3D AOI system

BF-3Di

The inspection ability is improved drastically
by the height measurement of all parts.

The Future in Focus saki

3D technology makes the PCB inspection more accurate and easier

BF-3Di

3D AOI system

Our unique optical design and height measurement technology enables the high accuracy inspection.
Combination of 2D and 3D technology realizes accurate and easy inspection data creation by short debugging time.
Aggregating our operating know-how and image processing technology cultivated through our sales of more than 7000 units of AOI, our new 3D technology offers easy and accurate PCB inspection.

The three strength useful in production site

1 Overwhelming inspection ability by height measurement

The numerical conversion of “height” provides “Measurement” which exceeds the general idea of “inspection”.

2 Drastically improved work efficiency

The data creation and debug time will be reduced drastically by our unique software.

3 Worldwide service

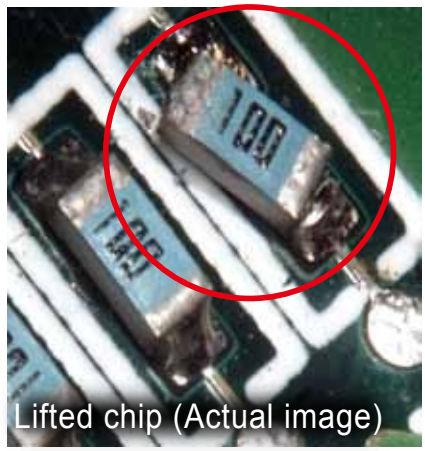
We are offering satisfactory supports all over the world.

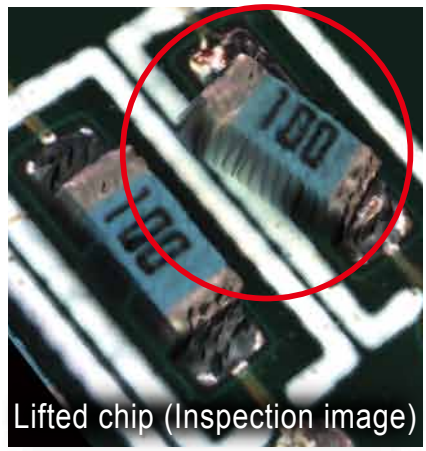
1

Inspection Ability

Overwhelming inspection ability by height measurement

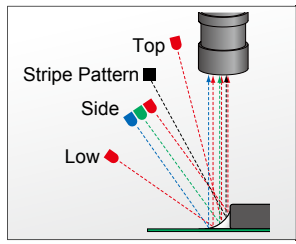
BF-3Di provides the height information to the conventional 2D AOI.
By the numerical conversion of inspection results, it is capable of detecting defects which was difficult to detect such as lifted lead, dryjoint, lifted BGA, lifted chip, reversed transistor, reversed diode, and inclined connector components.





Measuring a fillet geometry and reconstructing it accurately

BF-3Di is capable of reconstructing fillet geometry accurately by combining the multistage ring light and measuring result of the height of solder.
The solder inspection capability is improved drastically.

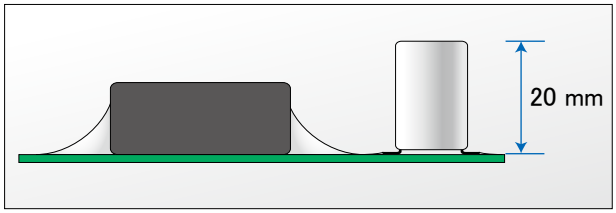


Multistage ring light (Image)

Color image taken by ring light

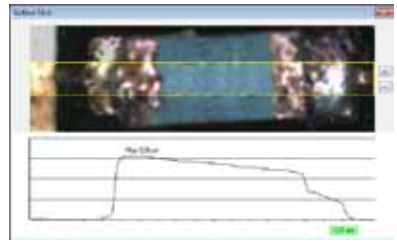
Height measurement range is up to 20mm

BF-3Di can measure the part's height up to 20 mm which covers most of the parts mounted on the PCB.



