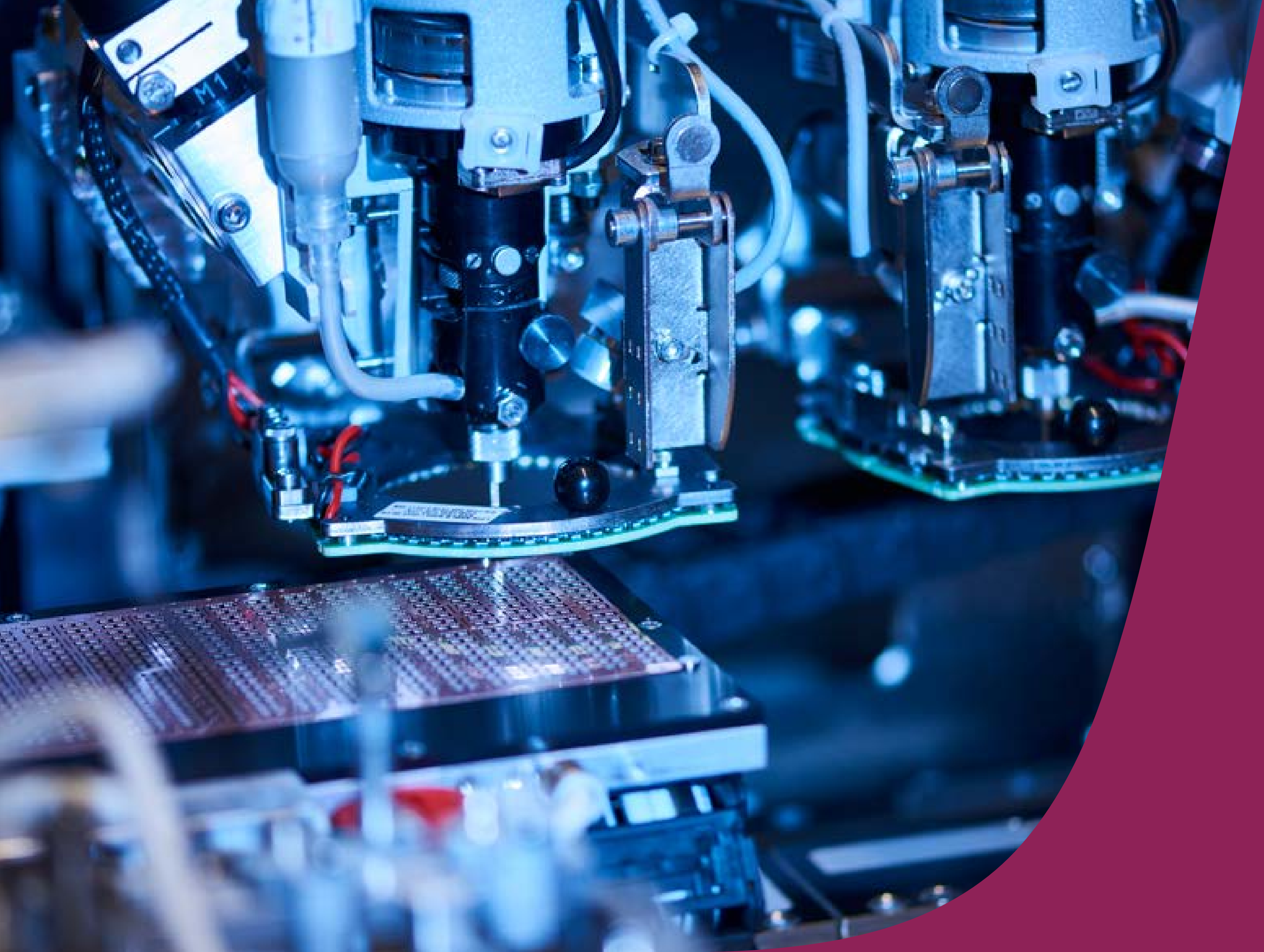


PRODUCT PORTFOLIO

WE ENGINEER ANSWERS TO
OUR CUSTOMERS' CHALLENGES

itec
Redefining semiconductor manufacturing

YOUR SEMICONDUCTOR EQUIPMENT AND AUTOMATION PARTNER

Few industries move faster and with more volume than semiconductor manufacturing.

In this business high speed, high accuracy and high quality are the starting requirements. The real gains come through expertise, intelligence and manufacturing excellence. Chip makers know this and when looking for a competitive technological edge in semiconductor manufacturing, they choose ITEC.

ITEC WAS BORN IN THE HEART OF THE SEMICONDUCTOR INDUSTRY.

Our strong heritage as a factory partner gives us unique insights when it comes to the challenges involved in high-volume chip manufacturing. We understand the obstacles that our customers are facing. We recognize the importance of continuous operation, performance expectations, the need for flexibility and quick reconfiguration time, as well as ever-more demanding quality standards. We feel confident to work at the leading-edge of technology and pioneer new energy-saving processes because we know what is at stake.

