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CustomerStory

MESA
Metall-Stahlbau
GmbH

„Mesa cuts working hours by 57% and makes substantial savings thanks to EWM and forceArc puls®"

EWM provides support for entering new business areas – "We would miss out on a lot of contracts if we weren't able to weld in the required way."

"That affirms my calculations," says Pierre Mack, managing director of Mesa Metall-Stahlbau GmbH in Carlow, Mecklenburg-Western Pomerania. He is referring to the significant savings his company is making thanks to the new welding technology from EWM. "They are so spectacular that they create a real ‚aha' moment and further strengthen our competitiveness." Most mid-sized companies in the metal and steel construction industry are in a similar situation to Mack's firm. They are required to keep manufacturing costs as low as possible while simultaneously maintaining a high level of quality, and also to fill lucrative market niches wherever they can. Mesa has succeeded in doing precisely this thanks to the innovative welding technology from Germany's largest welding machine manufacturer.

Strong support for developing new business areas

Over the past 25 years, Mesa has positioned itself predominantly as a marine equipment supplier. At its headquarters near the coast, the company manufactures a wide range of products for the maritime industry. These range from manhole covers and hatches to ship stairs and handrails as well as various other metal and steel constructions. A substantial part of the company's core activities therefore involve welding metal assemblies made of steel, stainless steel and aluminium. Mesa's 56 employees generate annual sales of almost EUR 4 million. Its 25 metalworkers, two welding practitioners, two welding experts and one welding engineer work in one or two shifts, using MIG, MAG, TIG and stud welding as their welding procedures.

Using MIG, MAG, TIG and stud welding as their welding procedures

Supplying shipyards is a very important area of business, accounting for approximately 80 per cent of the company's activity. However, due to an increasing number of changes in the shipbuilding market worldwide, Mesa has now consciously decided to expand its range to include other industries. Rail vehicle construction is an especially interesting area with particularly high requirements in terms of welding quality. Suppliers need to be certified in accordance with DIN ISO 15085-2 and be able to weld in the highest quality class CL1 where possible. This is precisely what Mesa is aiming for in order to ensure the company stands out from the competition. It is also evident that there is a need for major investment at the rail companies.

Mesa first came into contact with Dräger Safety in 2013. The Lübeck-based company was looking for a supplier of welded assemblies, including steel water tanks for fire and rescue trains. These tanks are used in seven Deutsche Bahn fire and rescue trains to ensure safety on the tracks throughout Germany, particularly at prominent points such as tunnels and bridges. One carriage on each of the trains carries firefighting equipment, including two tanks containing 10,000 litres of water each. It is these tanks that Mesa has been manufacturing since 2014.

The metal and steel construction company produced the first four out of a total of 14 tanks using conventional welding technology and welding machines made by another manufacturer. This resulted in such a level of expenditure that managing director Mack's calculations became very tight. He decided to consult Toralf Pekrul, the head of EWM's Rathenow branch, whom he had known for three years after first coming into contact with EWM at the EuroBLECH trade fair.

At that time, he had been looking for high-quality, long-lasting welding machines with a high duty cycle that would enable him to attain lower production costs and thus greater market strength. He was also looking for a partner to provide him with technological advice and support.

During the previous two years, Mesa had already had positive experiences with a number of EWM welding machines in other production areas.

maXsolution and the complete EWM welding range

Pekrul came to Mack's aid immediately and was able to provide prompt support for the complex task of manufacturing the tanks. It took just three months from the first meeting to the development of the first possible solutions and, finally, to putting the chosen solutions into practice. In his analysis, Pekrul took a consistent approach in line with the EWM innovation and technology consulting concept maXsolution. This includes a full range of advice, all services and the provision of support for the customer throughout the entire process chain. "Not only was the consultation very competent and proactive, it also included new solutions to problems that we hadn't previously recognised ourselves," says Mack.

New solutions to problems that we hadn't previously recognised ourselves

The EWM employee from Rathenow recommended a whole range of measures to his customer, along with full conversion to EWM welding technology. This included the use of power sources from the Phoenix puls and alpha Q puls series with the new forceArc puls® arc, the use of MT welding torches and welding consumables, and partial mechanisation with the aid of a track-guided welding tractor.

