

Press Report

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Maximum efficiency for metal-plastic composite parts

Swoboda relies on vertical machines from the WITTMANN Group

With roughly 200 square meters of floor space, it is one of the largest and most complex production cells at this location. Millions of switchbox housing components are manufactured with this equipment every year. What makes the plant special is its high degree of automation.

We are visiting Swoboda CZ in Jihlava, Czech Republic, 120 kilometers south-east of Prague. The plant, which is part of the global Swoboda Group, specializes in complex metal-plastic assemblies, as Václav Dostal, Managing Director of Swoboda CZ s.r.o., explains to us. For the local team, the switchbox housing components are not a new product, but the production process has changed entirely. “The cost pressure has risen enormously”, says Dostal. “That is why we decided to invest in a new, fully automatic production cell.”

The development of this process can be clearly traced by us during our company tour. For the two previously installed production cells are still up and running. They work semi-automatically. “With the new process, we have doubled our capacity”, says Dostal. With this product, Swoboda benefits from the global expansion of renewable energies. The Czech team is particularly proud of this project. Orders of this kind help them to reduce their dependency on the automobile industry.

Vertical machine from WITTMANN supports efficient automation

In the course of developing the new production process, the automation concept was completely redesigned. However, some tried and tested features were left unchanged, such as leaving a large WITTMANN vertical injection molding machine with 270 tons clamping force standing at the center of the production cell, equipped with a two-station rotary table, plus temperature controllers also supplied by WITTMANN.

“The vertical machine models from WITTMANN offer a particularly high degree of convenience for our production staff”, says Production Manager Pavel Bohuněk, who then emphasizes that all the vertical machines on the shop floor have come exclusively from the WITTMANN Group. Some of these have already performed their reliable service for many years.

What does convenience mean for Swoboda? – Two things, Bohuněk explains. Firstly, it comes from the intuitive user interface of the WITTMANN machine control system, which

enables even production staff with little experience to achieve a consistently high standard of parts quality, and to re-start the process efficiently after a standstill. Secondly, the Production Manager points to a structural specialty of the vertical machines from WITTMANN, included in the delivery as standard for all models with a two-station rotary table. "This concerns the supply of the temperature control media", specifies Michal Slaba, Managing Director of WITTMANN BATTENFELD CZ: "The connections are placed above, so that a central rotary distributor can be dispensed with. This ensures exceptionally easy accessibility to the molds, which simplifies both automation and manual work, such as maintenance servicing."

Sophisticated transfer system coordinates individual production steps

The mold bottom halves are positioned on the rotary table to produce the switchbox housing components. The large six-axis robot removes the finished parts from the cavities and simultaneously refills them with new inserts. "The challenge this part presents to us is the large number and diversity of the insert parts, which the automation system must handle safely", says Dostal.

Another robot assists the large six-axis robot. It is responsible for pre-positioning the insert parts in frames. The parts to be over-molded include several signal pins, power pins and sockets. Some inserts are presented to the robot in trays. Some of the pins are punched and bent in-line via reel-to-reel systems. The impressive feature though is the transfer system inside the production cell. Via a rail system, the frames are transported to the clamping unit, where the multi-axis robot takes over the complete insert sets and places the pins and sockets into the mold cavities. They are then over-molded with white, fiberglass-reinforced plastic material.

The freshly injection-molded components are transported away from the clamping unit by the transfer system. They are passed to camera inspection and DMC marking, deposited in trays and then leave the production cell. All empty frames and transport carriages are returned automatically to their starting points at the end of the cycle.

Setting benchmarks for other locations worldwide

The entire automation has been developed and built on site. Automation solutions from Jihlava are also in operation at other Swoboda locations around the world. The new production process for making switchbox housing components is exemplary. The complete automation of all process steps and the excellent repeatability of the WITTMANN injection molding machine have successfully increased the efficiency and made it possible to reduce the unit costs. Moreover, they ensure high process stability and consistency of quality standards.

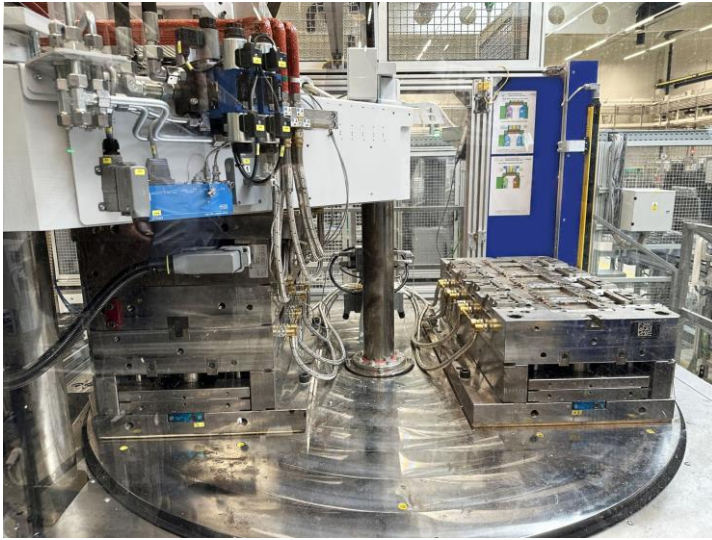
In the Czech Republic, WITTMANN and Swoboda are living a genuine partnership. Effective assets here are the short distances and good facilities of the Czech WITTMANN subsidiary with its own spare parts depot, training center and technical center. “When it comes to optimizing processes by boosting their efficiency, we are an important sparring partner for many of our customers”, Michal Slaba points out.



The automation equipment with a sophisticated transfer system encloses the injection molding machine.



Working together for maximum efficiency: Pavel Bohuněk and Marek Hejl from Swoboda CZ together with Michal Slaba from WITTMANN BATTENFELD CZ (from left to right).



The temperature control media connections come from above, so that the injection molding machine does not need a central rotary distributor. This ensures very comfortable access to the molds.



Michal Slaba, Managing Director of WITTMANN BATTENFELD CZ (2nd from left) with the Swoboda project team: Martin Ohnút, Molding Process Engineer, Pavel Bohuněk, Production Manager, Václav Dostál, Managing Director, and Marek Hejl, Project and Technology Manager (from left to right).

Pictures: WITTMANN

The WITTMANN Group

The WITTMANN Group is a globally leading manufacturer of injection molding machines, robots and auxiliary equipment for processing a great variety of plasticizable materials – both plastic and non-plastic. The group of companies has its headquarters in Vienna, Austria and consists of two main divisions: WITTMANN BATTENFELD and WITTMANN. Following the principles of environmental protection, conservation of resources and circular economy, the WITTMANN Group engages in state-of-the-

art process technology for maximum energy efficiency in injection molding, and in processing standard materials and materials with a high content of recyclates and renewable raw materials. The products of the WITTMANN Group are designed for horizontal and vertical integration into a Smart Factory and can be interlinked to form an intelligent production cell.

The companies of the group jointly operate ten production plants in seven countries, and the additional sales companies at their 35 different locations are present in all major industrial markets around the world.

WITTMANN BATTENFELD pursues the continued strengthening of its market position as a manufacturer of injection molding machines and supplier of comprehensive modern machine technology in modular design. The product range of WITTMANN includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. The combination of the individual areas under the umbrella of the WITTMANN Group enables perfect integration – to the advantage of injection molding processors with an increasing demand for seamless interlocking of processing machines, automation and auxiliaries.

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