

EN

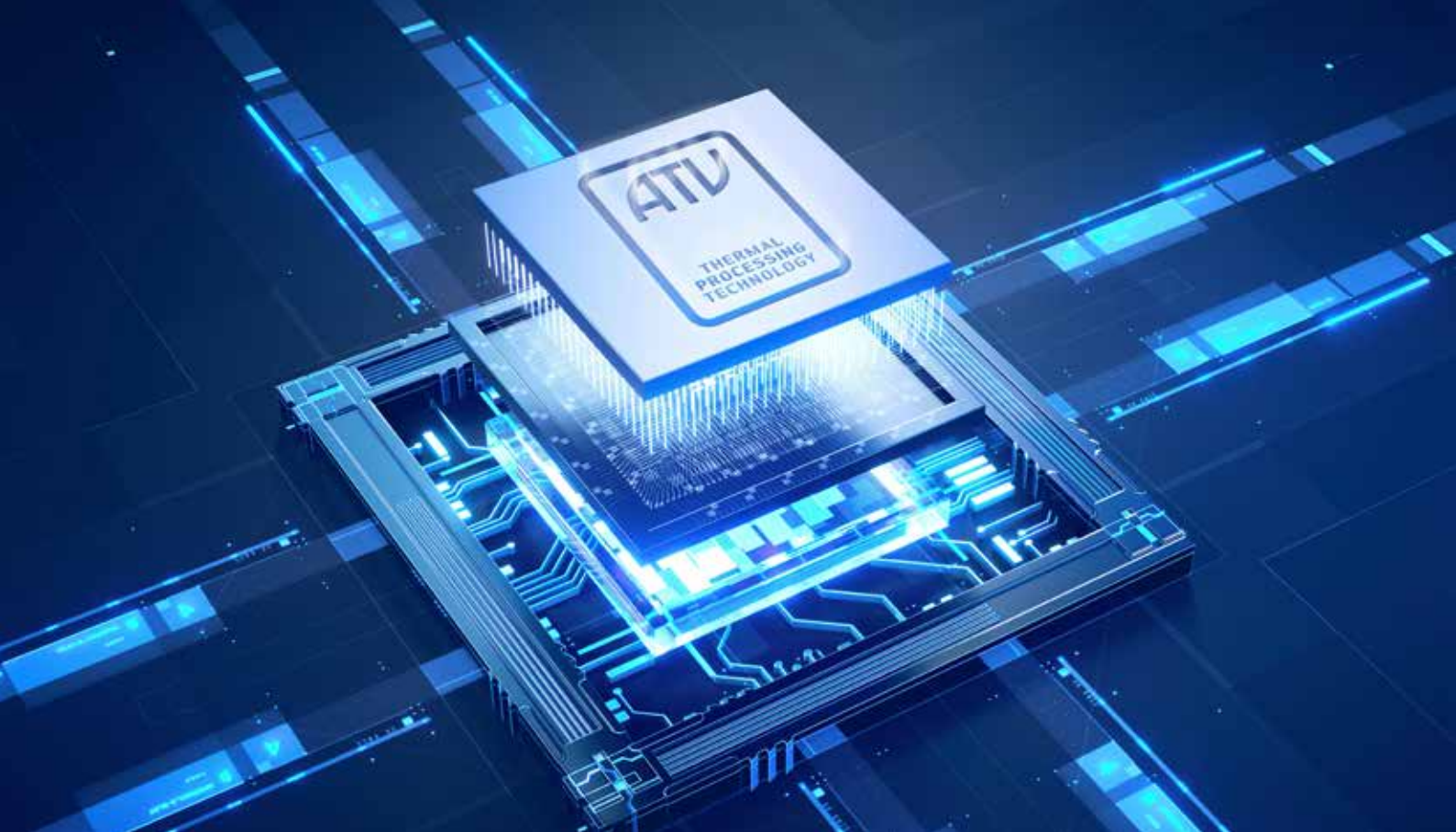
 kurtz ersä

SEMI CON DUC TOR

Backend and Frontend Systems



GLOBAL. AHEAD. SUSTAINABLE.



Kurtz Ersa goes Semiconductor.

Competence in Microelectronics & Semiconductor Technology

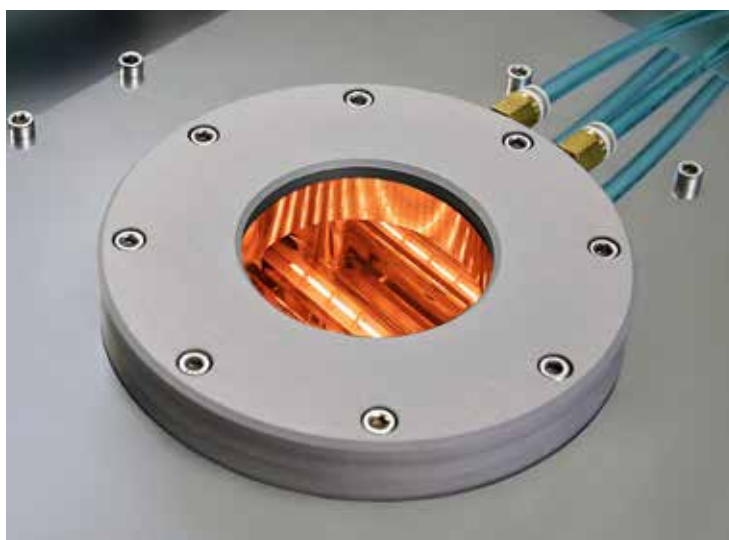
Since September 1, 2025, ATV Technologie GmbH is part of the Kurtz Ersa Group and will operate under the name Kurtz Ersa Semicon GmbH in the future.