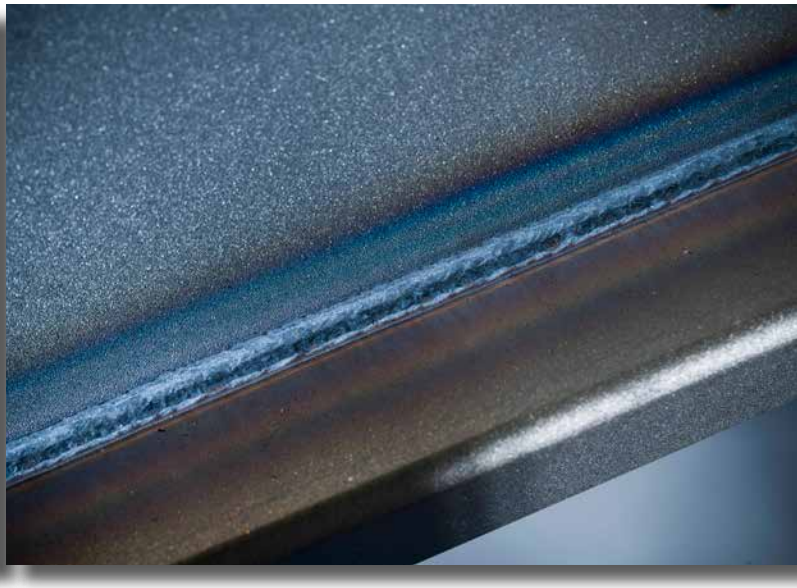
EWM also took care of all the tasks involved, beginning with laboratory experiments and essential preparations for the welding procedure test through to briefings and commissioning. The new solution was then put to the practical test during its introduction. "We differentiate ourselves from our competitors by being able to support our customers from start to finish with maXsolution and taking over as many tasks as possible on their behalf," says Pekrul, who succeeded in establishing a great deal of trust at Mesa.

forceArc puls® results in 30% lower costs

As the improvements quickly started to become noticeable, Mack and his employees soon realised that their consultant had certainly delivered on his promises. The application and effect of the new forceArc puls® arc from EWM – a combination of a forceArc arc and a pulsed arc which brings together the benefits of both – really amazed them.

> This combination creates a welding process that is extremely easy to handle and which requires virtually no familiarisation period. forceArc puls® also achieves excellent wetting on the material surface while also providing very deep penetration. Virtually spatter-free, the innovative arc excels thanks to a low heat input and also allows greater welding speeds, ultimately leading to a significant reduction in costs.

Use of the new EWM welding process forceArc puls® brings significant efficiency benefits and savings for Mesa. The arc is characterised by a much faster welding speed and is completely spatter-free.



The heat-reduced forceArc puls® arc results in far less discolouration. Distortion is also minimised thanks to the lower heat input.

This is also the case at Mesa, which is now seeing a significant 30 per cent reduction overall in working hours, wage costs, material consumption and electricity costs due to the improvements. In contrast to the welding technology used up to now, the forceArc puls® arc results in a 10 per cent reduction in straightening work thanks to less distortion. The virtually spatter-free process minimises finishing work, while excellent wetting means the welding speed can be increased.

Welding time has decreased by around 20 per cent overall, saving a significant amount of material. The consumption of shielding gas and welding consumables has dropped by 40 per cent, while the shorter welding time and the reduced-energy process of forceArc puls® contribute to lowering power consumption by 50 per cent.

The lower heat input ensures minimised distortion, thus reducing straightening work by around 50 per cent compared to the process used at Mesa in the past. This lower heat input also produces less discolouration, which reduces the time and effort required for subsequent grinding, brushing and pickling. Effective sidewall wetting also brings a decisive cost advantage. Working conditions have improved, too, as welding fume emissions have decreased. "The easy handling makes welding positively stress-free," says welding practitioner Martin Lukat. "The reduced noise levels generated by the quiet forceArc puls® arc are also very welcome."

The use of MT torches from EWM is also paying off for Mesa. The long service life of the consumables, and contact tips in particular, has allowed the company to reduce costs in this area by at least 50 per cent. The shorter amount of time required to change contact tips and gas nozzles is also having a considerable impact. In addition, errors are minimised due to interference-free wire guiding, resulting in increased quality and less time spent on finishing work.