Accurate height measurement of the ultrafine parts

BF-3Di is capable of inspecting the height, chip float, and parts slope of current smallest 01005 (0402) chip accurately.



High-speed height measurement by PMP*

The PMP technology enables to measure the whole board in high speed.
The missing parts inspection of 01005 (0402) parts or black parts on the black PCB could be done much quicker and easier.

*PMP: Phase Measurement Profilometry

Contribution to high production efficiency

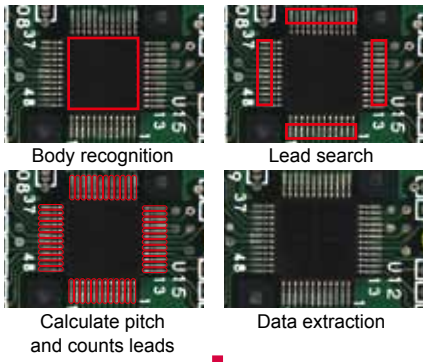
In case FOV size 36 × 36 mm

2D → 4.3 FOV/sec. 3D → 2.1 FOV/sec.*

* by 2 way projection

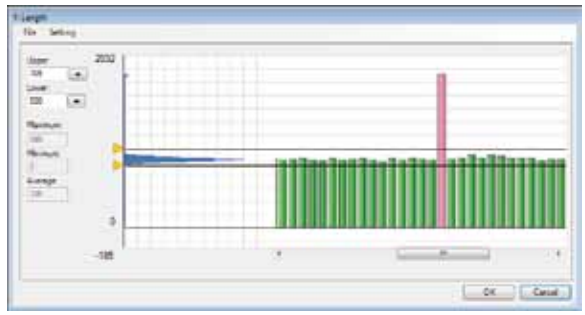
2 *Efficiency*
Drastically improved work efficiency

Automatic creation of inspection data by automatically realizing the parts shape



• Minimizes the variability of each engineer's inspection data

Easy operation of setting proper thresholds during debugging by checking the histogram



• Drastic cut of debug costs

Realized optimization of work efficiency by high throughput and the reduction of data creation and debug

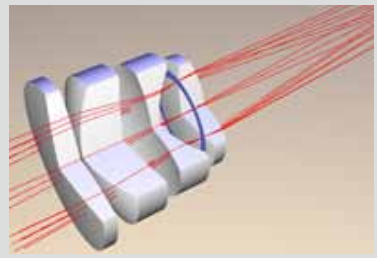
3 *Global Support*
Worldwide service

We provide quick service and support all around the world using 15 of our worldwide network which currently supports 7000 AOI machines.

The unique optical design enabled all parts 3D inspection

BF-3Di enables to measure the height of all parts on a PCB by the unique optical design. It will reduce programming time of inspection data and debugging. Also, inspections which were considered difficult such as dry joint, lifted lead, shifted lead, and lifted micro chip could be done with high accuracy.

By its unique optical design* and 4-way projection, BF-3Di realizes all parts 3D inspection with superb detection ability.



*** Saki's unique optical design**

BF-3Di can measure accurate height of parts by projecting stripe patterns from the same point.

Wherever the pattern hits the object, it will accurately measure the height.

Providing high performance to all factories

Advanced interface

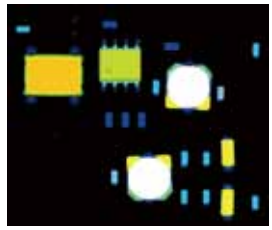
The inspection software on BF-3Di focused on improving interface which now provides touch-feeling operation.

Inspection data creation wizard

On BF-3Di, the inspection data creation wizard is installed. It makes inspection data creation much easier.