Kurtz Ersa Semicon GmbH is specialized in the development and distribution of high quality vacuum soldering systems that stand out with their precise temperature control and excellent homogeneity, which is essential for the requirements of semiconductor and microelectronics manufacturing. The portfolio includes customized solutions for

universities, research institutes, laboratories and manufacturing companies.

The SRO-i-Line is a massproduction system that offers significant advantages for applications in electromobility, renewable energies and defense due to its innovative infrared heating technology.



You shape the future. We support you.

Megatrends driven by Kurtz Ersä

Electromobility

With the rapid growth of electromobility, the demand for high-performance power modules and electronic components is also increasing. Kurtz Ersä Semicon offers tailored systems for these market segments, covering almost all processes that require precise, durable and reliable joining of power modules, power electronics and assemblies.



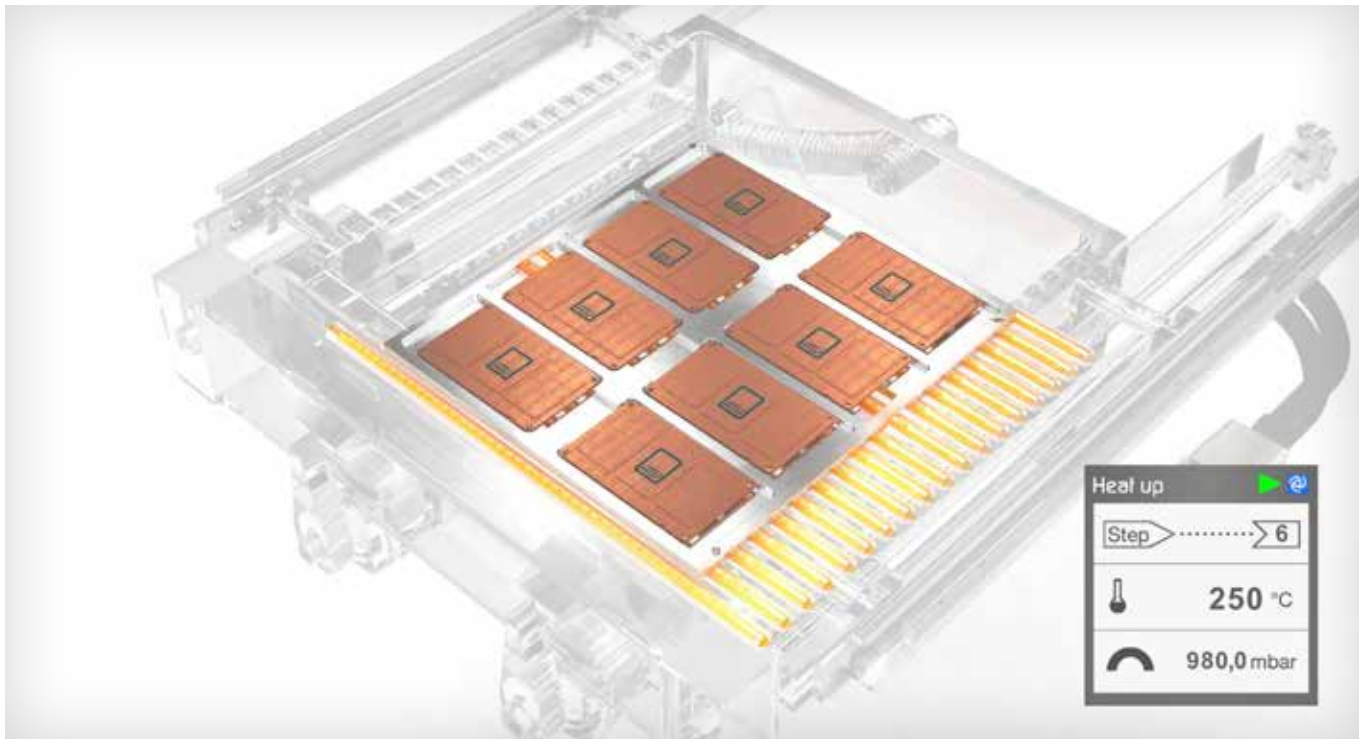
Renewable Energy & Energy Infrastructure

With the expansion of renewable energy and modern energy infrastructure, the importance of power semiconductors and module technologies for efficient energy conversion and distribution is increasing. Systems must be compact, energy efficient, thermally stable and highly reliable. Kurtz Ersä Semicon provides customized equipment, ranging from vacuum soldering and thermal process ovens to complex packaging solutions for power modules, power semiconductors and module assemblies.

