

Specifications

Item		Model	High-speed chip shooter KE-2070M / KE-2070L / KE-2070E	High-speed flexible mounter KE-2080M / KE-2080L / KE-2080E
Board size	M size (330x250mm)		○	○
	L size (410x360mm)		○	○
	E size (510x460mm)*1		○	○
Component height	6mm		○	—
	12mm		○	○
	20mm		—	○
	25mm*2		—	○
Component size	Laser recognition		01005 (0402 metric)~33.5mm	01005 (0402 metric)~33.5mm
	Vision recognition		MNVC 1.0x0.5mm*3~20mm	1.0x0.5mm*3~74mm or 50x150mm
Placement speed	Chip (IPC9850)		16,000CPH	15,400CPH
	IC*4		MNVC 4,600CPH*5	1,850CPH MNVC 4,700CPH*3
Placement accuracy	Laser recognition		±0.05mm (Cpk ≥ 1)	±0.03mm (±0.04mm when using MNVC)
	Vision recognition		±0.04mm	±0.03mm (±0.04mm when using MNVC)
Feeder inputs			Max. 80 on 8mm T/F*6	
Power supply			200 to 415 VAC, 3-phase	
Apparent power			3kVA	
Operating air pressure			0.5±0.05Mpa	
Air consumption			345L/min	403L/min
Machine dimensions (WxDxH)*7)*8	M size		1,400x1,393x1,440mm	
	L size		1,500x1,500x1,440mm	
	E size		1,730x1,600x1,440mm	
Mass (approximately)			1,530kg	1,540kg

Item		Model	High-speed chip shooter KE-1070M / KE-1070L / KE-1070E	High-speed flexible mounter KE-1080M / KE-1080L / KE-1080E
Board size	M size (330x250mm)		○	○
	L size (410x360mm)		○	○
	E size (510x460mm)		○	○
Component height	6mm		○	—
	12mm		○	○
	20mm		—	○
	25mm*2		—	○
Component size	Laser recognition		01005 (0402 metric)~33.5mm	01005 (0402 metric)~33.5mm
	Vision recognition		—	1.0x0.5mm*3~74mm or 50x150mm
Placement speed	Chip (IPC9850)		15,500CPH	14,100CPH
	IC*4		—	1,850CPH MNVC 3,400CPH*3
Placement accuracy	Laser recognition		±0.05mm (Cpk ≥ 1)	±0.03mm (±0.04mm when using MNVC)
	Vision recognition		—	±0.03mm (±0.04mm when using MNVC)
Feeder inputs			Max. 80 on 8mm T/F*6	
Power supply			200 to 415 VAC, 3-phase	
Apparent power			3kVA	
Operating air pressure			0.5±0.05Mpa	
Air consumption			225L/min	345L/min
Machine dimensions (WxDxH)*7)*8	M size		1,400x1,393x1,440mm	
	L size		1,500x1,500x1,440mm	
	E size		1,730x1,600x1,440mm	
Mass (approximately)			1,530kg	1,540kg

*1 Please ask for details on the KE 1070/1080 E sized board. *2 Available only for E size board. *3 When using both high-resolution camera and MNVC (option). *4 Effective tact: The IC placement speed indicates an estimated value obtained when the machine places 36 CPH (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 (option) and picking up components simultaneous with all nozzles. *6 Including matrix tray changer, max 110. *7 Display is not included in height. *8 Dimensions of machine described are for conveyor height 900mm. *Please refer to the product specifications for details.



JUKI CORPORATION
Electronic Assembly & Test Systems Division
2-11-1, Tsurumaki, Tama-shi
Tokyo 206-8551, JAPAN
TEL.81-42-357-2293
FAX.81-42-357-2285

JUKI Americas Corporate Offices
507 Airport Blvd.
Morrisville, NC 27560
Phone: 919-460-0111
Email: sales@jas-smt.com
www.jukiamericas.com



JUKI CORPORATION
Electronic Assembly & Test Systems Div.
Design, development, production management, installation and servicing of the Surface Mount Equipment.

JUKI CORPORATION HEAD OFFICE
The environmental management system to promote and conduct
① the technological and technical research, the development and design of the products in which the environmental impact is considered.
② the conservation of the energy and resources, and the recycling in the research, development, design, distribution, sale and maintenance service of the industrial sewing machines, household sewing machines and industrial-use robots, etc. and in the purchase, distribution and sale of the household commodities including the healthcare products.

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

JUKI Specifications and appearance may be changed without notice.

