

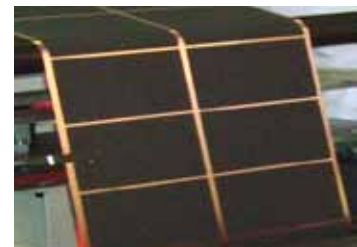
In-line Inspection for Battery Foil Materials Quality and Process Control for Higher Yields

The Dr. Schenk product range comprises comprehensive solutions for automated quality assurance and process control for web manufacturers and converters. Dr. Schenk offers a variety of reliable in-line inspection solutions that detect defects and irregularities in and on battery foil material like anode, cathode, battery separation foil and aluminum packaging film.

Battery Foil Applications

Coating on Positive and Negative Electrode

The optical quality control of electrode manufacturing addresses both, the detection and identification of particles, scratches and other defects as well as the accuracy of the coating and its position on both sides of the metal foil.



Battery Separation Foil

The most critical part in terms of battery safety, the battery separation foil, is manufactured based on a large variety of materials like PE, PP, PET, paper, and often is coated with heat resistant materials. Pinholes and particles are the most severe defects to be detected with automated inspection systems.

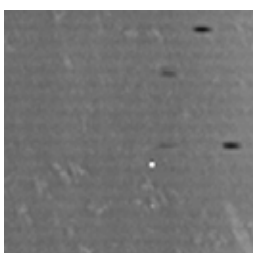


Benefits of Automatic Optical Inspection

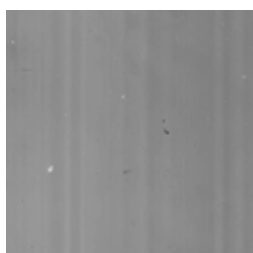
The innovative optical inspection solutions EasyInspect and EasyMeasure from Dr. Schenk allow a comprehensive quality control (ISO 9001) to match the required high product liability. At the same time the systems help manufacturers to minimize material waste during production and reduce the life-cycle costs caused by poor quality products (ISO 14001).

First time, EasyMeasure allows the classification of material functional levels within defect-free material.

*White and black defects
on BSF*



*Particles and
pinholes on BSF*



Die-line on BSF



*Particle on
electrode*





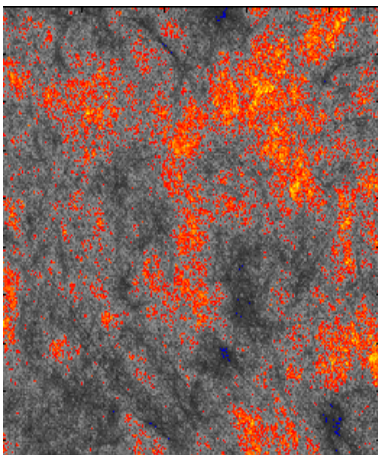
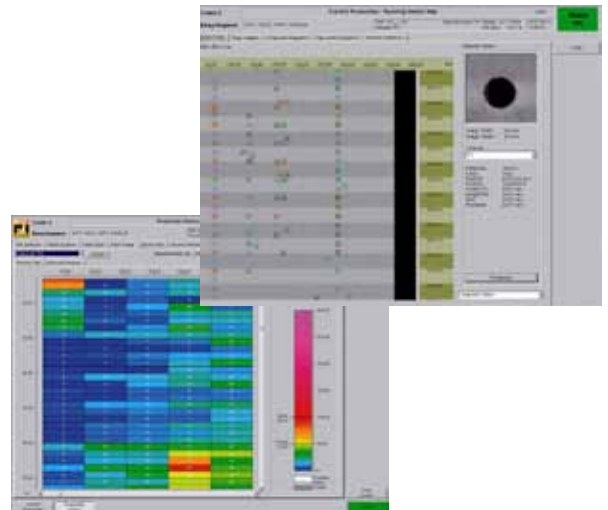
Ensure Your Product Quality and Optimize the Battery Foil Manufacturing

Dr. Schenk, leading manufacturer of high precision inspection systems, offers an innovative technology that helps web manufacturers and converters to

- Combine defect inspection and material monitoring in one system
- Establish consistent quality standards by rejecting material with irregularities from further production process steps
- Improve yield by quickly identifying the source of a defect and eliminating the problem immediately
- Gain in-depth knowledge of the production process

EasyInspect and EasyMeasure applied to battery material identify defects and irregularities that may occur during the base material manufacturing and in the following production steps such as coating, drying, sintering, calendaring and slitting. The system's innovative optical setup and its image processing and visualization software have been adapted to the specific requirements of battery foil material. Proven as highly reliable, EasyInspect convinces by the following highlights:

- Advanced camera and illumination technology for highest contrast sensitivity and optimized resolution
- Reliable and accurate classification of defects
- High defect sensitivity with bright-field and dark-field channels
- Easy integration into production lines
- Standard components for an optimal price / performance ratio
- User-friendly interfaces according to SEMI standards
- Networking for further evaluation



EasyMeasure

Monitoring for 100% Control of Battery Foil Manufacturing

- Thickness Monitoring:** This innovative option enable manufacturers to monitor local thickness variations of BSF.
- Porosity Monitoring:** Add-on option for control the BSF porosity
- Reflectivity Monitoring:** Option for checking the coating quality of BSF

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