

April, Kottlingbrunn/Austria

## USER REPORT

Happ Kunststoffspritzgusswerk und Formenbau GmbH, Germany

### ***Smart injection molding through flexible linking of injection molding machines by conveyor systems with buffering capacity***

***Happ is a well-known manufacturer of parts and assemblies for the automotive industry based in Ruppichteroth, North Rhine-Westphalia, Germany. The equipment used to make these products includes several injection-molding machines of the all-electric EcoPower series from WITTMANN BATTENFELD. Flexible linking together of two of these machines by conveyor systems with buffering capacity from the Happ subsidiary ErgoTek enables efficient production of complex assemblies with a guarantee of highest possible quality standards.***

Happ was established in 1964. Its first products were sandwich boxes and furniture fittings. The family-owned and owner-managed company in Ruppichteroth currently employs 70 workers making high-quality, complex parts and assemblies primarily for the automotive industry in three shifts on a 6,000 square meter production floor. Some of the company's sales are also realized with products for white goods. Happ offers its customers the complete portfolio of goods and services ranging from product development and design and in-house mold-making all the way to prototyping and series production.

The company processes more than 1,300 t of many different types of thermoplastics with shot weights ranging from von 0.5 to 3,000 g by 1- and 2-component injection molding. About 40 injection molding machines with clamping forces from 350 to 8,000 kN are available for producing the plastic components, of which 7 are all-electric *EcoPower* machines from WITTMANN BATTENFELD in the 1,000 to 3,000 kN clamping force range. Most of the machines from the *EcoPower* series are equipped with W818 and W822 robots from WITTMANN. To dry its materials, Happ uses a central material drying system from WITTMANN.

Thanks to continuous investment in innovative automation technology, Happ is able to put together complete assemblies fully automatically and consequently with

ultimate precision and efficiency. To develop and manufacture these automation solutions, Happ established the company ErgoTek at its domicile in Ruppichteroth in 2015. The foundation of ErgoTek originated from a product developed by Happ in 2014 for the fitness and physiotherapy sector by the name of Ergo-Wall. This is a climbing wall which can be set at different tilt angles using automation and conveyor technology. At the University of Potsdam, the Ergo-Wall is now being used to train physiotherapists.

Happ then decided to have ErgoTek utilize the knowledge gained with this product not only for assembly work on its own production floor, but for other industries as well. Since 2018, the modules at the heart of the modular conveyors have now been used in industrial environments. In 2019, the modular conveyors, primarily used for clocked systems, were supplemented by the FlexiTek system. Here, the FlexiTek systems with buffering capacity are suitable for a great variety of applications and optimally adapted to the requirements in injection-molding production. For 2020, an extension of the portfolio is planned, to include a heavy-load conveyor system for lattice boxes.

With the expertise of Happ in the area of plastics injection molding production and its many years of experience in conveying and automation technology, various modules are being developed which ErgoTek can use flexibly and in a modular way in the conveyor technology systems. Here, special attention is paid to the products' cost-efficiency.

A project recently completed by ErgoTek in the company's own production is the flexible linking of two *EcoPower* machines by conveying systems with buffer capacity. With this system, the outer and inner tubes of oil filter drain screws for the automotive industry are fully automatically assembled, inspected, laser-printed and deposited.

In this system, two *EcoPower* 110/350 machines are integrated, both with 1,100 kN clamping force and each equipped with a W818 robot from WITTMANN. On these machines, the inner and outer tubes of the oil filter drain screw are injection-molded, each with a 2-cavity mold, then removed by the WITTMANN robots and presented to a camera to check the parts' dimensional accuracy. Another camera examines the parts for burr formation. Next, the tubes are transported further by FlexiTek conveyors from ErgoTek and buffered for cooling. Then, a Scara robot fits the outer tube onto the inner tube. With the help of an articulated robot and a further camera check, the depth gauge and angular position are measured, and subsequently the parts are transferred to a labeling band for laser printing. From there, the finished components are transferred to the Flexi buffer from ErgoTek.

Using this clocked system has finally made cost-efficient manufacturing of this product possible. But the production cell offers a number of other advantages as well:

- Thanks to interlinking the two parts of the system via the FlexiTek conveyor belts, storage of the individual parts can be dispensed with, and the allocation of cavities and consequently traceability remain ensured.
- SPC parts can be requested and removed via the chutes.
- If an interruption occurs on one system component, the other components can continue their production for up to a maximum of one hour.
- The box buffer with the finished parts only needs to be emptied about every 2.5 hours.
- The linkage of the FlexiTek conveyor belts requires only a minimal control effort and permits separation of the individual safety areas from each other.

