

**JUKI®**

PWB Visual Inspection Machine (AOI/SPI)

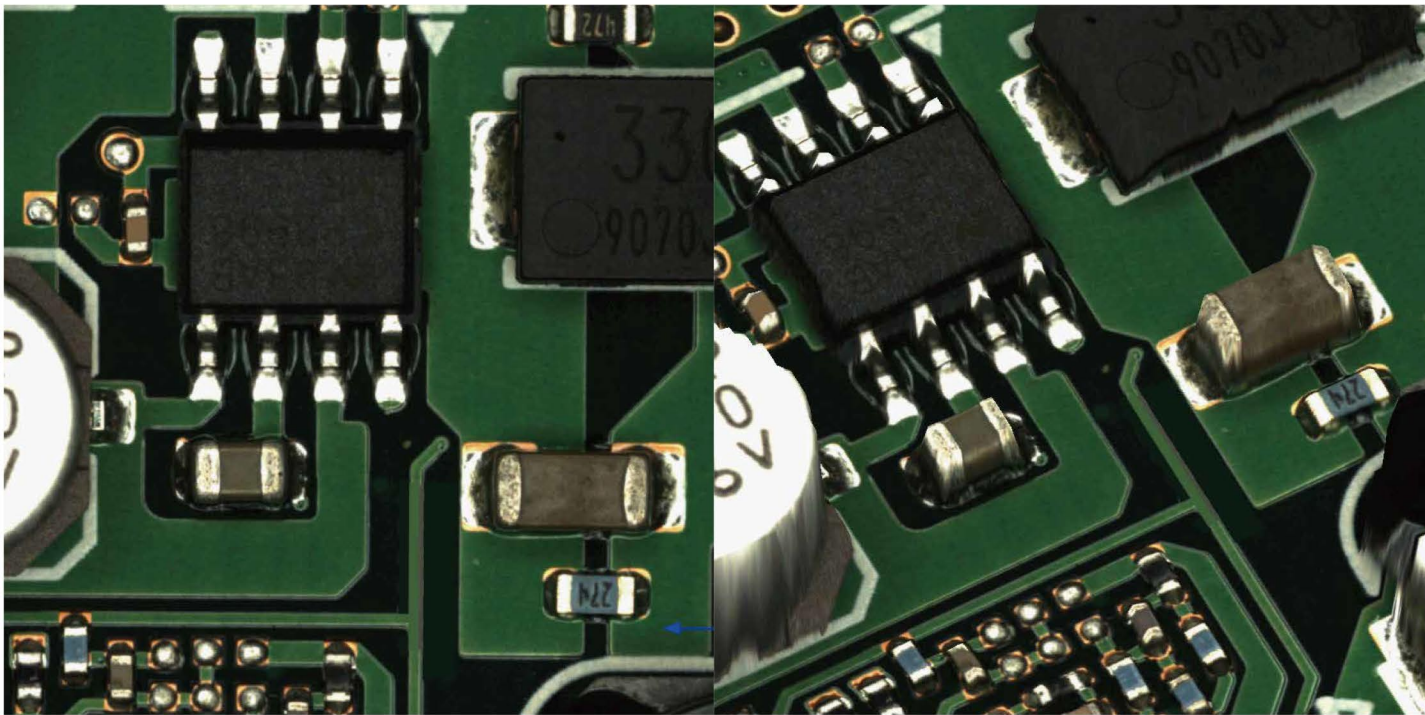
***RV-1***  
***RV-2***



**3E EVOLUTION**

PWB Visual Inspection Machine (AOI)

***RV-2-3D***



Faster, Clearer and Easier to Use

Inline type high-speed and high-precision board inspection machine that can be used in a wide variety of inspection processes

**PWB INSPECTION MACHINE**

Introducing the next generation  
of high accuracy, high speed  
Juki 3D-AOI Inspection Machines.

PWB Visual Inspection Machine (AOI)

# RV-2-3D



RV-2-3D



RV-1

PWB Visual Inspection Machine (AOI/SPI)

# RV-1

High-end inspection machine supports  
PWB production with a dual-lane  
conveyor.



