

Interview with Klaus Hamacher

## **"Quality assurance systems from BST for battery production also hit the mark with moving targets"**

**Bielefeld, April 4, 2023 - The production of lithium-ion batteries is a dynamic market with increasing global demand. To secure local jobs, the European automobile industry must make the transition to battery production in a few years. Additionally, the EU is implementing the battery passport. Beginning January 1, 2026, every industrial battery with a capacity more than two kWh will have its own digital file, known as the battery passport. The increasing global demand in the battery industry, along with the implementation of the battery passport, provide the ideal environment for quality assurance solutions by BST. Klaus Hamacher, BST's Director of New Business Development, discusses how the company's solutions help combat these coming challenges.**

**C2: Mr. Hamacher, which challenges of your target markets do you focus on in your product development?**

**K. Hamacher:** Our inline quality assurance systems help to capitalize on the lucrative added value of the earliest production steps in battery manufacturing. Electromobility and stationary energy storage are the critical key technologies for the mobility and energy supply of the future. The energy crisis, as well as the intense debate over future-proof drive technologies in private transportation, are putting immense pressure on the local industry to accelerate the development of lithium-ion batteries, increase their ranges, and enable higher performance. Simultaneously, production costs are to be reduced. The scarcity of skilled labor is tightening the screw even further. BST delivers intelligently networked, user-friendly solutions that reduce costs while improving quality in web-processing operations. This presents manufacturers with an undeniable competitive advantage: Particularly in applications in the Battery, Fuel Cell and Printed Electronics industries. For example, the smallest irregularities in the coating, or deviations in the position of components, lead to

unacceptable quality losses, and thus to rejects. Quality assurance systems implemented across many process steps, on the other hand, improve overall plant effectiveness and lower total cost of ownership. Only in this manner will European manufacturers remain competitive.

## **C2: Which solutions from BST increase the competitiveness of European manufacturers on international markets?**

**K. Hamacher:** When processing material webs for the production of lithium-ion batteries, exact precision is necessary to ensure a safe and high-quality product. BST addresses this issue with a diverse product portfolio, such as our inspection and web guiding systems.

The solutions we will be presenting at the upcoming Battery Show Europe are designed to improve efficiency in the production process at various points: The assist battery manufacturers in meeting the highest quality standards while remaining cost-effective. To fulfill these requirements, we have further developed individual products in such a way that they set completely new standards in terms of precision. Among these is the ultra-precise web guiding system FRAMEGuide Pro, which has a newly developed high-performance drive. With repeat accuracies of  $\pm 10 \mu\text{m}$ , this ensures exceptionally precise control results in every application.

## **C2: Are there applications of BST that specifically serve the needs of battery production?**

**K. Hamacher:** Our sophisticated surface inspection and measurement for battery cell production, BST iPQ-Surface<sup>ENERGY</sup> guarantees that only defect-free coatings, e.g., from the coating process, are further processed. High resolution cameras, multiplexed lighting, and a software architecture with several interfaces allow for easy integration into Industry 4.0 environments. Other advantages include AI-based defect classification, seamless quality documentation, and a transparent display of all measurement results and defects.

*Klaus Hamacher, Director New Business Development at BST, April 4, 2023*

BST COATINGControl is another option for automatic optimization of coating positioning in web handling processes with limited space requirements. In the slitting process BST SLITTINGControl measures the cut edges in relation to the top and bottom side coating edges inline. High-resolution line scan cameras, or CIS technology, are also used in conjunction with the iPQ-Surface<sup>ENERGY</sup>. In addition, closed-loop control with upstream web guiding ensures that any deviations do not become a quality issue in the first place.

BST CELLInspection accurately measures the electrodes and coating positions to the cutting edge inline in the Separating production process. In the Assembly production process, e.g., in the laminating or Z-fold manufacturing process, all relevant edges of the individual layers of the monocoil are measured simultaneously through all four layers and feedback is automatically given to the web process. The position of the four layers of a monocoil in relation to each other represents a central quality criterion.

