



COMPLETE SOLUTIONS

for Soldering Processes
and
Automated Production Lines





SEHO SYSTEMS GMBH A COMPANY WITH HISTORY AND FUTURE.

Since it was founded in 1976, SEHO has been THE partner for the electronics industry worldwide and our success story is characterized by innovations that set trends.

Our passion for technology, our experience and our high quality standards have made us one of the market-leading companies in the industry.

We are proud of that and we continue to work on it!

The SEHO brand today stands for innovative systems in all areas of automated soldering, AOI solutions specifically for THT production, customized automation concepts for assembly handling and material management as well as know how.

Our customers benefit from complete solutions that technically perfectly match and that impress with their flexibility, performance and efficiency.

**BOLD VISIONS AND BIG GOALS ARE GOOD AND RIGHT,
BECAUSE WE BUILD OUR FUTURE THROUGH INNOVATION.**

Every year we invest around 8 % of our sales in research and development, which is well above the industry average.

As a medium-sized company, we know the importance of prudent, modern management geared towards long-term success.

For us as SEHO, today and tomorrow count. We invest in the development of new technologies, in digitalization and globalization in order to be close to customers worldwide.

**WE ARE YOUR DYNAMIC SYSTEM PARTNER
WITH STRENGTH FOR THE FUTURE!**



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CUSTOMER
FOCUS

DIGITALIZATION

ENERGY EFFICIENT
SOLUTIONS

SUSTAINABILITY

INDUSTRY 4.0

PERFECTION IN EVERY DETAIL

AT YOUR
SIDE
WORLDWIDE

QUALITY

**PASSION FOR
TECHNOLOGY**

RESEARCH NETWORK

**INNOVATIVE INTO
THE FUTURE**



for a future worth living

WHO ACTUALLY SAYS
ECONOMICALLY IS NOT SUSTAINABLE?

Sustainable environmental protection and resource efficiency are important corporate goals at SEHO.

In order to sustainably reduce energy consumption and material use in the production of electronic assemblies, we regularly scrutinize the machines we develop and manufacture, and continually improve them from an energy perspective.

This includes, for example, the calculation of the carbon footprint (scope 1, 2 and 3) for selected systems.

Right from the idea for a new system, we pay attention to an optimal and environmentally friendly product life cycle.

We prioritize the use of sustainable and recyclable materials and we work primarily with regional suppliers to ensure short transport routes.

But we also continually optimize our manufacturing processes. We have already significantly reduced our energy consumption and will continue to optimize it. At our headquarter in Kreuzwertheim, Germany, we only use electricity from renewable sources and electricity from our own photovoltaic system. Our goal: We want to produce the energy we need in a climate-neutral way where we need it. We are proud that SEHO was one of the first companies in the industry to be certified according to DIN EN ISO 14001. However, our environmental protection goes far beyond the scope of the legal regulations. SEHO is certified participant in the Bavarian Environmental and Climate Pact and we are gradually implementing the recommendations from the energy audit according to DIN EN 16247-1.

As a company, we take responsibility and work together with our employees to consciously use our planet's resources.





The perfect process for every application. Whether single or multiple miniwave soldering with maximum flexibility, multiwave processes with the shortest cycle times or conventional wave soldering processes - even integrated in just one system. Individually adaptable to your manufacturing requirements, from batch production to high mix - high volume production. Expect nothing less than selective soldering at its best!

SEHO'S SELECTIVE SOLDERING SYSTEMS IMPRESS WITH MAXIMUM PRODUCTIVITY, PERFECT SOLDERING RESULTS AND WITH INNOVATIVE DETAILS.

LongLife Soldering Nozzle. With the LongLife miniwave soldering nozzle from SEHO you can look forward to many extraordinary features. A significantly longer service life of the soldering nozzle, the nozzle does not need to be reactivated or maintained during a complete shift, making this soldering nozzle particularly environmentally friendly and resource-saving, and all together results in a reduction in your production costs.



Innovative Multiwave Soldering Processes. Product-specific multi-nozzle soldering tools ensure short cycle times in productions with high throughput and low variety of assembly types. SEHO's soldering nozzle design guarantees optimal energy transfer resulting in excellent hole fill even with high-mass assemblies and demanding geometries. At the same time, the formation of solder bridges and solder balls is minimized.



