PCB Inspection System
VT-S530

Omron's 3D-SJI (Solder Joint Inspection) Ensuring High-quality Products in an Efficient Manufacturing Environment

High-Resolution Model

3D Dual Lane High Resolution

VT-S530

PCB Inspection System (AOI) Lineup

2D Implement-ation Inspection

Support for Post Placement
VT-S500

3D Oblique View

Best Sales in Automotive Industry
VT-S730

High-Speed 3D Oblique View

Advanced & High-speed
VT-S730-H

Omron's 3D-SJI (Solder Joint Inspection)

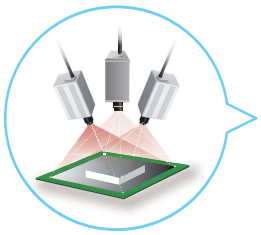
Materializes quantitative inspection of solder joint and implementation, while minimizing risks of overlooking unknown defects by the quality product criteria inspection based on the standards, contributing to vertical startup of inspection.

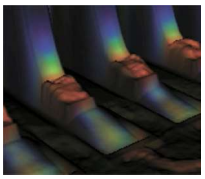
POINT 1 3D reconstruction of solder and components

Hybrid 3D-SJI

Conducts optimal inspection to suit items to be inspected by combining 3D and 2D technologies.

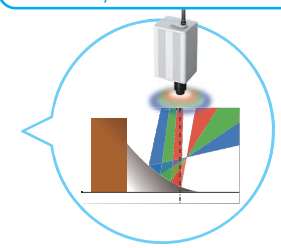
Phase-shift principle
suitable for height measurement





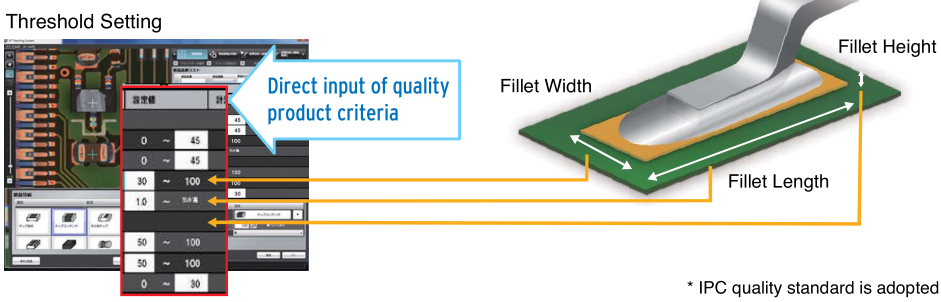
Hybrid

Color highlight
to capture the shape without being affected by the solder surface state



POINT 2 Quantitative inspection utilizes quality criteria based on International Standards*

Contributing to quality control that conforms to International Standards, including IATF (ISO/TS) 16949.

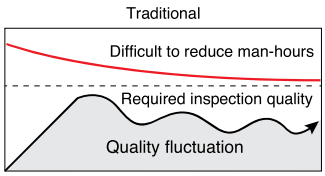


* IPC quality standard is adopted

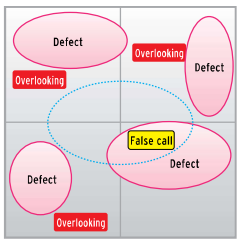
POINT 3 Materialization of maximum quality inspection with minimum man-hour

Traditional models

Continuous adjustment is required with each lot fluctuation or new defect occurrence. This model requires continuous debugging.

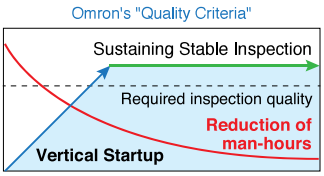


Defects may be overlooked if all defect conditions are not specified. The number of false calls will not decrease if there is a setting defect.

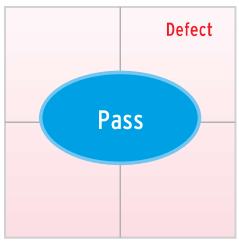


Omron's 3D-SJI S Series

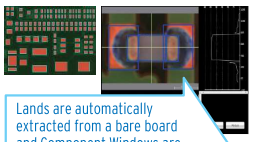
Automation has reduced man hours required for initial program creation time. Quantitative "quality criteria" based on 3D reconstruction has substantially reduced man hours required for debugging.



Only inspected items that meet or exceed the Quality Criteria are passed. The rest are rejected as defects.



Reduction of man-hours required for initial program creation.

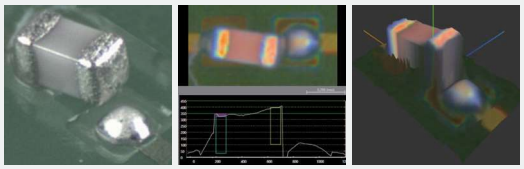


Lands are automatically extracted from a bare board and Component Windows are auto-generated based on the height information.

