Specifications

			PWB Visual Inspection Machine (AOI/SPI) RV-1	PWB Visual Inspection Machine (AOI/SPI) RV-2	PWB Visual Inspection Machine (AOI) RV-2-3D	PWB Visual Inspection Machine (AOI) RV-2-3DH
Board size	Single lane conveyor		50×50 ～ 510×590mm 630×590mm (Long board option)*1	50×50 ～ 410×360mm 630×360mm (Long board option)*1	50×50 ～ 410×300mm 50×50 ～ 630×300mm(Long board option)*1	
	Dual lane conveyor		50×50 ～ -510×300mm	—	—	—
Inspection resolution			15μm(standard) / 10μm(high resolution)*1			12μm(standard) / 5μm(high resolution)*1
Display field angle			30.0×30.0mm, 20.0×20.0mm*1			48.0×36.0mm, 20.0×15.0mm*1
Item of inspection			Missing component, Position displacement, Polarity, Front / Rear reversal, Unsoldered, Bridge, Quantity of solder, Missing insertion, Character recognition*1			
FOV (optimum)	2D		0.14 sec / 1 frame	0.2 sec / 1 frame		
	3D	i-3D SPI	0.43 sec / 1 frame	0.50 sec / 1 frame	—	—
		p-3D AOI	0.14 sec / 1 frame*2	—	0.41 sec / 1 frame	0.51 sec / 1 frame
Power supply			AC 3-phase 200 ～ 230V, 240V*3, 380 ～ 430V*3	AC 3-phase 200 ～ 230V*4		
Apparent power			2.0kVA or less			
Operating air pressure			0.5MPa			
Air consumption (standard)			10L / min			
Machine dimensions (W×D×H)			940×1,975×1,530mm	940×1,276×1,530mm		
Mass(approximately)			1,350kg	1,000kg		

*1 Option
*2 Customed order
*3 Built-in transformer
*4 An external transformer option

Options *1

Hard option	RV-1	RV-2	RV-2-3D	RV-2-3DH
Lens resolution 10μm	○	○	○	○
Side camera	○	○	×	×
NG marking unit	○	○	△	○ *2
Dispenser unit	△	△	△	△
Emergency pass unit	○	○	○	○
UV light	○	○	○	○
Long board	○ *3	○ *4	○ *5	○ *5
Light shielding plate	×	○	○	○
Board back up unit	○	○	○	○
NG printer	○	×	×	×
Calibration plate	○	○	○	○
Vibration control pad KIT	○	○	○	○
I/F cable	○	○	○	○
OK/NG cable	○	○	○	○
Transformer	○	○	○	○

Soft option	RV-1	RV-2	RV-2-3D	RV-2-3DH
Communication license	○	○	○	○
Code reader license	○	○	○	○
OCR license	○	○	○	○
SPI feedback system license*6	○	○	×	×
TOPSS system software	○	○	○	○
TOPSS server license	○	○	○	○
Remote judge (CCC) license	○	○	○	○
Repair system license	○	○	○	○
SPC license	○	○	○	○
QT (Quarty trace) license	○	○	○	○
Off line data creation system license	○	○	○	○
Code reader license for off line system	○	○	○	○
Code reader license for off line system	○	○	○	○
OCR license for off line system	○	○	○	○
Data shere system license	○	○	○	○

*1 ○ : standard × : not available △ : customed order
*2 330mm×250mm. In addition, the watch can operate only when the long model data is selected.
*3 Max size : 630mm×590mm
*4 Max size : 630mm×360mm
*5 Max size : 630mm×300mm
*6 Only for RP-1/RP-2/KSP

JAB CM001 / JSA JIS Q 14001 ISO 14001 JSAE389 / UKAS 089

JUKI CORPORATION HEAD OFFICE
The activities of research, development, design, sales, distribution, and maintenance services of industrial sewing machines, household sewing machines and industrial robots, etc., including sales and maintenance services of data entry systems.

