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USER REPORT

Teko-plastic, Weiz/Preding, Austria

Teko-plastic improves energy balance with *EcoPower* from WITTMANN BATTENFELD

Teko-plastic, a family-owned company based in Preding near Weiz, Austria, has adopted sustainability and energy efficiency as its guiding principles. In addition to using recycled materials in production and investing in renewable energy, the company installed a machine of the EcoPower series from WITTMANN BATTENFELD this February and has carried out energy measurements with this machine.

The company Teko-plastic Kunststoffwerk E. Schröck GmbH, now managed by Theo Koblischek in the third generation, was founded by Erich Schröck und Theo Koblischek in 1961. Today's 18,000 m² production facility in Preding near Weiz, Styria, was built in 1971. Since the beginning of the 1980s, Teko-plastic has specialized in the production of household goods made of plastic. With its takeover of BEKAFORM Kunststoffproduktion GmbH, Teko-plastic successfully entered the German market.

More than 80 % of the company's sales are realized with its own products, such as bowls, household and kitchen aids, baskets, tubs, boxes, buckets, canisters, fresh food boxes and much more. Just under 20 % are contributed by job order production for Austrian industrial customers. Apart from its main markets Austria and Germany, Teko-plastic also supplies its products to customers in Switzerland, the Netherlands, Belgium, Slovenia, the Czech Republic, Sweden and France.

To make its products, the company with a workforce of 48 employees uses 12 BATTENFELD injection molding machines ranging from 1,000 to 8,000 kN in clamping force. The raw materials used are polypropylene and polyethylene, with 25% of the materials processed consisting of regrind. The latter is mostly purchased in Austria and Germany, but sprue and faulty parts are also recycled in-house and mixed in with the virgin materials.

However, Theo Koblischek's ecological commitment goes far beyond just using recycled materials in production. Investments are also being made into improving the

company's energy balance, with moves such as energy recovery from waste heat utilization and use of solar energy. Currently, 6,000 m² of roof area are being covered with solar cells designed for a total annual output of 850,000 kWh. Teko-plastic expects to use 550,000 kWh of this for its own energy requirements, the rest will be fed into the public electricity network.

With energy costs making up an increasing share of the total production costs, it was natural for Theo Koblischek to take a closer look at the injection molding machines, too. "The energy costs have more or less doubled over the last year", says Theo Koblischek, "so the issue of energy efficiency is now highly relevant for us."

In February this year, a machine from the all-electric *EcoPower* series with 4,500 kN clamping force was installed at Teko-plastic. The machines of the *EcoPower* series stand out by their extremely high level of energy efficiency, due on the one hand to the use of ultra-modern servo motors and on the other hand to the machine's KERS (Kinetic Energy Recovery System) technology.

Theo Koblischek wanted to evaluate as precisely as possible the ultimate benefit gained from using state-of-the-art WITTMANN BATTENFELD technology, so he carried out the relevant energy consumption measurements on the new *EcoPower* 450 equipped with an 85 mm screw. He subsequently compared the measurement results with those achieved with a BATTENFELD TM 4500 injection molding machine installed in 2001 and fitted with a 100 mm screw. On both machines, a bucket with a volume of 10 liters was produced. The difference between the two machines' energy consumption rates turned out to be enormous. Over an eight-hour measurement period, an energy consumption of 68 kWh with a cycle time of 16 seconds was measured on the TM, while the consumption shown for the new *EcoPower* was a mere 24 kWh with a cycle time of about 13 seconds. Theo Koblischek comments: "Our measurements have shown that by comparison with the TM, an output of 115% has been made possible with an energy input of only 35 %. If both machines were equipped with screws of the same diameter, the difference in energy requirements for both machines in favor of the *EcoPower* would be even greater. Moreover, the *EcoPower*'s water consumption is also considerably lower."

Theo Koblischek has now measured the electricity consumption of all machines previously used on the company's production floor and compared the readings to the consumption data of comparable new machines from WITTMANN BATTENFELD. The option of replacing all machines with up to 4,500 kN clamping force with all-electric machines opens up an enormous savings potential of more than 60% for these machine sizes. But for larger machines, too, energy savings of around 40 % can still be achieved. Theo Koblischek concludes: "If the electricity price remains at the current level, an exchange of our total range of machinery could be fully

amortized within 10 years. Due to the particularly high savings potential for the smaller high-speed machines, we will replace these with new ones first. “

Concerning the installation of the *EcoPower* 450 delivered in February 2022, Theo Koblischek further remarks, that in addition to the machine itself, he also has come to greatly appreciate the customer support provided by the WITTMANN BATTENFELD service team.



Fig. 1: *EcoPower* 450/3300 with WITTMANN FEEDMAX basic material loader and W832 pro robot just removing a finished bucket from the machine.

(Photo: WITTMANN BATTENFELD)



Fig. 2: Partial view of Teko-plastic's production floor located in Weiz/Preding. For the comparison of energy consumption with the *EcoPower*, a BATTENFELD TM 4500 injection molding machine was used (in the picture front right).

(Photo: Teko-plastic)



Fig. 3: Plastic bucket with a volume of 10 liters produced on both machines for the purpose of direct comparison

(Photo: WITTMANN BATTENFELD)



Figs. 4a-d: Examples from Teko-plastic's product range: decorated bucket, cement tub, round bowl, laundry basket
(Photos: Teko-plastic)

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 eight production plants in five countries, and the additional sales companies at their 34 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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