Sept-2010

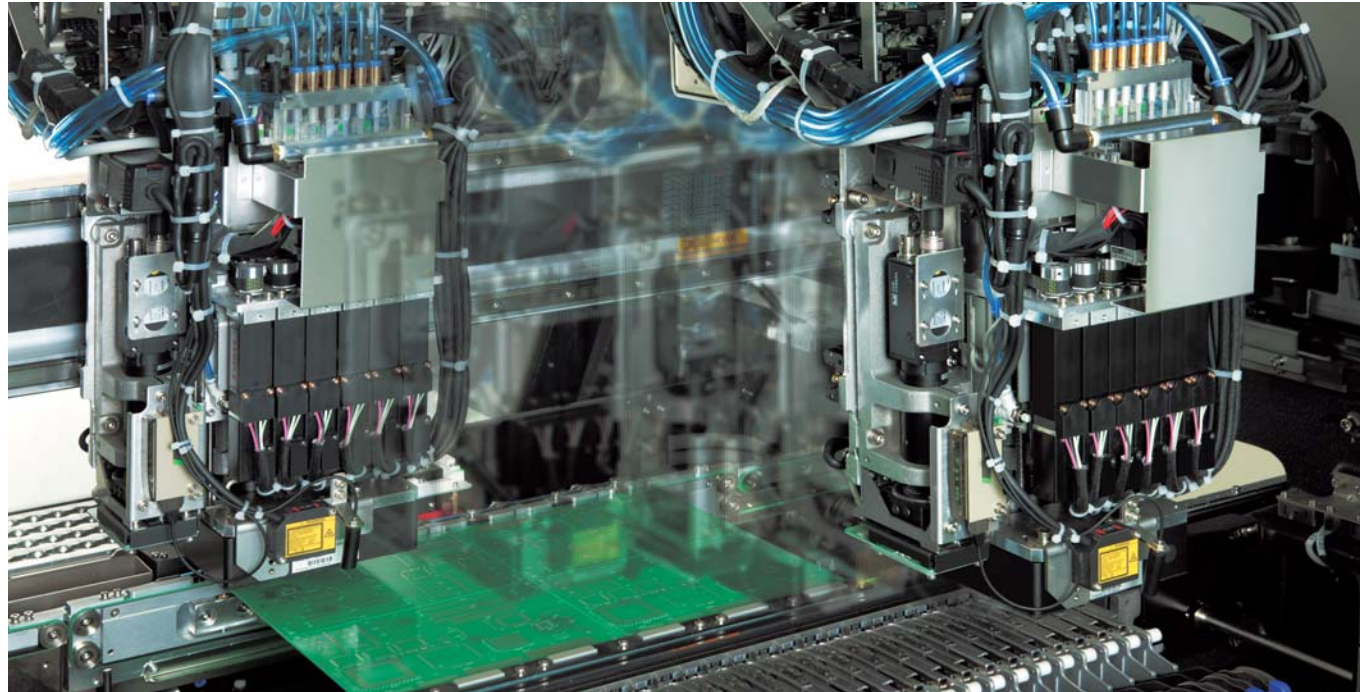
High-speed Flexible SMT Placement Systems

High-speed chip shooter **KE-1070/2070**
High-speed flexible mounter **KE-1080/2080**



LOWEST COST OF OWNERSHIP

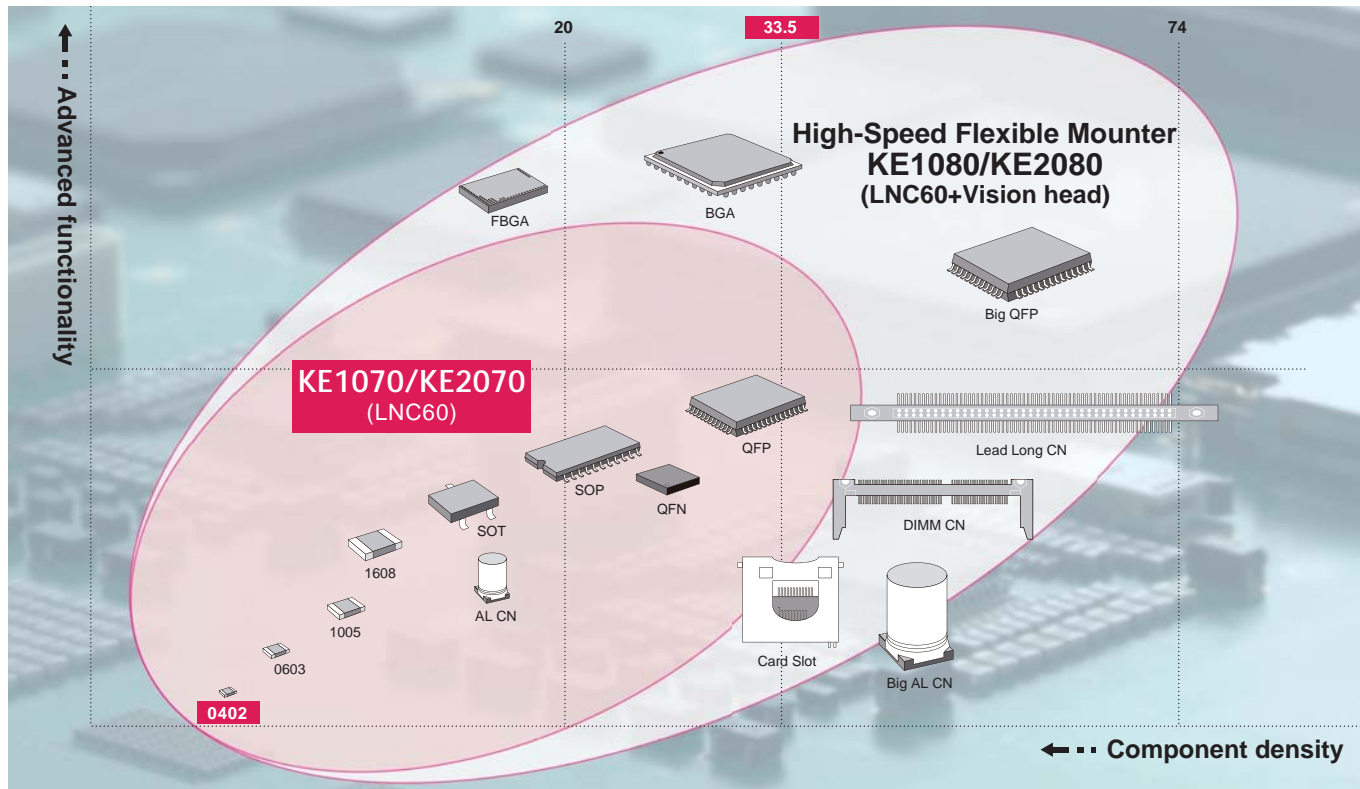
Speed. Flexibility. Reliability.