RV-2

PWB Visual Inspection Machine (AOI/SPI)

# RV-2

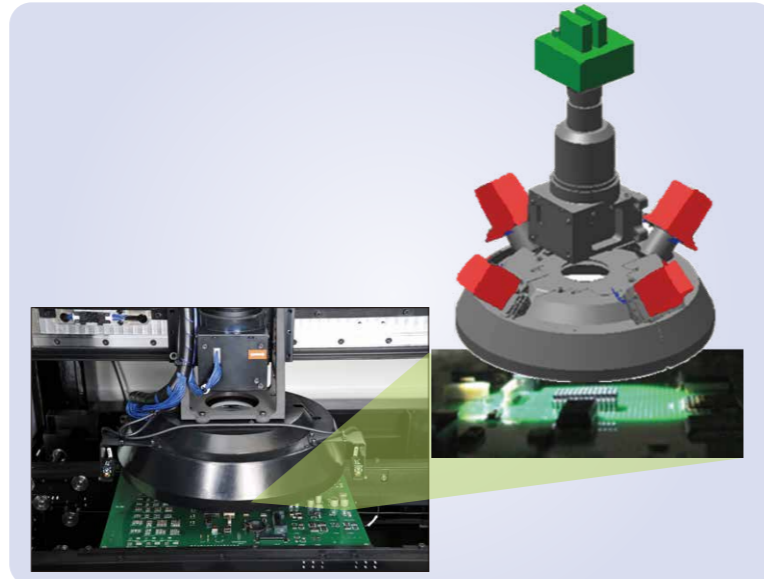
Space-saving and compact single-lane  
inspection machine.

# RV-2-3D's Advantages

## High Speed Head Unit

### Head Configuration

- 3D Projectors in 4 direction
- 2D High Speed Color Camera (160FPS 160 images/sec)



### Light Configuration

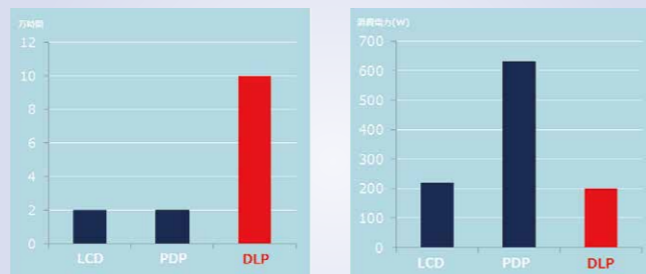
- White LED 3-stage ring light
- Coaxial illumination

## New DLP Projector

### DLP Advantages

- Long life (approx. 100,000Hr)
- Low power consumption (ECO)
- High speed image switching (1ms)

<Device Life Time> <Power consumption>



- 1) LCD: Liquid Crystal Display
- 2) PDP: Plasma Display Panel
- 3) DLP: (JUKI)

## High Speed Image Processing

### JUKI Proprietary Design

- Reduced image capturing time
- Reduced image processing time

34% faster inspection time compared to other systems (0.41sec/FOV)

