



*Wittmann*

# innovations

Volume 17 - 1/2023



The cover photo shows a closeup view of perforated screens used in beside-the-press granulators from WITTMANN.

### **WITTMANN innovations (Volume 17 - 1/2023)**

“WITTMANN innovations” is the quarterly house organ of the WITTMANN Group. The magazine appears to meet the informational demands of staff and customers. Address: WITTMANN Technology GmbH, Lichtblaustrasse 10, 1220 Vienna - Editorial office, layout, graphic production: Bernhard Grabner - tel.: +43-1 250 39-204 - e-mail: [bernhard.grabner@wittmann-group.com](mailto:bernhard.grabner@wittmann-group.com)  
Issue 2/2023 of “WITTMANN innovations” will appear at the beginning of the second quarter 2023. - [www.wittmann-group.com](http://www.wittmann-group.com)

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**Wittmann**

# Editorial

Dear Reader,

“On to new horizons!”

– The end of a year is the appropriate time for reviewing the year just coming to a close and looking ahead into the following year. This time, both my review and my outlook come with mixed feelings. On the one hand we, as the WITTMANN Group, can still be pleased with well filled order books, but this means on the other hand that our customers are still faced with above-average delivery times for some of our products. Over the last few months, the supply chain situation has improved significantly in several areas – most recently, for example, in logistics. Yet the procurement of electric and electronic components continues to be a considerable challenge. In this respect, we are still in the same situation as the beginning of 2022.

In the new year, too, we will do all we can to shorten our delivery times and bring them back to normal. The general improvements in supplies of materials give



us some hope that the electronics industry will also get going again, and that the order backlog can be cleared.

In all other respects, the review of 2022 is very positive. We have the most modern and most energy-

efficient product portfolio in the entire market. Since similar claims of extreme energy efficiency are being propagated by many manufacturers, we have combined our own statement on this subject with a guarantee: “Compare our SmartPower or EcoPower injection molding machines with a comparable product from another manufacturer in a comparable application. We guarantee no-cost redemption of any machine which, against expectation, consumes more energy.” We are convinced that this will not be the case. So, with this offer, we want to give you the chance to see it for yourself. The necessary energy measurement equipment will be included in our delivery. Further details about this offer can be obtained from our sales team.

Our robots have presented themselves at the K 2022 as additional energy saving champions. Solely with muscle power – transmitted via a conventional bicycle to a generator – it was possible to drive not only a Primus 14 robot, but after exceeding the limit of 150 W power a light bulb as well, and even a second one after reaching 200 W. In some other areas, too, we were able to present a real firework of innovations at this year’s K fair. Videos showing the Primus 14 bicycle application and numerous new products can be found on our YouTube channel.

With this last editorial in 2022, I want to express my special appreciation to all staff members of the rapidly growing WITTMANN Group. The difficult situation in the supply chain has demanded a lot of effort from us. I wish to thank everyone for all the hard work which has nevertheless enabled us to achieve a positive outcome for this year. Finally, let me thank you, our customers, for the confidence you have placed in us throughout this last year. With all my heart, I wish you a happy and successful year 2023!

Very cordially yours, Michael Wittmann

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# Being sure of the WITTMANN Ingrinder solution

The SmartPower 60 Ingrinder is a space-saving solution at Rugby Plastics Leicester (UK) with added benefits of integral safety features and an automatic interface between the granulator and the molding machine.

**Denis Metral – Dan Williams**

**R**ugby Plastics is a trade molder; trade molders are generally molders which cater to a wide range of markets rather than specialize in one sector. Their business relies on their ability to provide a manufacturing service and a deep understanding of the needs and objectives of their customers.

Established in 1948, Rugby Plastics produces a wide range of technical products for various sectors such as automotive, aviation, construction, medical and retail point of sale.

Rugby Plastics have recently become part of the Thomas Dudley Group which is a successful, family-owned business and is passionate about developing capable "best-in-class" manufacturing companies.

Rugby Plastics is able to demonstrate a truly "cradle to cradle" offering which includes design, prototyping, project management, comprehensive manufacturing and advanced product testing. In terms of manufacturing capacity across two strategically located manufacturing sites, the Thomas Dudley Group have over 70 injection molding machines ranging from 22 to 750 tons with a shot weight capacity of up to 5 kg.

