DWFRITZ
PRECISION AUTOMATION

Solution Sheet

Cell Position Mapping System

Challenge

An electric vehicle manufacturer needed a precision metrology system to locate the bonding position on each lithium-ion battery cell arrayed within an electric vehicle battery module. Tighter tolerances required repeatability within 10 microns and higher production volume demanded a cycle time of 61 seconds per module.

Solution

Using a combination of digital cameras, custom strobe lighting, and a laser profilometer, each battery cell's center position and height is recorded. The bridge-mounted sensor head indexes the cell following each reciprocating pass of the battery module fixtured on the production line. Moving the battery module at a constant speed of 400mm per second allowed overlapping image capture, meeting the client's cycle time requirement. The captured data is subsequently fed into downstream equipment, which precisely places inter-cell electrical connections.

Result

The precision position mapping solution performs 100% inspection of all battery module cells passing through the production line. Achieving **X-Y measurements to +/-20 microns** and a **height measurement repeatability of /-5 microns**, the system ensures precise electrical bonding and minimizes rework due to failed electrical bonding across cells.

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.

800.763.4161 | www.dwfritz.com | info@dwfritz.com