

Taiyo Circuit Automation is the Global Leader in LPI Coating

# DP9000

## SMART PRINT SYSTEM



### Fully Automatic DP9000 System

The **DP9000** coating and drying system is the ideal choice for automated coating and drying of liquid photo imageable solder mask in a cleanroom environment.

**TCA**  
**TAIYO**  
CIRCUIT AUTOMATION

# Taiyo Circuit Automation DP9000

Engineered to deliver more precise coating quality, repeatability and consistency print after print.

## Refined Precision Printing

The shrinking of PCB structure, conductor width and drilling hole diameter, has brought to develop the integration of the via holes with the surface soldermask outer layer feature of HDI designs. Current soldermask masking technologies have to evolved mirroring more challenging designs combining



high copper circuits, higher layer counts and smaller drilled holes, filled vias and built-up multilayers. Solder masking requires thinner, controllable, consistent, repeatable, superior trace encapsulation and more consistent, predictable overall coverage. Contamination such as flux residues, fibers, and debris enhance the adsorption of moisture and leads to failures and surface defects.

**Taiyo Circuit Automation** has responded, introducing the **DP9000** Cleanliness in

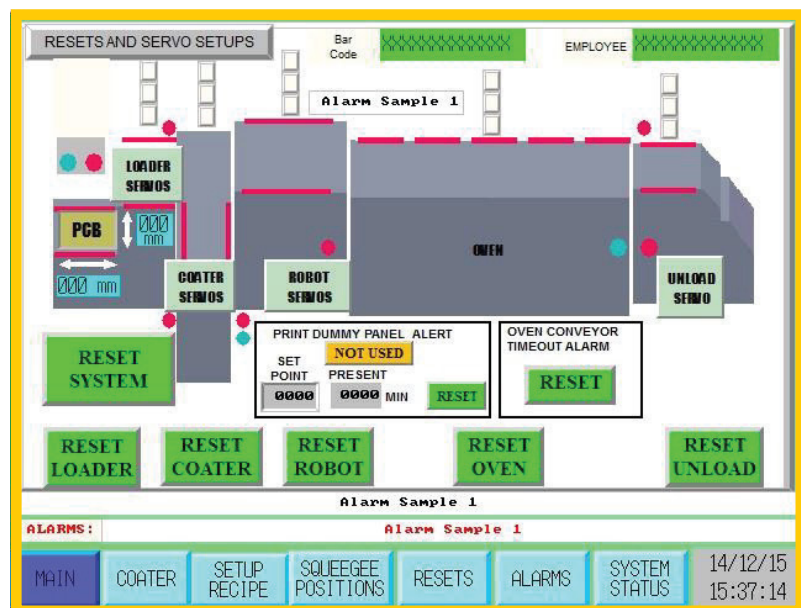
both room environment and in application equipment is now a critical component requirement for the application of LPI soldermask lacquer due to the shrinking geometry between components and increased density.

Advanced technology requires a cleanroom with a low level of environmental pollutants such as dust, aerosol particles, and chemical vapors. To meet these new requirements, The DP9000 was developed as a new series of equipment with improved capacities while contributing less room contamination.

## Refined Controls

PLC to control the entire machine which is integrated with a PC designed to Data Log all the critical machine functions and settings.

System controls and logging system supports several languages including English, Chinese, French & German.



ENGLISH PANEL FOR MACHINE CONTROL

# Refined Innovations

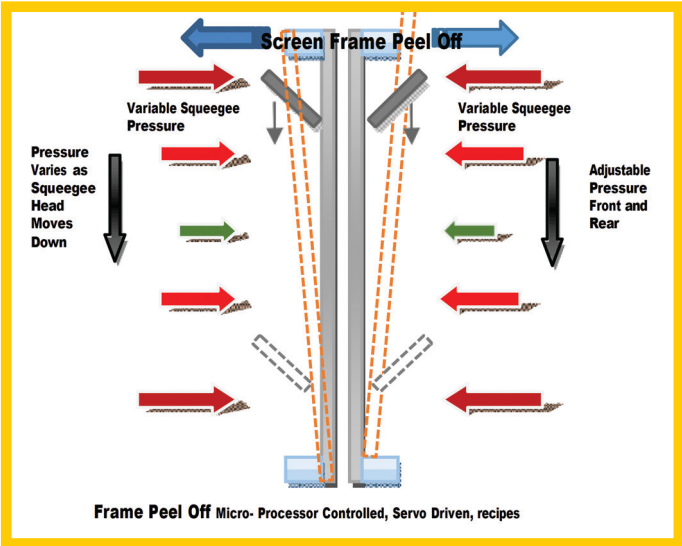


across the panel from the top to bottom and front to rear. DP9000 has enhanced process stratagems; precisely and reliably coating the finest micro-thin flexible substrates through the thickest backpanels. Newly released, “Smart Print System” permits modulation of the selected squeegee pressure during the printing cycles. Varying the squeegee force stabilizes the Dynamic Squeegee Pressure across the substrate during coating, improving coverage and reducing mask in holes.

