

Cosmo's WELDYCAR with SPEEDTEC solution

African Fusion talks to Petrus Pretorius about a successful Cosmo-developed and demonstrated welding solution for the fabrication of truck bodies, which involves the combination of Lincoln Electric's WELDYCAR magnetic portable welding carriage for MIG/MAG welding, with the company's next-generation SPEEDTEC® welding system.

The Cosmo Group was recently asked to assist a local truck body manufacturer to improve its weld quality and consistency for the manufacture of flatbed trailers. "The fabrication of these trailers was all being done by hand, using the conventional CV MIG/MAG welding process, which was resulting in inconsistent weld quality and a lot of spatter," Petrus Pretorius tells *African Fusion*.

"The requirement involved welding plate seams to form the bed of the trailer using continuous weld runs of up to 6.0 m long in the down-hand position. Almost all of the welding involved plate-to-plate butt or lap welds in the down-hand positions," Pretorius continues.

"At the starting point of developing a solution, we decided to use synergic pulse MIG/MAG welding to significantly reduce the spatter levels. The second key idea was to use a semi-automated welding carriage to deliver bead consistency and a near-finished surface quality," Pretorius tells *African Fusion*, adding that the latest generation SPEEDTEC 500SP from Lincoln Electric, along with new Lincoln Electric WELDYCAR compact, magnetic and battery operated welding carriage, was found to be the ideal combination for this task.

"Welding by hand involves a lot of stop/starts, and not many welders can maintain the precise travel speed needed to produce accurate seam widths and surface finishes. So our solution was able to deliver a lot of positives," he notes. "A synergic pulse programme was selected for a 1.0 mm carbon steel welding wire and an average current of between 160 and 180 A was found to be ideal," he adds.

To enable continuous welding, Cosmo Group chose to use the advanced LF56D wire feeder, which comes with the new high-efficiency COOLARC® 60 water cooler with a 4-wheel cart to enable the feeder to be moved easily while welding progresses. "This unit has a solid metal construction and a wide range of long connection cable

and accessories to make longer welding lengths possible," Pretorius notes.

Describing the use of the WELDYCAR, he says Lincoln Electric has developed a set of guiding systems, including a built-in magnetic system, that eliminate the need to continuously adjust the carriage position whilst welding. "We were able to use a fence-like guiding system, with contact rollers running along the edge of the truck body to keep the torch aligned to the rollers. Also available, though, is a magnetic track guiding system, which is easy to set up and move to the next weld seam," he explains.

Battery operated with a six hour continuous use battery life; the whole carriage weighs just 12 kg. Additional features include: a tilting torch holder; linear and pendular oscillators; arc protection; and robust aluminium wheels. "The weaving capability makes the WELDYCAR ideal for vertical up welding, which is often difficult for welders to get right," suggests Petrus Pretorius.

No separate programming device is required and the system is seamlessly compatible with Lincoln Electric's LF56D wire feeder and the SPEEDTEC power source. Most notably, Pretorius says that the system uses the arc voltage to sense when the arc has been struck so it starts to move at exactly the right time. Start and stop sequences, linked to the wire feed and power source parameters, can also be set to optimise weld start and stop geometries.

Turning attention back to the results, Pretorius shows a video of the demonstration in progress and a photo of one of the seams. Not only is there no spatter, but the finished weld seam is smooth with a consistent width. "The client was pleased and we are continuing to work with them and their welders to help improve weld quality at the facility.



For WELDYCAR, Lincoln Electric has developed a set of magnetic and other guiding systems that eliminate the need to continuously adjust the carriage position while welding.



The advanced Lincoln Electric LF56D wire feeder, with its high-efficiency COOLARC® 60 water cooler, was chosen to ensure continuous welding.



The finished weld seam is smooth with a consistent width and little spatter on the surrounding surfaces.

"As skilled quality welders become more and more scarce in the manufacturing industry and expectations around efficiency and productivity continue to be raised, the WELDYCAR system, along with Lincoln Electric's newest generation multiprocessor machines, are sure to help any fabricator to better meet customer expectations," Pretorius concludes.

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