Inspection speed  
**0.41**  
sec/FOV



## Projection Technology Without Blur

DLP reflection projector creates superior images

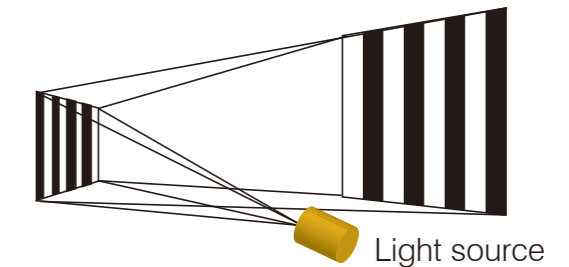
【LCD board(Transfer)】

Blur on the projected image



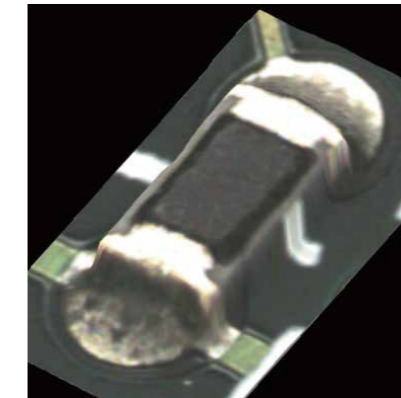
【DLP board(Reflection)】

Clear projected image

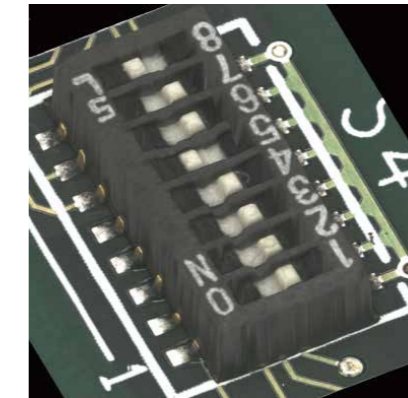


## Sample 3D Images

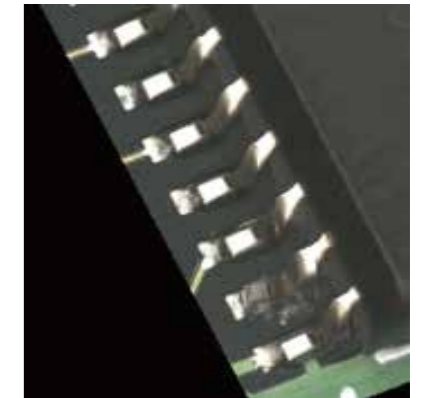
fillet



switch



lifting

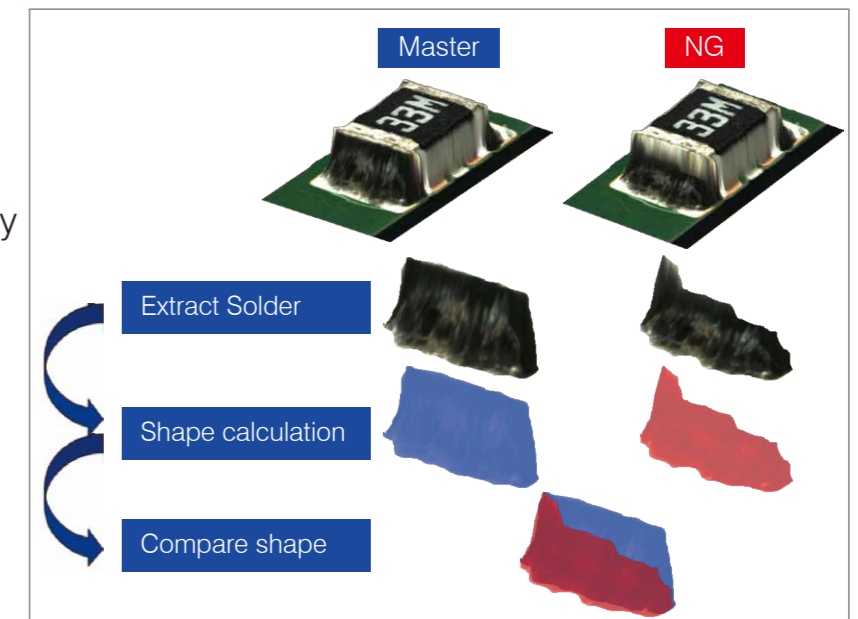


## Fillet Inspection Algorithm

### Shape calculation

- Compare solder shape to 3D images. (New Technology)
- High accuracy inspection. Easy operation.
- Very simple parameters.

✖Patent pending



# Smart Operation

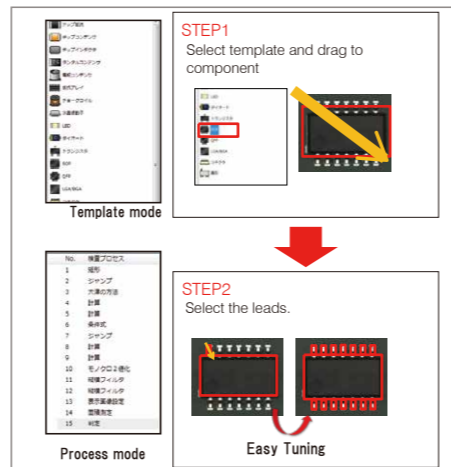
## Easy operation and data creation – Guided Programming

### Template Mode

- Easy to create parts library
- Drag and drop templates to define new parts

### Process Mode

- Available to create original library
- Improves go-through rate and accuracy
- Available to adjust for quarry level.



