

EV batteries characterization

Driving innovation in non-contact
3D surface metrology for EV batteries

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INTRODUCTION

- Exploring battery types for EVs
- Quality control in batteries production
- The importance of areal measurements
- Role of optical metrology in battery repair

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HOW CAN WE HELP?

- Roughness through battery layers
- SiP flatness
- Heat sink flatness
- Battery plate maximum height
- Barcode engraving assessment
- Battery separator defect inspection
- Coplanarity of BGA

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CONCLUSIONS

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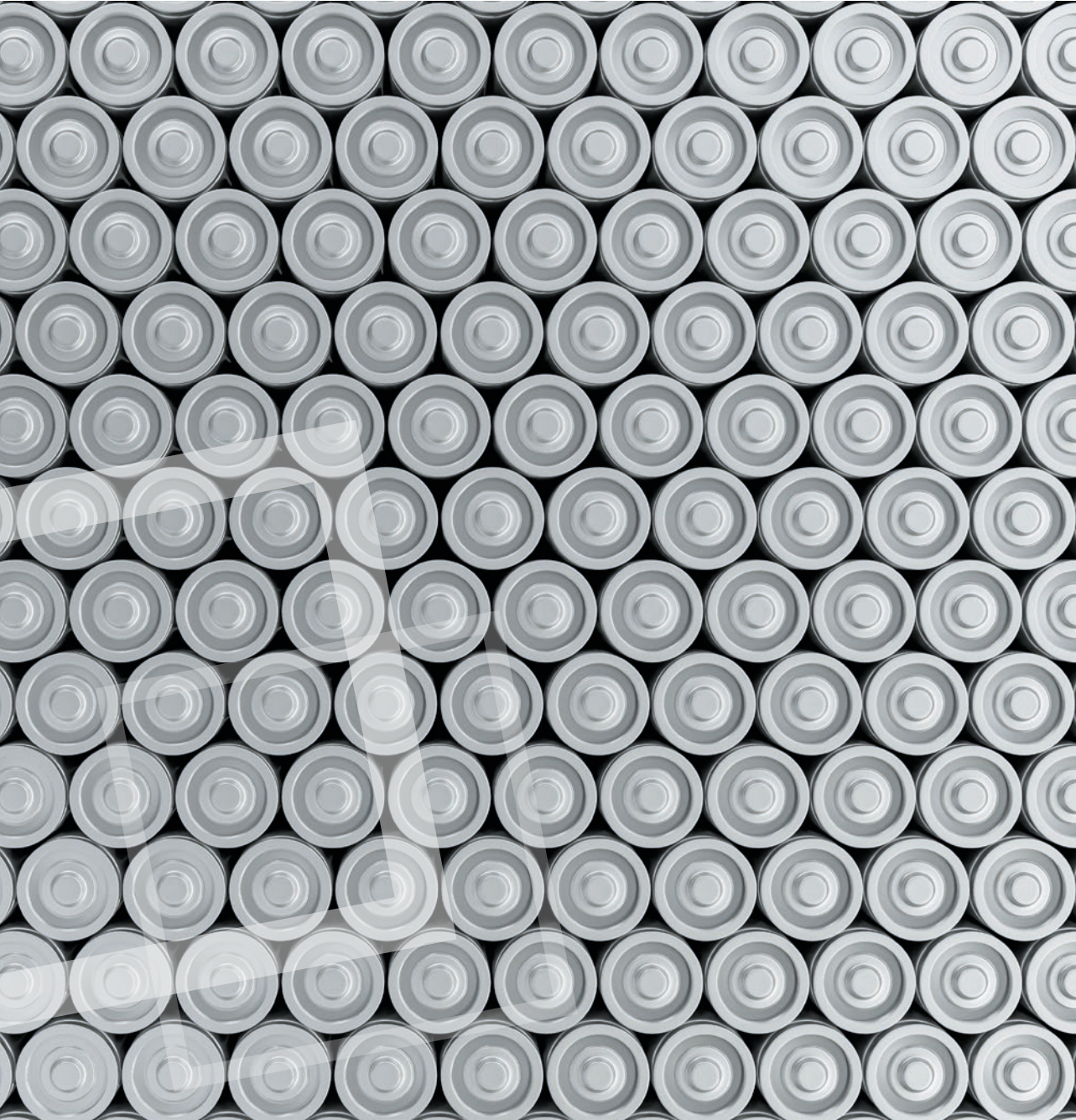
The importance of areal measurements

Non-contact 3D optical metrology techniques are ideal for measuring these surface properties accurately and efficiently. These techniques use light to **capture high-resolution images of surfaces without touching or damaging them**. They provide fast, reliable surface texture, flatness, and critical dimensions data.

When discussing roughness measurements, it is important to mention the distinction between profile and area analysis.

Measuring roughness in an area offers a more complete understanding of surface texture than measuring roughness in a profile.

While a profile only measures height variations along a single line, **roughness in an area** considers height variations across the entire surface. This **offers a more comprehensive picture of the surface texture**, revealing important information about its topography, features, and distribution. Calculating roughness in an area enables manufacturers to optimize manufacturing processes, improve product performance, ensure quality control, and achieve greater customer satisfaction.



