

The robotic welding cell conquers new business fields



(from left) Prototype construction's team leader, Jörg Krauß, and managing director, Martin Kunze (PTS) in front of the OTC EASY ARC open welding robot cell.

Since 2006, PTS Prototypenteile und System Technik GmbH from the outskirts of Stuttgart has been devoted to the development, production and testing of vehicle components, particularly on exhaust systems and media-conducting components. The company manufactures prototypes as well as small series for automobiles (including racing cars), commercial vehicles, as well as air, water or rail vehicles.

In individual cases, PTS undertakes the complete development work for new components, including the required documentation. Both prototypes and series are carried out based on an established project management. As the oldest and most loyal customer, AMG has been served by PTS, since 2006 - meanwhile, all well-known vehicle manufacturers from southern Germany, as well as large suppliers of exhaust systems that exclusively produce in large series are among the medium-sized company's clientele.

Notice for the trade press

Complex exhaust systems and media-conducting components for renowned manufacturers of the automotive industry are the core business of PTS Prototypenteile und System Technik GmbH



It all depends on a perfect weld seam: PTS was able to achieve a high structural quality of the weld seams thanks to the compact EASY ARC robot cell. The start-signal for a new small series.

Notice for the trade press

As a steadily growing company, PTS has wide experience in welding technology. The production works are subdivided both spatially and production-wise into two ranges - the prototype development and small series production. "This enables us to spontaneously handle orders in both segments," explained Managing Director, Martin Kunze.

Thanks to its flexibility and storage capacity, PTS has been able to respond to changing market demands. "We were already able to do this during the production crisis of 2008 and 2009, when our spontaneous responsiveness enabled us to score some points over numerous competitors, thus enabling us to consolidate our market position. This has given us enormous advantages and we have remained in the memory of the manufacturers for a long time. "

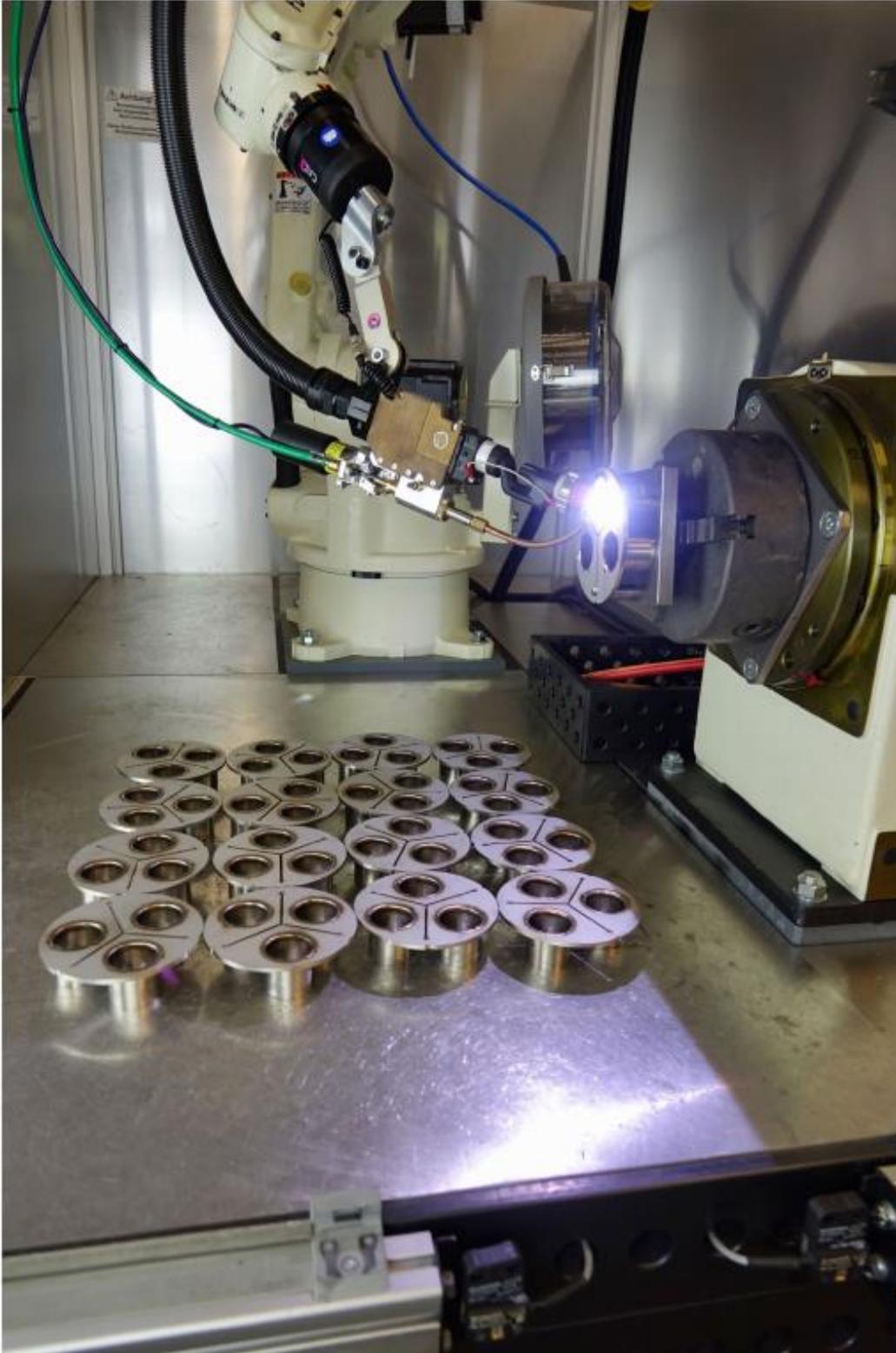
According to Kunze, the maximum number of units in a series from PTS depends on the required production depth. For special orders, the company is always ready to increase its machine capacity or to create its own manufacturing islands in the production.

