simple is better

Model 6500 Automatic, High Accuracy Die Attach System

The MAT Model 6500 Die Attach System performs **Face Up and Flip Chip applications based on Epoxy, Eutectic, C2/C4, Ultrasonic, ACF/ACP, Silver Glass, UV Adhesives, Ag Sintering, etc.**

All process capabilities are built-in and can be switched from one to another by simply enabling or disabling a parameter. The **Versatile** and **User-Friendly** Graphic User Interface running under Windows® allows switching processes within seconds.

All hardware required for the above applications is plug & play. Model 6500 is a **fully automatic** system yet having a large work area and optionally manual material load/unload for easy operation.

For **Multi-Chip Modules, RF, Hybrid** applications the machine handles components as small as 150 µm, up to practically any size presented in various forms:

- Up to 40 Waffle/Gel packs
- Up to 8 Tape & Reel feeders
- 300 mm Wafers.

The Thermal or UV adhesive is applied by:

- Volumetric, Time-Pressure or Jet Dispenser in complex shapes from a library
- Stamping (Pin Transfer) down to 75 µm adhesive dot diameter.

The Automatic Tool Replacement Station handles up to 12 different flat face pickup tools, pyramidal die collets and stamping tools.

The **Very High Placement Accuracy** ensured by the servo motion systems for the main axes, and high resolution digital vision that enables the system to be used for application requiring up to 3 µm accuracy.

The machine features its unique **Bond Line Thickness (BLT)** control capability for Silver Glass, MEMS and wet **Die Stacking** applications.

- Programmable BLT
- BLT control by Height Measurement
- Programmable Bond Force and Touchdown Velocity
- Very high BLT accuracy independent of the adhesive volume variation.
- Better than 5 µm BLT accuracy.

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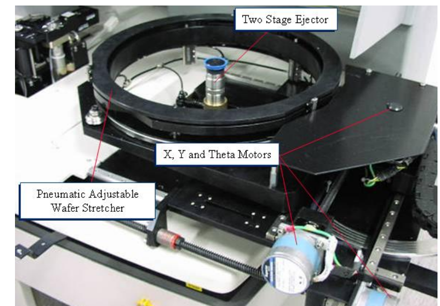
Model 6500
Die Attach System
Unmatched Versatility

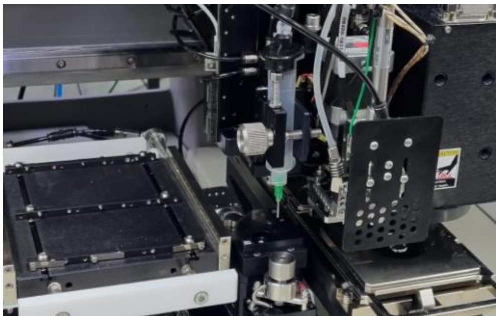
Full **Flip Chip** process capability including chip flipping, bump fluxing and chip accurate alignment over a high resolution Up Looking Camera. The machine performs cold and heated processes including:

- C2, C4 or similar cold process or heated process for pre-tacking
- Gold to Gold Interconnect (GGI) using Thermo-Sonic process at up to 130 KHz frequency and up to 40 Watt power.
- Thermo-Compression up to 90 N and 500ºC
- Underfill for all above assemblies.

The unique two stage die ejection system from diced wafers enables picking large and very thin dice from blue or UV tapes:



- Up to 300 mm wafers
- Built-in tape stretching system
- Thin die capability down to 50 µm
- Die sizes from 150 µm to over 50 mm.
- Unusual die aspect ratio capability
- Electronic wafer map and/or Ink dot detection.



Heated applications up to 500ºC for different **Eutectic** processes including AuSn, AuGe, AuSi and other interconnection materials.

- Capability to perform Eutectic MCM applications thanks to the unique local heating of the die.
- Picks components from Gel packs, wafers or waffle packs at room temperature.
- Programmed tool heating time and fast cool down. Hot forming gas provision during the reflow process.
- Scrubbing with programmable shape, amplitude and velocity.
- Substrate preheating and gas cover.
- Uses pyramidal die collets for the chips and flat face pickup tools for the preforms.

Specification Highlights

Work Area: up to 20” x 12”.

Die size range: 0.006” to over 2”

Die Material: GaAs, Si, Glass, etc.

Substrates: Lead Frames, Ceramic, Silicon Wafers, PCB’s, Metal, TO cans, etc.

Pickup/Bond Force: 40 to 9,000 grams.

Deep Access: 50 mm Z Travel.

Placement Accuracy: better than ±3 µm - application dependent.

Throughput: up to 1000 CPH - application dependent.

Size: 1.2 Sq. Meter.

Weight: 350 Kg.

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