

Specifications

		PWB Inspection Machine		
		RV-2 (AOI/SPI)	RV-2-3DH (AOI/SPI)	RV-2-3DHL (AOI/SPI)
Board size	Standard	50×50 ~ 410×360mm	50×50 ~ 410×300mm	50×50 ~ 410×590mm
	Long board	630×360mm*1	50×50 ~ 630×300mm*1	50×50 ~ 650×590mm*1
	Marking unit		50×50 ~ 330×250mm	50×50 ~ 330×590mm
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	0.2 sec / 1 frame		
	3D	i-3D SPI	0.50 sec / 1 frame	—
		p-3D AOI	—	0.51 sec / 1 frame
Power supply		AC 3-phase 200 ~ 230V*2		
Apparent power		2.0kVA or less		
Operating air pressure		0.5MPa		
Air consumption (standard)		10L / min		
Machine dimensions (W×D×H)		940 × 1,276 × 1,530mm		940 × 1,800 × 1,530mm
Mass (approximately)		1,000kg		1,250kg

*1 Option *2 An external transformer option

Options

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

○ : standard × : not available △ : customed order

*1 In addition, the watch can operate only when the long model data is selected. *2 Max size : 630mm×590mm *3 Max size : 630mm×360mm *4 Max size : 630mm×300mm *5 Only for RP-2/KSP

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



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.

MANUFACTURER : JUKI CORPORATION
 INQUIRY : JUKI AUTOMATION SYSTEMS CORPORATION
 2-11-1, Tsurumaki, Tama-shi, Tokyo 206-8551, JAPAN
 TEL.81-42-357-2293 FAX.81-42-357-2285

