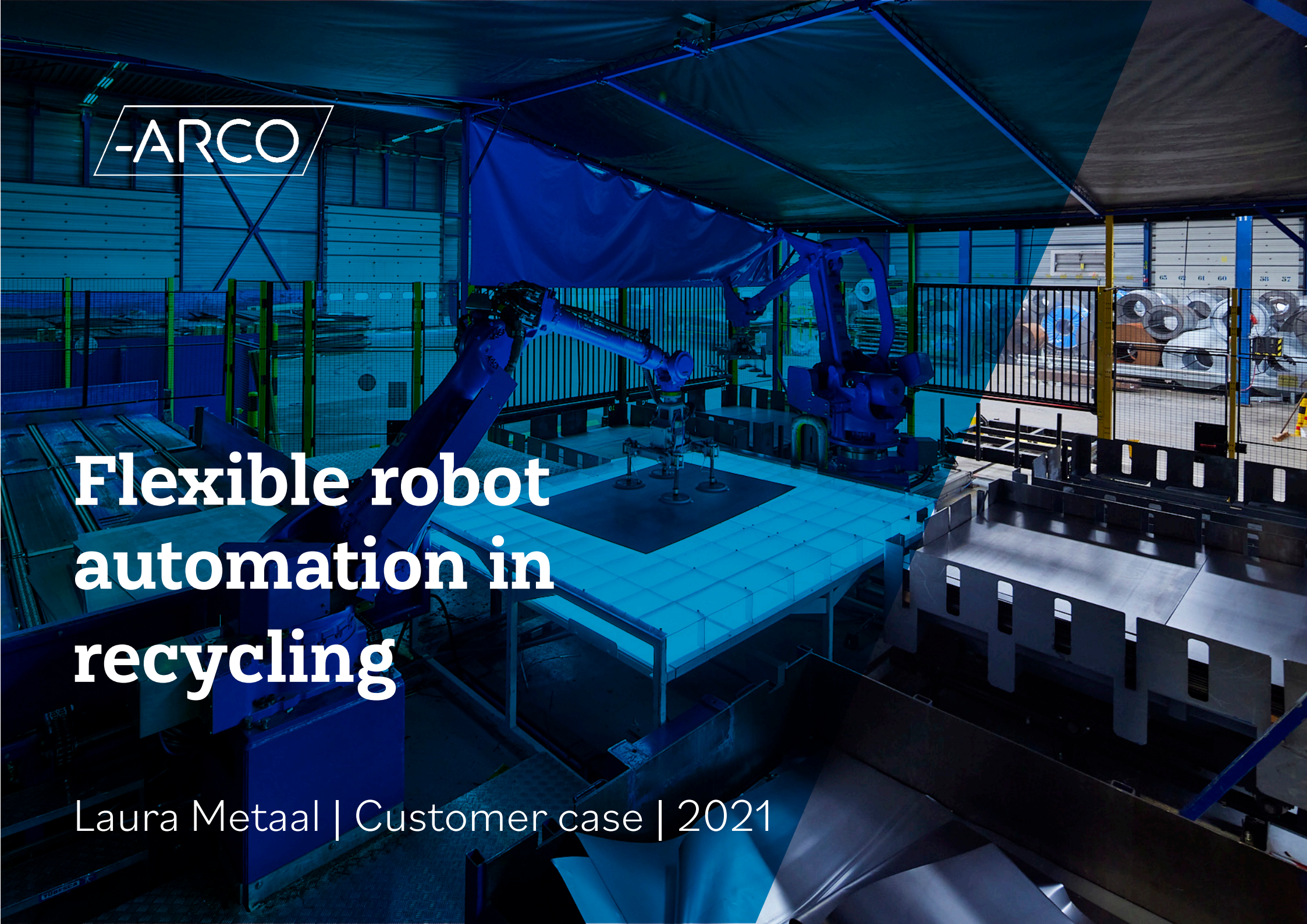

Flexible robot automation in recycling

Laura Metaal | Customer case | 2021

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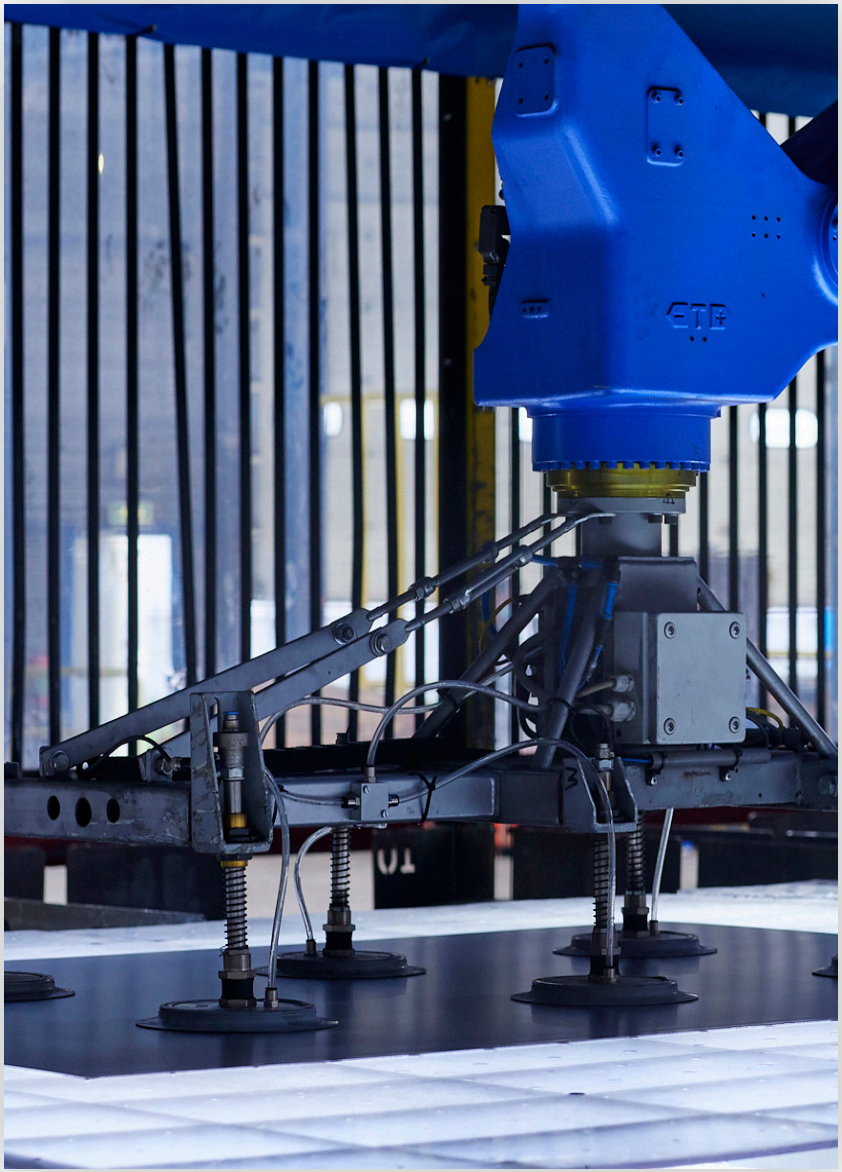
Easily sort leftover metal sheet cuttings with ARCO's industrial robots

Laura Metaal is a company that has been in the metalworking and metal trading business since 1937. One of the activities at Laura Metaal is sorting leftover metal sheet cuttings that come from Tata Steel. Tata Steel produces large quantities of metal sheets and the leftover metal sheet cuttings go to Laura Metaal. Here, these leftover metal sheet cuttings are sorted by quality, after which they can be returned to the market.

