Total Solutions

for Soldering Processes and
Automated Production Lines

SEHO PowerSelective

Selective Soldering System SEHO PowerSelective

Soldering is our Passion

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

Maximum Flexibility in Your Production

POWERSELECTIVE

- **High mix - high volume.**
- **Modular system which ideally fits into each production concept: for inline or stand-alone operation and flexible lean production concepts.**
- **Upgradable any time to minimize cycle times or to increase the production volume.**
- **Wide field of application: for multiwave soldering, miniwave or even for conventional wave soldering.**
- **Multiple soldering units and additional processes may be integrated into one machine.**
- **Wetted or non-wetted solder nozzles can be used as well as innovative multi-nozzle tools.**
- **High precision portal axis system which provides maximum flexibility.**
- **The rotating and tilting function of the gripper allows ideal peel-off to minimize solder bridges.**
- **Solder waves with touchless wave height control and controlled nitrogen inertion, for best possible soldering results and highest reliability.**
- **Maximum machine availability due to quick change nozzles and product change-over or maintenance „on-the-fly“.**
- **User-friendly operating interface and easy-to-handle teaching function, online or offline.**
- **100 % automatic process control with integrated AOI system, flux quantity monitoring and many more innovative functions.**
- **Minimum maintenance requirements and ideal accessibility.**
- **For board or carrier dimensions up to 500 x 500 mm [19.68" x 19.68"].**

For the Flexible Production with High Throughput

SEHO PowerSelective is featured with an outstanding modular machine construction that ensures highest flexibility. The basic system can ideally be configurated to meet different specific production requirements and provides the possibility to be upgraded step by step at any later date to suit subsequent production developments.

The PowerSelective may be equipped with several soldering units. Thus, miniwave soldering processes and multiwave soldering processes, even conventional wave soldering, can be covered with only one machine.

Flexibility is also given in the handling of the assemblies. Both, bare boards as well as assemblies in carriers can be processed with the PowerSelective.

All selective soldering systems from SEHO feature a comprehensive hardware and software package to automatically monitor and control the entire process 100 %.

Highest flexibility at high production volumes, maximum soldering quality and process reliability sum up to one result: SEHO PowerSelective.

Made in Germany:
Precision in Manufacturing = Quality Results

The highly precise portal axis system with a repeatability of ± 0.1 mm ensures the accurate and reliable positioning of the assemblies at the different work stations.

The gripper system is mounted at the z axis. After the fluxing and preheating process, the gripper takes the assembly from the conveyor system, positiones it precisely at the soldering units and finally deposits the printed circuit board back onto the transport system. Depending upon requirement, there are different grippers available which can be used for handling of carriers, or direct gripper systems that are designed for the handling of bare boards. If needed the grippers may be equipped with additional functions, such as fixation of components

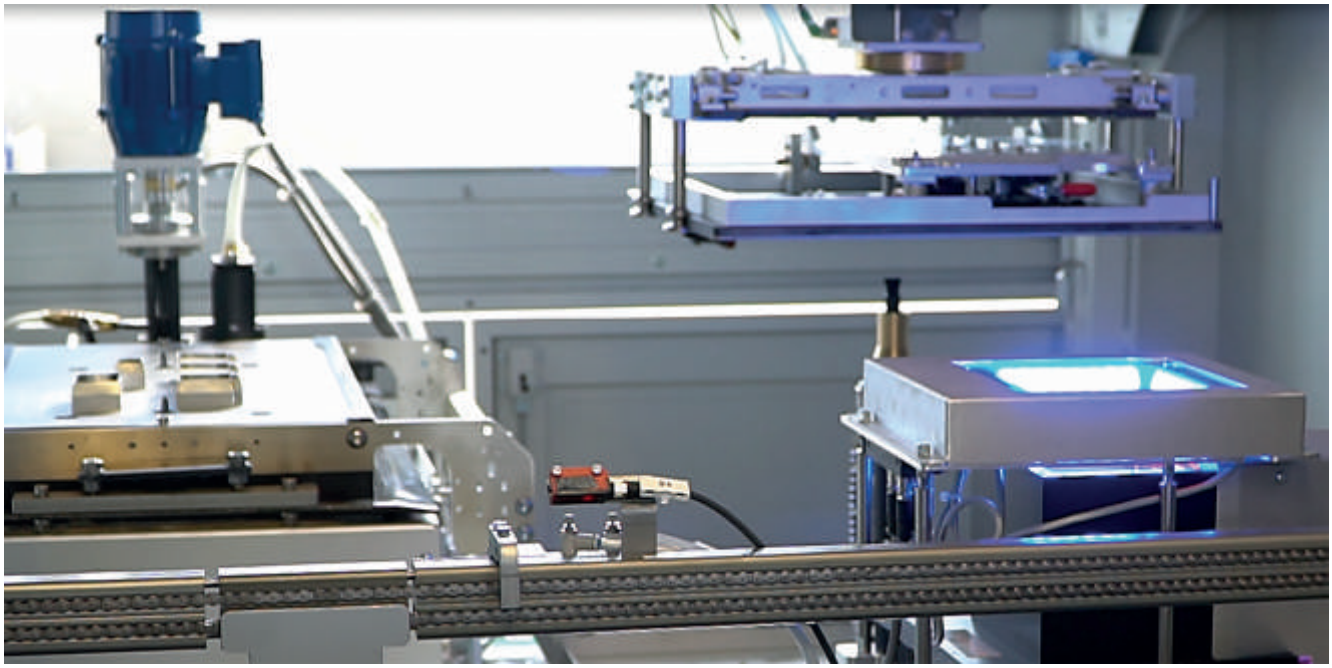
The gripper is provided with a rotating function up to 270° and may be tilted up to 12° to obtain an ideal solder angle even when processing demanding assemblies.