Aerospace

In applications such as aerospace and high-reliability systems, highly precise sensor and MEMS packages are becoming increasingly important. Lightweight, robust and reliable electronic solutions are required, while achieving maximum packaging density. Kurtz Ersä Semicon develops the right solutions for this.





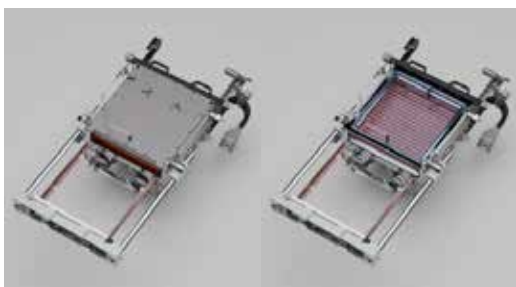
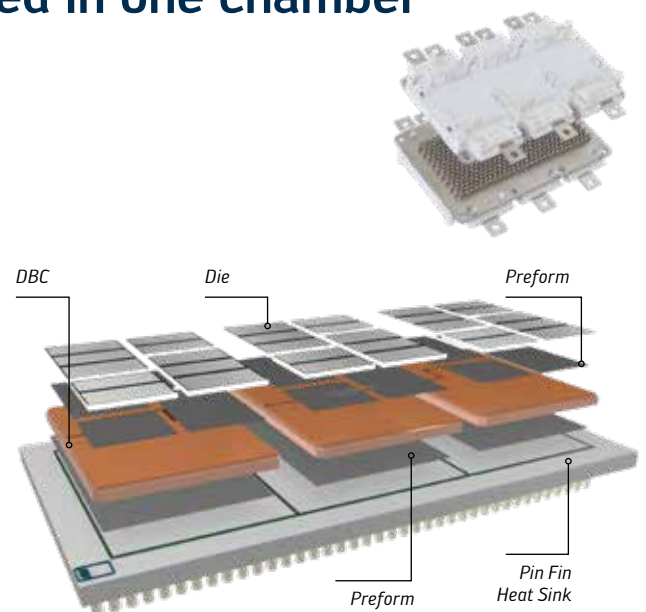
Precision and reliability combined in one chamber

Vacuum soldering

Soldering technology in power electronics – essential for quality and reliability

In power electronics, solder joints play a key role in ensuring both reliable electrical connections and efficient heat dissipation. Their quality and reliability directly influence the overall performance, safety and lifetime of electronic systems.

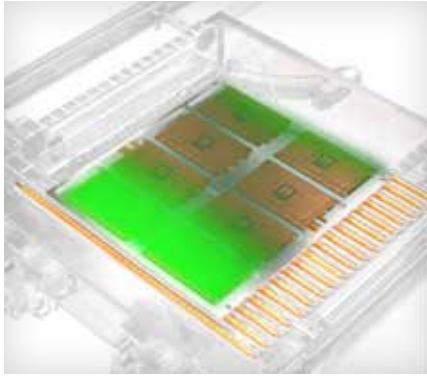
Modern applications in power modules, power semiconductors and MEMS/sensor packages place very high demands on solder materials and processes. Uniform wetting and a low void rate across large solder areas are essential to achieve stable, long-lasting joints with excellent electrical and thermal properties.



Controlled soldering process in a closed chamber

In SRO systems the soldering process takes place in a closed process chamber. This allows the process atmosphere to be precisely defined and controlled. By repeatedly evacuating and refilling the chamber with high purity nitrogen, the oxygen level is reduced to below 3 ppm, which reliably prevents oxidation.

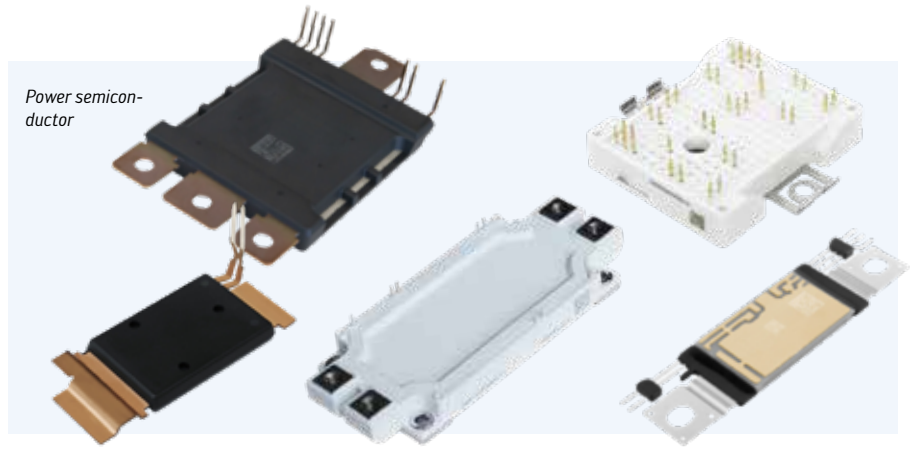
The result: a reproducible process with consistent soldering quality, regardless of component size, material combination or assembly complexity. Users benefit from precise control, maximum process stability and optimal connection technology for power modules, MEMS packages and power electronics.



