

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.
- ATS spray fluxer for an exact and precise supply of flux.
- 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 for minimum maintenance requirements.
- Up-to-date control unit with PC for easy and quick programming.
- With solder frame conveyor or 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 consequently 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 is ideally suited for lead-free applications. Complex SMD boards are as reliably soldered as conventional 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 an ATS spray fluxing module, for fluxes up to 3 % solid contents. The high-precision spray cone ensures a reproducible apply of flux to the assemblies to be processed.

Due to its highly precise function, the ATS spray fluxing module from SEHO reduces the flux consumption remarkably and thus helps to reduce production costs. Simultaneously this fluxer is featured with very low maintenance requirements and works as a closed system.



To virtually eliminate flux evaporation and thus to reduce the maintenance, the entire fluxing area is covered with an exhaust hood and easily exchangeable filters above and underneath the conveyor level.

The Preheat Area: Flexible and Powerful

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

You have the choice between infrared and quick reacting quartz heating modules, or - especially for water-based fluxes 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 absolute 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: Suitable 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, 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 which is successfully in operation for several years.

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

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.

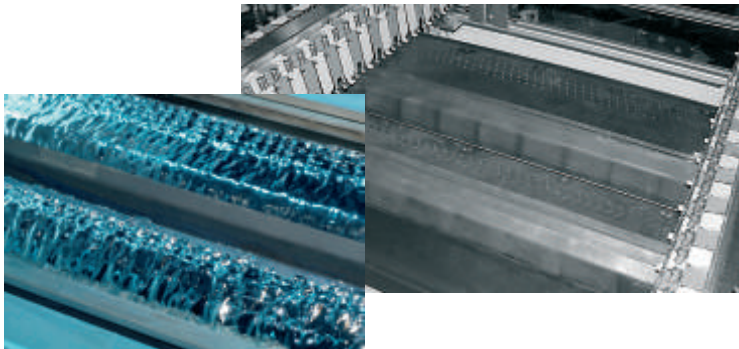
Depending on your applications, the PowerWave is equipped with single or dual solder nozzle concepts.



The Chip wave promotes wetting in critical areas of the assembly because of its high kinetic energy. The Delta wave offers long immersion times and excellent surface definition and thus forms optimal solder joints.

For solder alloys which require a high flow dynamic or for very complex and demanding assemblies, there is a 5-row LV solder nozzle available. A state of the art innovation is the EnergyWave45, which simulates a 45° wave because of its special designed openings and flow pattern. These innovative nozzle geometries with defined solder flow reduce the risk of bridging and simultaneously exclude shadowing. Turbulent wave surfaces ensure ideal wetting properties. In addition to this, the EnergyWave45 reduces the risk of solder balls.

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 Want it

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

For flexible processing of printed circuit boards or solder masks, the SEHO PowerWave may be equipped with a combination of a chain and finger conveyor.

The innovative chain conveyor system which is installed in the fluxer and preheat area, is provided with Viton O-rings to ensure a safe transportation of the assemblies to be processed. In the soldering area, the assemblies are taken over by teflon coated fingers.

The conveyor width is flexibly adjustable between 100 mm and 400 mm.

In case you already should work with solder frames in your production, the SEHO PowerWave will be equipped with a solder frame conveyor system. Here, also Viton O-rings ensure a safe transportation of the assemblies. Systems with solder frame conveyor provide a working width of 400 mm.

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 microprocessor control. 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. Thus, when processing different assemblies, the parameters can be changed quickly and easily. All pre-set values and the actual process values of each soldering series can be documented, of course.

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



The New Generation of Wave Soldering: SEHO PowerWave



Innovative Machine Technology and Low Maintenance Requirements

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 separated conveyor prevents flux residues from entering into the soldering area. Moreover, this ensures the set-up of ideal temperature profiles as all conveyor segments are controlled separately. Therefore, they may be set to different conveyor speeds to achieve best possible soldering results for your production.

Technical Data and Options

board width	100-400 mm (3.9-15.7 inch)
max. component height	140 mm (5.5 inch)
solder volume (approx.)	340 kg (SnAgCu)
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
exhaust PowerWave 4.0	2 x 1350 m³/h
power rating	230/400 V, 50 Hz (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"
compressed air pressure	6 bar
dimensions (L x W) PowerWave 3.0	2978 x 1306 mm (117.2 x 51.5 inch)
dimensions (L x W) PowerWave 4.0	4140 x 1306 mm (163.0 x 51.5 inch)
chain/finger conveyor or solder frame conveyor	<input type="radio"/>
pass-through direction from left to right	<input checked="" type="radio"/>
Fluxer Area	
spray fluxer with HVLP technology	<input type="radio"/>
exhaust hood and filters in the fluxer area	<input checked="" type="radio"/>
flux dosing system	<input type="radio"/>
Preheat Area	
longwave infrared preheat module	<input type="radio"/>
quartz preheat module (quick reacting)	<input type="radio"/>
convection module	<input type="radio"/>
Soldering Area	
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"/>
Control Unit	
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 and heatings	<input checked="" type="radio"/>
interfaces for inline integration	<input type="radio"/>

Further options upon request.

● Standard

○ Option

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.

1445 Jamike Avenue Suite # 1

Erlanger, KY 41018

USA

Phone +1-859-371-7346

Fax +1-859-282-6718

Mail sehona@sehona.com

Web www.sehona.com

