

## VP2000 *inline*

### The Vapour-Phase Soldering System – the Inline-System for Mass-Production

The innovative inline soldering system for mass producers operates according to oxygen-free-process designed by ASSCON. Pre-heating and soldering is performed under oxygen excluding conditions. Components such as QFPs, BGAs, Flip-Chips and hybrids are processed with high quality results.

The VP2000 series, depending on the model, processes assemblies from a size of 100 x 60 mm up to 750 x 620 mm.



*View into the conveyor system*

The VP2000 series is at the same time platform of the Inline vacuum systems for high tech processing of void free high performance assemblies. The system is

designed for integration in mass-production lines for bare board processing of assemblies. Electrically adjustable conveyors and center supports permit quick and easy integration into the flexible production environment.

The whole soldering process, pre-heating and soldering is performed in an oxygen-free atmosphere.

Overheating of assemblies, damage of components and delaminations of the printed circuit boards can not occur as the maximum possible soldering temperature can never surpass the boiling point of the medium. The transfer of heat energy takes place during the condensation of the vapour on the assembly. By adjusting the energy transfer during the pre-heating and soldering processes, the temperature gradient is effectively programmable.

This guarantees a homogeneous energy distribution for the entire assembly. Three-dimensional assemblies may therefore be processed without any problem. Due to

the efficiency of the heat transfer process the energy consumption is low.

Input of the process parameters requires only the input of the temperature gradient. The required time for soldering and the completion of the soldering process are automatically controlled by the system.

#### Advantages

- High rates of throughput with inline processing
- Oxidation-free pre-heating and soldering process
- Homogeneous temperature distribution over the whole assembly
- Overheating of the solder product is impossible
- No shadowing or color selectivity
- Reproducible process conditions
- No time-absorbing generation of temperature profiles
- Low production costs
- Control and failure message system

# VP2000 *inline*



## Machine Design

The machine is of modular design. The main units are loading module, loading zone, soldering zone, cooling zone.

The loading module is the interface for the upstream inline production unit. The loading zone serves as a buffer zone for the continuous production process. The assemblies are fed into the soldering zone using a dual pin and chain conveyor. The width of the conveyor may be adjusted electrically. A center support guarantees consistent and reliable operation with large assemblies. For high production throughput there are models equipped with dual-lane conveyor system.

In the soldering zone high quality stainless steel is mounted. Large area heaters, mounted on the outside, are insulated against external heat radiation. Temperature measuring systems for heaters, fluid, vapour and cooling zone temperature guarantee utmost process reliability.



The machine is easy to access during maintenance

A multi level cooling system in the efficient cooling zone guarantees an efficient cooling of soldered assemblies. Heat transfer medium which is evaporating from the assemblies is regained and lead back into the systems circulation.

A high performance permanent filtration system guarantees a constant micro-filtration of the heat transfer medium. An integrated exhaust system draws off emissions, which may outgas from the assembly.

The high performance soldering system cooling unit is integrated in the base of the machine.

A processor controlled control system guarantees an effective process sequence and maximum operating safety.

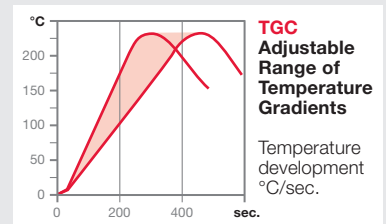


Operational panel

Operation and display is done by touch-screen. Online-access allows maintenance and diagnostics on long distances.

## ASSCON's Process at a Glance:

- User-friendly inline SMT reflow soldering system for mass-production
- Oxygen-free-process, oxygen-free pre-heating and soldering process
- Lead-free capable without restriction
- Low operation costs because of efficient energy use
- Optimum accessibility for maintenance and service



## Optimum process reliability through:

- ASB (automatic-solder-break), automatic detection of the terminated soldering process
- TGC (temperature-gradient-control), selectable temperature gradients
- ETR (energy-transfer-rate), complete control and full programmability of all process parameters

The system is available in different models for assemblies from 100 x 60 mm up to 750 x 620 mm as well as a high performance dual-lane system.