Automatic Ultrasonic Nozzle Cleaning. Forget the time-consuming, manual cleaning of miniwave soldering nozzles or aggressive chemicals: SEHO's ultrasonic nozzle cleaning does this automatically and in an environmentally friendly way for you. In addition to a significantly longer nozzle service life, this unique function guarantees absolute safety for your process and remarkable time and cost savings for you.



Integrated Additional Processes. Get the most out of your soldering system! Whether a cooling area, a selective brushing system or the SEHO PowerVision THT-AOI system, which detects soldering defects before the product even leaves the soldering system. The advantages of the integrated additional processes are obvious: reliable processes and reduction of your overall production costs.



StartSelective and LeanSelect

Compact Systems with High-End Technology



Connect, switch on, produce.

SEHO StartSelective

The StartSelective is the perfect plug-and-produce selective soldering system for entry-level automated soldering. With a footprint of just 2.5 m², the system offers maximum quality of soldering results and an exceptional return on investment.

Highlights StartSelective

- Stand-alone system for assemblies up to 508 x 508 mm.
- Energy-saving pulsar preheating.
- No follow-up costs: maintenance-free soldering nozzles with almost unlimited lifetime.
- 100 % automatic process control.



Innovative and productive.

SEHO LeanSelect and LeanSelect-plus

Specifically designed to meet the challenges of a lean manufacturing environment, the LeanSelect and LeanSelect-plus ensure uncompromisingly high soldering quality and flexibility when processing product variants.

While the entire process is fully automated, assembly input and output is done manually on two separate transports. The workstations are integrated into the systems in such a way that the lean equipment design guidelines are consistently transposed.

Highlights LeanSelect and LeanSelect-plus

- Highest productivity on smallest footprint.
- Ideal for modern island production.
- Miniwave and multiwave process: flexible and productive.
- Automatic ultrasonic soldering nozzle cleaning.
- SEHO cross sensor: non-contact wave height measurement and automatic tool measurement.
- 100 % automatic process control.

Additional Highlights LeanSelect-plus

- Scalable machine concept, modularly expandable at any time.
- SmartSplit production mode: halve your cycle times, even in mixed production.
- Integrated additional processes.



SelectLine-C and PowerSelective

High Mix - High Volume Selective Soldering at the Highest Level

Modular - flexible - highly precise - highly productive.

SEHO SelectLine-C

The SelectLine-C scores above all with its design, which is made for flexibility. The system concept is consistently modular and thus ensures clear cost advantages. And that's not all the SelectLine-C has to offer.

Award-winning innovations such as Synchro, SmartSplit or the integrated additional processes, increase the productivity of your production without a large investment. Take your selective soldering process to a level without limits!

Highlights SelectLine-C

- Scalable machine concept, expandable at any time.
- Up to 6 soldering units and 15+ workstations in one system.
- Synchro and SmartSplit maximize production volume in batch production and in mixed operation.
- Automatic ultrasonic soldering nozzle cleaning.
- SEHO cross sensor.
- Integrated additional processes.
- 100 % automatic process control.



The all-rounder for high production volumes.

SEHO PowerSelective

Be inspired by the exceptional flexibility and productivity of the PowerSelective. Whether as an inline or stand-alone solution: the PowerSelective can be adapted to almost any manufacturing environment. Three different soldering processes can be combined in just one system and subsequent process steps such as cooling, selective brushing and AOI can also be integrated. And all this on only 5.5 m².

Highlights PowerSelective

- Three processes - one system: miniwave soldering, multiwave processes and conventional wave soldering.
- Modular concept, expandable at any time.
- Flexible, and significantly reduced risk of solder bridges: ideal solder peel-off with the rotatable and tiltable gripper.
- Maximum machine availability: product changes or maintenance „on-the-fly“, and automatic material refill.
- Integrated additional processes.
- 100 % automatic process control.





Small, medium or large production series, single-sided boards or complex mixed assemblies: at SEHO you will find the most innovative machine technology combined with outstanding process know-how.

AS A PIONEER IN THE DEVELOPMENT OF AUTOMATED SOLDERING TECHNOLOGIES, WE ARE SETTING GLOBAL STANDARDS TODAY MORE THAN EVER.

Automatic Wave Height Correction.

Automated and integrated directly into the soldering area, the wave height reference measurement ensures a reliable process and perfect soldering results without interrupting production.