We pride ourselves on being a reliable partner to our global customers, developing, installing and upgrading systems for the manufacture and testing of discrete semiconductors worldwide. Today we have over **2,500 machines** in the field, producing **250 million semiconductors** each day. And we strive to further enhance our competitive edge by incorporating the latest advances in productivity, quality and accuracy.

Working with ITEC means bringing new ideas to life in a dynamic environment where no talent is wasted. Our diverse and multiskilled teams work together with customers to bring the best possible solutions to the table.

At ITEC, we don't build equipment – we engineer answers to our customers' challenges. The answers which redefine semiconductor manufacturing.

VISIT OUR WEBSITE:
WWW.ITECEQUIPMENT.COM

Marcel Vugts,
ITEC General Manager

“ITEC’s goal is to increase our market presence fourfold by 2027. Through disruptive innovations we enable our customers to address the current semiconductor boom in a sustainable way. Our solutions redefine semiconductor manufacturing by pushing the boundaries of speed with uncompromised quality and lowest cost. We are growing our R&D centers in Nijmegen in the Netherlands and Hong Kong, and we’re looking to expand further into Asia with a manufacturing site in China, which will increase our responsiveness and efficiency even more.”

A PORTFOLIO OF ADVANCED SOLUTIONS

From fast, accurate die bonders and sorters for mass-produced semiconductor devices, to high-throughput production testers and highly efficient Automated Optical Inspection (AOI) systems. ITEC gives you a competitive technological edge in semiconductor manufacturing.

DIE ATTACH

ITEC's XF ADAT3 platform is one of the most versatile die attach solutions for semiconductor, LED display and RFID-inlay manufacturing. There is a range of options to tailor the solution to our customer`s needs, including Strip-to-Strip (Glue / DAF / Eutectic), Reel-to-Reel, (Eutectic) and Flip-Chip.

Optimized for key markets

Semiconductors
The ADAT3 XF is combining high productivity, high quality and the lowest cost of ownership with a record-breaking-output all the way up to the 60,000 UPH for die bonding and sorting applications.

RFID Inlays
With the ADAT3 XF Tagliner capable of 48,000 UPH ITEC brings its proven technology to the RFID inlay market enabling a productivity breakthrough at high quality and low maintenance.

Mini/Micro LED Displays
While speed is key, placement accuracy is essential when it comes to stitching together LED displays And ITEC's 70,000 UPH ADAT3 XF miniLED die bonder delivers on both counts.

ACCURATE HIGH-SPEED PRODUCTION TESTERS

In the world of high-speed semiconductor production testers, the ITEC's Parset family has set the standard for discrete testing for the last 30 years. Consisting of three models - µParset, Power µParset, nanoParset, these fastest discrete testers are flexible and extendable. Every model in the range works seamlessly with any handler and wafer prober, and with the fastest test-times in the market the nanoParset already enables ultra-fast handlers (UPH > 90,000).

AUTOMATED OPTICAL INSPECTIONS

Front-end and back-end semiconductor productivity can be significantly improved by smart implementation of the best Advanced Optical Inspection (AOI) equipment at critical inspection points in your production lines. ITEC offers inspection solutions for 2nd Optical, 3rd Optical, 4th Optical, mid-end inspection (after mold & plating) and for chip modules too, both inline and standalone. ITEC combines deep learning and traditional algorithm in machine vision to ensure the highest quality.

SMART MANUFACTURING

Ensuring your production with the automotive quality and the highest yield against the lowest total cost-of-ownership is ITEC's playground. The ITECore automation and smart manufacturing software suite is key to extracting the maximum productivity from your back-end semiconductor tools and platforms.

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

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)

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

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 mm³
- Net weight: 1950 kg

ADAT3XF DS - DIE SORTER (IN-LINE)

Future-ready for next-generation die

Gain maximum productivity at the lowest costs. At 20% faster than anything in the market, this is the die sorter for wafer-level CSP/micro CSP applications. It handles the smallest die with automatic wafer change. The ADAT3 XF DS also inspects all six sides of the die without any speed penalty, securing quality in this critical last process step - without compromising productivity or cost.

