



Product Specifications

Flip-chip Mounting Machine (AFM-22)



1. Overview

The flip-chip mounting machine (AFM-22) is low cost, high speed and high precision mouter in the industry. The thermo compression bonding method for NCP, NCF, ACP, ACF and C4 is available at the small floor space.

2. Features

- Limited component and PWB type (One IC type and one PWB type) is created low cost and big space saving.
- Small and space-saving structure
- Built-in internal dust proof mechanism is no requirement of clean room.
- A proprietary image processing system achieves high-speed, high-precision mounting.
- Easy-to-operate color touch-panel for an integrated operation environment.
- Flexible configuration: From independent use to inline operation.
- Under fill Dispenser is also available from TDK.

3. System Specifications

3.1 Hardware Specifications

1) PWB

Max: W180 x D120 mm

Min: W 50 x D 50 mm

Thickness: 0.4mm ~ 1.6mm

Type: Ceramic, Resin, Glass, Metal tray, others

2) Mounting area

Max: W50 x D70 mm

Min: W50 x D 50 mm

Note: Heating prohibited area: 5mm (back and front)

(The above dimensions will be changed for edge registration positioning)

3) IC

Max: W15.0x D15.0x t0.635mm

Min: W3.0x D3.0x t0.25 mm

One IC type is applicable

4) Mounting precision

$\pm 8 \mu\text{m} / 3 \sigma$ (X/Y Center value)

Evaluated with a glass PWB and dummy IC (TDK standard)

5) Mounting speed

5sec/IC (Not including processing time and nozzle cooling time is less than 5 sec)

This time is one cycle time during continual operation.

6) PWB transfer time

4sec

7) Mounting direction

1direction

8) Mounting pressure

Pressure: 10~150N (0.5N increment)

Accuracy : $\pm 10\%$ or less

Pressure Speed : 10N~100N

Maximum press time: 0.8sec

Pressure of detection: 1N or more

Pressure profile : 2step (minimum unit: 0.1sec, 0.1sec increment)

9) Head heater

Method: Pulse ceramic heater

Temperature : Ambient temperature ~350°C

Temperature repeatability : 5°C or less

Heat cycle : Max100°C/sec

Temperature set : 1°C increment

Heat profile : 3steps (minimum unit: 0.1sec, 0.1sec increment)

Cooling time : 6 sec from 250°C to $100 \pm 10^\circ\text{C}$

10) Parallelism between head and table

$5 \mu\text{m} / \square 15\text{mm}$ or less

Adjustable

11) Mounting table

The bottom surface of the PWB is clamped by suction, the top surface is clamped mechanically, and the position of the PWB is corrected. Some PWBs are not limited to this method.

A mounting stage is provided for the PWB size. (First type only)

Stage-heated area (Ambient temperature ~ Max. 100°C ±5°C: 1°C increment)

Constant stage-heated

12) Contact search speed

1.0~10.0mm/sec

13) IC supply method

2" tray (Max 25 stock)

14) PWB flow

From right to left (standard).

15) PWB transfer standard position

Transfer height: 900mm±15mm

Transfer surface: Front reference

Please see the attached layout for more detail.

16) Pneumatic supply

Air pressure: 0.49Mpa

Consumption: 20NL/min

Airflow intake: R1/4

Ejector is used for vacuum.

17) Machine dimensions

Main unit: W750 (920) mm x D850 mm x H1, 620mm

18) Machine weight

1,100kg

19) Paint color

TDK standard color

20) Others

Build-in clean fun exhausts air under main unit frame.

3.2 Electrical Specifications

1) Power supply

3-phase, 200V±10V, Max: 50A

2) Control method

PLC and personal computer

Semi-closed loop method by the AC servomotor

3) Command method

X, Y -axes: Absolute

4) Control mode

Automatic, One-cycle, Manual

5) NC program steps

Max. 9,801 steps/program

Number of programs stored: Maximum 500 programs

(The number of programs stored differs depending on the program steps in the programs.)

6) Positioning

IC: pattern matching with printed circuit

PWB: Fiducial mark (ϕ 0.2~0.5 (Cu+SR coat, AU) or pattern matching

7) 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)

8) 3-color signal tower (with alarm buzzer)

Statuses

Green: Automatic operation (production)

Yellow: Warning (Operation is stopped (e.g., waiting for a PWB))

Red: Stopped (no production)

9) Others

Display function for stress and US profile

4. Options

1) Loader/Unloader: PWB push method (PWB stocker)