Short runs, high quality and low or high volume – their technical capability is really Rugby Plastics' forte and they can provide complete solutions for tooling projects from the very start of the design process. Rugby Plastics can reverse engineer components as they have 3-D scanners and 3-D printing. This means they can take an existing part, scan it, and then from this, produce moldflow analysis allowing the construction of a tool for the production of the part if required. They aim to offer an optimized solution for customers who maybe want to produce something but don't know how. Rugby Plastics can hold their hand and guide them through the process to a successful end result.

## **Ingrinder solution at Rugby Plastics**

Steve Pepper, Managing Director of Rugby Plastics, is very happy with the SmartPower 60 Ingrinder solution recently installed because of the very small footprint, its connectivity through WITTMANN 4.0 to the auxiliary devices and especially with the integration of the granulator within the injection molding machine.

The interface between the injection molding machine and the granulator is achieved by an electric connector of the type HAN Modular 2 × 12 pins. Operation and control of the granulator is achieved by the machines B8 controller enabling start and stop, emergency stop, safety function "door is closed", standstill detection of the granulator, and locking function of the rear guard door until the rotor of the granulator is stopped completely.

The G-Max 9 Ingrinder granulator is fully electrically and mechanically interlocked with the injection molding machine. The granulator cannot be removed or introduced into the cell without the rear guard door first being opened providing total safety for anyone on the production floor.

The SmartPower 60 Ingrinder solution consists of a compact servo-hydraulic energy saving machine of 60 tons with integrated side action sprue picker, granulator and vacuum material conveyor.

The granulator, sprue picker and conveyor are interfaced within the machine's Unilog B8 control system. The Ingrinder cell is CE and UKCA certified in addition to the machine.

Using this Ingrinder solution from WITTMANN, Rugby Plastics has achieved significant savings on the product cycle time in the order of three seconds on a twenty-four second cycle but also being able to recirculate the quality regrind automatically back into the system (closed loop). A WITTMANN Feedmax S3 net hopper loader complete

with a dual proportional valve automatically feeds back the regrind into the machine by accurately controlling a regrind percentage.

Steve Pepper is very happy with the complete cell, and he especially likes the repeatability of the SmartPower, and has the SPC (statistical process control) set up on it achieving a fantastic shot-to-shot accuracy over thousands of cycles and achieving a Cm value (machine capability) of over 2 which is extremely impressive.

"The main motivation for choosing a SmartPower 60 Ingrinder solution was the ability to promote recycling within a compact footprint", Steve says. As always, the available square meter area is limited on shop floors and this constraint of floor space was aided by the SmartPower 60 Ingrinder solution which presumably is the most compact on the market.

## **The B8 machine control**

The B8 injection molding machine control also allows full access for the injection molding machine to parameters and status of auxiliary units to enable intelligent response to changes. All parameters can be set on the Unilog B8 and stored in the machine data set. In this way the cell offers yet another improvement in quality standards for the molded parts as well as complete data recording and traceability.

In automatic cycle mode, the B8 control system automatically starts the granulator. The user can see when the granulator is "On" via the B8 controller and also is known that the safety interface of the rear guard door and granulator has been activated. This control signal is sent from the machine to the granulator so there's no need to worry whether somebody forgot to switch "On" the granulator. This gives peace of mind and eliminates human error.

Likewise with the SmartPower 60 cell, it is possible to connect, via the WITTMANN 4.0 interface, a dryer, gravimetric multi-component blender, water temperature controller and Flowcon water flow controllers. The Flowcon units with proportional valve systems ensure constant flow and constant temperature, all connected and controlled seamlessly through the B8 controller screen.



SmartPower 60 Ingrinder system, consisting of a SmartPower injection molding machine with 60 tons of clamping force, a G-Max 9 granulator, a Feedmax S3 net material loader, a TEMPRO temperature controller, and a sprue gripper from the WITTMANN Group – installed at the Rugby Plastics plant in Leicester, UK.

When saving the process data/recipes for all the tools it is clear that everything is saved, and when any tool goes back into the press to run the product again, the data set is loaded and everything that was connected during the last production run is again switched on. If there are any issues, the B8 screen will notify the operator that a device may be missing, deviation from set value or unplugged hence saving time, saving money and minimizing material wastage due to incorrect processing through incorrect set up of peripheral devices.