Precise to the Point:
The Fluxer Area

The PowerSelective is equipped with a micro drop jet fluxer unit which may either be integrated in the inlet conveyor of the machine or in a separate fluxer module in front of the PowerSelective, depending on your requirements. This ensures lowest cycle times. The micro drop jet fluxer targets the flux to the exact point and avoids wetting of surrounding areas.

Several nozzle heads may be installed. Each nozzle head thereby can be equipped with up to three micro drop jet nozzles to further reduce cycle times.

The function of the fluxer nozzle can be monitored by means of a capacitive sensor.
Maximum process reliability without any influence on the cycle time is given with the flux quantity monitoring system, winner of the NPI award. This unique high precision fluxer control system monitors the flux quantity that actually leaves the nozzle during the fluxing process. Any deviation from the pre-set value is immediately detected.



maximum functionality on smallest footprint: soldering, brushing, AOI

Ensures Defined Temperature Profiles: The Preheat Area

The preheat area of the PowerSelective also presents itself very flexible.

Depending on your production requirements several quartz heater cassettes or convection preheat units may be installed either at the inlet conveyor of the PowerSelective or in external preheater modules. For printed circuit boards requiring high heat energy, top side heatings are available as well.

Individually programmable quartz heater elements and board surface temperature control by pyrometer ensure a precise, gradient-controlled preheat process.

High Precision - Maximum Quality: The Soldering Area

The state-of-the-art solder nozzle technology developed by SEHO ensures maximum precision in the soldering area.

Depending on your manufacturing requirements, up to two soldering units may be integrated into the PowerSelective, which are designed for miniwave soldering processes, multiwave soldering or even conventional wave soldering.

For electronic manufacturings with high volume and low mix production, product-specific multi-nozzle tools ensure short cycle times as all joints are soldered simultaneously.

The SEHO solder nozzle design guarantees optimum energy transfer. Thus, perfect hole fill is achieved, even when processing high mass assemblies and demanding board layouts. Due to the special nozzle tool design, formation of solder bridges and solder balls is reduced remarkably.

For productions with a wide range of assemblies, miniwave solder nozzles guarantee highest flexibility.

Alternatively, there are two different solder nozzle types available. Non-wetted solder nozzles are nearly maintenance-free and they are featured with an almost unlimited lifetime. Wetted solder nozzles stand out due to the possibility that even extremely small pitches can be processed without any difficulties.

innovative solder nozzle technology

Of course, both the product-specific multi-nozzle tools as well as the various miniwave solder nozzles are quickly exchangeable.

Change of nozzles or maintenance works can be made „on-the-fly“ thus reducing production downtimes to zero.

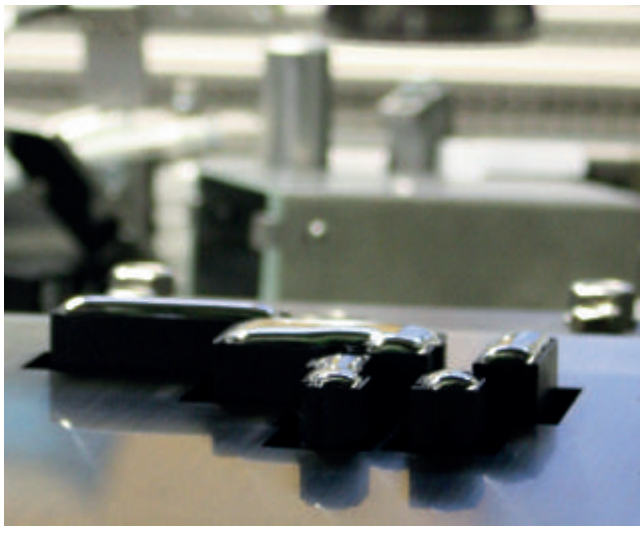
Permanent touchless wave height control systems and monitoring systems for automatic tool measurement guarantee precise and consistent process conditions, without having any influence on the cycle time.

