

## Battery Cell Test/Sort System



### Challenge

An electric vehicle company needed a pilot production tool to pick and place lithium-ion cells from a shipping carton for testing, and place the good cells into a battery module while safely separating the bad cells.

### Solution

The system loads lithium-ion cells from the cell manufacturer's shipping carton directly into an EV battery module, where the cartons are manually or robotically loaded into an input module. Machine vision verifies proper placement before a pick head equipped with a mechanically actuated magnetic gripper picks a full row of 15 cells from the carton, horizontally rotates them, and places them on a horizontal ramp.



The ramp tilts, causing the cells to roll into a cell test station, where the system scans the bar codes of 10 cells and tests voltage and resistance against the manufacturer's test data with Kelvin probes and precision test instrumentation. Good cells are transported to the output module, where a second pick head places one row at a time into the battery module. Bad cells are diverted to a reject buffer.

### Result

The high volume production system provided a reliable supply of parts for the pilot line, achieving the required takt time of **one 96-cell module every 2 minutes** while accommodating variations in the cell manufacturers' shipping cartons. Using a mechanically actuated magnetic gripper in the pick head that is tolerant to cell misalignment ensured a safe picking mechanism method that would not drop cells in the event of a power outage.

### About DWFritz Automation

Established in 1973, DWFritz Automation provides world-class build-to-print manufacturing capabilities to clients, in addition to designing, building, and supporting engineered-to-order automation systems and high-speed, non-contact metrology products.

