

SMART FACTORY ASSEMBLY USE CASE

Inspection and Vision

In quality-critical manufacturing, visual inspections and testing steps are essential to ensure that each product meets defined standards before leaving the production line. But manual inspections often lack traceability, and the results are difficult to document consistently.

With **ELAM Solutions**, inspection processes become structured, guided, and fully traceable. From integrating test devices to supporting visual checks with image capture, ELAM helps operators document inspection steps clearly and reliably. Intelligent vision systems can also be connected to automatically verify component presence, alignment, or surface conditions – reducing the risk of human error and speeding up quality checks.

CUSTOMER

- **Industry Sector:** Manufacturing of specialized mechanical and battery-powered equipment for professional and consumer applications
- **Founded:** Early 1980s
- **Employees:** Between 800 and 1,000 employees
- **Annual Revenue:** Approx. €950 million
- **Core Competencies:** Development and production of a broad range of powered equipment for equipment used in a variety of maintenance and care applications, with a focus on innovative and sustainable drive systems.

INITIAL SITUATION / CHALLENGE

The kit assembly process was automated and supported by a weight-based verification system. The scale checked whether the total weight of the kit matched the target specification, as an indirect method to verify that all required components were included.

However, despite this setup, errors still occurred – for example, when wrong parts with similar weight were used or when multiple small components were missing without significantly affecting the total weight. These inaccuracies led to quality concerns from customers due to incomplete or incorrect kits, highlighting the need for a more reliable verification method.



PROJECT GOALS

The main objective of the project was to **eliminate errors in the kitting process**. To achieve this, the team aimed to introduce a **reliable, automated quality control mechanism** that would ensure all required items are present before packaging.

Instead of relying on the weight, a **camera-based vision system** was to act like a **digital quality controller**, verifying that the correct parts are packed and reducing the risk of missing or incorrect components.

This goal was driven by the desire to improve customer satisfaction, reduce complaints, and streamline the final assembly process.

SOLUTION

To improve the reliability of the kitting process, we implemented a smart vision system using a Bossard Smart-Camera powered by Sentinus. This camera was seamlessly integrated with ELAM, allowing the system to automatically verify whether all required components are present before the kit is packed.

The process works as follows:

- The camera inspects the component set before packing.
- ELAM ensures that all kit parts are correctly identified and accounted for.
- Only once all parts are verified does the system allow the worker to proceed with packaging them into a plastic bag.

This integration acts as a digital quality gate, ensuring consistent and error-free kitting operations and reducing the risk of missing components.

IMPLEMENTATION

The Bossard SmartCamera powered by Sentinus was introduced as part of a pilot system in one of the assembly lines in spring 2025. The integration with ELAM was completed smoothly, enabling real-time visual verification of kit components during the packaging process.

The pilot is currently running and delivering promising results. Based on the outcomes, **the customer is evaluating the solution for a broader rollout** across multiple assembly lines and potentially at **different production locations**. The modular and plug-and-play nature of the solution supports easy scaling.

RESULTS / BENEFITS

Thanks to the integration of the Bossard SmartCamera powered by Sentinus and ELAM, 100% visual control of kit components is now ensured before packaging. This has completely eliminated errors caused by missing or incorrect parts in the kitting process.

The system not only improves quality assurance but also reduces pressure on workers, as they can now rely on the automated solution to verify completeness. This leads to higher confidence, better ergonomics, and a noticeable increase in satisfaction among line operators.



With the ELAM System we are able to have a much closer guidance and control of our work steps. Every user gets the instruction he needs. The camera controls all our kitting operations which eliminates kitting errors close to 0.

Production and work planner