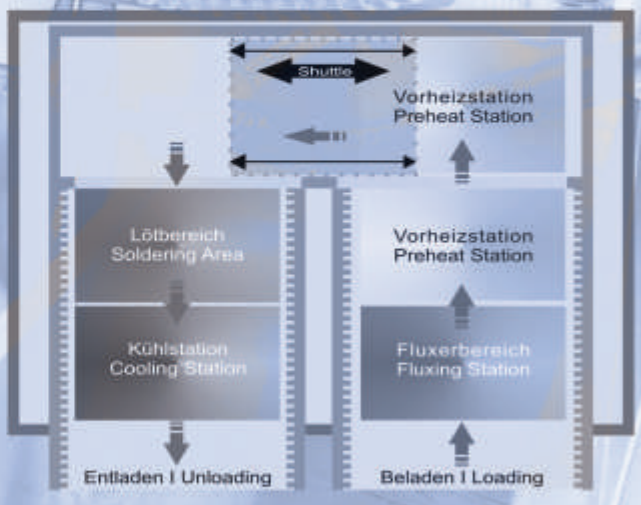
Total Solutions

for Soldering Processes and
Automated Production Lines

SEHO LeanSelect



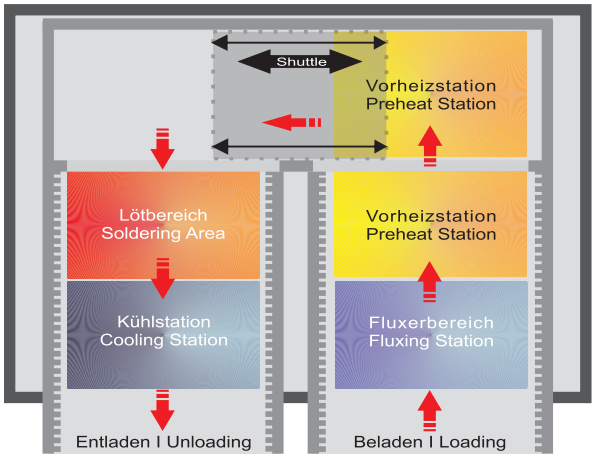
Reflow I Selective I Wave I Handling Solutions I AOI I Know How & Training

Selective Soldering System SEHO LeanSelect

Lean Production - Innovative and Productive

LEANSELECT

- **Consistently following Lean Equipment Design Guidelines.**
- **Smallest footprint of only 2.5 m².**
- **Ideally suited for up-to-date manufacturing islands.**
- **High flexibility and productivity: electro-magnetic soldering unit with miniwave nozzle or multi-nozzle dip tool.**
- **High energy efficiency: only one axis to position fluxer and soldering unit.**
- **High production rate: up to five carriers in process at the same time.**
- **High precision fluxer system and reproducible preheat process.**
- **Patented, automatic ultrasonic cleaning of solder nozzles ensures a reliable process.**
- **100 % process control.**
- **Efficient programming: online or offline.**
- **Ready for Industry 4.0 with mcServer.**



Lean Production in Perfection:
Productive cell manufacturing with SEHO LeanSelect

Electronic productions face new manufacturing challenges more and more frequently. Besides high quality requirements at low production cost, there are also an increasing number of product variants and flexible reactions to fluctuation in demand.

The SEHO LeanSelect is particularly designed to meet these challenges, featuring highest flexibility and outstanding return of invest.

While the entire process is fully automated, loading and unloading of assemblies is done manually on two separate conveyors. This allows processing of up to five carriers at the same time.

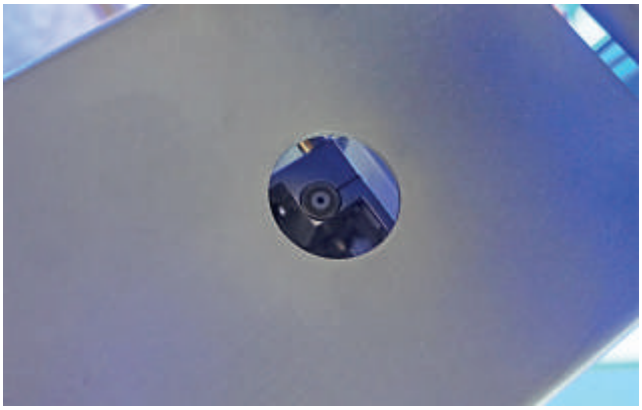
The work stations are arranged in a counter-clockwise U-shape, thus consistently following the Lean Equipment Design Guidelines. Fluxer and soldering unit are mounted on a high precision axis system and successively approach the solder joints, while the assemblies remain in a fixed position.

