

USER REPORT

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German quality with internationally competitive unit costs

RING Kamm und Haarschmuck manufactures autonomously for up to 18 hours with WITTMANN injection molding technology

Manufacturing at lower cost than in Eastern Europe and on a competitive level with Asia – this was the target when RING Kamm und Haarschmuck GmbH, based in Bavaria, decided to relocate parts of its injection molding production back to its own facility. WITTMANN accepted the challenge and supplied a highly integrated production cell grouped around a SmartPower injection molding machine with in-line recycling, able to manufacture autonomously for up to 18 hours. RING thus saves material, energy and manpower and achieves internationally competitive unit costs.

The RING brand has a long tradition. “My great-grandfather established the company in 1931”, Stephanie Renner told us during our visit in Regensburg, South Germany. Together with her mother Elfriede Renner-Weigert and her brother Walter Renner, she manages RING Kamm und Haarschmuck GmbH today, a company known primarily for its top-quality combs. “In the 1970s, there were 200 merchants selling combs in Germany”, she reports from what she has been told. Today, the business is concentrated on major drugstore chains. The numbers of units per customer have increased, but so has the price pressure, too.

The grandparents already adjusted to the changing times and started to diversify the product range. Today, the portfolio includes more than 3,000 products in 3 different business segments, which are being sold in more than 30 countries worldwide.

For a long time, RING manufactured all its products at its own facility. Then part of its production had to be relocated abroad, due to rising labor and production costs.

The Corona pandemic brought about another change. “We had problems with having our products delivered on time from our supplier”, Renner reports. “What is more, the supplier also wanted to increase the price by up to 30 per cent because of the higher energy costs. In that case, we would have ceased to be competitive.”

So, the family council decided to relocate part of the production back to the company's own premises. At first this concerned the most important tooling for making bathroom accessories, such as tooth mugs, toothbrush boxes, soap dishes and combs, which are now being manufactured in Regensburg in large quantities for a German drugstore chain.

On the day of our visit, tooth brush boxes are running off the production line on a SmartPower injection molding machine from WITTMANN. Made of polystyrene, in mother-of-pearl white, one of the current trend colors in the drugstore range.

For more than half a year now, the SmartPower has been producing around the clock, with breaks only for set-up and servicing. The production cell is designed so that it can operate autonomously for up to 18 hours.

Counselling and service made all the difference

The path was not entirely smooth between deciding to resume in-house production and actually starting up the new WITTMANN production cell. "My grandfather and my father have long since passed away, and with them, we have lost much of our injection molding expertise", Elfriede Renner-Weigert remembers. "We had to start all over again to recover the know-how." Here, the family-owned company received extensive support from WITTMANN.

"My father knew Werner Battenfeld personally", says Renner-Weigert. "Formerly, all our injection molding machines came from Battenfeld. So, I know that these are good-quality machines." Nevertheless, enquiries were not only made to the WITTMANN Group, of which Battenfeld is a part today. On the contrary, the entire market was thoroughly scrutinized and negotiations conducted with several injection molding machine manufacturers. But in the end, WITTMANN won the contract, and so this tradition is also being continued at RING.

"With WITTMANN, we felt from the beginning that we were very well advised", Stephanie Renner emphasizes. "WITTMANN had the best answers to meet our requirements. For our decision to purchase, their counseling and excellent service tipped the balance in their favor."

Autonomous production for up to 18 hours

Extreme efficiency and autonomous production to minimize unit costs – these were the requirements in a nutshell for the new production cell. "One crucial point for us was that we did not have to hire any additional staff", says Renner, "which would have pushed up our unit costs too far. Quite apart from the fact that our region already suffers severely from skilled labor shortage anyway."

“We looked very carefully into what really makes sense in this case”, reports Gottfried Hausladen, Regional Sales Manager of WITTMANN BATTENFELD in Germany. “As little as possible, as much as necessary – this principle was the key factor to reach the optimal solution for our customer. “

In the end, a turnkey production cell was delivered, grouped around a servo-hydraulic SmartPower 120/350 injection molding machine equipped with a WP80 sprue picker, as well as a temperature controller, blenders and material handling devices, a material dryer and a G-Max grinder for in-house recycling of sprue and production scrap. In addition, the WITTMANN engineers had integrated into the line concept a conveyor belt and a parts carousel. The carousel consists of two levels, each with four large product collecting boxes, where there is enough room for injection-molded parts from up to 18 hours of production.

“Product changeovers take place as rarely as possible, since every mold change costs time”, Renner explains. Nevertheless, the machine’s flexibility was another requirement with long-term production planning in view. “We are well known for our fast response to customers’ wishes”, says Renner. “For quick deliveries of sample parts, we have invested in a 3D printer as well.”

