

■Specification

Model			Fast Smart Modular Mounter		
Item			RS-1R		
Conveyor specification			standard	150mm conveyor extensions, upstream and downstream	250mm conveyor extensions, upstream and downstream
Board size	minimum		50×50 mm		
	maximum	1 buffer	650×370 mm (Single clamping)		
			950×370 mm (double clamping)	1,100×370 mm (double clamping)	1,200×370 mm (double clamping)
		3 buffers	360×370 mm	500×370 mm	600×370 mm
Component height			25 mm		
Component size			0201 ^{*1} ~ □74 mm /150×50 mm		
Placement speed	Optimum	47,000CPH			
	IPC9850	31,000CPH			
Placement accuracy			±35μm(Cpk ≥ 1)		
Feeder inputs			max.112 ^{*2}		
Power supply			AC200 ~ 415V ^{*3} 3-phases		
Apparent power			2.2kVA		
Operating air pressure			0.5±0.05MPa		
Air consumption			200 l/min for internal vacuum generator, 50 l/min with optional vacuum pump		
Machine dimensions (W×D×H) ^{*4}			1,500×1,810×1,440 mm	1,800×1,810×1,440 mm	2,000×1,810×1,440 mm
Mass(approximately)			1,700kg		


*1 For metric 0201 compliance please contact us.
*2 Using RF(RF08AS) feeders
*3 A transformer unit (option) is necessary except AC 200 V.
*4 D dimension does not include the front operation monitor. H dimension does not include signal tower.

■Option

Recognitions system	10 / 27/ 54 mm view camera
Operations system	Rear-side operation unit/keyboard (front only)
Inspection function	Coplanarity sensor / Component Verification System(CVS)*5
Conveyor	Conveyor extension *6/ support pin / support sponge
Electrical protection	CE compatible specification /Ground-fault interrupter
Force Control	Force control unit / Force control nozzle
Software ^{*5}	JaNets / IFS-NX / Flexline CAD
Component handling and feeders	Feeder Trolley RF feeder only / RF-EF dual servo *7) /Electric tape feeder (RF/EF*7) /EF feeder adapter*7 / Electric stick feeder*7(Type-N/Type-W)/ Matrix tray server TR8SR , TR5SNX , TR5DNX / Matrix tray changer TR6SNV , TR6DNV / Dual tray server TR1RB /Nonstop operation function/ Tray Holder / IC collection belt / Tape reel mounting base(for RF/ for EF)/Splicing jig /Electric Trolley Power Station PW02*8
Others	RS-1R • RS-1 nozzles (with or without RFID tags)/Splicing tape / Big foot / Offset placement after solder screen-printing Solder lighting/Mini-signal light/non-stop operation/FCS calibration jig/large ATC/vacuum pump

*5 Please contact for details.
*6 One side conveyor extension is also possible.
*7 When EF feeders adapt the an attachment of EF feeder, the EF feeder can use on RF/EF feeder trolley and fixed bank (rear side). Please inquire details.
*8 Separate connection cables for each model are required.

JUKI ECO PRODUCTS



JUKI ECO PRODUCTS

The RS-1R is an eco-friendly product which complies with JUKI ECO PRODUCTS standards for protecting the

•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.

For details of JUKI ECO PRODUCTS, refer to:

*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.



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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,

*Please refer to the product specifications for details.



