

3D linear Jet Plating Tool

Plating tool

www.spm-semiconductor.it

The 3D JET PLATING is a new equipment.

The Jet Plating unit is an interesting system that could also upset the the electrolytic deposition method, avoiding some maskings.

The SPM Jet Plating equipment integrate a Cartesian robot that is ruled by a specific controller. Into the electric board is also installed an Omron PLC that controls all equipment other components like valves, pumps, sensors... The PLC will also check safety conditions to operates and will command the robot to start-stop its work.



Special Plastic Module for
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COMPOSITION

Jet Plating Set Up for 3D is composed by:

- base module for parts containment
- 300x300x200mm PVDF process tank with anode system (platinum-titanium)
- 30 liters PVDF buffer tank with heater, PT100, level control
- centrifugal pumping group with solution 5" filtration housing
- chuck vacuum system for substrate blocking (layer-by-layer); option: small vacuum pump
- Cartesian axes robot at three interpolated axis X, Y, Z (with ALPHA motion controller)
- nozzle system (including cathode and electrical connection)
- DC power supply 0-10 V, 2 Amp
- general control by PLC with Touch Screen, Omron (Option: instead of touch screen panel: industrial PC (with touch screen display) with directly installed the ALPHA software.



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PROCESS AREA

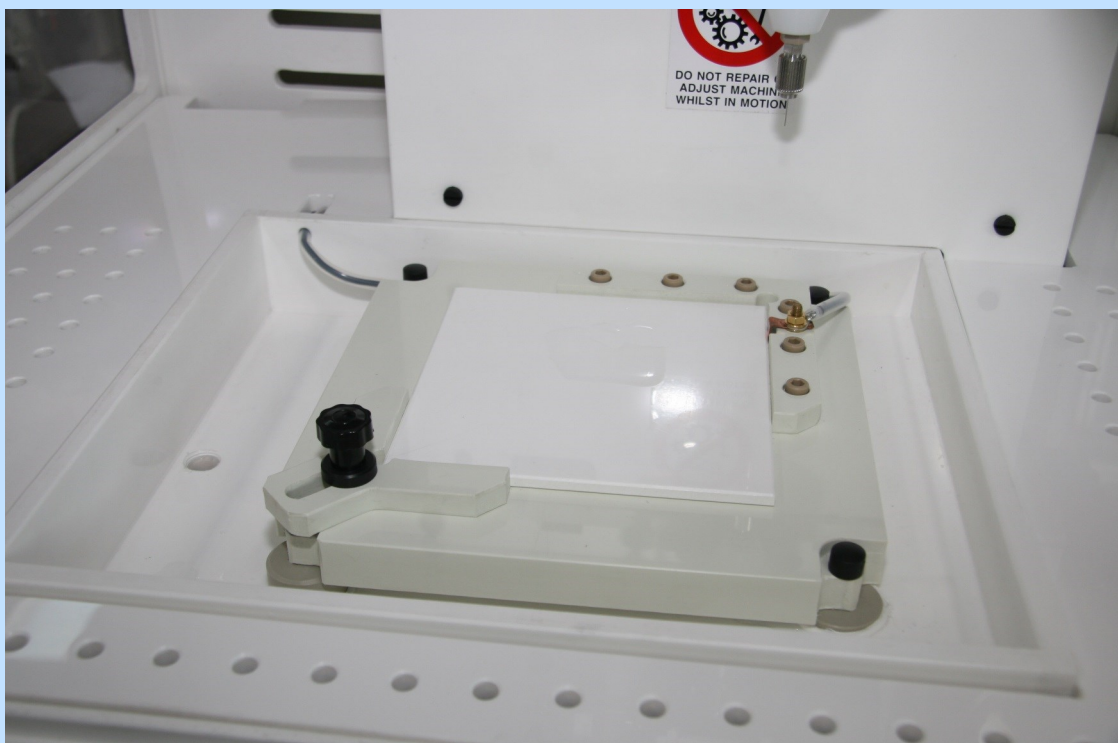
The process tank is made by PVDF and includes special support for the substrate. The substrate is held by the system with vacuum. (You have to provide vacuum to the equipment as a facility inlet, otherwise we can supply a vacuum pump integrated into the system.)

On the process tank is placed a special platinum-titanium net to act as anode of the electrolytic process. The cathode is placed on the robot. Cathode and anode are connected electrically to the DC Power Supply. The start-up of the power supply is ruled by the PLC.

The electrolytic solution is placed into a 30 liters heated buffer tank. The PLC controls the thermoregulation with high accuracy. A centrifugal pump circulates the liquid from the buffer tank to the process nozzle passing through a 5" filter housing.

The liquid, before reaching the nozzle, passes through a platinum-titanium cathode, so the solution is electrified and when it's spread out from the nozzle, it makes possible the electrolytic process on the substrate because the liquid goes in contact with the solution in the process tank and of consequence with the anode.

The solution from the process will overflow to the underneath buffer tank.



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ROBOT



The System is composed by a Cartesian robot with three interpolated axes; it is extremely flexible and ensures high precision and repeatability of the operations.

The mechanical part consists of screw axes with linear and rugged ball bearing guides and the self-bearing structure is made of aluminium profiles.

The Robot is controlled by a ground-breaking motion control system called ALPHA, which, combined with the new software ALPHA, guarantees reference performances and various functions. The robot is programmed from the PC and subsequently controlled via the operator panel, and can manage up to 100.000 points split-up into 255 work programs.

The user-friendly graphic interface, the possibility to import files in .dxf, Gerber or Excel format and the new SUB-PROGRAMS function allow you to fulfil extremely complex operations, very quickly.

As for the dispensing applications, the 3D interpolation, the continuous path function, the automatic calibration system and the high mechanical precision guarantee utmost execution quality.



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