

Rice Cooker Assembly Line

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This is a highly efficient, human-machine collaborative assembly line meticulously engineered for the mass production of smart electric rice cookers. Addressing the substantial weight of components such as the metal inner pot and heating plate, this production system utilizes a high-strength **steel dual-speed chain** (Welt conveyor). This robust design ensures stable transportation of heavy sub-assemblies while maintaining high wear resistance

and load-bearing capacity for round-the-clock operations.

I. Conveyor System & Layout Configuration

The structural backbone of the line is a heavy-duty steel welt chain, providing superior rigidity compared to aluminum alternatives. The layout adopts a classic “straight-line” flow, sheltered overhead by semi-transparent PVC anti-static soft curtains to isolate dust while allowing clear managerial oversight. Ample workspace is allocated between stations, complemented by independent ergonomic work tables. This design perfectly accommodates the assembly sequence, particularly the placement of the inner pot and the securing of the lid hinge, which require larger ranges of motion.

II. Core Assembly Process Flow

The workflow is optimized for the complex thermal and mechanical assembly of rice cookers:

1. **Heating Plate & Thermostat Mounting:** Precisely press the heavy cast aluminum heating plate and magnetic temperature limiter into the bottom shell, then secure with torque-controlled electric screwdrivers.
2. **Inner Pot Gasket Installation:** Snap silicone rubber sealing rings onto the edges of the aluminum inner pot to ensure leak-proof cooking performance.
3. **PCB & Wiring Harness:** Connect the main control PCB, power supply board, and keypad panel, establishing the initial electrical circuit.
4. **Body & Lid Integration:** Place the assembled inner pot into the housing, secure the lid (equipped with a steam valve), and lock the hinge mechanism.
5. **Leak Test & Power-On Check:** Conduct a simple water-fill test to check for leaks and verify that the heating indicator lights function correctly.

III. Quality Control & Testing Architecture

The end of the line integrates automated test interfaces linked to the central PLC. If the system detects open circuits, thermostat malfunctions, or grounding resistance failures, the faulty unit is automatically diverted to a dedicated rework lane. All finished products must undergo a rigorous “marquee” aging test inside the burn-in chamber, simulating prolonged high-temperature cooking to verify the thermostat accurately cuts off power after disengaging from the magnet.

IV. Technical Specifications

- **Target Products:** 3L – 5L Smart Electric Rice Cookers / Multi-functional Pressure Cookers
- **Line Speed:** Variable Frequency Drive (VFD), 4–8 meters/minute
- **Conveyor Type:** Steel dual-speed chain with pallet lateral transfer capability
- **Pneumatics:** 0.5–0.7 MPa (For pneumatic pressing equipment and automatic screw-driving systems)
- **Load Capacity:** ≥ 30 kg per pallet/work carrier

V. Design Advantages

By leveraging the high rigidity of the steel well chain, this **rice cooker assembly line** effectively eliminates vibration and wear during the transport of heavy components. Furthermore, the spacious aisle design on both sides of the line fully considers the need for employee movement and material turnover, reflecting a dual focus on production efficiency and ergonomic workplace design.