The LeanSelect ensures highest productivity at smallest footprint, with the same uncompromisingly high soldering quality as the high-end systems from SEHO.

Fluxing Process: Highly Precise with Low Consumption

Selective soldering systems from SEHO are equipped with a micro drop jet fluxer that precisely applies the flux at the solder joints with minimum wetting width. This ensures remarkably reduced flux consumption as well as minimal potential flux residues.
Several drop jet nozzles can be installed at the nozzle head to allow flux application at multi-row connectors with only one passage.

The fluxing process is of paramount importance for zero-fault production processes. Therefore both, the filling level in the flux container and the function of the drop jet nozzles are continuously controlled. Highest process reliability is ensured with the flux quantity control which measures the quantity of each drop in real-time that is jetted to the printed circuit board.



micro drop jet fluxer: highly precise and minimum consumption

Preheat Process: Reproducible and Efficient

The LeanSelect may be equipped with two separately controlled preheat stations.

Highly efficient quartz heater cassettes with pyrometer ensure reproducible and gradient-controlled temperature profiles. Thus, the entire preheat process can precisely be controlled which allows optimum activation of the flux and simultaneously enables adjustment of low temperatures to protect components and PCB material.

In order to consistently keep the assemblies on temperature during long soldering cycles, a top-side preheating can additionally be installed above the soldering station.

Soldering Process: Unrivaled Precision and Flexibility

Provided with an electro-magnetic soldering unit, the LeanSelect guarantees perfect and reproducible soldering results.

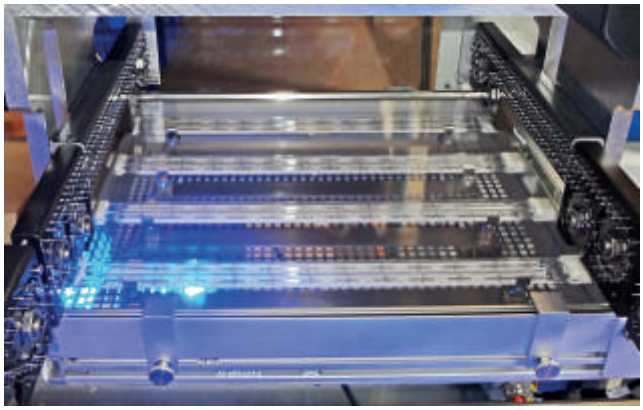
A precisely adjustable solder wave height, the effective energy transfer as a result of the high temperature stability and control accuracy directly at the solder nozzle, as well as the low-maintenance, nearly wear-free, compact design of the solder pot are just some of the many plus points.

Depending on the application, the LeanSelect can be used for both, flexible miniwave processes and product-specific dip soldering processes with high throughput.
Quickly exchangeable solder nozzles and multi-nozzle tools ensure short change-over times.

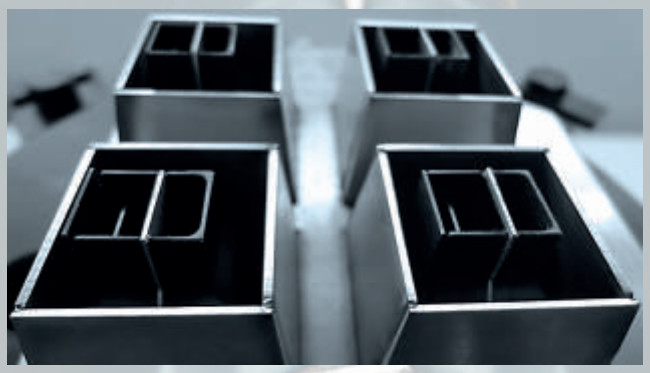
Automatic Nozzle Cleaning: Innovative and Smart

Soiled solder nozzles remarkably affect the reproducibility of processes.

A particular highlight of selective soldering systems from SEHO is the patented ultrasonic cleaning function for nozzles that ensures maximum machine availability. Besides significantly longer lifetime of the solder nozzles, this unique feature provides an absolutely stable soldering process.



gradient-controlled preheat process



multi-nozzle tool for dip soldering processes

100 % Process Control: Absolutely Unique

With selective soldering systems from SEHO you are one step closer to a zero-fault production: a comprehensive, innovative hardware and software package to control the process sequence 100 %.