### 3D-SPI inspection

### UV Coating Inspection (Option)

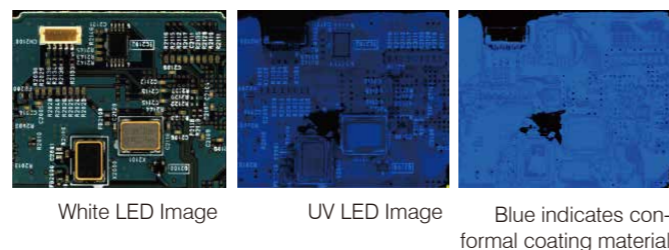
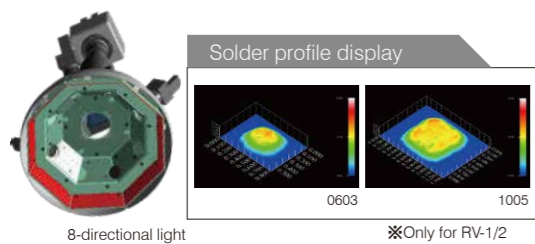
### Multi Function

### Available parallel inspection

※Only for RV-1/2

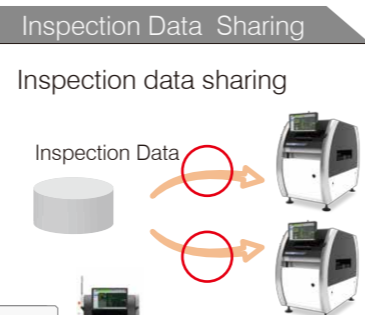
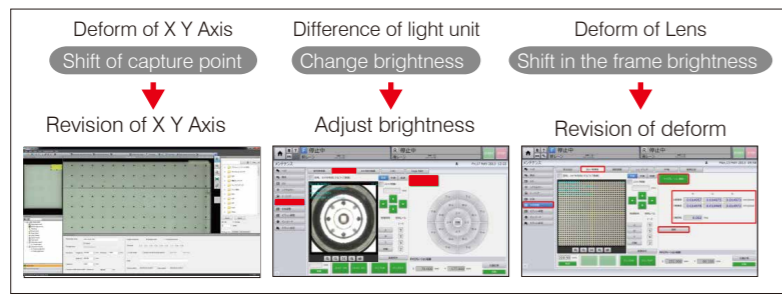
Use for AOI or SPI

Parts inspection with coating inspection



## Unified Inspection Data Management

- No differences between machines
- Share inspection data between lines



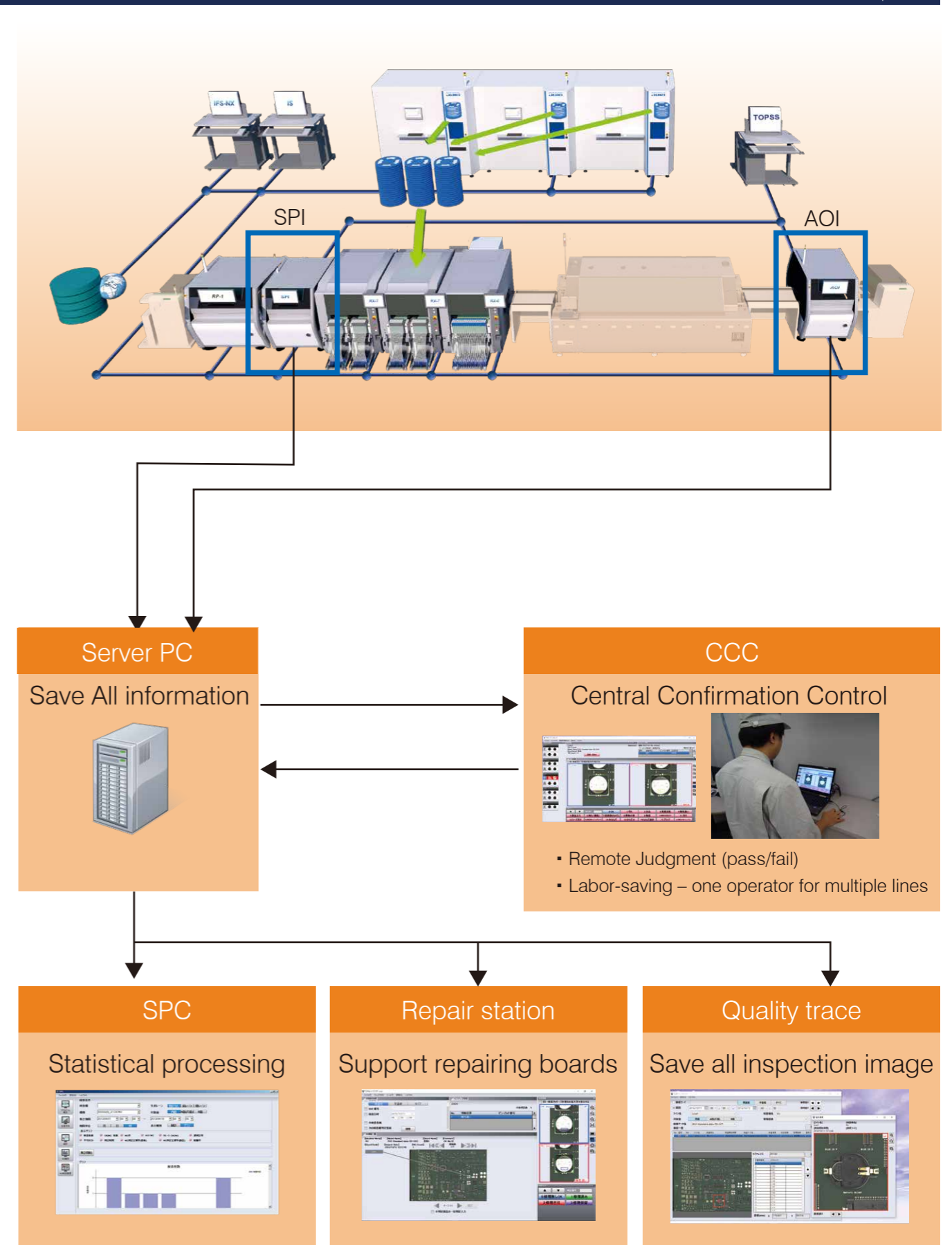
Use same inspection data for multiple lines



