Total Solutions

for Soldering Processes and
Automated Production Lines

SEHO MWS 2300

Wave Soldering System MWS 2300 and MaxiWave 2300 C

Soldering is our Passion

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

Wave Soldering to its Perfection

MWS 2300 and MaxiWave 2300 C

- **High Mix - High Volume:**
  The most innovative wave soldering system for the modern electronics production.
- **Low operating costs due to minimum nitrogen consumption and energy-efficient tunnel concept.**
- **Efficient rest oxygen measurement.**
- **Innovative fluxer area with HVLP technology to reduce flux consumption.**
- **Individually configurable preheat area over a length of 1800 mm [70.8"] to 3300 mm [129.9"].**
- **Maximum efficiency with innovative pulsar preheat concept.**
- **Soldering area with many innovative details:**
  designed for highest quality.
- **Large process window due to sectorial soldering.**
- **Superbly suited for lead-free soldering processes and mixed production due to quick-change solder pots or dual solder pot for processing of two different solder alloys without change-over.**
- **Absolutely unique:**
  MWS 2300 with integrated cooling module.
- **Integrated filters and process gas cleaning reduce maintenance costs to a minimum.**
- **Modern control concept ensures highest performance and easy operation.**
- **Integrated functions for automatic process control:**
  - **flux quantity monitoring**
  - **automatic exhaust control**
  - **solder level control and many more**
- **modular construction = flexibly adjustable to your specific production requirements.**

The Concept: each detail thoroughly considered

The nitrogen wave soldering system MWS 2300 provides maximum flexibility and quality of soldering results.

The fluxer unit may be integrated in the machine or used as an external module - according to the requirement.

The flexible preheat area allows to suit your specific production requirement and leaves absolutely nothing to be desired.

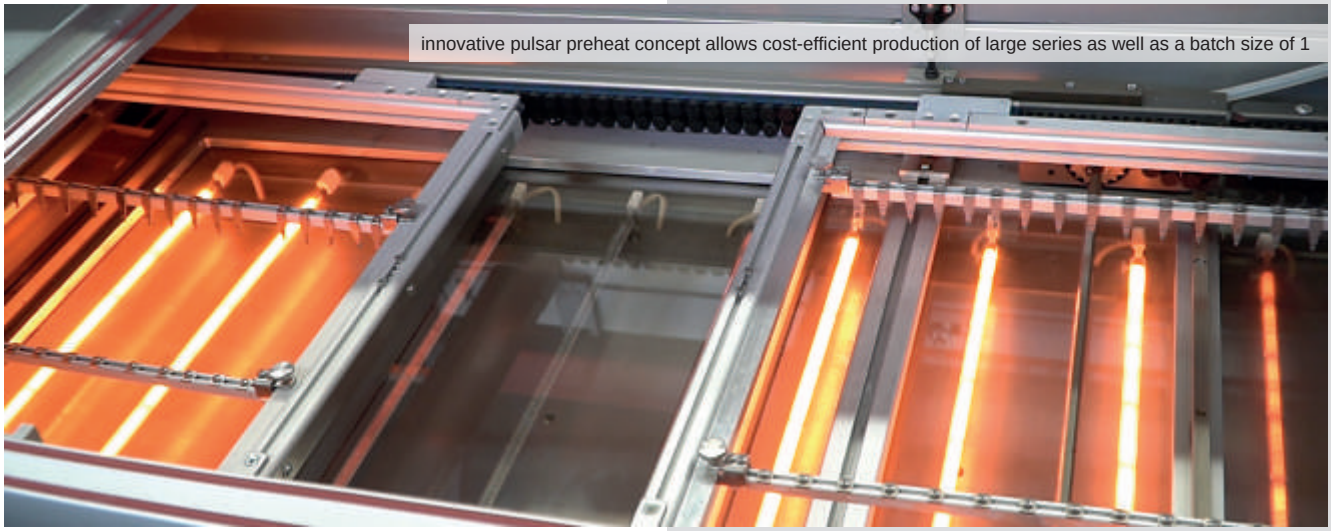
The MWS 2300 features an intelligent soldering channel suspension. It compensates for any changes due to thermal conditions, because the distance between solder wave and assembly remains always the same. This is important for the entire process and ensures perfect soldering results.

