



ERSA VERSAPRINT

A Revolutionary Print Solution with Integrated Post Print AOI

VERSAPRINT

A Revolutionary Printer with Fully Integrated Post Print AOI



VERSAPRINT P1

Market research shows that nearly 80 % of the defects produced in an SMT production line result primarily from the printing process with approx. 64 % and from the reflow process with approx. 15 %. ERSA, Europe's largest manufacturer of soldering systems, has accepted this SMT challenge and has expanded its product range by screen printers. This consequential step clearly defines ERSA's role as a strategic system supplier taking increased responsibility for the entire SMT processes of printing and reflow.

New Technology

The revolutionary Line Scan Technology (LIST) camera (patent pending) and the TRT (Triple Rail Transport) define the focus of the core competence of this new printer: true time savings via optimized parallel processing and 100 % post print AOI integrated into the machine.

LIST - Line Scan Technology

Today's printers use a standard camera for alignment and the same camera to rapidly shoot many small field-of-view pictures for inspection. ERSA revolutionizes these processes via the use of a line sensor based camera for both alignment and inspection. Unlike commercial scanners, the LIST camera (patent pending) has top and bottom contact image sensors (CIS) and an array of rod lenses specifically designed for the VERSAPRINT application. Standard cameras take many pictures of a very small area, whereby the LIST camera scans an entire length of 260 mm at a speed of 35 mm per second! From an inspection speed standpoint, ERSA's Line Scan Technology will set the new standard. The fastest inspection speed in a printer today is 1,200 mm²/s. The LIST camera in the VERSAPRINT achieves the world's fastest inspection speed of 9,100 mm²/s! In addition to inspection speed, the scanning of the entire substrate offers many additional advantages.

Parallel Processing: TRT Triple Rail Transport

Optimizing production efficiency remains the foremost goal of SMT equipment manufacturers. In a printing machine, the major process steps are printing, transporting, cleaning and inspecting. The printing, for example, can be conducted simultaneously or parallel to an inspection process and can achieve a relative cycle time savings. The VERSAPRINT revolutionizes parallel processing based on a TRT Triple Rail Transport and the 100 % inspection capability offered by LIST. The two most time consuming processes of printing and inspection can run parallel in order to achieve a tremendous cycle time savings!

Print Head: CPC Continuous Pressure Control

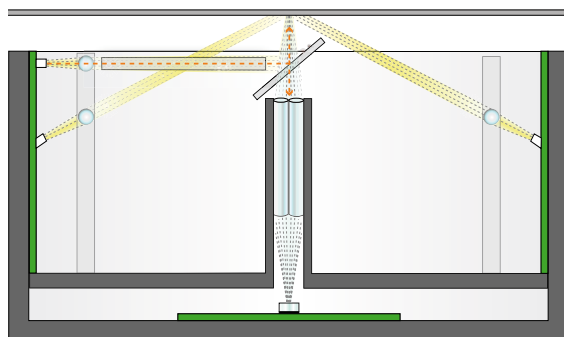
Closed loop print pressure control offers the best print results. Weight compensation of print head and squeegee realizes low print pressure for highly sensitive applications. Mounting the squeegee is very easy and fast and is conducted from the front side of printing head.

Intelligent Stencil Cleaner

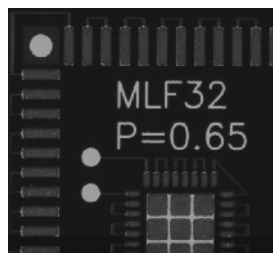
The intelligent, closed loop stencil wiper automatically starts a cleaning cycle upon the result of a stencil inspection failure. The Gravity Fed Solvent Dispenser ensures exact volume application via monitoring of the cleaning paper. Fast changeover of cleaning paper is possible without using tools. Constant speed control of paperwind assures optimal process stability.

VERSAPRINT Inspection Capability

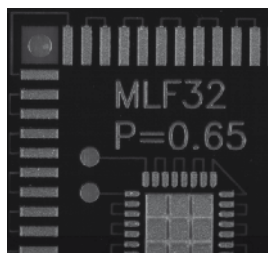
The revolutionary LIST camera offers advanced inspection capabilities not often found in a printing machine. Detection of paste on pad, detection of print offset, detection of bridges, and finally detection of stencil smearing and blockage can be all managed at line speeds!