#### **Closed loop production**

The WP50 is a small pneumatically operated side-arm, taking out and depositing the sprue during the opening and closing stroke fast and accurately – and passes it to the WITTMANN G-Max 9 Ingrinder granulator

integrated in the system, with drop-out chute on non-operator side. The sprue removal is accomplished by a pneumatic gripper with proximity switch monitoring. The dropout chute (100 × 200 mm) is designed for sprues up to an appropriate size for the machine.

The G-Max Ingrinder granulator can process soft to medium hard materials. Materials with a glass fiber content of up to 10% can also be ground. The material recycled is then transported to the machine's material hopper by a Feedmax S3 net vacuum conveyor. WITTMANN vacuum conveyors enable alternating conveyance of virgin material and regrind, so that a thorough blend is created, together with discharge of the material into the hopper. Due to the closed material cycle, most hygroscopic recycled materials do not need to be additionally dried.

#### **Pleased with WITTMANN equipment**

Steve Pepper, Managing Director of Rugby Plastics, is a really great advocate for WITTMANN Group machinery.

Rugby Plastics has the SmartPower injection molding machine, the MicroPower, and a MacroPower 700, the latest machine purchased. Furthermore, Rugby Plastics has a large number of WITTMANN auxiliaries such as dryers, both CARD and beside-the-press, granulators, hopper loaders and temperature controllers, the majority of which are all ready for WITTMANN 4.0.

Denis Metral is International Product Manager for granulators at WITTMANN BATTENFELD France SAS in La Buisse, France.

Dan Williams is Joint Managing Director of WITTMANN BATTENFELD UK Ltd in Wellingborough, UK.

# WITTMANN helps Westfall: new production in six months

Leading global company uses WITTMANN Group robots and auxiliary equipment for medical molding applications.

Chris Unseth



Automation and auxiliary equipment from WITTMANN at Westfall Technik.

**W**ith over 2,000 employees, 1 million square feet of manufacturing space, 450 molding machines in total and 19 locations worldwide, Westfall Technik is one of the fastest-growing injection molding and tooling companies in the world. In 2021 the company was ranked 44<sup>th</sup> on the Plastics News Injection Molder's ranking, with annual molding sales of over \$ 200 million.

When the company was looking to open a facility in the greater Chicago area in 2021 it chose the former MGS Manufacturing Group, Inc. plant in Antioch, IL. The plant, which had been closed for over a year, was the perfect location for Westfall as it was looking to open a molding facility to serve the medical market in the Midwest. Many leading healthcare and pharmaceutical companies are headquartered in the greater Chicago area.

Roy Boyd was hired as General Manager of the new plant. He had a history of working in medical molding, having been with MGS, All West Plastics and Nypro in the past, and had worked at the very plant that Westfall was now purchasing. Boyd was charged with getting the plant up and running with new employees, machinery, and equipment, and he had to do it in a hurry. "Westfall's company slogan is 'All In', and like everything they do, they were all in on this project," he says. "We took a shuttered, brownfield plant from an empty building to a state-of-the-art, full production molding facility in just six months."

## **Machines, robots, auxiliaries, and integration**

When deciding on what machinery and equipment to purchase for the new facility, Boyd says for robots and auxiliaries, it was

an easy decision. "I have worked with WITTMANN robots and equipment for over 20 years in my career," he says. "They were our preferred supplier for a lot of reasons, not the least of which was their service. They were with us from day 1, helping us integrate their robots and auxiliaries into our molding machine cells."

In the new plant, Westfall is running 15 injection molding machines ranging from 55-280 tons. Three Class 8 cleanrooms with ISO 13485 certification house molding cells making medical diagnostics and lab ware components. A wide variety of materials are used including commodity PP to engineering grade materials.

Westfall has numerous WITTMANN sprue pickers in operation at the plant, as well as more sophisticated WITTMANN robots. In addition to needing consistency in picking parts out of the molds, Boyd cites WIT-

MANN's product availability as crucial. "As we all know, sourcing machinery, equipment and materials over the past two years has been difficult," he says.

"Ramping up during the global pandemic was a challenge. We needed to get everything quickly. WITTMANN not only had the robots and auxiliaries that we needed, but they also were willing and able to send their technicians here to our plant to integrate their equipment and train our operators, onsite."

plants. "All of our machinery and equipment needs to communicate," says Boyd. In the new Antioch plant, WITTMANN auxiliaries including temperature controllers and dryers are connected to non-WITTMANN molding machines, providing real-time data that is easily accessible.