Key features

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

Tape width
- 8 - 12 mm
- Sidewall inspection

Die size
- Minimal: 0.2 x 0.4 mm
- Maximal: 5 x 5 mm
- High throughput at high-volume manufacturing rate
- APR auto-product replace
- In-tape inspection
- Automatic reel changer: optional
- Full die traceability: tape – wafer
- Auto recipe download (MES interface)
- SECS/GEM interface with E142

Specifications

Speed
- Up to 60,000 units per hour flip or non-flip

Die Range
- Length, width: 0.4 x 0.2 mm to 5 x 5 mm
- Aspect Ratio: 1:1 - 1:3
- Thickness: 50 - 400 µm

Tape handling
- Width: 8 - 12 mm
- Pitch: 2 - 8 mm
- Thickness: 0.18 - 0.5 mm
- Tape specification: embossed carrier tape with pocket hole, punch tape, paper tape, surf tape
- Hot sealing: maximum temp 200 °C, maximum force 10 - 80 Newton (N)
- Auto reel change, auto tape cutter

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°

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

Imaging system
- Number of cameras: 5
- 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: 12.3MP camera (2.3 UM/pixel), FOV 9.4 x 6.9 mm
- Resolution/ Field of View (FOV) Die ON FLIP: 5.0 MP camera (2.3 UM/pixel), FOV 5.6 x 4.7 mm
- Resolution/ Field of View (FOV) post-seal inspection: 1.3 MP (3.7 UM/pixel) FOV 9.7 mm
- Post-seal inspection: seal-line , index hole, empty, tilted, body outline, product code, marking, chipping
- Minimal object detection: 10 micrometres (µm)
- Lighting: red ring, coaxial, and back panel light

Inspection categories
- Program mode: fast programming for common reject criteria
- Reject treatment: strip-tape map (E142) and reject bin
- Inspection view: 5 cameras, (1) pre-pick, (2) back and sidewall, (3) front/bump, (4) post-bond, (5) post-seal

Inspection items
- Die top-related: top chipping, backside chipping
- Damaged. Die size/die ratio. Scratch. Cracked die
- Discoloration. Bump inspections (size/ connected/missing)
- Backside related: Die alignment (position, size, and rotation). Backside chipping
- Surface inspection: Punch through inspection. Laser mark inspection. Pin A1

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: 1850 kg

ADAT3 XF DBRE - REEL-TO-REEL EUTECTIC DIE BONDER

For a fully automated, hands-off operation to increase your uptime and output

The Reel-to-Reel Eutectic Die Bonder supports all wafer map formats and is designed with high-definition optics for small-to-medium discrete products at extreme speed. With die alignment, backside chipping, die size measurement, and optional sidewall inspection for flat collets, the ADAT3 XF DBRE guarantees to enhance your production, product quality, and total cost of ownership.

Key features

Post-attach inspection
- Die present
- Lead frame alignment XY
- Black die detection
- Surface inspection as a roadmap element

Wafer handling
- Auto wafer change
- Wafer expansion
- Auto barcode reader
- Extensive wafer mapping and wafer alignment functionality

Automation
- Wafer map formats: Market standards. Full wafer map
- Wafer map alignment: Start and reference die functionality.
- Auto equipment setup: via Semiconductor Equipment Communication Standard (SECS) / Generic Equipment Model (GEM)
- Traceability: ID input by barcode scanning

Connectivity
- Connectivity via Semiconductor Equipment Communication Standard (SECS) / Generic Equipment Model (GEM) for automated set-up and die traceability
- Automatic FFC wafer change for hands-off operation (AEC-Q101 compliant)
- Flexible platform for all applications
- Fits in XF (Extended Flexibility) platform architecture Reel-to-Reel lines
- Convertible to other XF (Extended Flexibility) applications for leaded and leadless to cater for product mix flexibility
- Optional lead frame, anti-tarnish, outgassing module

Specifications

Speed
- 48,000 dies per hour with roadmap to 60,000 dies per hour for small dies (≤ 0.4 x 0.4 mm)

Product size
- 200 x 200 um to 5 x 5 mm

Lead frame size
- Up to 32 mm wide

System accuracy
- Small die (≤ 0.4 x 0.4 mm)
- XY: 1 σ_xy ≤ 10 µm
- Rotation: 1 σ_ϕ < 1°

Wafer handling
- Wafer diameter: 8 inches, 6 inches on 8 inches Film Frame Carrier (FFC)
- Wafer frame: Steel Film Frame Carrier (FFC) 8 inches or 12 inches
- Foil tension: 8 inches, 1 - 10 mm
- Wafer cassette: up to 25 slots

Die handling
- Process Temperature: maximum 470 °C
- Pickup force: 0.4 - 1.5 N ±0.1 N, Ultra-low (programmable) pickup force (20 grams)
- Bond force: 0.2 - 1.5 N ±0.1 N
- Mixed gas: customer-specific
- Collet: pyramidal, flat
- Ejector tool: single needle

Machine dimensions
- Machine length, width, height: 2050 x 1250 x 2200 mm^3
- Net weight: 1850 kg

ADAT3 XF TAGLINER - HIGH-VOLUME RFID INLAY DIE BONDER

For the highest productivity and quality standard at the lowest cost of ownership

Curing in milliseconds versus seconds in the current industry practice, the ADAT3 XF Tagliner is three times faster and 30% more accurate than anything on the market. Common systems only work with transparent web material; this Tagliner handles a diverse range, including paper enabling you to move away from PET plastics for sustainability. Eliminating manual handling through automated wafer change and qualified for die bond of all known ICs down to 200 µm die size, the ADAT3 XF Tagliner performs a complete inspection without sacrificing speed and productivity.

