RX-6 Flex Placer

Our modular product line sets new standards for productivity, flexibility and quality

3E EVOLUTION leads to LOWEST COST OF OWNERSHIP

JUKI

JUKI's reliable technology has evolved to a new level.
The RX-6 is compact and offers highest productivity, flexibility and quality.

Flex Placer

RX-6

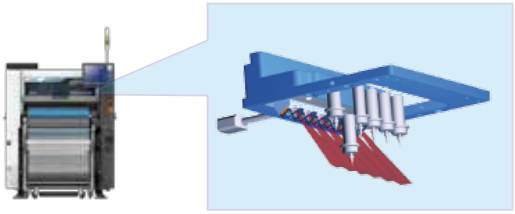
- *Compact footprint:*
  the width is just 1.25 m
- *Equipped with standard Placement Monitor check function.*
  Further improvement of production quality.
- *Replaceable heads allow you to configure a production line best suited to the current requirements.*
- *High-speed component placement using high-speed non-stop vision recognition*
- *Wide range of components and boards:*
  tall components, large components and large boards.

I. High Quality

Quality — Prevention of defective PWBs and rapid analysis of the cause and corrective action

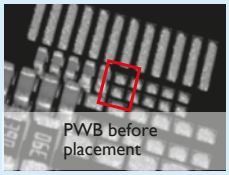
Placement Monitor is a standard function.

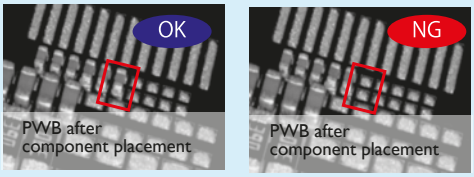
An ultra miniature camera built into the head section captures images of component pick and placement in real time. An analysis is run for presence/absence and traceability information can be saved. This unique function prevents defective PWBs and reduces the time for root cause failure analysis.



<Component presence check>

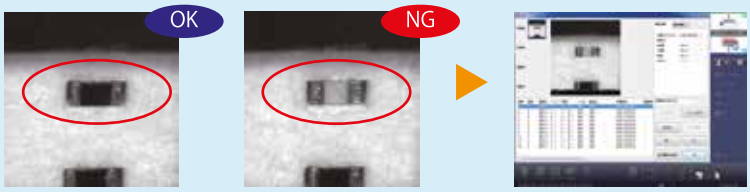
The images are analyzed automatically. If a missing component is detected, the machine will stop automatically and an error will be displayed.





<Component upside down>

If a component is supplied upside down, an error is displayed and the machine is stopped automatically.



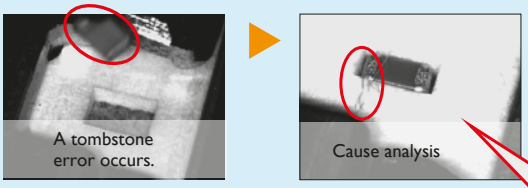
Correct component orientation

Component supplied upside down

Error message and details displayed to operator.

<Root cause failure analysis function (option)>

Root cause failure analysis uses image analysis to quickly identify problems in the production process and reduce the time for corrective action.



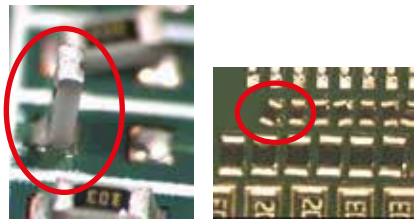
Cause of the error visible in images.

rapid solution

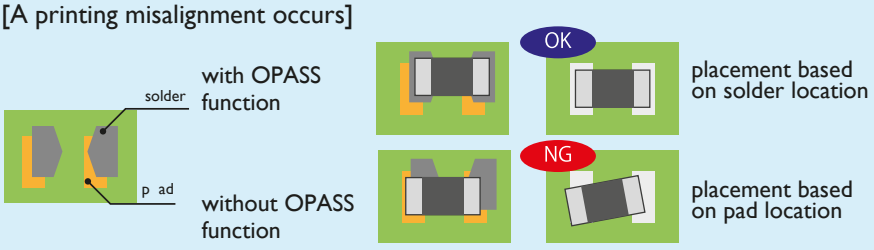
Analysis including the following items: date/time, cause of an error, nozzle, feeder number, head number and barcode (option)

Quality — Reduce errors due to solder paste alignment (Offset Placement After Solder Screen printing)

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.