JUKI
 www.juki.co.jp

JUKI AUTOMATION SYSTEMS GMBH. www.juki-smt.com
 JUKI AUTOMATION SYSTEMS INC. www.jukiamericas.com
 TOKYO JUKI INTERNATIONAL TRADING (SHANGHAI) CO.,LTD. www.jukichina.com
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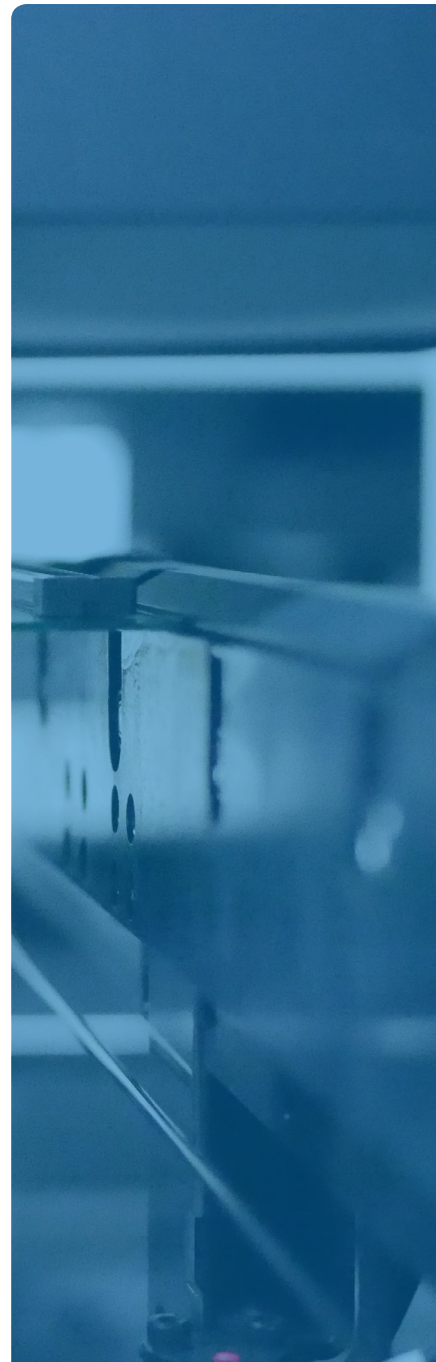
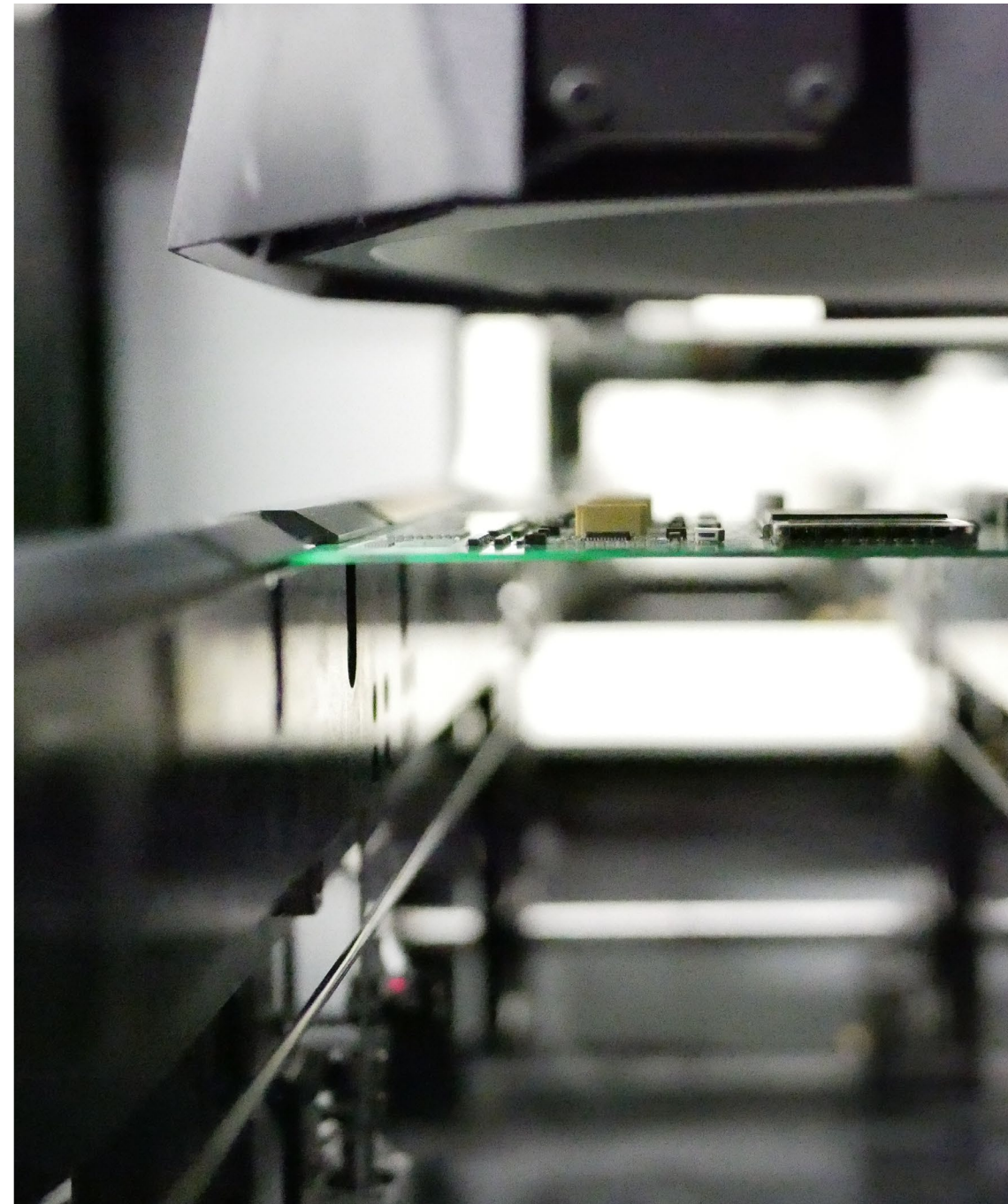
PWB Inspection Machine

RV series

JUKI

JUKI Smart Solutions

SMART INSPECTION MACHINE
 with Measurement Function



High-speed 3D
Large PCB model (AOI/SPI)

RV-2-3DHL



High-speed 3D model
(AOI/SPI)

RV-2-3DH



2D model (AOI/SPI)

RV-2



Overwhelming speed

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

RV-2-3DH/3DHL

FOV(Field of View) is expanded by 192% compared to the previous model.

