Lithium-Ion Battery Industry Requirements

Key stakeholders in LIB industry require detailed product Cell/Module/Pack visibility in different stages of Product Life Cycle:

- Electrode/Cell/Module Development – Prototype analytics, verification of design changes, before/after test comparison, Assembly Quality Control
- Production Quality – Statistical product quality control in manufacturing process, verification of design and product changes
- Testing of used and/or damaged batteries for failure analysis

Need for Lithium-Ion Battery Visibility

Demand for Lithium-Ion Batteries is steadily growing and with it the demands on even faster development cycles combined with product safety and quality. Highly flexible and accurate testing and inspection of prototype batteries, productions and full scale production of batteries with industrial X-Ray CT solutions is required.

CT FOR LITHIUM-ION BATTERY INSPECTION IN LABORATORY & SHOPFLOOR

phoenix|x-ray CT Solutions detect main failure cases/manufacturing defects for Cells & Modules:

- Electrode structure
- Homogeneity of active electrode material
- Electrode geometry "overhang"
- Foreign body material on electrodes
  - Foreign material from mixer
  - Electrode material from assembly
  - Dust and abrasion other materials
- Gas bubbles
- Welding defects and fragments
- Burr formation
- Dimensional accuracy of housings
- Electrolyte level measurement
- Resin filling status
phoenix|x-ray CT off the shelf solutions

On demand Inspection Services
- CT Inspection Services pay-per-scan in major Centers in Asia, Europe and North America

Specialized Lithium-Ion Battery Laboratory Testing equipment
- High Accurate micro- and nanoCT for Electrode & Cell Testing & Analytics – nanotom, v|tome|x s, v|tome|x m
- Battery Module Analytics – v|tome|x m, v|tome|x L300 & 450, v|tome|x C450

Production Quality Solutions
- At-Line Production CT Solutions with Automated Defect Detection Software for Quality Testing
- In-Line Production CT Solutions customized for Lithium-Ion Manufacturers needs

Featured Products & Accuracy
- Battery Electrode & Cell Lab Equipment feature resolution range: 1-50 µm Voxel
- Module Testing feature resolution range: 50-150 µm Voxel

phoenix CT for Lithium-Ion Battery product advantages
- Non-destructive and 3D analysis: faster and more accurate results compared to conventional destructive laboratory methods reaction times
- Allows to visualize and analyze structure and geometry in 3D with one scan
- Adaptable solutions for existing and new battery and manufacturing technologies
- Adaptable solutions from OEM to different battery cell & module sizes in lab and on production floor – even in same production line

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