



THE **AOI** SOLUTION

FOR ALL
TYPES OF
BOARDS




alldata
EASTERN EUROPE
www.alldataee.com

**DELVI
TECH**

Aton is an innovative full 3D inspection solution based on Artificial Intelligence that revolutionizes the concept and standards of Automatic Optical Inspection systems, **covering SPI and post-reflow production phases.**

Aton is the perfect solution for all industries, being able to deal with different sized boards, even the most complicated, heavy, large and with tall components.



AN OUTSTANDING HARDWARE

- › Patented true 3D measurement optical technology
- › Moving transportation system on linear motors for X and Y axes.
- › Transport on stage
- › Z-axis movement
- › Top clearance up to 120 mm
- › Bottom clearance up to 140 mm
- › Boards up to 10 Kg and 550x500 mm

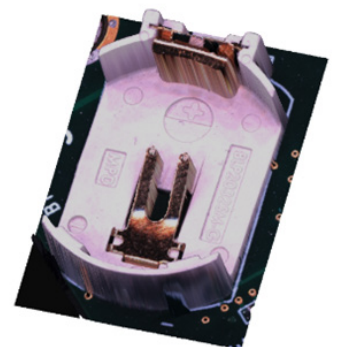
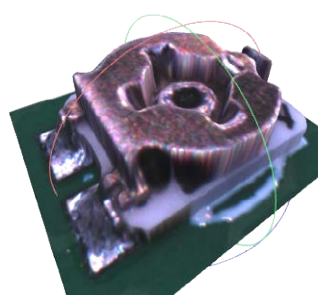
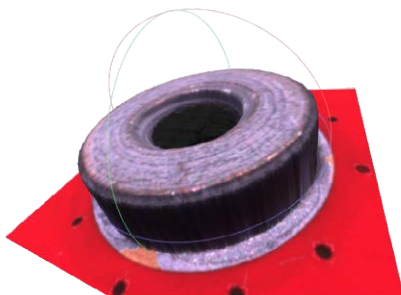


OPTICAL HEAD TECHNOLOGY

- › 6 intelligent cameras
- › High-resolution, high-speed top camera with FPGA integrated
- › Polarized camera for enhanced inspection capabilities
- › 4 side cameras
- › 4 digital projectors for true 3D reconstruction
- › Custom telecentric lens to eliminate parallax error
- › 3 levels RGBW LEDs

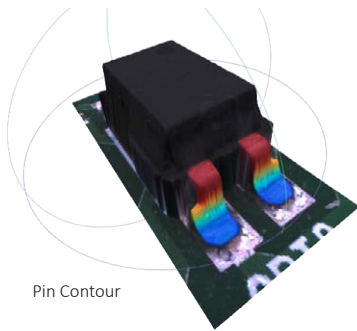
REAL 3D ACQUISITION

The patented Delvitech 3IS optical head with 6 intelligent cameras is a powerful technology that acquires precise 3D data with crystal clear images for a wide range of packages and components. From tall connectors with reflective metallic surfaces to fine pitch components, the 3IS technology provides a reliable and consistent performance to cover all scenarios in SMT and THT.

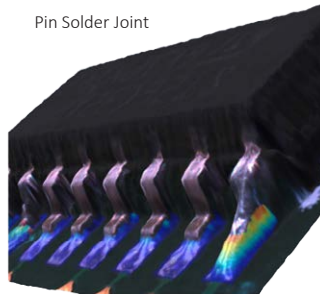


360° COVERAGE WITH AI INSPECTIONS

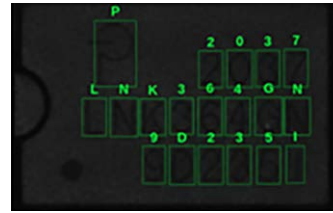
Delvitech's AI inspectors based on various neural network models provide a 360° coverage from component location detection, precise pin contour detection, polarity detection, solder joint quantitative and qualitative analysis to OCR. All required measurements for positions, height, volume are also included as outputs from the inspector to fulfill the required PCB assembly specifications or one click to adapt to IPC classes.



