JUKI®

High-Speed Chip Shooter

KE-3010

High-Speed Flexible Mounter

KE-3020V

3E EVOLUTION

LOWEST COST OF OWNERSHIP

The Next Generation of the Award Winning KE Series

High-Speed Chip Shooter
KE-3010

- 18,500CPH (IPC9850)
- One multi-nozzle laser head (6 nozzles)
- From 01005 (0402 metric) to 33.5mm square components
- Supports maximum 22" x 24" board size
- Supports up to 48" long boards when using long PWB option

KE-3010L

High-Speed Flexible Mounter
KE-3020V

- 17,100 CPH (IPC9850)
- From 01005 (0402 metric) to 74mm square components or 50×150mm
- Supports maximum 22" x 24" board size
- Supports up to 48" long boards when using long PWB option
- New non-stop vision centering system (featuring bottom, side, and back lighting, all ball recognition and split recognition)
- One multi-nozzle laser head (6 nozzles) plus one IC head with CDS sensor (1 nozzle)

KE-3020VL

JUKI's original technologies for high-speed and high-quality placement for KE-3010 and KE-3020

Laser centering technology

●Laser sensor: LNC60

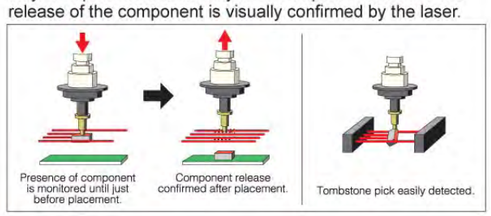
Capable of picking six components simultaneously and centering on the fly with the LNC60 laser sensor.

The LNC60 brings a new concept in laser centering to the market. This sensor has the unique ability to center components from 0402 (01005) to 33.5 mm square parts. From ultra-small,ultra-thin, chip-shaped parts to small QFP, CSP, BGA, a wide range of parts can be precisely centered by the laser recognition system at high-speed.

●Low loss ratio

Component check function improves placement reliability

Since the laser is mounted on the head, it can be used to monitor the presence of components the entire time from pick to placement. This is difficult to accomplish with vacuum detection only. The placement reliability is also improved because the release of the component is visually confirmed by the laser.



High precision and quality placement with Electronic feeders

●The use of electronic double tape feeders enables mounting of a maximum of 160 component types.

The electric double tape feeder holds two 8mm reels in the space (17mm) of a single traditional tape feeder. This doubles the feeder capacity of the machine which means there is a greater chance of clustering boards into a single feeder setup. It can also reduce the total number of machines needed in a production line.

●Simple setting of feeder pitch

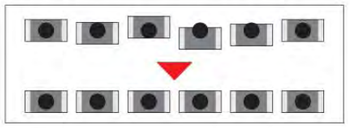
No tools are required to change the feeder pitch. Pitch is set using buttons on the feeder.

●Status is displayed on a seven segment LED

Before production, electronic feeders communicate with the mounter to verify consistency with the production program: type of feeder and feed pitch. Should there be any discrepancy, the LED display flashes a warning. The LED display also alerts the operator of wrong feeder position and when components are running low. During production, the LED display shows the feeder position.

●Automatic correction of pick position

The variance of the position from the center of each component is detected by the machine head when centering. This information is transmitted to each electronic feeder which automatically adjusts feeding for more stable pick position and for more chance of simultaneous pick.



JUKI's original technologies for high-speed and high-quality placement for KE-3010 and KE-3020

MNVC high-speed, on-the-fly vision centering

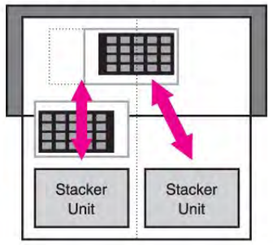
New on-the-fly vision centering dramatically increases the placement speed by eliminating time wasting stops over the camera. Parallel processing of images means components are ready for placement as soon as the head reaches the placement coordinates.

High-speed feeding of tray components (Option)

The TR-7D high speed matrix server is equiped with dual magazines and drive systems to present 2 different trays at the same time. This method eliminates time wasted during tray exchange and increases the efficiency of placement.

