High-Speed Compact Modular Mounter

RX-6

JUKI’s latest Modular Mounter Combining High Productivity, Flexibility and Quality
JUKI’s already reliable technology has evolved to an all new level! The compact RX-6 offers high Productivity, Flexibility and Quality... in a compact footprint!

- Compact footprint: the width is just 1.25 m
- Equipped with standard Placement Monitor check function for 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.
1. High Quality

Quality

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

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

- Root cause analysis function – Optional
  - Rapid solution
    - Causes of errors are easily identified using images analysis to identify problems in the production process and reduce the time for corrective action.

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.

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.

- Checks for resistance, capacitance, and polarity before production starts.

- Prevents incorrect component placement.

2. High Productivity

Productivity

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

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

- Components placement speed up to 26,000 CPH (IPCO860)

Productivity

Vision recognition technology for high-speed component placement

- Simultaneous component pick by six nozzles
  - [Existing recognition] pneumatic components recognition, nozzle recognition, component recognition, etc.

- High-speed non-stop vision recognition technology
  - Dual cameras enable high-speed placement of large and odd-form components.

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

- 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, resulting in ultra-fast, ultra-accurate changeovers.

Productivity

High-speed tray feeding

- The TR70 tray server holds up to 40 different components. The design of the TR70 enables super-fast changeover from one tray to the next by staging the next tray to be used close to the pick area.

- High-Speed Matrix Tray Server

- Component supply by High-Speed Matrix Tray Sensor TRD
3. High Flexibility

Wide component range

The 6 nozzle head supports components from 0402 (1006) up to 33.5mm square and height up to 33mm. The 3 nozzle head supports an even wider variety: from 0402 (1006) chips up to 100mm square or 30mm x 160mm long connectors with height up to 35mm. These heads are designed to handle a wide variety of components from ultra miniature resistors to large ICs or connectors.

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.

3D or Package-on-Package (PoP) placement is possible using the optional fluxer units. Support for both flux or solder paste is available.

Easy load control

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

Large PWB support

Board size up to 906mm x 906mm is standard, LED lights or LED backlighting are easily handled with no special hardware.

4. JUKI Basic Technology

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

The machine can recognize components of various shapes: from ultra miniature components such as 0402 (1006) 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.

On-the-fly component check: Laser detects presence of components.

Component state check: Component state check and the ratio of component data to component picked for confirmation of pick orientation.

Component dimension check: Component dimension check of the part picked to the component data to ensure the right part is picked.

New laser sensor

New generation laser sensor, LNC120

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.

Reliable, high-precision recognition

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.

Reliable 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.
### Specification

<table>
<thead>
<tr>
<th>Item</th>
<th>Model</th>
<th>RX-6 (6×3 nozzle head)</th>
<th>RX-6 (6×6 nozzle head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board size</td>
<td>50×50 ~ 910×590 / 905×980mm (2 times clamping)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component height</td>
<td>0/12/20/25/33mm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser recognition</td>
<td>0402(01005) ~ 33.5mm</td>
<td></td>
<td>0402(01005) ~ 33.5mm</td>
</tr>
<tr>
<td>Vision recognition</td>
<td>3 ~ 33.5mm (MNVC)</td>
<td></td>
<td>3 ~ 100mm / 50×180mm</td>
</tr>
<tr>
<td>Standard camera</td>
<td>High-resolution camera</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement speed</td>
<td>Chip (IPC9350)</td>
<td>28,000CPH</td>
<td>23,000CPH</td>
</tr>
<tr>
<td>Placement accuracy</td>
<td>14,000CPH (MNVC)</td>
<td>±0.04mm (Cpk≥1)</td>
<td>11,000CPH (MNVC)</td>
</tr>
<tr>
<td>Component loading quantity</td>
<td>Max.150 in case of 8mm tape (on an electric double tape loader)</td>
<td></td>
<td></td>
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<tr>
<td>Power supply</td>
<td>200~415VAC, 3-phase</td>
<td></td>
<td></td>
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<tr>
<td>Apparent power</td>
<td>3.5kVA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating air pressure</td>
<td>0.5 ± 0.05MPa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air consumption</td>
<td>100L/min</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Machine dimensions (W x D x H)</td>
<td>1,250 x 2,095 x 1,440mm</td>
<td></td>
<td>1,800kg</td>
</tr>
</tbody>
</table>

*1 Placement speed of IC components is estimated value when placing 36 pieces of component (dimension 10mm: square or smaller) on M size PCB overall, picking from both front and rear side with all nozzles simultaneously.

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

### Options

<table>
<thead>
<tr>
<th>Recognition System</th>
<th>High-resolution camera</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation System</td>
<td>Rear-side operation unit</td>
</tr>
<tr>
<td>Inspection Function</td>
<td>Capacitance sensor / Component Verification System (CVS) / SOT detection check function</td>
</tr>
<tr>
<td>Conveyor</td>
<td>Conveyor extention</td>
</tr>
<tr>
<td>Electrical Protection</td>
<td>Ground-fault interrupter</td>
</tr>
<tr>
<td>Force Control</td>
<td>Force control nozzle</td>
</tr>
<tr>
<td>Others</td>
<td>FCS calibration jig / Mini signal light tower / Super foot / Offset placement after solder screen-printing / Solder lighting / Placement monitor (data storage &amp; analysis function) / Fluxer unit (Liner Type, Rotary Type) / Caster</td>
</tr>
<tr>
<td>Software</td>
<td>IS / FIS-NX / EPU</td>
</tr>
<tr>
<td>Component handling and feeders</td>
<td>Feeder Trolley / Electric tape feeder / Electric stick feeder / High Speed Matrix Tray Server / TR/DN / Trey holder / IC collection belt / Trash box / Tape reel mounting base / Feeder trolley / Feeder stocker / Splicing jig / Feeder Calibration jig with Monitor / Trey holder / Electric Trolley Power Station</td>
</tr>
</tbody>
</table>

* Component handling and feeders are Electronic type only.

※ Please refer to the product specifications for details.

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**Juki Specifications and appearance may be changed without notice.**

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Aug 2013/Rev.00