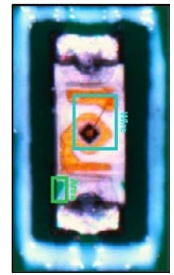
Pin Contour



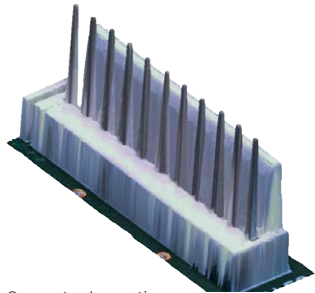
Pin Solder Joint



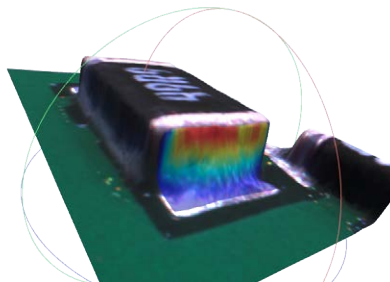
OCR



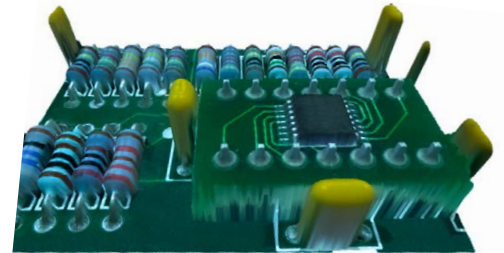
Polarity



Connector Inspection



Soldering Quality

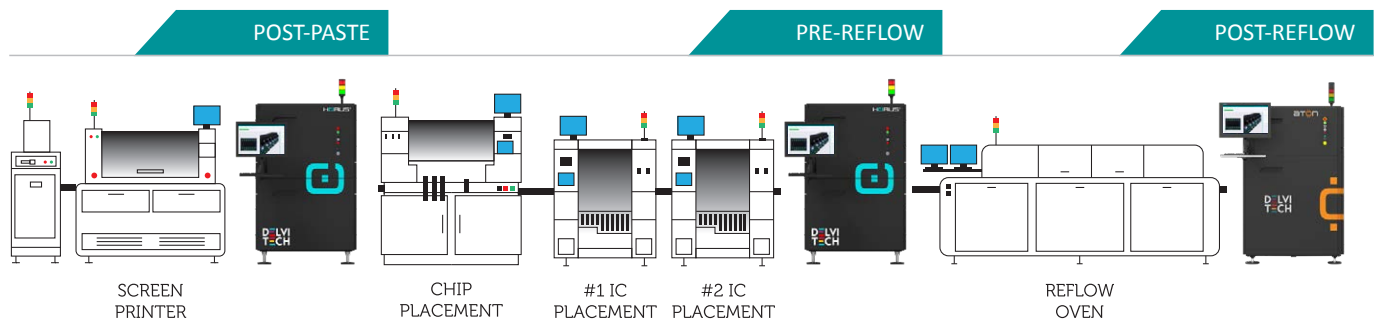


Through Hole Component

3iS

INNOVATIVE,
INTELLIGENT
INSPECTION (3I)
SOLUTION (S).

Enabled by the software Neith and based on Artificial Intelligence, 3iS ensures scalability and inspection repeatability on all production lines. By deploying identical technology and software for each inspection phase, 3iS allows line engineers to have one single inspection program that can easily be shared not only among lines, but also among multiple manufacturing facilities through the cloud, allowing consistent results from multiple plants and a reduction of programming efforts. At the same time, the installation of Neith software on all the machines enables cross-training of operators, an extremely precise error detection and predictivity.



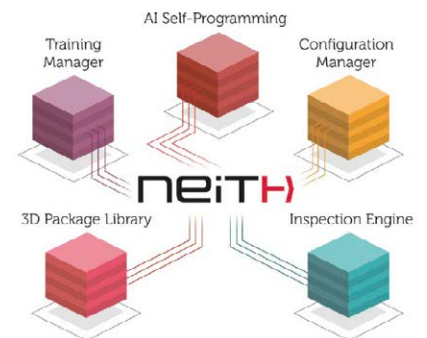
neith

Created especially for Industry 4.0, Neith is a web-based software, compatible with multiple OS, that facilitates extensive data management by using AI, obtaining a higher production output, preventing defects and increasing the first pass yield.