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



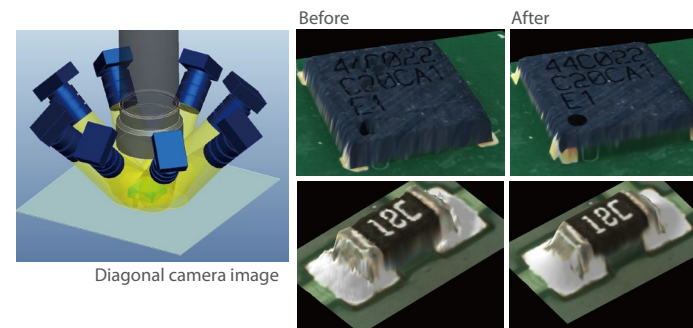
*1 For 12μm camera
*2 As of June 2020

High-precision recognition of 3D

RV-2-3DH/3DHL
Option

A new oblique camera increases the inspection area and eliminates blind spots. Fillets, mirrored parts which is difficult to inspect are not supported with high precision.

* Please contact us for details

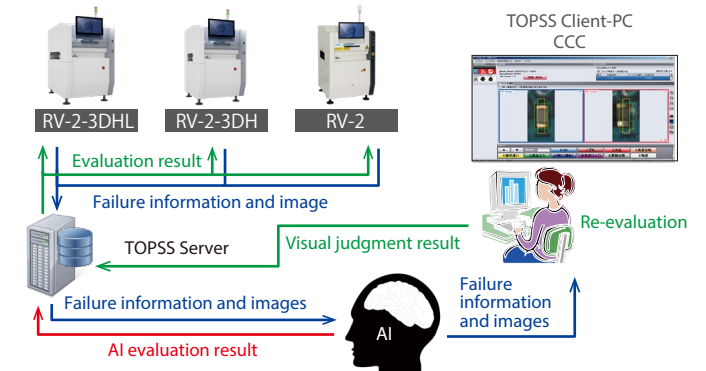


AI-based inspection and remote evaluation

RV-2-3DH/3DHL
Option

The AI-based inspection eliminates discrepancies in evaluation, saves labor and significantly increases 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



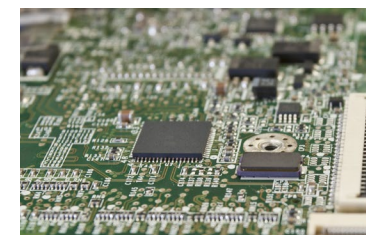
Significant improvement in productivity

Remarkable accuracy

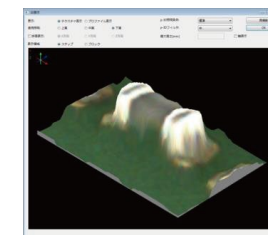
Using high-resolution lenses improves inspection accuracy of ultra-compact components

RV-2-3DH/3DHL
Option

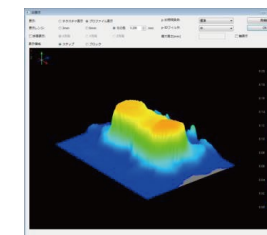
5μm high resolution enables more accurate inspection of microminiature such as 0201 parts.



High density substrate image



3D image of 0201 parts



5 μm inspection image



Highly versatile software

Easy to use and create a program from beginners to senior

RV Series Standard

The "Template Mode" is a simple, quick, and high performance inspection mode that automatically generates packages by only selecting test part types with a preprepared 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.

Preparation procedure

Select a template and click on the part.

Searching for shapes and leads and generating packages automatically

Inspection items *

- Parts search (3D)
- Shortage (3D)
- Misalignment (3D)
- Body floating and slope (3D)
- Reverse front and back (2D)
- Polarity (2D+3D)
- Lead floating (3D)
- Bridge (2 D)
- Unsoldered (2D)
- Fillet (2 D+3 D)

Adjustment for

Parameter adjustment for monochrome

Color parameter adjustment

3D threshold value

Template mode image

2D + 3D hybrid inspection

RV-2-3DH/3DHL Standard

The RV series combines the benefit of 2D and 3D inspection technology.

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-2-3DH/3DHL Standard

Solder fillets are compared to the original shape and checked for contour, height, brightness, etc.

Comparison of shapes

OK NG

3D comparison of outline, height, and brightness

Examination item

Solder part extraction

3D shape extraction

3D shape comparison algorithm

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.

High power high brightness LED board

Best much for mounted LED of automotive headlight etc.

Reliable hardware

LED light for clear image

RV Series Standard

- 3 stages of LED light : Clear images and high precision recognition.
- Color and rich image processing algorithm : Polarity, OCR, Shade & tones adjustment
- Automatic calibration is possible.
- Removing silk screen and flux.

Vivid contrast

Image processing by robust algorithms

Super bright 3 stage white LED ring light + coaxial light

New phase shift 3D-AOI

RV-2-3DH/3DHL 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.

