



YELLOW GOODS

The Emperor's new welding tools

What started out as a small business in the garage of his own home turned into Manfred Kaiser Maschinenbau GmbH: a company that has constantly evolved and grown over the years. Today, the company employs a staff of more than 100 and ranks among the leading special equipment suppliers for excavators and wheel loaders. Trained as a welder and master mechanical engineer, Manfred Kaiser ("Emperor" in German), also has 50 certified welders under his employment. The company offers their customers project assistance from start to finish, i.e. from the design of the attachment tools to their delivery. The company has now even started manufacturing the hydraulic cylinders that are required by the construction vehicles. Manfred Kaiser Maschinenbau GmbH has been supported by the Lorch Welding Technology centre Heinz Sanders GmbH.

CHALLENGE

This specialist manufacturer makes everything that can possibly be attached to construction machinery – from mini scoops to heavy-duty rock buckets that offer a capacity of up to 12 m³ and can hold the contents of an entire swimming pool. Whether customers require buckets, scoops or quick couplers: The bulk of the 1,200 components the company ships every year are custom designs for such renowned construction machinery makers as Liebherr, Volvo or Hitachi and special orders placed by dealers or contracting businesses. The attachment parts are joined individually by welding together steel sheets and plates of various sizes and ranging in thickness from eight to 200 mm. This process requires more than 100 seams per workpiece with a total length of several hundred metres. Whether placed on regular construction steel or on special material such as Hardox 450, 500 or fine grain construction steel up to S 700 QL – each weld

seam must be flawless in light of the extraordinary stress that tugs and tears at the tools during use. Some customers have to wait less than a week from the time they send their initial request to the time they take delivery of their shipment. An amazing feat given the fact that some of these components weigh more than 15 tonnes. The ability to sustain such short response times requires that the workers at the company's halls in Vrees man 15 welding stations and work around the clock from Monday morning to Saturday at noon. The welding units are subjected to tremendous loads (340–350 amperes) during continuous use that lasts up to 144 hours. The engineers entrusted with the development of a smart welding solution for Kaiser focused on the ability to deliver supreme welding quality, maximum service life at minimum power consumption and suitability for welding in difficult positions.

SMART SOLUTION PROVIDED BY LORCH: MIG-MAG WELDING SYSTEM P5500 WITH SPEED PROCESSES

The system consumes much less energy thanks to the combination of Saprom inverter technology and such high-efficiency welding processes as SpeedArc. The Lorch Duo is ideally suited for power welding applications that vary greatly in terms of their production requirements. Delivering a more accurately focused arc, SpeedArc affords the user greater energy density than conventional welding processes and, therefore, a higher arc pressure in the weld pool. Advantage: Seams can be welded at speeds that are up to 30 per cent faster. SpeedArc even makes it possible to weld through thick steel plates in just one layer. For seams composed of 14 to 16 layers this ability provides for savings in production time that, in some cases, can amount to 50 per cent as SpeedArc does not only offer great welding speeds but also cuts down the time required for rework. Since the welders can focus on welding, the welding performance per employee increases by leaps and bounds. Even though speed plays a key role, the quality of the weld seam remains at the front and centre as the attachment parts are subjected to tremendous stress. Deep demolition or rock buckets, in particular, must stand up to colossal forces when mounted to heavy-duty excavators that weigh 85 tonnes.

The company was also able to maximise their productivity in the area of repairs. Due to the size and weight of the components, the need to weld vertical seams is inevitable in many cases. Thanks to SpeedUp processes built into the Lorch systems they bought, the company is now able to save considerable amounts of time and cost in this area as well. Instead of having to weld in often less-than-ideal positions applying the "Christmas tree" technique, the welder can now draw the seam straight up using SpeedUp. This is made possible by the combination of two arc phases: a "hot", high-current phase with high-energy insertion

for optimum melting of the material and an exactly dimensioned weld seam and a low-current phase that is used to cool down the melt and to act as the pool support. This approach sets itself apart not only by considerable increases in speed but also by its outstanding ease of use. With SpeedUp the welder can rest assured that he has set the root layer in the best possible way.

The P series made by Lorch is the perfect choice for all companies requiring the highest possible welding performance. While this production-enhancing technology comes at a price, it offers advantages that afford its owner a quick return on his investment. The welding performance per employee increases significantly. In this day and age where skilled labour is in short supply, this is a benefit of no small importance as it helps the company maintain its ability to grow.

Manfred Kaiser has invested in more than 60 new P5500 welding systems. There is hardly any better way to express your confidence in Lorch.



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THIS IS THE CUSTOMER'S VERDICT:

"The machines run without interruption and reach a duty cycle of nearly 100 per cent. As we work in shifts, the cost of power is a factor of paramount importance to our operation. To determine which machines yield the greatest power savings, we asked four of our best welders to work with a variety of different systems. We were taken aback at how widely energy

efficiency varied across the individual suppliers they tested. By the end of the screening we had established that Lorch's P series offered the best possible welding performance and impressive energy efficiency. Our customers appreciate us as highly flexible and reliable partners, a fact that fills us with extreme pride. Now that we can rely on the P series and

Lorch's MIG-MAG Speed processes we are uniquely prepared for any challenges the future may hold in store for us."

Manfred Kaiser, founder and Managing Director of Manfred Kaiser Maschinenbau GmbH



Subjected to tremendous loads 24/7: the P series made by Lorch. The machines are used around the clock at 15 welding stations.

Faster welding, less rework: The Speed processes devised by Lorch allow for productivity increases of up to 50 per cent.



Family-owned and operated and grown into a global special supplier for excavators and wheel loaders over the course of 25 years: Manfred Kaiser Maschinenbau GmbH. From right to left: Manfred Kaiser, founder and Managing Director, with his two sons Christian and Lutz Kaiser.



Whether customers require buckets, scoops or quick couplers: The company makes over 1,200 attachments for excavators and wheel loaders each year at their company base in Vrees in the Emsland region.

Would you like to learn more?

Mr. Dalmer accompanied this project and will be happy to receive your requests: bernd.dalmer@lorch.eu