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<http://www.juki.co.jp>

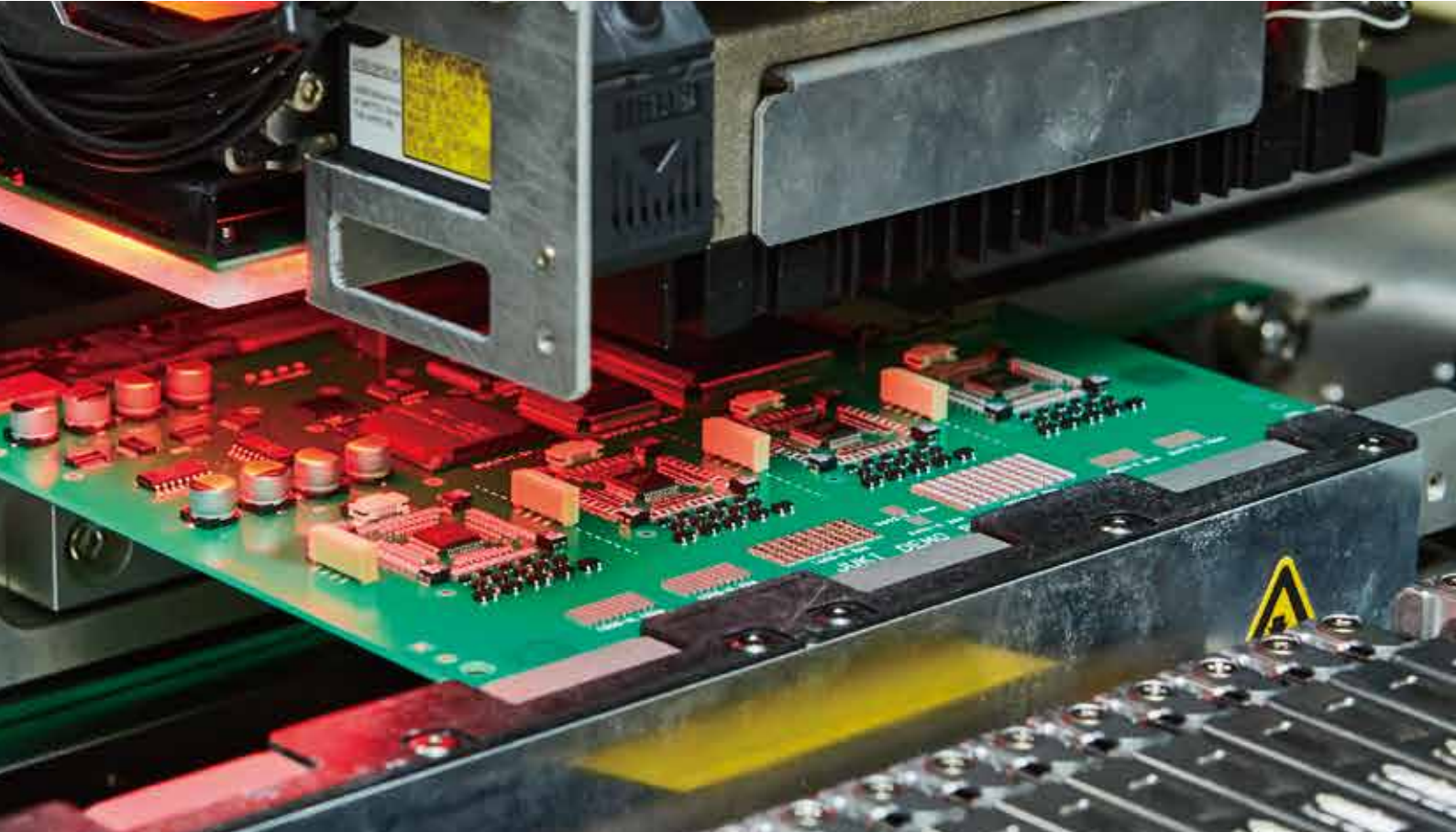
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■This catalogue prints with environment-friendly soyink on recycle paper.



-Your solution partner-
80th
Global & Innovative


High-Speed Compact Modular Mounter

RS-1R



Superior Productivity. Versatility
With the best throughput in an advanced, all-in-one