The modular KE Series from Juki provides the competitive edge you need for today's advanced production requirements.

KE-1070/2070 and KE-2070/2080, now available!!

The KE Series machines can recognize and place a wide range of angular parts from 01005 (0402 metric) to 33.5mm squared using the efficient LNC60 optical laser. When combined with the powerful vision capabilities of the KE Series, the ultimate in high quality, high flexibility SMT manufacturing is achieved.



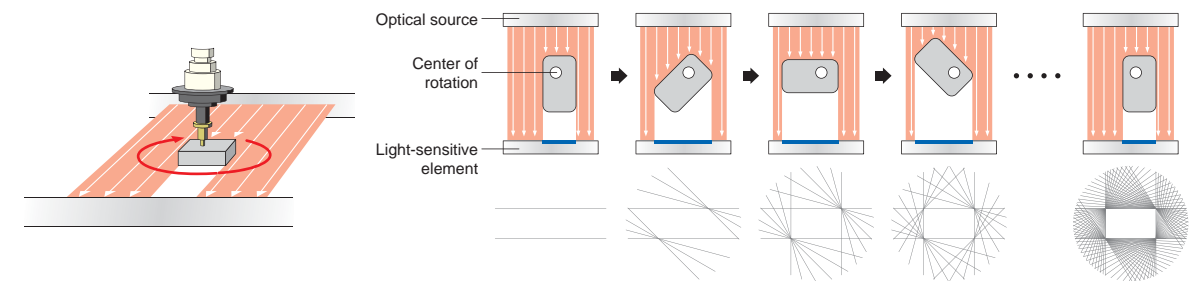
High area productivity and wide component range

New laser sensor: LNC60



The KE Series features the LNC60 optical laser centering unit that is built into the head to easily measure components while moving from the pick to the placement site. The LNC60 laser eliminates having to move to a stationary or line scan camera creating a very efficient method of component measurement centering. The LNC60 is not affected by the color of a part and can easily transfer a part profile back to the machine database. Other important features of the LNC60 laser include: detecting the exact height of the nozzle tip, bent nozzle detection, and a tombstone pick check. Additionally, it ensures that a component is present before placement, and that the component has been placed successfully. From ultra-small, ultra-thin, chip shaped parts to small QFP, CSP, BGA, a wide range of parts can be mounted by the optical laser recognition systems at high-speed and with high-accuracy.

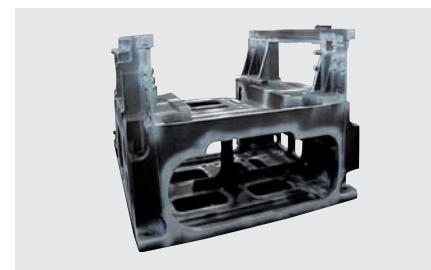
LNC60 A new concept in component centering that is capable of on-the-fly centering of up to 6 components simultaneously.



Tangential Line Centering™ achieves both a wider component range and higher accuracy all at the same time. The LNC60 accurately measures the component's center, dimensions, and angular correction all in a single sweep. The optical design has been simplified to give higher reliability in a thinner and lighter package.

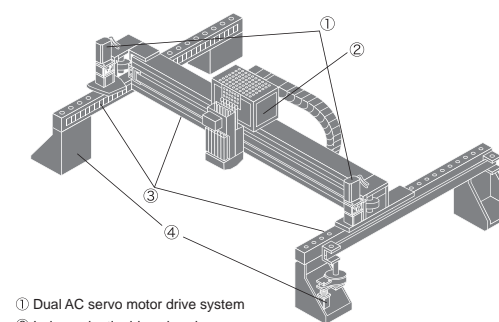
Incomparable stability created by advanced basic design

Ultra-rigid frame



A high-rigidity frame made by cast metal molding integrates the Y axis frame. It has excellent anti-vibration characteristics that support high-speed operation.

