

Total Solutions

for Soldering Processes and
Automated Production Lines

SEHO MaxiReflow

Reflow Soldering System SEHO MAXIREFLOW



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

- Winner of the Global Technology Award.
- Worldwide unique: thermally invisible conveyor system.
- Maximum process reliability with 100 % parallel alignment of the conveyor rails.
- Efficient residue management ensures long maintenance intervals.
- Optimum, powerful heat transfer.
- Low, component-sensitive set temperatures.
- Flexible temperature management due to a high number of heating zones.
- Effective, multi-stage cooling zone.
- High machine availability.
- Automatic recording of machine and process data with comfortable software tools.
- Nitrogen control ensures low operation costs.
- **MaxiReflow 3.0 available in three basic versions:**
 - with 7 heating zones
 - with 8 heating zones, designed for nitrogen operation
 - with 10 heating zones, designed for nitrogen operation
- **MaxiReflow 3.6 available in two basic versions:**
 - with 10 heating zones, designed for nitrogen operation
 - with 12 heating zones, designed for nitrogen operation
- **MaxiReflow 4.5 available in two basic versions:**
 - with 11 heating zones, designed for nitrogen operation
 - with 13 heating zones, designed for nitrogen operation

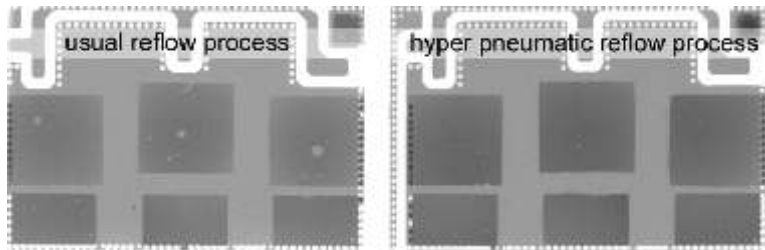


SEHO MaxiReflow: Maximum Soldering Results

SEHO MaxiReflow, which won a Global Technology Award, sets a milestone in soldering technology.

The system is equipped with a revolutionary, thermally invisible conveyor system, an effective and component-sensitive heat transfer technology as well as a highly efficient residue management with process gas cleaning.

Maximum process reliability, maximum soldering quality and maximum machine availability arrive at one conclusion: SEHO MaxiReflow.



Up to 99 % void-free solder connections with the Voidless Pressure Chamber that can be integrated in the peak area: Effective and Safe!

Maximum Parallelism: The LowMassConveyor

The new 'LowMassConveyor' transport system of the MaxiReflow has shown itself to be extremely innovative and unique worldwide.

The chain guide profiles are carried by continuous steel cables in this transport system, each of which is spanned with a tensile force of 14,700 newton through the entire system. This ensures an absolute parallel alignment of the profiles. Extremely slender chain guide profiles which are 'thermally invisible' can thus be utilized at the same time.

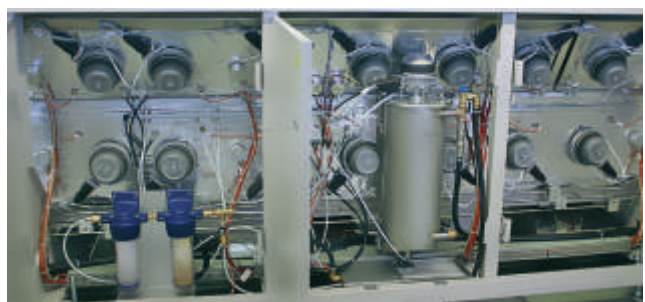
A similar principle is used for the center support, which cannot be 'seen' on the temperature profile either, completely independent from its position.

This innovative transport system has a further advantage for the area of maintenance.

Only one adjustment mechanism is still required within the process zone because the parallel alignment of the chain guide profiles is not achieved within the oven by means of spindles but solely by means of tensile force from the spanned cables.

This method results in less potentially corroding surfaces on which the contaminated process gases can condense, whereby the outlay on maintenance and the extent of possible wear are reduced to a minimum. This does not only save time but also money in your production.

Of course, the MaxiReflow soldering systems are available with a dual conveyor system as well to realize maximum production volumes.



Maximum Cleaning Results: The Residue Management

The significantly increased temperatures of the lead-free process inevitably lead to more evaporation from paste, components, PCB, solder mask etc. as well as products of chemical reactions between them.

Therefore, an efficient residue management with cleaning of the process gas is an absolute must for a modern reflow soldering system.

The MaxiReflow is equipped with a new and highly efficient multi-stage process gas cleaning system which ensures long maintenance intervals. This guarantees a remarkable cost reduction in your production and additionally makes for a high machine availability.

Excellent Reflow Soldering: SEHO MaxiReflow

All of the heated zones are directly connected to the system for cleaning the process gas. Moreover, the process gas is conducted within the hot area up to the cleaning point, in order to guarantee that the condensation is controlled. The cleaning system itself is the first cold point that the process gas meets: a double-walled, cooled condensing cyclone.

The cleaned process gas afterwards is conducted to the last preheat zone. This principle enables high temperature differences between the last preheat zone and the first peak zone.

Maximum Heat Transfer: Perfect Temperature Management for Perfect Soldering Results

Provided with the unique tangential blower technology and a perfect gas leading system, the MaxiReflow systems exactly deliver what you expect from your reflow soldering machine: excellent and repeatable soldering results.

