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*Soldering
Systems*



Ersa Reflow Soldering Systems

Always the Right Performance

For almost 40 years, Ersa has been setting standards in reflow soldering – from the entry-level HOTFLOW ONE model to the powerful flagship HOTFLOW THREE, which sets the benchmark in high-volume soldering, to the EXOS 10/26 vacuum oven for void-free soldering results. Whatever your requirements in electronics manufacturing, Ersa reflow systems offer maximum quality, cost-effectiveness, and sustainability!

High-performance reflow soldering

SMD technology dominates the assembly of electronic components. With several thousand components per assembly no longer being uncommon, chip designs are becoming increasingly smaller. At the same time, the variety of components is growing. High-performance reflow ovens such as the Ersa HOTFLOW models and the Ersa EXOS with vacuum module are setting

the industry benchmark. They provide consistent temperature distribution for reliable heat transfer, enabling the safe soldering of heavy components while protecting smaller ones from overheating. They also offer maximum machine availability, ease of maintenance and added value.

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Requirements for a reflow system:

- Optimal heat transfer
- Maximum throughput
- Stable and homogeneous temperature profiles with minimal ΔT across the process width
- Maximum machine availability
- Optimal energy balance
- Minimal energy consumption
- Excellent serviceability
- Traceability

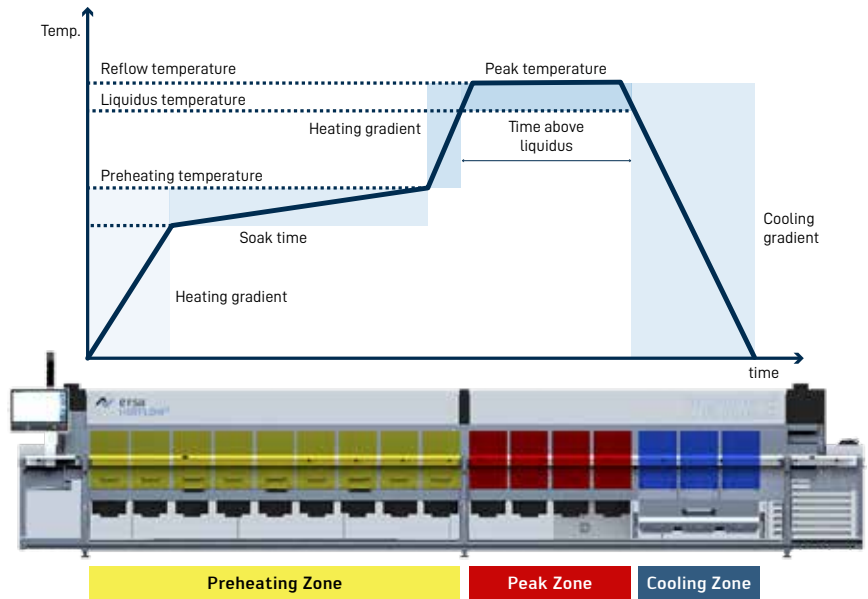
This is how reflow soldering systems work (with and without nitrogen):

Preheating zone

The preheating zone thermally prepares the assembly for the soldering process. It equalizes the temperature of different components and activates the flux contained in the solder paste to create optimal conditions for soldering.

Peak zone

In the peak zone, the temperature exceeds the melting point of the solder paste, causing the solder to melt and wet the PCB pads and component leads. Stable and reproducible process temperatures ensure the solder joints' reliability.



Cooling

After the soldering process, the assemblies are cooled in a controlled manner, with the cooling speed being adapted to the assembly design. This creates optimal conditions for subsequent process steps such as AOI, manual inspection, and assembly handling.

Heat transfer

The efficiency of the heat transfer in modern reflow systems directly influences quality, productivity, and operating costs. HOTFLOW reflow soldering systems optimize energy transfer to achieve a minimum ΔT with the lowest possible energy consumption.