Example Defects

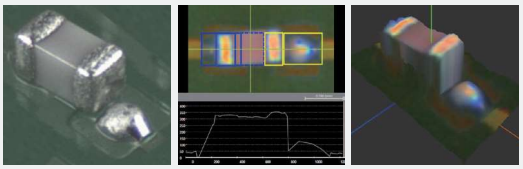
Lifted micro component (0603) defect

Microscope image | Quantitative inspection | Reconstructed 3D image



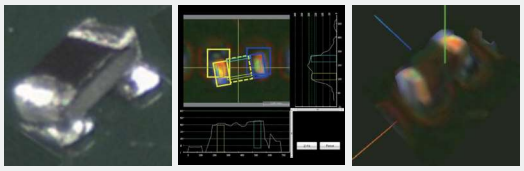
Micro component (0603) insufficient solder wetting defect

Microscope image | Quantitative inspection | Reconstructed 3D image



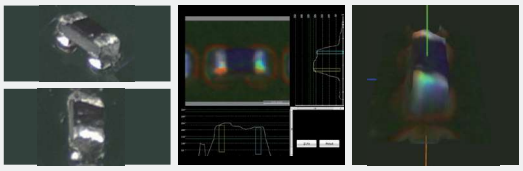
Micro component (0402) offset defect

Microscope image | Quantitative inspection | Reconstructed 3D image



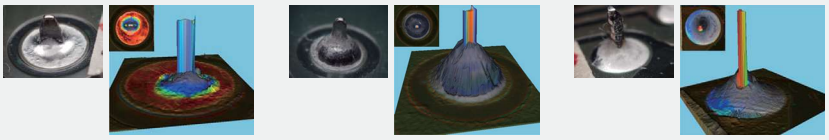
Micro component (0402) inclination defect

Microscope image | Quantitative inspection | Reconstructed 3D image



Flow solder/insertion component inspection examples

Insufficient solder | Excess solder | Lead height defect



Micro solder ball inspection example

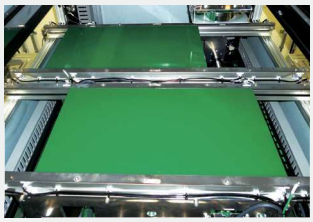
Whole PCB surface inspection

Detecting foreign objects accurately is achieved through combining 3D (height) and 2D (area) measurements on the entire PCB surface. (Lands without solder can be excluded from the inspection)

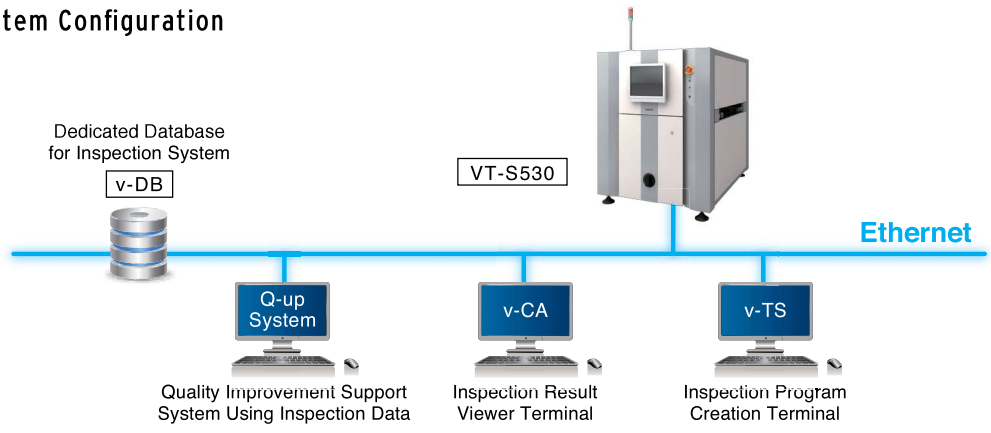
Foreign object (0402 scattered chip) detection example