Pulsar Preheat. Innovation made by SEHO. The pulsar preheating from SEHO is full of intelligent power and enables the cost-effective and energy-efficient high mix - high volume wave soldering process.



Automatic Nozzle Height Adjustment. In up to 16 different sectors of an assembly, the height of the soldering nozzles can be adjusted individually, controlled by the software, in order to always have the optimal distance between the circuit board and the soldering nozzle, depending on the product. This is maximum flexibility and maximum process reliability!

N2 Technology. Developed by SEHO and leading world-wide. Nitrogen technology from SEHO stands for minimum consumption values with maximum quality of results.



SEHO SelectFlux. Selective flux application in wave soldering processes. Your advantage? Minimal consumption and almost no soiling.

GoWave and PowerWave

The Powerful Systems for Medium to Large Production Volumes



Start smart.

SEHO GoWave

The GoWave is the ideal system for those just entering into mass soldering operations and perfectly suited for small to medium production volumes. With its compact design and powerful equipment the GoWave provides an economic and flexible solution.

Highlights GoWave

- Flexible and robust transport for soldering frames.
- Low-consumption fluxer with HVLP technology.
- Modern soldering area with single or double wave.
- Also convincing as an efficient lean concept with a workstation, lift and assembly return conveyor.



Powerful and individually configurable.

SEHO PowerWave

The PowerWave systems offer impressive performance and high flexibility, combined with low investment costs. Simply configure the system you really need.

Highlights PowerWave

- Low-consumption flux application.
- Powerful preheating area with convection, quartz or IR heaters, ideally combined for you.
- The individually configurable soldering area and the local nitrogen supply guarantee perfect soldering results.

Designed to reduce your manufacturing costs.

SEHO PowerWave N2

The PowerWave N2 is designed to optimize your product quality and minimize your production costs!

Highlights PowerWave N2

- Nitrogen tunnel: energy-efficient and with low consumption values.
- Efficient rest oxygen measurement.
- Low-consumption fluxer area with flux quantity monitoring.
- The flexible preheating and the individually configurable soldering area ensure maximum solder joint quality.



MWS 2300

Flexible and Open to the Future: The High-End System from SEHO

Wave soldering in perfection.

SEHO MWS 2300

Engineered with attention to every detail: the MWS 2300 offers uniqueness in all respects. Innovative features that ensure a controlled process and outstanding soldering results, maximum flexibility in system equipment, and the lowest energy and nitrogen consumption values.

Your demand is also our demand: Excellent quality!

Highlights MWS 2300

- High mix - high volume: the most innovative wave soldering system for the modern electronic production.
- Perfect for electromobility and power electronics: even the most thermally demanding assemblies are soldered reliably and efficiently.
- Low operating costs thanks to minimal nitrogen consumption and energy-efficient tunnel concept.
- Low-consumption fluxer with HVLP technology.
- Segmented flux application in up to eight freely programmable areas of an assembly.
- Automatic flux quantity monitoring.
- Freely configurable preheating area up to 3300 mm long, with energy-efficient pulsar heater technology, convection or quartz heaters.
- Soldering area with many innovative details: designed for the highest quality.
- Automatic wave height correction.
- Automatic nozzle height adjustment and sectorial soldering.
- Targeted atmosphere setting to minimize solder balls.
- Integrated cooling module.
- Modern control concept with maximum performance and easy to use.



GoReflow and GoReflow-plus

Perfect for Small to Medium Production Series



Compact design with strong performance.

SEHO GoReflow and GoReflow-plus

The convection reflow soldering systems of the GoReflow series can be used flexibly for one- or two-sided reflow processes as well as for drying and curing processes.

The systems are particularly impressive due to their technologically sophisticated concept, excellent soldering results and an ideal price-performance ratio, which ensures high profitability in your SMT production.

The GoReflow-plus offers the PLUS of extra performance!

Highlights GoReflow

- Efficient and homogenous energy transfer.
- Perfect soldering results thanks to optimal process gas flow.
- Local nitrogen supply in the peak area.
- Process gas cleaning ensures minimal maintenance and maximum system availability.
- Low operating costs:
good for the environment and your budget.
- Modern control concept with a user-friendly and clear user interface.
- Unbeatable value for money!

The PLUS of extra performance: GoReflow-plus

- Eight heating zones and programmable fan speed: the PLUS in flexibility.
- Two zones with active cooling: the PLUS in process reliability.
- Connection to a wide range of interfaces: the PLUS in terms of future viability.