Process gas cleaning

The purity of the process zone is crucial for machine availability, stability, and reproducibility of soldering processes. Contamination mainly originates from solder pastes and PCB materials. The No-Clean management system removes these residues to prevent their accumulation on assemblies and in the process chamber.

Reflow soldering with vacuum module for void reduction of up to 99%:



Vacuum oven

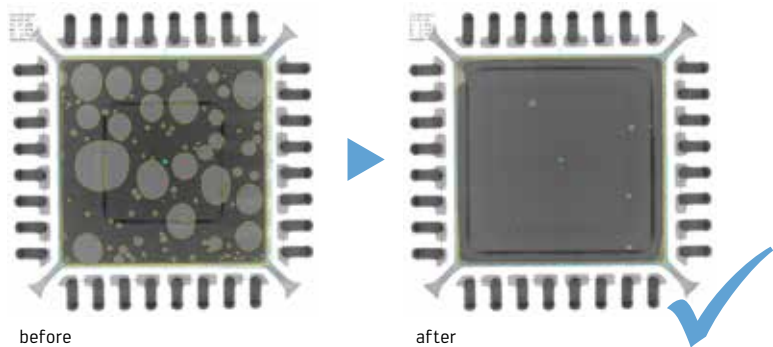


Nitrogen oven

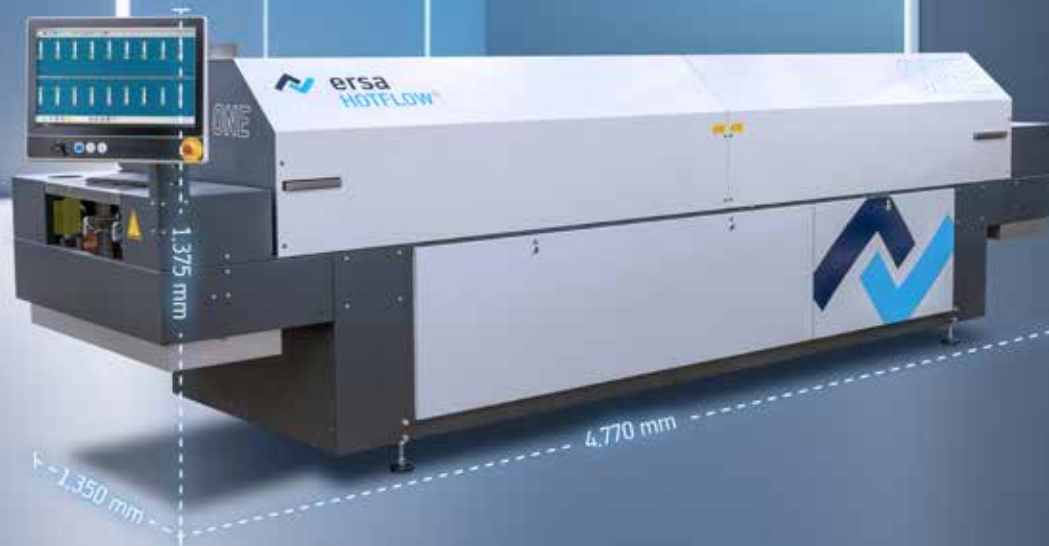


Atmospheric oven

When exposing an electronic assembly to vacuum in the peakzone during the solder liquidus, the so called voids move to the vacuum area and thus leave the solder joints in an attempt to equalize the pressure. This improves thermal heat dissipation in SMT components such as power semiconductors and high-performance LEDs.



The void rate can be reduced by up to 99% in the vacuum chamber of the Ersa EXOS 10/26.



The One for everyone

Ersa HOTFLOW ONE



The ideal entry-level reflow oven with unrivaled price-performance ratio

HOTFLOW ONE reflow soldering systems provide ideal thermal performance, a uniform cross-profile, and excellent zone separation for outstanding soldering results. High-quality components and

easily accessible maintenance and cleaning areas ensure maximum availability. Intuitive operation via an industrial PC with touchscreen provides for convenient programming and comprehensive process

data management. MES interfaces and traceability connections are also available, of course. The HOTFLOW ONE impresses with its attractive price and offers excellent TCO values and fast ROI.