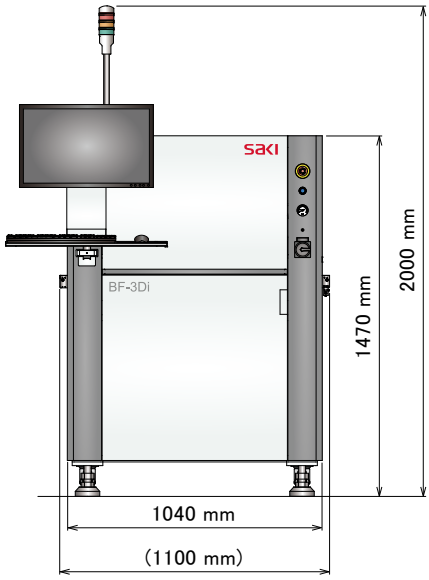
Shortening library creation time

If there is CAD data such as GenCAD, BF-3Di makes libraries automatically based on pads on a PCB and parts information.
Even if there is no CAD data, it can create windows from the height information. BF-3Di requires less than half of the time to create the library compared to conventional AOI.

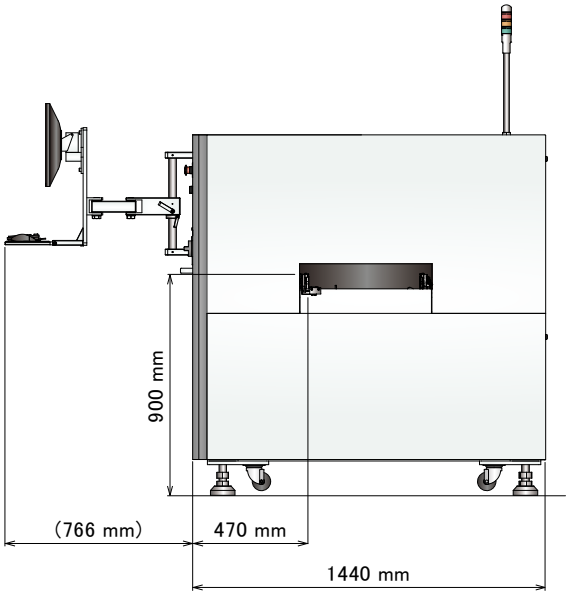


External View

■ Front View



■ Side View



Product Specifications

Model Name	BF-3Di
Horizontal Resolution	18 µm
Height Resolution	1µm
Repeatability	2µm (3σ) or less
PCB Size	50 x 60 to 460 x 510 mm (1.97 x 2.36 to 18.11 x 20.08 in.)
PCB Thickness	0.6 to 3.2 mm (0.02 to 0.13 in.)
PCB Warp	+/- 2 mm (0.08 in.)
PCB Clearance	Top: 40 mm (1.57 in.) Bottom: 40 mm (1.57 in.)
Rotated Component Support	Available for 0 to 359° rotation (unit of 1°)
Inspection Categories	Presence/Absence, Misalignment, Tombstone, Reverse, Polarity, Bridge, Absence of Solder, Insufficient Solder, Lifted Lead, Lifted Chip, and Fillet Defect
Camera (Image capture)	CMOS Area Camera
Lighting	4-way Projection System with Multistage Ring Light
FOV Size	36 mm × 36 mm (1.42 in. x 1.42 in.)
Image Capturing Time	2D: Approx. 4.3 FOV/sec. 3D: Approx. 2.1 FOV/sec.(*)
PCB Load/Unload Time	Approx. 5 sec.
Conveyor Method	Flat Belt Transfer
Conveyor Height	880 to 920 mm (34.65 to 36.22 in.)
Width Adjustment	Automatic
Operating System	Windows 7 English Version

(*) by 2 way projection

System Requirements

Electric Power	Single Phase ～200 to 240V +/-10%, 50/60Hz
Power Consumption	1.3 kVA
Air Requirement	0.5 MPa, 5 L/min (ANR)
Usage Environment	15 °C (59 °F) to 30 °C (86 °F) / 15 to 80 % RH (Non-condensing)
Dimensions W x D x H	1040 x 1440 x 1470 mm (40.94 x 56.69 x 57.87 in.)
Weight	Approx. 870 kg (1,918 lbs)

Optional Systems

Repair Terminal
Offline Teacher System

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