"This is another big advantage the WITTMANN Group provides," he says. "This equipment really is designed to work well and communicate with other brands of injection molding machines."

### Future Growth

Starting with two employees and an empty building in May 2021, by December 2021 Westfall Technik had 25 employees, 15 molding machines, ISO 13485 certification, and most importantly, a lot of new product orders at their new plant. But they are not stopping there.

"We have the capacity to run more than 30 molding machines in our plant," says Boyd. "Based on Westfall Technik's aggressive growth strategy, I expect we will



The medical production of Westfall Technik in Antioch, Illinois, USA.

Boyd mentions John Pirkel of Graduate Sales, WITTMANN's sales representative in the area, as being instrumental in helping Westfall Technik get up and running. "All of the WITTMANN equipment has performed very well," he says, "and the support we got during installation from both WITTMANN, and John, has been exceptional."

Besides WITTMANN robots, Westfall Technik is also using WITTMANN temperature controllers, dryers, granulators, gravimetric blenders, and material loaders.

### Communication capabilities

As a global organization, Westfall Technik strives to standardize on its machinery, molds, and business practices as much as possible. This includes a goal of moving towards Industry 4.0 in its future capabilities. The company has IQMS ERP systems in place and implemented worldwide in all its



WITTMANN dry air dryer with FEEDMAX material loader, and with TEMPRO temperature controller behind it.

be adding new machinery and equipment here soon. Westfall has already invested significantly in this plant and will continue to do so."

### More equipment from the WITTMANN Group

Growth plans will also include WITTMANN robots and auxiliaries, says Boyd. "We are already in the process of receiving five new robots with supporting auxiliary equipment from WITTMANN," he says. "As our business grows, we will continue to work with WITTMANN. They are a company like ours, we both have high expectations for both quality and service."

Chris Unseth is Regional Sales Manager for injection molding machines and robots of WITTMANN BATTENFELD, Inc., the US subsidiary of the WITTMANN Group.

# Simply pedaling to generate the required energy: the WITTMANN ErgoRobot

At the K 2022 in Düsseldorf, the WITTMANN Group caught public attention with a really extraordinary exhibit: in addition to the new WX128, the chess-playing Sonic 143 and the automatic palletizing cell, trade fair visitors were invited to cooperate actively with a robot, the Primus 14 ErgoRobot.

**Martin Stammhammer**

**W**ith this interactive exhibit, WITTMANN presented an attractive highlight at the K 2022 which gave a good illustration of the energy efficiency of its products – and the resulting potential for saving resources.

After all, the ErgoRobot installation presented trade fair visitors with some sportive challenge, which was readily accepted by many with a wink and a grin.