Neith's architecture is based on micro-services. The software features can be extended with customized services, such as personalized inspectors for specific components or ad-hoc interfaces based on existing protocols.



Data, based on the client's needs, can be stored locally within the company infrastructure, or on the cloud, allowing inspection programs, libraries and inspection results to be shared across multiple production plants and enhancing quality consistency.





AI IS OUR SOLUTION

Traditional parameter and threshold based AOIs face difficulties in adapting to all the possible variations during a production process. With Delvitech's AI technology, complex variables can be computed with the help of sophisticated machine learning models.

AI AND INSPECTION

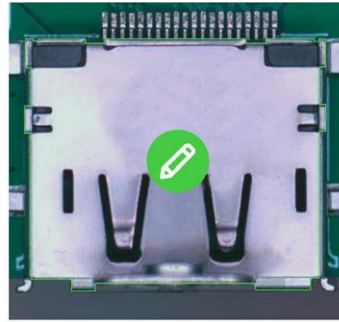
Neural networks applied to inspectors are used to process images, minimizing the need for manual configuration and enabling unparalleled readability of components, especially under non-optimal conditions, thanks to the AI's unmatched ability to identify different variables and manage them.

AI AND TRAINING MANAGER

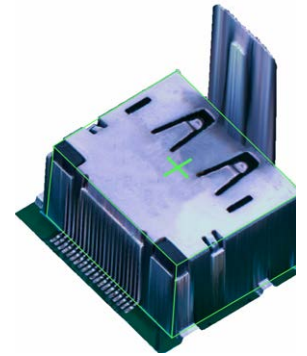
Delvitech's solution is the only one working on a proprietary AI and that allows training to happen directly on the machine, activating a process of continuous inspection improvement, resulting in production efficiency.



When an inspector encounters a new package, a new training of the AI model is required to inspect the component.



Images are analyzed by the customer's line expert who can retrain the neural network, in this case defining the area around the component.

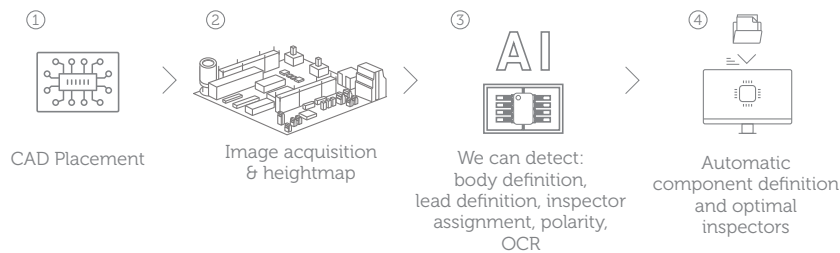


The neural network absorbs the new information and manages them, without breaking the previously existing neural network.

FURTHER DEVELOPMENTS

SELF-PROGRAMMING FLOWS

Self-programming will operate in two different scenarios: during the assignment of inspectors, thanks to the ability to automatically recognize a component and assign it to the corresponding package within the package library, and during inspection, making automatic fine tunings directly during the production process to boost the first pass yield.



PREDICTIVITY

Delvitech's AI will allow to detect errors even before they manifest, as it will be able to recognize process deviations within the sequence of boards produced, resulting in waste minimization, allowing Delvitech's 3D AOI solution to be the first sustainable one.

ABOUT DELVITECH

Delvitech designs, manufactures and supplies a sustainable AI based technological solution for the 3D automated optical inspection of assembled printed circuit boards.

In Delvitech R&D and Innovation are at the heart of every activity. Artificial intelligence is combined with an industry-leading engineering technology, resulting in a unique inspection machine for all SMT and THT production phases.

Characterized by self-programming features, Delvitech's software, in conjunction with its proprietary patented multi-camera optical head, precision-engineered in Switzerland, delivers unparalleled inspection capabilities. The web-based software is unique, modern, singular and its ultimate goal is to automatically generate inspection programs, that can even be shared through the cloud.

The result is the continuous improvement of the entire manufacturing process, making it faster, steadier, more scalable.

Delvitech solution means less errors, less waste, less CO2, more future.