BASIC FEATURES



Class leading speed, up to 42,000 cph

Newly developed "Takumi Head" with changing recognition sensor height

Optimum line balance and highest throughput

Wide component range from 0201 (metric) to large connectors and ICs

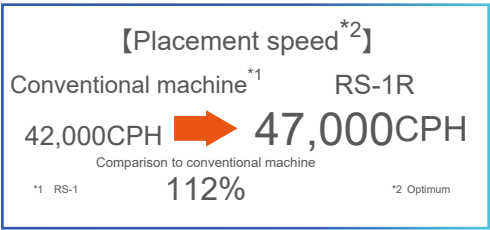
Optimal for LED placement

RS-1R

High-Speed Smart Modular Mounter

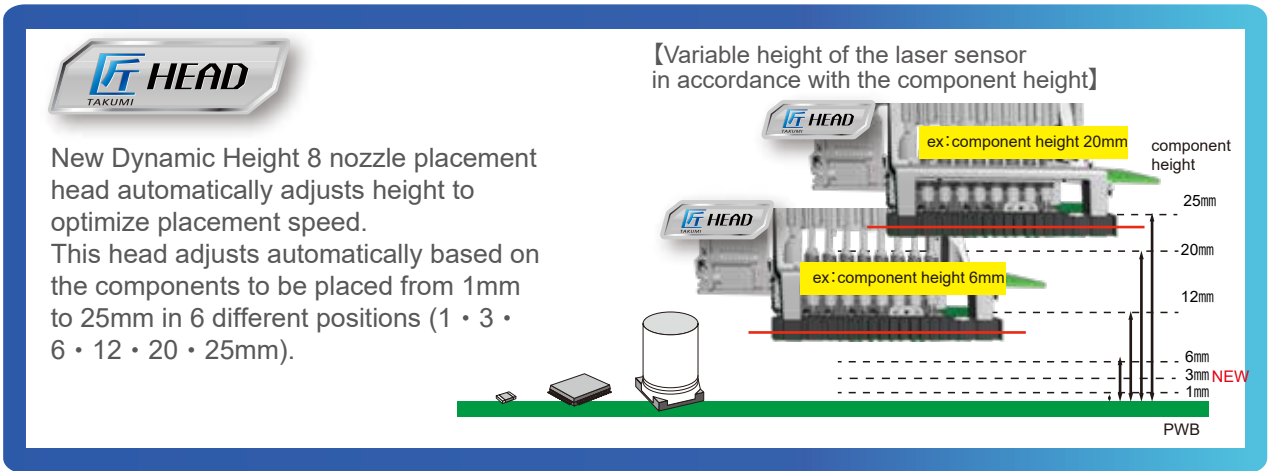
Feature 1 Class leading speed, up to 47,000 cph

- Class leading speed, up to 47,000 cph
Maximum speed of up to 47,000 cph*. This is made possible by a revolutionary head design that reduces the travel time and distance for every placement.
- New RF feeders are smaller, thinner, and lighter
The new RF feeders are smaller and lighter, but still maintain the same high degree of positional accuracy. The thinner width allows up to 112 feeder inputs.*



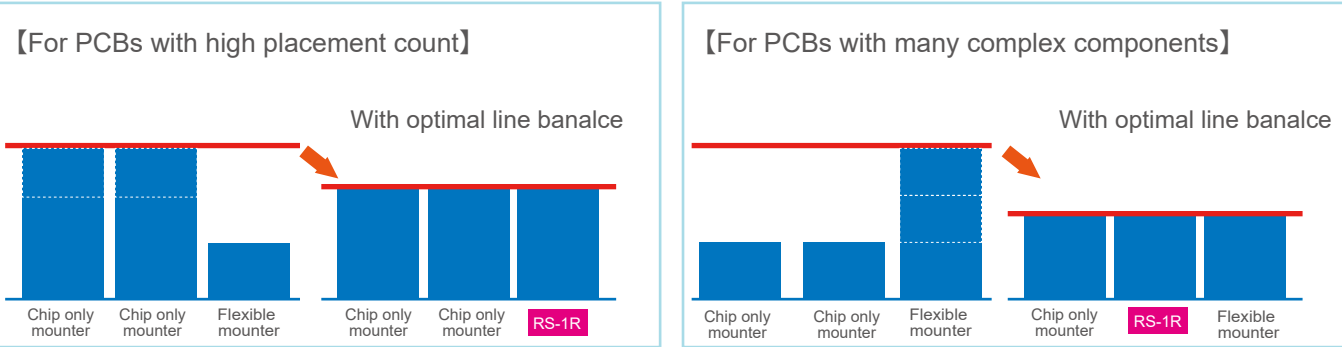
Feature 2 Self-Optimizing Smart Head

"Takumi head" that automatically optimizes it's height between 6 different positions based on component height. Tact time is optimized by keeping the head as close to the PCB as possible for the components placed.



Feature 3 Optimum line balance and highest throughput

Changing the RS-1 functionality does not require head replacement. The revolutionary design self-optimizes based on the production requirements. The RS-1R can reduce the workload on high speed. A line with two or more RS-1Rs can adjust to a wide variety of production requirements from high speed to high flexibility.



Feature 4 Nozzle traceability function OP

RFID tags are mounted on each nozzle to improve control and traceability. Nozzle maintenance can be monitored and traceability of performance is maintained.