*Please refer to the product specifications for details.
■JUKI Specifications and appearance may be changed without notice.

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Oct- 2019/Rev.00

PWB Visual Inspection Machine Series

RV series

JUKI
JUKI Smart Solutions

SMART INSPECTION MACHINE with Measurement function

SOFTWARE STORAGE PRINTING INSPECTION PLACEMENT INSERTION SOLDERING

RV series Serving all inspection requirements

High-speed 3D model
RV-2-3DH

3D model
RV-2-3D

2D model (AOI/SPI)
RV-2

2D Large PCB model
RV-1

RV-2-3DH

Overwhelming speed
Large improvement in inspection tact with high-pixel (12 million pixels)

RV-2-3DH

1,200 The use of a high-pixel camera with all pixels has expanded the camera field of view by 192% compared to the previous model.This resulted in the fastest inspection speed in the world in the class, 61.8cm²/sec. By speeding up inspection speeds, we can further accelerate production lines.In addition, by enlarging the angle of the image, the inspection was realized with a minimum number of blocks.

1. Inspection speed 61.8 cm²/sec
2. Resolution 12 million pixels
3. Image angle 48mm×36mm
4. Number of inspection blocks significant reduction

World's fastest*

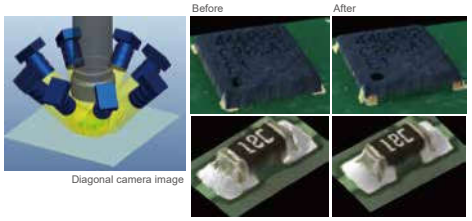
*1 For 12μm camera
*2 As of November 2018

Equipped with a new head that enables high-precision recognition of 3D shapes

RV-2-3DH Option

A new oblique camera increases the inspection area and eliminates blind spots.
Improved 3D imaging brings inspection to a new level. Difficult to inspect components such as filltes and mirrored parts are now supported with high precision 3D recognition.

* Please contact us for details



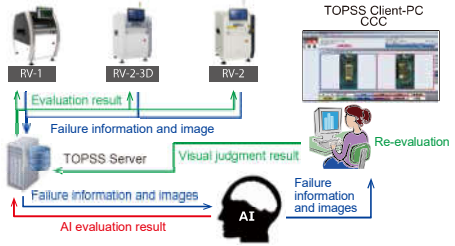
Diagonal camera image

AI-based inspection and remote evaluation

RV-2-3DH Option

The AI-based inspection eliminates discrepancies in evaluation, saving labor and significantly increasing speed of evaluations. TOPSS software adds the ability to remotely evaluate results and customize test thresholds to meet customer requirements.

* Please contact us for timing



High-speed inspection achieves the highest throughput

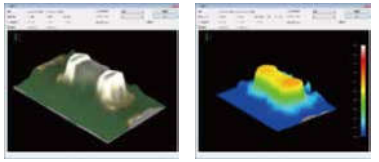
Significant improvement in productivity

Remarkable accuracy
Using high-resolution lenses improves inspection accuracy of ultra-compact components

RV-2-3DH Option

The use of a 5 μm (optional) high-resolution lens enables more accurate inspection of microminiature parts such as 0201 parts. This system achieves high-precision inspections even in the production of ultra-small parts and high-precision products, such as smartphones and precision equipment that require high-density production.

High density substrate image



5 μm inspection image

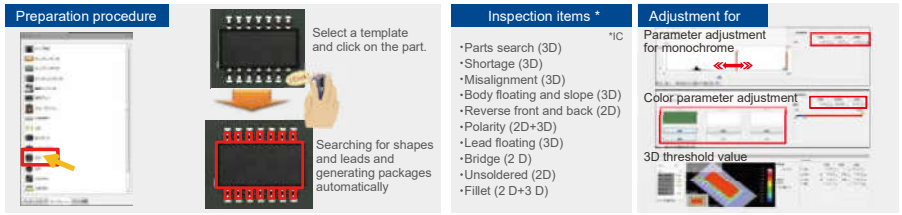
Support for inspection of 0201 parts

Highly versatile software

Process modes that are easy to use and create, from beginners to senior citizens

RV Series Standard

The "Template Mode" is a simple, quick, and high performance inspection that automatically generates packages by only selecting test part types with a pre-prepared template. In addition, adjusting black and white and color parameters and adjusting the 3D threshold allow you to customize the inspection standards freely, making it easy for less experienced operators to create the test data.In addition, a unique process mode can be mounted as a standard, making it more flexible.