[A printing misalignment occurs]



with OPASS function — placement based on solder location

without OPASS function — placement based on pad location

Reduction in the percentage defective

Quality — Incorrect component prevention (Component Verification System - CVS)

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.

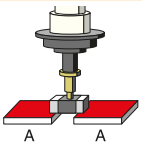
Check the Resistance,Capacitance and Polarity before production starts.

▼

Prevents incorrect component/reel from being used

▼

Prevents incorrect component placement



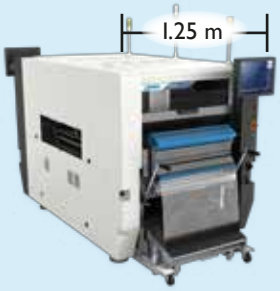
Electrodes (A) used to check polarity or measure components

2. High Productivity

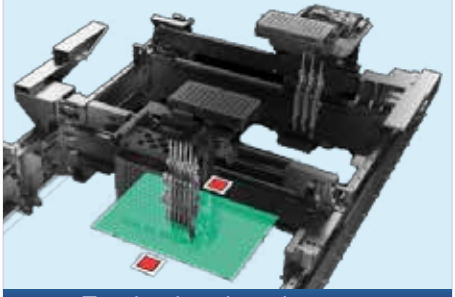
Productivity Machine construction for high-speed component placement and small-footprint design

Chip component Placement speed 42,000 cph (optimum)

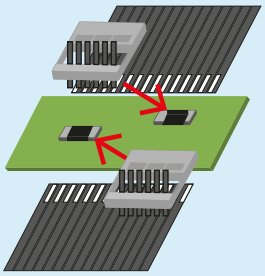
High-speed component placement in a very compact footprint: 1.25 m wide
Each machine is equipped with two heads, each with its own laser sensor. Components are centered in-flight between the pick and placement locations. Direct travel between the pick and placement position enables high speed placement with great accuracy.



1.25 m wide small-foot design



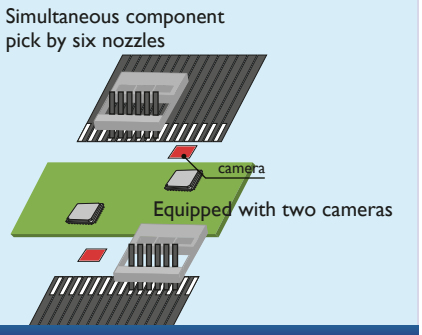
Two heads and two beams per machine



Direct travel to the placement position

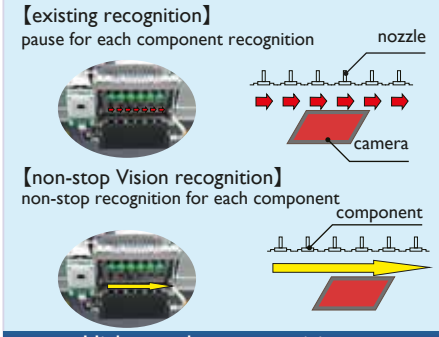
Productivity Vision recognition technology for high-speed component placement

IC component Placement speed 14,000 cph (MNVC)



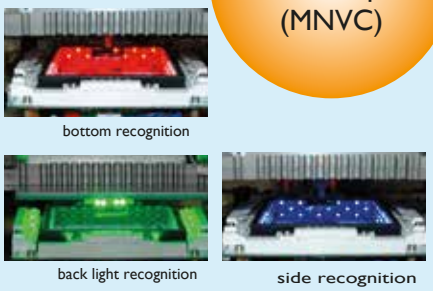
Dual cameras for high-speed

Dual cameras enables high speed placement of large and odd-form components



High-speed non-stop vision recognition technology

Dual centering technology: Each head includes a laser centering module. In addition, dual upward looking strobing cameras capture images in high speed for large, fine pitch, or odd-form components.



Centering technologies

Dual centering methods allow the machine to use the fastest and best method for each component type, based on size, shape, and design.

Productivity 160 component inputs

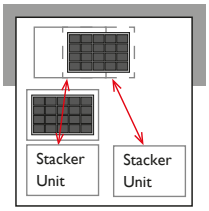
Up to 160 different components can be installed on the machine for ultimate flexibility. The feeder trolley has no cables or hoses to connect for ultra-fast, ultra accurate change-overs.

RX-6 Feeder Trolley

Productivity High-speed tray feeding

The TR7D tray server holds up to 40 different components. The design of the TR7 enables super fast change from one tray to the next by staging the next tray to be used close to the pick area.

