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## USER REPORT

BRUDER Spielwaren GmbH & Co. KG, Germany

### **Resource-saving, high-precision injection molding to produce toy vehicles with accurate details**

***BRUDER Spielwaren based in Fürth, Germany, manufactures high-quality plastic toys – since 2020 also with injection molding machines from WITTMANN BATTENFELD.***

BRUDER Spielwaren was founded by Paul Bruder, who started producing brass tongues for toy manufacturers in 1926. Today, the company employs 490 associates at its headquarters in Fürth, plus another 120 at its facility in Plzeň, Czech Republic, which was built in 2015. Its first plastic parts were already produced in 1958. Today, BRUDER delivers its high-quality toys suitable for children from 2 years upwards to more than 60 countries worldwide. About 25% of its sales are realized in the Central European German-speaking area, mainly in Germany. Other major markets are France, Italy, the Netherlands, Eastern Europe, Japan and Korea. In the USA, the company operates its own sales subsidiary.

Toy models made by BRUDER are designed to help children understand the functions of real-life objects by playing with them. Special attention is paid to a well-balanced combination of easy-to-handle playing functions with simultaneous model consistency and greatest possible stability. With its high-quality products, BRUDER ranks among the leading manufacturers of toy vehicles for children in Europe. BRUDER toys stand out by their excellent quality and accurate details. For example, real appliances and vehicles of world-famous brands are reproduced as toy models on a scale of 1:16. The products are mostly assembled without auxiliaries such as screws or adhesives. Only the wheels are pressed onto the vehicle axes by metal rods. Otherwise, only plug-in connections are used. The sturdy wheels of the vehicles are produced partly from TPE by way of 2K injection molding, which makes it possible to achieve the desired similarity to the original. At the same time, this enhances the play value, since the wheels make considerably less noise when played with than hard plastic tires.

Apart from innovative strength and plastics technology expertise, BRUDER places great emphasis on resources management in the interest of a sustainable economy. An internal recycling circuit and energy-efficient production processes, combined with a range of about 800 spare part sets for repairs to BRUDER toys prove the company's ecological sense of responsibility. In addition to in-house recycling of sprue and rejects using two granulators operating in the company's basement to do the job, a continuous search for further opportunities to save energy is ongoing. Another contribution to sustainable management practices is the company's preference given to cooperation with local partners.

BRUDER uses a great variety of different technologies to make its plastic toys, such as the internal gas pressure process, which offers the advantages of reducing the toys' weight and saving material input as well. BRUDER also makes use of multi-component technology right up to 5-component injection molding. This enables the production of parts consisting of several different materials and/or in several colors by a single injection molding process.

BRUDER's most important criteria for injection molding machines are high precision, reliability, stability, energy efficiency and a small footprint as well.

Bernd Klemm, Department Manager of Injection Molding, comments: "Energy efficiency is gaining increasingly in significance; space is another important resource. This is why the machine's footprint is also such an important buying argument for us." Apart from the machine itself, the supplier's after sales service is another vital point, in order to ensure the equipment's availability at any time.

The positive experience of BRUDER Spielwaren with WITTMANN in the area of robots and handling systems, in which the two companies have already been cooperating for more than 20 years, prompted BRUDER to install a first injection molding machine from WITTMANN's servo-hydraulic SmartPower series in 2020. Five more have been added in 2022. Of the six machines, with clamping forces ranging from 600 to 1,600 kN, two are equipped with a WS80 servo picker from WITTMANN, and a SmartPower 60 was delivered as an Insider cell with a WITTMANN Primus 14 robot. In addition to the robot, a conveyor belt and the protective housing are also integrated in the cell, which makes the entire system extremely compact. Moreover, one of the machines is fitted with a hot embossing system.

In addition to their compact design and user-friendliness, the machines of the SmartPower series stand out primarily by their intelligent, economical use of energy. Their high level of energy efficiency is mainly due to the combination of a fast-response, speed-controlled, air-cooled servo motor with a sturdy constant displacement pump, known as the "drive-on-demand" system. In this system, the drive unit is only active as long as required for movements and pressure generation.

During cooling times and cycle breaks for parts handling, the servo drive remains switched off and consumes no energy.

Production Manager Sönke Haverich confirms: “Our experience with the machines delivered so far has been all positive. The machines take up little space and meet all our demands in terms of precision and speed.”



**Fig 1:** Arrival of a SmartPower 160 at BRUDER (Photo: BRUDER Spielwaren)



**Fig. 2:** from the left: Bernd Klemm, Injection Molding Department Manager, BRUDER Spielwaren, Julia Meyer, Marketing Manager BRUDER Spielwaren, Sönke Haverich, Production Manager BRUDER Spielwaren, Marcus Otto, WITTMANN BATTENFELD Salesperson



**Fig. 3:** WITTMANN gripper picking up the wheel rims



**Fig. 4:** Wheels for various models of vehicles from the agriculture and forestry sectors



**Fig. 5:** Showroom at the BRUDER Spielwaren facility in Fürth



**Fig. 6:** Sprinter group 2022

## 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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