

USER REPORT

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“Efficiency for inefficient markets”

**ZECA secures a high level of competitiveness
with complete single source solutions from WITTMANN**

Small batches, a wide range of different materials and colors and frequent mold changes hamper the objective of low unit costs. ZECA accepted this challenge and succeeded in strengthening its competitiveness. The key to its success is in-house injection molding production using complete injection molding solutions from a single source supplied by WITTMANN.

Formed in a single cast – this metaphor comes to mind when entering the production plant of ZECA, just half an hour’s drive north of Turin. Eight injection molding machines from WITTMANN of different types and sizes are standing in a line, at the end of which a large central unit for drying and handling plastic granulate has been installed. All machines are consistently fitted with auxiliary appliances and robots which have also come from WITTMANN. A glance at the central monitor of the hall reveals that digitalization has become an integral part of the scene as well. The production cells are all networked via WITTMANN 4.0 and integrated into TEMI+, the MES system developed by WITTMANN Digital for WITTMANN Group. “Our customers are impressed when they come to visit our production plant”, says Paolo Chiarabaglio with pride. He manages the almost century-old company in the fourth generation together with his brother Marco. “We present to our customers a very clean, modern factory. Everything fits into the general color scheme, too. I am sure that people work with greater motivation in such a beautiful environment.”

The ZECA colors yellow, gray and black are the dominating shades on the injection-molded parts running off the conveyor belts on the day of our visit. The company specializes in workshop equipment for both professional and do-it-yourself users, as well as charging stations for electric vehicles. Cable and hose reel systems are among their most widely known product lines. In Italy, their brand name has long been established as a synonym for the entire product group. “Whenever people need a reel, they go into a shop and ask for a ZECA,”, says Chiarabaglio.

Quality and cost-efficiency fully under control

For a long time, the injection-molded parts were bought from external suppliers. Then, in 2022, the managers decided to establish their own injection molding production. However, they did not build on a proverbial greenfield site. Instead, ZECA acquired an existing factory building which had become vacant. In fact, they made a point of exploiting all possible efficiency potentials in the layout of the new injection molding hall.

Competition is tough. In Asia, similar products are manufactured, “at half the price, but also with lower quality standards”, says Chiarabaglio, and emphasizes that: “ZECA’s good reputation is based on the excellent quality of our products. But we must still produce them at competitive prices.”

To have full control over cost efficiency and quality was the essential reason for the management’s decision to start up their own injection molding production. “In the past, we had to reject many supply parts due to quality problems”, Chiarabaglio reports. “In some cases, materials other than those specified by us were used, and the price calculation was not very transparent.”

With its own production, ZECA is also more flexible, above all against the backdrop of an enormous variance in colors. While the company’s own products require only three colors to be processed, many other different colors and types of material are added to this by the contract manufacturing sector. When products are being made in a wide range of different colors, this leads to small batch sizes, with the effect of comparatively high unit costs for external production. Accordingly, ZECA often ordered larger batches to keep in stock, which caused additional warehouse costs in-house. Paolo Chiarabaglio calls this dilemma “inefficient markets”.

Finally, there was yet another, very personal reason that led to the decision to relocate production to the company’s own facility, as Chiarabaglio tells us: “When I was a child, my father often took me along when visiting customers. When presenting our company, he always said that we are assembling products. This irritated me already at an early age. After all, these were our very own products and our product designs. So, I also wanted to be able to say that we are the makers of these products.”

Everything from a single source to reduce expenses

Next to one of the new WITTMANN machines we meet Giacomo Meaglia. He is the head of the new Plastic Division – and a “stroke of luck” for ZECA, as Paolo Chiarabaglio puts it. “With Giacomo, we acquired extensive injection molding know-how for our company.” The young plastics processing engineer had been trained at his father’s injection molding business. From the very beginning, he had learned to think not only in terms of technical parameters, but also in terms of business administration

key figures. So, he is predestined for leading the development of ZECA's new production plant in a position of responsibility.

Jointly with the experts from WITTMANN, he planned the layout for the new injection molding hall as well as efficient working procedures. "The most effective support we could give to ZECA was to deliver turn-key production cells from a single source", emphasizes Gianmarco Braga, Managing Director of WITTMANN BATTENFELD Italia. "Coordination between several different suppliers is very time-consuming. Our customers are spared this type of expenditure."