新開発 プロジェクター方式

New projector with Clear Vision Capture

Crystal clear images

【Liquid crystal plate (transmission)】
Glass plate (piezo) or liquid crystal plate (transmission)

Light source

Bleeding occurs in the projected image due to refraction of the glass

【DMD plate (reflection)】

Refraction is eliminated by the DMD and the image is clear

SPI and AOI multi-function machine

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

Stereo 3D-SPI

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.

判定値設定

	下目標	計測値	上目標
検出	15,000	17,859	100,000
高さ(最大値)	0.100	0.115	0.130

ボタン: 実行, OK

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.

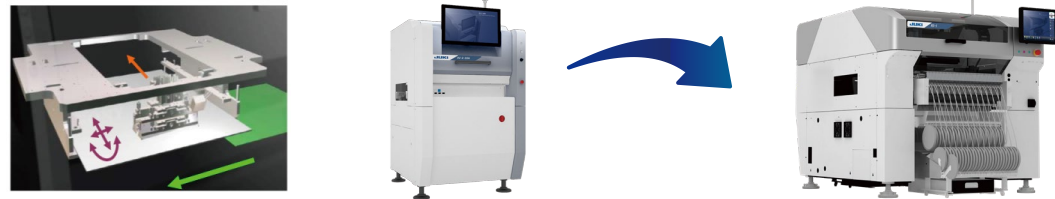
【External Output Function*】

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*】

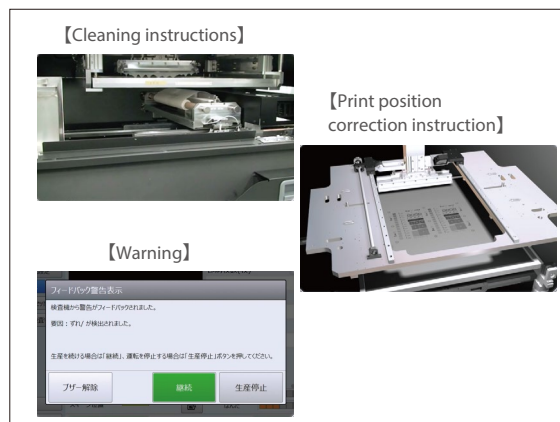
Acquires printing position misalignment information from the inspection machine and sends offset information to the following mounting machine.



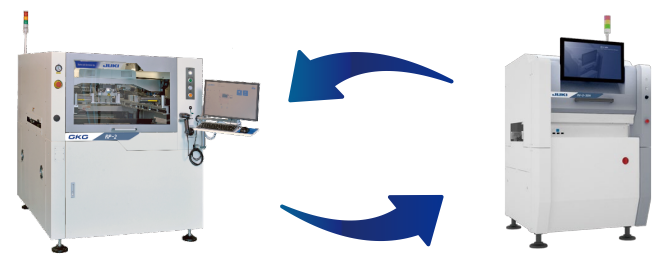
* Availability model is RS-1, RS-1R and RV-series.

【SPI feedback】

Feedback from the SPI to the printer to reduce defects



- Operation stop
- Warning indication
- Cleaning
- Printing position correction

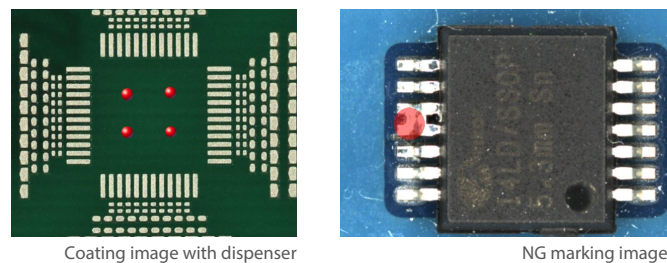


Marking/Dispenser Unit*

RV-2/3DH/3DHL 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

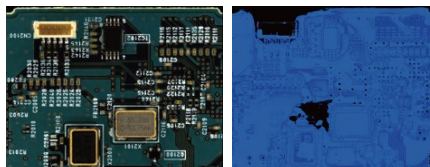


UV Coating Inspection

RV Series Option

Inspection of conformal coatings.

- Coating not applied
- Coating beyond specified area



Inspection of conformal coating area on the substrate with UV light

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, off-line program creation and editing from one location. Saves labor and improves quality.