## **C2: How do BST products significantly reduce the burden on production?**

**K. Hamacher:** Our product solutions pursue a consistent strategy that sounds trivial at first but is ingenious: they avoid quality defects. They not only detect defects, but also prevent them from occurring by correcting inefficient production processes. Take the previously mentioned COATINGControl: The system detects a minimal edge offset in the coating of an electrode at an early stage, preventing scrap. Immediate automatic process optimization in conjunction with web guiding corrects the alignment of the electrode so that the edges are perfectly aligned again, and only flawless materials are fed to the next process. If faults do occur, for example agglomerates in the coating, which would damage the rolls in the calendaring process, subsequent processes are automatically adjusted so that further resources are not wasted. Opening the calendar roll, for example, prevents it from being damaged. In addition, the early and precise rejection of the broken ensures perfect starting material for the downstream process steps. With this defect prevention strategy, raw materials, energy and operating equipment are used with maximum efficiency.

**C2: How do BST solutions stand out from competitive solutions?**

**K. Hamacher:** When we develop new products, or elevate existing ones to a new level, we don't just look at the individual process, but at the big picture. With this broad perspective, we create overall solutions that generate greater added value for the customer than detailed applications. We leverage our extensive experience with measurement and control systems from different industries, as well as in many years of business management in the field of battery production in China, South Korea and Japan. Through continuous communication with our customers, we have come to understand the general challenges of their industry, as well as their individual solution requirements. This experience combined with knowledge of our customers' expectations is incorporated into our product development.

**C2: What are your personal highlights of the presented portfolio at the upcoming Battery Show that no trade show visitor should miss?**

**K. Hamacher:** That's easy - one of the highlights of all BST solutions is undoubtedly their high level of integration of our products into the production machines, supported by open interfaces and intuitive user interfaces. This is especially true for the BST COATINGControl, SLITTINGControl and CELLInspection products. This is unique in its form, but it is also necessary for this market, which is new outside of Asia. The user requires assurance that he can meet the continuously changing requirements.

**C2: Thank you very much for the interview!**

## **About BST**

BST GmbH, a company of the elexis group of companies, is one of the leading suppliers of quality assurance systems for web processing industries. The company is based in Bielefeld and offers solutions for web guiding, surface inspection, web monitoring, 100% inspection, color measurement, color management, register control and automation. In these areas, the company has decades of practical know-how with installations at more than 15,000 customers worldwide in the printing and packaging, paper and film, rubber and tire, battery and fuel cell, and printed and organic electronics industries. BST stands for high quality monitoring, smooth production processes and first-class service worldwide.

[www.bst.elexis.group](http://www.bst.elexis.group)