Optimized energy transfer

Ersa HOTFLOW ONE reflow soldering systems are designed for optimal thermal performance, with features such as optimized energy transfer, minimized ΔT and increased zone separation. This ensures repeatable and excellent soldering results.



Low-mass conveyor system

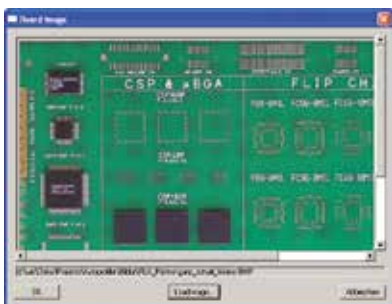
The HOTFLOW ONE features a low-mass conveyor system with center support that can be executed as a single- or dual-track system. The maximum conveyor width is 516 mm. Whether single or dual track, the result is productivity combined with excellent soldering quality.

Software highlights

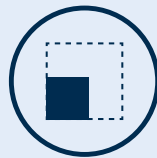
Thanks to process data recording, all processes can be precisely documented with the user-friendly ERSASOFT machine controller. The Autoprofiler allows for quick offline profile definition, and the integrated order management system and helpful online support ensure efficient and secure workflows.



Automatic process evaluation with 6 parameters – Display of gradients with up to 17 profiles



Ersa Autoprofiler: Offline profile creation for maximum machine availability



Compact machine dimensions



Top- and bottom-side convection modules in all zones



Low-mass conveyor system with single or dual track



Industrial PC with touchscreen



ERSASOFT process data recording with energy consumption management



The benchmark in reflow soldering. Ersa HOTFLOW THREE



The best reflow performance in every aspect: Quality. Efficiency. Flexibility. Cleaning. Connectivity.

With the HOTFLOW THREE, Ersa is making a clear statement for further increased quality in soldering. Its unique selling point: the SMART CONVECTION POWER UNIT (SCPU®). This exclusively developed motor and control unit ensures an optimized soldering profile and thus even better

soldering results. Individual zones can be controlled separately, enabling perfect adaptation to the requirements of material and solder paste. In addition, the SCPU® and the high-performance cooling unit installed in the cooling zone only consume the power that is actually required.

Absolutely precise injection and monitoring of nitrogen reduces consumption to a minimum. The result is further enhanced machine availability coupled with maximum productivity, short maintenance times and intuitive operation via ERSASOFT 5 – while keeping consumption low.

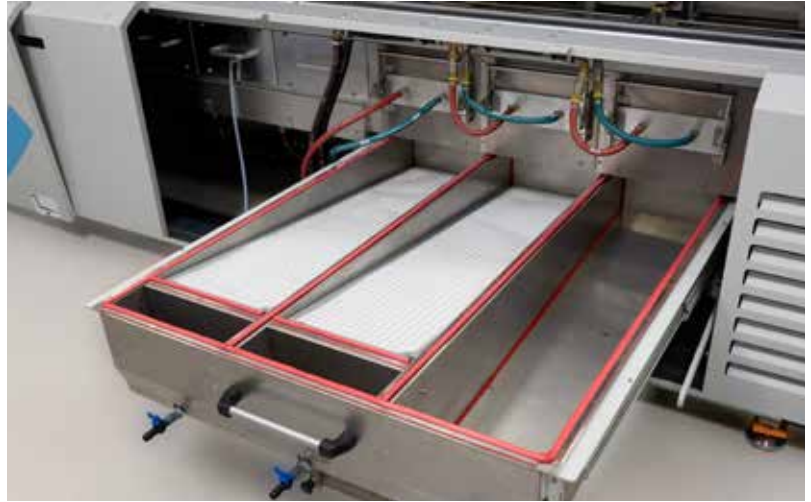


Extremely fast profile change

The HOTFLOW THREE is unbeatable when it comes to fast profile change! In combination with the high-precision Ersa SCPU® motor and control unit, permanent temperature monitoring, high-performance cooling unit, and optimally insulated machine housing, the new profile is ready to go in record time, even without opening the cover.