PowerVision

Clear Results in THT Processes

AOI made easy.

SEHO PowerVision

The PowerVision focusses on two key points in the manufacturing of THT assemblies: Continuous quality assurance and cost-efficient production processes.

Depending on the manufacturing requirements, the PowerVision can be configured as needed: for component placement inspection in front of a wave or a selective soldering machine, or for solder joint inspection after wave or selective soldering processes, or as a combination of both inspection tasks, integrated into the same module to save space. The PowerVision can be flexibly integrated into any fully automatic THT production line or directly into many SEHO selective soldering systems. It thus offers very special advantages, especially with regard to space and investment costs as well as the further handling of the assemblies in the process, depending on the test result.

Highlights PowerVision

- Highest quality of your products: no non-detected defects.
- Orthogonal camera unit and multi-spectral lighting concept guarantee fast analysis and low false call rates.
- Simple, efficient programming and optimization for series production, online or offline.
- Integrated software tools, such as heatmap or trend analysis as well as a Jidoka function for proactive error avoidance, support the fast optimization of the entire production process.
- User-friendly verify software with individually configurable reference image database.
- Complete traceability of processes through database-supported software architecture.



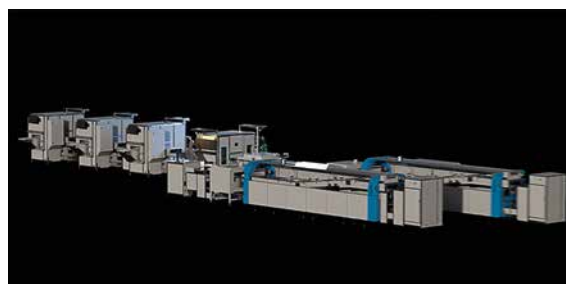
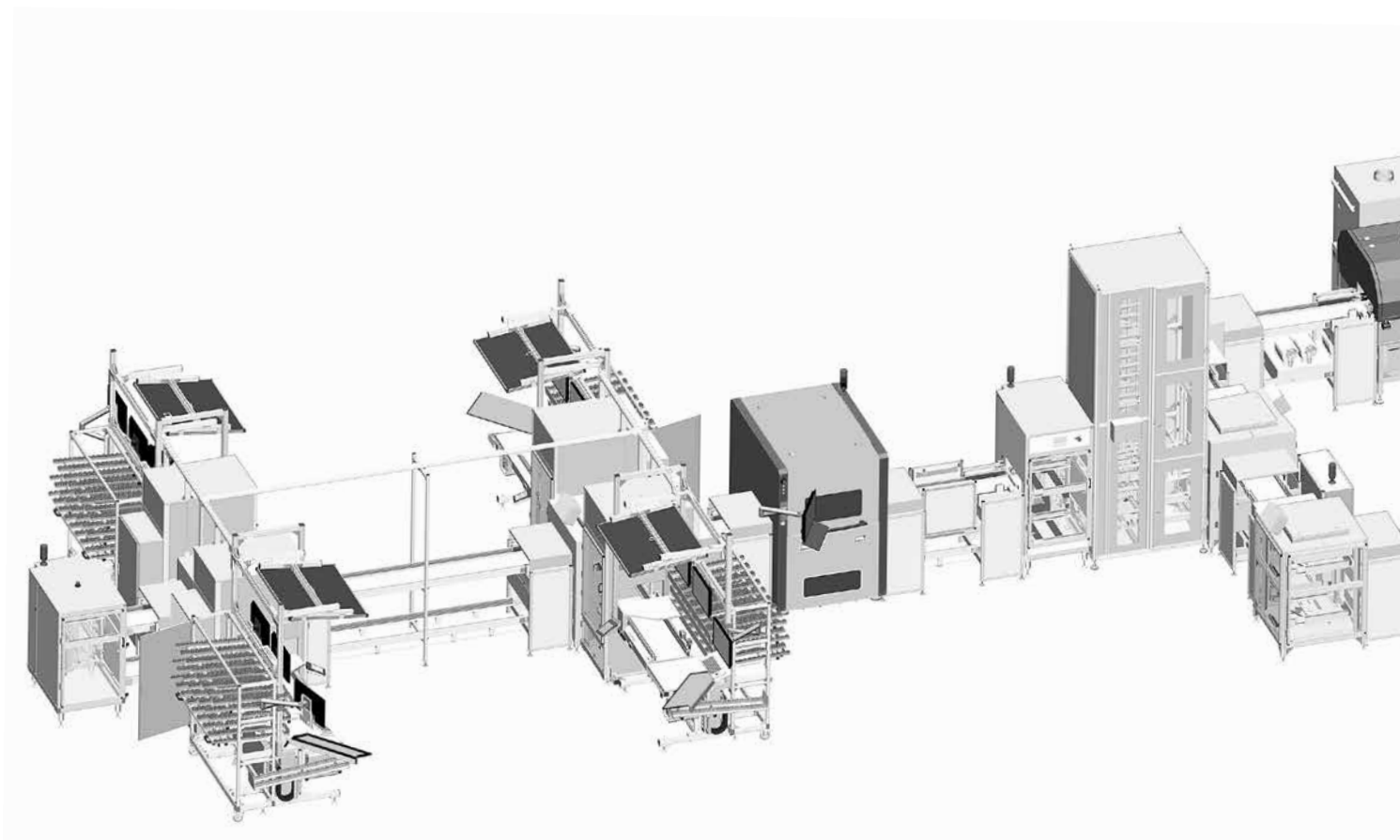
Streamline