# Smart Solution

## Production Support System (TOPSS)

Option



## ■ Specification

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

※1 Option

※2 An external transformer option

## ■ Options

### Hardware Option

### Software Option

	PWB Visual Inspection Machine (AOI/SPI)	PWB Visual Inspection Machine (AOI/SPI)	PWB Visual Inspection Machine (AOI)		PWB Visual Inspection Machine (AOI/SPI)	PWB Visual Inspection Machine (AOI/SPI)	PWB Visual Inspection Machine (AOI)
	RV-1	RV-2	RV-2-3D		RV-1	RV-2	RV-2-3D
Lens Resolution 10μm	○	○	○	Communication license	○	○	○
Side Camera	○	○	×	Code reader silence	○	○	○
NG marking Unit	○	○	×	OCR silence	○	○	○
Emergency Pass Unit	○	○	○	SPI feedback system license	○	○	×
UV light	○	○	○	(only for RP-1/KSP) <sup>※4</sup>	○	○	○
Long board	○ <sup>※1</sup>	○ <sup>※2</sup>	○ <sup>※3</sup>	TOPSS Server license	○	○	○
Light Shielding plate	×	○	○	TOPSS System software	○	○	○
Board back up unit	○	○	○	Remote judge (CCC) license	○	○	○
NG printer	○	×	×	Repair System license	○	○	○
Calibration plate	○	○	○	SPC license	○	○	○
Vibration control pad KIT	○	○	○	QT (Quarry trace) license	○	○	○
IF cable	○	○	○	Off line data creation system license	○	○	○
OK,NG Cable	○	○	○	Code reader license for off line system	○	○	○
Transformer	-	○	○	OCR license for off line system	○	○	○
				Data share system license	○	○	○


※1 max size : 630mm×590mm

※2 max size : 630mm×360mm

※3 max size : 630mm×300mm

※4 Only for RP-1/KSP

※Please refer to the product specifications for details.

 <p><b>JUKI ECO PRODUCTS</b></p>	<p>The RV-2/RV-2-3D is an eco-friendly product which complies with JUKI ECO PRODUCTS standards for protecting the environment.</p> <p>●The machine complies with the "Juki Group Green Procurement Guidelines" on the use of hazardous substances, which is stricter than other restrictions, such as those of the RoHS Directive.</p> <p>For details of JUKI ECO PRODUCTS, refer to: <a href="http://www.juki.co.jp/eco_e/index.html">http://www.juki.co.jp/eco_e/index.html</a></p> <p><small>※The RoHS Directive is an EU Directive limiting the use of 6 hazardous substances(lead, hexavalent chromium, mercury, cadmium, PBB and PBDE) in electrical and electronic equipment. The Juki Green Procurement Guideline is the voluntarily established criteria to eliminate not only the aforementioned six substances, but also other ones which also adversely affect the environment.</small></p>
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### 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.

# JUKI®

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