It runs and runs and runs

Depending on the configuration, the HOTFLOW THREE impresses with a machine availability (OEE) of up to 12 weeks and more of continuous operation without maintenance intervals. This is possible due to the patented three-stage Ersas Smart Cleaning System consisting of SMART ELEMENTS® (preheating zone), SMART PYROLYSIS CLEANER (peak zone), and SMART CONDENSATION UNIT for condensate separation in the cooling zone.



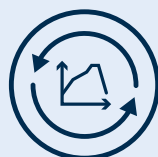
Perfect ease of maintenance

The HOTFLOW THREE also impresses when it comes to maintenance – servicing the cooling zone and cleaning the filter systems is easily done from the front. The doors of the machine housing can be removed quickly and easily without any tools and then stored at the system to save space. The components of the Ersas Smart Cleaning System are easy to access and can be pulled out on telescopic rails.



Future-proof user interface

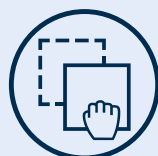
Thanks to its future-proof interface and Kurtz Ersas CONNECT, the HOTFLOW THREE is ideally equipped for all digital services and precise process data recording.



High-speed profiling



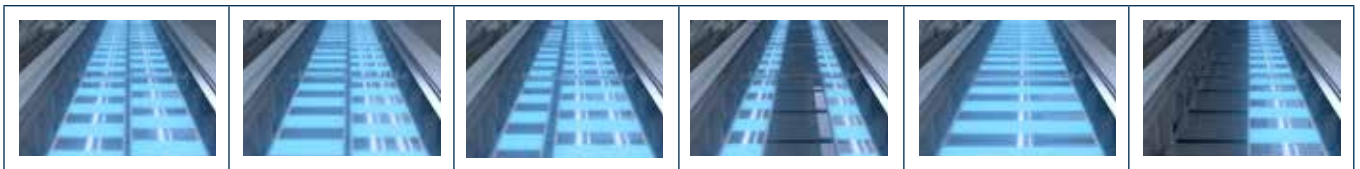
Patented Smart Cleaning System



Perfect accessibility



Industrial PC with touchscreen

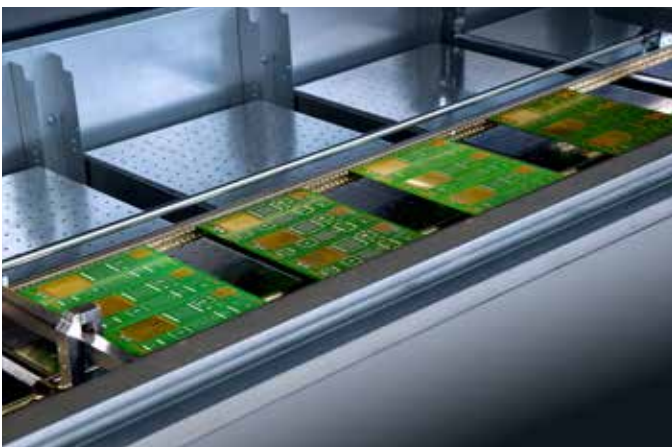


Highly flexible conveyor system

The HOTFLOW THREE, available with 16, 20, or 26 heating zones, offers single-track and variable dual-track conveyor systems. Conveyor width is up to 686 mm