This was also the case at the beginning of the year, when Kunze was interested in a robot cell for TIG welding, in order to relieve his small batch production for the automotive sector. Since PTS was the first robot cell for small series, the entrepreneur relied on a reliable guide and his recommendation to opt for an EASY ARC robot cell from OTC. As part of the continuous development of robotics and welding technology in terms of welding quality and ease of use, OTC is being regarded as the ideal supplier of lightweight and compact welding automation solutions. Shortly thereafter, the corresponding welding cell was available with a 6-axis welding robot of the type FD-V8, a horizontal rotary positioner, torch, suitable power source, Synchronotion software and Easy Teach control.

After the technical-programming instruction, the welding of polished and chrome-plated panels with exhaust pipes was the first thing on the program. "In order to be well prepared for such cases, we opted for EASY ARC's TIG version from the start. In the production of our small series, we must exclude welding splashes. These would have been unavoidable in MIG / MAG welding ... "

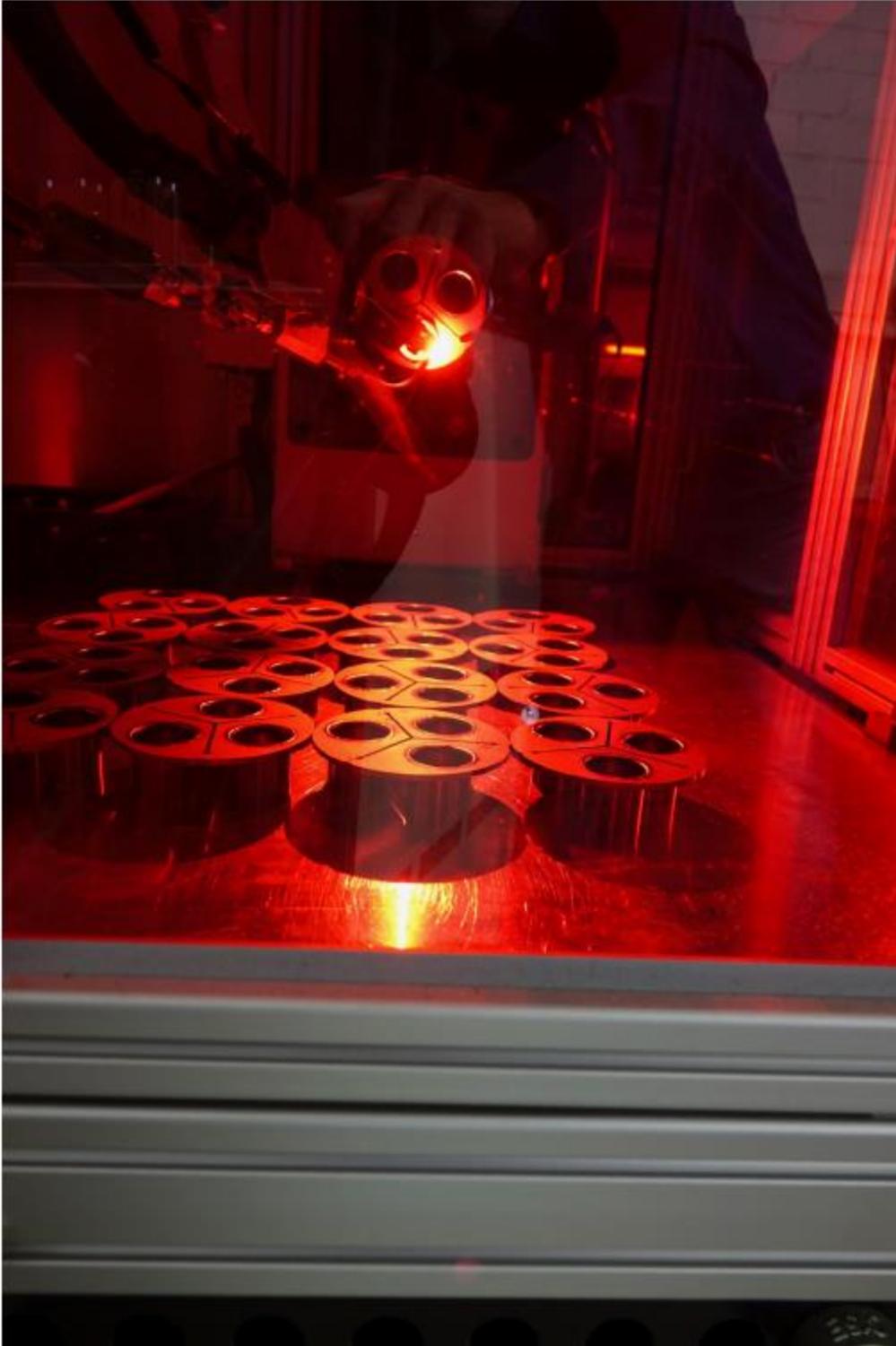
With the OTC robot cell, we decided to go for a water-cooled TIG welding machine of the type DA300P, whose welding quality produces excellent results, even with thin sheets.

Notice for the trade press



View into the enclosed EASY ARC welding cell: The welding robot type V8 produces the desired result using the TIG welding process.