## The application

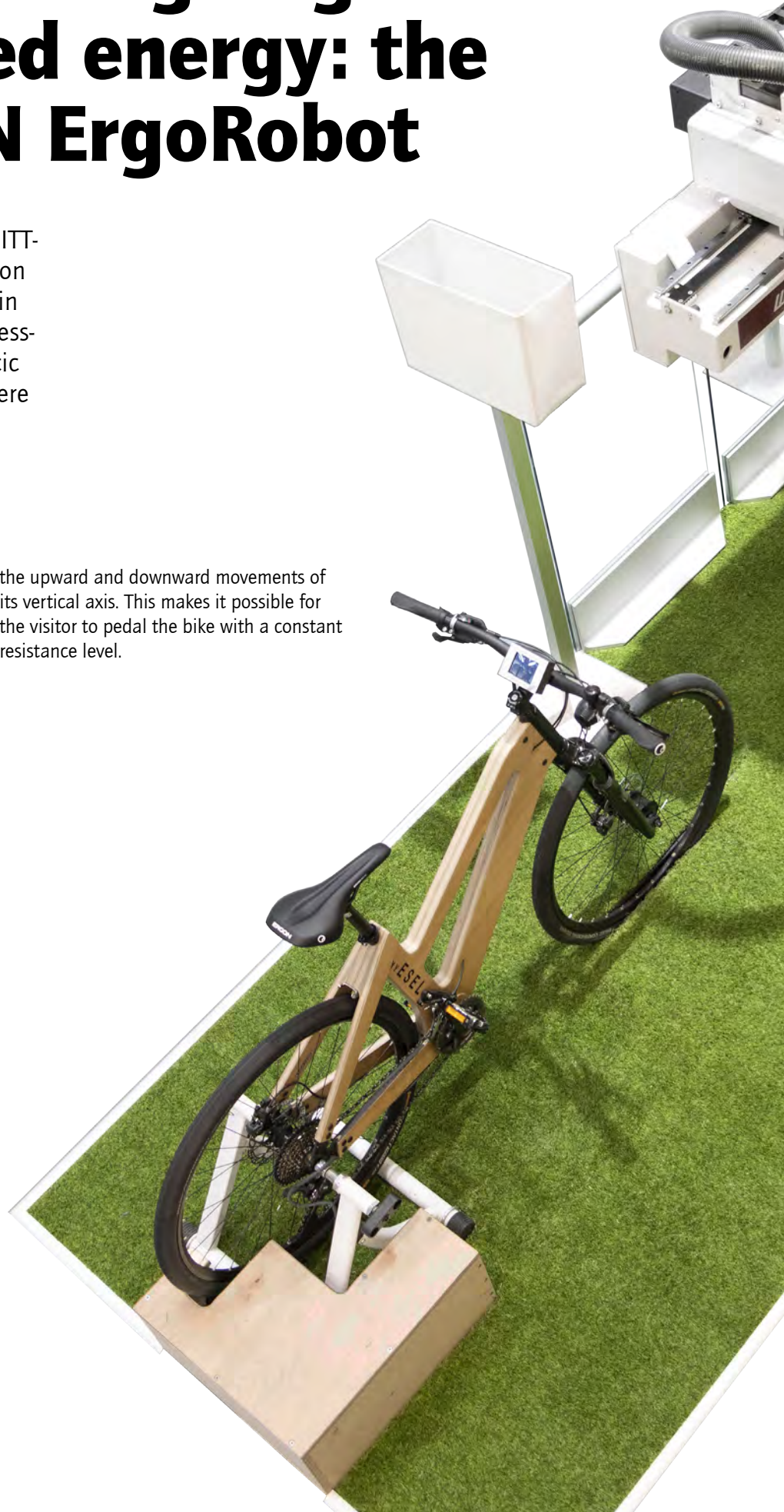
This application consists of three main components: a robot, a bike used as an ergometer, and a rider actively pedaling it. While riding the bike, the visitor serves as the “power source” setting the robot in motion.

The robot used in this case is a Primus 14 in the standard version with an R8 control system, an appliance normally used for pick & place applications on machines with clamping forces ranging from 50 to 150 t.

