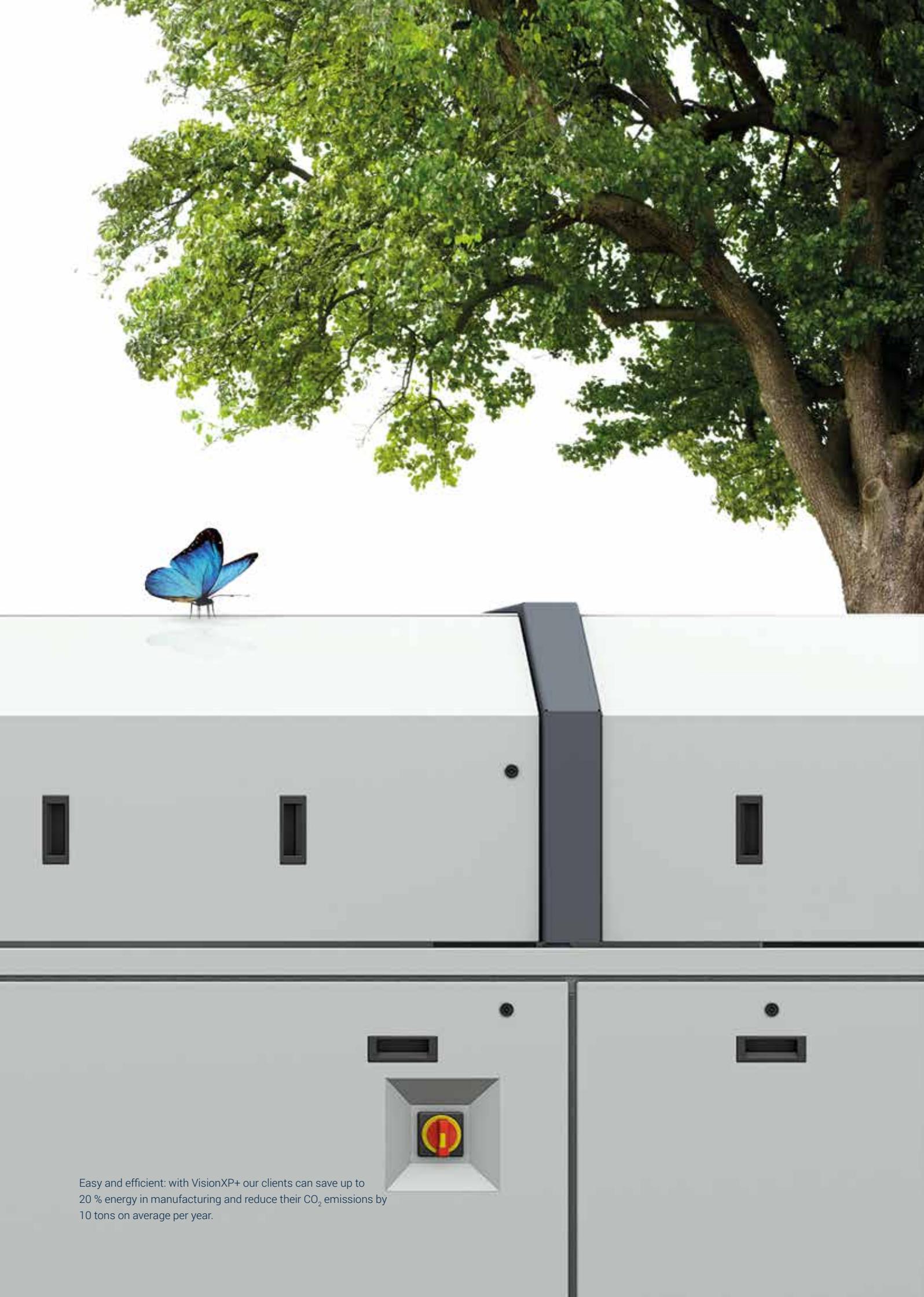
### Sustainable mechanical engineering

Environmentally friendly manufacturing strategies are at the centre of the development, design, and production of our plant technology. Our clients can significantly reduce their operating costs with intelligent system features. For example, the waste heat from the cooling water and the exhaust air from our reflow systems can be used for energy recovery. In cases in which the production facility may be interrupted, energy and nitrogen can both be saved by our stand-by functions and sleep mode. Reliable residue management in our reflow systems guarantees cleaner soldering processes. With pyrolysis, our reflow convection soldering systems achieve high separation rates and guarantee low maintenance costs.

