High-Speed Compact Modular Mounter

Brand new Modular Mouner RX-6 debut
- Combine High Productivity, High Flexibility, High Quality

RX-6

Component handling and feeders are Electronic type only.

Options

- Recognition system: High-resolution camera
- Operation system: Rear-side operation unit
- Inspection function: Coplanarity sensor / Component Verification System (CVS) / SOT detection check function
- Conveyer: Conveyor extension
- Electrical protection: Ground-fault interrupter
- Force Control: Force control nozzle
- Others: FCS calibration jig / Mini signal light tower / Super foot/ Offset placement after solder screen-printing

RX-6

<table>
<thead>
<tr>
<th>Board size</th>
<th>RX-6 (8×6 nozzle head)</th>
<th>RX-6 (8×3 nozzle head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width</td>
<td>580×520</td>
<td>470×460</td>
</tr>
<tr>
<td>Height</td>
<td>610×590 / 968×590 / 1,980×333 (Max. clamping)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Component size</th>
<th>RX-6 (8×6 nozzle head)</th>
<th>RX-6 (8×3 nozzle head)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height</td>
<td>61/12/20/25/33mm</td>
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<tr>
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<th>RX-6 (8×3 nozzle head)</th>
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<tr>
<td>Recognition</td>
<td>1005 - 33.5mm (MNVC)</td>
<td>1005 - 33.5mm (MNVC)</td>
</tr>
<tr>
<td>Placement speed</td>
<td>28,000CPH</td>
<td>23,000CPH</td>
</tr>
<tr>
<td>Placement accuracy</td>
<td>±0.044mm(Cpk≥1)</td>
<td>±0.044mm(Cpk≥1)</td>
</tr>
<tr>
<td>Power supply</td>
<td>200 - 415VAC, 3 phase</td>
<td>200 - 415VAC, 3 phase</td>
</tr>
<tr>
<td>Apparent power</td>
<td>3.5kVA</td>
<td>3.5kVA</td>
</tr>
<tr>
<td>Air consumption</td>
<td>0.5 / 0.25MPa</td>
<td>0.5 / 0.25MPa</td>
</tr>
<tr>
<td>Machine dimensions (W x D x H)</td>
<td>1,250 x 2,095 x 1,440mm</td>
<td>1,250 x 2,095 x 1,440mm</td>
</tr>
<tr>
<td>Mass(approximately)</td>
<td>1,800g</td>
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</tr>
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</table>

Please refer to the product specifications for details.

@1 Placement speed of IC component is estimated value when placing 36 pieces QFP component (dimension 10mm square or smaller) on M size PWB 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.

Option

- Recognition system: High-resolution camera
- Operation system: Rear-side operation unit
- Inspection function: Coplanarity sensor / Component Verification System (CVS) / SOT detection check function
- Conveyer: Conveyor extension
- Electrical protection: Ground-fault interrupter
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- Others: FCS calibration jig / Mini signal light tower / Super foot/ Offset placement after solder screen-printing
- Software: IS / IFS-NX / EPU

Component handling and feeders

- Feeder Trolley / Electric tape feeder / Electric stick feeder / High Speed Matrix Tray Server TR/ODN
- Tray Holder / IC collection belt / Trash box / Tape reel mounting base / Feeder trolley
- Feeder stocker / Splicing jig / Feeder Calibration Jig with Monitor / Tray holder / Electric Trolley Power Station

Please refer to the product specifications for details.

@ Component handling and feeders are Electronic type only.

## Specifications

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<th>Model</th>
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<tr>
<td>Chip</td>
<td></td>
<td>42,000CPH</td>
<td>34,000CPH</td>
</tr>
<tr>
<td>IC</td>
<td></td>
<td>14,000CPH (MNVC)</td>
<td>11,000CPH (MINVC)</td>
</tr>
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JUKI’s reliable technology has evolved to the new level. The RX-6, which is compact and offers high Productivity, Flexibility and Quality, is available now.

- Compact footprint: the width is just 1.25 m
- Equipped with standard Placement Monitor check function. 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 upside down:**
  - If a component is supplied upside down, an error is displayed and the machine is stopped automatically.

- **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 (option):**
  - Root cause failure analysis uses image analysis to quickly identify problems in the production process and reduce the time for corrective action.

- **Rapid solution**
  - Analysis including the following items: date/time, cause of an error, nozzle, feeder number, head number and barcode (option)

**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.

- **A printing misalignment occurs**
  - [Image showing misalignment]

**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.**
- **Electrodes (A) used to check polarity or measure components**
  - [Image showing electrodes]

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 wide

Each machine is equipped with two heads, each with its own laser sensor. Components are centered in-flight between the pick and placement locations. Direct travel between the pick and placement position enables high speed placement with great accuracy.

- **High-speed component placement speed:**
  - 42,000 CPH (optimum)

- **1.25m wide small-foot design**
  - Two heads and two beams per machine
  - Direct travel to the placement position

**Vision recognition technology for high-speed component placement**

Dual cameras for high speed

- **Simultaneous component pick by six nozzles**
  - Double cameras enables high speed placement of large and odd-form components

- **High-speed non-stop vision recognition technology**
  - Dual centering technology. Each head includes a lasering centering module. In addition, dual upward strobing 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**

**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.

- **160 component inputs**
  - [Image showing component inputs]

**High-speed tray feeding**

- **The TR7D tray server holds up to 40 different components. The design of the TR7 enables super fast change from one tray to the next by staging the next tray to be used close to the pick area.**

- **Stacker Unit**
  - [Image showing stacker unit]

- **Electrodes (A) used to check polarity or measure components**
  - [Image showing electrodes]
3. High Flexibility

**Flexibility**

**Wide component range**

The 6 nozzle head supports components from 0402 (01005) up to 33.5mm square and height up to 33 mm. The 3 nozzle head supports an even wider variety: from 0402 (01005) chips up to 100mm square or 50 mm × 180 mm long connectors with height up to 33 mm. These heads are designed to handle a wide variety of components from ultra miniature resistors to large ICs or connectors.

**Easy data creation**

Component data can be created easily when you enter the following: outer dimensions, component type and packing style. The dimensions, number of leads and pitch can be auto-measured to reduce programming time and prevent errors. General-purpose vision teaching greatly simplifies creation of data for odd-form components.

**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.

**Flexibility**

**PoP (Package on Package) support**

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

**Flexibility**

**Easy load control**

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

**Flexibility**

**Large PWB support**

Board size up to 905 mm × 590 mm is standard. LED lights or LED back lights are easily handled with no special hardware.

4. JUKI Basic Technology

**Basic Technology**

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

The machine can recognize components of various shapes: from an ultra miniature components such as 0402 (01005) 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.

**Recognize algorithm**

Laser serves the following basic tasks: component recognition, object detection, centering, and Angle Width.

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.

**Basic Technology**

**New laser sensor**

New generation laser sensor, LNC120

**Independent Z and θ-axes control**

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.

**Basic Technology**

**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 pitch, height, and more accurately and faster than other methods.

**Height measurement function**

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.