Oxide removal with formic acid

At temperatures above approximately 180 °C, formic acid reliably removes oxide layers from metals, enabling optimal wetting.

The refillable system has no moving parts, which minimizes maintenance and increases operational reliability. This ensures process stability, which is essential for consistent quality and highest reproducibility in serial production.



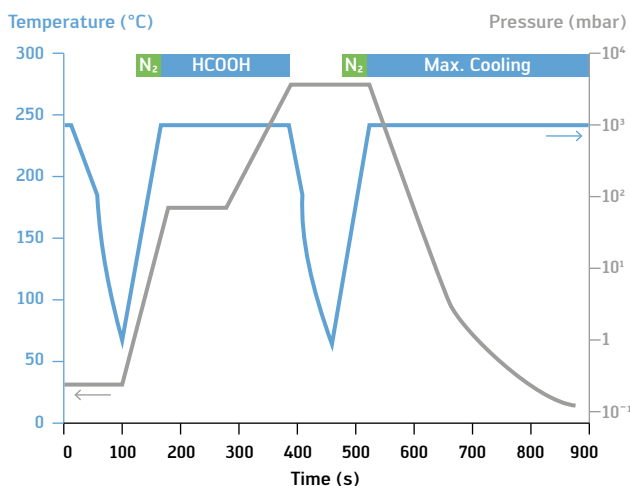
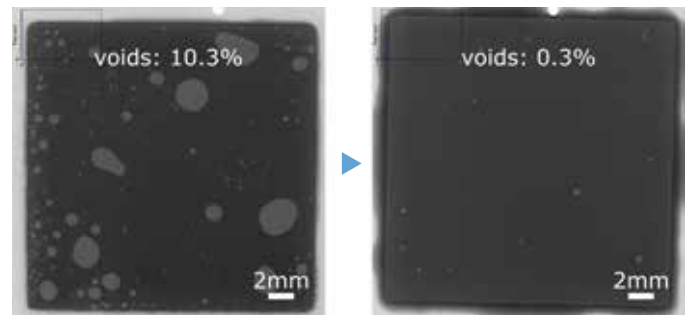
Flexible application for complex and large-scale components

Our soldering systems are designed for maximum flexibility. The components can be heated up directly via infrared or indirectly via heating plate, enabling the soldering of a wide range of products, including large and complex components such as heat exchangers or power modules.

Due to customized heating plates and individually adjustable soldering recipes within the proprietary control software, the soldering profile can be precisely adapted to the thermal requirements of each component and solder. This ensures a homogeneous temperature distribution and uniform solder joints, even with challenging geometries.

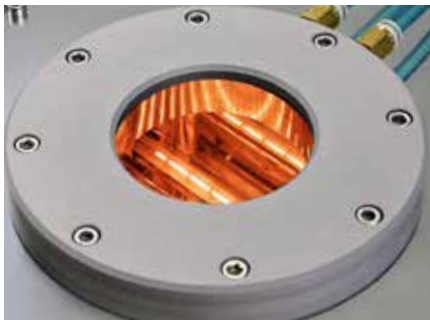
Minimization of voids through vacuum technology

Voids in solder joints can affect electrical and thermal conductivity, potentially leading to overheating, corrosion or early component failure. The use of vacuum during the peak zone of the soldering process reliably removes entrapped gas and minimizes void formation. This results in homogeneous solder joints with optimized heat transfer, which leads to significantly increased reliability and service life of power electronics.



Precise process control and flexible recipe adjustment

The user friendly process software enables the operator to define, save and adjust all parameters individually, from evacuating the process chamber and controlling the process gases, to the temperature profile and controlled cooling in a nitrogen atmosphere. Each process step is fully documented and can be accessed at any time for quality assurance or process optimization. This ensures that the entire soldering process remains transparent, reproducible and traceable. This offers a significant advantage for applications with highest quality requirements.



Direct IR Heating

The R&D Vacuum Soldering Solution SRO-700

The SRO-700 vacuum soldering system is for semiconductor and MEMS applications, offering 97 mm clearance over the heated surface.

It can be used for vacuum soldering processes for low volume production or R&D. The cold wall chamber principle supports effective thermal management, while the IR heating technology provides consistent heat distribution. Using vacuum and formic acid, the SRO-700 ensures void-free solder joints and delivers consistent, reliable results every time.

Highlights:

- Formic acid enriched atmosphere
- Direct IR heating
- Multiple TC monitoring
- Process temperature up to 450 °C
- Oxygen <3.0 ppm with purified N₂

Common Applications:

- | | | |
|--|------------------|-------------------|
| ■ Power semiconductors
(IGBT, SiC-MOSFET) | ■ MEMS devices | ■ Hybrid assembly |
| ■ Sensors | ■ Die attachment | ■ Flip Chip |
| | ■ High-power LED | ■ Package sealing |

Options:

- Fine vacuum
- High vacuum
- Closed loop water chiller/heater

Technical Data depending on system configuration/options

Dimensions	560 x 870 x 600 mm
Weight	65 kg
Max. product height	97 mm
Heated area	227 x 217 mm
Heating method	Array of 8 IR emitters in 2 zones
Process temperature	up to 450 °C
Vacuum level	<0.05 mbar

Further
information





Hermetic encapsulation

High Vacuum Packaging with getter activation SRO-GETTER

The SRO-Getter is designed to seal packages with lids, which incorporate getter material to maintain a high vacuum over the lifetime of MEMS devices like microbolometers and gyroscopes.

