

ATV-2000 In-Tape Inspection System



Key features include:

- Inspects most two and four sided gull-wing packages, even if the lead configuration is not symmetric.
- Performs 2D lead, mark and pin 1 inspection at up to 20,000 UPH with 100% yield.
- Checks for cover tape seal integrity.
- Parts count is verified using a sensor and dedicated counter.
- Multiple axis light source works with both laser and ink marks
- Vision rejects can be marked either automatically or only after operator invention.
- Quick and easy tape loading and lead, mark and pin 1 training process
- Fast changeover for different packages.

ATV-2000

High-speed in-tape (post-seal) component lead, mark and orientation inspection system for two and four sided gull wing devices with seal quality check assures no damage or wrong parts.

The ATV-2000 is a state-of-the-art system designed to perform a complete 2D inspection of gull wing components THROUGH sealed cover tape while simultaneously making measurements to assess seal quality.

Superior Performance

This novel quality control tool has been designed for reliability, high throughput and ease of use. The ATV-2000 provides conventional 2D lead inspection, pin 1 orientation checking and mark inspection of virtually any type of gull wing package after sealing into tape. The system is PLC controlled with both feed and take-up-reels motor driven to allow rapid rewinding after inspection in complete. Rejects are marked either with or without operator verification using a pneumatic sticky dot dispenser.

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Vision Inspection

Vision station hardware comprises a progressive scan camera attached to a fully adjustable, lockable mount and a triggered, multi-axis light source that not only allows optimization for both ink and laser mark inspection, but also minimizes cover tape reflections. Image analysis is performed by world-proven I-CITE NxT software running under Windows NT. This easy-to-use software has a straightforward lead, mark and pin1 teaching process that only takes a few minutes to train a new component. Multi-level access is both user definable and password protected. I-CITE performs all the conventional 2D lead measurements including colinearity. This versatile software can also check images against multiple "taught" mark templates.

Machine Control

All basic machine functions are handled by a PLC unit. Dedicated controls include a key switch for selection of automatic/Semi-automatic reject marking, and Start/Stop/forward/Reverse buttons. A dedicated sensor and counter display unit provide a device count independent of the vision system

Reject Handling

Vision rejects can be marked on the outside of the cover tape with a pneumatically dispensed sticky dot transported by a stepper motor controlled pick and place head. This process can be fully automatic for review and action after a reel has been inspected, or semi-automatic allowing operator review of the failed image prior to reject marking.

Fast Changeover

The ATV-2000 can be used with carrier tapes 4-40mm wide. The tape pathway is fully adjustable so no tape-specific tooling is required. Conversion and setup takes less than 20 min. including training all the vision inspection

General Specifications:

Dimensions: 19.7 x 21.7 x 47.2

inches (DxWxH) 500x 550x1200mm

Power: 110/220VAC, 50/60Hz, 1kW, single phase

Controls: Start, stop good, no good for manual reject operation, forward, reverse reset, home.

Key Switch: Off, Automatic, Manual selection

Controller: PLC for machine control

Operation: Automatic and Semi-automatic modes

Vision System:

Hardware: Pentium III running Windows NT MuTech MV1000 Frame Grabber 640x 480 Progressive Scan Camera, Multi axis triggered light source

Software: MPV I-CITE NxT

Inspection: lead—Space, Width, Span, Slant, Length, Colinearity Mark—print defects, Low Contrast, Wrong, Illegible Pin 1—Dimple, Notch, Chamfer, Mark

Static Accuracy: 0.001 inches (Space 0.005 inches)

Repeatability: +/-0.0002 inches at 3 sigma

Mark Templates: Up to 4 for sequential inspection on fail—reduces throughput

Orientation: Inspects devices rotated up to 15 degrees

Performance:

Tape Type: Most heat and pressure sensitive

Tape Width: 4-40mm

UPH: Up to 20,000 parts per hour with vision inspection (depends on part type and assumes 100% yield)

Rewind: Fast rewind loads tape onto feed reel after inspection is complete.



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