Dual XY drive system & independently driven heads



- ① Dual AC servo motor drive system
- ② Independently driven heads
- ③ Linear scale full-closed loop control
- ④ Dual AC servo motor drive system

X-Y drive system features JUKI's original "Full closed loop control" using AC motors and magnetic linear encoders. Dual motor drive of both X and Y achieves high-speed, and highly reliable placements unaffected by dust and temperature variations. Independent Z and θ motors improve accuracy and robustness.

From high-speed, high-accuracy mounting of very small parts to handling of odd-shaped parts

Ultra-flexible performance assures the best return on investment for any application



High-speed chip shooter
KE-1070

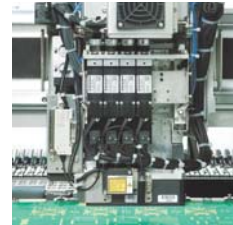


LNCS60



Introducing the KE-1070, the latest high-speed chip-shooter in the best-selling JUKI KE series family, featuring high end performance at an affordable price.

- ◎ Placement speed: 15,500CPH (IPC9850)
- ◎ One multi-nozzle laser head (4 nozzles)
- ◎ From 01005 (0402 metric) to 33.5mm square components
- ◎ Placement accuracy: $\pm 0.05\text{mm}$ ($Cpk \geq 1$)
- ◎ Change language between Japanese/English or English/Chinese



High-speed flexible mounter
KE-1080



LNCS60



Introducing the KE-1080, the latest high-speed flexible placement mounter in the best-selling JUKI KE series family, featuring high end performance at an affordable price.

- ◎ Placement speed: 14,100CPH (IPC9850)
- ◎ 1,850CPH: IC (vision centering / effective tact), 3,400CPH: IC (vision centering / with MNVC option)
- ◎ One multi-nozzle laser head (4 nozzles) plus one high resolution head (1 nozzle)
- ◎ From 01005 (0402 metric) to 74mm square components or 50mm x 150mm
- ◎ Placement accuracy: Laser recognition : $\pm 0.05\text{mm}$ (Cpk)
Vision recognition: $\pm 0.03\text{mm}$ ($\pm 0.04\text{mm}$ when using MNVC)
- ◎ Change language between Japanese/English or English/Chinese

*Actual throughput may vary.



High-speed chip shooter
KE-2070



LNCS60



(option)



A chip mounter optimal for high-speed mounting of small parts. With the addition of the optional MNVC, the component range can be increased even more for greater flexibility.

- ◎ Placement speed: 16,000CPH (IPC 9850)
- ◎ 4,600CPH: IC (vision centering with optional MNVC)
- ◎ One multi-nozzle laser head (6 nozzles)
- ◎ From 01005 (0402 metric) to 33.5mm square components
- ◎ Vision centering system (optional, featuring bottom, side, and back lighting, all ball recognition)



High-speed flexible mounter
KE-2080



LNCS60



The best flexible placement system for high-density placements. The ultra-flexible KE-2080 can place a wide range of components from 0402 (01005) and ICs, to odd-form, all at industry leading accuracy and speed.

- ◎ Placement speed: 15,400CPH (IPC9850)
- ◎ 1,850CPH: IC (vision centering / effective tact), 4,700CPH: IC (vision centering / with MNVC option)
- ◎ One multi-nozzle laser head (6 nozzles) plus one high resolution head (1 nozzle)
- ◎ From 01005 (0402 metric) to 74mm square components or 50x150mm
- ◎ Vision centering system (featuring bottom, side, and back lighting, all ball recognition and split recognition)

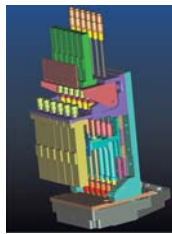
*Actual throughput may vary.

High-accuracy technology for "ultra-small" 0402 (01005) chip

► Accurate

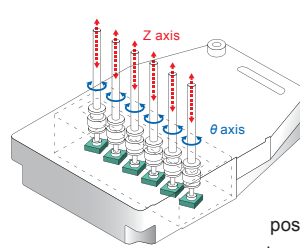
Highly reliable head unit and high-resolution axis control

The head unit has a laser sensor and control system for Z and θ motors designed for efficiency and ease of maintenance. High speed serial communication is used for data transfer. The simple design reduces the number of cables, even with the increased number of nozzles, and increases



reliability. Improved resolution on all axes results in more accurate placements, time after time. The KE-1070/2070 and KE-1080/2080 feature 1 μ m linear encoders on the X and Y axes. New encoders employed for the Z and θ axes have a resolution of 260,000 pulses per revolution, a significant improvement in precision. These enhancements combined result in an improvement of the placement accuracy to $\pm 50 \mu$ m (Cpk ≥ 1).