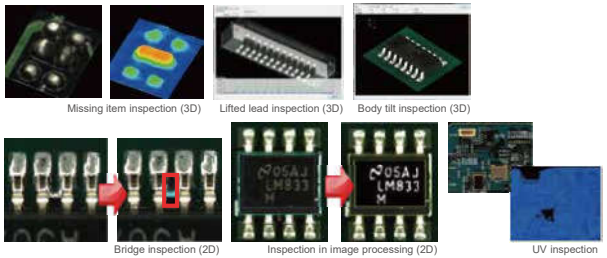


Template mode image

2D + 3D Hybrid inspection

RV-2-3D/3DH Standard

The RV series combines the benefits of 2D and 3D inspection technologies. Lead lift, component tilt, and a new foreign matter detection are all included. Character recognition, micro bridging and UV light (optional) can also be checked.



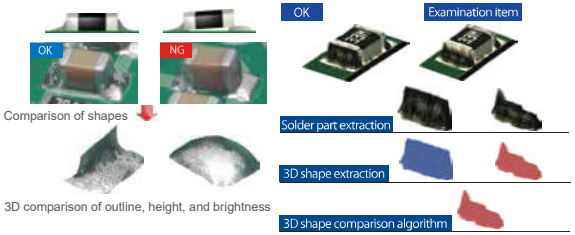
Missing item inspection (3D) Lifted lead inspection (3D) Body tilt inspection (3D)

Bridge inspection (2D) Inspection in image processing (2D) UV inspection

Solder fillet 3D shape comparison

New development RV-2-3D/3DH Standard

3D comparison of solder fillets ensures high accuracy results. Solder fillets are compared to the original shape and checked for contour, height difference, brightness, etc.

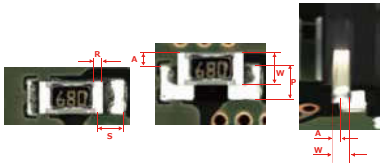


International standard compliance *

RV Series Standard

International standards can be used to judge quality, such as class 1, 2, 3 depending on the requirements.

* Please ask availability TBD and details.

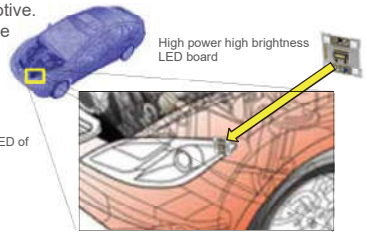


IPC-A610D Standard(example)

Vehicle headlight led position measurement

Measurement function RV Series Standard

RV series can also be used as a measurement machine to measure mounting position, distance, inclination and angle for high reliability products such as automotive. Measurement can also be made with reference to arbitrary reference holes and long holes.

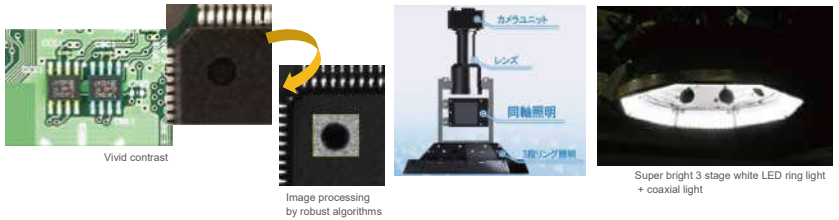


Reliable hardware

White lighting for crystal clear images and robust image processing

RV Series Standard

Super bright white LED ring lighting with three stages provides crystal clear images and and high precision recognition. Segmented color processing and rich image processing algorithms make it possible to clearly identify polarity, character recognition, adjustment of shades and tones. It is also possible to remove silk screen and flux which can cause errors. An automatic calibration function provides stable illumination and long service life.