Several factors ensure a clean process area and consequently the lowest possible maintenance costs:
As a standard the MWS 2300 is equipped with filters at the inlet and outlet of the machine, collecting the condensates in a defined manner. Moreover, a process gas cleaning system may be integrated. The savings which are achieved in maintenance costs are impressive.

A very special technical innovation of the MWS 2300 is its integrated temperature-controlled convection cooling module. Thus, the assemblies are cooled below liquidus before they are leaving the machine. A clear benefit particularly at high temperature applications, for example when using lead-free solder alloys. Comprehensive test series and studies have shown that an effective and quick cooling results in a positive impact on the metallurgical structure of the solder joints. Both, the stability as well as elasticity of solder joints is considerably increased.

Various functions for automated process control round off the concept and make the MWS 2300 the most innovative wave soldering system.

Based on SEHO's leading nitrogen technology, the precision and high-quality machine tooling as well as the modular design, the nitrogen wave soldering system MWS 2300 is a powerful piece of equipment.



innovative pulsar preheat concept allows cost-efficient production of large series as well as a batch size of 1

Nitrogen Technology: the world leader

With its special geometric tunnel design SEHO developed a nitrogen technology which operates - without extensive mechanical effort - absolutely efficiently and above all with low maintenance requirements.

Gas nozzles in the soldering area flood the system with nitrogen, thus displacing the oxygen in the entire process chamber. At the inlet and unloading end of the machine the oxygen as well as all evaporation fumes are sucked off to achieve a stable atmosphere.
The exhaust can be monitored and controlled automatically to ensure absolutely reproducible process conditions independent from the production volume.

The advantage of this nitrogen technology is the low rest oxygen value in the process area that is build-up within an extremely short time and at minimum nitrogen consumption.

The Fluxing Area: highly precise

The MWS 2300 is equipped with an innovative fluxer area which ensures minimum flux consumption and reduced maintenance.

The fluxer is driven motorically, thus providing several advantages. Offset and spray width can individually be programmed, travel speed and positioning are absolutely accurate and reproducible. An automatic dosing system can be installed to allow a defined flux application, programmable via the software, for each particular board to be soldered.

The spray head with HVLP tecnology (high volume - low pressure) ensures a stable spray jet and a very precise spray pattern even at the outer edges of the printed circuit boards.

A flux quantity monitoring system ensures reliable processes and perfect results.

This features a reproducible fluxing process with a considerably reduced flux consumption. Simultaneously, maintenance requirements are tremendously reduced as this system overall features less soiling of the fluxer area.

For higher throughputs or for programmable spraying of two different flux types, a second spray head may be installed in the system.

The entire fluxing unit may be integrated inside the machine or it may be installed as an external module in front of the soldering system.
In the latter case any soiling of the process area with condensed flux fumes is absolutely excluded. This reduces maintenance costs additionally.

The Preheat Area: as you want it

Due to the modular design of the MWS 2300, the preheating length from 1800 mm to 3300 mm may be individually configured.

Convection preheat zones with or without the support of radiators, convection top-side preheat zones, longwave infrared preheat zones or quick reacting quartz zones can be combined in any way to perfectly suit your specific production requirements.
A particularly high energy density and efficiency is achieved with the pulsar preheat zones, developed by SEHO. Configuring emitters individually instead of using entire segments helps to realize shortest assembly distances.
The ideal concept for the high mix - high volume production!

The preheating area is integrated in the machine to create a closed heat tunnel with high convection ratio. This offers several additional advantages. For one, it ensures the absolutely homogeneous heating of the printed circuit boards. Furthermore, the machine achieves excellent energy efficiency. Consequently, even high throughputs consume little energy.

