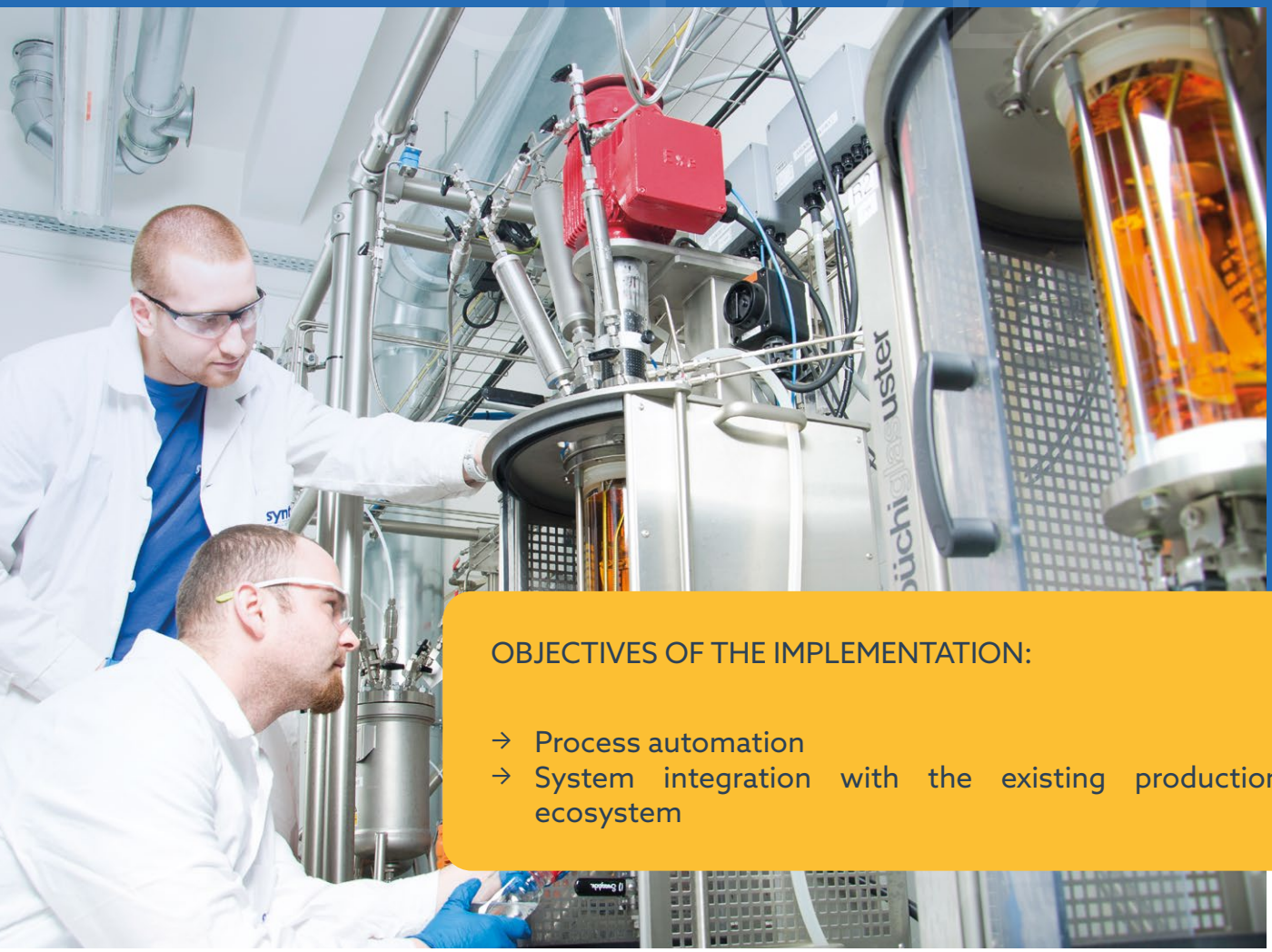
CASE STUDY

Innovative packing and labelling system at Synthos S.A.