We Automate Your Production!

We make production processes more efficiently and thus sustainably reduce your manufacturing costs. With SEHO Streamline we automate complete production lines for assembly handling and material management, and ensure the ideal interaction between human and machine.

We accompany you from the creative idea in the planning and design phase, to production, assembly and start-up - and we are happy to go beyond that.

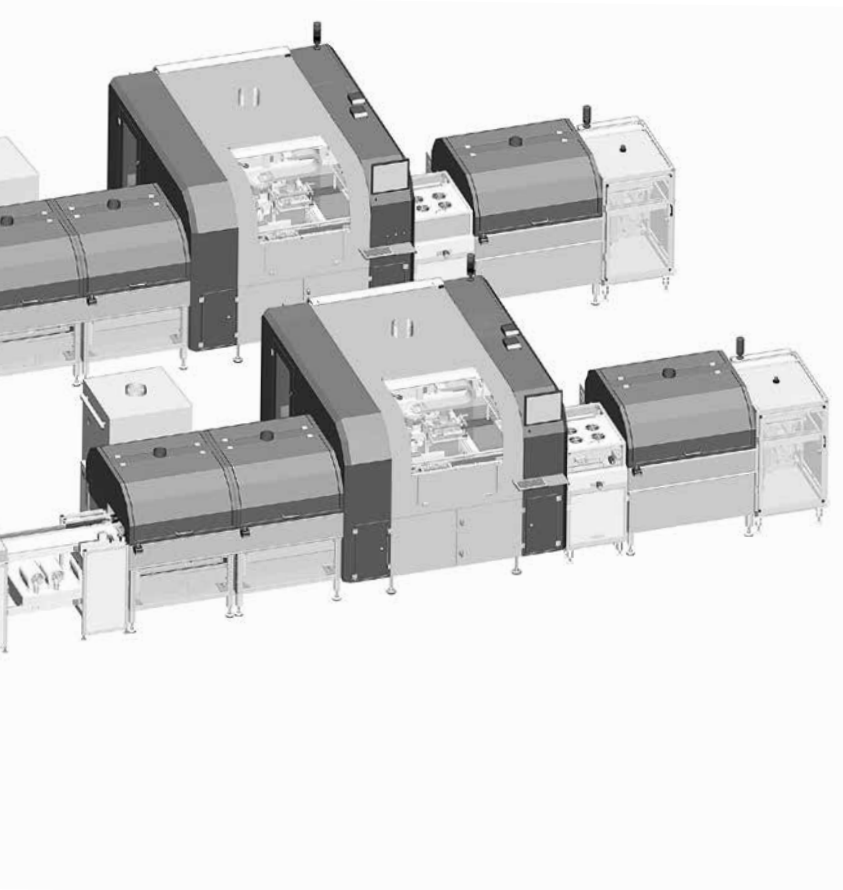
YOU HAVE THE CHALLENGE, WE HAVE CREATIVE IDEAS AND INNOVATIVE SOLUTIONS FOR YOU!