High productivity inspection

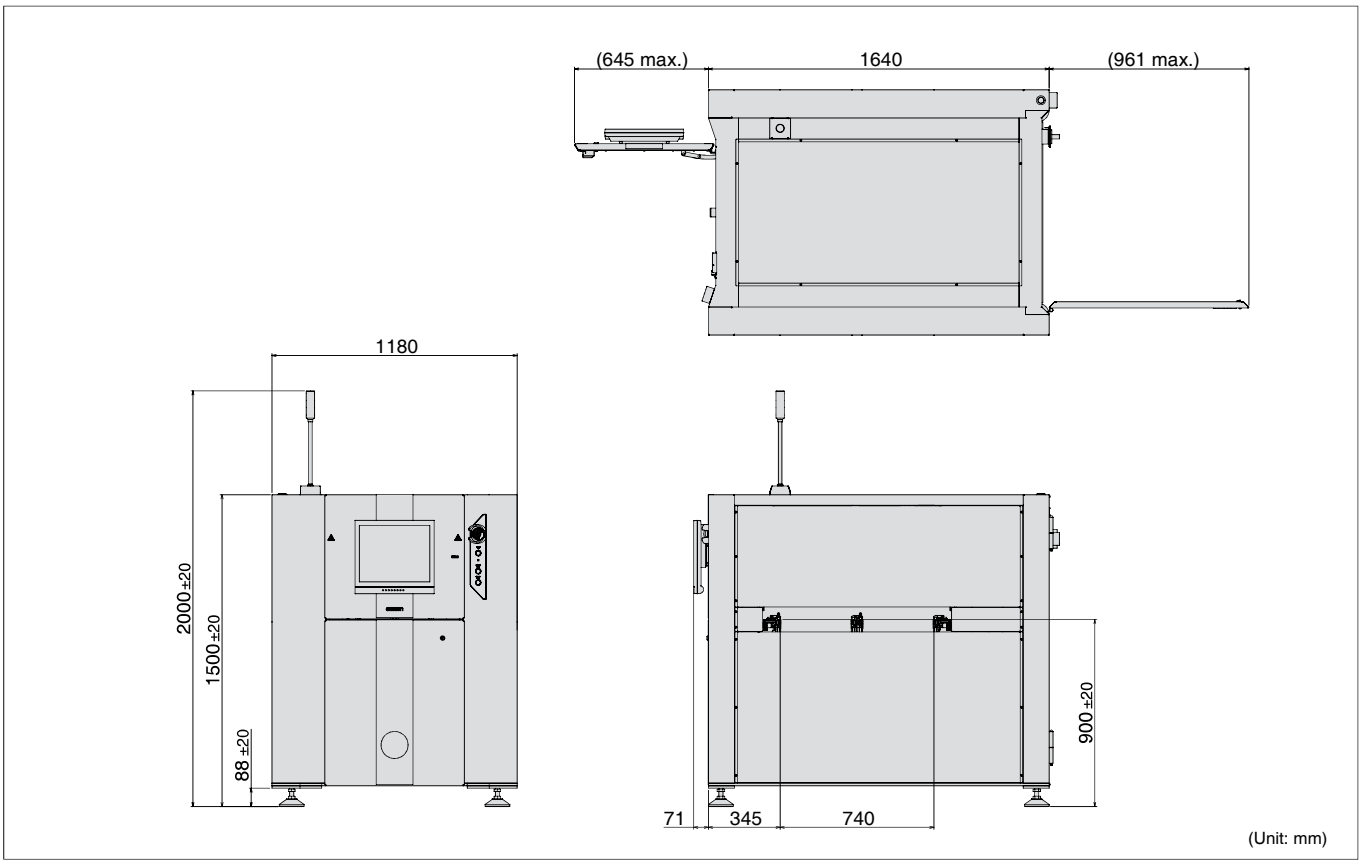
High production throughput supported through dual lane.
Dual lane operation using various PCBs is possible, due to its handling capability up to the PCB size of 510 (W) x 330 (D) mm.



System Configuration



Dimensions



Hardware configuration

Dimensions		1180(W)×1640 (D)×1500(H) mm
Weight		Approx. 850kg
Power supply	Voltage	200 - 240VAC (single phase), voltage fluctuation range ±10%
	Normal rated power	2.0kVA
Line height		900±20mm
Air supply pressure		0.3 - 0.6MPa
Operating temperature range		10 - 35°C
Operating humidity range		35 - 80%RH (Non-condensing)
Image signal input block	Imaging system	12M pixel camera
	Inspection principle	3D reconstruction through color highlight and phase shift technology
	Image resolution	10μm/15μm
	FOV	10μ: 40×30mm
		15μ: 60×45mm

Functional specifications

Supported PCB size (min.)	50(W)×50(D)mm
Supported PCB size (max.)	Dual lane: 510(W)×330(D)mm
	Single lane: 510(W)×680(D)mm
Clearance	Above: 50mm; Below: 50mm
Height measurement range	25mm
Thickness	0.4 - 4mm
Inspection item	Component height, lift, tilt, missing/wrong component, wrong polarity, flipped component, OCR inspection, 2D code, component offset (X/Y/rotation), fillet (height/length, end joint width, wetting angle, side joint length), exposed land, foreign material, land error, lead offset, lead posture, lead presence, solder ball, solder bridge

- **The information provided in this document is mainly for selecting a suitable model. Please read the Instruction Sheet carefully as it contains information regarding warranty, limitations of liability, and precautions. Before purchasing, the user must understand and accept the information presented in the Instruction Sheet.**
- **This product may cause interference if used in residential areas.**

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