It can be used for R&D and in production lines. The device features top and bottom IR heating with two independently monitored and controlled heating zones. It can heat uniformly up to 450 °C. Package and lid are thermally isolated during the getter activation to keep the temperature sensitive device below 100 °C. The tooling is designed specifically to accommodate the customer package and allows optimal process control and precise package-to-lid alignment. A mass spectrometer can be added as an option to the system for residual gas analysis (RGA) during the sealing process.

Highlights:

- High vacuum capability
- Independent temperature control of lid and package
- Process temperature up to 450 °C
- Package and lid separated during high vacuum getter activation
- Multiple TC monitoring

Common Applications:

- Package sealing with high vacuum encapsulation
- Thermal getter activation
- Gyroscopes
- Microbolometers
- Sensors
- IR detectors

Options:

- Mass spectrometer, RGA
- External cooler

Technical Data depending on system configuration/options

Dimensions	1,250 x 1,760 x 1,100 mm
Weight	240 kg
Max. product height	1,028 mm ±20 mm adjustable
Heated area	310 x 239 mm
Heating method	2 arrays of 12 IR emitters in 3 zones each
Process temperature	450 °C
Vacuum level	10 ⁻⁶ mbar

further
Information





power semiconductor modules

Perfect for R&D and Pilot Line Production

SRO-716

The SRO-716 is the most versatile vacuum soldering system which offers precision and reliability for a wide range of process requirements.

As a central element in many R&D centers and pilot productions, it guarantees excellent results in the areas of vacuum soldering and brazing. The process chamber is heated by powerful infrared emitters up to a maximum temperature of 450 °C (optionally up to 750 °C). Adjustable heating zones ensure a homogeneous temperature distribution. Formic acid creates clean, oxide-free surfaces and promotes superior solder wetting for perfect joint quality. With a heated area of 314 × 314 mm and 95 mm clearance, the SRO-716 is compatible with a wide range of electronic components and packages. Optional features such as high vacuum, overpressure, top heating, flux management for solder paste and H₂/N₂H₂ compatibility provide maximum flexibility for various applications.

Highlights:

- Direct IR heating
- Multiple TC monitoring
- Solder paste or preform, flux-less or flux
- Exchangeable heater plate
- Process temperature up to 450 °C, optional up to 750 °C
- Oxygen <3.0 ppm with purified N₂

Common Applications:

- Power semiconductors (IGBT, SiC-MOSFET)
- MEMS devices
- Hybrid assembly
- Sensors
- Die attachment
- Flip Chip
- High-power LED
- Package sealing

Options:

- Overpressure
- Topheater
- H₂ /N₂H₂
- High vacuum
- Flux management

Technical Data depending on system configuration/options

Dimensions	1,090 x 630 x 1,830 mm
Weight	200 kg
Max. product height	95 mm
Heated area	314 x 314 mm
Heating method	array of 12 IR emitters in 3 zones
Process temperature	450 °C (optional 750 °C)
Vacuum level	<0.05 mbar

further
Information



The SRO-716 vacuum soldering system can be expanded for specific requirements

and offers maximum flexibility and performance for a wide range of applications for R&D purposes and pilot line production:

SRO-716 VACUUM SOLDERING SYSTEM WITH HIGH VACUUM

The SRO-716 High Vacuum System with scroll and turbo-molecular pump achieves a vacuum of $<5 \times 10^{-5}$ mbar, while nitrogen (N₂) ensures controlled cooling. The HCOOH step optimizes wetting and ensures excellent soldering quality. The process is controlled intuitively via the WinATV software, which enables precise adjustment of the process sequence.

further
Information



SRO-716 VACUUM SOLDERING SYSTEM WITH OVERPRESSURE

The SRO-716 Overpressure System is the perfect solution for precise soldering processes that require void-free soldering under overpressure.

further
Information



SRO-716 VACUUM SOLDERING SYSTEM WITH TOPHEATER

The SRO-716 Topheater System has been specially developed for thermally demanding soldering processes and due to the Topheater technology, enables extremely precise and efficient results.

further
Information



SRO-716 VACUUM SOLDERING SYSTEM WITH FLUX MANAGEMENT (SOLDER PASTE)

The SRO-716 Solder Paste System is the ideal solution for high-precision and clean soldering processes with solder paste. Based on the proven vacuum soldering technology by Kurtz Ersa Semicon, it offers reliability and reproducibility for demanding applications in the microelectronics and semiconductor industry. To ensure a contamination-free process chamber, the system is equipped with an integrated flux hood that reliably reduces flux residues.

further
Information



SRO-716 VACUUM SOLDERING SYSTEM WITH HYDROGEN

The SRO-716 H₂ System is the perfect solution to remove oxides on surfaces with hydrogen or forming gas in order to achieve optimal wetting.

further
Information





Mass production with compact design and maximum flexibility

SRO i-Line

The SRO-i-Line sets new standards in high-volume production and combines maximum efficiency with excellent process control.

