

## SMART FACTORY ASSEMBLY USE CASE

# Secure and Traceable Fastening with ELAM

In modern assembly environments, fastening operations are critical for ensuring product safety, quality, and compliance. Errors such as under-tightened screws, missing rivets, or incorrect tools can lead to costly rework, safety issues, or even product recalls.

With **ELAM Solutions**, manufacturers gain full control and traceability over their fastening processes. Whether it's torque-controlled screwdriving, monitored riveting, or tool-guided workflows – ELAM ensures that each fastening step is executed correctly and documented in real-time. Combined with operator guidance, digital checklists, and integration of smart tools, ELAM not only improves quality but also simplifies audits and boosts productivity.

### CUSTOMER PROFILE

- **Industry Sector:** Advanced metal processing and mechanical engineering solutions
- **Employees:** Around 400 worldwide
- **Annual Revenue:** mid double-digit millions of euros
- **Certifications:** Certified according to common international quality and industry standards
- **Products & Services:** Custom-designed metal components and assemblies for diverse applications across multiple sectors.
- **Key Industries Served:** Various sectors including electrical engineering, automotive, medical technology, and industrial automation.

### INITIAL SITUATION / CHALLENGE

Before implementing Smart Factory Assembly solutions, our customer relied on conventional manual tools in their assembly processes. These tools lacked any form of process intelligence or feedback mechanisms. As a result, fastening operations – particularly those involving rivets – were prone to human error. Common issues included rivets that were either forgotten entirely or not fastened correctly, which led to quality concerns, rework, and a lack of process traceability.



### PROJECT GOALS

The company aimed to increase the quality and reliability of their assembly processes by reducing manual errors and ensuring process compliance. Specifically, the end customer wanted a solution that:

- Ensures that **all required rivets are correctly installed**.
- Verifies that the **correct rivet type** is used in each step.
- Confirms that **screws are fastened with the proper parameters**, including torque and angle.

The overarching goal was to create a more controlled and traceable fastening process that supports consistent quality and reduces rework on the workstation where they produce computer housings for Siemens.

## SOLUTION

To address the challenges in their assembly process, our customer implemented two advanced workstations powered by **ELAM Solutions PRO**. These workstations were equipped with a combination of smart technologies to ensure full process control and enhance quality assurance:

- **Bossard SmartTool Riveting:** Enables real-time monitoring and validation of riveting operations, ensuring that every rivet is correctly placed and the correct rivet type is used.
- **Kolver K-Ducer Screwdriver:** Ensures all screws are fastened with precise torque and angle values, significantly reducing the risk of under- or over-tightening.
- **Pick-to-Light System:** Guides operators to the correct parts and components, preventing mix-ups and supporting error-free part selection.
- **Central Order Control:** Orders are automatically assigned and displayed at the workstation, eliminating time lost searching for the next job and helping maintain a smooth, productive workflow.

The combination of intelligent tools and guided workflows provided our customer with a robust Smart Factory Assembly setup tailored to their quality and efficiency goals.

## IMPLEMENTATION

The project at the company is currently in the pilot phase. Two ELAM PRO workstations have been set up and are actively being tested in day-to-day operations.

The goal of this phase is to validate the improvements in quality and process security before deciding on a full-scale rollout. The long-term plan is to **replace approximately 30 existing workstations**.



*With the ELAM System, we have decreased our rework rate for more than 20% and could also eliminate errors that happen during the late shift. The easy to use Administration allows a quick workflow creation and also changes are transferred to the shopfloor with one mouse click.*

Technical process planning employee

The implementation followed a **plug-and-play approach** with minimal IT complexity. No special integrations were required, allowing for a fast and straightforward deployment. The primary focus during implementation has been on securing fastening operations and improving error-proofing without disrupting existing workflows.

## RESULTS / BENEFITS

The pilot implementation of Smart Factory Assembly at our customer has already delivered impressive results:

- **100% process control** over all fastening operations at the two pilot workstations.
- **Zero errors** reported in both riveting and screwing processes since the system went live.
- **Increased operator satisfaction**, with positive feedback from assembly line workers who appreciate the intuitive guidance and reliability of the system.
- **High acceptance from line management**, who now view the ELAM-based solution as a promising standard for future expansion across the entire factory.

These outcomes demonstrate the effectiveness of combining ELAM Solutions with smart tools and guided workflows to raise both quality and productivity.