Feature 5 Large Nozzle ATC OP

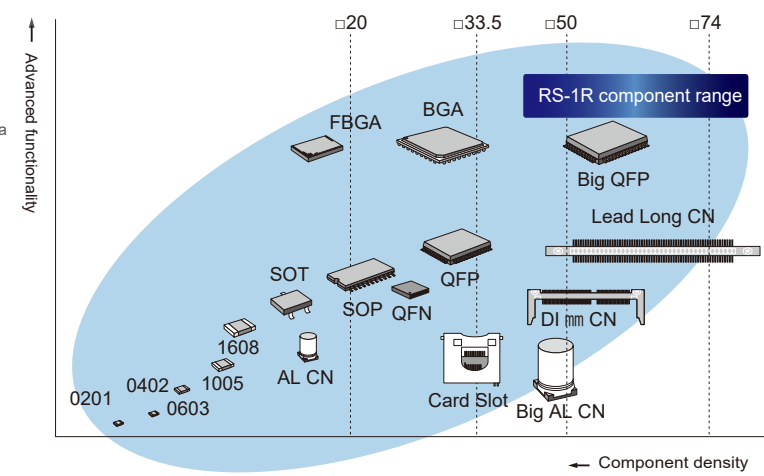
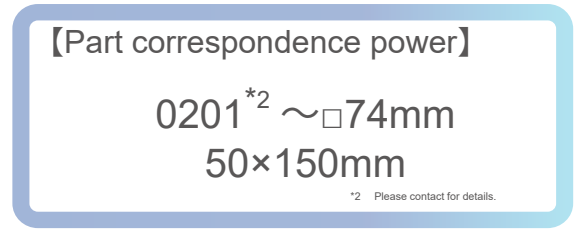
Changeable ATC plate supports nozzles up to 7x28mm. Large nozzles for large or heavy components are available.



Feature 6 Wide component range from 0201 (metric) to large connectors and ICs

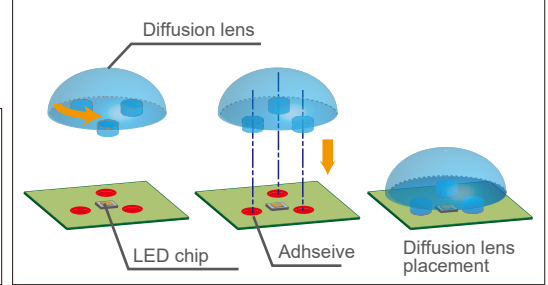
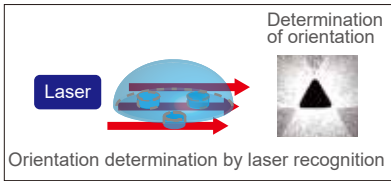
RS-1R supports components from 0201*¹(metric) up to 74mm square or 50x150 rectangular parts. Component height up to 25mm.

*¹ With 10mm view camera
Please contact in detail.

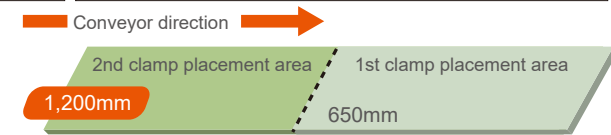


Feature 7 Optimal for LED placement

- High-precision placement of diffusion lenses.
RS-1R can use either vision or laser centering for diffusing lenses, depending on the component requirements. A wide range of lens styles can be placed.



- Long PCB Support
Up to 650 x 370mm with single clamping.
Up to 950 x 370mm with dual clamping, or up to 1200 x 370mm with optional conveyor extensions.



Recognition Technology

Component Recognition Technology (54, 27, 10mm field of view)

OP Image

Component shape, lead and ball details are accurately captured using our VCS camera. Component problems such as missing ball detection or bent leads are also detected.

A wide variety of components including BGAs and QFPs and many more are supported.

●360 degree part recognition technology

Components that are supplied incorrectly can be corrected and accurately placed using 360 degree recognition technology.

●Front/back detection

Components can be checked to see if they are face up/face down in the feeder.

●Small chip recognition

Components down to 0201 metric can be centered using the 10mm FOV camera.

●Three color recognition lighting

The color of lighting can be changed to match the component requirements for stable, accurate centering.