High-Speed Matrix Tray Server TR-7D

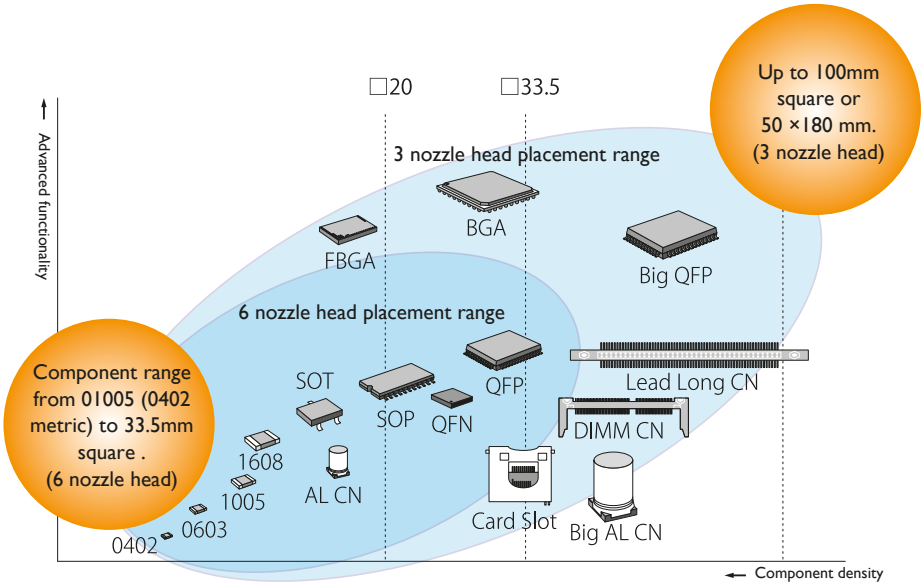


Component supply by High Speed Matrix Tray Server TR7D

3. High Flexibility

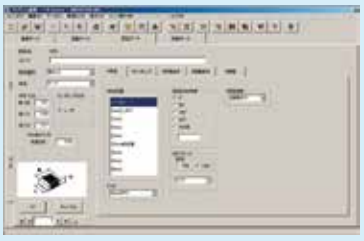
Flexibility Wide component range

The 6 nozzle head supports components from 01005 up to 33.5 x 33.5 mm and height up to 33 mm.
The 3 nozzle head supports an even wider variety: from 01005 chips up to 100 x 100 mm or 50 ×180 mm long connectors with height up to 33 mm.
These heads are designed to handle a wide variety of components from ultra miniature resistors to large ICs or connectors.



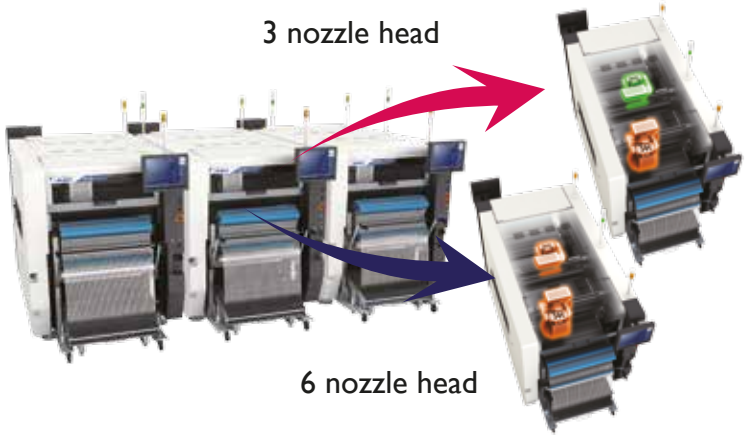
Easy data creation

Component data can be created easily when you enter the following: outer dimensions, component type and packing style. The dimensions, number of leads and pitch can be auto-measured to reduce programming time and prevent errors. General-purpose vision teaching greatly simplifies creation of data for odd-form components.



Flexibility Flexibility by changing the head unit

The rear head can be changed between a 6 nozzle head and a 3 nozzle head, giving greater flexibility to configure the production line to according to the current requirements.



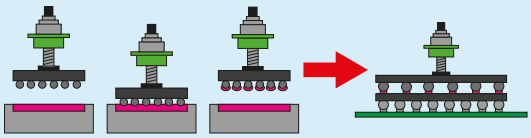
Flexibility PoP (Package on Package) support

3D or Package-on-package (PoP) placement is possible using the optional fluxer units.