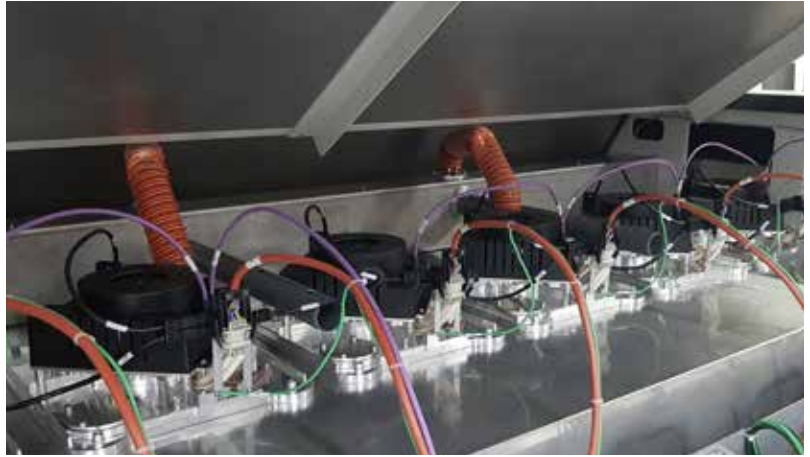
for single track; for dual track systems it is up to 2 x 300 mm or 510 mm. All versions are equipped with center support, which can be activated or deactivated

as an option. Conveyor speed can be set individually as required. With dual track systems, both tracks can even be operated at different conveyor speeds.



Unique SMART CONVECTION POWER UNIT (SCPU®)

The SMART CONVECTION POWER UNIT (SCPU®) is the motor and control unit of the HOTFLOW THREE. It was developed exclusively for Erska and is perfectly matched. Therefore it operates with high efficiency and reduces energy consumption and noise: Depending on the selected configuration, the HOTFLOW THREE reduces nitrogen consumption by 25%, power consumption by up to 10%, and heat radiation by 20%. And at the same time, the system is three times more quiet



Smart cooling system combined with perfect insulation

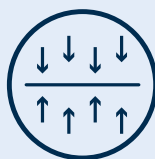
In the electronics manufacturing hall, operators benefit from the perfect insulation, low noise level and optimal room climate provided by the HOTFLOW THREE. While it provides pleasant cooling in summer thanks to its smart, high-performance cooling system, it can also be used to maintain comfortable, warm temperatures in winter.

Lowest operating noise

The HOTFLOW THREE is not only the benchmark in terms of machine availability and soldering quality, but also in terms of noise insulation. Thanks to its well-insulated cover, the machine operates at a continuous noise level of less than 60 dB(A), subject to the machine configuration. This means it remains well below the legal requirements and ensures a pleasant, quiet environment for both operators and the production area.



further information
HOTFLOW THREE



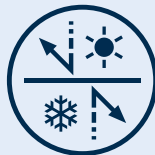
Highly efficient motor control



Highly flexible conveyor system



Perfect sound insulation



Smart Cooling System



How to avoid voids? Ersa EXOS® 10/26



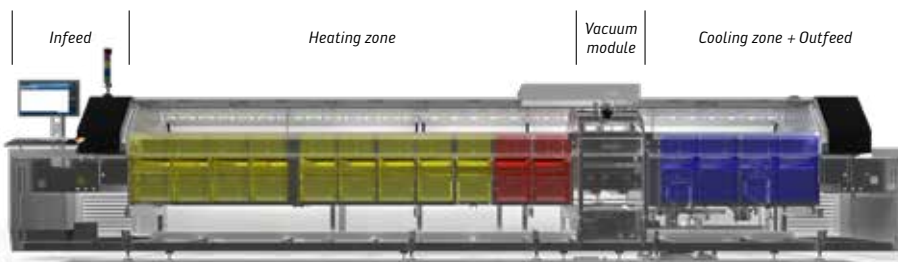
Inline reflow soldering with convection and vacuum. Thanks to its innovative conveyor system and reliable processes, the Erssa EXOS ensures pore-free solder joints at maximum throughput and minimum footprint.

