ASSCON
Vapor Phase Technology

VP510

Vapor-Phase Soldering

Laboratory and Single Piece Production

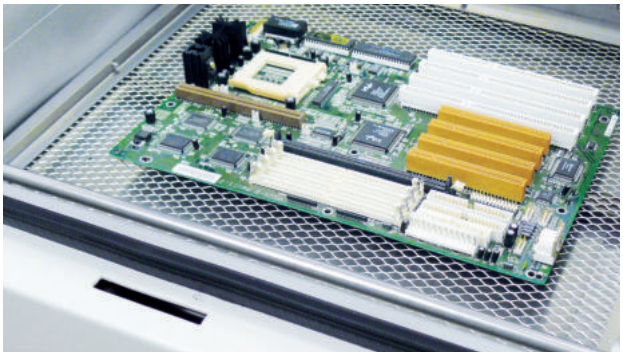
ASSCON Vapor-Phase-Reflow-Soldering Systems set the benchmark in soldering technology. The physical laws of the process permit defect-free soldering of the most complicated SMT assemblies in any required geometry even when using lead-free solder pastes. Components such as QFPs, BGAs, Flip-Chips as well as hybrids are processed with very high quality results.
The VP510 Series is designed to be used in the labroratory and for small series production. Due to its compact design and optionally an integrated cooling unit the machine may be used at any place and without preparatory set-up even at different workplaces. With an integrated closed cooling system installed only a 240 V/120 V supply connection is required to operate the unit.

MACHINE DESIGN CONCEPT

The machine is impressive due its simplicity, ease of use and providing the ability to solder high quality assemblies defect-free. Integrated in the self-supporting structure is the process zone with electrically operated lift-unit and the work piece carrier. The electronic control includes temperature sensors for the heaters, fluid and steam temperatures and therefore ensures absolute process reliability. An automatic measuring cycle recognizes the prozess fluid used. The machine is delivered with an automatic monitoring of the process fluid level by default. The whole process can be observed through a sight window. A quick start function reduces energy consumption during stand by mode and guarantees operational readiness for the next solder cycle within the shortest time.

PROCESS SEQUENCE

After opening the machine cover the solder product is placed on a work piece carrier. The process starts. An electric motor moves the work piece carrier with the assemblies to be soldered into soldering position. The PLC controls vapor production according to the set temperature gradients. Having reached the soldering temperature the work piece carrier is moved to the cooling position. The inner lock between process and cooling zone closes. The solder product is cooled by an effective blower system. After the cooling time has expired, a signal indicates release for removing of the work piece. An electromechanical guard locking prevents from opening the machine during production process.



Work piece carrier with assembly at feed-in position

TYPICAL APPLICATIONS

- Laboratory use for qualification and testing soldering processes
- Establishing temperature profiles
- Reliable SMT soldering of single assemblies
- Soldering of small series
- Quality control of solder pastes and printed circuit boards
- Assembly repairs, desoldering and resoldering of components

TECHNOLOGY

The physical law during the vapor-phase soldering process ensures extremely stable process conditions.
Using vapor a as heat-transfer medium the solder product, independent of its size and weight, will be heated to preheat and peak temperature levels in an absolutely homogeneous fashion. Geometric parameters such as the form of components or packaging density do not influence the heating process. Due to the high density of the medium, oxygen is displaced from the heating and soldering zone. The whole process takes place in an oxygen-free atmosphere.
Overheating of the assemblies, damage to components or de-lamination of printed circuit boards can not occur, as the maximum possible solder product temperature can never exceed the boiling temperature of the medium. E. g. 230 °C when using a lead-free process.
Any transfer of heat energy occurs during the condensation of the vapor on the assembly. Due to the control of the energy supply during the heating and soldering process the temperature gradient may be set.

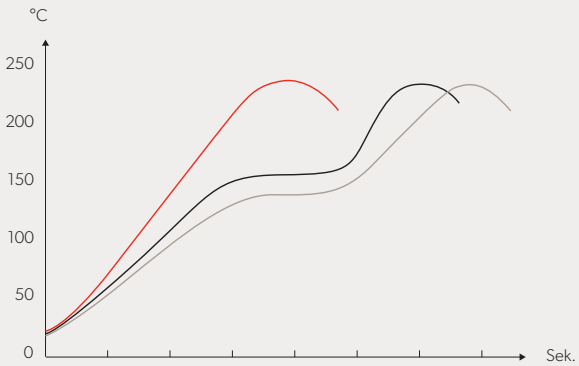
The energy distribution across the whole assembly is homogeneous. Therefore three-dimensional assemblies may be processed without any problem.

Top Loader Concept

Control panel

VP 510 AT A GLANCE

- Infinitely adjustable temperature gradient with sensor-based profiling
- Soldering machine with oxidation-free soldering and cooling zone (two-chamber technology)
- Simple relocation by robust castor pulleys
- 240 V/120 V power connection
- Automatic medium identification
- Automatic monitoring of the process fluid level
- Temperature gradient control (TGC)
- Controlled by micro PLC with 3,5” color touch screen
- Program memory for 10 soldering programs
- Integrated cooling unit optionally available



Optimum process reliability through:

- ASB (automatic-solder-break), automatic recognition of a completed soldering process
- TGC (temperature-gradient-control), adjustable temperature gradients in the pre-heating zone
- OPC (optical-process-control), visual process control

TECHNICAL DATA

Work piece carrier size	450 x 450 mm
Maximum solder piece height	100 mm
Electrical Supply	240 VAC/50 Hz/60 Hz
Power drawn	3.2 kW

asscon.de

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