

Wave Reflow Selective

Selective Soldering System SEHO SELECTIVELINE

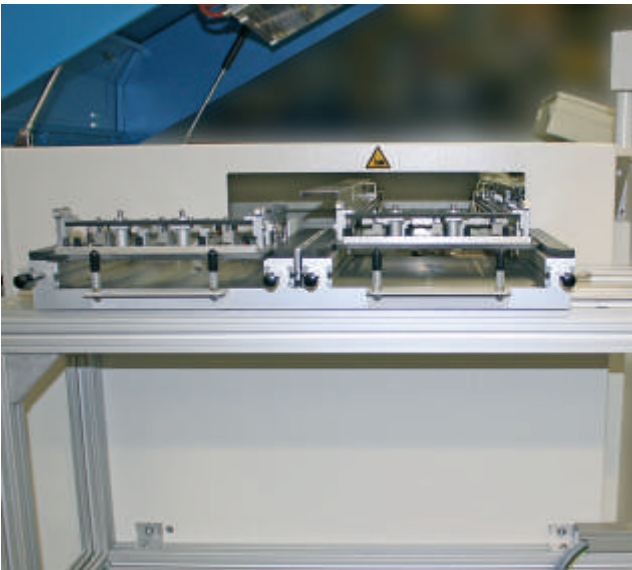


Soldering is our Passion

Consistently Modular = Lowering Your Production Costs

SELECTIVELINE

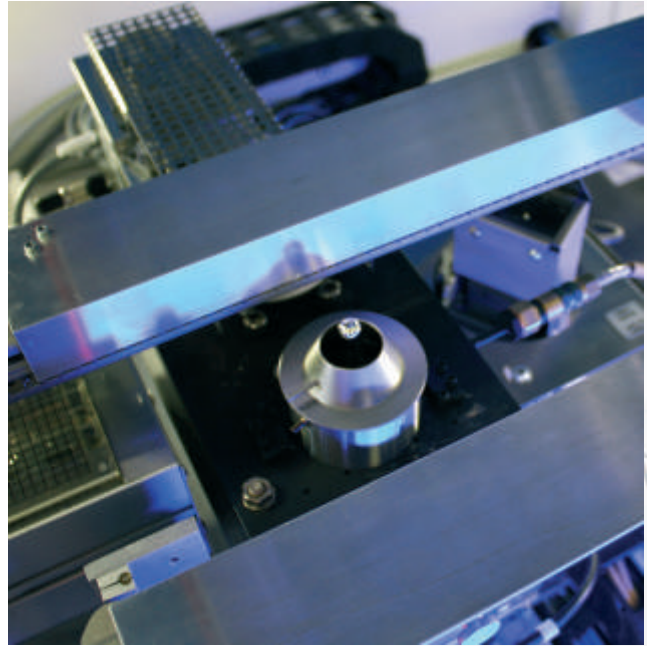
- **Modular miniwave selective soldering system, consisting of a fluxer module, preheater module and SelectiveLine solder module that can be fully configured as needed.**
- **Production capacity and investment costs can be flexibly adapted to meet actual needs through this consistent modular design.**
- **Fiducial recognition for the automatic position correction of the assemblies and z height correction.**
- **Precise axis system for accurately positioning the individual workstations.**
- **High process reliability through automatic wave height regulation and solder level control.**
- **Fluxer module with real quantity control, winner of a NPI Award.**
- **Optimally adjustable preheating process with top and bottom heating, as well as convection heating in the preheater module.**
- **Maximum flexibility with quick-change solder nozzles, wettable or non-wettable depending on your application.**
- **Easy and convenient teaching process, online or offline.**
- **For assemblies up to 500 x 500 mm [19.68" x 19.68"].**
- **Unbeatable price/performance ratio.**



With the SelectiveLine SEHO has implemented a system concept featuring high precision miniwave soldering processes which favour the machine to be used for high product mix with small to medium production volumes. Thanks to its modular design the system may be adapted to changing production conditions any time.

The SelectiveLine offers maximum flexibility and allows processing of a large variety of different assemblies. Creative conveyor solutions, lean production concepts and, of course, quickly exchangeable solder nozzles make for an outstanding machine concept.

Highest reliability is ensured with the unique process control features such as automatic board alignment via fiducial recognition, z-height correction for warpage compensation, flux quantity control, automatic wave height and solder level control. Together with the cutting-edge offline teaching program and additional automatic control functions, the SelectiveLine provides maximum flexibility and process reliability.