Key features

Performance

- 48,000 units per hour with the machine speed up to 50.8 mm web pitch
- High-precision die-attach
- Works with both transparent and non-transparent web material
- High-precision glue dispense system
- High-speed thermal compression curing system. Easy maintenance, one or two units only
- 100% high-resolution optical inspections on glue, die, attach and cure processes - without compromising machine speed
- Process fully qualified for major chip suppliers at the industry's tightest reliability requirements: temperature, humidity, and mechanical
- 8 to 12 inches wafer compatible with fully automatic wafer change
- Capable to handle dies down to 200 µm
- Single-track design for easy operation and change over
- Integrated with BW Paper systems, winding/conversion systems, and Voyantic readers

Specifications

Speed

- 48,000 units per hour flip chip up to a web pitch of 50.8 mm

Die Range

- Die size: 200 x 200 µm to 5 x 5 mm
- Web width: 40 - 165 mm, single row operation

Placement accuracy

- Die position: x, y: 1 σ < 9µm
- Die rotation: ϕ: 1 σ < 0.67°
- Pick and place force: 0.2 - 1.5 ± 0.1 N

Dispense accuracy

- Dot size accuracy: 1 σ < 10 µm
- Dot position accuracy: 1 σ < 10 µm
- Dot diameter: >200 µm

Cure system

- 2 stitch units, thermo compression cure
- Cure temperature range: 20 ... 500 ± 5 °C
- Cure force range: 0 - 20 ± 0.5 N
- Cure time range: 0 - 5000 ms

QA vision inspections

- Glue dot size and -location
- Die top-side before attach
- Die bottom-side before attach
- Glue presence before attach
- Die presence before cure
- Die placement and rotation

Wafer handling

- 8 and 12 inches
- Steel/plastic Film Frame Carrier (FFC)
- Automatic wafer change
- Wafer expansion
- Automatic barcode reader

Subsystems

- BW Paper Systems
- Winder/Unwinder
- Voyantic Reader

Machine dimensions

- Length, width, height: 5397 x 1500 x 2617 mm^3
- Net weight: 5230 kg

ADAT3 XF PIXELECT BONDER - HIGH-SPEED HIGH-ACCURACY MINI-LED BONDER WITH FLIP-CHIP FUNCTION

Ready for next-generation LED direct view displays

Reduce your total cost of ownership. Gain quality inspections and the flexibility to scale - without compromising on accuracy, quality, or speed. The ADAT3 XF PiXelect Bonder is four times faster than anything on the market - handling LED as small as 3x5 mil. The flip-chip bin-mixing technology eliminates the sorting step and manual wafer change. Multiple systems can be connected - enabling you to build competitive, high-definition, and cost-effective displays using mini-LED technology.

Key features

Performance

- Bonding 70,000 units per hour
- Handles the smallest LED sizes on the market
- Flip and non-flip configuration at same speed
- Standard deviation XY position better than 3 μm
- Handles sorted as well as EPI wafer input (sorting and bonding integrated in one step)
- 100% high-resolution optical inspections on die, attach, and post-bond steps without compromising on machine speed
- 8 inches Film Frame Carrier (FFC) ring with fully automatic wafer change
- Can be configured for manual load as well as conveyor belt interface with a series of systems (Red/Green/Blue (RGB) line)
- Can handle R, G, B colours in single machine with placement gap down to 20 μm

Specifications

Speed

- 70,000 units per hour flip-chip bonding

Die Range

- Length, width: 75 x 125 μm to 2.5 x 2.5 mm
- Aspect Ratio: 1:1 - 1:3
- Thickness: 50 - 400 μm

Substrate range

- Minimum: 75 x 75 x 0.1 mm
- Maximum: 250 x 250 x 0.2 mm

Placement Accuracy

- Die position: x, y: 1 σ < 3μm
- Die rotation: ϕ: 1 σ < 1°
- Pick and place force: 0.2...1.5 ± 0.1 N

Pick up tooling

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

Substrate Handling

- Manual
- Optional conveyor belt interface with a series of machines (RGB line)

QA Vision Inspections

- Pre-pick inspection (wafer): Die alignment. Frontside chipping. Wafer map alignment
- Pre-pick inspection (PKG carrier): PKG alignment
- Frontside chipping. Carrier map alignment
- Post-pick (transfer): Die present. Die alignment
- Pre-bond inspection on substrate: Bond pad alignment
- Post-bond inspection incl. substrate recognition: Die placement

Wafer handling

- Handling R, G, B wafers: EPI or Sorted
- 8 inches Film Frame Carrier (FFC) ring
- Automatic wafer change
- Wafer expansion
- Automatic barcode reader

Automation

- Full die traceability (full strip mapping)
- Auto recipe download (MES interface)
- 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: 2050 x 1280 x 2100 mm^3
- Net weight: 1850 kg

POWER µPARSET - DISCRETE POWER TESTER

The benchmark in analog power testing

Eliminate power products' lengthy test times for enhanced output. This is the modular parameter test system for power discrete semiconductor devices up to 12 leads. The standard configuration has a maximum supply and current per channel of 400V and 30A. Through its modular architecture, this can be extended with a high voltage unit of 2kV and a high current unit of 200A. µPARSET software gathers data about measured devices and produces various insights for product quality, stability, and yield optimization.