The Conveyor System: flexible and robust

The MWS 2300 features a sectional conveyor system with up to five separate units.

Depending on the assemblies to be processed the various conveyor sections can be set to individual transport speeds. This is of enormous advantage because with many applications the process window will be extended considerably due to this higher machine flexibility.

The conveyor segments may be changed quickly and easily, without special tools.
Another fact why the machine design provides an outstanding high maintenance simplicity.

Control Unit: designed for the future

The control concept of MWS 2300 is open-ended and consequently a system ready for additions, such as integration of additional sensors, heating zones or cooling modules.

Operation of the MWS 2300 is made with a PC featuring an all-graphic Windows surface. It goes without saying that an automatic production data acquisition for each printed circuit board is part of the comprehensive software package. This also applies for a remote maintenance function and many more features.

MWS 2300 and MAXIWAVE 2300 C

Soldering: highest quality

With the MWS 2300 all nozzles and gas-units as well as all parts coming into contact with the solder are integrated in the solder bath. The complete soldering unit may be moved out of the system automatically and exchanged quickly using plug-in connections. Thus it becomes economical to use different solder alloys in one machine. As an alternative, the system may be equipped with a dual soldering unit to permanently provide two different alloys.

With its function of sectorial soldering the MWS 2300 offers its user an enormously wide process window and a maximum in flexibility. Via the software, the parameters of wave height and conveyor speed may be programmed differently for up to 16 board sections.
The advantage quickly becomes obvious, because with this a component-specific defined soldering profile and peel-off turns into reality.

Depending upon application, different innovative nozzle designs may be used to obtain highest quality soldering results.

A convection heater directly in front of the solder waves establishes an extremely low temperature jump between pre-heating zone and solder bath, avoiding temperature stress for the assemblies.

A particular feature of SEHO machines is the patented dip-apron in the wave soldering area. It contributes to an essential reduction of the residual oxygen value. It also efficiently reduces the oxides in the wave soldering area, thus creating the highest possible wetting activity of the solder.

Minimum investment costs at maximum performance: MaxiWave 2300 C

Based on the high-performance machine parts of the MWS 2300, the MaxiWave 2300 C especially attracts with low investment costs.

The MaxiWave 2300 C features a fluxing module which is integrated in the base frame. To avoid flux evaporation within the process area, the fluxer is equipped with an exhaust hood.

The preheating area consists of up to nine heating zones, providing a total heating length of up to 2700 mm. You have the choice between infrared, quartz and pulsar heater zones or powerful convection preheat modules which we integrate into the machine in different configurations to optimize your production process.

The heart of the MaxiWave 2300 C is the innovative soldering module which is absolutely identical with the soldering area of MWS 2300.

The low-cost alternative for the modern, high-class electronic production: MaxiWave 2300 C.

Technical Data and Machine Options

Fluxer Area - integrated or as an external module	
ATS spray fluxer with HVLP technology	○
dual spray head	○
flux dosing system	○
flux quantity monitoring	○
Preheating Area	
long wave-length infrared preheat zone	○
quartz emitters (quick reacting)	○
pulsar emitters for high mix - high volume production	○
convection module	○
top-side preheater	○
Soldering Unit	
single solder pot for up to two nozzles or dual solder pot for two different alloys	○
solder level control	●
different innovative solder nozzle geometries	○
programmable, sectorial soldering	●
Conveyor	
maximum conveyor width	500 mm [19.7"]
conveyor angle fixed at	7°
finger conveyor or solder frame conveyor	○
Cooling Area	
integrated convection cooling module	○
Process Zone	
rest oxygen measurement and nitrogen economy mode	○
exchangeable filters at the inlet and outlet	●
process gas cleaning unit	○
Control Unit	
up-to-date control concept with PC	●
closed loop control	●
statistical process control	●
high precision CAN bus motors	●

Further options upon request. ● Standard ○ Option

Headoffice 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

Soldering is our Passion