Independent Z / θ control

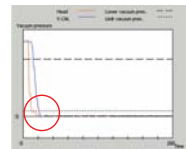


Each nozzle has independent Z and θ motors for high reliability and high accuracy. Precise control of each nozzle is possible without affecting components on other nozzles.

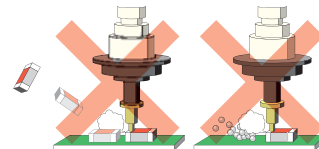
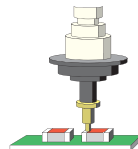
► High quality

No-blow placement technology

JUKI's original vacuum self-calibration function eliminates the need for a vacuum "blow-off" during placement, which can disturb neighboring components or solder paste.



High density placement without "blow-off"



Possible effects of "blow-off"

Highly versatile vision system for a wide range of components

► Flexible

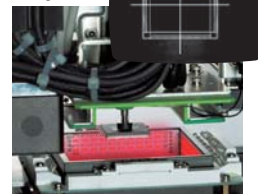
Vision centering technology

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

Bottom and side recognition

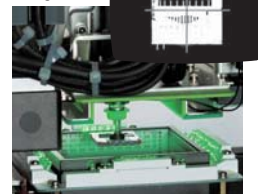


Vision recognition

Bottom and side recognition

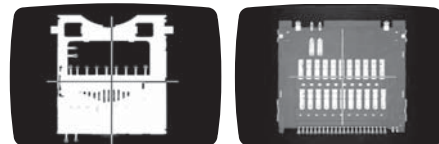


Back light recognition



General Vision

General vision function is used to support a wide variety of today's unusual vision centered components. After programming is complete, the data can be verified by picking and test centering a component.



► High speed vision placement

MNVC (Multi-Nozzle Vision Centering)

Vision centering by the multi-nozzle head nearly doubles the placement rate for smaller components, including CSPs, BGAs, and smaller QFPs (Option).

*MNVC is also available on the KE-2070. Not available on the KE-1070.

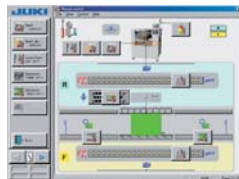


User-friendly design

► Ease of operation

Graphical user interface

Easy to use and easy to learn programming and operations make the KE series a great choice for new or experienced operators. Add the optional touch panel or rear side operation panel for even greater convenience.



Operation unit

Familiar Windows XP software is as easy to use and the PC on your desk. A new USB 2.0 port simplifies the transfer of production files and other data between machines.



► Easy maintenance

New head unit design

The head unit is designed specifically for easy maintenance. Vacuum filters have been moved for better access and require no adjustments or calibrations after replacement.

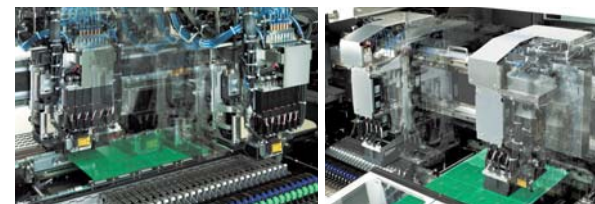


JUKI original technology for high-density placement

Laser centering technology

► High accuracy, high-speed mounting

High-speed, on-the-fly centering



A high resolution laser is mounted on the head to center components in all directions including angle. Centering is done on-the-fly, allowing high speed placement of components from small chips to SOPs.

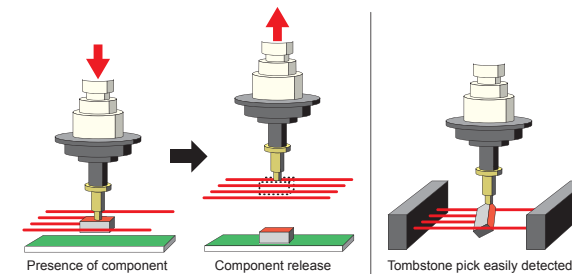
► Adaptable centering

Centering accommodates component variations

Laser centering measures the components on the side. It is not affected by variations of component color or width / length so, unlike vision centering, there is no need to edit component data for different component vendors.

► Low loss ratio

Component check function improves placement reliability

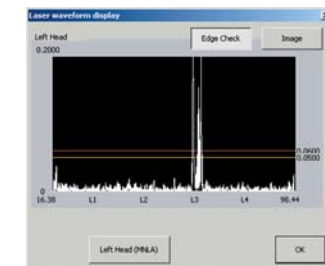


Presence of component is monitored until just before placement. Component release confirmed after placement. Tombstone pick easily detected.

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 confirmed after placement.