OBJECTIVES OF THE IMPLEMENTATION:

- → Process automation
- → System integration with the existing production ecosystem

BENEFITS OF THE IMPLEMENTATION:

- Reliable robotic packing
- Efficient and accurate labelling
- Minimised labelling errors
- Complete synchronisation of manufacturing stages

SKK optimization & automation

Synthos S.A. Capital Group is the first manufacturer of emulsion rubber in Europe and the key European manufacturer of expanded polystyrene. It is also one of the largest manufacturers of chemicals in Poland. The company plans dynamic development in the area of specialist rubber, materials used in heat insulation and bio-petrochemical sector. Synthos S.A. manages two manufacturing companies, including Synthos Dwory 7 with its registered seat in Oświęcim and Synthos Kralupy in Czechia. The company focuses on the quality and efficient service, product innovation, affordable prices, environmental safety of technology and products, as well as work safety.

Looking for a solution relating to manufacturing process automation, Synthos expected that it meets challenges connected with the dynamic company development, while maintaining the previous quality, competitive advantage, and employee safety. The project was entrusted to SKK S.A. and Aiut Sp. z o.o. which created a unique system combining a modern packing line operated by robots with an automated labelling system.

Synthos invests in solutions which are to increase its manufacturing capacity and improve the control of processes on technological lines. One of the technological innovation used by the company from Oświęcim is a cutting-edge solution for rubber cubes' packing and for labelling containers where plastics are transported. The system was supplied by SKK and Aiut.

Plastics manufactured in the plants in Oświęcim are packed in specialist containers transported worldwide. Synthos required a reliable and flexible solution which would ensure fast and faultless labelling of sea containers. The first challenge was the different size and dimensions of containers. Another one was the non-uniform surface of containers, as it was partially smooth and partially ribbed. This means that the labeller must operate on different heights and label in different directions to avoid ribs and target the smooth surface precisely where it can apply the label.

Paweł Giel

Automation Specialist at Aiut

For Synthos, we made the whole line for rubber cube packing, while SKK prepared applicators for labelling crates where rubber is packed. How does the combined system operate? The rubber cubes leaving the manufacturing line are pressed and go through all stages of the packing process. They are weighed, measured, covered with plastic film, they go through devices for measuring humidity and a metal detector. Finally, the robots pack them in bulk crates. This is where the role of SKK label applicator starts.

The solution delivered by SKK is automatic label applicators combining a printer and a device attaching labels to containers. However, this is not a standard labelling device. The machines were designed in line with the individual requirements and needs of Synthos.

The automatic label applicators from SKK are fully integrated with systems operating in the company, the controller managing the manufacturing line and ERP software. The entire process of label production and application is synchronised with the manufacturing stages. The labels are generated based on data collected from the manufacturing line control system to which it gets from the ERP software of the company. This means that the production order is initiated in the master system, then sent to the process line and next to the machine which prints the label and attaches it in the selected location. The data for the labels is generated dynamically, on a case-by-case basis. At this stage, the system adapts the label type to the container type and its target place in the warehouse.

The implementation was divided into several stages. The works relating to the project were started from developing a prototype labelling machine. Following successful tests, SKK supplied devices which operate in the manufacturing plants of Synthos now. The label applicator was integrated with the packing system by Aiut and the whole unit was installed on the manufacturing line. The final project stage was training Synthos employees relating to the system operation.

SKK supplied devices for automatic container labelling which met all the requirements of Synthos. The label applicators move up and down and forth and back and use moving arms to attach the label to the selected part of the container. Thanks to that, the labels can be placed at different heights and in different places, depending on the container type and its warehouse location.

The automatic label applicators from SKK are robust, resistant and withstand the conditions in the manufacturing sheds. The system is highly accurate and effective and enables to label containers in a short time (60 pcs./h). It can operate 7 days a week, 24 hours a day, which is important for the three-shift work used in the company in Oświęcim.

Paweł Giel

Automation Specialist at Aiut

We cooperated with SKK 6 years ago when installing the previous packing line integrated with label applicators. The devices operate faultlessly until today. This is why we decided to contact SKK again and ask them to cooperate with us when implementing another solution for Synthos. 6 years ago, we implemented six packing and labelling systems together, now we have installed another four. That was quite a challenge which we managed to cope with once more.