Notice for the trade press

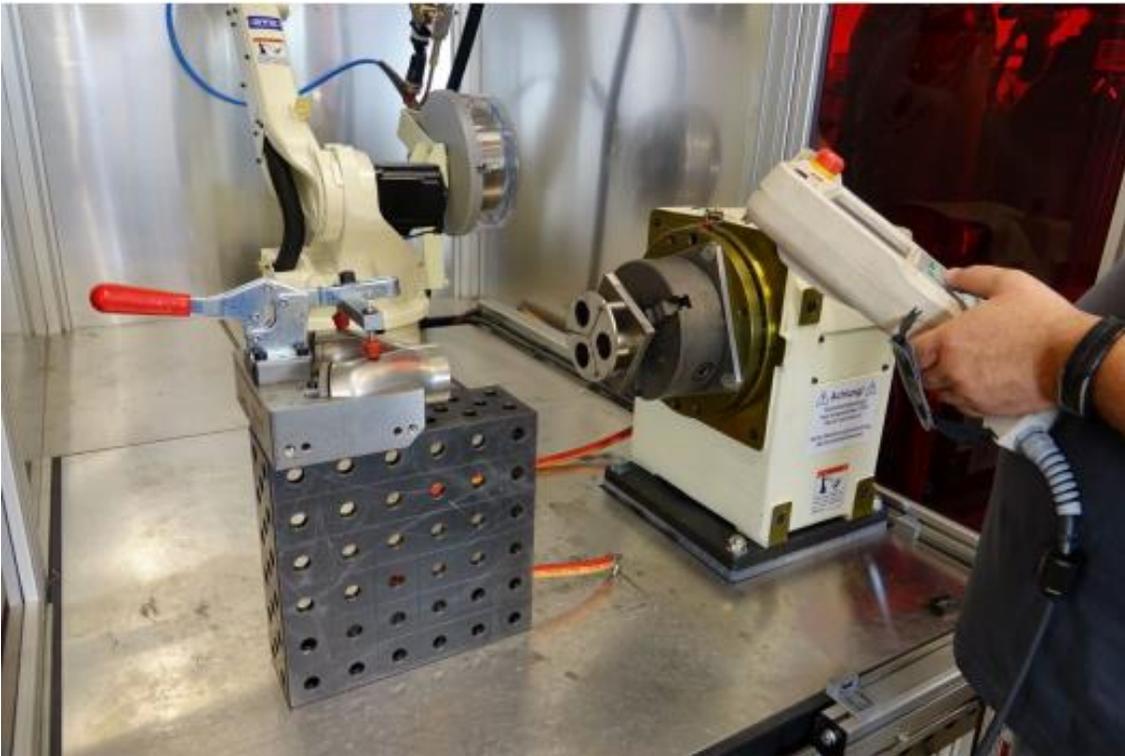


External view into the enclosed EASY ARC welding cell: The welding robot type V8 produces the desired result using the TIG welding process.

Notice for the trade press



Easy programming with EASY ARC: preparation of a new welding process for automotive components.