Key features

Target segments
- Back-end final test
- Wafer test

High performance
- Handler and prober agnostic
- 1 to 4 handlers
- Multi-site testing
- Short test times
- Pin electronics (voltage and current measurement on all pins simultaneously)
- Maximum number of pins: (FT and AT/QT): 6 or 12 pins
- High-quality diagnostics and calibration
- High accuracy
- User-definable parameters

Test heads
- Current amplifier for fast leakage measurement
- Short and open pins close to DUT
- Dedicated test hardware

Embedded software
- User-definable parameters
- Visual ITEC: user-definable operator interface
- Automatic multi-site expansion
- Scope function
- V and I waveforms and timing on all channels
- Real-time diagnostics
- Curve traces

Extendable software
- Equipment control for multiple test cells
- Post-processing
- Dynamic Part Average Test
- Static Part Average Test
- Moving Limits
- Nearest neighbourhood residual

Optional extension modules
- Qs: reverse recovery charge (30 nC / 300 nC / 3 uC)
- Gate resistance and capacitance (Rg/Cg) extension
- µPHV: high voltage test (2 kV)
- µPHC: high current unit (200 A)
- µPDI: digital interface 2 x 16 channels fully floating
- SECS/GEM interface

Specifications

Maximum supply and current per channel
- 400 V / 30 A

Small footprint
- 600 x 665 x 1235mm

Other
- Extendable test heads for adding handlers
- Maximum: 12 leads
- Voltage: 220-240 VAC +/- 5%, 1-phase
- Current: Fused on 16 A
- Frequency: 50/60 Hz +/- 0.5 Hz
- Handler Interface: GPIB, TTL, RS232, TCP/IP
- Optional SECS/GEM interface following SEMI standard

µPARSET - DISCRETE HIGH-VOLUME TESTER

Eliminates lengthy test times

Gain short tester times and increase production at a lower total cost of ownership. Built as a modular parameter test system for discrete semiconductor devices with up to 12 leads, the Discrete High-Volume Tester enables high throughput. Flexible hardware and software make the Tester suitable for all wafer testing, final testing, acceptance or quality testing, and device characterization tasks. µPARSET software gathers data about measured devices and produces various insights. It is handler and prober agnostic, equipped to connect to any prober or tester. High accuracy leads to a narrow spread in test results and better products. It can connect up to four handlers when floor space is limited.

Key features

Target segments
- Back-end final test
- Wafer Test

High performance
- Handler and prober agnostic
- Multi-site testing
- 1 to 4 handlers
- Short test times
- Pin electronics (voltage and current measurement on all pins simultaneously)
- Maximum number of pins: (FT and AT/QT): 6 or 12 pins
- High-quality diagnostics and calibration
- High accuracy

Test heads
- Current amplifier for fast leakage measurement
- Short and open pins close to DUT
- Dedicated test hardware

Embedded software
- User-definable parameters
- Visual ITEC: user-definable operator interface
- Automatic multi-site expansion
- Scope function
- V and I waveforms and timing on all channels
- Real-time diagnostics
- Curve traces

Extendable software
- Equipment control for multiple test cells
- Post-processing
- Dynamic part average test
- Static part average test
- Moving limits
- Nearest neighbourhood residual

Extreme flexibility options:
- µPFM: floating mV meter (30 mV / 300 mV / 3 V)
- DCM: digital capacitance meter (0.3 / 3 / 30 / 300 pF)
- µMUX: multiplexer 4 x 24 pins for multi-site test

Specifications

Maximum supply and current per channel
- 400 V / 3 A

Small footprint
- 600 x 665 x 1235mm

Other
- Extendable test heads for adding handlers (max 4)
- Maximum: 12 leads
- Voltage: 220-240 VAC +/- 5%, 1-phase
- Current: Fused on 16 A
- Frequency: 50/60 Hz +/- 0.5 Hz
- Handler Interface: GPIB, TTL, RS232, TCP/IP
- Optional SECS/GEM interface following SEMI standard

NANOPARSET - DISCRETE ULTRA-FAST TESTER

Eliminate long test times and high-test costs

The most advanced modular parameter test system for discrete semiconductors up to 6 or 12 leads. With ultra-short test times, this tester is capable of testing up to 92000 devices per hour with a single test handler - the fastest test cell on the market. This tester can be used as a wafer tester, a PCM tester and as a final tester in the back-end. nanoParset occupies minimal floor space. Up to four test heads can be combined as one to test 24-pin packages at the highest possible throughput. Fast Kelvin checks without switching relays to prevent breakage.