Vivid contrast

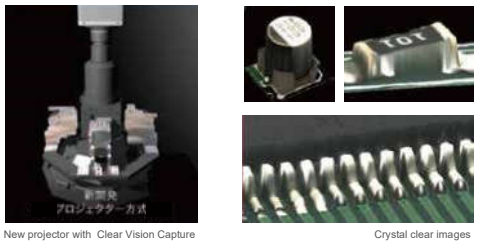
Image processing by robust algorithms

Super bright 3 stage white LED ring light + coaxial light

New Phase Shift 3D-AOI

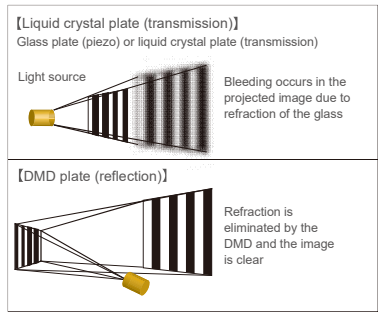
RV-2-3D/3DH Standard

With a new projector design, it is possible to fine tune the height measurement using double the data compared to a liquid crystal. A JUKI design image processing system can reach speeds of up to 0.41 sec/FOV. In addition, a clear image can be acquired by arranging projectors using DMD in four directions.



New projector with Clear Vision Capture

Crystal clear images



SPI and AOI Multi-Function Machine

RV-1/RV-2 Standard

One machine can function in several roles without changing software, including 3D-SPI and 2D-AOI. The flexible platform allows the best ROI.

Solder paste inspection (SPI)

Checking of the quality of the component placement condition. As an appearance inspection machine (AOI).

Stereo 3D-SPI

RV-1/RV-2 Standard

"Absolute value mode" inspection based on theoretical value, "Relative comparison mode" based on the average value inspection of standard good boards and two custom modes available. Inspections are more accurate.

Threshold setting for photometric stereo method

Various options

JaNets Compatible

RV Series Option

The JaNets Equipment Manager allows control over the entire production line including printer and inspection machines.

【Printing machine / inspection machine program management】
Programs can be centrally managed for the entire line including mounter, printer, and inspection machine.

【External Output Function*】
Production status and production control information is collected and output to the host system (MES) with the external output function.

* A separate external output function option is required.

【Feed forward for printing misalignment *】
Acquires printing position misalignment information from inspection machine and sends offset information to succeeding mounting machine.

* Availability model is RS-1, RS-1R and RV-series.

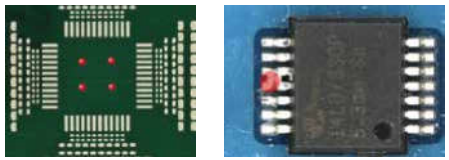
【SPI feedback】
Feedback from the SPI to the printer to reduce defects

Marking/Dispenser Unit*

RV-1/RV-2/RV-2-3DH Option

A marking system and dispenser are available on the RV series. Bad points can be marked for follow up and adhesive applied in one machine.

* Please ask for details



Coating image with dispenser

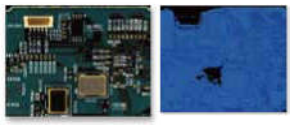
NG marking image

UV Coating Inspection

RV Series Option

Inspection of conformal coatings.

- Coating not applied
- Coating beyond specified area



Long PWB specification

RV Series Option

Substrate size: 50 (W) to 630 (W) is available.

* The depth of the board depends on the equipment specification.

TOPSS Production support system Saves labor and simplifies management

RV Series Option

TOPSS makes it possible to review defect judgment, repair station, quality traceability, SPC, offline program creation and editing from one location. Saves labor and improves quality.