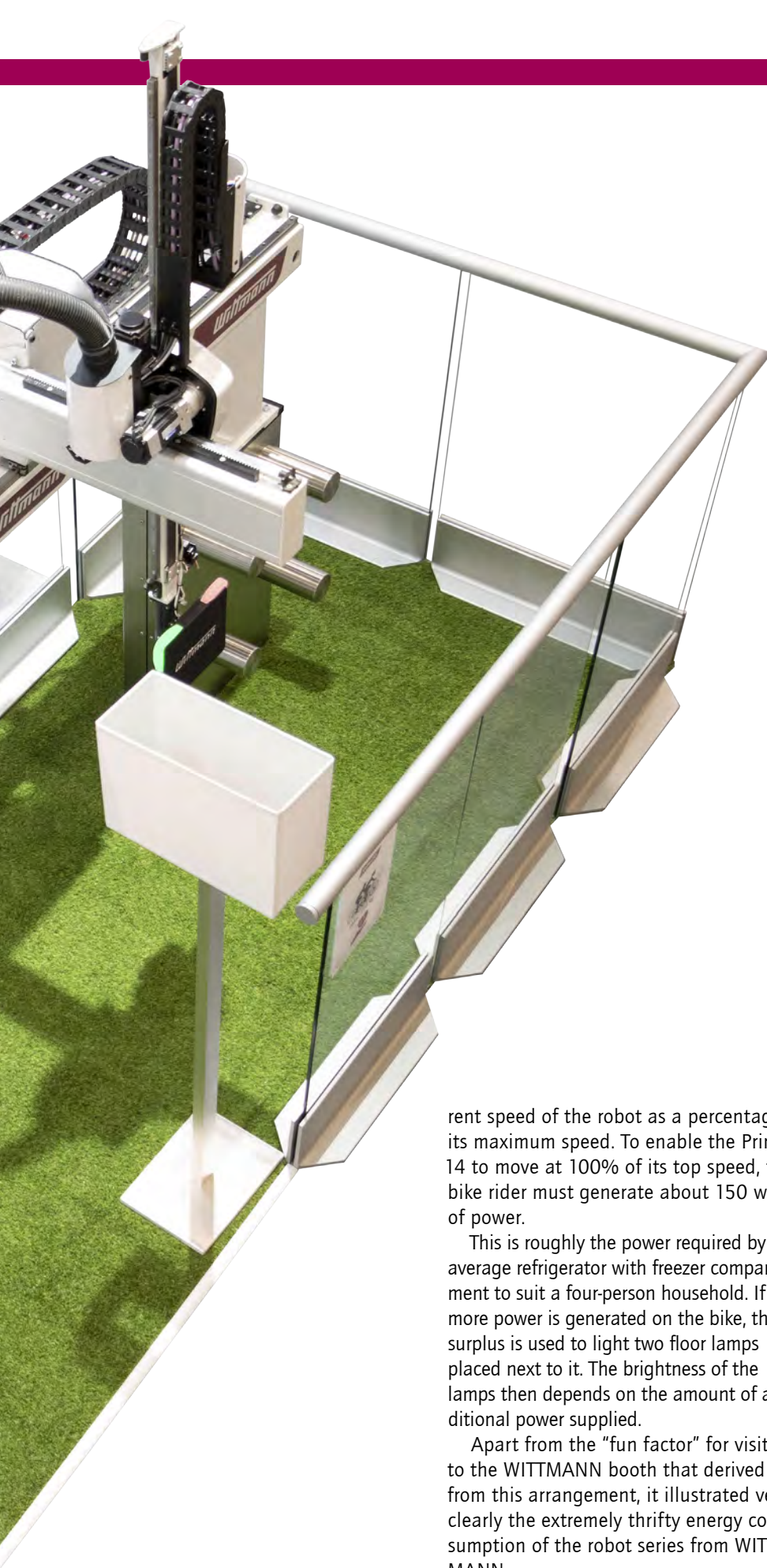
The moving bike pedals drive via force transmission a servo motor mounted on the rear wheel. In the ErgoRobot application, this motor functions as the robot’s power supply. The electricity generated by the motor is transmitted to the robot and sets it in motion.

To make riding the bike a pleasant experience, the power supplied by the generator is fed into a temporary storage installed inside the robot’s servo module, which is used exclusively for balancing the robot’s fluctuating power demand – mainly during

the upward and downward movements of its vertical axis. This makes it possible for the visitor to pedal the bike with a constant resistance level.







### Production and use of the energy

Without using a conventional tachometer, the amount of power generated at any moment is shown on a display mounted on the handlebar, together with the cur-

rent speed of the robot as a percentage of its maximum speed. To enable the Primus 14 to move at 100% of its top speed, the bike rider must generate about 150 watts of power.

This is roughly the power required by an average refrigerator with freezer compartment to suit a four-person household. If more power is generated on the bike, the surplus is used to light two floor lamps placed next to it. The brightness of the lamps then depends on the amount of additional power supplied.

Apart from the "fun factor" for visitors to the WITTMANN booth that derived from this arrangement, it illustrated very clearly the extremely thrifty energy consumption of the robot series from WITTMANN.

Martin Stammhammer is International Sales Manager for Robots and Automation Systems at WITTMANN Technology GmbH in Vienna.



View of the ErgoRobot installation at the WITTMANN booth during the K 2022.



Michael Wittmann, President of WITTMANN Technology GmbH, riding the bike.

# Resource-saving, high-precision injection molding for toy vehicles with accurate details

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

**Gabriele Hopf**



**B**RUDER 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 Pilsen, 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.

## Useful toys

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.

## Resources management

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 highly 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.

## Advanced technologies

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, BRUDER 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.

## WITTMANN Group equipment

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, SmartPower machines stand out primarily by their intelligent, economical use of energy. *(continued on page 12)*



The gripper of a WITTMANN robot picking up the wheel rims of toy cars.



Wheels for various models of vehicles from the BRUDER agriculture and forestry sectors.

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.

BRUDER Production Manager Sönke Haverich confirms: "Our experience with the machines delivered so far has been all posi-

tive. The machines take up little space and meet all our demands in terms of precision and speed."

Gabriele Hopf is the Marketing Manager of WITTMANN BATTENFELD in Kottlingbrunn, Lower Austria.