Avoid errors before they disrupt the process flow and cause costs. SEHO AssemblyCheck: component placement control at the THT workstation.

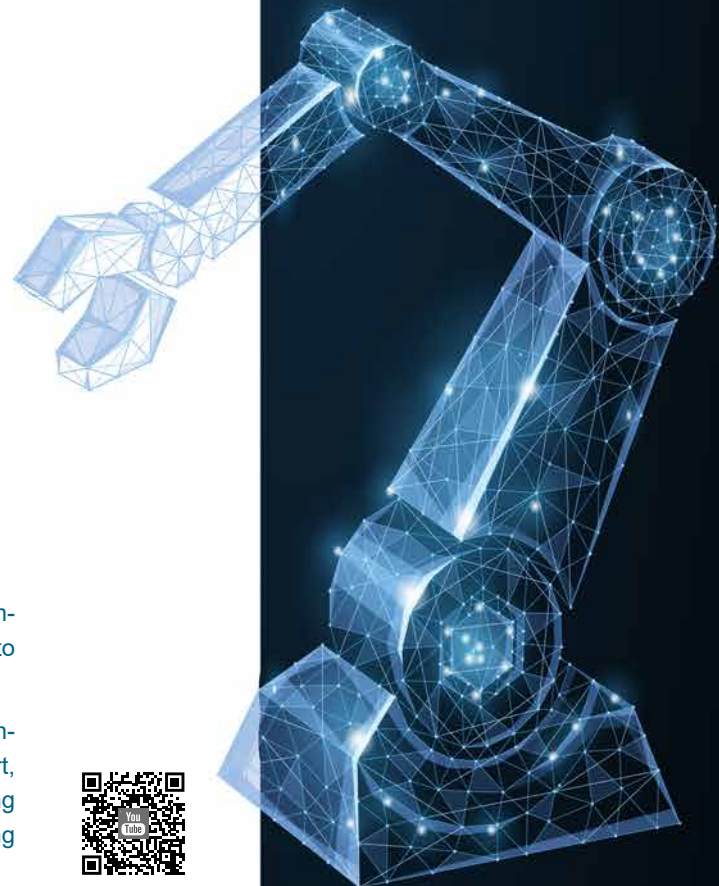
Highlights AssemblyCheck

- Immediate feedback whether all components are installed correctly.
- Checking for presence, polarity, mounting position, color match, OCV, reading of codes.
- Only one image capture per assembly = maximum test speed.



Island concepts can be realized just as much as complete automatic production lines - individually tailored to your specific requirements.

The Streamline product range extends from THT assembly handling with transport units, above-ground transport, passing-out and passing-in stations, automatic loading and unloading cells, turning and lifting stations, to cooling towers, buffer stations and ergonomic workstations.



Secure Connections

Software Solutions from SEHO

Our software solutions ensure that you always have your processes firmly in focus.

The connectivity of the SEHO systems ensures constant communication on a horizontal level between all stations, and on a vertical level via standardized interfaces, such as IPC CFX, or based on customer-specific protocols.

Every product manufactured is fully traceable with its ID, batch number and all process data.

In addition, the data is transferred to the downstream process station so that products that have inadequate data sets from previous work steps can be passed through without going through the respective process.

