Robotics

Allt i Plåt
Case study: Metal Fabrication

A big step for a small company. The global thirst for minerals and metals has rubbed off on AB Allt i Plåt, a small company in southern Sweden that manufactures, among other products, cabs for mining machines and cranes.

It was a simple equation. The unemployment rate for professional welders in southern Sweden, in the region of Småland, is so low that the family-owned company Allt i Plåt (loosely translated as Everything Within Sheet Metal) decided to meet increased demand for its products with a welding system from Andon Automation based on a three-axis manipulator and a dedicated handling system. Allt i Plåt, which employs about 50 people, have installed a robotic welding cell from Andon Automation with an ABB robot (delivered by Andon Automation) in one of its large manufacturing halls as part of a companywide modernization strategy – the biggest in the company's history.

"We invested SEK 25 million in 2007 to upgrade our facilities and modernize our equipment," says Christer Persson, who took over the company with his brother and sister in 1995.

Allt i Plåt

“We were interested in a total system solution,” says Olle Persson (to the left). “And we decided on Andon and ABB after a customer conference where we saw the possibilities of their solution for us.”

The changes in the factory are on a grand scale. Besides the robotic cell, which is used to weld up to 600 meters of joints on a 1,000-kilogram mining machine’s cab, Allt i Plåt has also installed a German-made Trumpf laser precision cutting machine in an adjacent 1,600-square-meter hall.
This machine takes the company’s raw material, sheets of steel 1,500 millimeters wide by 3,000 millimeters long in various thicknesses supplied by Sweden’s SSAB, and cuts them into 40,000 different parts or articles that are then pieced together to manufacture cabs.
Among the company’s clients are equipment manufacturers within the mining, trucking and forestry industries. In addition, Allt i Plåt manufactures humidifiers and dehumidifiers, a legacy business from the old days that does not require any welding.

However, manufacturing truck, mining machine and forestry machine cabs is a welding-intensive business. After laser cutting all the individual pieces of a cab, the pieces are “stapled” together (through the use of small spot welds), and then the raw cab, which at this point looks like a cable car, is transported to the robotic welding cell. In the cell, the 1,000-kilogram cab is secured to a 2-axis positioner, which rotates the cab into optimal welding positions.
“This communication between the robot and the positioner is where the advanced technology comes in,” says Lennart Niklasson of Andon Automation. The ultimate benefit, according to Persson, is that the robot can weld a whole cab in three hours, as opposed to a whole shift.

“In addition, the quality of the welds is much higher, which for a mining machine that works in dangerous environments is an important safety improvement,” he says. “And our customers also appreciate that we are using more efficient procedures.”
After the welding, each individual cab is painted, buffed and outfitted with all the necessary cables, sound isolation and safety glass. “These cabs actually look quite nice,” says Persson, standing next to a bright yellow unit that just came out of the paint shop. “It is too bad they have to go down a mine and get dirty and all scratched up.”

FACTS

Allt i Plåt’s benefits from automated welding

- Welding time per cab has decreased to around three hours, compared with a whole shift if done manually.
- Increases capacity and production.
- Allt i Plåt chose the IRB 1600 robot with the IRC 5 steering system from Andon Automation, an engineering specialist within arc welding and thermal cutting applications based in Örebro, Sweden. The company partners exclusively with ABB.

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