### Act local – Think global

To us, thinking globally means producing thermal equipment where it is needed. With the expansion of our global presence and international realignment, we have used attractive growth potentials and economic stimuli. We cooperate with business partners on every continent. With our production sites in Blaubeuren and Dongguan, and further branches in Europe, Asia and the USA we are positioned globally and can act locally, directly where it is commercially and economically sensible – from material procurement and manufacturing, to marketing, consultation and comprehensive on-site service. Therefore, we are always exactly where the client needs us.





Easy and efficient: with VisionXP+ our clients can save up to 20 % energy in manufacturing and reduce their CO<sub>2</sub> emissions by 10 tons on average per year.



# Environmental protection and efficiency with concepts by Rehm

Guaranteeing reliable, efficient, and sustainable manufacturing is one of the biggest challenges of the 21st century. Rehm is constantly working on innovations and technologies to meet this responsibility. Striving to improve ourselves each and every day, we increase the quality and efficiency of our products, especially when it comes to minimising emissions, the use of pollutants and energy costs.



## Low energy

Nowadays many companies have discovered energy economy for themselves. Rehm systems are equipped with clever features that help to minimise operating costs.

These include system components to increase energy-efficiency, such as stand-by modes, insulation or heat recovery concepts. Various monitoring tools also guarantee more transparency in the consumption of resources.



## Low noise

Production noise is not an issue with Rehm plants. As part of our regular re-designs, we improve our ventilators and motors to make these extra quiet.

A lower noise level in the production hall significantly improves the quality of the working environment for employees – a bonus for the occupational health management and competitiveness of any company.



## Clean air

We address the concept of sustainability in plant development and design.

With environmentally friendly system configurations, e.g. the use of high-quality insulators or reliable residue management, we have been able to considerably reduce emissions such as heat, particulates and CO<sub>2</sub>. Our systems have continuously succeeded in meeting all the clean air limits (German Clean Air Act).



## Long life

The quality standards of our plants are confirmed and continuously enhanced by regular audits and certifications.

Our clients benefit from robust machines that ensure optimum results for decades to come. The Rehm service team supports the longevity of our systems through regular maintenance throughout the entire product life cycle. Because we believe our responsibility continues long after the sale!



## Less hazardous substances

We constantly strive to substitute hazardous substances within our plant technology and in all internal processes.

We are interested in using ecological substances and health-friendly alternatives. We already refrain largely from using aggressive chemicals or hazardous substances in antifreeze, insulation, coating materials or detergents.



## Recycling and material disposal

Responsible use of resources in plant manufacturing, as well as careful waste sorting and returning reusable materials to the recycling process are second nature to us.

We also ensure sustainable recycling on-site. The cleaning technology in our reflow soldering system makes it possible to specifically collect and professionally dispose of any contaminants accrued during the process.



## REACH, GHS and CLP Regulation (EC) 1272/2008

When producing thermal systems, Rehm Thermal Systems employs high-quality raw materials, state-of-the-art technology, optimised production processes and economic use of materials.

Our products comply with national regulations and the EU Chemicals Regulation REACH. Thus, we meet all standards concerning registration, evaluation, acceptance and limitation of chemical substances in our production processes.



## RoHS China RoHS 2 (2016)

Adherence to RoHS guidelines to limit hazardous substances in electrical and electronic equipment and plants is a true challenge for the electrical industry.

Rehm guarantees compliance with these guidelines and works closely with its suppliers to continuously minimise the use of hazardous substances.

# Proven sustainability with “Ökoprofit”

## In-house environmental management

**Protecting the environment, saving energy and working efficiently: Rehm Thermal Systems and Rehm BlechTec have successfully implemented each of these aspects in all internal operations. We have successfully installed key measures that verifiably reduce environmental pollution and for this achievement we have been awarded the certificate “Ökoprofit”. Our constant focus is on continuous optimisation in energy management, waste and recycling, occupational safety, law and environmental controlling, as well as conscientious handling of hazardous substances.**

### Efficient lean management

Our plant engineering works cyclically and with high production depth. This allows for better planning of material availability and prompt delivery dates for our clients. We, therefore, have been able to drastically reduce material consumption and shorten internal transportation routes. Thanks to this lean production, we achieve quicker lead times and can maintain our reliable high quality.

### Optimum resource efficiency

In addition to using the right production materials, the economic use and proper disposal of these materials also play an important role. Even during the procurement phase we place great emphasis on using easily recyclable materials. For example, we only use environmentally friendly oils, lubricants and coolants. Our in-house recycling concept guarantees professional disposal and recycling of packaging materials and scrap metal.

