STRATUS INLINE FLEX

AUTOMATIC INLINE INSPECTION & METROLOGY FOR THIN, RIGID AND FLEXIBLE SUBSTRATES

STRATUS VISION

Carrier Transport

Areascsan Camera

Linescan Camera

2D/3D Inspection

Fully Automated

Resolution < 1µm

Aftermarket Automation

AI Defect Classification

Via Inspection

Multiple Lighting Scenarios

High Measurement Accuracy

High-Speed Inline Inspection for Electronic Substrates and Electronic Packaging

Solving thin, flexible, and rigid substrates automatic handling, the STRATUS INLINE FLEX is a fully automatic, conveyor-based inspection and metrology solution that can also handle multiple sizes.
Sensitive products requiring full-surface active area inspections such as glass foils, green tapes, and ceramics can be processed with this solution. The specialized INLINE FLEX handling, illumination, and processing solutions allows reliable processing also if they have high aspect ratio structures.
Direct physical and closed loop integration is available with laser machines, screen printers, and other process systems.
With high throughput, fast setup, and robust substrate guidance, the INLINE FLEX delivers exceptional inspection reliability.

Automation meets precision – continuous inspection without compromise.

Key Features & Capabilities

- Automatic handling of (ultra-thin) foils on carriers or in boxes and rigid circuit boards
- Seamlessly integrates into production lines and MES environments with full traceability
- Various top- and backlight illumination for maximum contrast and versatility
- Automatic substrate size adjustment option

sales@stratusvision.com

Complete Surface Inspection and Verification with SPIN

Using the proven STRATUS SPIN inspection software, our AOIs perform CAD-based comparison of actual and intended design data, identifying even the smallest deviations with high repeatability. Each additive layer or process step can be tracked referencing the Unique Identifier (UID), enabling layer-by-layer traceability after final inspection.
Typical defect classes include:

- Excess or missing paste and structure for reflective or wet materials such as silver, silver-palladium, silver-platinum, gold, copper, overglaze, adhesives
- Mouse bites, holes, via covering from e.g. material variances, smearing, narrowing, bleeding and other process defects
- Deposition irregularities and contamination
- Print shifts, substrate shrinking and screen aging

Perfect for LTCC, HTCC, GLASS and multilayer ceramics, as well as advanced PCB or thin-film applications.
The system distinguishes random and serial defects, supporting both process optimization and quality tracking across batches.

Advanced Imaging

- Optimized for fine-line structures < 10 µm
- Standard 1 µm pixel-size, measures features down to submicron resolution (~0.2 µm)
- Full 10" × 10" substrate inspection in less than 10 seconds

High-Performance 2D & 3D Metrology

The INLINE FLEX offers 2D and 3D metrology for geometric measurement and dimensional verification and inspection. It supports statistical process control and provides data export to MES or SPC systems for advanced quality analytics of measurements.

- 100 % measurement inspection (no sampling required)
- Dimension & alignment checks for vias, pads, and printed features
- Provides metrology output data (e.g. CSV, TXT) for process feedback and optimization.

Connectivity & Automation

- File input: DXF, DWG, Gerber, GDSII, Oasis
- Fully inline-capable, with SECS/GEM and MES connectivity and custom communication protocols (e.g. SMEMA)
- Optional automation e.g. loading, flipping, transport and cleaning modules

Performance at a Glance

- Fully automated inline AOI & metrology
- For transport of trays, carriers, and rigid substrates
- Handles ultra-thin materials from ≈10 µm
- Various Top- & backlight illumination for maximum flexibility
- Inline integration with MES & factory automation
- Measures features down to submicron resolution (~0.2 µm)

Learn more here! ▶▶▶

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