► High reliability

Centering errors prevented by self check

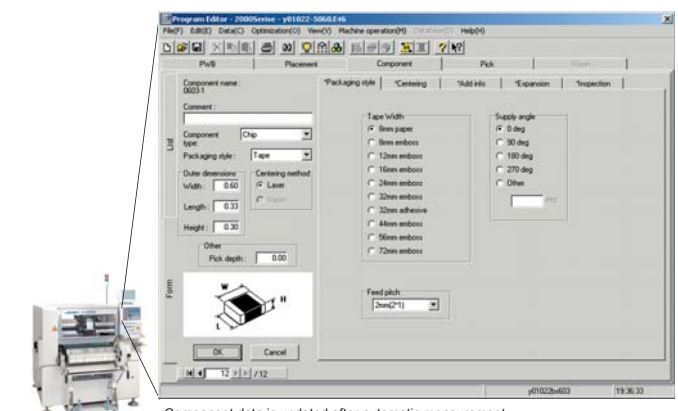
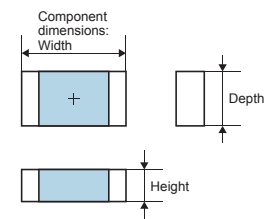


Laser contamination is checked prior to the production. If contamination is detected, an alarm is given to prevent centering errors.

► Simplified data entry

Ease-of-use improved by automatic component measurement

Component data can be completed entering just approximate dimensions, type and packaging information. The exact dimensions and lead count / pitch are measured by the machine and automatically entered into the component data.



Component data is updated after automatic measurement.

Modular concept introduced by JUKI in 1993

Our products continuously evolve to meet the needs of the ever-changing SMT industry.

Economical

+ Easy to use

+ Expandable



Flexible machine modules can be configured in a wide variety of lines to meet the exact production needs with minimal investment.

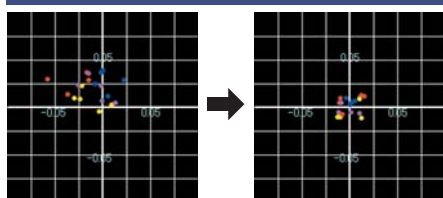
Simple software layout, graphical interface, and intelligent mechanical design make the machines easy to use and easy to maintain.

Machines can easily be added or removed from a line to suit changing production requirements. Re-balancing and optimization of production files takes just seconds. Compatibility of software and feeders makes it easy to add new machines to existing assembly lines.

Advanced features for increasingly sophisticated and diversified applications

► High quality

FCS (Flex Calibration System)



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)

► Fast and easy setup, Low defect ratio

Auto Teaching of Pick Position



Auto teaching of pick position reduces changeover time and mis-picks.

HMS (Height Measurement System)



The HMS is used to quickly and accurately measure the component pick height. A laser sensor measures the distance instantly without any physical contact.

► Flexible

Fiducial recognition



OCC lighting system supports wide variety of board materials including FPC (Flexible Printed Circuit board). Programmable brightness and directional lighting improves fiducial recognition.

Camera Bad Mark Detection



Bad mark detection is performed using the machine's standard downward looking camera (also used for fiducials and teaching). This system accurately detects a wide range of marks on various substrates, including flex circuits.

► Maximum throughput

Simultaneous Pick Priority Mode

Users can now select the best pick mode to suit their production requirements. For the maximum possible throughput, simultaneous pick priority mode will try to pick as many components as possible in a single pick sequence.

► High density placements

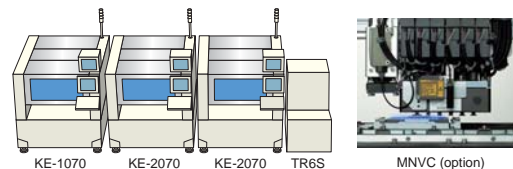
Pick Position Priority Mode

For high density component placement, pick position priority always picks components at the taught pick location.

Sample production line with FX and KE series

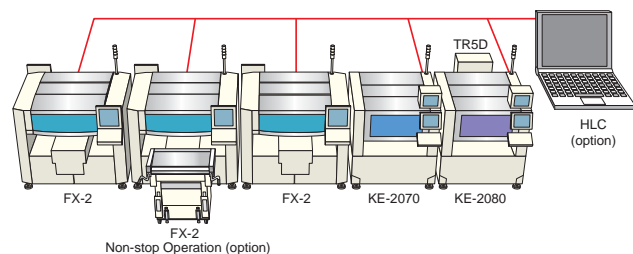
Compact line for small electronics

High density placement / High-speed, highly accurate placement of small components including fine pitch or odd-shaped devices. The KE-1070/2070 is ideal for applications with only smaller components. The MNVC option can be easily added to increase the flexibility of the KE-2070 even further.



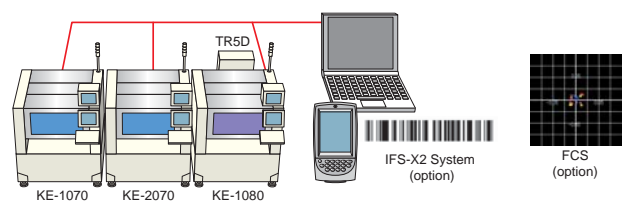
High speed, general use line

High throughput / Place virtually any SMT component. Full-function high speed line with the ability to place all components from small chip to large BGAs, QFPs and connectors. Non-stop Operation allows feeders to be changed on-the-fly without stopping the machines. Productivity is maximized using the HLC or IS software for line balancing and optimization.



