<table>
<thead>
<tr>
<th>Specification</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model</strong></td>
<td>High-Speed Chip Shooter KE-3010AM/KE-3010AL/KE-3010XL High-Speed Flexible Mounter KE-3020VAM/KE-3020VAL/KE-3020VXL</td>
</tr>
<tr>
<td><strong>Board size (M size)</strong></td>
<td>0.1mm±0.15mm</td>
</tr>
<tr>
<td><strong>L size</strong></td>
<td>0.15mm±0.3mm</td>
</tr>
<tr>
<td><strong>Xl size</strong></td>
<td>0.15mm±0.6mm</td>
</tr>
<tr>
<td><strong>Accessibility to long FNW (L size)</strong></td>
<td>650x135mm</td>
</tr>
<tr>
<td><strong>Accessibility to long FNW (L size)</strong></td>
<td>900x340mm</td>
</tr>
<tr>
<td><strong>Component height</strong></td>
<td>6mm</td>
</tr>
<tr>
<td><strong>Component size</strong></td>
<td>6mm</td>
</tr>
<tr>
<td><strong>Viasm recognition</strong></td>
<td>3.000/1.000/1.000</td>
</tr>
<tr>
<td><strong>Reconnect accuracy</strong></td>
<td>±0.05mm</td>
</tr>
<tr>
<td><strong>Viasm recognition</strong></td>
<td>±0.05mm</td>
</tr>
<tr>
<td><strong>Feeder speed</strong></td>
<td>Max. 12000 case/20mm/sec</td>
</tr>
<tr>
<td><strong>Operating air pressure</strong></td>
<td>0.55±0.05MPa</td>
</tr>
<tr>
<td><strong>Machine dimensions (WxHxL)</strong></td>
<td>1,160x1,160x1,750mm</td>
</tr>
<tr>
<td><strong>Machine weight</strong></td>
<td>1,600kg</td>
</tr>
<tr>
<td><strong>Mass (approximately)</strong></td>
<td>0.5kg</td>
</tr>
</tbody>
</table>

**Options**

- Recognition system: BIT mark reader / High-resolution camera
- Operation system: High-speed operation
- Inspectivity: Standard inspection / Complete inspection / High-speed inspection
- Conveyor: Automatic board-injection / Board inserter / Board inserter (2L size) / Board inserter (Applicability to long FNW)

**Software**

- J-PLS / J-PLS

**Security software**

- Virus measurement software

**Leading the next generation All for your production**

Please refer to the product specifications for details.
High speed flexible mounter responding to various expectation - from ultra-small components to odd-shaped components.

For placement of ultra-small components

- High-Speed Chip Shooter

 KE-3010A

- 23,500CPH chip (Laser centering/Option)
- 18,500CPH chip (Laser centering / IPC9850)
- 9,000CPH IC (Vision centering/MNVC option)
- One multi-nozzle laser head (6 nozzles)
- From 0402 (01005) to 33.5mm square components
- Supported PWB size: M/L size

For placement of large / odd-shaped components

- High-Speed Flexible Mounter

 KE-3020VA

- 20,900CPH chip (Laser centering/Option)
- 17,100CPH chip (Laser centering / IPC9850)
- 9,470CPH IC (Vision centering/MNVC)
- One multi-nozzle laser head (6 nozzles) plus one IC head with CDS sensor (1 nozzle)
- From 0402 (01005) to 74mm square components or 50×150mm
- Vision centering system (featuring bottom, side, and back lighting, all ball recognition and split recognition)
- Supported PWB size: M/L size

KE-3020VA is PWB size XL will be KE-3020V

JUKI Basic Technology

1. JUKI Basic Technology

- The component check function improves the quality of component placement.
  - 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.
  - On-the-fly component detection
  - Component state check
  - Component dimension check
  - Component fall check
  - Release check

- Component detection
  - Laser detects presence of components
  - Laser checks if the component falls before placement
  - Laser checks if the component is properly released on the board after placement

- 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 by using servo motors.

-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.
2. High Productivity

High-speed, on-the-fly vision centering

Dual upward looking strobing cameras capture images in high speed for large, fine pitch, or odd-form components. 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. This function assists operators in the preparation of a new production. By simply following a checklist of setup items from “1. Automatic width adjustment” to “8. Production program check,” an operator can be sure they have performed the necessary steps and see which have not been completed.

Non-stop Operation

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

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.

Automatic correction of pick position

The position error information of a nozzle is transmitted to each electric feeder so that each electric feeder automatically adjusts feeding for more stable pick position and for better simultaneous picks.

Flexible vision teaching

Complicated programming of odd-shaped components is made easier by following step-by-step guidelines, reducing programming time significantly.

Auto Teaching of Pick Position

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

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.

Automation Nozzle Changer (ATC)

Automatically replace nozzles according to component dimensions.

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.

Non-stop Operation

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

High-resolution Camera

Enable high-accurate inspection for components like QFP with lead pitch 0.2 mm.

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— Option for mechanical feeder specification, standard for electrical feeder specification.

Tape Cutter

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

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3. High Flexibility

**Longer sized PWB in X axis**

Capable of placing a longer board up to 650mm×250mm (M size), 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 print can be recognized as BOC mark when there is no BOC mark on the PWB or the circuit. When the twice-fed long PWB is transported, the placement pad etc. on which the solder print is performed at the placement of components in the range where the BOC mark is not prepared can be used as BOC mark.

- **Component Quantity Control (option)**
  The lot of the product (PWB) where the components (LED components etc.) are placed in the TCI. When a PWB is loaded, it is checked whether components required to complete a production of the PWB remain in the leaders with components in different lots not being mixed in a PWB. If components are not enough, a warning is displayed before the placement starts.

**PoP placement**

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

**Placement force control per each nozzle**

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 each component.

**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.

**Total line productivity improvement support system**

- **IS-Lite (Intelligent Shopfloor Solutions)**
  - IS-Lite
    - The systems will control and optimize various operations and data within the production line, and contribute to the improvement of line productivity, product quality, and work efficiency.
  - **IFS-NX**
    - They can also achieve quality control by preventing improper component loading, traceability etc. as well as efficient production changeover to contribute to improvements in quality and work efficiency.

- **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 CXL. 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.

- **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.

- **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.

- **Special order Nozzles**
  A wide variety of special order nozzles are available for unusual components, including grippers.
4. High Quality

Prevention of defective PWBs and rapid analysis of the cause and corrective action - Placement Monitor

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.

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

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 components from being used
- Prevents incorrect component placement

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.

Coplanarity sensor - checks balls and leads

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.

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.

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)

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.

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.

IONIZER

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

Choice of feeder type (electrical/mechanical)

Please choose electrical feeder or mechanical feeder specification.

Various feeder lineup

TR series

Enriched product lineup of inspection machine and printer RP-1 and RV-1.
Combination with Solder Paste Printer RP-1 and PW8 Inspection Machine RV-1 will improve the productivity of whole production line.

Intelligent Storage Management System ISM series
Intelligent storage system will support efficient and safe management of SMT components.

option list

<table>
<thead>
<tr>
<th>KE-3010A</th>
<th>KE-3020VA</th>
<th>KE-3020VHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition system</td>
<td>MINV</td>
<td></td>
</tr>
<tr>
<td>Operation system</td>
<td>Set Mark Reader</td>
<td>High-Vision Camera</td>
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<tr>
<td>Inspection function</td>
<td>Reversible Operation Unit</td>
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<tr>
<td>Convey</td>
<td>LCD Display</td>
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<tr>
<td>Electrical protection</td>
<td>Ground Full Receptacle</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>LED Display</td>
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- standard
- optional