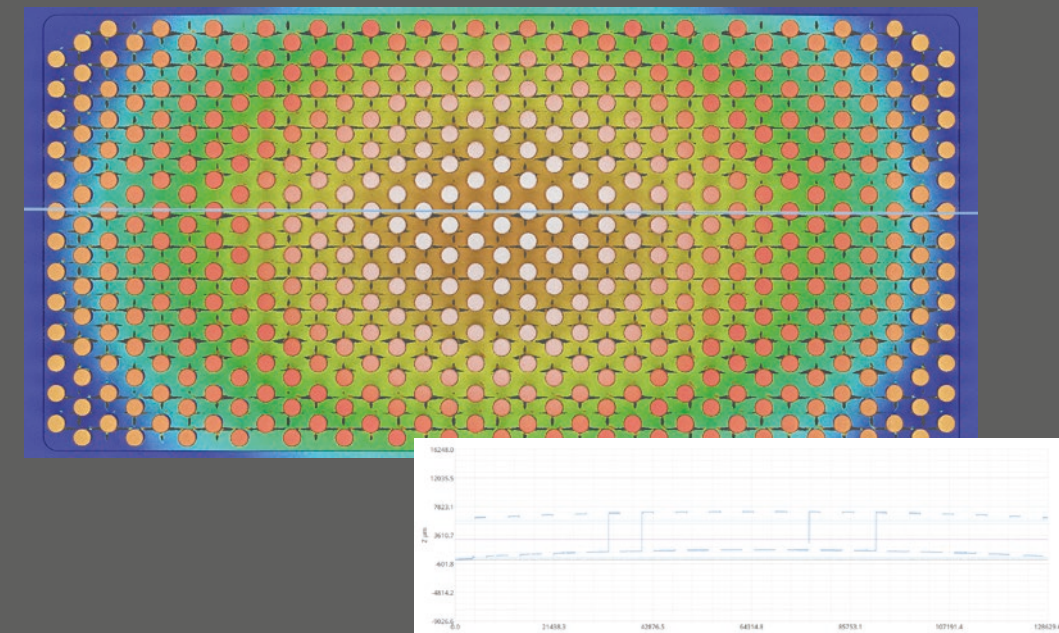
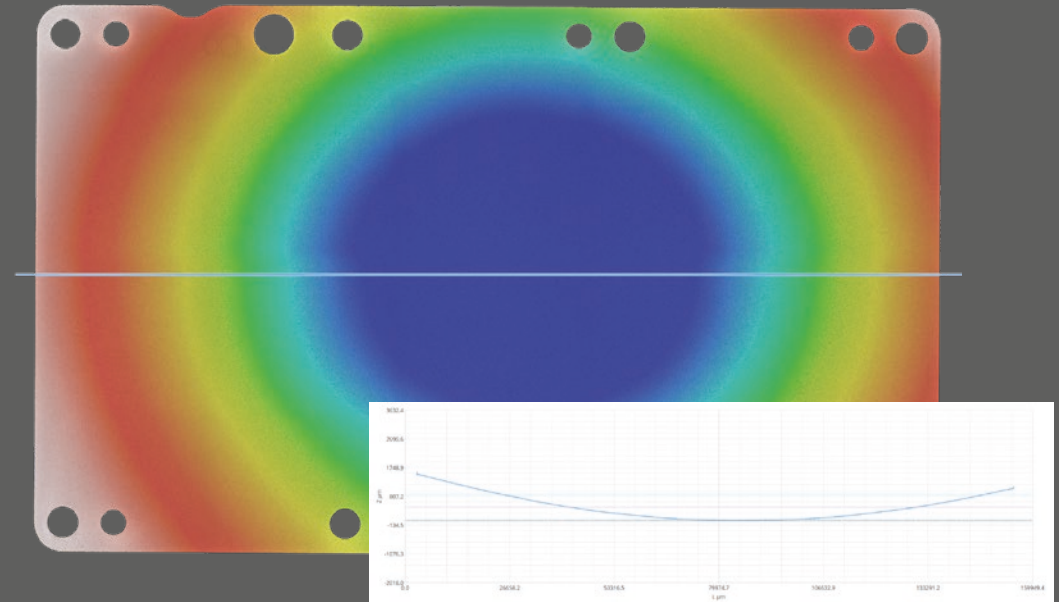
HOW CAN WE HELP?

One of the key aspects of battery quality control is measuring and characterizing the surface properties of battery components. Surface properties such as roughness, flatness, thickness, and morphology can affect battery performance and factors such as adhesion, conductivity, and capacity retention.

HOW CAN WE HELP?

Heat sink flatness

The flatness of heat sink is a critical factor in the performance of a battery. As a passive cooling device that dissipates the heat generated by the battery modules, the warpage of the heat sink can significantly impact battery efficiency. To ensure proper assembly between the battery module and the heat sink, we utilize Fringe Projection technology, enabling fast and accurate assessment of heat sink flatness.



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