High-speed Matrix Tray Server TR-7D

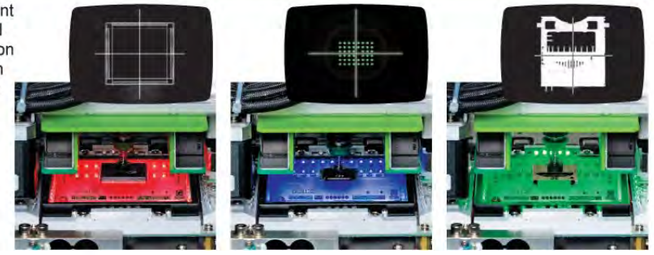
Utilizes independent driving systems for the left and right stacker units



Vision centering technology

Centering method can be selected based on component type, shape, size and material. Laser centering is used for high-speed placement of smaller components. Vision is used when lead or ball inspection is needed or when the component is too large for the laser. Many nozzles are available for odd-shaped components providing unsurpassed component handling.

Nozzles for odd-shaped components



MNVC (Multi-Nozzle Vision Centering)

Vision centering using the multi-nozzle head nearly quadruples the placement rate for smaller components, including CSPs, BGAs and smaller QFPs.

Flexible, high-speed production lines

A line consisting of KE-3010 and KE-3020V machines has outstanding efficiency, flexibility, and quality. Production lines using these models are ideal for high mix/high change over environments and you can combine several machines for high-speed production.

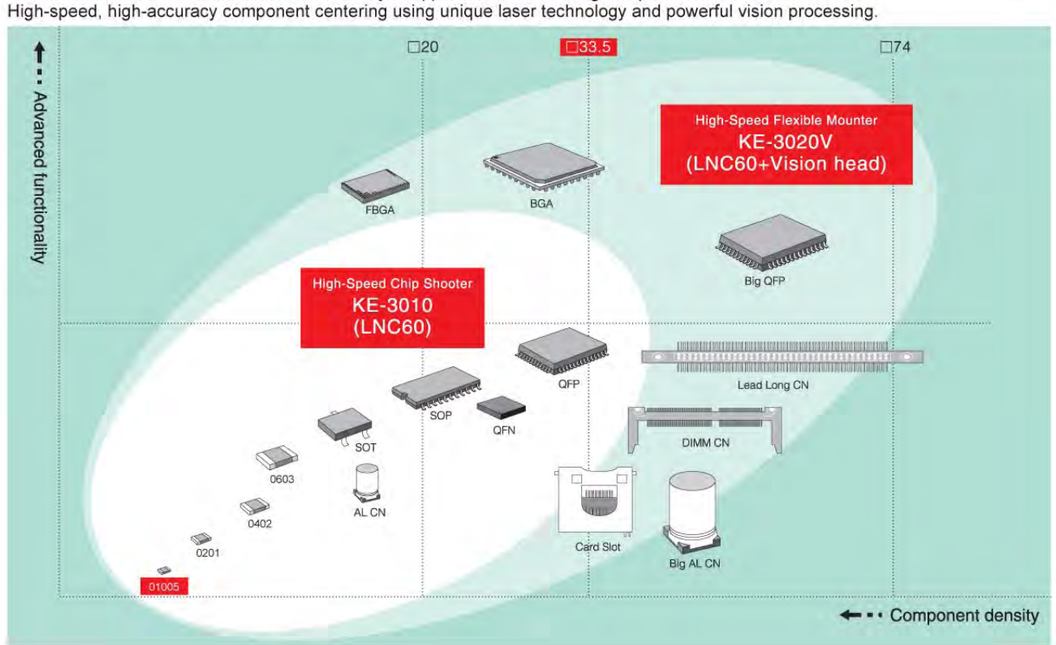
Dual lane electronic feeders increase the feeder capacity to 160 8mm tapes per machine. This allows you to build boards with high part count or can be leveraged to reduce changeover.

By combining the FX-3R high-speed chipshooter with the KE-3020V, even higher production speeds are possible for high volume production.