Innovative: Integrated Additional Processes

The PowerSelective provides plenty of room for your individual production requirements on smallest footprint.

This also includes integrated additional processes such as a cooling area. In addition, a selective brush system can be integrated to remove any flux and solder residues, or solder balls immediately after the soldering process.

Moreover, the PowerSelective allows integration of the SEHO PowerVision AOI system to detect potential soldering defects automatically, such as insufficient wetting, missing pins or solder bridges.
The benefits are quite obvious: absolutely safe processes and reduction of your manufacturing costs.



POWERSELECTIVE

Unique: 100 % Process Control

The PowerSelective provides state-of-the-art control technology, with sensors and software tools that continuously monitor all process steps:

From automatic tool measurement and position correction with fiducial recognition, to flux quantity monitoring and reproducible temperature profiles in the preheat area as well as the permanent and touchless wave height control. Moreover, the comprehensive package includes an automatic solder level control, a nozzle coding system with intelligent tool management as well as process visualization and solder joint inspection with an integrated AOI system.

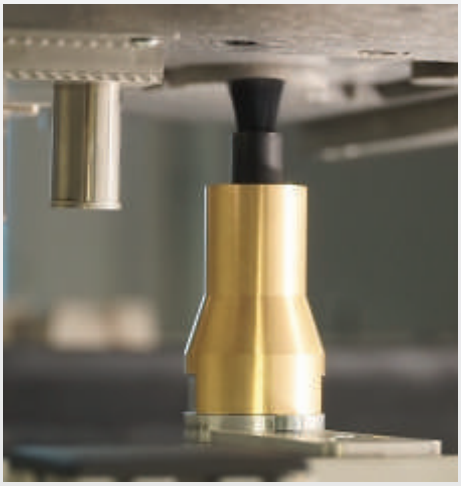
With the machine communication software mcServer, selective soldering processes are made transparent and can be traced completely. The mcServer software tool collects, analyzes and archieves all information about the machine and production process systematically.

Teaching of solder joints is particularly easy with the PowerSelective, and of course can be made offline in case of a wide range of assemblies. Basic data are taken from a picture of the printed circuit board, gerber data or DXF files. The wizard comfortably takes the user step by step through the software. Likewise uncomplicated is the programming process for an integrated AOI system: The inspection areas are already pre-defined from the soldering program and a comprehensive component library with standard values that can be adapted any time, simplifies programming of the AOI tremendously.

Technical Data and Options

Gripper Guidance System	
3 axis double portal system for installation of different gripper tools	●
repeatability	± 0.1 mm
rotating function	0 - 270°
soldering angle set-up by tilting the gripper	0 - 12°
Conveyor Variants	
single and dual lane conveyor systems for stand-alone operation	○
single and dual lane conveyor systems for inline operation	○
max. board / carrier dimensions	500 x 500 mm [19.68" x 19.68"]
Micro Drop Jet Fluxer	
wetting width on PCB	2 - 4 mm
automatic level control with capacitive sensor	○
automatic flux quantity monitoring	○
multiple nozzle heads	○
flux types, alcohol or water based	up to 5 % solids content
Preheating	
quartz heating cassette integrated or in separate preheat module	○
pyrometer for gradient-controlled preheat process	○
convection heating cassette in separate preheat module	○
top-side heating installed in the carrier gripper or in the preheat area	○
Soldering Units	
soldering units suitable for lead-free applications	●
max. solder pot temperature	up to 350°C
quick change solder nozzles and multi-nozzle tools	○
automatic wave height control	○
automatic solder level control and solder wire supply	○
Software and Process Control Features	
online teach system with camera and offline teach program	●
process visualization	○
automatic position correction and automatic z height correction	○
intelligent tool management	○
integrated selective brush system	○
AOI system for solder joint inspection	○
Connections and Machine Dimensions	
nitrogen supply	R 1/4", min. 4 bar
nitrogen consumption (single nozzle)	approx. 1.5 - 2.0 m³/h
required nitrogen quality	5.0 recommended
compressed air supply	R 1/4", min. 6 bar
exhaust	1 x 500 - 600 m³/h
voltages	230/400 V-50 Hz-3 Phase+N+PE 3 x 208 V-60 Hz-4 Phase
machine dimensions - small production cell w x l	2170 x 2110 mm [85" x 83.1"]
machine dimensions - large production cell w x l	2570 x 2210 mm [101" x 87.0"]

Further options on request. ● Standard ○ Option



automatic brush system
integrated in the process area

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
E-Mail info@seho.de
Website www.seho.de

Americas

SEHO North America, Inc.
1445 Jamike Avenue Suite # 1
Erlanger, KY 41018
USA
Phone +1-859-371-7346
Fax +1-859-282-6718
E-Mail sehona@sehona.com
Website www.sehona.com

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