Quality control line for automotive or medical applications

Setup verification / Traceability / Small lot, high changeover production. Designed for situations where verification and product traceability are required. FCS (Flex Calibration System) to perform periodic recalibrations or accuracy certification. Traceability to record lot number/manufacturing codes of components placed on all boards. Use IFS-X2 Intelligent Feeder Setup System to verify feeder setup prior to production and new reel replacement during production.



JUKI software supports expandability and productivity at the top level

Floor Productivity Improvement Support System

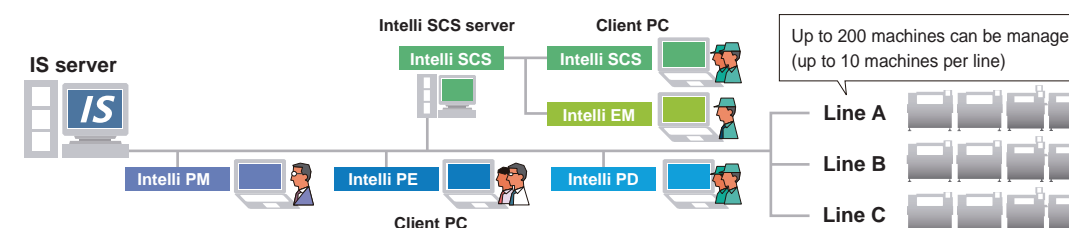
IS Intelligent Shopfloor Solutions

IS raises production preparation, scheduling, quality and monitoring to a new level by bringing together several related functions into one comprehensive software package. IS gives managers, supervisors, and engineers the tools they need to run the most efficient production possible, thus reducing cost and improving productivity. Various tools allow workers at different levels to perform the tasks they need within a single software package.

System overview

IS is comprised of five software functions within a single application. A client-server architecture connects the IS server to clients throughout the factory via Ethernet for factory wide control.

Consolidated management of information — Sharing information stored in the server. Prevention of defects caused by inaccurate communication.
 Security — User registration allows operation privileges to be specified for each user group.
 Versatile data format — Production files are saved in an open XML format for easy editing. Data can be transferred easily to other applications.

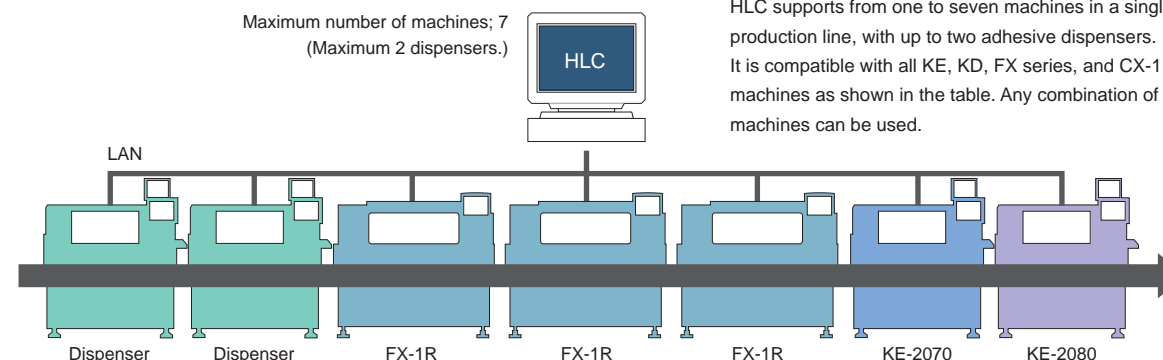


HLC (Host Line Computer)

HLC is the line control software that makes the modular concept work. On HLC a single production file can be created and edited and then optimized for the entire line in a single step. HLC will divide the production job among each machine in the line, considering each machine's capabilities as it does. The result will be a file optimized and balanced over the entire line. Other important features of HLC include job clustering to minimize changeover time, line monitoring, and job scheduling. HLC connects to the machines via Ethernet and can also be connected to the company network.

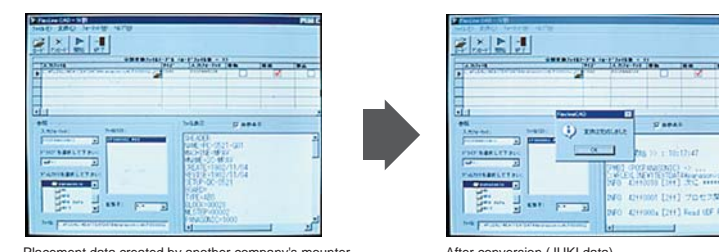
► Expandability

HLC supports from one to seven machines in a single production line, with up to two adhesive dispensers. It is compatible with all KE, KD, FX series, and CX-1 machines as shown in the table. Any combination of machines can be used.