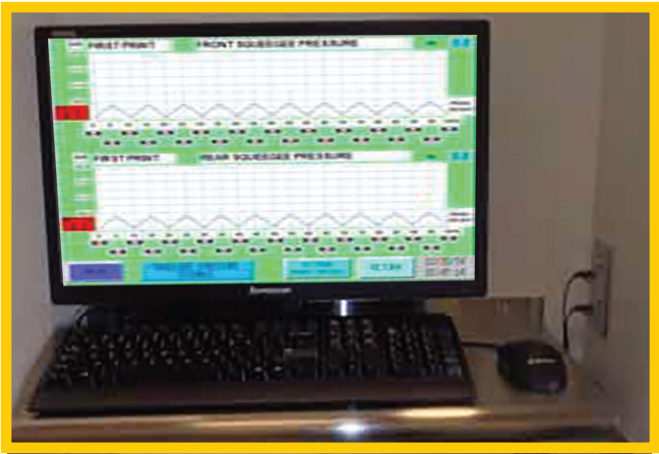
Recipe controlled fourth servo axis synchronizes peel off frame opening sequence and Dynamic Squeegee Pressure applied to the substrate work surface. This system is unique in its ability to modulate and sustain uniform Dynamic Printing Pressure.

**DP9000** commercialized many new innovations. Continuous improvement always starts by observing previous results and building from the past. Improved squeegee print heads that deliver more dynamic squeegee pressure to the point of mask transfer. These heads are more capable resulting in a wider range of Smart Print capabilities.

Refined and improved LPI coater featuring the SPS “Smart Print System”. Precise control with recipe functions reduces coating variation



SMART PRINT DIAGRAM



DATA LOGGING PC

**DP9000** liquid photoimageable coating machines by now capturing critical data concerning each panel that is coated with the machine. With this now standard feature, the PLC captures the critical setup and operation data. The files are then automatically transferred to a PC in the .xls format via proprietary TCA software. The .XLS or .C format is then easily manipulated by an Excel spread sheet to allow custom printing of the data as desired or loaded into other customer databased systems.

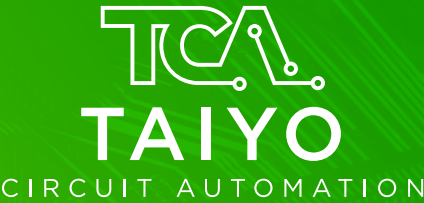
# Specifications

| Specifications                                 | DP9000 V1                                          |
|------------------------------------------------|----------------------------------------------------|
| Minimum Panel Dimension (width X height)       | 305 X 305mm (12" X 12")                            |
| Maximum Panel Dimension (width X height)       | 610 X 762mm (24" X 30") w/extend clamp 610 X 686mm |
| Minimum Thickness                              | 0.4mm (0.016") * (Dependent on panel construction) |
| Maximum Thickness                              | 3mm (0.120")                                       |
| Border Requirement                             | 8mm (.375")                                        |
| Screen Frame Size (width X Height X thickness) | 934 X 1361 X 38mm (37" X 53.6" 1.5")               |
| Printing Speed                                 | Step less adjustable 2.5 - 25 cm/sec               |
| Flood Speed                                    | Step less adjustable 2.5 - 25 cm/sec               |
| Maximum Machine Cycles                         | 105pph** Both Sides Coated Simultaneously          |
| Electrical                                     | 380-400V 3Ø 125 Amp 50Hz / 208-240 1Ø 10 Amp 50Hz  |
| Electrical                                     | 480V 3Ø 125 Amp 60 Hz / 208-240 1Ø 10 Amp 60Hz     |
| Pneumatic                                      | 25m3/hr. @ 6 bar (15cfm @ 90 psi) recommended      |
| Length                                         | 1011 cm (398")                                     |
| Maximum Width                                  | 475 cm (187")                                      |
| Height                                         | 259 cm (102")                                      |
| Height Pass Height                             | 950-1000mm (37.5" – 39.5")                         |
| Exhaust System                                 | 2500m3/hr. (1500cfm)                               |
| Weight Coater Module                           | 2655Kg (5853 lbs.) *Gross Weight                   |
| Weight Robot Module                            | 1000Kg (2204 lbs.) *Gross Weight                   |
| Weight Oven Module                             | 4200 Kg (9260 lbs.) *Gross Weight                  |
| Crated Dimensions System                       | 45' high cube container                            |

\*\* Represents mechanical capability based on 610mm (height) panel in FPP mode. Actual production rate may vary.

## DP9000 System

Please refer to DP6000 FL DP6000 V2 Specific data sheets for more information and specifications for these variant models.



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