Customer**Story**

SAF Holland

Axle load by the tonne – for true heavyweights

SAF-Holland's chassis axles – with quality assurance via ewm Xnet

Lorry trailer axles and entire chassis systems, especially those designed to bear heavy loads, are SAF-Holland's core business.

But when dealing with true heavyweights, pendulum axes have to be used. The two brake carriers are welded to the pendulum axes with four circumferential seams using the MAG process (135). Each welding parameter is monitored continuously with the assistance of ewm Xnet. Pendulum axes are found in vehicles such as self-driving HGVs carrying components with loads of several hundred tonnes. These can be anything from entire bridges or ships to preassembled industrial buildings or plants. When it comes to the quality assurance and inspections of these manually welded axles, the company based in the Bavarian town of Bessenbach relies on ewm Xnet. Designed by the Mündersbach-based welding technology manufacturer EWM, this welding management system not only continuously monitors and documents every welding parameter, but also ensures the consistent quality of the weld seams.

Even though different types of trailers look very similar at first glance, SAF-Holland's pendulum axis systems are often manufactured in small batches, which range in size from one to sixteen. These systems are designed for extreme demands and special applications – both in terms of the area of use and the axle load. The latter can be between 9 and 11 tonnes as standard. To ensure consistent quality, the welding parameters must be set with narrow tolerances, and compliance with these parameters must be ensured. The ewm Xnet welding management system assists in this process, from the definition of the welding parameters through to their monitoring and thorough documentation. This allows the weld seam quality to be monitored and verified at all times.

Zero defects as a bare minimum

SAF-Holland has fully adopted the zero-defect strategy. When it comes to welding processes, this strategy ensures that every weld seam is created using exactly the right welding parameters – every single time. This is easy to verify when using automated and robotic processes, as these parameters are subject to continuous automatic monitoring. It's more difficult with manual welding. Here is where the ewm Xnet welding management system comes in. ewm Xnet works continuously to record and store every welding parameter during the manual welding process, allowing them to be accessed and checked whenever necessary. If the welding parameters are within certain predefined tolerances, then the welding result is of the required quality. In order to achieve a clear allocation between the welding parameters and the component, every component at SAF-Holland receives a unique dot-peened serial number as well as a QR code. This ensures that the component is clearly defined and allows all parameters to be assigned to it.

The Xbutton contains all information about welding procedures and parameters. This also allows the verification of the welder's identity.

Defining welding parameters in advance

The welding procedure specifications (WPS) are fundamental to welding. These contain the definitions of all relevant welding procedures and parameters. Only through strict adherence to these welding parameters within narrow tolerances can the required quality be ensured. The welder's job is made much easier when they have instant access to the right parameters, instead of needing to manually select the correct ones for every seam. This is done using the Xbutton. This contains an RFID chip, in which the relevant parameters and tolerances are preset by the welding coordination personnel. Wrong settings choices are avoided thanks to the welding parameters being allocated to components on the Xbutton.
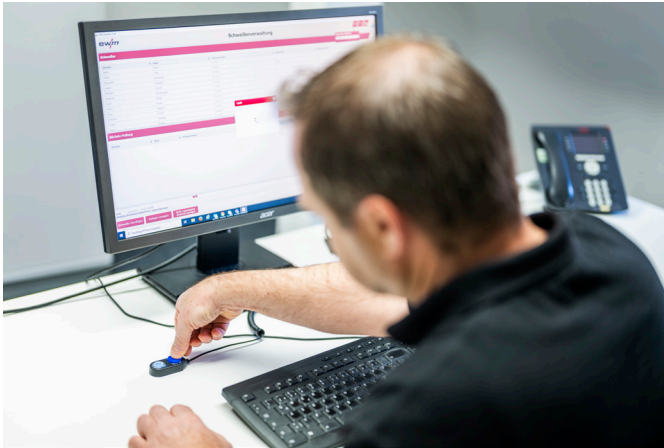
The Xbutton contains all of the welder's identification information as well as permissions for setting the welding machine.

Safety at the press of a button

All of the data from the welding process is stored directly on the server and can even be viewed in real time. SAF-Holland's Head Welding Coordinator, Christoph Hofmann, starts every day by checking the curve of every welding parameter. Graphs and colour coding make it very easy to recognise potential deviations from the relevant tolerance range. Although, with solid presetting of parameters, this is very rarely necessary. "As Head Welding Coordinator, it's important that I have a clear overview of all parameters. That way, I know that every weld seam is how it should be, and I can be sure that we're delivering consistent quality."

Xbutton – the welding machine's access key

Timo Weigand, a welder at SAF-Holland, describes the Xbutton like this: "For us, it's not so much a data carrier, but more like the key to your front door." He starts by scanning the component's identification code, before confirming his identity with the Xbutton on the welding machine to gain access to all of the predefined programs for the welding station. He then selects the appropriate program, and he's ready to weld. This covers all settings, from wire feed speed and welding current to the voltage and even the process. The welding parameters are sent directly to the server via the Xnet Gateway and assigned to the relevant component. This means that there is a direct connection between the parameters and the serial number. Welder Timo Weigang is very satisfied with the automatic presetting of welding programs: "I select the appropriate program and I'm ready to go." If the welding parameters deviate from the preset tolerances, then the welder is notified and can correct the error. This makes the dream of zero defects a reality and guarantees the safety we promise.

Continuous data transfer

At SAF-Holland's welding shop, each individual welding booth is equipped for a specific welding task or function. There are booths for welding axle plates, base plates, add-on parts, brake carriers and even clamping plates. The booths are equipped with EWM Taurus welding machines.

The machines are installed with all of the essential characteristics and welding processes and are suitable for Industry 4.0. This allows you to continuously record all welding parameters and either save them onto an internal storage device or transfer them directly to the server via a LAN or WiFi connection. The synergy and data transfer between the welding machines and the welding management software are optimised thanks to them both being produced by EWM. Creating innovative technology is SAF-Holland's eternal goal. "For this reason, it was a logical choice for us to make use of the number-one welding management system – ewm Xnet," explains Christoph Hofmann. During the manufacturing process, the component is moved from one booth to the next,

where work can then continue. The welder signs into the welding machine using the Xbutton and is ready to continue working, without having to carry the component between booths. But ewm Xnet isn't limited to a single location: SAF-Holland is continuously looking to incorporate other locations from around the globe into the network. The Chinese location is up next. This will allow the welding coordination personnel in Germany to access the Chinese welding data and gain an insight into the quality there. "This allows us to set up a reproducible process at every location and keep up with the ever-increasing quality requirements. That way we can ensure that our quality remains consistently at the required level," says Hofmann of the benefits of ewm Xnet.

Fully satisfied with ewm Xnet:

(From left to right)
Timo Weigand
(Welder at SAF-Holland GmbH),
Jürgen Ackermann
(IWS, Welding Shop Supervisor at SAF-Holland GmbH),
Christoph Hofmann
(IWE, Head Welding Coordinator at SAF-Holland GmbH)

Maximilian Höcker
(Field Consultant, DSL Schweißtechnik GmbH),
Stanislav Wiens
(Acting Digital Welding Solutions Manager at EWM AG)

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