TECHNICAL SPECIFICATIONS

OPTICAL HEAD

Cameras

1 x Delvitech high-resolution, high-speed top camera
 1 x 12MP Delvitech polarized camera
 4 x 12MP Delvitech side cameras

Projectors

4 x Delvitech RGB projectors for 3D measurements

Optics

STANDARD RESOLUTION	HIGH RESOLUTION	ULTRA RESOLUTION
12MP	12MP	25MP
12 μm	9 μm	11 μm
Telecentric	Telecentric	Telecentric
49 x 36 mm	37 x 27 mm	50 x 50 mm
Structured RGBW lights + 3 levels LEDs	Structured RGBW lights + 3 levels LEDs	Structured RGBW lights + 3 levels LEDs

Top Camera Resolution

Image Pixel Size

Lens

Field of View Dimensions

Lighting

PCB HANDLING

Conveyor Z Movement

60 mm

Minimum PCB Dimensions

50 x 50 mm

Maximum PCB Dimensions

550 x 500 mm

PCB Thickness

≤ 6 mm

Maximum PCB Weight

10 Kg

Minimum Edge Clearance

3 mm

Top Clearance

120 mm

Bottom Clearance

140 mm

Width Adjustment

Automatic

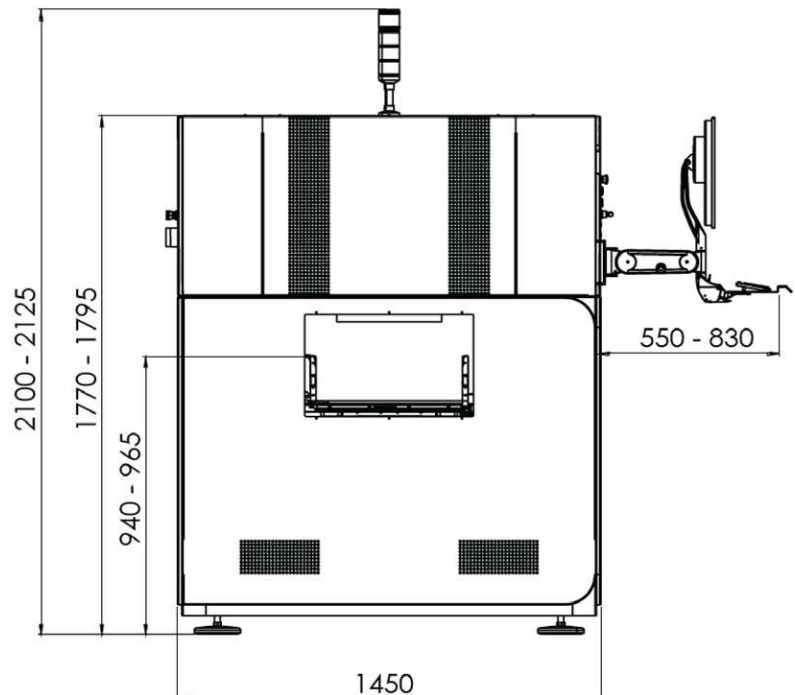
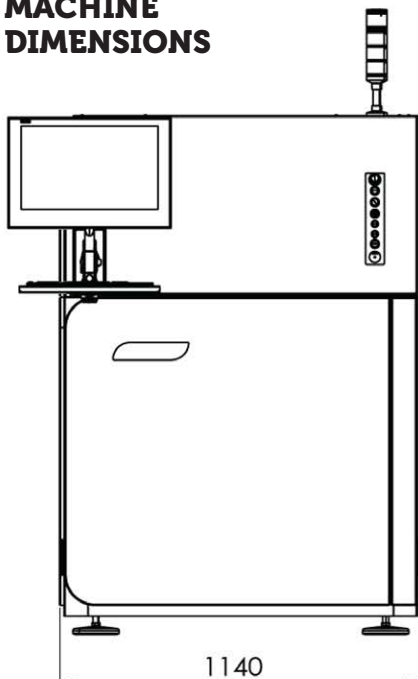
Board Warp Compensation

± 5 mm

Flow Direction

All directions customizable

MACHINE DIMENSIONS





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