

EV BATTERY CELL FINISHING

Reduce scrap rates and optimize battery performance by separating blemishes from flaws

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After electric vehicle (EV) battery cells are filled with liquid electrolyte, they undergo various aging and degassing processes called cell finishing. Then, an automation solution places the finished cell into an EV battery module.

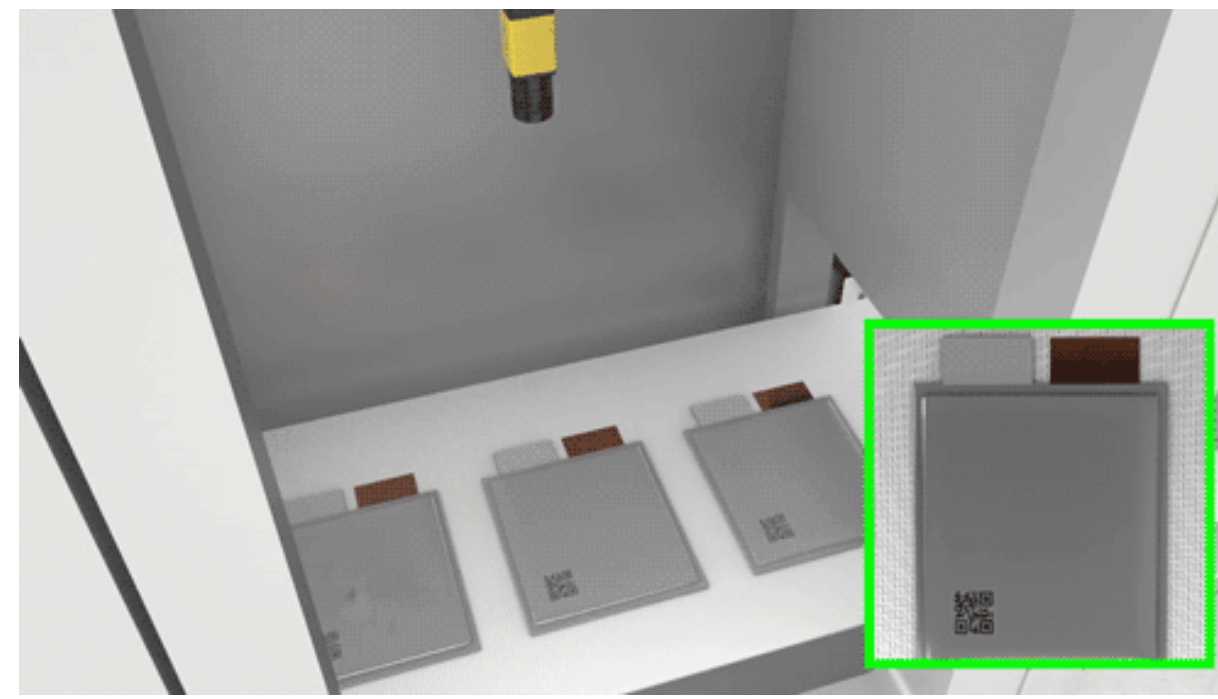
Cells cannot be removed once in a module, and battery cell finishing is the only opportunity to inspect prismatic, pouch, or cylindrical battery cells. Often called "end-of-line" (EoL) battery cell inspections, EV battery manufacturers use machine vision systems to identify scratches, bubbles, and other defects on the cell's surface.

Damage to the cell exterior can compromise overall safety, degrade performance, and shorten battery life. As battery manufacturers scale production lines and operations, increasing defect detection speed while maintaining robust inspections will become a strategic priority.

End of Line (EoL) Cell Inspection

Many cell surfaces are reflective, and specific geometries, such as cylindrical and pouch EV batteries, present unique inspection challenges like curved surfaces or complex textures. Differentiating between acceptable cell surfaces with cosmetic blemishes and functional flaws reduces scrap rates and optimizes battery performance.

VisionPro Deep Learning is highly customizable software that uses artificial intelligence (AI) to analyze thousands of annotated images, detecting defects in challenging environments such as cylindrical and pouch battery cell surfaces. EtherInspect is vision software powered by VisionPro that enables faster deployments using built-in templates and tools. When paired with modular, 2D hardware like the In-Sight D900, these solutions allow users to address EoL EV battery inspections quickly. When robust defect detection is more important than speed, 3D solutions such as the In-Sight 3D-L4000 offer more accurate, precise measurements and surface inspections.



Cognex vision systems use AI-based vision analysis software and advanced hardware to detect and classify defects on curved, reflective surfaces.

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Advanced, high-speed defect detection

The Trevista CI Dome illuminates components from all angles, revealing subtle defects and topographical information. The solution reduces inspection times using vision software to detect and classify flaws during high-speed operations.

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