Due to its compact design and the ability to integrate up to three process chambers, the SRO-i-Line maximizes your production capacity without requiring additional space. Short cycle times and advanced vacuum soldering technology ensure perfect results for most applications in the microelectronics and semiconductor industry. The powerful IR heating technology ensures excellent temperature homogeneity across the entire working area, while the integrated formic acid system guarantees best wetting and void-free solder joints.

A vacuum of less than 1 mbar and an oxygen content of less than 3 ppm can be reached with purified nitrogen to create perfect process conditions. The SRO-i-Line enables both heating via heating plates and direct component heating. Therefore even complex component geometries, such as products with integrated cooling channels, can be processed reliably.

Maintenance has also been optimized to avoid production downtimes: In a configuration with three process chambers, two chambers can continue to operate while one is being serviced. Whether as a standalone semi-automatic version or as a fully integrated solution in an automated production line with more throughput, less waste and maximum process reliability – the SRO-i-Line gives you a real advantage.

Highlights:

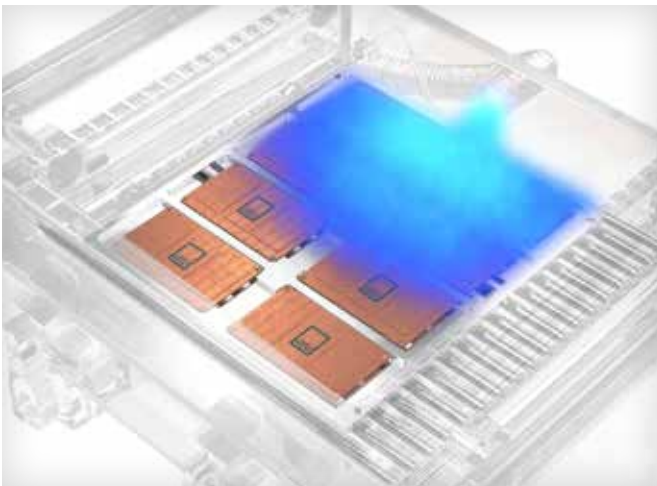
- High capacity: up to 3 process chambers
- Short cycle times
- Advanced IR technology
- Excellent temperature uniformity
- Process temperature up to 450 °C
- Oxygen <3.0 ppm with purified N₂
- Small footprint: no change in footprint for up to 3 process chambers
- Low maintenance downtime: two process chambers can operate while one is being serviced, minimizing downtime and ensuring continuous production



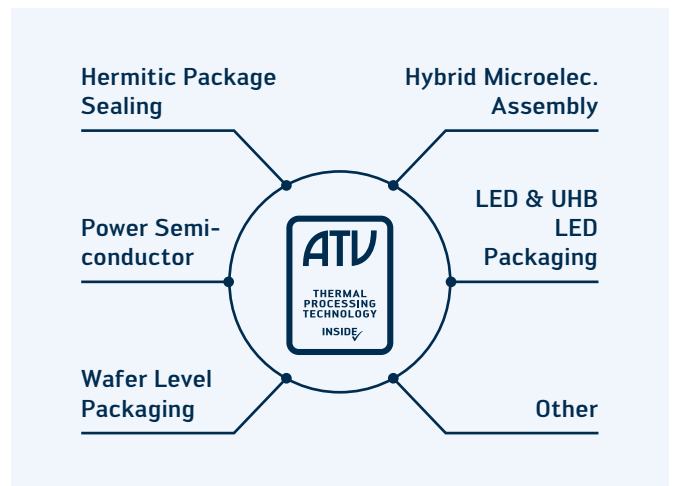
Transport of product carrier to process chamber



Pick-up of the product carrier by the lift system



Oxygen reduction by N₂ backfill



Flexibility for all applications

Common Applications:

- Power semiconductors (IGBT, SiC-MOSFET)
- Sensors
- MEMS devices
- Die attachment
- High-power LED
- Hybrid assembly
- Flip Chip
- Package sealing

Options:

- Up to 3 process chambers
- Flux management
- Customized product carrier

Technical Data depending on system configuration/options

Dimensions	1,825 x 1,735 x 2,645 mm
Weight	1,400 kg
Max. product height	50 mm
Heated area	410 x 445 mm
Heating method	array of 18 IR emitters per chamber
Process temperature	up to 450 °C
Vacuum level	<0.5 mbar

further
Information





High-Performance Processing Oven PEO-604

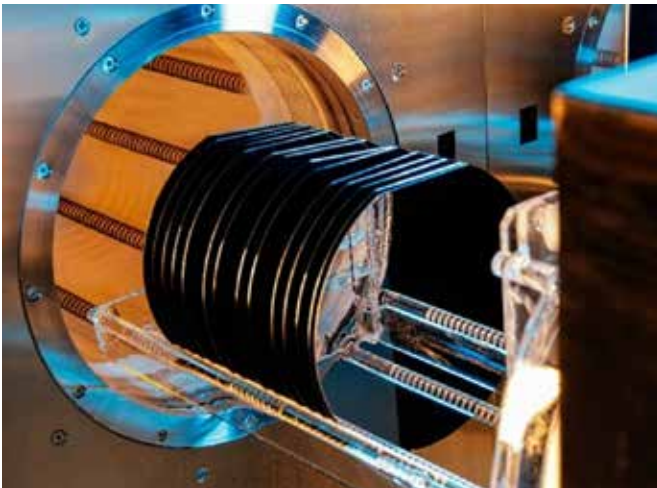
High-temperature furnace for annealing, oxidation, polyimide application.

The PEO-604 quartz tube furnace offers outstanding performance and versatility for demanding thermal applications. It is perfectly suited for research, pilot production and high volume production. Processes up to 50 wafers per run with a maximum wafer diameter of 200 mm are feasible. The high temperature furnace guarantees contamination-free processing thanks to the easily exchangeable quartz liners, which prevent process to process cross-contamination.



Highlights:

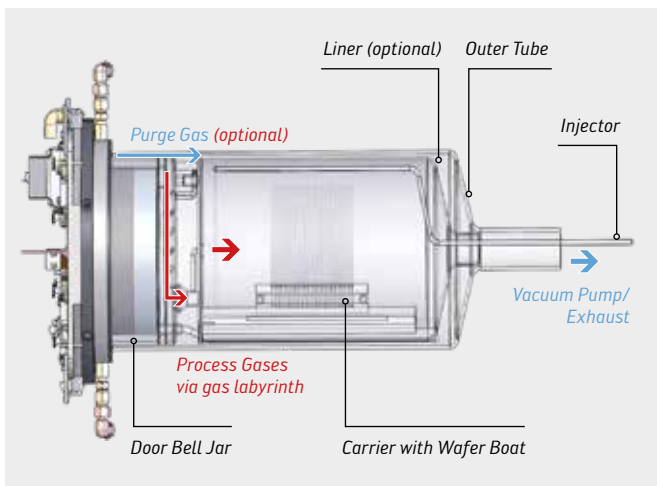
- Small footprint
- Max. 50 wafers per run
- Up to Ø 200 mm wafers
- No cross-contamination between different processes with easily exchangeable liners
- 20 °C to 1,000 °C within 25 minutes (empty chamber)
- Cooling from 1,000 °C to < 100 °C within 60 minutes (empty chamber)
- High vacuum down to 5×10^{-6} mbar
- Oxygen <3.0 ppm with purified N₂



Quartz Wafer carrier



Perfect temperature control for highest quality



Process scheme



Application overview

Common Applications:

- Annealing:
 - Inert/Atmosphere
 - Hydrogen
 - High vacuum
- Wet/Dry oxidation
- SiAl/SiAu/SiMo alloying
- Polyimide process

Options:

- Easily exchangeable liners
- High vacuum
- H₂ annealing
- Customized quartz ware
- Vacuum pump
- DI water bubbler

Technical Data depending on system configuration/options

Dimensions	1,750 x 835 x 2,355 mm
Weight	700 kg
Inner quartz tube diameter	230 mm (9")
Maximum product temperature	1,000 °C 1,100 °C (optional)

further
Information



BACKEND SEMICONDUCTOR PRODUCTION



Vacuum Soldering System for Massproduction

SRO i-line

- High Capacity: up to 3 process chambers
- Short cycle times
- Uniform heating
- Excellent temperature uniformity
- Oxygen <3.0 ppm with purified N₂
- Small footprint: no change in footprint for up to 3 Process Chambers
- Low maintenance downtime: two process chambers can operate while one is being serviced, minimizing downtime and ensuring continuous production

Vacuum Soldering System for R&D // Pilotline



SRO-700

- Formic acid enriched atmosphere
- Direct IR heating
- Multiple TC monitoring
- Process temperature up to 450 °C
- Oxygen <3.0 ppm with purified N₂



SRO-716

- Direct IR Heating
- Multiple TC monitoring
- Solder paste or preform, fluxless or flux
- Exchangeable heater plate
- Process temperature up to 450 °C, optional up to 750 °C
- Oxygen <3.0 ppm with purified N₂

High Vacuum Packaging with getter Activation

SRO-Getter

- High vacuum capability
- Independent temperature control of lid and package
- Process temperature up to 450°C
- Package and lid separated during high vacuum getter activation
- Multiple TC monitoring