Key features

Target segments
- Back-end Final Test
- Wafer Test
- PCM Test

High performance
- Near-zero footprint (213 x 440 mm)
- Ultra-short test times - increasing UPH
- Highest accuracy in the market
- Extreme flexibility

Multiple configurations possible with
- 1 booster controller (nTHBC)
- Up to 4 test heads (nSBTH) with 6 channels
- Fast Kelvin check without switching relays
- Ultra-fast leakage test
- Pin electronics
- Multi-site testing
- Optional SECS/GEM interface following SEMI standard

Embedded software
- User-definable parameters
- Visual ITEC: user-definable operator interface
- Automatic multi-site expansion
- Scope function
- V and I waveforms and timing on all channels
- Real-time diagnostics
- Curve traces

Extendable software
- Equipment control for multiple test cells
- Post-processing
- Dynamic Part Average Test
- Static Part Average Test
- Moving Limits
- Nearest neighbourhood residual

Specifications

Maximum supply and current per channel
- 400 V / 3 A

Small footprint
- Test Head: 125 x 540 x 375 mm
- Booster: 213 x 440 x 875 mm

Other
- Extendable test heads for adding handlers (up to 2 handlers)
- Maximum: 12 leads
- Voltage: 220 - 240 VAC +/- 5%, 1-phase
- Current: Fused on 16 A
- Frequency: 50 / 60 Hz +/- 0.5 Hz
- Handler Interface: GPIB, TTL, RS232, TCP/IP
- Optional SECS/GEM interface following SEMI standard

PHIXEL WIF - POST DICING WAFER AOI

Minimize waste and loss in the wafer dicing process

The most cost-efficient diced-wafer inspection system on the market. With ultra-high-speed vision scan and high-precision wafer 2D inspection, the Post Dicing Wafer AOI enables conversion for 6”, 8”, and 12” wafer frame film carrier cassette. It guarantees the quality of diced wafer, allows a fast feedback loop, and prevents wafer yield loss. When cost and quality of manufacturing are a concern, this diced-wafer inspection system offers a tight wafer supply to eliminate wafer damage due to dicing issues. WIF offers inspection after wafer dicing to detect surface defects or inspection after package singulation of DFN to detect package, mark, lead, and plating defects. Advanced Defect Classification (ADC) by hybrid analysis will enhance manufacturing efficiency and competitiveness.

Key features

Application
- Inspection after wafer dicing to detect surface defects
- Inspection after package singulation to detect package, mark, lead, and plating defects

Key features
- 2D surface inspection, stationary camera
- 128-thread processor
- 16K line scan camera resolution
- Supports high-density wafer up to 500K dies
- FOV 25 mm with 2 magnifications selection or 0.85 μm by upscaled image
- Auto 2D barcode reading
- Hi-end vision performance
- High throughput at high-volume manufacturing rate
- Granit base inspection work holder
- Supports 6”, 8”, 12” wafer Automatic wafer map match
- Two cassettes at input loader
- SEMI standard with SECS/GEM interface

Specifications

Imaging system
- Camera: 16K line scan monochrome
- Number of cameras: 1
- 1.7 μm or 3.4 μm pixel resolution by pixel binning
- Minimum object detection: 12 μm
- Lighting: Coaxial

Inspection categories
- Program mode: Fast programming for common reject criteria
- Reject treatment: Electronic wafer map
- Inspection view: Top view

Inspection items
- Die related: Chipping. Damaged bump larger than percentage of bump area. Bump diameter. Shorted umps contact. Missing bump. Scratch. Probe mark size larger than percentage of bump area. Cracked die. Kerf shifting. Discoloration

PHIXEL DWR - 3D POST-WIREBOND REEL-TO-REEL INSPECTION

The only 3D inspection solution in the market for reel-to-reel products

Enhance your manufacturing efficiency and competitiveness with high-speed multi rows lead-frame 3D inspection, highly flexible customizable design with a simplex vision solution, and automatic high-speed laser treatment for rejects. When cost and quality of manufacturing are a concern, the 3D Post-Winbond Reel-to-Reel Inspection guarantees the quality of die and wire bond - enabling fast feedback loop. The PHIXEL DWR minimizes waste and loss in manufacturing processes - eliminating defects usually only discovered during the electrical tests of finished products.

