**ADAT3 XF DBSG - STRIP GLUE DIE BONDER**

# Future-ready for next-generation dies

Eliminate the trade-off between quality and productivity with high-definition inspection executed on the fly without any speed penalty. At four times faster than anything on the market, this is the industry's leading strip-to-strip die bonder for leaded or leadless packages with glue or DAF/WBC applications. The ADAT3 XF DBSG eliminates manual wafer change and speed drop, plus is capable of handling die as small as 0.2 x 0.2 mm.

## 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
- Glue/DAF/WBC

### Die size
- Minimal: 0.2 x 0.2 mm
- Maximum: 5 x 5 mm
- High throughput at high-volume manufacturing rate
- 4 cassettes at output or optional at input autoloader
- Full die traceability (strip E142 – wafer)
- Auto recipe download (MES interface)
- SECS/GEM interface with E142
- QFN, DFN, HVQFN, SOT, SO, TSSOP, LGA leadless and leaded packages

## Specifications

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

### Die Range
- Length, width: 0.2 x 0.2 mm to 5 x 5 mm
- Aspect Ratio: 1:1 - 1:3
- Thickness: 50 - 400 um

### 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

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

### 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
- Stack loader including paper separation
- Magazine loader/unloader: maximum 4 magazines at load and unload 20 - 40 slots per
- Magazine size: Minimum length, width, height: 100 x 45 x 80 mm. Maximum length, width, height: 305 x 110 x 270 mm

### Dispense
- Twin cross writing module, volumetric dispense
- Dot/Cross size, resolution: ≥ 250 um 1 σ 10 μm
- Dot/Cross position: 1 σ ≤ 20 μm

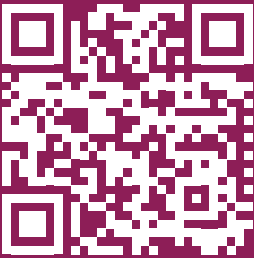
### Imaging system
- Number of cameras: 4
- Resolution/Field of View (FOV) glue: 0.3 MP camera (3.2 UM/pixel), FOV 2.1 x 1.4 mm
- Resolution/ Field of View (FOV) pick-up and backside: 5.0 MP camera (2.3 UM/ pixel), FOV 5.6 x 4.7 mm
- Resolution/ Field of View (FOV) post-bond: 5.0MP camera (4.6 UM/pixel), FOV 11.3 x 9.4 mm
- Resolution/ Field of View (FOV) sidewall: optional
- Minimal object detection: 10 micrometres (μm)
- Lighting: coaxial and ring light, including multicolour 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: 3000 x 2100 x 1250 mm³ (without magazine loader)
- Length, width, height: 3500 x 2100 x 1250 mm³ (with magazine loader)
- Net weight: 3000 kg (without magazine loader)
- Net weight: 3300 kg (with magazine loader)



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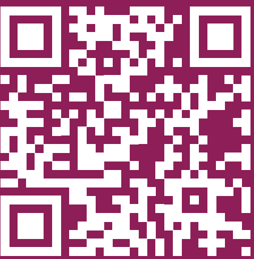

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