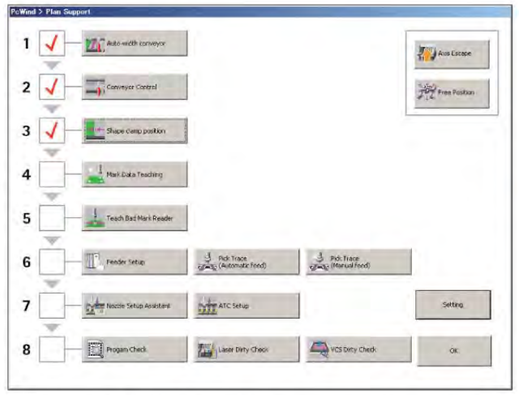
This line can hold up to 400 part numbers using dual lane electronic feeders for tremendous flexibility and part capacity.

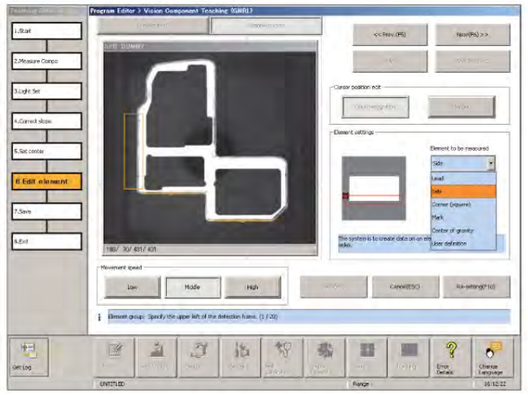
Wide range of supportive parts

The KE series meets the needs of a wide variety of applications with the highest performance.
High-speed, high-accuracy component centering using unique laser technology and powerful vision processing.



Easy operation





●Operator's Setup Checklist

This function assists operators in the preparation of a new production program. By simply following a checklist of setup items listed in the menu, an operator can be sure that the necessary steps for production have been completed.

●Ease-of-operation improved by automatic component measurement

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.

●Flexible vision teaching

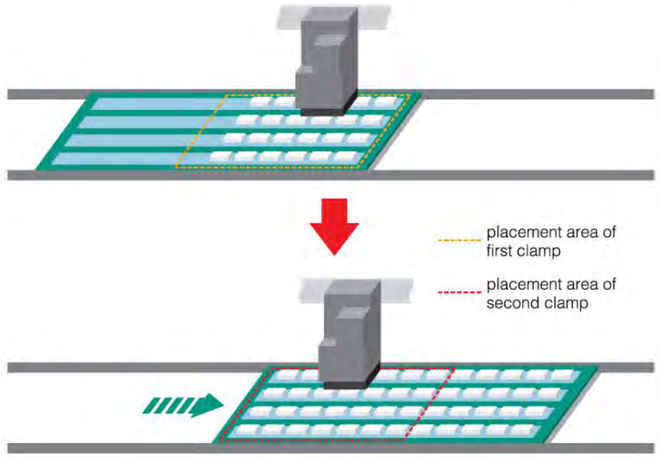
Complicated programming of odd-shaped components is made easier by following step-by-step guidelines, reducing programming time significantly. Common components such as BGAs and QFPs can be taught automatically in seconds.

Longer sized PWB in X axis

Capable of placing a longer board up to 800mm×360mm (L size), 1,010mm×360mm (L-wide size), 1,210mm×560mm (XL size) by automatically indexing the board twice in each station. As a result, the production of a long PWB used for the LED lighting etc. is enabled.

●Solder Recognition Lighting (option)

The Solder Recognition Lighting Option can be used to view pasted pads as fiducial marks. This option is most commonly used when building a PCB that requires multiple indexing that does not have valid fiducial marks.



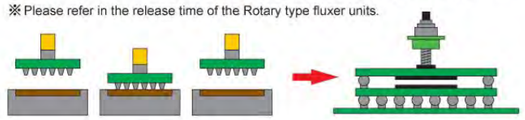
●Component Quantity Control (option)

The Component Quantity Control Option calculates the number of LEDs required to build the PCB versus what is remaining on the existing reel and will not allow production to begin if there are not enough components.

PoP placement

Package-on-Package (PoP) assembly is fully supported using either linear or rotary fluxer units that also support dipping solder paste.

※Please refer in the release time of the Rotary type fluxer units.



Linear Fluxer Unit	Rotary type Fluxer Units
Recommended for flux.	Recommended for solder Past.

Available options for a wide variety of needs

●Component Verification System (CVS)

Component verification (option) measures the resistance, capacitance or polarity of each component before the start of production or after replacing components. This option prevents placement of incorrect components. The new inspection unit features simultaneous measurement of six components, reducing changeover time.

