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PG worker guidance secures assembly processes at Stadler Winterthur AG

Mobile quality assurance for rail vehicle production

Stadler Rail AG is an internationally operating rail vehicle manufacturer based in Switzerland and brings high-quality trains with maximum precision to the tracks for their customers. The economically best solution is created by employing leading-edge technology. Reliability, quality, adherence to deadlines and partnership are the values the company follows. The PG software is an important element of the quality assurance in Stadler's production. This solution leads the workers through individual operating sequences and thus ensures a consistent quality standard.

"For reasons of product liability, screwing processes in the production require exact inspections and a complete documentation. This ensures that the individual screw joints are still traceable years later," says Ronny Böhler, head of bogie assembly and surface treatment at Stadler Winterthur AG.

Manufacturer neutrality trumps manufacturer-specific application

At the start of the project, it was of particular relevance to the company that a practical solution is found within a short period of time. The solution should be manufacturer-neutral and work with systems and tools from different manufacturers. Securing the processes according to the highest safety standards and documenting this quality was one of the objectives. The assembly team uses 13 modern test wrenches with integrated WiFi technology for the new assembly of bogies in order to manage and assess measured data such as torques from screwing processes. Two small test wrenches and one big test wrench are linked to a tablet computer.

The previous software by the manufacturer of the WiFi-based torque wrenches had simply reached its limits having to deal with the predominant complex processes: A test wrench saves up to 1000 data sets which must be read and assessed daily. With the previous software, this information resulted in huge tables of data, which for the most part were neither understood nor really needed by the users. Therefore,

the objective of securing the quality and documenting the processes in a comprehensible way was not achieved. But a new solution was quickly found following the recommendation of a project partner.

Modular introduction was a good option

When the Stadler Winterthur AG project team was made aware of CSP by the company Intool, the supplier of the WiFi-based torque wrench, they were immediately convinced: The presented software PG was manufacturer-neutral and therefore presented a variety of possibilities to feed any data to it. The potential for other business divisions, also outside of production, and the chance of making information available electronically instead of on paper was evident to the responsible persons. Being able to introduce the software modularly was also an advantage. The decision to cooperate was made in August 2015. From then on, the project was realised step by step. The CSP consultants were able to bring to software to live application within four days based on the existing infrastructure. "The crucial principle for PG is 'Keep it simple.' The instructions for the workers on the basis of pictures could be created easily and quickly from within the company," emphasises Ronny Böhler.

Anyone who makes travellers mobile needs mobility in the production as well: The PG worker guidance is in use on tablets at Stadler Winterthur AG. When manufacturing bogies of trains, Stadler Winterthur AG relies on a flexible use of space in the production hall, depending on the available and required space. In rail vehicle production, customers mostly order individual variants and customised railway solutions. The mobile worker guidance has proven to be especially successful for this kind of projects which do not have a typical workflow from A to Z. In the course of the new project EC 250 Giruno, the simultaneous programming of the worker guidance and the initial assembly of three new types of bogies have been realised simultaneously and successfully.

Completing the operating steps little by little with guidance and via tablet computer

With the tablet computer, the worker can identify the necessary operating steps directly on the bogie and complete them with the guidance of PG. Just like with permanently installed workplaces, the software shows the employee which operating step to complete in which order, displaying photos and graphics on the tablet computer screen. At the same time, PG wirelessly communicates with the individual tools to be used. After a process is finished, the employee acknowledges it. Using PG therefore also reduces the occurrence of errors despite the employees not being required to attend additional trainings for new variants.

The fact that the worker guidance runs nearly uninterruptedly – contrary to typical experiences with new software – is particularly pleasing to the Stadler team. Occasionally, small challenges presented themselves, which could be resolved together with CSP Support. Overall, Ronny Böhler is full of praise for the CSP team: "High flexibility and a smooth workflow: Discussing and realising this project within Stadler Winterthur AG has worked flawlessly. We will further intensify this cooperation in the future."

About Stadler Rail AG

Stadler Rail is a manufacturer of rail vehicles based in Bussnang (CH) and was founded in the year 1942. The company focuses on regional trains, tram cars and customised railway solutions. Stadler Rail employs roughly 7,000 people around the world at a total of eleven locations in Europe, Africa, Australia and the USA.

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