Arrival of a SmartPower 160 at BRUDER in Fürth, Germany.  
(Photo: BRUDER Spielwaren)

From left to right:  
Bernd Klemm, BRUDER  
Injection Molding  
Department Manager;  
Julia Meyer, BRUDER  
Marketing Manager;  
Sönke Haverich, BRUDER  
Production Manager;  
Marcus Otto, WITTMANN  
BATTENFELD Sales.



# Brazil: Motherson award for a central system

On October 26, 2022 the Motherson Group and SMR held the event "Brasil Supplier Day 2022" at the Royal Palm Plaza Hotel in Campinas to award the best suppliers of the year.

**W**ITTMANN BATTENFELD do Brasil participated in the event as a nominee in the category "Indirect Supplier of the Year", together with three other nominees.

Due to the excellent work, WITTMANN BATTENFELD do Brasil finally received the Award as the best indirect supplier: The jury voted for the company because of the best and fastest responses, the expert knowledge of the deployed technicians, short lead times, availability of spare parts, and the collaborators' attitude with regard to comprehensive service.

Especially highlighted was this supplier's ability to smoothly revise the existing pipe installation and successfully complete the integration of glass elbow pipes.

WITTMANN BATTENFELD do Brasil had installed a complete central drying and conveying system of high performance, designed to keep the customer's production process running with as little downtime and maintenance requirements as possible.

The central system was installed at SMR Automotive Brasil in the City of Jaguariúna, São Paulo State. In the first instance, it is used for the drying and conveying of ASA, PA6.6 GF, and ABS materials. It consists of 2 WITTMANN Drymax dry air dryers and 14 Silmax material hoppers with a total hopper volume of 5,400 liters. There are a total of thirty Feedmax material loaders in use. The installation also benefits from an automatic backup pump system, and is controlled by the M7.3 network control from WITTMANN.

All in all, this centralized material handling system serves 15 injection molding machines.

Gustavo de Mello, responsible for the spare parts and logistics department at WITTMANN BATTENFELD do Brasil in Vinhedo, São Paulo, accepted the award, substituting General Manager Cássio Luis Saltori, who was in attendance at the K show 2022 at the time.



Conveying system detail before WITTMANN BATTENFELD do Brasil started working.



Conveying system detail after completion of the installation work.



Gustavo de Mello accepted the award substituting General Manager Cássio Luis Saltori.

# ROBOS d.o.o. and the Balkan markets

The company ROBOS d.o.o., based in Ljubljana, the capital of Slovenia, sells the products of the WITTMANN Group in the Balkan markets. The Company was established in 2008 as a result of WITTMANN's acquisition of BATTENFELD IMT GmbH.



The Ljubljana based team of ROBOS d.o.o. – Second from the right: General Manager Peter Zajc.

**R**OBOS started with just two employees. Over the subsequent years, ROBOS became one of the leading suppliers of machinery and equipment for plastics processing and automation in the regional markets of Slovenia, Croatia, Bosnia-Herzegovina, Serbia and North Macedonia. ROBOS is constantly expanding the scope of its product range and services.

The main goal of the ROBOS company has always been to increase its reputation as a reliable business partner. With knowledge, experience and business presence ROBOS ensures a high level of support and flexibility for any technical challenges. The company offers customers the highest efficiencies, fast after-sales and service response, lower operating costs, overall competitive advantages, and most important: energy savings.

Over the years, ROBOS has expanded and opened offices in Slovenia and Croatia, Serbia, and Northern Macedonia. The business currently counts 19 employees – and is still growing. ROBOS d.o.o. is headquartered in Ljubljana, Slovenia, and the Serbian office – ROBOS WIBA d.o.o. – is located in Novi Sad. The North Macedonian office – ROBOS VIBA d.o.o. – is located in Skopje.

## Serbia

Located in the second largest city of Serbia, Novi Sad, the ROBOS WIBA d.o.o. company is strategically positioned in one of the most developed parts of Serbia. The team of four people is lead by Tomislav Kantužer, who has more than 30 years of experience in injection molding. With a population of around seven million, Serbia is the largest economy of the Western Balkans. In the

last few years the region has become very attractive to foreign investments, due to the favorable state tax policy. Therefore, many international companies have opened production facilities throughout Serbia. Among them are Continental, Fischer Automotive, Yanfeng, Johnson Electric, Tecnia, Vorwerk Eldisy, Grundfoss, Panasonic, Motherson, Greiner Packaging, Gruner, Gorenje Hisense, Menshen – to name but some of the existing international ROBOS customers.