The Concept: Modular Design Ensures Cost Benefits

Featuring a modular concept, the SelectiveLine may be flexibly adapted to any manufacturing volume.

With low production quantities only the SelectiveLine solder module may need to be used. In case of increasing throughput requirements or very massive products, the unit can be individually expanded by adding coordinate fluxer modules, preheater modules or even another SelectiveLine solder module. Consequently, cycle times are significantly reduced.

Conversely, the production line can be downsized again with end-of-line products and falling numbers, by taking modules out of the line and using them for other products.

The production capacity and thus also the investment costs can so be flexibly adapted to the current needs.

This high-quality, compact German machine concept ensures continuously reproducible soldering results and therefore offers a cost-effective alternative to the conventional manual soldering process, and needs only a small space footprint.

The SelectiveLine Solder Module: Flexibility and High-Precision

The SelectiveLine solder module is the basic unit of the system. If - for example in the entry version - the SelectiveLine solder module is operated individually, then the fluxer and preheater unit, and, if necessary, a top preheater for massive assemblies can be directly integrated in the SelectiveLine solder module.

The assemblies remain in their fixed position during processing. The solder unit - and, depending on the version also the fluxer and preheat unit - are mounted on the high-precision portal axis system.

A fiducial recognition function for automatic PCB alignment features highest process reliability. This software feature allows to register the assembly to be soldered optically and to compensate for various types of misalignment such as offset, rotational error and linear shrinkage within the PCB. Incorrectly positioned PCBs are detected and will not be soldered.

Product or production-related warpage of assemblies are compensated with the automatic z height correction function. A high-precision laser measuring system recognizes board warpage and the software precisely calculates correction values that are visualized in an altitude profile for the assembly in process. All points of a soldering program are set off against modelled values, ensuring that all points are soldered at the optimum height regardless of actual board warpage.



The SelectiveLine solder module is equipped with a mechanical pump system, designed for processing lead-free solders, naturally enough.

The soldering unit can be changed quickly if different alloys need to be processed. To minimize change-over times, a second soldering unit can be preheated on an external heating station prior to installation in the machine. Thus, changing to a different solder alloy only takes a few minutes.

The pump system is powered by a brushless servo motor, which guarantees constant speed, thus ensuring a stable and smoothly running solder wave.

The automatic solder wave height control and monitoring of the solder level ensure a high process reliability.

A wide range of quickly exchangeable soldering nozzles - wettable or non-wettable - guarantees the highest levels of flexibility with different product requirements.

The Fluxer Module

The SelectiveLine is equipped with a micro-drop fluxer, which guarantees a precise applied area and quantity of flux.

A sharply-defined spray pattern is generated with a minimal amount overspray, so that adjacent components that are not to be soldered do not become wetted.

The SelectiveLine can be expanded by adding a separate coordinate fluxer module for short cycle time requirements. The fluxing process then is performed in parallel with the following process steps, and as a result, the cycle time is significantly reduced.

In addition, multiple nozzle heads and drop-jet nozzles can be installed to further reduce the cycle time - when processing panels, for example.

The coordinate fluxer module can be equipped with the real quantity control for drop jet fluxers, winner of a NPI award. This unique fluxer control system not only monitors the actual function of the micro-drop nozzle, but also measures the flux quantity that

actually leaves the nozzle during the fluxing process. The measured quantity is compared to a reference value and if the system detects a deviation, an error message will be initiated. Additionally, system software clearly indicates which part of the PCB has not been fluxed correctly.

The Preheater Module

For the preheating process, a halogen preheater cassette can be directly integrated in the SelectiveLine solder module, permitting ideal solvent evaporation and preheating the assemblies from the bottom.

In case of particularly massive products that require a higher energy input, a top heater can also be installed in the cover of the SelectiveLine solder module. The preheating temperatures achieved on the assemblies are monitored and controlled by means of a pyrometer.

For processes that require long preheating times, the SelectiveLine can be expanded by adding a separate preheater module, equipped with quartz heating elements or with a convection preheater cassette, ensuring a very uniform heating of the printed circuit boards.

