The Next Generation of the Award Winning KE Series

**High-Speed Chip Shooter**

**KE-3010**
- 18,500 CPH (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

**High-Speed Flexible Mounter**

**KE-3020V**
- 17,100 CPH (IPC9850)
- From 01005 (0402 metric) to 74mm square components or 50x150mm
- 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)

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.

**High precision and quality placement with Electronic feeders**
- **The use of electronic double tape feeders enables mounting of a maximum of 180 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.

  - **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

**High-speed feeding of tray components (Option)**
- The TR-7D high speed matrix server is equipped 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.

**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.

**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.
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.

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

- **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 BGA's, reducing the chance of a bad solder joint.

- **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.

- **Nonstop Operation**
  Non-stop operation (NGO) 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.

- **Bad Mark Reader**
  Detects “bad circuit” marks on matrix type boards and skips placement of parts on all defective circuits, preventing waste.

- **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.

Improved production efficiency and flexibility

**Feeder**
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
  - IC Feeders
  - SMT Feeders
  - Hybrid Feeders
  - ASSM Feeders
  - ASIC Feeders
  - ESV Feeders

- **Mechanical Feeders**
  - Tape Feeders
  - SMT Feeders
  - ASSM Feeders
  - ASIC Feeders
  - ESV Feeders

**Tray Feed Device**

- **Matrix Tray Server (Rear Type)**
- **Dual Tray Server**
- **Matrix Tray Holder**

Software

- **Supported by Juki NP** and **IFS-NX Verification System**
  - CAD, Gerber and ASCII or control data 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:
    - 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 functionality down to the referenced designator level

**IS Server**

- **Server**
  - IFS-NX
  - IFS-NX
  - IFS-NX

**Client PC**

- **Up to 200 machines can be managed**
- **Line A**
- **Line B**
- **Line C**
### Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>High-Speed Chip Shooter KE-3010M/KE-3010L/KE-3010XL</th>
<th>High-Speed Flexible Mounter KE-3020VM/KE-3020VL/KE-3020VXL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board size</td>
<td>M size (330×250mm)</td>
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<tr>
<td></td>
<td>L size (410×360mm)</td>
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<tr>
<td></td>
<td>L-Wide size (510×360mm)</td>
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<tr>
<td></td>
<td>XL size (610×560mm)</td>
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<tr>
<td></td>
<td>Long PWB Option (L size)</td>
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<td></td>
<td>Long PWB Option (L-Wide size)</td>
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<td></td>
<td>Long PWB Option (XL size)</td>
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<tr>
<td>Component height</td>
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<td></td>
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<td>25mm (XL size)</td>
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<td>Vision recognition</td>
<td>Standard camera</td>
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<td>High-resolution camera</td>
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<td>Placement speed</td>
<td>Chip (IPC9850)</td>
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<td>17,100cph</td>
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<td>IC#1</td>
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<td>MCV</td>
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<td>Placement accuracy</td>
<td>Laser recognition</td>
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<td>Vision recognition</td>
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<td>Max. 160 8mm tape feeders (using dual lane electronic)</td>
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<td>Power supply</td>
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<td>Apparent power</td>
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<td>Operating air pressure</td>
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<td>Air consumption</td>
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<td>Machine dimensions (W×D×H)</td>
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<td></td>
<td>L size</td>
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### 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 system | Automatic board width adjustment / Conveyor extension / Long PWB |
| Electrical protection | Ground-fault interrupter |
| Others | FCS calibration chip / Feeder position indicator / Offset placement after solder screen-printing |
| | Non-stop operation / Caster/Footbase / Connector bracket / Mini signal light tower / Ionizer |
| | Pin reference / Placement force control / Solder lighting / Residual PWB quantity control |
| Software | IS NPI+ / IFS-NX |
| Component handling and feeders | Matrix Tray Server TR-5 / Matrix Tray Changer TR-6 / High Speed Matrix Tray Server TR-7D / Matrix Tray Holder |
| | Dual Tray Server TR-1 / Tape feeder / Bulk feeder # | Stick feeder / Feeder trolley / IC collection belt / Trash box |
| | Tape cutter / Feeder stocker / Fluxer unit / Tape reel mounting base |

### Notes

- #1 When using MCVC.
- #2 KE-3010: When using both high-resolution camera and MCVC.
- #3 KE-3020: When using high-resolution camera (option).
- #4 KE-3020XL board size rated speed is 15,300cph.
- #5 Effective tip: The IC placement speed indicates an estimated value obtained when the machine places 36 QFP (110 pins or more) or 96SA components (256 balls or more) on a M size board. (CFK = number of components placed for one hour).

Please refer to the product specifications for details.