Setup time shortened by 40 per cent

The key to competitive unit costs is high efficiency of production processes. Here, setup phases have a particularly large potential at ZECA, due to the small batches. To enable extremely fast mold changing, all injection molding machines are equipped with magnetic clamping plates. For this purpose, WITTMANN has fitted the machines with the necessary interfaces. "With the magnetic clamping plates, we cut setup time by up to 40 per cent", reports Andrea Landriscina, COO of ZECA. Thanks to the digital mold data sheet, the injection molding machines already recognize the molds at their second setup and automatically set the optimal parameters. This "plug & produce" process not only saves a lot of time, but also increases process reliability. The risk of errors, which can never be excluded with manual settings, is dispensed with. Since all components of the production cells are fully integrated via WITTMANN 4.0, the auxiliaries and automation equipment can also be controlled very easily via the machine's central control system.

A further contribution to optimizing setup times is made by the TEMI+ MES, according to Landriscina, since it enables better planning of the mold changes. "The worst case would be to have four mold changes become due simultaneously. By using TEMI+, we can avoid this, because we can view and control the utilization of all machines at a single glance. In this way, we optimize the productive times of our injection molding machines."

Minimal total energy consumption

A decisive factor in selecting the eight different injection molding machine models was the existing range of different molds. With clamping forces ranging from 60 to 700 tons, both small and large molds can be set up efficiently. The variety in drive technology also covers a wide range of different requirements. The choice of machine models included four SmartPower and two MacroPower machines, all with servo-hydraulic drives, as well as two all-electric EcoPower machines. With the all-electric drive technology, ZECA is looking into the future. The contract manufacturing

business is being further expanded. "With the current range of machinery, we are now very flexible and able to accept orders placed by customers from many different fields of application", says Landriscina.

In terms of energy consumption, the servo-hydraulic machines from WITTMANN are already proving extremely thrifty. "I always thought that plastics processing was an energy-intensive process", says Giacomo Meaglia. "I am amazed to see how little energy the new WITTMANN machines consume. Our total consumption is significantly below the amount of power made available to our facility."

Durable products for maximum sustainability

Polypropylene takes the lion's share of plastic materials to be processed. The materials processed in smaller quantities include PETG, which offers high transparency but is more demanding in processing due to its low viscosity and sensitivity to shearing. Nevertheless, mold changes do not require simultaneous exchanges of plasticizing units. "With the standard screws of the WITTMANN machines, we achieve absolutely homogeneous plastic melts across the entire range of different materials. Perfect color consistency is vital for us", says Landriscina. For masterbatch dosing, Gravimax blenders from WITTMANN are used. More and more often, pre-defined percentages of recycled materials must also be blended in. Sometimes sprue is reground directly on the processing machine and then immediately re-processed.

Sustainability takes many different forms at ZECA. "Our products can be repaired", emphasizes Paolo Chiarabaglio, describing a trend reversal regrettably not yet present everywhere. "For us, this is a very important point", says the CEO. "After all, we are making plastic products, which many people believe to be not sustainable. We have set out to prove the contrary, and that also includes a long service life for the products." Workshop owners can return broken ZECA products to our plant for repair, or they order the necessary spare parts to repair the items themselves. "This is only possible, too, with an injection molding facility of our own", says Chiarabaglio. "Here we have access to all molds at any time and can thus produce the spare parts required for older models at short notice."

Creativity boost in product development.

Having one's own machinery stimulates creativity. Ultimately, product development also benefits from this. Take, for example, in-mold labeling (IML). "Previously, we never gave this a thought, because it was simply unprofitable for small batches supplied by external contractors", says Chiarabaglio. "For the cable and hose reel systems, we are now thinking about applying our logos inseparably on the reel by IML, instead of gluing the labels on the housings after injection molding. This will make us even more efficient by saving us an entire work step."

When Paolo Chiarabaglio visits customers today, he can talk proudly about his own production facility and bring his full range of technological advantages into play when negotiating about new projects. ZECA's own injection molding facility has increased flexibility, improved the reliability of quality standards and thus achieved competitiveness. "We have now reached the level of efficiency required to serve our inefficient markets," Chiarabaglio sums up.