Happ has been relying on technology from WITTMANN BATTENFELD for over 15 years. What is specially appreciated at Happ and ErgoTek is the robustness and simple operation as well as the easy extensibility of WITTMANN BATTENFELD equipment, in addition to the excellent service. Dirk Wevelsiep, Sales Manager at ErgoTek, comments: “Thanks to their easy extensibility, the injection molding machines from WITTMANN BATTENFELD are ideally suited for intelligent linkage. And when it comes to aftersales service, WITTMANN BATTENFELD is also in a strong position.”



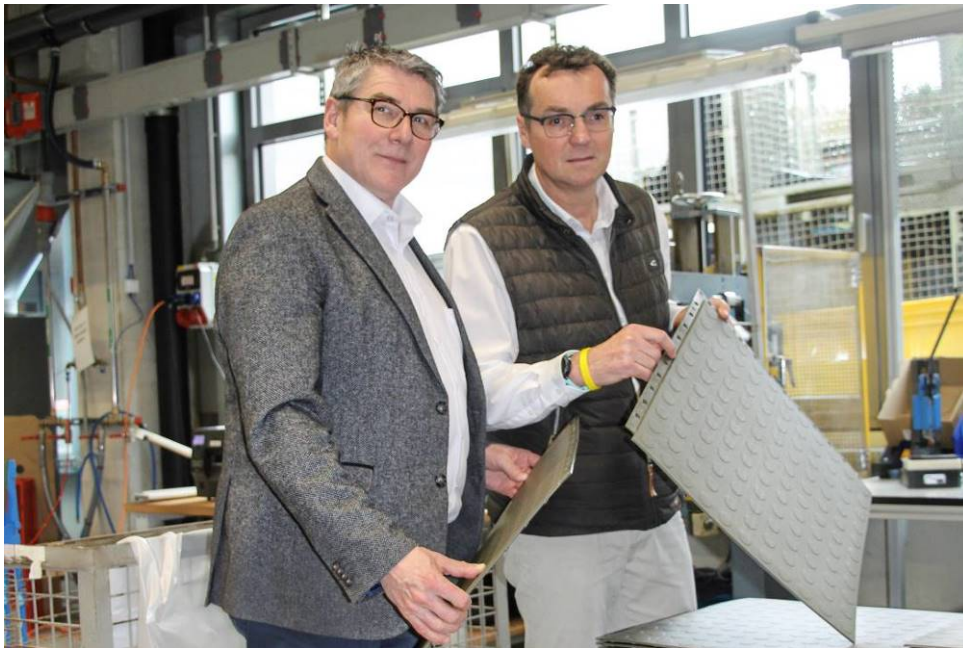
**Fig. 1:** from the left: Thomas Bertram, WITTMANN BATTENFELD salesman, and Dirk Wevelsiep, Sales Manager at ErgoTek, in front of the interlinked injection molding system  
(Photo: WITTMANN BATTENFELD)



**Fig. 2:** General view of the *EcoPower* 110/350 injection molding machines from WITTMANN BATTENFELD linked together by conveyor systems with buffer capacity (Photo: WITTMANN BATTENFELD)



**Fig. 3:** from the left: inside and outside tube of an oil filter drain screw and the finished product (Photo: WITTMANN BATTENFELD)



**Fig. 4:** Dirk Wevelsiep shows Thomas Bertram the newly developed product, a baseplate with self-sealing undercut (Photo: WITTMANN BATTENFELD)



**Fig. 5:** Flexi conveyor (testing appliance) from ErgoTek consisting of plastic parts made by Happ (Photo: WITTMANN BATTENFELD)



**Fig. 6:** Ergo-Wall – the first product from ErgoTek for recreation and physiotherapy  
(Photo: WITTMANN BATTENFELD)

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## Obituary

We are deeply saddened to inform you that Thomas Bertram, WITTMANN BATTENFELD Sales, passed away suddenly and unexpectedly on 15 March. Thomas Bertram represented our company with great dedication, always ready to serve his customers. We assume that it would also be in Mr. Bertram's best interest to have this report published unchanged.

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## The WITTMANN Group

The WITTMANN Group is a worldwide leader in the production of injection molding machines, robots and auxiliaries for the plastics processing industry, headquartered in Vienna/Austria and consisting of two main divisions: WITTMANN BATTENFELD and WITTMANN. They jointly operate the companies of the group with eight production plants in five countries, and its additional sales and service companies are active with 34 facilities on all important plastics markets around the world.

WITTMANN BATTENFELD pursues the further expansion of its market position as an injection molding machine manufacturer and specialist for state-of-the-art process technologies. As a supplier of comprehensive, modern machine technology in modular design, the company meets both present and future market demands for plastics injection molding equipment.

The WITTMANN product portfolio includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. With this diversified range of auxiliaries, WITTMANN offers plastics processors solutions to cover all production requirements, ranging from independent production cells to integrated plant-wide systems.

The syndication of the various segments under the umbrella of the WITTMANN Group has led to complete connectivity between the various product lines, for the benefit of plastics processors with an increasing demand for seamless integration of processing machinery with automation and auxiliaries.

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