Mesa has been able to improve quality by using a track-guided welding tractor, which ensures a high level of consistency. This mechanisation process has also halved production times and working hours for the manufactured components.

MT torches cut consumables costs by 50%

"In terms of the total welding costs, we are making significant savings just by using the EWM torches alone," emphasises Tino Volkmer, the welding coordinator at Mesa.

EWM branch manager Toralf Pekrul (far left) is an ongoing partner to Mesa welding coordinator Tino Volkmer (2nd right) and his welding team, not just for the production of the water tanks.

Mechanisation improves quality and cuts wage costs by 50%

The mechanisation of individual welding processes as recommended by the EWM branch manager is also enabling Mesa to save money while simultaneously improving quality. The use of a piste-guided welding tractor improves efficiency during the manufacture of the tanks. When welding a butt weld as the T-joint of a sheet with six millimetres on a square tube of five-millimetre wall thickness (both S355), the tractor now helps to shorten the time needed for welding and weld preparation, and also reduces manual welding and finishing work.

Mechanisation has also enabled Mesa to significantly improve quality thanks to the constant high level of consistency. Minimising the finishing work results in a time saving of 60 per cent, and wear on welding torch consumables is reduced by 20 per cent due to the use of the welding tractor. Mechanisation means Mesa is also saving a significant amount of time. The process and production times and the working hours for the relevant components have reduced by half. This equates to a corresponding increase in productivity. The company is therefore able to save half the wage costs and around 20 per cent on piece costs for these tasks.

A 57% saving on time with investment paid off after the first batch

For the managing director of Mesa, using the complete range of EWM welding technology in the production of water tanks for the Deutsche Bahn fire trains has more than paid off. The results are extremely positive, from the new welding machines and welding torches to mechanisation.

His company is achieving the most significant improvements thanks to the new, powerful, heat-reduced, directionally stable forceArc puls® arc. The overall savings are impressive: "We have managed to cut down production times for welding and grinding by an incredible 57 per cent," reports Mack. The first four tanks took 781 working hours to produce, but a mere 339 hours were needed after EWM technology was introduced.

In the previous water tank production process, the preparation, pass grinding and finish-grinding of contact points accounted for more than half of the total time required. "That is now virtually gone, helping to make this enormous time saving," enthuses welding coordinator Volkmer. The welders are also very satisfied as EWM welding technology not only offers time benefits, but also helps substantially with their work. "Previously, positional welding was extremely tiring, but now it is much more straightforward in PA and PB," says metalworker Ronald Branke. "That's a significant improvement in our working conditions."

His managing director Mack adds: "It's impossible to describe the price-to-performance ratio as anything other than excellent. The investment costs for the new technology had already been paid off with the first batch – in other words, when the first two tanks had been produced." Delivery times have also been significantly reduced by two weeks. "We would have had deadline problems without EWM," admits Mack.

EWM is a key part of the corporate strategy

For Mack, EWM has become an essential part of Mesa's future corporate strategy. The welding partner has a crucial role to play as Mesa moves from being a small-scale, mid-sized industrial company

"As a welded metal and steel construction manufacturer, we want to become one of the top five metal and steel construction companies in the north"

to becoming an industrial manufacturer, albeit one who remains committed to manual skills. "As a welded metal and steel construction manufacturer, we want to become one of the top five metal and steel construction companies in the north," says the managing director confidently, adding that the clear competitive advantages provided by EWM are the strong driving force that will take them in the right direction.

He says that it is now easier than before to deliver even higher quality with a significantly reduced outlay, and thus at attractive prices. Mesa has also been able to expand the range of goods it manufactures. "We would miss out on a lot of contracts if we weren't able to weld in the required way," states Mack. "With the conventional machines, we couldn't compete at all in some cases." Mesa would have lost volumes and market share without EWM welding technology, he says, adding that the innovation and technology advice from EWM was also of crucial importance. "This differs radically from the rest of the competition and is a truly unique feature," stresses Mack. He would even go as far as to say that other manufacturers are no longer even worth considering.

Pierre Mack, managing director of Mesa, and Tino Volkmer, welding coordinator, are impressed by their welding partner. "We wouldn't have got so many of our contracts without EWM welding technology," emphasises Mack.

Kindly supported by

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