

# Total Solutions

for Soldering Processes and  
Automated Production Lines

SEHO PowerWave

Wave Soldering System SEHO PowerWave



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

## The New Generation of Wave Soldering

# POWERWAVE

- Outstanding and compact machine design, technically equipped like the large systems.
- Flexible configuration, tailored to suit your production requirements.
- Up-to-date fluxer area to ensure economical flux deposition and low maintenance requests.
- Variable and powerful preheat area.
- Individually configurable soldering area - ideally suited for lead-free applications.
- New and up-to-date single or dual solder nozzle technology for SMT and THT assemblies.
- Local nitrogen inertion of the solder waves.
- Roll-out solder pot and integrated exhausts.
- Up-to-date control unit with PC for easy and quick programming.
- With solder frame conveyor or with finger conveyor, for direct processing of PCBs or solder masks.
- Ideal accessibility to all areas.
- Two basic versions available:
  - PowerWave 3.0 with four preheat zones and 1200 mm (47.2 inch) preheat length
  - PowerWave 4.0 with six preheat zones and 1800 mm (70.8 inch) preheat length.

With the wave soldering system PowerWave, SEHO realized a machine concept which offers a remarkable performance at simultaneously low investment costs.

The PowerWave has been designed for medium to large production series and it is perfectly suited for lead-free applications. Complex SMD boards are as reliably soldered as conventional through-hole assemblies - due to up-to-date solder nozzle geometries and a flexible preheat area.

The modular construction of SEHO PowerWave offers the ideal concept for all production requirements and allows the machine to be integrated into existing fully automated lines.

### The Fluxer Area: Precise and Low in Maintenance

SEHO PowerWave is equipped with a modern and motorically driven spray fluxing module. Flux deposition is limited to the printed circuit board dimensions or carrier geometry, offset and spray width may be programmed individually. The spray head features HVLP technology (high volume - low pressure) thus ensuring a stable spray jet.

This makes for a highly precise spray pattern without any overspray, flux consumption is reduced remarkably and potential soiling of the process area due to flux fumes is minimized.



### The Preheat Area: Flexible and Powerful

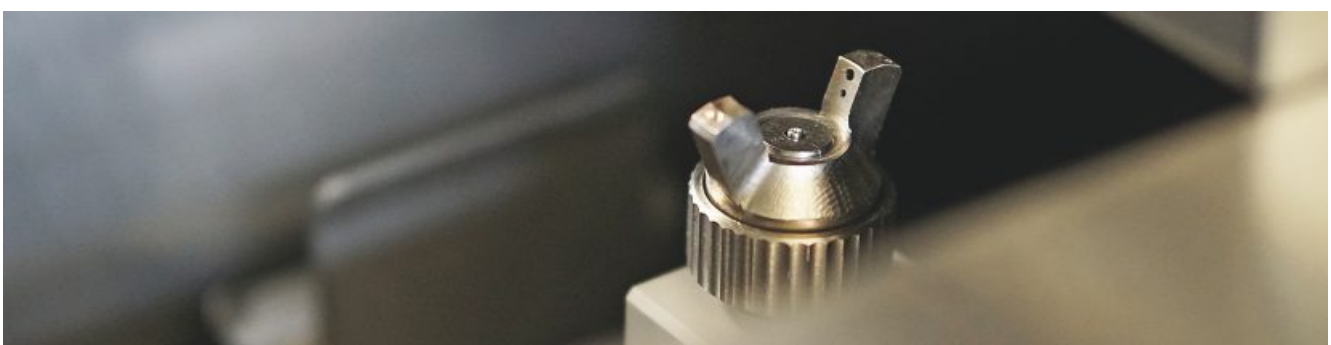
The SEHO PowerWave covers each application and creates performance reserves for your production.

You have the choice between infrared and quick reacting quartz heating modules or powerful convection modules, which we integrate into the machine in different configurations to optimize your production process. All those high-performance heating modules ensure a high temperature stability and an absolutely homogeneous temperature distribution throughout the entire assembly.

The SEHO PowerWave 3.0 is equipped with four individually controlled heating zones over a total preheat length of 1200 mm (47.2 inch). For increased demands or higher throughput requirements there is the PowerWave 4.0 available which provides a preheat length of 1800 mm (70.8 inch) and a total of six preheating zones.

### The Soldering Area: Ideal for all Soldering Tasks

The soldering module as the heart of the SEHO PowerWave is designed with a degree of flexibility that may perform all realistic soldering operations and, of course, it is ideally suited for the processing of lead-free solder alloys. As a standard, the soldering area is provided with a special composite coating developed by SEHO that is successfully in operation since 2001.





For an effective reduction of oxides, the soldering area may be inerted with nitrogen. Cost reductions due to less solder consumption, which can be achieved as a result of this, are remarkably. Simultaneously the wetting behaviour and soldering quality are improved.

Like the fluxer area, also the soldering area is equipped with exhaust hoods to remove arising solder fumes from the process area immediately.

**Individual Configuration:  
Innovative Solder Nozzle Concepts**

SEHO worldwide is considered as a pioneer in soldering technology. Our experience built up over decades can be found in our innovative solder nozzle geometries, to increase the quality of your production and to make your daily work easier. Depending on your applications, the PowerWave is equipped with single or dual solder nozzle concepts.

A variety of modern and innovative solder nozzle geometries is available that can be combined individually depending on the production requirements.

