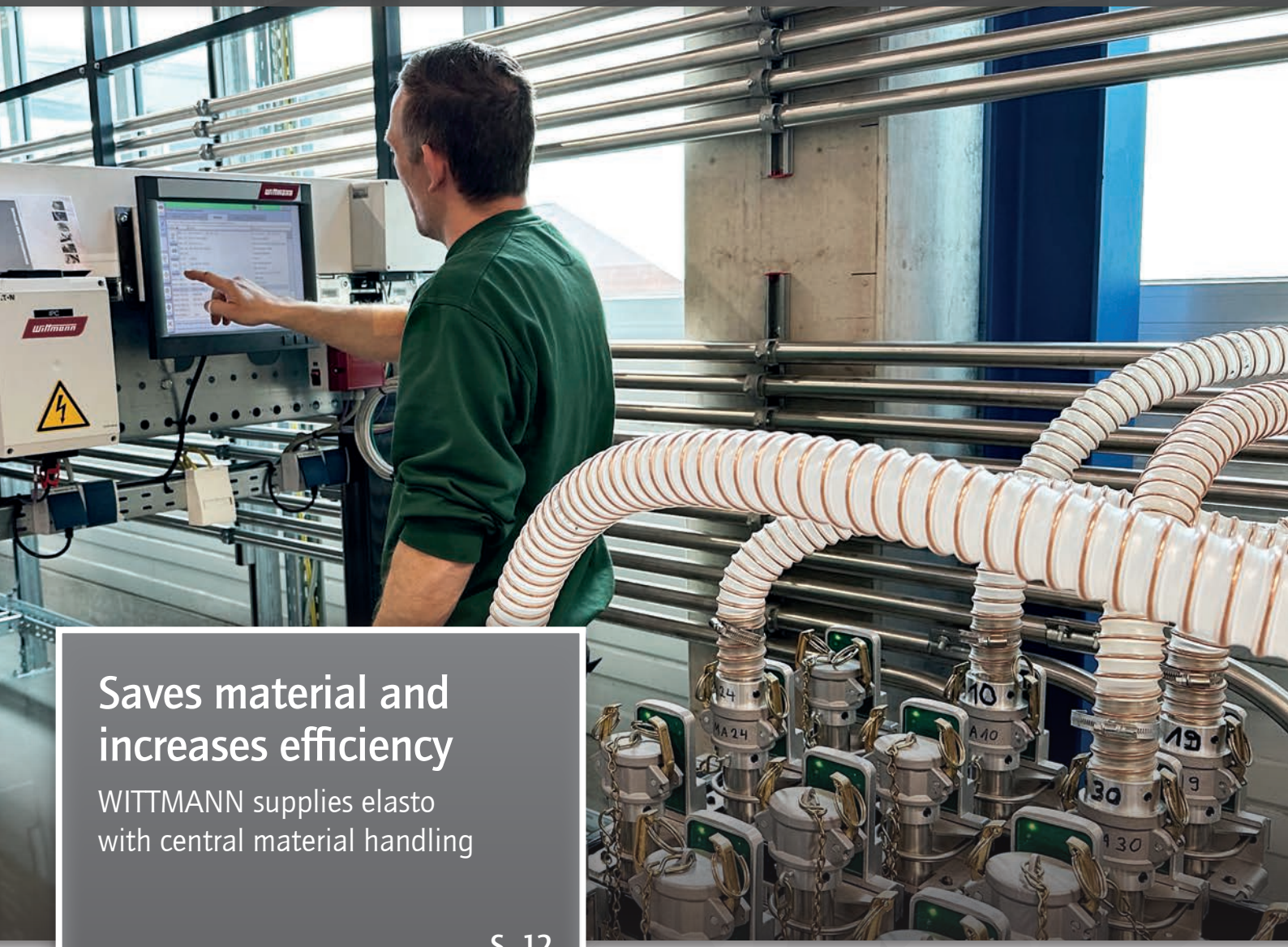
The magazine for the injection molding world

innovations

3 2025



Saves material and increases efficiency

WITTMANN supplies elasto with central material handling

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WITTMANN innovations – The magazine for the injection molding world
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Editorial office: WITTMANN Technology GmbH, Lichtblaustraße 10, 1220 Vienna, Austria – Editors: Gabriele Hopf, Susanne Zinckgraf
Layout: Carolina Novoa – Tel.: +43 1 250 39 0 – gabriele.hopf@wittmann-group.com – www.wittmann-group.com

