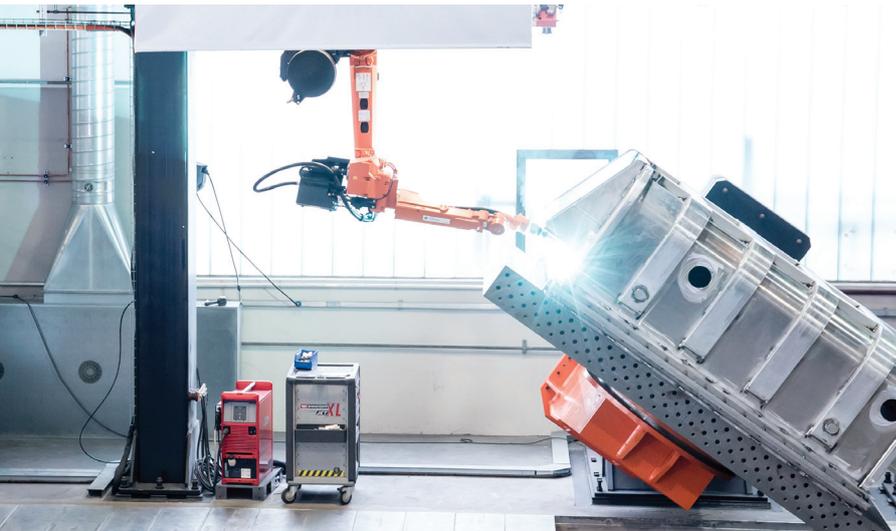


Welding together

A customized solution



A specialist in aluminum welding, Allucan has been collaborating with ABB since its foundation in 1962, when it was originally known as E. Nussbaumer AG. It should therefore come as no surprise that ABB Robotics provided the ultimate solution when Allucan began looking for a welding robot – a solution that was 18 months in the planning. At the time, the company produced all its welding components manually, which was time-consuming and involved a high percentage of downtime while the parts were repositioned.

To remain competitive, Allucan had to find a way to increase efficiency to counter the disadvantages of operating in a highcost location coupled with a strong currency against the euro of its neighboring client countries. For example, among its international customers, Allucan welds the transformer tanks found on German high-speed ICE trains. Together with the integrator, Bachmann Engineering, also based in Switzerland, Allucan drew up a list of requirements. “I must admit, my hair stood on end when I heard the list of specifications, wishes and dimensions involved,” recalls Roger A. Bachmann, CEO of Bachmann Engineering. “As a result we had a relatively long planning phase of six months, including a feasibility study,” he adds. One thing was clear from the start, however: Bachmann wanted a solution based on ABB robots.

Faced with the challenge of welding manufacturing in high-cost Switzerland, Allucan turned to Bachmann Engineering AG to enhance efficiency. Just nine months after installation of a robot supplied by ABB Robotics, the client saw productivity rise by one third and this is still increasing.

Staffan Wiberg, Gantry Export Sales Manager from ABB Robotics SpA in Milan explains that Allucan needed a large gantry-mounted robot, incorporating a second workstation for smaller components and that was quick in moving from the original computer-aided design (CAD) to final production. “ABB Switzerland contacted us in June 2013 as we had already sold more than 100 gantries within Italy and had just finished our standardization project”, he says. “This was focused on making our special gantries and customized highpayload positioners part of the standard ABB product range worldwide. For us, Allucan represented a perfect opportunity to implement this new modular ABB standard concept.”

An order was placed for an IRB 2600. Mounted in an inverted position on the gantry carriage, it can be moved in three directions: along the gantry beam stroke, transversally perpendicular to the gantry beam, and vertically. While this is a standard system, ABB modified the overall concept to include a special, larger positioner, the IRBP i-A5000 (two axis positioner), which can support components to be welded weighing up to five metric tons and can be used in single-axes mode with loads of up to 12.4 metric tons.

The welding is carried out as a combination of movements from the robot itself, the gantry axes and the positioner, with the result that close to 98 percent of the welding spots can be reached by the system.

A second, smaller positioner, the IRBP D-600, with two axis on either side, was also included in the installation. This allows for welding to continue in the secondary zone while parts are being exchanged in the main working zone. This called for additional safety features, such as each work zone being surrounded by fences on three sides and light beams on the fourth side to automatically shut down the robot should someone enter the zone while welding is being carried out. At the end of the long and complex installation, Allucan can be proud of the fact that it owns a system that is the only one of its kind within Europe. "I'm convinced that this is the best system available on the market," Wiberg states, a sentiment echoed by Daniel Erni, managing director of Allucan, who adds: "With Bachmann Engineering we decided on ABB Robotics as they offered the most advanced, integrated system. It was important for us that the new system could use our CAD data and we could plan the production offline." This is achieved using the accompanying software, RobotStudio, which enables 80 percent of the welding process for a new part to be planned virtually, well in advance of the start of production and offline, without blocking the robot. As the complete ABB product range of gantries and high payload positioners is fully supported within RobotStudio, it was simple and straightforward to implement offline programming. "With RobotStudio the client has all the tools you need to program the system efficiently and autonomously – right up to the finished product," Bachmann explains. "The workers at Allucan had no previous experience of robots so we trained them in the use of the program and will continue to offer further training." Erni confirms that he singled out one of his employees to become specialized in operating the IRB 2600 six months prior to the installation.

"One of our requirements was to achieve as many automated welding hours as possible," he says. "With the second zone and the integrated software we have been able to reach this goal.

"The IRB 2600 has been in operation since December 2014 and has already proved its worth." "We wanted to increase productivity as quickly as possible and we've increased this by a third," Emi says. "With better planning we can do even better." While it naturally depends on the amount and type of orders – an ICE transformer tank needs 60 hours of welding, for example – Allucan expects a return on its investment within two years.

Another advantage of this automated system is that Allucan can look forward to new business: "While it's always a long process winning over a new customer, our existing clients have shown an interest in the new possibilities offered by our robot," Emi says. "And I can also approach new, potential customers with our expanded offering."

About Allucan

With an emphasis on consulting, processing and construction, Allucan (www.allucan.ch) specializes in the production of individual, high-quality aluminum components. From the original customer idea to the finished product, the company of 26 employees creates aluminum products from one source. Alongside robot welding, Allucan offers MIG and TIG welding as well as soldering.

About Bachmann Engineering

For over 30 years now, Bachmann Engineering (www.bachmann-ag.com) has been a partner to industry for turnkey automation, robotics, handling devices, individualized machinery, design and software development. With around 20 employees, the company is committed to national and international R&D projects, partnering Swiss colleges and universities.

The Allucan system for aluminum welding

- Robot IRB 2600 ID
- Three axes gantry carriage X=10,6 m, Y=1,5 m, Z=1,5 m
- Positioner for heavy parts with loads up to 12,5 tons
- Positioner for small parts with two axes
- manipulation, max load 600 kg per side
- RobotStudio for offline programming

Benefits for Allucan

- 30% productivity increase
- ROI within two years
- Fast time-to-market
- 80% of programming offline