Component Verification System (CVS)

●IONIZER

The ionizer (option) adjusts the ion balance inside the machine and removes static electricity from the board and components.

IONIZER

●Offset Placement After Solder Screen-printing

Offset Placement After Solder Screen-printing is a system to offset placements to correct for solder paste misalignment, which promotes the self-alignment effect and reduces the defect rate.

●Coplanarity Sensor

Measures true coplanarity for both leaded components and BGAs, reducing the chance of a bad solder joint.

Coplanarity Sensor

●Placement Force Control

Using a built-in load cell, the placement force of each nozzle can be measured and controlled during the placement process.
The placement force can be set individually for every component.

●FCS (Flex Calibration System)

JUKI's superior ease of 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.

FCS (Flex Calibration System)

●Nonstop Operation

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

●Mini Signal Light Tower

In addition to the standard signal tower, this shows the operator which side of the machine a component has run out on.

●Feeder Position Indicator

LEDs on the feeder bank indicate which feeder needs to be replaced, which feeder has an alarm, location of feeders to be set during change over, and helps simplify feeder setup.

Feeder Position Indicator

●Bad Mark Reader

Detects "bad circuit" marks on matrix type boards and skips placement of parts on all defective circuits, preventing waste.

Bad Mark Reader

●SOT direction check function

This function uses the left OCC to check the component supply angle by placing a 3-terminal SOT component on the SOT direction check table before production or the restart after components run out.

●IC Collection Belt

A conveyor belt provides a safe way to handle valuable rejected components. Components gradually index away from the machine and the operator is notified when the belt is full.

IC Collection Belt

Improved production efficiency and flexiblity

Feeders

Mechanical and electronic feeder trolleys are completely interchangeable allowing companies with previous generations of mechanical feeders to continue to get the most from their investment.

●Electronic feeders

- Tape Feeders

- Stick Feeders

Exchange trolly for electronic feeder

●Mechanical feeders

- Tape Feeders

- Stick Feeders
- Bulk Feeders
- ATF (Splicing tape feeder)

Exchange trolly for mechanical feeder

Tray feed device

●Matrix Tray Sever (Rear Type)

●Dual Tray Server

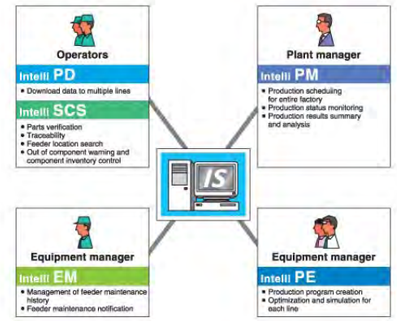
●Matrix Tray Holder

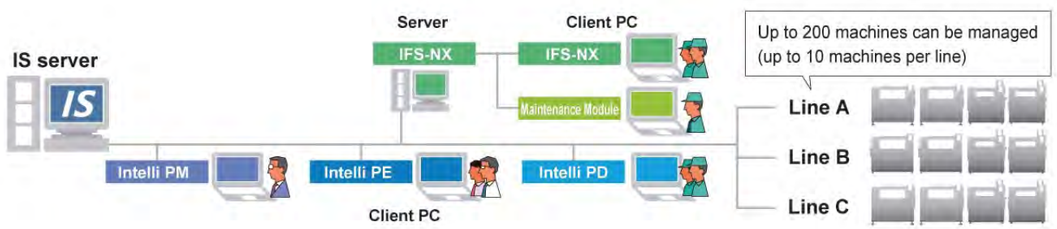
※In addition to the matrix tray server, a shuttle-type side mounted matrix tray changer is available.
※Note dual tray server or matrix tray holder for mechanical feeder banks is not compatible with dual tray server or matrix tray holder for electronic feeder banks.
※Please refer to the product specifications for details.