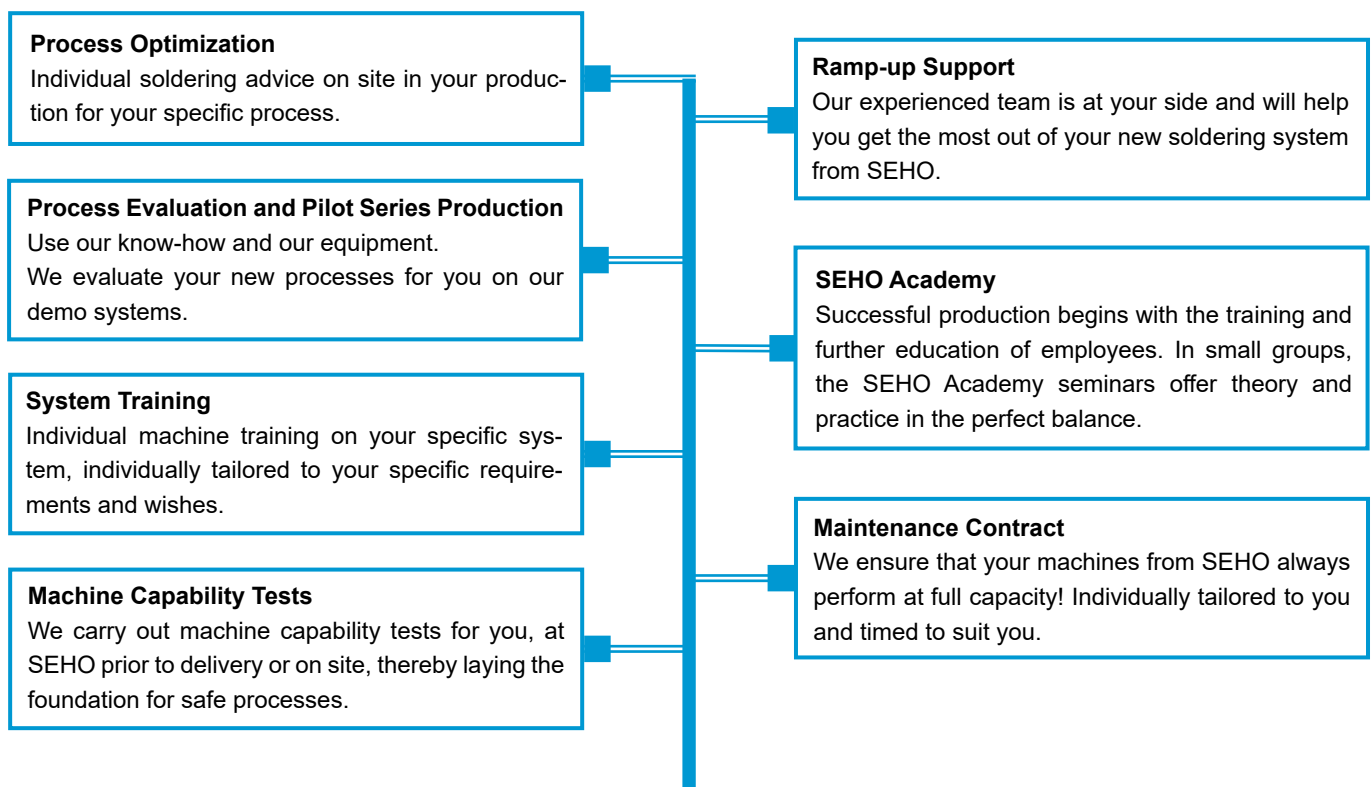
The goal:

Increasing the efficiency of the entire system and greater profitability in your production.

More for You

The Extra in Service from SEHO

Benefit from a wide range of services and know-how to increase the efficiency of your systems and optimize your production processes, because knowledge creates the future!
 Our experienced team with many years of practice, imparts knowledge about the soldering processes, operation and maintenance of the systems.
 Worldwide, in one of our training centers, at your location, or digitally!



- Worldwide service network
- 24/7 service availability
- Remote service
- Spare parts dispatch within 24 hours
- Video tutorials
- TechTalks
- Customer-specific technology days

We are at Your Side Worldwide! At Home in Bavaria. Internationally Present.

Our roots are in Germany and we stand for Quality engineered in Germany. Nevertheless, we are close to our customers everywhere: with subsidiaries in the USA, Korea and China, and with our global sales and service network.

Headquarter Germany

SEHO Systems GmbH

Frankenstr. 7 - 11
97892 Kreuzwertheim
Germany
Tel. +49 (0) 93 42 - 889-0
E-Mail info@seho.de
Website www.seho.de

America

SEHO North America, Inc.

1445 Jamike Avenue, Suite #1
Erlanger, KY 41018
USA
Tel. +1-859-371-7346
E-Mail info@sehona.com
Website www.sehona.com

Korea

SEHO Systems Korea Ltd.

125-5, Saneop-ro 156beon-gil
Gwonseon-gu, Suwon-si
Gyeonggi-do
Korea 16648
Tel. +82 (0) 10 6877 0872
E-Mail office@sehokr.com
Website www.sehokr.com

China

SEHO Systems China Ltd.

Room 112, Building B
745 Zhuanxing East Road
Minhang District, Shanghai 201108
China
Tel. +86 21 6419 5080
E-Mail info@sehosystems.cn
Website www.sehosystems.cn



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[linkedin.com/company/seho](https://www.linkedin.com/company/seho)



Discover our
global network.