Fig. 1a+b: With eight automated and integrated injection molding machines from WITTMANN, ZECA has achieved great flexibility not only for its own products but also for its contract manufacturing business. (Photo: ZECA)



Fig. 2: Cable and hose reel systems are among ZECA's most widely known product lines. (Photo: ZECA)



Fig. 3: It's all WITTMANN. As a supplier of turnkey solutions, WITTMANN targeted high efficiency already at the planning stage as well as during commissioning. (Photo: WITTMANN)



Fig. 4: As Director of the new Plastic Division, Giacomo Meaglia is responsible for the new injection molding production. (Photo: WITTMANN)



Fig. 5: With clamping forces ranging from 60 to 700 tons, the machinery covers a wide range of applications. (Photo: WITTMANN)



Fig. 6a+b+c: The central unit for drying and handling of the granulates supplies all of the eight injection molding machines with a wide range of materials. (Photo: ZECA)



Fig. 7a+b: Yellow is one of the three ZECA colors. In the contract manufacturing division on the other hand, many different colors are processed. (Photo: ZECA)



Fig. 8: All injection molding machines are equipped with linear robots from WITTMANN.
(Photo: WITTMANN)



Fig. 9a+b: The handle pieces made of PC-ABS are produced in two halves inside a 2+2-cavity mold.
(Photo: WITTMANN)



Fig. 10a+b: The housings for cable and hose reel systems made of PP are currently among the largest parts produced on MacroPower machines. (Photo: WITTMANN)

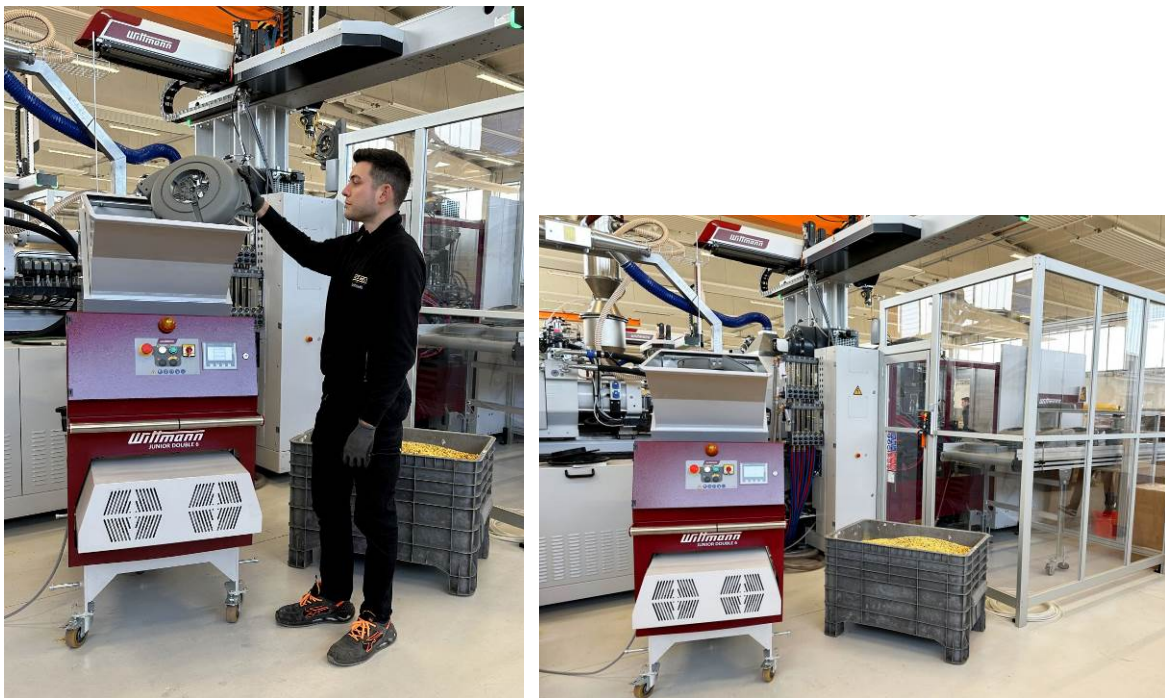


Fig. 11a+b: Sprue and reject parts are reground directly next to the machine. For many products, the granulate can be blended in with the virgin raw material. (Photo: WITTMANN)



Fig. 12a: Jointly exploiting all potentials of efficiency: Andrea Landriscina, Giacomo Meaglia and Paolo Chiarabaglio from ZECA and Gianmarco Braga, Francesco Resteghini, Edoardo Tettamanti and Luca Del Gaudio from the WITTMANN Group. (from right to left) (Photo: WITTMANN)



Fig. 12b: Jointly exploiting all potentials of efficiency: Andrea Landriscina, Paolo Chiarabaglio and Giacomo Meaglia from ZECA and Gianmarco Braga, Edoardo Tettamanti, Francesco Resteghini and Luca Del Gaudio from the WITTMANN Group. (from right to left) (Photo: 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 recycles 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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