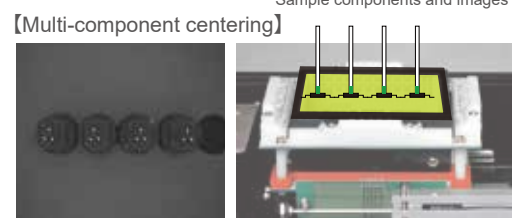
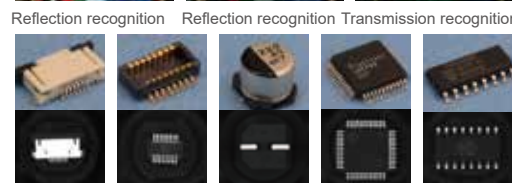
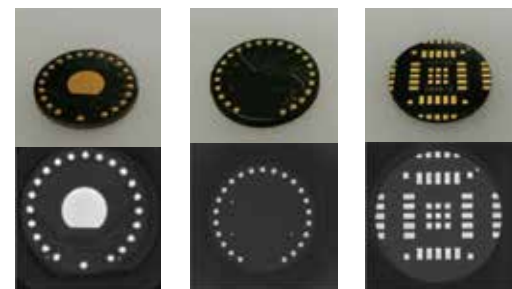
●Wide component range

Hundreds of nozzles to choose from and flexible vision to support difficult parts. Simplified data creation make it easy to handle complex components.

●Faster image recognition

◎A new VCS unit can center up to 4 parts in a single image, reducing centering time by 25% with the 54mm field of view VCS.

◎Strobing vision can be used with the 10mm and 27mm FOV cameras for faster tact time



Sample images

Up to 4 components are centered in a single image

*KE-3010A

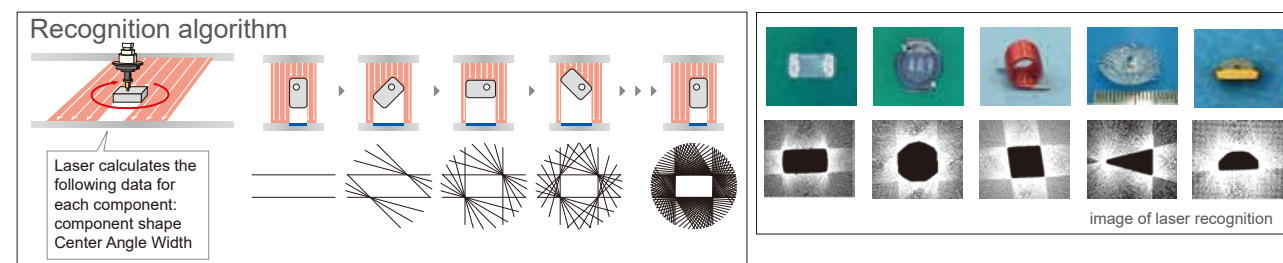
* Contact us when to respond.

JUKI's proprietary laser recognition technology is flexible, accurate and reliable.

Laser

Components from 03015 metric to 50mm square SOP, PLCC, and QFP are supported.

Laser centering provides stable, accurate centering and is not affected by variations in component color or shape. Component data is simple, making new part creation faster.

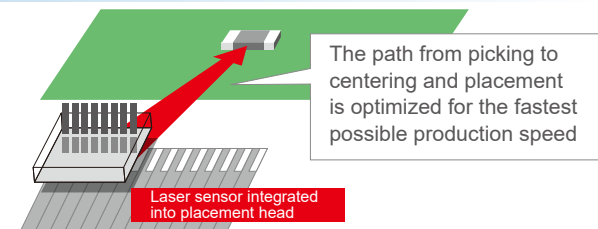


8-nozzle simultaneous, on-the-fly centering for high-speed

Laser

The laser sensor is mounted on the head to minimize head travel.

The head moves directly from the pick position to the placement position for the shortest travel time



Laser sensor integrated into placement head

Productivity

Support sponge

Standard

Soft under board support reduces defects caused by PCB warpage. This unit uses soft pillars that will not damage components on the bottom side and do not require setup for each different PCB. They are easy to removed with a simple magnetic base.