Rotary fluxer

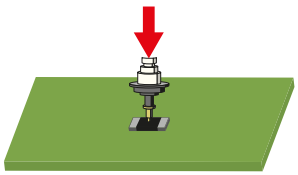
Linear fluxer

PoP placement



Flexibility Easy load control NEW

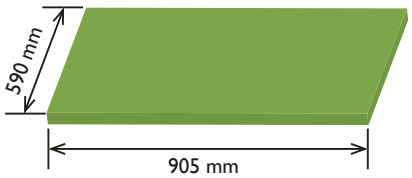
Precise placement force is available using precision designed nozzles along with a load cell. Placement force up to 50N is available for components requiring press-in.



Placement force up to 50N available.

Flexibility Large PWB support

Board size up to 905 x 590 mm is standard. LED lights or LED back lights are easily handled with no special hardware.

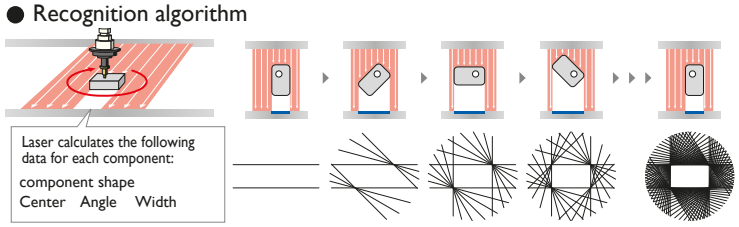


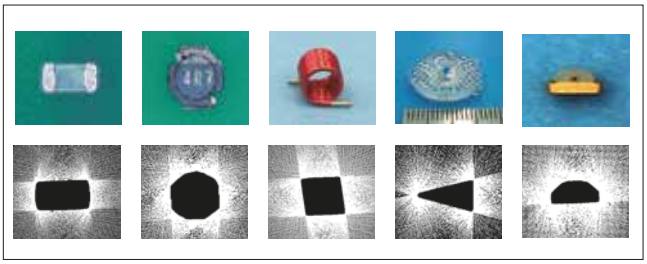
4. JUKI Basic Technology

Basic Technology
JUKI is proud to offer laser centering technology for high speed, accurate placement.

The machine can recognize components of various shapes: from an ultra miniature components such as 0402 (01005) chips up to 33.5mm square components such as PLCCs, SOPs, BGAs, and QFPs. When the machine recognizes a component with laser, variations such as shape, color, and reflection do not matter.

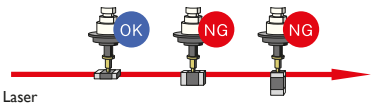
● Recognition algorithm





The component check function improves the quality of component placement. Component presence is monitored by the laser from pick to placement, reducing the chance for missing components.

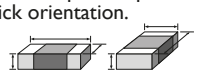
① On-the -fly component detection



Laser detects presence of components.

② Component state check

Compare the dimensions and ratio of component data to the component picked for confirmation of pick orientation.

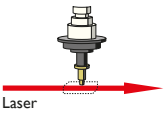


③ Component dimension check

Compare the dimensions of the part picked to the component data to ensure the right part is picked.

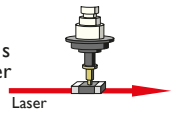
④ Component fall check

Laser checks if the component falls before placement.



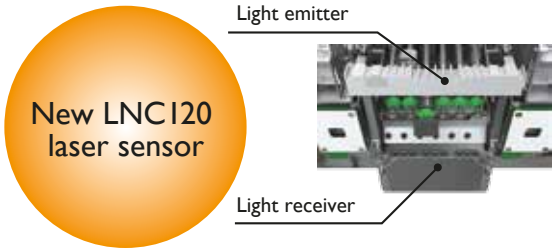
⑤ Release check

Laser checks if the component is properly released on the board after placement.



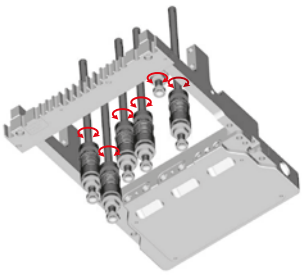
Basic Technology
New laser sensor NEW

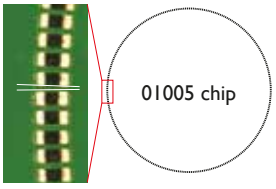
New generation laser sensor, LNC120



Basic Technology
Independent Z and θ-axes control

Each nozzle has independent Z and theta control for superior flexibility, accuracy, and redundancy. The height and angle of each nozzle can be controlled precisely.





