Li-ion Cylindrical Battery Fabrication & Equipment

**Step 1 Electrode Sheet Preparation**

- **Furnace**: sinter raw active material (Cathode & Anode)
- **Milling Machine**: grind & normalize the sintered material
- **Mixer**: mix active, conductive, and binder material into slurry under vacuum
- **Coater**: apply layer(s) of slurry onto current collector and dry it with an attached heater
- **Rolling Press (calendar)**: compress the electrode to a desired thickness/density

**Step 2 Cell Assembly**

**Winding Method**

- **Slitting Machine**: slit/cut electrode sheet to strips of desired size
- **Ultrasonic Welding Machine**: joining of multi-layer electrodes, and/or tabs to collectors
- **Winding Machine**: form layers of Anode, Separator, and Cathode into a cell core
- **Short-circuit Detector**: test for integrity of the cell
- **Vacuum Oven**: remove any moisture within the cell

**Step 3 Case Sealing**

- **Spot Welding Machine**: allow contact to be made from cell to bottom of case (grounding)
- **Grooving machine**: create indent on the neck of case to allow for proper seal (after inserting the cell core)
- **Welding Machine**: attach cell to cap (positive)
- **Electrolyte Filling**: inject the case with electrolyte under suitable environment within glove box
- **Sealing Machine (Crimper)**: align cap with the open end of case and seal case inside glove box under suitable environment
- **Recommend**: wrap the newly finished battery with heat-shrinkable PVC for isolation of positive and negative terminals
- **Battery Analyzer**: charge/discharge the assembled battery for cell activation

**Step 4 Battery Testing**

**Battery Analyzer** to test the battery’s performance and **Resistance Tester** to measure battery’s internal resistance

Please note: “cell” is the battery core composed of electrodes and separator.
Cylindrical Cell Research Equipment

MTI is a leading manufacturer of affordable, compact, and durable battery research equipment. Customers are welcome to visit our lab in Northern California for equipment demonstration and training. Our expert engineering team will assist and provide customers with the necessary guidance in selecting the most cost effective technology solution for all research needs.

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