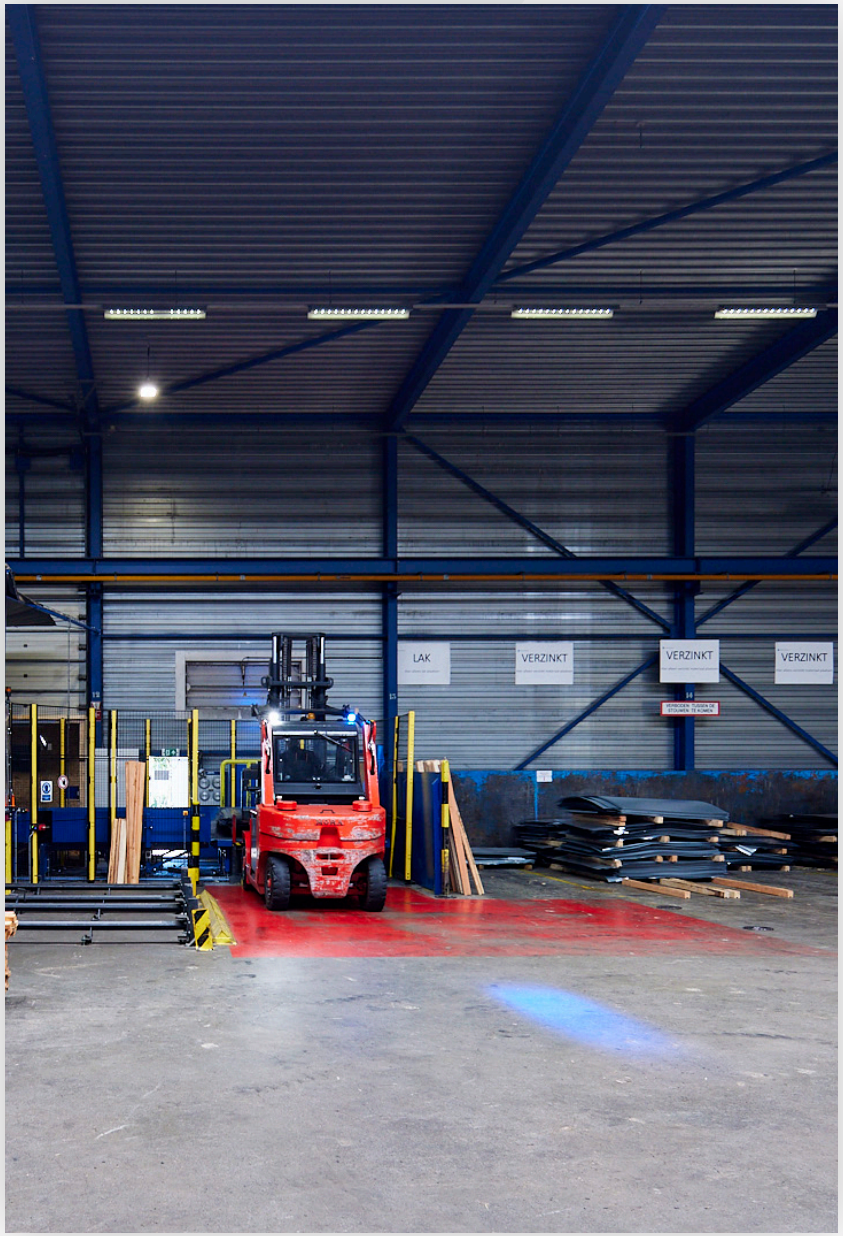


Working as safely and ergonomically as possible

Working as safely and ergonomically as possible

Laura Metaal employs roughly twelve people to sort sheets. Laura Metaal asked us how this could be done more efficiently. In terms of safety and occupational health, improvements were necessary. ARCO and Laura Metaal reviewed how the sheet selection process could be made faster, safer, and more efficient. It was this exact analysis beforehand that was decisive for the success of the project.

ARCO works with the customer to determine what the robot should be able to do, what the result should be, and how it can be achieved.



Two industrial robots and overall efficiency equipment

Two industrial robots and overall efficiency equipment

Because the ergonomic conditions for sorting sheets were not optimal, ARCO deployed two industrial robots that took over the heavy work from the operators. The first industrial robot lifts all the sheets, so that this no longer has to be done by employees. All the sheets to be sorted are in a large container. Employees can view a grid on their screen showing a container divided into various compartments. By clicking on one of these boxes, the employee determines where the robot grabs the sheet. This is done with the help of a vacuum tool.

The employee determines the quality and location of the sheet and enters these data. The sheet is then placed on a weighing and scanning table by the robot.

This weighing and lighting table weighs the sheet and also works as a light box, above which hangs a camera that takes a photograph of the sheet, which quickly and accurately determines its location and dimensions. The second robot then picks up the sheet and autonomously places it in one of the five containers sorted by quality. Because the weight and the circumference have already been determined, employees know exactly what the final weight per container will be.

The robots ensure the safe movement of the metal sheets and provide insight into the overall efficiency of the equipment, also known as OEE. This gives the employees insight into performance, downtime, quantity of sheets processed, etc.

This ensures that results can be optimized and employees can be trained. Additionally, management can use the OEE as a reporting and accountability tool. Based on the number of hours it runs, the company can determine when certain parts need to be replaced.

The OEE allows for the perfect matching of the two industrial robots that work independently of one another. For example, the second robot (which places the sheet in one of the five containers) can be put into operation as soon as the first robot (which has placed the sheet on the light and weighing table) starts to turn back. The system will continue to run when the containers to be filled are full and are changed.

From twelve to six employees

From twelve to six employees

Before Laura Metaal met with ARCO, twelve employees were sorting sheets. Each sheet was picked up, assessed, and stacked as a package. Now the same work is done by only six employees. This means a saving of six FTEs, a safer working environment, and more work focused on performing checks instead of physically demanding work. In close cooperation with Laura Metaal, we came up with a fantastic solution. As Laura Metaal points out,

"ARCO has transformed a manual process into a robotic machine that fully integrates occupational health, safety, and efficiency. 'When you both believe in solutions, great results come naturally".

But even after the installation of the robots, the project isn't finished for ARCO. In consultation, ARCO maintains and optimizes the robots. For each project, we look at the situation, possibilities, and customer wishes.

Need help with a technical issue?

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