Precise positioning of assemblies is ensured with the automatic position correction using fiducial recognition which automatically compensates various types of misalignment such as linear shrinkage within the PCB.

The automatic z-height correction recognizes warpage of assemblies, caused by previous thermal or mechanical load and automatically calculates correct z values for all points of the soldering program.

The flux quantity control guarantees flux deposition with utmost precision, exactly dosed and measured in real-time during application.

In the preheat area, monitoring of all heating circuits and a touchless pyrometer control that additionally allows a gradient-controlled preheat process, ensure reproducible temperature profiles.

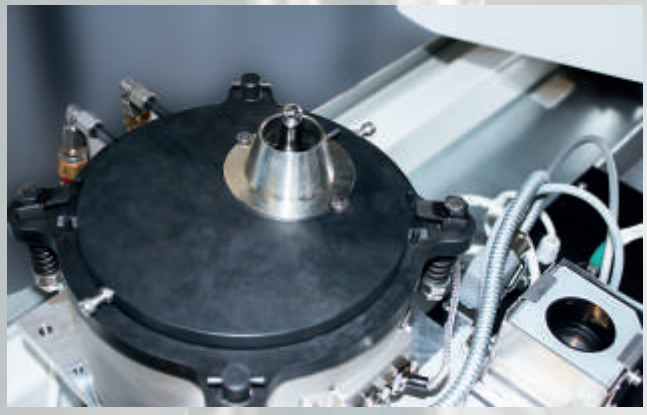
The stability of wave height is controlled just like the solder level in the solder pot is monitored, and, of course, solder wire is supplied automatically if needed.

A camera for visual process control provides additional safety.

With the machine communication software mcServer selective soldering processes can be traced completely and are ready for the requirements of Industry 4.0. This software feature allows comprehensive control of the soldering process with real-time access to all connected machines that are installed in different production sites worldwide.

mcServer collects, analyzes and archives all information about the machine and production processes and prepares it statistically to be presented in a comfortable user interface.

Using appropriate interfaces, the machine can be integrated into nearly each specific MES/ERP system for superordinate control of the process.



electro-magnetic soldering unit: miniwave or dip soldering processes

LEANSELECT

Technical Data and Options

design corresponding to Lean Equipment Design Guidelines	●
carrier dimensions	350 x 350 mm I 13.78" x 13.78"
number of carriers in process, max.	5
Fluxer Area	
micro drop jet fluxer	●
fluxer head with several drop jet nozzles	○
flux type	alcohol or water based
solids content	up to 5 % (standard), optionally higher
flux supply from original container	○
Preheat Area	
bottom side quartz heating	●
bottom side quartz heating as second preheat station	○
pyrometer with gradient-controlled temperature profile	○
heating circuit control	○
Soldering Area	
electro-magnetic soldering unit	●
suitable for miniwave soldering or dip soldering	●
automatic ultrasonic cleaning of solder nozzles	○
top side quartz heating in the soldering area	○
solder pot volume	10 kg
solder pot temperature	320°C
nitrogen operation	●
processing of lead-free and lead-containing solder alloys	●
Cooling Area	
cooling station	○
Automatic Process Control and Programming	
online teach system	○
offline teaching program	○
automatic position correction with fiducial recognition	○
automatic real-time flux quantity control	○
automatic z-height correction	○
automatic wave height control	○
automatic solder level control	○
automatic solder wire supply	○
process visualization for miniwave soldering	○
mcServer - machine communication server	○
Control Unit	
automation PC	●
easy programming with comfortable user interface	●
Utility Supplies and Dimensions	
nitrogen connection	R 1/4", to be supplied locally
nitrogen pressure	min. 2 bar
nitrogen consumption (single nozzle)	approx. 1.5 - 2.0 m³/h
nitrogen quality	5.0 recommended
compressed air connection	R 1/4", to be supplied locally
compressed air pressure	min. 6 bar
exhaust stack	200 mm I 7.87"
exhaust volume	1000 m³/h
voltages	
European standard	230/400 V - 50 Hz - 3 phase + N + PE
US standard	3 x 208 V - 60 Hz - 4 phase
machine dimensions - l x w x h	1450 x 1727 x 1345 mm I 57.08" x 67.99" x 52.95"
weight	850 kg

Further options upon request. ● Standard ○ Option

automatic ultrasonic solder nozzle cleaning patented by SEHO

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Soldering is our Passion