The particularly large mold platens of the injection molding machines from the SmartPower series contribute substantially to the new production cell’s flexibility. We are able to set up relatively large molds efficiently on our 120-ton injection molding machine”, says Renner. “This gives us a good basis for further expanding our own production at our facility in Regensburg.”

Everything from a single source

“One big advantage for us is that WITTMANN delivers complete production cells from a single source”, emphasizes Elfriede Renner-Weigert. “We have only one central contact partner for the entire system. That gives us a feeling of security.”

So WITTMANN also took care of the public funding application, for example. Due to the high energy efficiency of the SmartPower series, RING was able to make extensive use of the German government's funding opportunities.

RING also received ample support from the WITTMANN application technology department in setting up the tools, and the application engineers continue to support the customer for further process optimization. For this purpose, primarily the online support tools are being used. Via a secure Internet connection, the WITTMANN process specialists can link up with the SmartPower machine’s control system’s interface, view the parameters and make suggestions for even more efficient settings. “We have already acquired a lot of process know-how”, says Stephanie Renner. Her

brother Walter is still taking part in seminars and workshops at the WITTMANN training center.

Saving material and energy

The family is particularly proud of not only reaching but even exceeding the efficiency goals originally set. Various different factors are contributing to these results, for example shorter cycle times, reduced storage costs through just-in-time production, lower transport costs and higher material and energy efficiency.

“We need less masterbatch for dyeing the granulate”, Renner explains. One reason for this is the high-precision dosing technology integrated into the system design by the WITTMANN sales engineers. What is more, in the production of these drugstore items, granulate from direct sprue recycling can be reused in production with a ten percent share.

The SmartPower machine reaches its extremely high energy efficiency level thanks to ultra-modern servo hydraulics and the patented KERS system. This kinetic energy recovery system (KERS) transforms the kinetic energy of deceleration processes into electrical energy, which can subsequently be used, for example, for barrel heating. WITTMANN offers this form of energy recovery also for servo-hydraulic injection molding machines as part of the standard equipment – a unique selling point to this day.

With a photovoltaic power generation system of its own, RING Kamm und Haarschmuck has also achieved partial independence from the electricity market.

Social commitment – a part of sustainability strategy

In-house production also very strongly supports the sustainability goals the family has set itself for their company and its products. “We purchase our raw materials from Europe. Together with our production in Germany, this makes for short transport distances and an extremely small CO₂ footprint for our products”, says Renner-Weigert. “Consumers are increasingly coming to appreciate this type of added value. We can guarantee that the materials processed by us are free of PBA and melamine, and in some cases even approved for contact with foodstuffs.”

RING keeps a close watch on the development of new materials from non-fossil sources. Post-consumer recyclates are already being used today to produce combs, which do not require an approval for food safety. Another product line strongly in demand are bathroom accessories from the Natural series, which are made from bio-based raw materials such as liquid wood.

Social commitment is a part of the company's sustainability strategy. The tooth mugs, tooth brush boxes and soap dishes manufactured on the new WITTMANN production cell are transported to neighboring sheltered workshops in large cartons. In these establishments, the products are labeled and packaged ready to sell.

With its decision to return production to its own premises, RING Kamm und Haarschmuck has strengthened its competitive position on a long-term basis. "Our largest competitors are located in Asia. "With our new production strategy, we are able to offer competitive unit costs even compared with China", Stephanie Renner emphasizes. "That has only become possible because we have taken this course of action."



Fig. 1a+b: RING Kamm und Haarschmuck produces tooth mugs, soap dishes and tooth brush boxes for a major drugstore chain.



Fig. 2: “That WITTMANN supplies complete production cells from a single source is a big advantage for us”, emphasizes Elfriede Renner-Weigert (on the right), who manages the company together with her daughter Stephanie (left) and her son Walter Renner. (Photos: RING Kamm und Haarschmuck)



Fig. 3: The core of the production cell is a SmartPower injection molding machine with a sprue picker. Thanks to the high energy efficiency of the servo-hydraulic machine, RING Kamm und Haarschmuck was able to benefit from the German government's public funding program.



Fig. 4: The comparatively large mold platens of the SmartPower injection molding machine offer ample flexibility for mounting a great variety of molds including relatively large specimens.



Fig. 5: The two-level product carousel makes autonomous production for up to 18 hours possible.



Fig. 6: Sprue is granulated directly. For making the drugstore items, up to 10% regrind can be blended in with the virgin material.



Fig. 7: Jointly exploiting all possible energy saving potentials: Gottfried Hausladen from WITTMANN BATTENFELD in Germany, Walter and Stephanie Renner, and Stefan Hofner, Sales Manager of RING Kamm und Haarschmuck (from right to left).

Photos: 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 recycled 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 six countries, and the additional sales companies at their 37 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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