Software

●Supported by IS NPI+ and IFS-NX Verification System which includes:

- CAD, Gerber and ASCii or centroid data software package that automatically and efficiently creates complete JUKI program files in seconds
- Employs a client-server architecture that connects the IS server throughout the factory via Ethernet for factory wide control to:
  - Create Production Programs
  - Perform Line and Factory optimization
  - Supports Cluster groups for maximum optimization of the line
  - Supports downloading production programs to multiple lines
  - Supports Line Monitoring and On-Demand Job Production
  - Provides a factory status display and performance calculation
- Utilizes RFID Smart Feeder technology to guarantee accurate production builds:
  - Closed Loop System set to ensure proper feeder setup
  - Improved component Inventory control
  - Provides traceability functionally down to the referenced designator level





■Specification

Item			Model: High-Speed Chip Shooter KE-3010M/KE-3010L/KE-3010XL	Model: High-Speed Flexible Mounter KE-3020VM/KE-3020VL/KE-3020VXL
Board size	M size (330×250mm)		○	○
	L size (410×360mm)		○	○
	L-Wide size (510×360mm)		○	○
	XL size (610×560mm)		○	○
	Long PWB Option (L size)		800×360mm	
	Long PWB Option (L-Wide size)		1,010×360mm	
	Long PWB Option (XL size)		1,210×560mm	
Component height	6mm		○	–
	12mm		○	○
	20mm		–	○
	25mm (XL size)		–	○
Component size	Laser recognition		01005 (0402 metric)~33.5mm	01005 (0402 metric)~33.5mm
	Vision recognition	Standard camera	MNVC 3mm※1~33.5mm	3mm~74mm or 50×150mm
		High-resolution camera	MNVC 1.0×0.5mm※2~20mm	1.0×0.5mm※2~48mm or 24×72mm
Placement speed	Chip	(IPC9850)	18,500CPH	17,100CPH※3
	IC※4		MNVC 9,000CPH※5	2,400CPH MNVC 9,470CPH※5
Placement accuracy	Laser recognition		±0.05mm (CPK ≥ 1)	
	Vision recognition		±0.04mm	±0.03mm(MNVC ±0.04mm)
Feeder inputs			Max. 160 8mm tape feeders (using dual lane electronic)※6	
Power supply			200 to 415 VAC,3-phase	
Apparent power			2.2kVA	
Operating air pressure			0.5±0.05Mpa	
Air consumption			50L/min	
Machine dimensions (W×D×H※7)※8	M size		1,500×1,580×1,500mm	
	L size		1,500×1,690×1,500mm	
	L-Wide size		1,800×1,690×1,500mm	
	XL size		2,131×1,890×1,500mm	
Mass (approximately)	M size		1,850kg	
	L size		1,900kg	
	XL size		2,250kg	

※1 When using MNVC.
※2 KE-3010: When using both high-resolution camera and MNVC.
KE-3020V: When using high-resolution camera. (option)
※3 KE-3020VXL board size rated speed is 15,300CPH.
※4 Effective tact: The IC placement speed indicates an estimated value obtained when the machine places 36 QFP (100 pins or more) or BGA components (256 balls or more) on a M size board. (CPH=number of components placed for one hour)
※5 Estimated value when using MNVC and picking up components simultaneous with all nozzles.
※6 When using Electric double tape feeder EF08HD.
※7 Display is not included in height.
※8 Dimensions of machine described are for conveyor height 900mm.

■Options

Recognition system	Bad mark reader / High-resolution camera
Operation system	Rear-side operation unit
Inspection function	Coplanarity sensor / Component Verification System(CVS) / SOT detection check function
Conveyor	Automatic board width adjustment / Conveyor extention / Long PWB
Electrical protection	Ground-fault interrupter
Others	FCS calibration jig / Feeder position indicator / Offset placement after solder screen-prining /
	Non-stop operation / Caster/Super foot / Connector bracket / Mini signal light tower / Ionaizer/
	Pin reference / Placement force control / Solder lighting / Residual PWB quantity control
Software	IS NPI+ / IFS-NX
Component handling and feeders	Matrix Tray Sever TR-5 / Matrix Tray Changer TR-6 / High Speed Matrix Tray Sever TR-7D / Matrix Tray Holder /
	Dual Tray Server TR-1 / Tape feeder / Bulk feeder※1 / Stick feeder / Feeder trolley / IC collection belt / Trash box /
	Tape cutter / Feeder stocker / Fluxer unit / Tape reel mounting base

※1 for mechanical bank only

※Please refer to the product specifications for details.

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