Key features

Application

- Inspection of lead-frame substrate to detect post-die bond and wire bond defect

Key features

- High-speed fully auto wire loop/profile inspection
- Min 5 MP camera for 3D inspection
- Laser cut option for reject handling
- Post-inspection after reject laser handling
- Inspection time: 7 µm resolution with 4cm/second
- SEMI standard with SECS/GEM interface
- Sophisticated defect mode classification
- Lead frame width 17 mm to 32 mm
- AOI cellular network architecture for recipe and e-Map management
- Option: real-time data feeding to MES and eSPC
- Option: auto email alert (defect/batch summary)

Specifications

Imaging system

- Cameras: 5 M pixels area camera monochrome
- Number of cameras: 3
- Resolution/Field of view: 3.7 µm/pixel, FOV: 9 mm
- Minimum object detection: 15 µm
- Lighting: Compound lighting

Inspection categories

- Program mode: Fast programming for common reject criteria
- Reject treatment: Electronic map and laser
- Inspection view: Top and side view

Inspection items:

- Die defects: Foreign material. Die placement. Glue on chip
- Wire defects: Ball shift. Sweep wire. Loop height. Sagging wire. Stray wire. Broken wire. Missing wire. Stitch off. Stitch offset
- Lead frame defects: Lead deformation. Lead shift. Lead lift up. Missing chip

PHIXEL MIS - STRIP-TO-STRIP INSPECTION AFTER PLATING

Enables early detection of production problems to prevent loss

The Strip-to-Strip Inspection after plating guarantees the quality of WIP products with fast feedback loop. When manufacturing cost and quality are a concern, the PHIXEL MIS minimizes waste and loss - enabling early detection of defects usually only discovered during the final 4th Optical inspection of finished products. With ultra-high-speed vision scan, high-precision for 2D inspection DFN products, high accuracy laser for reject treatment, and fast conversion, the PHIXEL MIS supports the largest strip size: 100x300 mm.

Key features

Application

- Inspection of lead-frame substrate to detect package dimension, molding and plating defect

Key features

- Dual stations for 2D inspection and laser marker
- Throughput: 32,000 to 117,000 UPH (subject to package size & leadframe density)
- Support max 100 mm x 300 mm substrate LF size
- 8K or 16K line scan camera resolution
- 3-4 magazines for on/off loaders
- Auto-lead frame QR code reading
- Full strip laser mark option
- Vacuum system and brush clean for package laser mark
- AOI cellular network architecture for recipe and e-Map management
- Option: real-time data feeding to MES and eSPC
- Option: auto email alert (defect/batch summary)
- SEMI standard with SECS/GEM interface
- Advanced Defect Classification (ADC) by deep learning

Specifications

Imaging system

- Camera: 16K color line-scan camera
- Number of cameras: 2
- Resolution/Field of view: 3.17 to 6.3 µm / pixel, FOV 50 mm to 100 mm
- Minimum object detection: 12 to 25 µm
- Lighting: Compound lighting

Inspection categories

- Program mode: Fast programming for common reject criteria
- Reject treatment: Electronic map and auto punching
- Inspection view: Top and bottom view

Inspection items

- Moulded lead-frame defects: Chipping. Body broken. Scratch. Pin hole or void. Mold shift. Incomplete mold. Gate remain. Foreign material. Gate chipping. Rough surface. Melted Body. Blister. Body crack. Bubbles
- Lead-frame defects: Flash along lead. Cu exposure. Contamination. Bend lead or twisted lead. Mould compound leakage on lead. Burr. Missing lead. U-shape flash (mold flash under lead-frame). Indexing hole deformation. Mold flash. Lead press. Lead width. Empty (no encapsulation)

PHIXEL CMR - OPTICAL INSPECTION FOR CONTACT & CONTACTLESS MODULE

The only equipment on the market providing full ePassport, bankcard, and e-ID chipset module inspection

Work more efficiently, productively, and accurately with ultra-high-speed 2D vision inspection. This module is built with automatic high-speed reject removal to prevent sequence disruption. The PHIXEL CMR will guarantee your products' quality and eliminate product defects and field recalls - bringing customer complaints close to 0%.

Key features

Application

- Inspection of Contact/Contactless Dual Interface (CDIF) module substrate to detect encapsulated die, mold defect, bonding wire, and plating defect

Key features

- Minimum 5MP colour camera for top and bottom inspection
- 4 stations for 2D inspection, testing, reject punch, and validation
- Throughput: up to 70,000 UPH (subject to package size)
- Post-inspection after reject punch
- Zero balancing capability, total good, and reject counts
- Customized AOI solution
- ID reader
- AOI cellular network architecture for recipe and EMAP management
- Lead frame width: up to 35 mm
- SEMI standard with SECS/GEM interface
- Option: real-time data feeding to MES and eSPC
- Option: auto email alert (defect/batch summary)

Specifications

Imaging system

- Imaging system
- Camera: 5M pixels area camera mono
- Number of cameras: 2 (top) + 1 (bottom)
- Resolution/Field of view: 12 µm/pixel FOV:30 mm
- Minimum object detection: 48 µm
- Lighting: Compound lighting

Inspection categories

- Program mode: Fast programming for common reject criteria
- Reject treatment: Electronic map
- Inspection view: Top and bottom view