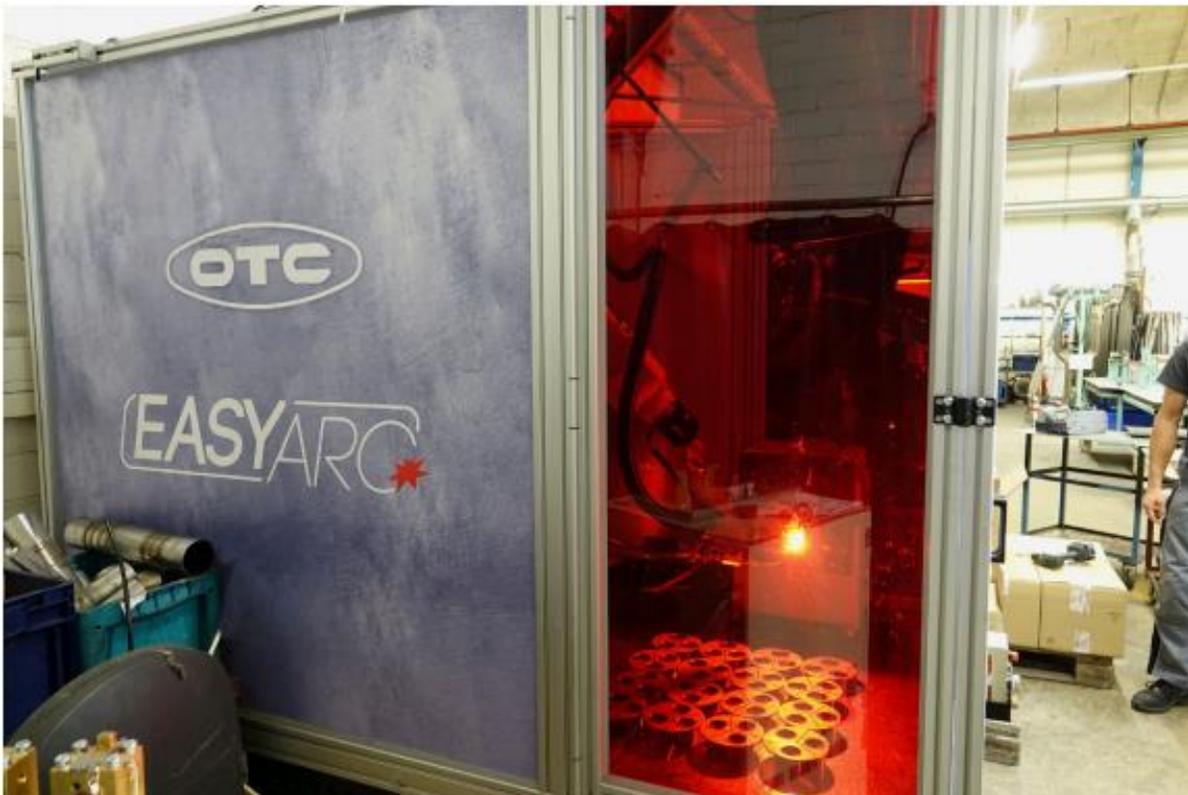


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"Contrary to our original project, the first concrete order with the robot cell was a welding task for a completely new customer. Surprisingly, this did not come from the automotive sector, but rather from the construction of a furnace. The whole thing was a double challenge for us: the cooperation with the new customer depended on a robot cell, with which we had no previous experience," explained Kunze.

"The task was to weld a shield plate for a combustion chamber with three tubes. It meant we had to do 3 clean welds. These were to be checked for their structure quality by a laboratory after the first tests and thereafter presented to the customer. The material was a heat-resistant austenitic stainless steel, which is not also easy to weld. Just a process-technological challenge that could stand or fall depending on the use of the right welding temperature and current. No hot cracks were to be allowed..." Kunze continued.

We immediately received positive results from the laboratory, as the feared presence of cracks in the welds were absent. In retrospect, we were glad that we did not weld the prototype by hand.



Notice for the trade press

Before the component was to go into series production, the customer tested the new shielding plate for the combustion chamber in the long-term test. The result: the service life for the new component produced via the robot cell was 3 to 4 times higher than that of its predecessor. The quality of the weld was without doubts the decisive factor here. The surprisingly positive results exceeded all expectations. The prospects for fewer complaints, repairs and breakdowns led the furnace manufacturer to make the final decision - the start signal for the inception with the new business partner PTS.

The first small series in the order of 800-1,000 components was then effortlessly produced with repeated precision via the new EASY ARC robot cell.

After the successful completion and fast delivery this initial order, PTS was able to redeem the ticket for follow-up orders with new customers. The managing director now sees this as a sustainable opportunity: "Normally, such developments are only small orders for us, but now we have more demanding tasks with significantly higher production depth. The core business of PTS is usually to manufacture more complex components such as exhaust systems with exhaust tracks and multi-stage silencers for eight-cylinder engines.

With the welding cell, we have earned an important trust from a customer who until recently did not know us. "

The new EASY ARC robot cell has opened an important door towards new business ventures through its pioneering work at PTS. Kunze elaborates on some details of this ready-to-weld solution:

"We were spontaneously thrilled that our tables had the same grid size as the table of the new robot cell, as a result, all the devices fitted right away. We are also extremely satisfied with the safety enclosure, which is standard with this solution."

In the management's opinion, not only did everything agree with the technical integration of the new welding cell, but words of praise were equally given for the instructions in the programming and handling of the new technology. "Training and commissioning took place both at the dealer and at our company. In a very short time, our workers were productive from the start."

The EASY ARC technology supports PTS' established approach, of delivering any prototype within a maximum period of 3 to 4 weeks after receipt of order. In the future, if the request for the robot welding of components in this form pile up, Kunze will also consider an operational expansion of the weldable solutions.