### Clever material recycling

To ensure that our plants reach their destination in flawless condition, we employ the secure, perfectly cushioned and sustainable packaging of the Karopack® system. The idea is as simple as it is ingenious: our old cardboard boxes become stuffing for premium, tear-proof and dust-free cushioning pads. This solution is ideal for filling voids and absorbing shock, as well as for cushioning and securing. Thus, Rehm offers its clients sustainable, CO<sub>2</sub>-neutral packaging.

### Lower electricity costs

Rehm has minimised its internal electricity consumption considerably by improving the light management by installing a LED lighting systems in the production halls, enhancing heat recovery, and optimising the compressed air supply. By mounting photovoltaic systems on our roofs we also harness solar energy to generate electricity and thus lower our energy costs.

### Substitution of hazardous substances

Rehm Thermal Systems have also optimised hazardous substance management. Our experts are constantly looking for ways to reduce the volume of hazardous substances used in production and to switch to environmentally friendly alternatives.



### Contact

Günter Dieckmann  
Head of QSHE

T +49 (0) 73 44 - 96 06 644

F +49 (0) 73 44 - 96 06 525

[g.dieckmann@rehm-group.com](mailto:g.dieckmann@rehm-group.com)



**Resource Efficiency**

**Recycling**

**Social Responsibility**



**Energy Management**



**Occupational Safety**



# Future made by Rehm

## Selected successful projects

**Energy-efficient production is one of the most significant competitive factors in the industry today. Rehm offers sophisticated plant technology and sustainable solutions that are individually adapted to client specifications.**

Rehm CoolFlow, VOC Thermal Oxidizer and maximum capacity by efficient systems such as VisionXP QuadLane are just some key words relating to interesting projects that Rehm has implemented in the past.

**Ultra sustainable:** The secret of the Rehm CoolFlow principle is an innovative technology that uses nitrogen required for inertisation in the reflow convection soldering system not only for the soldering process but also for cooling when nitrogen is in its fluid state. Thanks to this multi-use of nitrogen, the VisionXP+ functions with liquid nitrogen (thus completely free of coolant or aggregate) and saves approximately 17 tons of CO<sub>2</sub> and 30,000 kWh of electricity per year. The concept of liquid nitrogen cooling has made a big impression, winning the Environmental Technology Award 2015 (Rehm received second prize) – an award supported by the Ministry for Environment, Climate and Energy Management of state of Baden-Württemberg.

**Ultra high-performance:** With the VOC Thermal Oxidizer we offer one of the most effective residue management systems for drying processes in the production of solar cells. The heating process also burns off the pastes or coatings of volatile organic compounds (VOCs). All available systems work with a separation rate of 99.9 %. Oxidizer systems with heat recovery, such as the Counter Flow Reactor, are particularly environmentally-friendly. So it comes as no surprise that this technology was honored with the Solar Award in the category "Excellence" (Product) in 2011.

**Ultra efficient:** The demands for fast and high-quality production in the electronics industry are constantly growing. The complexity of electronic products is forever increasing and the production of these demands requires the highest speeds. To satisfy the high throughput, Rehm has developed the VisionXP QuadLane – a reflow convection soldering system with a four-lane conveyor system. This technology increases the production capacity significantly and at the same time the space requirement for reflow soldering in the production facilities was reduced by 30 % in the plant lengths alone.

99,9 %  
fewer  
VOCs

17 tons  
fewer  
CO<sub>2</sub>

30 %  
less  
space



# Operate efficiently with our systems

## Examples in figures

### Rehm CoolFlow:

Liquid nitrogen cooling can save 30,000 kWh of electricity per year per system. This is the same as:



**x 10,000 = 30,000**  
loads of washing



or ironing  
**450,000 shirts**

#### And:

A saving of 17 tons of CO<sub>2</sub> (17,000 kg)

the same as

filling **999,000**  
9-litre balloons



### Thermal Oxidizer:

By burning off 99.9 % of VOCs at maximum capacity, the entire weight of the assemblies, figuratively speaking, decreases by approximately 1.5 kg per hour.

Rounded up, this corresponds to

**11,880 kg** per year



**= almost 5**  
Asian elephants

### With "Ökoprofit"

we save approx. 202,500 kWh of energy annually.  
That is the same as:



**14,175,000**  
cups of coffee



**2,300 charges**  
of an electric car



Blaubeuren

Shanghai

**12,000 km x 100**



So you could  
drive approximately

**1,191,500 km**  
i.e. 100 times between  
Blaubeuren and Shanghai



THERMAL SYSTEMS



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## 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!