TDK FACTORY AUTOMATION SYSTEMS

Product Specifications

Multi Function Dispense Machine (MDM-2)

1. Overview

   The multi function dispense machine (MDM-2) is the smallest automatic dispense machine in the industry. The MDM-2 dispenses liquid at high precision and does a variety of tasks (under filling, over coating, etc.) using unique image processing.

   This new system meets the requirement for the next generation devise and module unit.

2. Features

   - The proprietary image processing system achieves high-precision positioning and automatic nozzle position correction.
   - Fine dispensing volume control by the image-processing unit. (Patent applied for.)
   - A proprietary image processing system allows corrections in head difference, viscosity and defaults.
   - Small size, space-saving structure
   - Easy-to-operate color touch-panel for an integrated operation environment.
   - Flexible configuration: From independent use to inline operation.
   - Precise and separate syringe temperature control. (Patent applied for.)
   - Various options for quality improvement and product model changes.
   - Flip Chip Placement Machine is also available from TDK.

3. System Specifications

3.1 Hardware Specifications

1) PWB

Max. : W200mm x D150mm
Min. : W30mm x D30mm
Thickness: Max. 2.0mm
Type: Ceramic, Resin, Glass, Metal tray, others

2) Dispense area

Max: W200mm x D150mm
Min: W30mm x D30mm
Note: Heating prohibited area: 5mm (back and front)
(The above dimensions will be changed for edge registration)

3) IC

Max. : W2.5mm x D2.5mm
Min. : W0.5mm x D0.5mm
Note: Some ICs may require a special image processing system (camera, illumination, process, etc.)

4) Mechanical precision

XY-axes: ±0.015mm
Z-axis: ±0.01mm (Slow search by the contact sensor)

5) Dispensing speed (under fill line function)

0.8mm/sec ～ 100mm/sec (Limited step: 0.01mm/sec)

6) Minimum dispensing amount (fine-amount dispensing function)

0.005mm^3 (Resolution: 0.001mm^3)

7) Dispensing table

The PWB top surface is clamped.
A dispensing stage is provided for the PWB size. (First type only)
Stage heated area (Ambient temperature ～ Max. 100°C ±5°C: 1°C increment)

8) Preheat table

The clamp method may partially differ but the basic specifications are the same as for the dispensing table above.

9) Dispensing liquid tank

10cc syringe (standard)
Syringe unit temperature control: 15 ～ 40°C ±2°C
(15°C or lower: Separately contracted.)

10) Dispense method

Air-method

11) Dispensing method

Under fill (line, dot)
Trace
Overcoat
Fine amount dispensing (video, dispenser)

12) Automatic detection function

Dispenser vacuum: Automatic calibration by image processing
Axes and units distance: Position correction by image processing

PWB height detection

13) PWB flow

From left to right (standard)
PWB transfer standard position
Transfer height: 900mm±15mm
Transfer surface: Front reference
See the attached machine configuration for more detail.

15) Pneumatic supply

Air pressure: 0.49Mpa
Consumption: 50NL/min
Airflow intake: R1/4

16) Machine dimensions

Main unit: W740mm x D1, 140mm x H1, 550mm
With loader/unloader options: W1, 340, x D1, 140 x H1, 550mm
(Loader pusher: Not included)

17) Machine weight

660kg (loader/unloader: Not included)

18) Paint color

TDK standard color

19) Others

- Nozzle automatic cleaning function
  Nozzle: IEI 25-gauge (standard)
  For other gauges, you need to replace the special nozzle attachment
- PCB height detection

3.2 Electrical Specifications

1) Power supply

3-phase, 200V±10V, Max: 3

2) Control method

PLC and personal computer
Semi-closed loop method by the AC servomotor

3) Command method

X, Y, Z-axes: Pulse sequence

4) Control mode

Automatic, One-cycle, Manual

5) Positioning

The dispensing position is corrected by automatically recognizing the shape of the chip.

6) Interface

12-inch color LCD touch-panel
Operation: Tab, Index selection method
Data: Machine operation data (operation/stop time control, etc.)
Editing: 3.5-inch FDD (standard)

7) 3-color signal tower (with alarm buzzer)

Statuses
Green: Automatic operation (production)
Yellow: Warning (Operation is stopped during operation (e.g.,

waiting for a PWB))
Red: Stopped (no production)

4. Options
1) Loader/Unloader: PWB push method (PWB stocker)
2) Post heater table
Located after dispensing table
3) Nozzle heater
Separate temperature control from syringe temperature control
4) Vacuum PWB suction
Positioning PCB by vacuum plate at dispensing table
5) Non-contact height detection
Detect PCB height with non-contact
6) Individual PWB processing

5. Others
Please provide TDK with the following for evaluation:

IC	10 pcs each
Work	10 pcs each
Magazine	2 pcs each

Nozzle: 1
Dispensing material: 1 (10cc syringe)