Voids are air pockets in SMT solder joints that reduce the cross-section and heat dissipation in BTC power semiconductors and LEDs. This can lead to thermal overload and component failure. Even a void content of 5 – 10% increases thermal resistance and creates hot spots. However, the electronics manufacturing industry sometimes requires pore-free solder joints, especially

for high-reliability technology and power electronics. Consequently, the void rate must be minimized in reflow soldering to meet this requirement. With the EXOS® 10/26, Ersra offers a convection reflow soldering system with a vacuum chamber that reduces the void rate by up to 99%.

Innovative conveyor system

The EXOS® offers a conveyor system divided in four segments: infeed, preheating zone with peak zone, vacuum module, and cooling zone each have their own transport system. The dual-track conveyor maximizes throughput and optimizes PCB guidance. The infeed module ensures simultaneous loading so that assemblies reach the vacuum chamber at the same time.



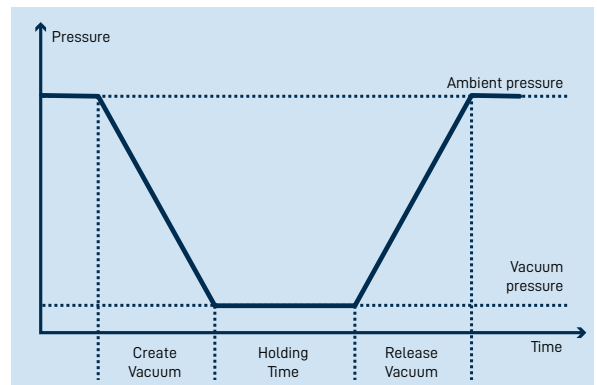
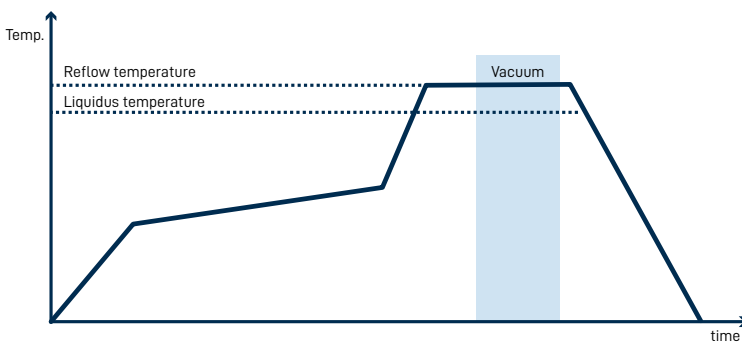


Medium-wave emitters for optimal temperature profiles

With its optimized convection heating, EXOS® offers the smallest ΔT available on the market in the process tunnel. Medium-wave emitters and heating plates keep the temperature in the vacuum chamber stable, thus ensuring the liquidus of the solder joints during void reduction. All heating systems also minimize the heat load on the machine components.

Efficient vacuum module

The EXOS® vacuum module guarantees high process reliability with separately controllable parameters such as target pressure level and holding time, as well as sensors for monitoring the vacuum chamber. The integrated vacuum unit does not require any additional floor space. With its easily accessible drives and quick-release fasteners, it is quick and easy to maintain, just like the entire system.

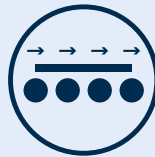


Roller conveyor in the vacuum module

The low-maintenance roller conveyor in the EXOS® vacuum module is stable and does not require any lubricants. This prevents lubricant residues on assemblies, which significantly improves assembly quality. Thanks to quick-release fasteners, conveyor rails and center supports can be changed within seconds – contributing to short maintenance times.



Conveyor system segmented in four parts including assembly synchronization – no external infeed module required



Maintenance-friendly and lubricant-free roller conveyor in the vacuum module



Optimal temperature profiles thanks to medium-wave emitters in the vacuum module



Partially integrated vacuum pump on separate carrier for quick and easy maintenance



Innovative SMART ELEMENTS® cleaning system



Premium services from the world market leader

We are always there, wherever you need us.


further information online:



Professional Temperature Profiling & Monitoring

Guarantor for safe thermal processes

Smart measuring systems for process recording, -analysis and optimization

- > Real time data transfer via WIFI 
- > Accesspoint – No installation or admin rights required

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Start your training and further education for electronics production!