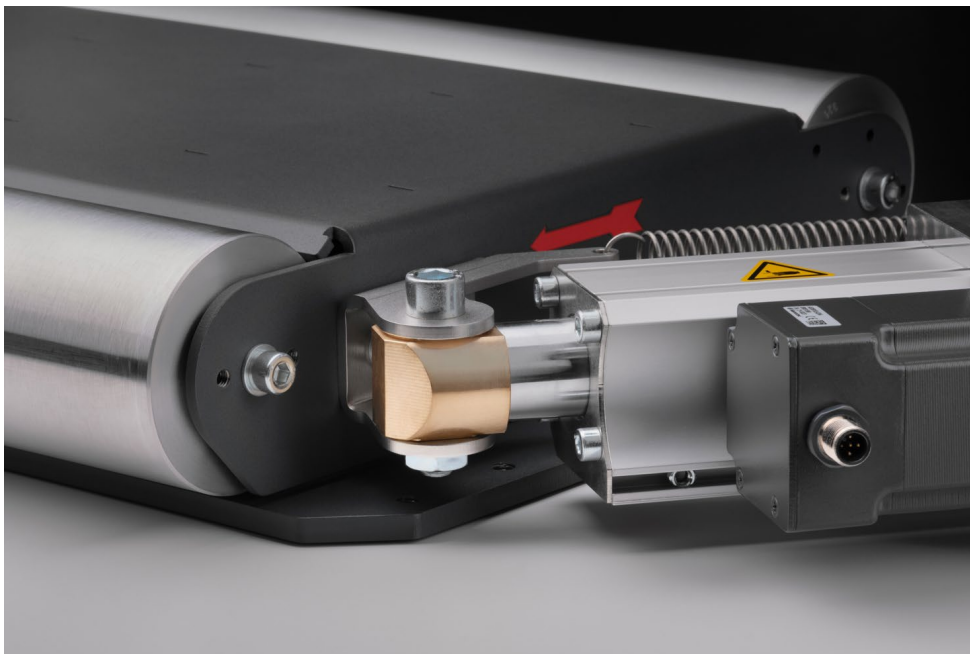
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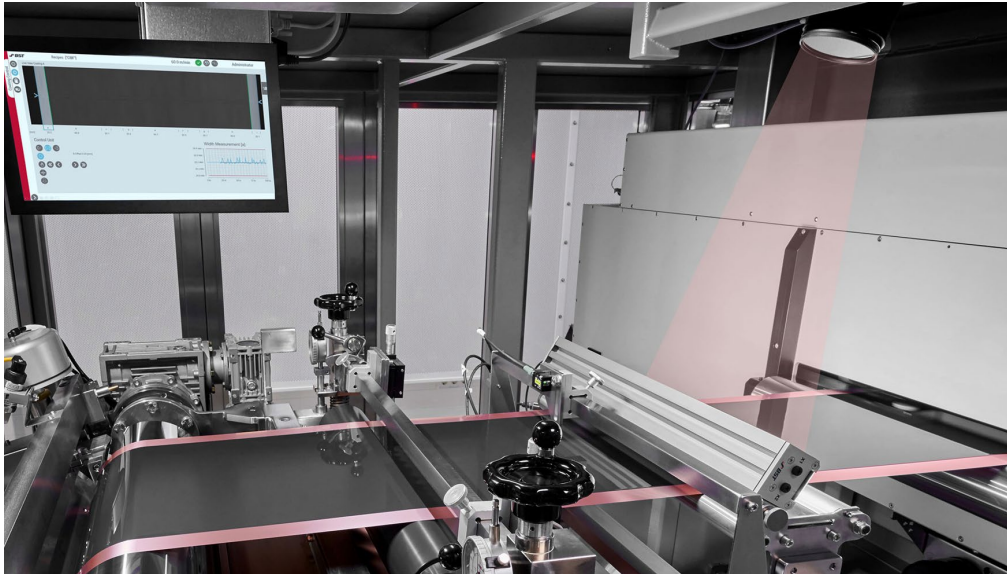
## Images



Dipl.-Ing. Klaus Hamacher is Director New Business Development at BST GmbH. For more than 34 years, he has been driving international business with optical inline quality assurance systems for web-shaped production processes in global sales. Hamacher is responsible for developing new business areas for BST, with a focus on rechargeable batteries, fuel cells, and organic and printed electronics products.



BST solutions help battery manufacturers to meet the highest quality requirements in an economical way. For example, the ultra-precise web guiding system FRAMEGuide Pro with its newly developed high-performance drive with repeatabilities of  $\pm 10 \mu\text{m}$  ensures highly accurate control results in every application.



In battery production, the smallest irregularities lead to rejects. This is where BST COATINGControl delivers the decisive competitive advantage by increasing plant efficiency: The system uses high-precision measurement and control technology to ensure perfect coating geometry on the front and back.

**Pictures: BST GmbH**  
**downloadable under:**

<https://bluemoon-cloud.de/s/tBai5NYXFESeGJR>