WITTMANN Technology GmbH
Lichtblaustraße 10
1220 Vienna
Austria
Tel.: +43 1 250 39-0
info.at@wittmann-group.com
www.wittmann-group.com

WITTMANN BATTENFELD GmbH
Wiener Neustädter Straße 81
2542 Kottingbrunn
Austria
Tel.: +43 2252 404-0
info@wittmann-group.com
www.wittmann-group.com

Editorial

Dear Readers,

When the doors to the K fair in Düsseldorf open once more after a 3-year break on October 8, the global plastics industry will look ahead with hope. The innovations presented there will give the industry some valuable technological impulses and hopefully ring in the long-awaited economic upturn.
In any case, the WITTMANN Group has continued to pursue its development goals over the last three years and will once again present tangible evidence of its innovative strength in Düsseldorf in October. For us, sustainability, digitalization and new materials are no mere buzzwords; on the contrary, these very issues are driving our development. We are facing up to our responsibility to provide for the changing world of plastics resource-saving and simultaneously economical processes.

The decisive point in every case is making the right decisions. "Smart Choices – Smart Savings" is therefore WITTMANN's overall concept for the K 2025.

Our main focus lies on savings in energy consumption, cycle times, space requirements and the use of raw materials. All of these savings ultimately lead to economic advantages. In all our new developments, we consistently pursue a well-balanced cost-benefit ratio, for this is the only way to give sustainable development a chance for the future.

At the K 2025, we will present innovative system components as well as fully integrated automatic work cells all from a single source, which very effectively exploit the potentials for efficiency and high quality standards. Here, a special focus lies on processing post-consumer recyclates and biologically degradable materials. Please, be ready for surprises! You will already find an exclusive preview of the K 2025 in this issue, starting from page 4.

Especially in times of increasing geo-political tension and growing protectionist tendencies, international trade fairs

such as the K are indispensable platforms for dialog and economic diplomacy. Personal meetings and direct exchange of opinions are now more vital than ever. So I hope that the current political differences will not have too great an effect on the internationality of the fair.

The plastics industry currently finds itself in an unprecedented field of tension, characterized by a new, even harder competitive situation, weak global demand in many areas, a need for resource-efficient, sustainable solutions, and of geo-political insecurity. This complicated situation presents the industry and all of us with complex strategic and technological challenges. This is precisely why a visit to the K 2025 is so important – in order to take home practical solutions and new impulses for more efficiency and greater competitiveness.

I look forward to seeing you in Düsseldorf!
Yours, Michael Wittmann

Smart Choices – Smart Savings

The art of making smart decisions determines efficiency and competitiveness. At K 2025, a multitude of "smart choices" will await the visitors. WITTMANN's focus here is on savings in energy consumption, cycle time, space requirements and raw material consumption.

The WITTMANN Group in hall 15 and at the "Power of Plastics" forum in the outdoor area

MacroPower now even more compact

One highlight among the injection molding machines will be the new MacroPower model with a one-piece machine frame. Although the machines from the MacroPower series have always stood out by their compact footprint in relation to their high clamping forces, the completely redesigned machine frame now offers even more space savings. It is designed in one piece, which not only reduces its footprint still further, but also accelerates commissioning and startup of the machine. The newly developed, now pivotable injection unit also contributes to this. Screw changes have become very easy – regardless of the machine's placement inside the production hall. The injection aggregate is easily accessible from both the machine's front and rear sides.

The one-piece machine frame of the new MacroPower saves both space and time.

For its market launch at the K 2025, the new MacroPower with its one-piece frame will be available in sizes from 400 to 600 tons.