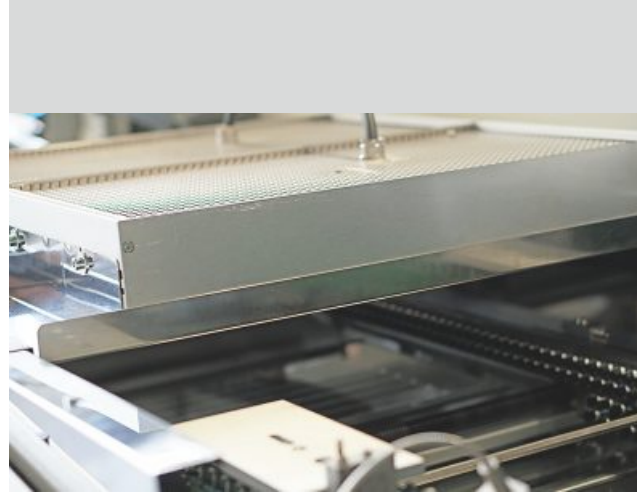
Whether for solder alloys that require high flow dynamics, or in case of processing very complex assemblies: Solder nozzles from SEHO are featured with a defined solder flow. Thus, they reduce the risk of bridging or solder balls, they exclude shadowing and ensure excellent wetting. The results are perfect solder joints.

All solder nozzles, of course, are quickly and easily exchangeable and they are designed to be used with both, lead containing or lead-free solder alloys.

**The Conveyor System: As You Need It**

The SEHO PowerWave ideally suits into each existing production concept, whether you work with solder frames or process PCBs directly.

For processing of printed circuit boards or solder masks, the SEHO PowerWave may be equipped with a combination of a chain and finger conveyor. The conveyor width is flexibly adjustable between 100 mm and 400 mm.



In case you already work with solder frames in your production, the SEHO PowerWave will be equipped with a solder frame conveyor system.

Of course, both conveyor versions may be integrated into a fully automated production concept, realized with corresponding communication interfaces.

**Easy to Handle:  
Comfortable User Interface**

The SEHO PowerWave is equipped with a state of the art, modular designed control and PC for comfortable operation. This ensures a very easy setting of parameters which are required for the soldering process.

The control unit monitors all machine functions and controls all relevant soldering process parameters.

The soldering programs, of course, can be edited and saved. Therefore, when processing different assemblies, the parameters can be changed quickly and easily. All pre-set values and the actual process values, of course, will be documented.

The software of the SEHO PowerWave moreover meets the requirements of an up-to-date management data system.



## Power Soldering and Sectorial Soldering with the Innovative and Low-Maintenance Machine Technology

The SEHO PowerWave is particularly featured with an ideal accessibility to all machine parts. All connections for tubes, cables and mechanical fixtures are plugged. Therefore, the soldering area can be maintained or reconfigured within shortest time and without the need for special tools.

The segmented conveyor system allows to adjust varying speeds in the different conveyor segments. This unique feature ensures individual and optimized adaption of the temperature profile to different thermal requirements of the assemblies. The result: **Perfect solder joints.**

### Technical Data and Options

width of solder wave	100-390/400 mm (3.9-15.3/15.7 inch)
max. component height	140 mm (5.5 inch)
solder volume (approx.)	340 kg (Pb-free)
PowerWave 3.0: number of preheat zones, each 300 mm	4
PowerWave 4.0: number of preheat zones, each 300 mm	6
conveyor angle	7°
conveyor speed	0.5 - 2.5 m/min.
exhaust PowerWave 3.0	2 x 1350 m³/h at 12 mbar negative pressure
exhaust PowerWave 4.0	2 x 1350 m³/h at 12 mbar negative pressure
power rating	230/400 V, 240/415 V (others available upon request)
total power consumption PowerWave 3.0 (min/max)	23 kW / 31 kW
total power consumption PowerWave 4.0 (min/max)	29 kW / 44 kW
compressed air connection	1/4" (internal thread)
compressed air pressure	min. 6 bar
dimensions (L x W) PowerWave 3.0	2980 x 1300 mm (117.3 x 51.2 inch)
dimensions (L x W) PowerWave 4.0	4140 x 1300 mm (163.0 x 51.2 inch)
chain/finger conveyor or solder frame conveyor	<input type="radio"/>
pass-through direction from left to right	<input checked="" type="radio"/>
<b>Fluxer Area</b>	
spray fluxer with HVLP technology	<input checked="" type="radio"/>
exhaust hood and filters in the fluxer area	<input checked="" type="radio"/>
flux dosing system	<input type="radio"/>
<b>Preheat Area</b>	
longwave infrared preheat module	<input type="radio"/>
quartz preheat module (quick reacting)	<input type="radio"/>
convection module	<input type="radio"/>
<b>Soldering Area</b>	
single solder pot for up to two nozzles or dual solder pot for two different alloys	<input type="radio"/>
soldering module capable for lead-free applications	<input checked="" type="radio"/>
delta solder nozzle unit	<input type="radio"/>
chip solder nozzle unit	<input type="radio"/>
EnergyWave45 solder nozzle unit	<input type="radio"/>
LW solder nozzle unit	<input type="radio"/>
exhaust above the soldering area	<input checked="" type="radio"/>
local nitrogen inertion of the solder waves	<input type="radio"/>
<b>Control Unit</b>	
up-to-date control unit with PC	<input checked="" type="radio"/>
timer	<input checked="" type="radio"/>
management data system according to ISO 9000	<input checked="" type="radio"/>
closed loop control for conveyor, solder waves and heatings	<input checked="" type="radio"/>
interfaces for inline integration	<input type="radio"/>

Further options upon request.

● Standard

○ Option

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