From the practice

AKP Otomotiv welds aluminium tanks with CLOOS

Individual complete solution for challenging welding tasks

CLOOS

Weld your way.

The Turkish company AKP Otomotiv relies on "Made in Germany" quality when welding aluminium tanks for HGVs. The two-station robot machine of Carl Cloos Schweisstechnik GmbH – fitted with the most modern welding technology – guarantees optimum welding results and maximum efficiency.

AKP Otomotiv has specialised in delivering parts for commercial vehicles and the automotive industry. The owner-operated family company, with its head offices in Bursa, is benefitting significantly from the economic upturn in Turkey over the last few years. Since it was founded in 1976, AKP has grown continuously and currently employs more than 200 staff. "Our principal clients include manufacturers such as Mercedes and Ford who wish to expand their production in Turkey over the next few years", explains Ugur Caglar Memis, Operations Manager at AKP.

Aluminium as a Special Challenge in Welding

Lightweight construction is becoming ever more important even for commercial vehicles. For that reason, AKP uses an increasing number of parts made from aluminium. But the material represents a particular challenge for the welding process, as it is very sensitive. Since 2012 AKP has been welding aluminium tanks on the Cloos robot system. "One of our clients recommended Cloos as a competent partner for welding aluminium" explains Memis.

Maximum Efficiency with Two-Station Operation

More than 60 aluminium tanks are welded daily on the Cloos robot system. A set-up with two stations results in an enormous saving in time in the process, as the machine can be loaded mutually. Whilst the robot at one station welds the workpiece, the person on the other side removes the welded tank and loads the devices again.

The robot machine consists of two stations where the aluminium tanks are machined and welded in parallel.

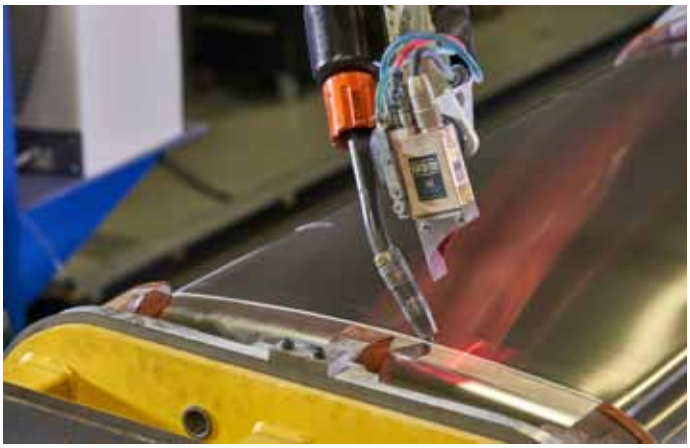
The workpiece positioner device with an adjustable counter-bearing enables automatic assembly of the tank shell with the top and the base. This removes the complicated pre-lifting of the individual tank workpieces. The two components of the workpiece positioner are mounted on a joint base frame. The counter bearing can be moved in an automated way on the base frame. This allows the gap between the two face plates to be fitted in a flexible manner for different tank sizes.

Robots with Online Laser Sensor for the Best Welding Results

The QIROX QRC 350 robot welder is mounted overhead on a C-shaped frame. This position allows the robot better access to the workpiece. The C-frame is mounted on a floor-mounted linear track so that the robot can be moved horizontally and flexibly between the two stations.

The overhead position of the robot allows optimum workpiece accessibility.

Additionally, the robot is equipped with the CST Flex D laser online sensor. The laser online sensor first moves to the programmed start position. The tracking section is then measured online during welding. The laser head which is mounted parallel to the processing point sends a laser beam onto the workpiece surface, receives the reflected radiation and directly transfers the measured results to the robot controller. Here the data is evaluated in order to compensate for material tolerances and heat distortion. Based on the new values the system changes the position of the welding torch and adjusts the process parameter accordingly.



The CST Flex D laser online sensor carries out corrections immediately thus ensuring optimum welding results.

Enormous Reduced Workload for Staff

The staff also benefit from the introduction of automated welding. Since the robot carries out the heavy physical labour, the general hazards posed by arc radiation and welding fumes are reduced. At the same time, the welder can concentrate more on monitoring the process.

In order to benefit fully from the innovative technology, the staff were intensively trained by specialists from the Cloos subsidiary in Turkey.

An excellent weld seam quality is a compulsory requirement for aluminium tanks.

Individual Problem-Solving instead of the "Run-of-the-Mill" type

On his visit to Cloos head offices in Haiger, Memis was impressed by the welding specialists' huge depth of vertical manufacture. "Both the staff in Haiger and the representatives of Cloos in Turkey supported us magnificently right from the beginning" emphasises Memis. "Instead of a standard system, Cloos delivered us an individual complete solution for our challenging welding tasks" Memis continued.

A few weeks ago, AKP started operating another almost identical robot system from Cloos. Currently, this is producing various smaller parts. In the coming year, steel tanks should be welded in series.

AKP also relies on CLOOS for manual welding. At present, two Qineo Pulse 450 are being used in production for various welding tasks.

Mikail Ferah from CLOOS Turkey and the AKP staff Meric Cakir, Mehmet Hatipoglu, Ugur Caglar Memis, Samet Dogru and Murat Cetin (v.l.t.r.) .

Video on You Tube

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