With the production of storage boxes made of PP using a single-cavity mold from Haidlmair, a MacroPower 500/3400 in the new design will demonstrate its high performance at the booth in hall 15. It is an in-mold labeling application. For in-line quality inspection, a thermal camera and the TDI4.0 software from SKZ will be used. Other partners for this exhibit are Viapiani and Borealis.

A second large MacroPower machine will present a challenging multi-component application in Düsseldorf. It will produce foldable laundry baskets made of PP and TPE, using a 1+1 mold supplied by ATA, based in Turkey. This MacroPower 650/2250H/1330H Combimould comes with a 1500-mm rotary table. A WITTMANN Primus 148T linear robot will perform parts handling.

The foldable laundry basket made of PP and TPE will be produced in hall 15 on a MacroPower Combimould machine.

The so-called shark box is produced using IML on a MacroPower injection molding machine.

EcoPrimus: efficiency meets economy

In the field of all-electric injection molding machines, the WITTMANN Group has another world premiere in store. The new EcoPrimus with 1000 kN clamping force has been specially developed to combine efficiency with extremely high cost savings for standardized applications requiring only a small range of options. There will be no compromises in terms of easy operation. Like all other current injection molding machine models from the WITTMANN Group, the EcoPrimus comes equipped with the latest Unilog B8X machine control system.

This new machine is predestined for efficient manufacturing of mass products. During the K, an EcoPrimus 100/525 will produce closing caps for eyedrop bottles. For this purpose, a 24-cavity mold from HTW will be used. The parts will be removed by a W918 linear robot from WITTMANN, deposited on a conveyor belt and passed on directly to a tubular bag machine supplied by Ravizza Packaging to be packaged.

All-electric precision for liquid silicone

The all-electric EcoPower series is at home wherever precision, efficiency and cleanness are required. It scores with high injection speeds, extremely precise regulation and high dynamism. Direct servo drives and the utilization of deceleration energy reduce its energy consumption to a minimum. Thanks to its modular design, the EcoPower is flexibly adjustable to your production requirements. This range of attributes is of great benefit for applications such as liquid silicone processing. At the K 2025, WITTMANN will present an EcoPower 110/350 equipped for LSR processing, which will produce pump housings in a 2-cavity mold supplied by Elmet. Here, the LSR serves as a sealing against liquid media. The machine is equipped with a TOP 5100 dosing pump from Elmet, laid out for maximum process stability and cost-efficiency in mass production with LSR. The application operates fully automatically. A W918 robot from WITTMANN removes the parts and deposits them on a conveyor belt.

For its world premiere, the EcoPrimus will produce closing caps for eyedrop bottles.

Insider for a space-saving equipment layout

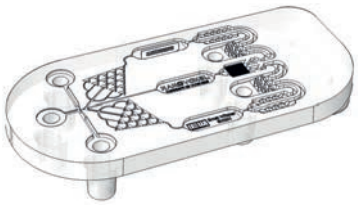
Saving space is also a guiding principle in the exhibition area for SmartPower injection molding machines. Here, an outstanding exhibit at the K will be a SmartPower 160/1000 Insider model producing aerosol spray caps from PP with an 8-cavity mold from HTW. In the Insider production cell, the parts removal robot, in this case a WITTMANN W918, the conveyor belt, as well as the upstream and downstream processing auxiliaries, are all fully integrated in the machine's protective housing, thus fitting the entire system into an extremely compact unit. The SmartPower will present itself at the K as a hybrid machine model. It combines its highly flexible servo-hydraulic clamping unit with an extremely generous mold space, highly dynamic regulation and excellent shot-by-shot repeatability of the all-electric injection unit. In this exhibit, the new WFC plus flow controller from WITTMANN with Net8 control will be used.

Saving a lot of space: the Insider concept from WITTMANN.

Aerosol spray caps – produced by the space-saving Insider work cell around a SmartPower 160.

Micro injection molding with 3D-printed nanostructure inserts

The MicroPower accommodates everything it needs for production on only 2 square meters.



The lab-on-a-chip has minute nano structures – made possible by 3D-printed mold inserts.

Structures measuring 0.04 x 0.04 x 0.1 mm and corner radii down to 0.005 mm – these are the requirements for a lab-on-a-chip application which will challenge an all-electric MicroPower injection molding machine at the WITTMANN booth in hall 15.