LIST Camera Detail Showing Direct & Diffuse Lighting



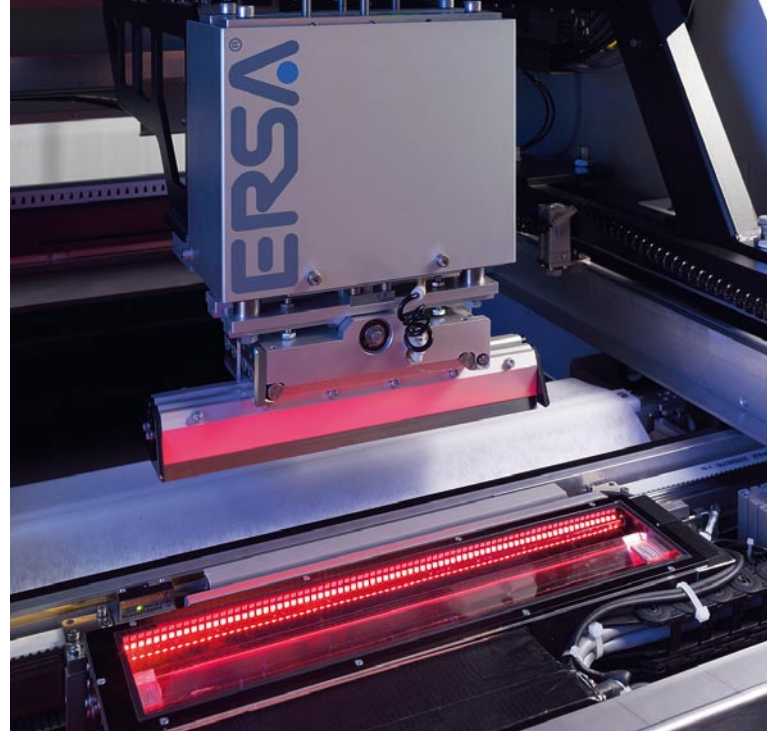
Direct Lighting



Diffuse Lighting

Benefits of LIST for Post print Inspection:

- Scanning Entire Substrate Enables Operator to Setup and Teach the Fiducial Marks Very Easy
- System Detects Position and Location of Fiducial Marks and Aligns the Unprinted Board Accordingly
- Reduction of Setup Time
- Minimising of Operator Errors
- High Resolution and Distortion Free Pictures



Unique Technology Advantages

- True Parallel Processing for High Quality & Speed
- LIST Camera for 100 % Inspection at Line Speed
- Intelligent Stencil Cleaning via 100 % Inspection
- Least Floor Space Required & Lowest Invest
- Closed Loop Process Control for Print & Post Print Inspection
- Easy to Program & Easy to Use
- One Contact for Printer & Post Print Inspection



VERSAPRINT S1

ERSA VERSAPRINT

Technical Data & Machine Options



| Technical Data: | VERSAPRINT P1 | VERSAPRINT S1 |
|---------------------------------|--|--|
| Substrate Handling | | |
| Substrate size (X x Y) [mm] | min. 80 x 50; max. 460 x 460 | min. 80 x 50; max. 550 x 500 |
| Triple Rail Transport mode [mm] | min. 80 x 50; max. 310 x 460 optional: max. 420 x 460 | |
| Substrate thickness [mm] | 0.5 - 6 | 0.5 - 6 |
| Stencil Mount | | |
| Stencil size [mm] | min. 450 x 450; max. 737 x 737 Adjustable without adapter | min. 450 x 450; max. 737 x 737 Adjustable without adapter |
| Print Parameter | | |
| Print Head | 2 independent print heads; continuous pressure control in a closed loop system; adjustable squeegee down stop weight compensation for different squeegee length | 2 independent print heads; continuous pressure control in a closed loop system; adjustable squeegee down stop weight compensation for different squeegee length |
| Print force [N] | 0 - 260 | 0 - 260 |
| Vision | | |
| Camera | 2 line scan cameras, one for each direction (stencil/PCB) | 2 line scan cameras, one for each direction (stencil/PCB) |
| Programming | Proprietary "Teach In" method | Proprietary "Teach In" method |
| Performance | | |
| Repeatability | ± 12.5 µm @ 6 Sigma | ± 25 µm @ 6 Sigma |
| Print accuracy | ± 25 µm @ 6 Sigma | ± 50 µm @ 6 Sigma |
| Cycle time [s] | < 12 + print | < 14 + print |
| Inspection speed | 9100 mm ² /s (L: 260 mm x 35 mm/s) | 9100 mm ² /s (L: 260 mm x 35 mm/s) |
| Setup time [min] | < 10 | < 10 |
| Product change [min] | < 2 | < 2 |
| Machine Operation | | |
| Graphic user interface | SEMI Standard E95-1101 | SEMI Standard E95-1101 |
| Machine Dimensions | | |
| Width x Depth x Height [mm] | approx. 1500 x 1770 x 1600 | approx. 1185 x 1770 x 1600 |

| Machine Options Matrix: | VERSAPRINT S1 | VERSAPRINT P1 |
|--|---------------|---------------|
| LIST Camera | x | x |
| Standard Camera | option | option |
| Triple Rail 350 mm - Parallel processing | N/A | x |
| Triple Rail 420 mm - Parallel processing | N/A | option |
| Single Rail - Serial processing | x | N/A |
| Stencil Cleaner - with Vacuum | x | x |
| Dispenser | option | option |
| Data Matrix / Bar Code | option | option |
| Bar Code Hand Scanner | option | option |
| SPC | option | option |
| Temperature Control | option | option |