Highly-precise placement angle is possible using servo motors

Basic Technology
Reliable, high-precision recognition

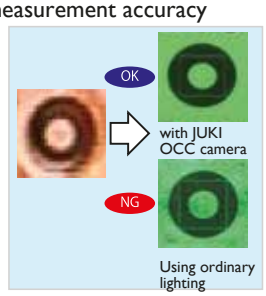
Height measurement function

A non-contact laser sensor measures the height of the PWB to prevent excessive force on components and reduce the risk of damage. This sensor can also measure the pick height more accurately and faster than other methods.

HMS measuring the height

Flexible lighting improves fiducial measurement accuracy

The OCC is a downward looking camera used for fiducial recognition and bad mark detection. Flexible lighting allows the machine to accurately recognize poor contrast fiducials, pattern recognition, and flexible printed circuits (FPC). It can also detect bad board marks to prevent waste of components.



Poor contrast fiducial mark read by OCC

Bad board mark detection by OCC

Specification

			RX-6 (6 × 6 nozzle head)	RX-6 (6 × 3 nozzle head)
Board size			50 x 50 mm to 610 x 590 mm (905 x 590 mm with longboard option)	
Component height			6 / 12 / 20 / 25 / 33 mm	
Component size	Laser recognition		01005 to 33.5 x 33.5 mm	01005 to 33.5 x 33.5 mm
	Vision recognition	Standard camera	3 x 3 mm to 33.5 x 33.5 mm (MNVC)	3 x 3 mm to 100 x 100 mm / 50 x 180 mm
		High-resolution camera	01005 to 20 x 20 mm (MNVC)	01005 to 48 x 48 mm / 24 x 72 mm
Placement speed	Chip	(optimum)	42,000 cph	34,000 cph
		(IPC9850)	26,000 cph	23,000 cph
	IC※1		14,000 cph (MNVC)	11,000 cph (MNVC)
Placement accuracy	Laser recognition		±40 µm (Cpk ≥ 1)	
	Vision recognition		±30 µm (±40 µm MNVC)	
Feeder positions (max.)			160 (with electronic 8 mm double tape feeder)	
Power supply			200 to 415 V AC, 3-phase	
Apparent power			3.5 kVA	
Operating air pressure			0.5±0.05 MPa	
Air consumption			100 l/min	
Machine dimensions (W x D x H)※2			1,250 × 2,095 × 1,440 mm	
Mass(approximately)			1,800 kg	

※1 Optimum according to JUKI specifications

※2 Machine width measure (D) does not include display. Machine height measure (H) does not include signal light and display.

Options

Recognitions system	High-resolution camera
Operations system	Rear-side operation unit
Inspection function	Coplanarity sensor / Component Verification System (CVS) / SOT detection check function
Conveyor	Conveyor extention
Electrical protection	Ground-fault interrupter
Force Control	Force control nozzle
Others	FCS calibration jig / mini signal light tower / super foot / offset placement after solder screen-printing / lighting unit for solder recognition/ placement monitor (data storage & analysis function) / fluxer unit (liner type, rotary type), caster
Software	IS / IFS-NX / EPU
Component handling and feeders ※	Feeder trolley / electronic tape feeder / electronic stick feeder / high-speed matrix tray server TR7DN / tray holder / IC collection belt / trash box / tape reel mounting base feeder trolley / feeder stock / splicing jig / feeder calibration jig with monitor / electric trolley power station

※ Component handling and feeders are electronic type only.

※Please refer to the product specifications for details.

JUKI ECO PRODUCTS	The RX-6 is an eco-friendly product which complies with JUKI ECO PRODUCTS standards for protecting the environment.

●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.

JUKI ECO PRODUCTS For details of JUKI ECO PRODUCTS, refer to: http://www.juki.co.jp/eco_e/index.html

※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.

CM001 JIS Q 14001 ISO 14001 JSAE389 089

JUKI CORPORATION HEAD OFFICE

An environmental management system to promote and conduct the following:
(1) Eco-friendly development of products and technologies
(2) Green procurement and green purchasing
(3) Energy conservation (reduction in carbon-dioxide emissions)
(4) Resource saving (reduction of papers purchased, etc.)
(5) Reduction and recycling of waste
in the activities of research, development, design, sales, distribution, and maintenance services of industrial sewing machines and industrial robots, etc., including sales and maintenance services of data entry systems.

JUKI®

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