The all-electric MicroPower machine specially developed for injection molding of extremely small micro parts is not only compact and energy-efficient, but also helps to save material. For the design of this machine makes it possible for the injection plunger to reach all the way down to the parting line of the mold. This reduces the melt cushion to a minimum, and the sprue is significantly reduced or even eliminated altogether. This structural specialty not only increases material efficiency, but also improves quality consistency, since pressure transmission is achieved via an extremely short flow path.

For this purpose, the lab-on-a-chip devices will be produced on a MicroPower 15/10 from transparent PP. 3D-printed 2-cavity mold inserts from NanoVoxel inside a basic tool box from Ernst Wittner will be used.

The MicroPower will be equipped with the new WITTMANN robot model W9VS2. What is new: Scara robots will now also be delivered with a full-fledged R9 robot control system. This offers users more scope for complex process sequences.

Natural fiber meets plastics

Natural fibers are very attractive for industrial applications, because they have excellent mechanical attributes in terms of stiffness and strength, and also score with good insulation properties combined with low density. The success formula for lightweight construction is the combination of >>

Machines from the VPower series are frequently used for insert molding. The 2-tie-bar rotary table concept without a central tie-bar offers optimal access to the mold.

natural fibers (NF) with polypropylene (PP). As a composite material, NFPP is suitable in sectors such as the automotive industry for numerous different process combinations, for example in producing vehicle interiors. For instance, the NFPP OneShot technology from FRIMO Innovative Technologies combines forming and overmolding into a single integrated process. At the WITTMANN trade fair booth, this technology will be presented on a vertical injection molding machine model from the VPower series. Here, the system partners, which, in addition to WITTMANN and FRIMO Innovative Technologies, also include LEONHARD KURZ and the Polyvlies Group, even go a step further. In a fully automatic sequence, an NFPP material decorated with the new DecoPress decoration system from LEONHARD KURZ will be processed to demonstrate the enormous potential for demanding visible components, such as are required, for example, in the automotive and electronics industries. All in all, a sustainable combination of materials will be created, which is recyclable. Even production scrap, for example from punching, can be re-used.

The process runs fully automatically. The natural fiber mat combined with the decoration system is picked up from the material supply unit and inserted into the machine by a linear robot from WITTMANN, and there insert-molded with a contour. The robot then also picks up the finished part, turns it around and passes it on to the printing station. There, a QR code is printed on it from which visitors to the fair can retrieve more detailed information about the material, the process technology and all participating project partners. A camera inspection station is also integrated into the automatic process, to check the dimensional accuracy of the overmolding. Finally, the robot deposits the good parts on the conveyor belt.

The machines of the VPower series stand out by their 2-tie-bar rotary table concept, which ensures optimal access to the mold by dispensing with the central tie-bar. In addition, the VPower machines are designed for extremely fast opening and closing, and their rotary tables are equipped with servo-electric drive systems for minimal rotation times.

The Power of Plastics in the outdoor area

"Green – Smart – Responsible" – this motto of the K 2025 can be experienced live at the Forum "The Power of Plastics "of VDMA in the outdoor area between halls 11 and 16, illustrated by many innovative examples. The WITTMANN Group will be present at the Forum with a booth of its own. The main focus here: processing of alternative materials.

Compared to baked waffles, the injection-molded product offers higher mechanical stability and a longer shelf life, and is therefore ideally suited for edible packaging solutions in the food industry.

WITTMANN will present another exhibit jointly with WILDPLASTIC and several other partners. It will demonstrate processing of a post-consumer recyclate (PCR) on an all-electric, DC-powered EcoPower 180/750 injection molding machine. In a mold from Haidlmair, containers bearing the name of Wild Pot will be produced, which points to the special origin of the PCR material. This material is so-called wild plastic collected from the environment in Senegal. The PCR will be processed by Cellmould foam injection molding, thus saving both material and energy. An attractive Marblebatch marbling effect will be generated to show product designers new options for creativity. In this application, TagTec technology will also be used, which gives every Wild Pot its own DNA. Additional details regarding the collaboration between WITTMANN and WILDPLASTIC can be found in the podcast tip on page 18.