Operation: Simple and Comfortable

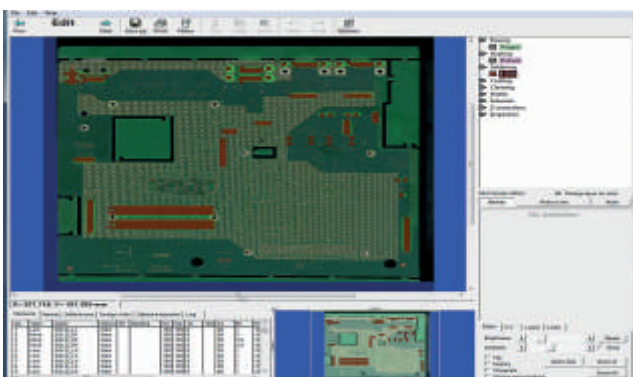
The SelectiveLine system is equipped with a modern control unit, that is similarly modular. It is very simple to operate using a colour touch screen.

In addition to teaching the solder joints by inputting the x and y coordinates, or employing the even more comfortable online teaching process with a camera, the SelectiveLine also offers an offline teaching program that is especially advantageous where there is a great diversity of types. While the soldering programs are being created on any kind of computer, the system is used exclusively for the production process.

The soldering programs can be taken over by the machine from the offline teach program using a USB memory stick or network connection without any further conversion - or vice versa.

The route optimization is particularly innovative. After being taught all the solder points, the program calculates the fastest path independently - to keep pure handling times to a minimum.

Additional automatic control functions, such as a scanning unit to allocate the installed solder wire reel to the corresponding soldering program, or a barcode reading system make the SelectiveLine just perfect.



Technical Data and Machine Options

Fluxer

micro drop jet fluxer	●
wetting width on PCB	2 - 4 mm
flux container	1.8 l pressure tank
automatic level control with capacitive sensor	●
flux types, alcohol or water based	up to 5 % solids content
real time and real quantity control in separate fluxer module	○

Preheating

bottom side halogen emitter	○
total power of the bottom side heating	900 W
top side quartz heating elements with pyrometer control	○
total power of the top side heating	7.5 kW
convection preheat in separate preheater module	○
total power of the convection preheating	5 kW

Soldering Unit for Miniwave Soldering Processes

solder pot compatible for lead free soldering	●
wettable and non-wettable quick change nozzles	○
exchange unit and external heating station	○
nitrogen operation	●
solder pot volume	approx. 14 kg (SnPb)
solder bath temperature	max. 320°C
automatic wave height and solder level control	●
automatic wire solder feeder	●

Control Unit

touch screen with comfortable user interface and password protection	●
automatic PCB alignment with fiducial recognition	○
warpage compensation	○
process visualization	○
online teach system with camera	○
offline teach program VIP	○

Handling of Assemblies

max. board dimensions	500 x 500 mm [19.68" x 19.68"]
inline system with pin-chain conveyor, pin length 3 mm	●
PCB top side / bottom side clearance	max. 100 mm / 30 mm [3.9" / 1.2"]

Axis System

drive unit for X/Y/Z axis	DC servo motor
repeatability	± 0.1 mm

Nitrogen Technology

nitrogen supply and connection	to be supplied locally, R 1/4"
required pressure	min. 2 bar
nitrogen consumption	approx. 4 m³/h
required particle cleanliness	5.0 recommended

Exhaust SelectiveLine Solder Module

exhaust stack / volume	1 piece - 125 mm outer diameter / 500 m³/h
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Electrical Data

available voltages	230/400 V - 50 Hz - 3 phase + N + PE
	3 x 208 V - 60 Hz - 4 wire
power consumption SelectiveLine without top side preheating	approx. 4 kW
power consumption SelectiveLine with top side preheating	approx. 11 kW

Machine Dimensions SelectiveLine Solder Module

length incl. control panel	2014 mm [79.3"]
width	1692 mm [66.6"]
height	1403 mm [55.2"]

Machine Dimensions Fluxer Module and Preheater Module

length	1000 mm [39.4"]
width	1190 mm [46.9"]
height	1166 mm [45.9"]

Further options upon request. ● Standard ○ Option



top side preheating



process visualization

Headquarters Germany

SEHO Systems GmbH

Frankenstrasse 7 - 11
97892 Kreuzwertheim
Germany
Phone +49 (0) 93 42-889-0
Fax +49 (0) 93 42-889-200
Mail info@seho.de
Web www.seho.de

Americas

SEHO North America, Inc.

1420 Jamike Drive, # 300
Erlanger, KY 41018
USA
Phone +1-859-371 7346
Fax +1-859-282 6718
Mail sehona@sehona.com
Web www.sehona.com

England

SEHO UK Ltd.

Sterling House
501 Middleton Road
Chadderton
Oldham OL9 9LY
England
Phone +44-161-654-9117
Fax +44-161-654-7817
Mail info@sehouk.com
Web www.sehouk.com