FRONTEND SEMICONDUCTOR PRODUCTION

Quartz Tube Furnace

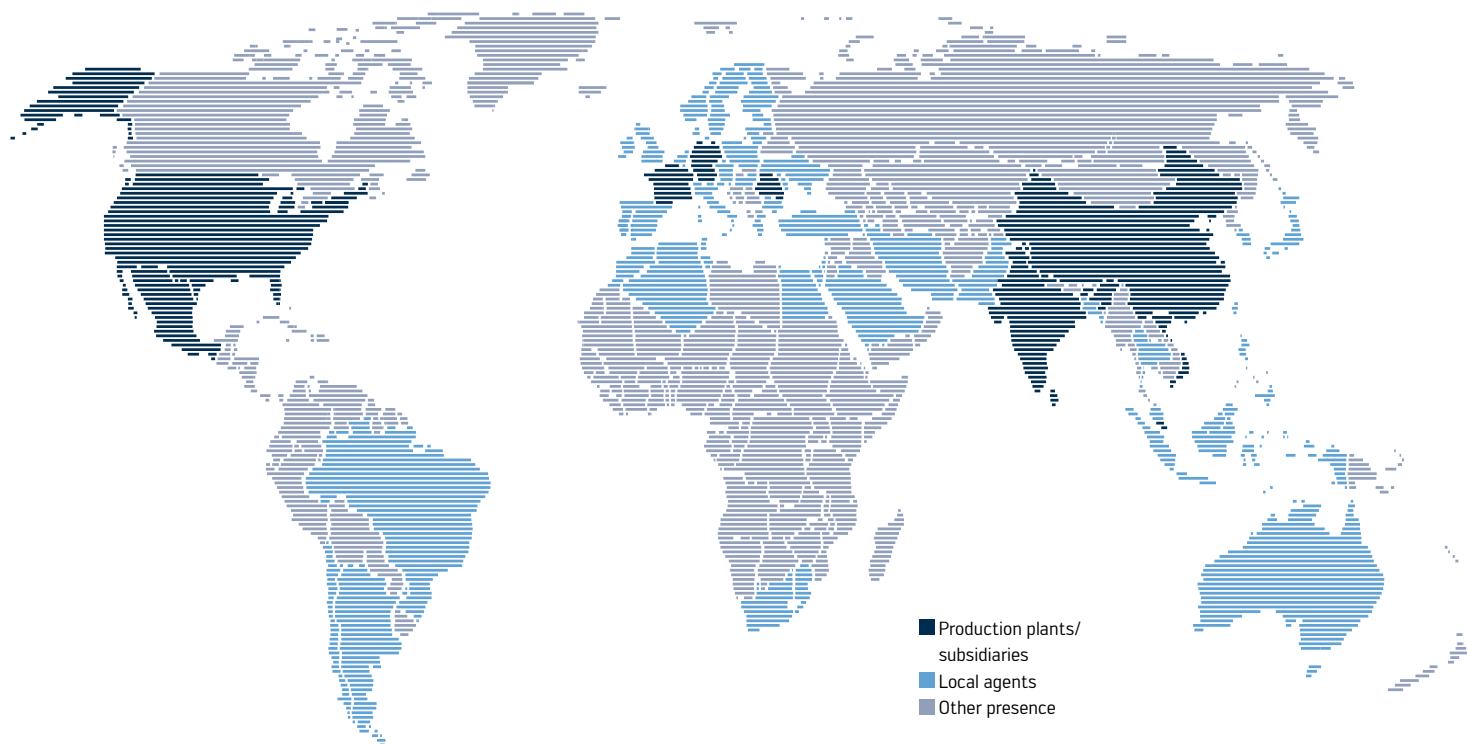
PEO-604

- Small foot print
- Max. 50 wafers per run
- Up to Ø 200 mm wafers
- No cross-contamination between different processes with easily exchangeable liners
- 20 °C to 1.000 °C within 25 minutes (empty chamber)
- Cooling from 1.000 °C to <100°C within 60 minutes (empty chamber)
- High vacuum down to 5×10^{-6} mbar
- Oxygen <3.0 ppm with purified N₂



ELECTRONICS PRODUCTION EQUIPMENT

Worldwide presence



USA

Kurtz Ersa, Inc.
Plymouth, WI
usa@kurtzera.com

Mexico

Kurtz Ersa, S.A. de C.V.
Guadalajara
info-kmx@kurtzera.com
Kurtz Ersa Manufacturing Mexico
Ciudad Juárez
info-kemm@kurtzera.com

China

Kurtz Ersa Asia Ltd.
Hongkong
asia@kurtzera.com

Ersa Shanghai
Shanghai
info-esh@kurtzera.com

Vietnam

Kurtz Ersa Vietnam Company Limited
Bac Ninh
info-kev@kurtzera.com

Singapore

Kurtz Ersa Singapore (Pte. Ltd.)
info.kes@kurtzera.com

India

Kurtz Ersa India
Smart Production Technologies
Private Limited
Bangalore
india@kurtzera.com

France

Kurtz Ersa FRANCE
Haguenau
kefrance@kurtzera.com

Romania

Kurtz Ersa Romania S.R.L.
300748 Timisoara
info.romania@kurtzera.com

Kurtz Ersa Semicon GmbH
Johann-Sebastian-Bach-Str. 38
85591 Vaterstetten/Germany

Phone +49 8106 30 50 0
info-ke-semicon@kurtzera.de
www.kurtzera.de