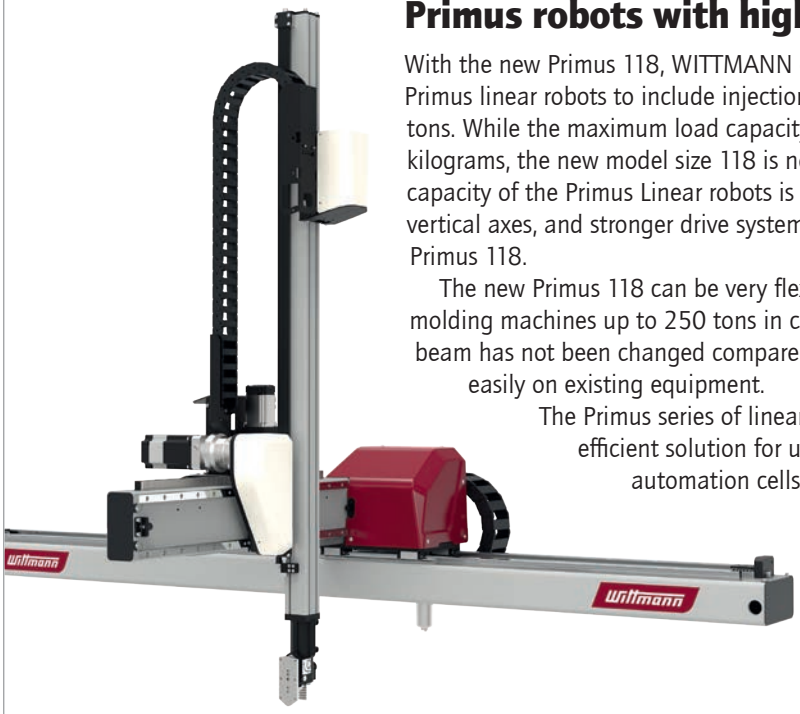
Thanks to a local Direct Current grid, the EcoPower in DC version reduces energy loss when using photovoltaics, and makes processors to some extent independent of electricity suppliers.

One example is a patented natural material, from which ice cream waffle cones will be produced on a SmartPower 350/1670. The material developed by Wafflerie, United Arab Emirates, consists completely of fully edible, plant-based materials. It is compostable and safe to eat for both humans and animals.

During injection, the material expands in the hot mold, forming a waffle-like, porous structure with excellent insulating attributes and a texture pleasant to the touch. The molded parts are demolded and deposited on a conveyor belt by a Primus 128 robot. The 4-cavity mold comes from Precupa.

AIM4Help: With AI up to the next higher level

With AIM4Help, Smart Service reaches the next higher level. The AI-based expert system is used for answering technical questions and troubleshooting. It is made available as a first-level support via a web portal and offers diverse possibilities for help and support, for example in terms of machine and WorkCell operation or in case of error messages.
The AI is trained by all documentations, technical details and error analyses which the WITTMANN Group has accumulated throughout its entire corporate history. WITTMANN's software development team has optimized the training data for high efficiency in answering queries and offers a high hit rate.



Primus robots with higher load capacity

With the new Primus 118, WITTMANN extends for the K 2025 the application range of its Primus linear robots to include injection molding machines with clamping forces of up to 250 tons. While the maximum load capacity of Primus robots in this size bracket was previously five kilograms, the new model size 118 is now able to carry up to eight kg respectively. The added capacity of the Primus Linear robots is based on a new design with reinforced demolding and vertical axes, and stronger drive systems. Up to eight vacuum circuits are possible with the Primus 118.

The new Primus 118 can be very flexibly installed on different models and sizes of injection molding machines up to 250 tons in clamping force. Since the drilling pattern in the main beam has not been changed compared to earlier series, the Primus 118 can be mounted very easily on existing equipment.