Support sponge

Bank specification can be selected

OP

Feeder banks are available in either fixed or easy to replace trolley configurations.*1



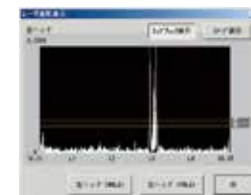
rear front fixed bank specification exchange truck specification*2

* 1 Please contact detail.
* 2 Option

Proactive maintenance warnings

Standard

Dirty laser, low vacuum and upward looking camera condition are all checked prior to production starting to warn the operator of potential problems and prevent defects.



Laser condition check

Flexible vision teaching

Standard

Complicated programming of odd-shaped components is made easier by following step-by-step guidelines, reducing programming time significantly. Data is created automatically from a picture of the component.

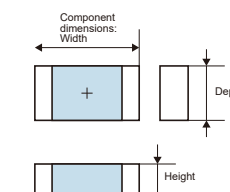


Flexible vision teaching

Ease-of-operation improved by automatic component measurement

Standard

Component data can be programmed simply by typing approximate dimensions, type and packaging information. Accurate dimensions, number of leads and lead pitch are measured and programmed automatically by the machine.



Full virtual keyboard

Standard

Standard touchscreen keyboard for fast data entry.



Automated pre-production check list

Standard

Operators can use the automated pre-production check list to make sure all required operations have been completed. Ensures consistency and reduces overlooked operations.

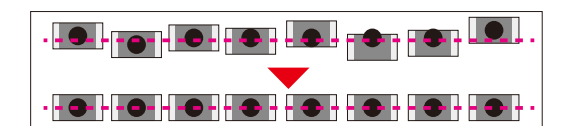


Setup preparation menu

Pick Position Auto-correction

Standard

The feeder pick position is automatically adjusted based on centering results to improve simultaneous picking and increasing throughput.



Feeder pick position auto-correct

Quality

Incorrect component prevention Component Verification System (CVS)

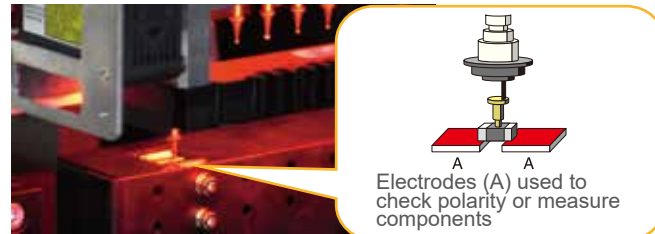
OP

By measuring the resistance, capacitance, or polarity before production starts, the machine can prevent incorrect components from being placed. The new CVS unit can check six components simultaneously, reducing the check and changeover times.

Check the Resistance, Capacitance and Polarity before production starts.

Prevents incorrect component/reel from being used

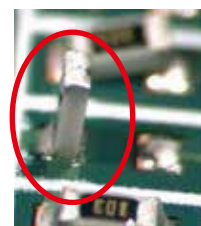
Prevents incorrect component placement



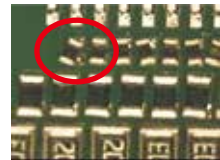
Reduce errors due to solder paste alignment Offset Placement After Solder Screen printing

OP

•The OPASS function uses the machine's downward looking camera to check the location of solder paste vs. the pads and corrects the placement accordingly. This function reduces defects caused by misalignment of the paste on the pads.

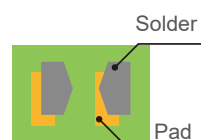


Manhattan phenomenon



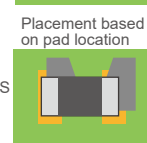
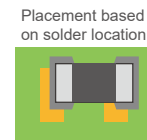
Displacement

[A printing misalignment occurs]



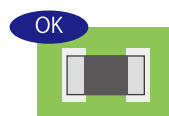
Solder Pad

With OPASS function



Placement based on solder location

Placement based on pad location



OK

NG

Reduction in the percentage defective

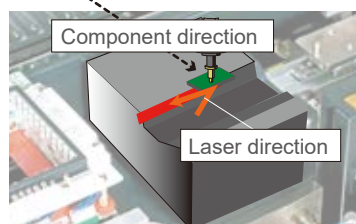
•Solder paste for fiducials

Solder printed pads can be used in place of fiducials for circuit boards that do not have fiducials. This is especially helpful on long PCBs that require double clamping and do not have a fiducial in the appropriate area.

