ADAT3 XF DBS - HIGH-SPEED IN-LINE STRIP-TO-STRIP DIE BONDER

A breakthrough in cost, quality, and productivity

The only product in the market offering an in-line strip-to-strip die bonder solution. The ADAT3 XF DBS receives strips directly from one machine, processes them, and feeds them to the next - maximizing your productivity. Handling ultra-small and medium die at unparalleled speed, it easily connects to top and bottom screen-print equipment. This die bonder is also equipped with automated wafer change and high-definition optics for on-the-fly quality inspection.

Key features

Performance
- Up to 60,000 units per hour
- Supports 8 to 12 inches wafer on frame film carrier

Strip size
- 100 x 300 mm
- Solder paste/Glue
-

Die size
- Minimal: 0.2 x 0.2 mm
- Maximum: 7 x 9 mm
- High throughput at high-volume manufacturing rate
- Belt in, belt out
- Full die traceability (strip E142 – wafer)
- Auto recipe download: Manufacturing Execution System (MES) interface
- SECS/GEM interface with E142
- Solder paste power application, SO8, DPAK, and SOD123/128 SOT669

Specifications

Speed
- Up to 60,000 units per hour (depending on die size, lead frame pitch, glue/solder type and selected quality inspections)

Die Range
- Length, width: 0.2 x 0.2 mm to 7 x 9 mm
- Aspect Ratio: 1:1 - 1:3
- Thickness: 50 - 400 µm

Lead frame size
- Minimum length, width: 100 x 40 mm
- Maximum length, width: 300 x 100 mm
- Thickness: 0.1 - 1.0 mm

System accuracy
- Small die (< 1 mm): XY: 1 σ xy ≤ 5 µm. Rotation: 1 σ ϕ ≤ 1°
- Large die (> 1 mm): XY: 1 σ xy ≤ 5 µm. Rotation: 1 σ ϕ ≤ 0.3°
- Pick and place force: 0.2-1.5 ± 0.1 N

Wafer handling
- Wafer size: 6 - 12 inches
- Wafer frame: 8 - 12 inches
- Steel/Plastic Film Frame Carrier (FFC)
- Foil Tension: programmable expander (8 inches: 1 - 10 mm, 12 inches: 1 - 15 mm)
- Automatic wafer change and expander
- Automatic barcode reader

Lead frame handling
- Conveyor belt loading and unloading according SMEMA protocol

Pick up tooling
- Vespel collet
- Rubber tip
- Four-sided collet
- Push-up needle

Imaging system
- Number of cameras: 4
- Resolution/Filed of View (FOV) glue: 0.3 MP camera (3.2 UM/pixel), FOV 2.1 x 1.4 mm
- Resolution/ Filed of View (FOV) pick-up and backside: 5.0 MP camera (2.3 UM/pixel), FOV 5.6 x 4.7 mm
- Resolution/ Filed of View (FOV) post-bond: 5.0MP camera (4.6 UM/pixel), FOV 11.3 x 9.4 mm
- Resolution/ Filed of View (FOV) sidewall: optional
- Minimal object detection: 10 micrometres (µm)
- Lighting: coaxial and ring light, including multicolor light

Inspection categories
- Program mode: fast programming for common reject criteria
- Reject treatment: strip map (E142) and reject bin
- Inspection view: 4 cameras, (1) glue, (2) pre-pick (3) back, (4) post-bond

Inspection items
- Die-related: Top chipping, backside chipping. Damaged. Die size/die ratio. Scratch. Cracked die. Discoloration
- Glue-related: Drop size. Drop shape
- Post-bond related: Die alignment (position, size, rotation). Glue fillet

Automation
- Wafer map SEMI E142 format, SECS-GEM mpa exchange
- Start and reference die functionality
- Automatic Product Replacement
- MES Interface including auto recipe download
- Monitoring of critical process parameters during production. Automatic stop function when parameter out of control
- Servo, bond-force and vacuum auto-diagnostics functionality to check health status of the machine

Machine dimensions
- Length, width, height: 2200 x 2100 x 1250 mm^3
- Net weight: 1950 kg

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