The Primus series of linear robots constitutes a reliable and simultaneously cost-efficient solution for use in all pick-and-place applications, as well as in simple automation cells. The Primus 118 operates with the proven R9 robot control system from WITTMANN. This control system already includes an OPC-UA interface as standard, so as to exchange data with an MES and to edit and save programs on a PC.

Innovation from our range of auxiliaries

• With the new 3.5" TFT-LCD color display, WITTMANN has made the operation of Tempro basic temperature controllers even more comfortable than before. Instead of the previous seven-segment display, it now offers a significantly clearer overview plus intuitive menu navigation. At the K 2025, the **Tempro basic 120** will celebrate its premiere. Thanks to proportional valve cooling, the temperature controller is now able to respond even faster to process fluctuations. Its flow quantity is steplessly adjustable. Its proportional valve functions without a membrane, thus reducing servicing expenses.

• The **Feedmax Clean** material loader has been specially developed to meet the increasingly stringent demands of the circular economy. For the Feedmax Clean reaches extremely high separation rates of up to 80 per cent (for particles < 1000 µm). Thanks to thorough dedusting, recyclates can now also be used safely for high-quality applications. At the K 2025, WITTMANN will present a new range of sizes, which allows even higher throughput rates.

• The **M8 plus** network control for central material supply systems will present itself at the K 2025 with new functions for reliable traceability, that is, RFID-coded material distribution and WorkCell integration via OPC UA.

• The new **Drymax basic 120** dry air dryer operates with the tried and tested two-cartridge technology. It is extremely energy-efficient and very maintenance-friendly, too.

• The new **S-Max primus** granulators in sizes 2 and 3 combine cost efficiency with an extremely compact design. The screenless granulators are destined for grinding hard fiberglass-reinforced materials such as PA-GF.

Drinktec 2025: High-speed for caps and thin-wall packaging

Developed specifically for the resource-saving high-performance production of caps and closures as well as thin-wall packaging, the EcoPower Xpress sets new standards in terms of injection performance. Trade fair visitors can experience this live at Drinktec 2025 from September 15 to 19 in Munich! At the world's leading trade fair for the beverage and liquid food industry, the WITTMANN Group will be presenting an integrated system for the high-performance production of beverage closures in Hall C6.

Flat water caps will be produced in a 32-cavity mold during Drinktec.

In order to achieve the shortest cycle times of far below 2.5 seconds in a highly efficient manner, the EcoPower Xpress uses water-cooled servo-electric motors for the main movements (closing/opening, dosing, injection). The feed movement for injection and the active screw retraction movement are driven by double gear racks with symmetrical force distribution. This enables particularly high dynamics. Injection speeds of up to 650 mm/s, an injection acceleration of up to 15000 mm/s² and injection pressures of up to 2500 bar can be achieved. At the same time, the EcoPower Xpress consumes only a minimum of energy.

The clamping system has a maintenance-free 5-point toggle lever that is self-locking in the end position and is driven by a combination of servo motor and rack and pinion gear. The highly stable mold mounting platen is guided on the base frame via a carriage without tie-bar contact. The carriage offers high stability reserves for the use of heavy multi-cavity molds without compromising precision. The 5-point toggle lever ensures even force distribution.

Encapsulated drives and an automatic central lubrication system with progressive distributor keep both the clamping unit and the entire machine environment absolutely clean. This ensures safe production of food packaging and high-volume medical products, even in clean rooms.

At the Drinktec, an EcoPower Xpress 160/1100+ will demonstrate the production of flat water caps made of HDPE, using a 32-cavity mold supplied by HTW. The machine comes with a WITTMANN vacuum loader and a WITTMANN mold space dehumidification system.

Following demolding, the finished caps fall down onto a conveyor belt positioned below the machine's mold space. The parts are then conveyed to an end-of-line automation system supplied by IMDvista. Inside this system, the caps pass through the stations of cooling, orientation and separation, and finally inline quality inspection. All good parts reach the packaging station. The total cycle time for producing 32 caps is no more than 2.5 seconds.

The EcoPower Xpress from WITTMANN is designed for the resource-saving, high-performance production of caps and closures as well as thin-wall packaging.

100 percent quality control inside. WITTMANN is working together with its partner IMDvista for the Drinktec exhibit.