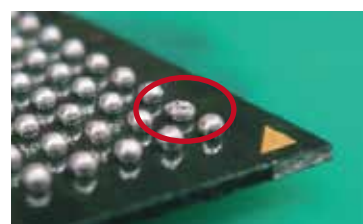
Coplanarity sensor - checks balls and leads

OP

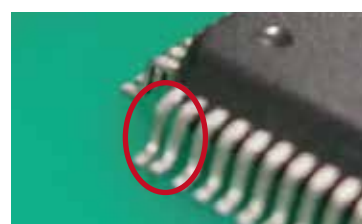
Prevents placement of defective component by checking lead float of lead component and nick of ball component. High accurate and high speed coplanarity check will improve the products' reliability.



Coplanarity sensor



BGA ball defect



Lead float defect

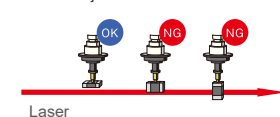
Improved quality using component checking

Laser

Component presence is monitored from pick to placement, reducing defects.

① Tombstone detection

Tombstone parts can be detected by laser and rejected



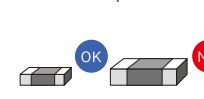
Laser

② Orientation check

Component width/length ratio can be checked to ensure the part was picked in the correct orientation

③ Dimension check

Component width and length can be verified to ensure it is the correct component

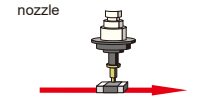


OK

NG

④ Part drop check

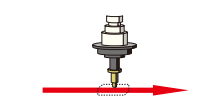
Component presence is verified using the laser to ensure it has not fallen off the nozzle



Laser

⑤ Release check

The laser checks the nozzle after placement to ensure the part was released on the PCB



Laser

Other Options

Tray Component Supply

OP

Several options are available to present components in trays.

The compact width of the TR8 means there is still room for up to 20 8mm feeders on the same bank. A single tray holder and dual tray server are also available.

The rear operation unit makes production more efficient by reducing the time the operator has to move around the line.



Matrix tray holder



Dual tray server

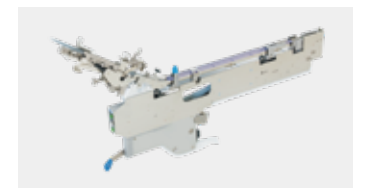


TR8S

Stick feeder

OP

Single lane stick feeders install and remove as fast as tape feeders. Belt drive provides smooth, vibration free operation. LED indicates the feeder status.

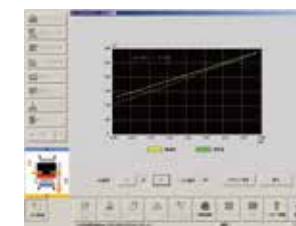


Electric stick feeder

Load Cell

OP

Load cell measures the placement force precisely for each nozzle. The risk of damaging fragile components is reduced during both pick and placement. The load can be set individually for each part number.



Data check on the monitor screen

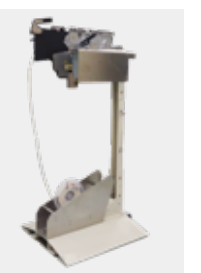
Feeder Setup Stand

OP

The feeder setup fixture is used to load reels offline quickly and easily. It is safer and easier to use than laying feeders on a table.



Mountable also on the rear side (front is standard)

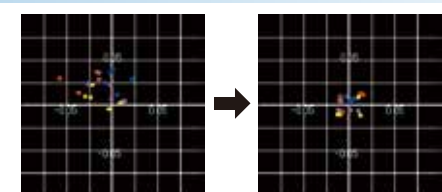


Feeder Setup Fixture for RF feeder

FCS (Flex Calibration System)

OP

JUKI's highly regarded easy maintenance just got even easier! The optional FCS calibration jig is a simple to use system to re-calibrate placement accuracy. The machine automatically picks and places jig components, then measures the error and adjusts all necessary calibrations. (optional)



FCS image

Non-stop Operation

OP

Non-stop operation allows the operator to replace feeders while the machine continues to run at full speed.

The IC collection belt

OP

The IC collection belt provides a safe method to handle rejected parts while also protecting them from further damage. Belt pitch can be set for different size parts.



The IC collection belt