As can be seen from this customer list, there is a great variety of plastics processing industry sectors involved: automotive, household appliances, packaging, electrical, and many others.

This is a market where ROBOS doesn't see any economic cooling-down for the foreseeable future. And partly this is due to low energy prices for industrial use. With

The Serbian team of the ROBOS WIBA d.o.o. company. – Second from the left: Group Leader Tomislav Kantužer.



General Manager of ROBOS VIBA d.o.o. in North Macedonia, Jonče Donev.

a lot of free moving space for the development of the sales network, ROBOS sees good prospects for this particular market in the near future.

### North Macedonia

The most recent ROBOS d.o.o. location has opened January 2020 in Skopje, the capital of North Macedonia, starting with one employee, Managing Director Jonče Donev. Over the course of the next two years, the number of employees then rose to five people. This market is relatively small, but – as is the case in Serbia – many foreign companies are opening their productions in North Macedonia.

These include Kostal, WIK, Dräxlmaier, Marquardt, Amphenol, and Rontis. Again, this is largely due to the favorable state tax policy for foreign investments, together with acceptable energy prices and labor costs. ROBOS VIBA d.o.o. has a tooling department within this company in order to manufac-

ture parts dedicated for production cells and robot grippers, and for complementing WITTMANN robot projects as well as for the maintenance of injection molding molds for the local customers. This facility is a great “door opener” for ROBOS in this market.

At the moment, ROBOS is working on a large centralized material handling system for Magna Mirrors. This project comprises all of the pipe work installation, together with all other equipment, as well as the final set-up and commissioning of the system.

From the office in North Macedonia, ROBOS covers the markets of Albania and Kosovo, showing great potential around a few privately owned companies that are already using equipment from the WITTMANN Group.

### Croatia and Bosnia-Herzegovina

As Slovenia is a bordering state of Croatia, this market is covered directly from Slovenia. Since Croatia has become a member of the

EU, there have been no significant foreign investments in the country during the last few years. Among the ROBOS customers in this area, FASAL is the most loyal one.

Bosnia-Herzegovina, on the other hand, is proving to be attractive for foreign investments in plastics production, due largely to the lowest energy costs in the region, affordable labor cost, and also the very low taxes on earnings.

ROBOS covers the western region of this market from Slovenia, and the eastern region from Serbia. Customers in this area are sometimes serviced from the most nearby ROBOS location. Thus far, WITTMANN robots and temperature controllers have been sold to different, mainly domestic, companies.

ROBOS plans to hire a sales representative for the market of Bosnia-Herzegovina. This should produce a decisive advantage compared to competitors that are currently inactive in the market.

## In memory of Dieter Kremer

On 6 November, our highly esteemed colleague, Dipl.-Ing. (TH) Dieter Kremer, passed away unexpectedly at the early age of 57 years, following a short, severe illness.

After graduating in mechanical engineering from the technical university RWTH Aachen, Germany, Kremer started his professional career as an application engineer at BATTENFELD GmbH in Meinerzhagen/Germany, then a member of the SMS Group. His outstanding qualities were verve and creativity as well as personal initiative and excellence in the field of plastics technology. He successfully mastered various difficult challenges by finding unconventional solutions.

After a short interlude at a renowned plastics processor from 2003, he returned to BATTENFELD in 2008, following the

takeover of the company by the WITTMANN Group. From then on, he was again active in the area of application and process technology and became widely known in the German plastics processing industry.

His particular field of excellence was his profound expertise in special processes such as Vario-mold, Airmould, physical foaming and micro injection molding. He shared his expert knowledge during numerous presentations held at technology conventions and various other events. Dieter Kremer also appeared frequently at the universities and specialist institutes cooperating with the WITTMANN



Group, where he was always a valued speaker and a welcome guest. Especially by his commitment to energy consulting, a field in which his expert knowledge was equally profound, Dieter Kremer became a key contact person for all German customers in recent years.

In more than one way, Dieter Kremer's universally appreciated work has made a decisive impact on the companies of the WITTMANN Group. He will be remembered by his colleagues throughout the organization as an invariably cooperative, open-minded, reliable and dedicated co-worker and colleague.