A very homogeneous heat distribution throughout the entire conveyor width, combined with moderate gas velocities are ensured by a large volume of ventilated process gas and especially adapted slot nozzles. This gas leading concept completely excludes any shadowing or unintended movement of components.

The special shape of the nozzles and the optimized gas leading principle FDS (Flow Dynamic System) make for an ideal, highly efficient heat transfer to the printed circuit boards and thus enable the most effective and component-sensitive heating of the product with set temperatures on a low level. This helps a lot to fulfill today's requirements concerning the narrow process window of the lead-free soldering process. All the components will be soldered reliably whereas the temperature impact on the entire assembly and the Delta T will be reduced significantly. The FDS principle simultaneously separates the individual heating zones thermally from each other and prevents build-up of an undesirable laminar flow.

Flexibility of the MaxiReflow systems is also given in terms of the temperature management. Depending on the application the machine may be equipped with different heating zone configurations. This enables a very precise and flexible reaction to all material- and process-related conditions - for perfect soldering results.

In case of frequently changing products and truly different temperature profiles, the emission-free express exhaustion leads to remarkable time savings, thus contributing to a reduction in manufacturing costs. Here, the temperature in the process chamber is reduced to a significantly lower level within shortest time.



Maximum Efficiency: The Multi-Stage Cooling Concept

The multi-stage, temperature-controlled cooling area of the MaxiReflow provides special flexibility and ensures stress-free cooling of your assemblies. It consists of active, closed cooling modules that are equipped with integrated heat exchangers. These heat exchangers are supplied with cooling water that either may be provided by an internal water chiller, or by a direct on site water connection.

Maximum Supervision: The Control Unit

The modular control concept is open-ended and consequently a system ready for new developments or additions and it constantly offers the opportunity to meet new challenges.

The software is easy to use and provided with a comprehensive management data tool for documentation and analyzing purposes.

The machine may be equipped with a nitrogen control system which ensures consistently high quality of your products and enables you to have manufacturing costs under control.



Technical Data and Options

Heating Zones

process gas		N ₂ or air
MaxiReflow 3.0:	number of heating zones top and bottom [pcs]	7, 8 or 10
	total length of heated area [mm/inch]	3150 / 124.0
	average working speed (lead-free)	0.7 - 1.0 m/min.
MaxiReflow 3.6:	number of heating zones top and bottom [pcs]	10 or 12
	total length of heated area [mm/inch]	3750 / 147.6
	average working speed (lead-free)	0.8 - 1.2 m/min.
MaxiReflow 4.5	number of heating zones top and bottom [pcs]	11 or 13
	total length of heated area [mm/inch]	4780 / 188.2
	average working speed (lead-free)	1.1 - 1.5 m/min.
time for heating up [min]		approx. 20
emission-free express exhaustion - quick change to a lower temperature level		<input type="radio"/>

Conveyor System

pin-chain conveyor - LowMassConveyor	<input type="radio"/>
combined conveyor (pin-chain and mesh belt)	<input type="radio"/>
max. working width [mm/inch]	500 / 19.68
dual lane conveyor - LowMassConveyor	<input type="radio"/>
working width programmable	<input checked="" type="radio"/>
chain center support with programmable positioning	<input type="radio"/>
parking position for chain center support	<input checked="" type="radio"/>

Cooling Area

number of cooling zones [pcs]	2 - 3	
MaxiReflow 3.0:	length of cooling area [mm/inch]	900 / 35.4
MaxiReflow 3.6:	length of cooling area [mm/inch]	1200 / 47.2
MaxiReflow 4.5:	length of cooling area [mm/inch]	1800 / 70.9

Residue Management

3-stage residue management with process gas cleaning (cyclone)	<input checked="" type="radio"/>
water-supported cyclone	<input type="radio"/>

Nitrogen Technology

SEHO oxygen sensor with nitrogen control	<input type="radio"/>
oxygen analyzer	<input type="radio"/>
average nitrogen consumption at 200 ppm residual O ₂ ¹⁾	< 20 m ³ /h
nitrogen quality	5.0
pressure of nitrogen supply [bar]	6 - 8
nitrogen connection	1/4"

Control Unit

micro processor control with operation via PC	<input checked="" type="radio"/>
individual adjustment of circulated convection volume (3 groups)	<input checked="" type="radio"/>
management data system according to ISO 9000	<input checked="" type="radio"/>
production statistics for every board	<input checked="" type="radio"/>
clock timer and interval functions	<input checked="" type="radio"/>
interfaces for inline integration (SMEMA, Siemens etc.)	<input type="radio"/>
closed loop control of all relevant functions	<input checked="" type="radio"/>
PCB pass-through control	<input checked="" type="radio"/>
remote maintenance function	<input checked="" type="radio"/>

Machine Dimensions

total length [mm/inch]	MaxiReflow 3.0	5610 / 220.8
	MaxiReflow 3.6	6520 / 256.7
	MaxiReflow 4.5	8340 / 328.3
total width [mm/inch]		1500 / 59.0
total height, depends on infeed height [mm/inch]		1490 - 1590 / 58.7 - 62.6

Further options upon request.
¹⁾depending on application

Standard

Option

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