- Unique training system for machine soldering & stencil printing
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EDUCATION

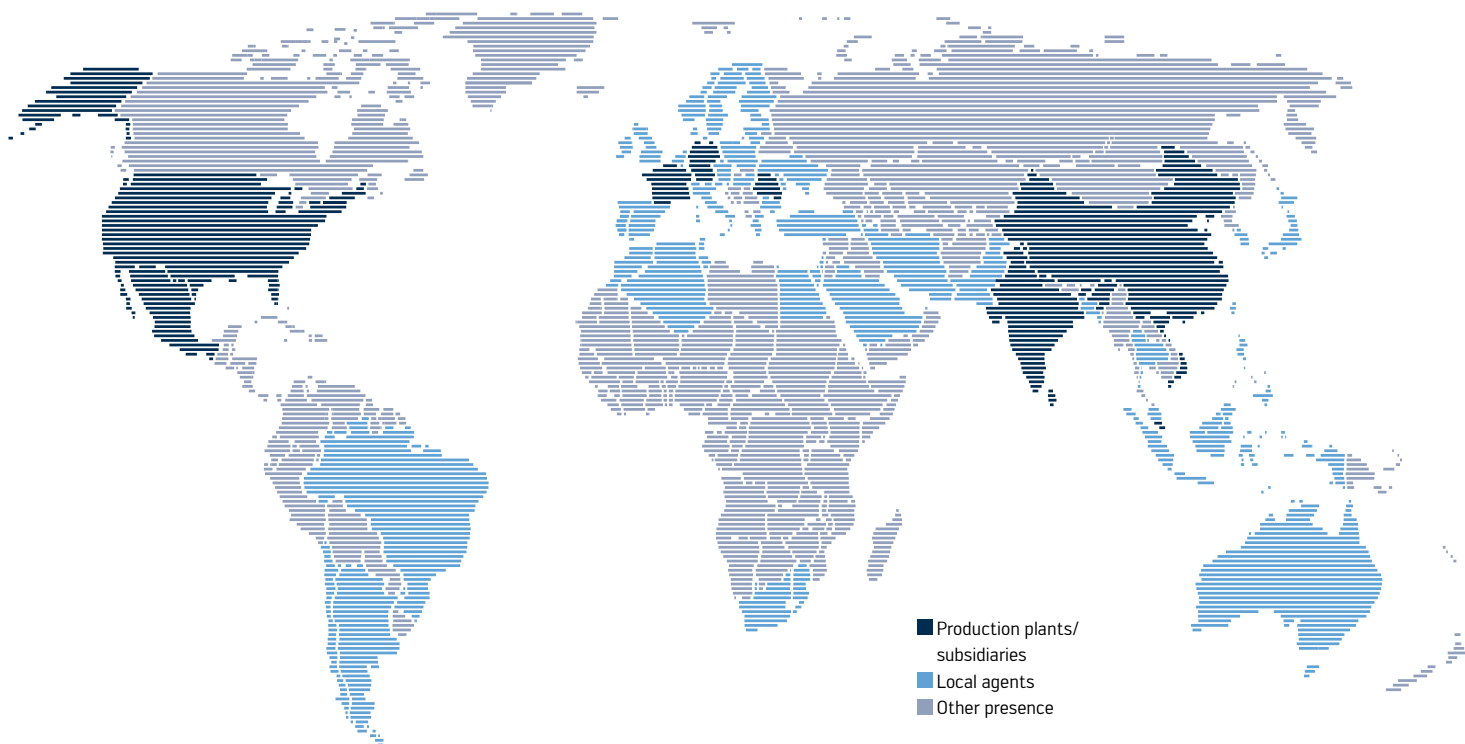
by kurtz ersä

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