



## VP 3000 *inline*

### The Vapor-phase Soldering System – the In-Line-System for Medium-Volume-Production

The innovative inline soldering system 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 worked with high quality results.

By working with high-boiling process mediums, the system is unrestricted qualified for professional serial processing of lead-free assemblies.



*View into the Conveyor System with Assembly*

The VP 3000 series machine can dependent on option process up to PCB sizes of 600x500 mm.

The system is designed for pallet free board processing, being a real in-line-system.

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 to the components and de-laminations of the printed circuit boards can not occur as the maximum possible soldering temperature may never surpass the boiling point of the medium.

The transfer of heat takes place during the condensation of the vapor on the assembly. By adjusting the energy supply 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 is simply limited to the input of the temperature gradients. The required soldering time and the completion of the soldering process is automatically controlled by the system.

#### Advantages

- High rate of throughput with in-line processing
- Oxidations-free pre-heating and soldering process
- Homogeneous temperature distribution over the whole assembly
- Overheating 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



## Machine Design

The main units of the machine are load and unload stations, soldering zone, cooling and controller.

The loading zone is the interface for the inline production unit and serves as a buffer zone for the continuous production process. The assemblies are fed into the process zone using a pin chain conveyor.

The width of the conveyor may be adjusted. A center support guarantees consistent and reliable operation with large assemblies.

The process zone consists of high-grade aluminum and stainless steel. Large area heaters, mounted on the outside, are insulated against external heat radiation. High quality temperature sensors for heaters, fluid, vapor and cooling zone temperature guarantees utmost process reliability.



*The machine is easy to access during maintenance*

The efficient cooling zone of the machine is equipped with a special blower system, which circulates the medium and flux residues, emanating from the assembly, through a cooling cassette and on to an internal filtration cycle.

An automatic permanent filtration system is integrated for micro-filtration of the heat transfer medium.

An integrated exhaust system is available to draw off the vapors and odors, which may outgas from the printed circuit boards. The control is pre-programmed to accept the connection of an external exhaust blower.

The process cooling system is integrated in the base of the machine.

The machine controls are located in a built-in control box.

A monitoring and control system powered by a cutting-edge processor and equipped with a bus-system guarantees utmost process reliability.

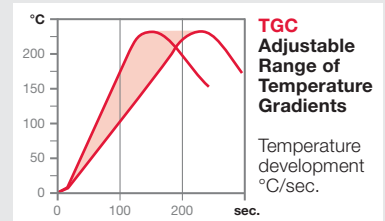


*Operational Panel*

An intelligent touch panel display is integrated to operate and program the machine. As an option, a diagnostic maintenance module is available, which allows long distance diagnoses of maintenance problems using a modem.

## ASSCON's Process at a Glance:

- User-friendly in-line Vapor-phase soldering system for serial-production
- Oxygen-free-process, oxygen-free pre-heating and soldering process
- Lead-free capable without restriction
- Optimum process reliability with TGC and ASB



- TGC (temperature-gradient-control), adjustable temperature gradients in the pre-heating zone
- ASB (automatic-solder-break), automatic recognition of the completed soldering process
- OPC (optical-process-control), visual process control
- Storage of soldering programs
- Low operation costs because of efficient energy use
- High process reliability with on-line long-distance diagnostics
- Standardized interface for modern production lines

Typ	max. Product Size
VP3000·inline	600 x 500 mm