FLEXLINE CAD

JUKI's flexline CAD is a data conversion application that reads a text file output by various CAD systems or other assembly machines and converts it to the format used by HLC, FX series, KE series machines, or CX-1. There are several supported CAD formats, but users may also define their own format using an interactive "wizard" and save that definition for later use.



Placement data created by another company's mounter

After conversion (JUKI data)

EPU

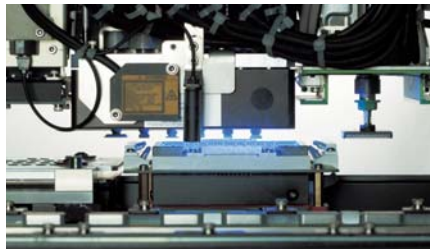
EPU is off-line programming software designed for a single machine. Using EPU software, the best feeder layout and optimized placement order can be achieved with the highest production efficiency. Like the FX series and the KE-2000 series, it has a component database to further decrease programming time.



Available options for a wide variety of needs

► Increased throughput

MNVC (Multi-Nozzle Vision Centering)



MNVC increases the number of heads capable of placing vision centered parts from one to seven on the KE-1080/2080. This can nearly double the placement rate depending on the component. Highly recommended for boards with a high number of CSPs or other small, fine pitch devices. MNVC is also available on the KE-2070.

► Reduce wasted components

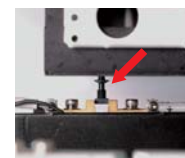
Coplanarity Sensor

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



Component Verification System (CVS)

Measures electrical resistance, capacitance or polarity to verify components have been loaded correctly on the machine.



Bad Mark Reader

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

► Fast setup and changeover

Feeder Position Indicator

LED's on the feeder bank indicates which feeder needs to be replaced or which feeder has an alarm, indicates location of feeders to be set during change over, and helps simplify feeder setup.



Feeder Trolley

Industry leading design for easy replacement of an entire bank of feeders in seconds. Single switch release / lock and no feeder reteaching required.



KE-1070/2070 and KE-1080/2080

Tape Cutter

Automatically cuts used tape and stores it in an easily removable trash bin, eliminating mess and decreasing operator workload.



Rear-side Operation Unit

Allows complete machine operation from the rear side of the machine. (includes monitor, keyboard, and mouse)

Mini Signal Light Tower

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

► Flexible

High-resolution Camera

Increases component handling range to include fine pitch CSPs, 0.3mm pitch QFPs and other small devices. 30% higher resolution than the standard camera.



Special-order Nozzles

A wide variety of special order nozzles are available for unusual components, including grippers.



► Ease of operation

Bilingual language support

Software for English / Japanese and English / Chinese is available.



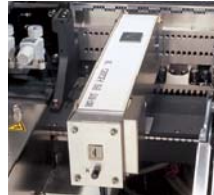
Touch Panel

12" touch sensitive color LCD with tilt function.

► Cost saving

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.



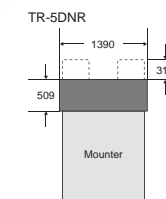
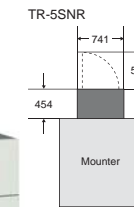
Production efficiency is improved by affluent product variation

Matrix Tray Changers and Servers

Matrix Tray Server (Rear Type)

TR-5SNR

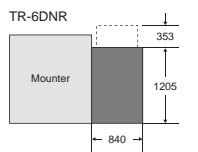
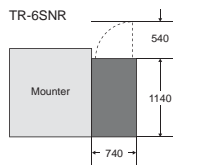
TR-5DNR



Matrix Tray Changer (Side Type)

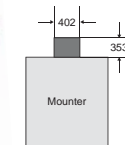
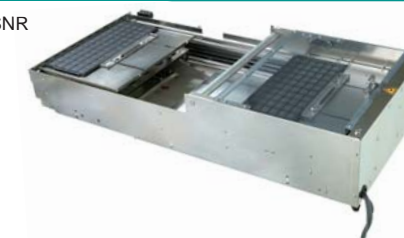
TR-6SNR

TR-6DNR



Dual Tray Server (Rear Type)

TR-1SNR

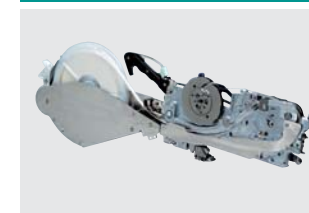


Matrix Tray Holder



Feeders

Tape Feeders



Bulk Feeders



Stack Stick Feeders



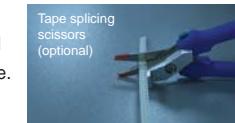
Stick Feeders



ATF (Splicing tape feeder)



The ATF splicing tape feeder features easy tape splicing for component replenishment during production. Like previous generations, the ATF is fully backwards compatible with all KE and FX series models. Splicing tape and tape extenders also available.



Feeder Calibration Jig with Monitor



*For details of feeders, matrix tray changers / servers, please refer to our catalogue of "Feeder series" and "TR-series".