Inspection items

- CDIF defects: Incomplete punch. Incorrect punch. Contamination. Splicing connection (distinguish colour, size, and location). Mold void. Chipping. Die contamination. Loose wire
- Chip module defects: Bend lead. Chipping. Mold scratch. Gate remain. Mold contamination. Crack. Lead scratch. Mold flash. Incomplete fill. Scratch Ink mark. Index hole deformation. Cold splicing. Shift punch

PHIXEL IHW - POST-SEAL IN-TAPE INSPECTION

The only post-tape inspection equipment on the market providing full inspection capability

Guarantees the quality of the products you produce and deliver. The Post-Seal In-Tape Inspection eliminates quality defects - bringing customer complaints and field recall rates close to 0 PPM. The PHIXEL IHW has a fast convertible for 7-13-inch" carrier tape reel diameter and auto conversion for different carrier tape widths up to 32mm. With AOI cellular network architecture for recipe management and Advanced Defect Classification (ADC) by hybrid analysis, the Post-Seal In-Tape Inspection outperforms market competition to go above and beyond your customers' requirements.

Key features

Application

- Inspection after taping to detect orientation, lead, mark, seal, package surface defect, reel label and quantity

Key features

- Min. 5 MP camera for top & bottom inspection
- AOI cellular network architecture for recipe management
- Reel size: 7" to 13"
- Throughput: up to 120,000 UPH (subject to package size & pitch)
- Option: tilted lead defect vision
- Cu exposure detection under development
- Package: leaded, leadless, and WLCSP
- Carrier tape width: 8 to 32 mm (auto track width)
- Advanced Defect Classification (ADC)
- SEMI standard with SECS/GEM interface
- Option: real-time data feeding to MES and eSPC
- Option: auto email alert (defect/batch summary)

Specifications

Imaging system

- Camera: 5M pixels area camera monochrome
- Number of cameras: 2: 1 (top) + 1 (bottom)
- Resolution/Field of view: 4 - 16 µm/pixel FOV: 10 mm to 40 mm
- Minimum object detection: 16 µm
- Lighting: Compound lighting

Inspection categories

- Program mode: Fast programming for common reject criteria
- Reject treatment: Electronic map
- Inspection view: Top (and angle camera for lead lift-up defect as upgrade option)

Inspection items

- Marking defects: Unclear mark (faded character). Shift mark (misaligned marking). Incomplete mark. Double mark (multiple character). Vertical mark (wrong orientation). No mark. Mixed marking
- Moulded Package defects: Bubbles/ bulge. Voids/pin holes. Crack. Broken body. Chipping Scratch. Unmoulded. Incomplete fill. Foreign material
- Lead Package defects: Mould flash on/along lead. Foreign material and contamination. Exposed wire/clip. Ejector mark. Visible wire Solder bridging. Bent lead/lead angle. Lead sweep. Lead length. Lead spacing/span. Lead cuts/depressions/ damage. Lead burr. Missing lead. Lead length. Incomplete lead forming. Metal burr
- Taping defects: Loose/unseal cover tape. Cover tape misalignment. Damaged/ contamination cover tape. Deformed/ damaged cavity. Damaged bottom tape. Chipped/broken body. Mixed product. Edge sealing. Unseal tape. Offset sealing.
- Cover tape tearing. Product tilting

WE SERVE OUR CLIENTS ACROSS 10 COUNTRIES:

Global solutions, local support

The iconic FiftyTwoDegrees building, which stands next to the Novio Tech Campus in Nijmegen is the headquarters of ITEC. This effectively takes the company back to its roots where the first diodes were created in 1953. Besides our headquarters in Nijmegen, ITEC has an office in Hong Kong for supply chain management and customer support. We also have representatives in multiple countries.

NIJMEGEN

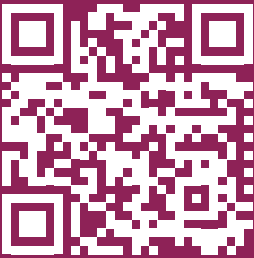
Jonkerbosplein 52
6534 AB Nijmegen
The Netherlands

HONG KONG

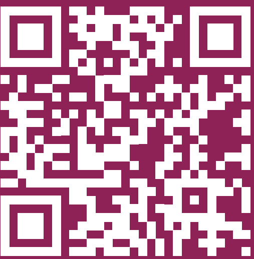
Unit HL-G01 G/F, Building 22E, Phase 3, Hong Kong Science Park, Pak Shek Kok, Shatin, Hong Kong

GET IN TOUCH!

Would you like to talk to one of our specialists and discover how our solutions can help your business?
Get in touch: **info@ITECequipment.com**



Follow us on LinkedIn:
www.linkedin.com/company/itecequipment



www.ITECequipment.com

© 2023 ITEC
All rights reserved. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under trademark- or other industrial or intellectual property rights.

itec

Redefining semiconductor manufacturing