Combined forces in Switzerland

Managing Director Gjone Kabashi (center), Sales Manager Thomas Robers (3rd from the right), Deputy Managing Director Murat Gürkan (5th from the right) and Sales Manager Roberto Ariu (4th from the left) together with the entire Swiss team.

The WITTMANN Group consistently pursues its strategy of "It's all WITTMANN". Most recently, the two Swiss subsidiaries WITTMANN Kunststofftechnik AG in Kaltbrunn and BATTENFELD (Schweiz) AG in Effretikon combined their business activities. The Swiss market is now served by the subsidiary in Kaltbrunn – all from a single source, including auxiliaries, automation, injection molding machines, application technologies and digital solutions.

Right from the takeover of BATTENFELD by WITTMANN in 2008, both these companies have been working successfully in close partnership to develop optimally coordinated complete solutions for highly efficient, fully automatic injection molding processes for their customers. A vital success factor in this cooperation from the very beginning was the excellent personal relationship between Werner Bürli, former Managing Director of WITTMANN Kunststofftechnik and today a member of the advisory board of WITTMANN Schweiz, and Thomas Robers, Managing Director of BATTENFELD (Schweiz). This positive dynamism has continued unbroken under Gjone Kabashi, the new Managing Director of WITTMANN Kunststofftechnik, who was appointed two years ago.

The merger of the two Swiss companies, which has now been completed, was planned and prepared very carefully. All members of the BATTENFELD (Schweiz) AG team have been integrated into WITTMANN Kunststofftechnik. "For our customers, this means a high degree of continuity. They can continue to rely on the excellent technical expertise of the entire WITTMANN team", emphasizes Gjone Kabashi.

10 years of WITTMANN Hungária

Imre Bocskor, Managing Director of WITTMANN Hungária Kft (center), together with the Managing Directors and Division Managers of the WITTMANN Group. On his left: Dr. Werner Wittmann, on his right: Michael Wittmann.

Right on time for the 10th anniversary of the subsidiary, WITTMANN Hungária Kft was able to inaugurate its new building in Törökbálint, south-west of Budapest. "This day is setting a milestone on our continuing path of offering technologically leading products at competitive prices in all regions of the world, to secure the decisive lead for our customers and partners", Michael Wittmann states in his formal address to the roughly 120 guests present at the celebration.

The Hungarian team is particularly glad about the extended capacities of the new facility. For example, on account of the enlarged training center, where future-oriented digital technologies can now also be experienced tangibly and live in action. The new technical center now offers more space for machines, robots and auxiliaries. The capacities are available to all customers for test runs and mold testing.

120 guests, including many customers and partners, celebrated the 10th anniversary and the official opening of the new building in Törökbálint together with the team of WITTMANN Hungária.

New subsidiary in Morocco

Michael Wittmann (left) welcomes Redouane Soukrat into the WITTMANN Group.

The WITTMANN Group continues to grow. Establishment of the new Moroccan subsidiary based in Casablanca has been completed successfully. Its operative business activities started on 1st September. Redouane Soukrat, who has extensive experience in the industry, has been appointed General Manager of WITTMANN Maroc Sarl. His initial duties include extending the regional network of qualified service engineers.

Space for sustainable innovations

With the opening of the expanded and redesigned application technology center in Nuremberg, WITTMANN is creating new opportunities to get to know and try out innovative products and technologies in a tangible and practical way. The thematic focus of the expanded range is on energy efficiency and the circular economy. Around 200 guests – including more than 140 customers and partners – accepted the invitation to the technical center opening and specialist conference.

Dr. Werner Wittmann, owner and Managing Director of the WITTMANN Group (center right), opens the technical center together with Andreas Schramm, Managing Director of WITTMANN BATTENFELD Deutschland (center left), Alexander Paech, Sales Manager Automation and Peripherals (right), Andreas Hollweg, Sales Manager Injection Molding Technology (2nd from left), and junior staff.

Reducing the CO_2 footprint is an absolute necessity. Measures to increase energy efficiency and sustainability only have a chance if they also pay off economically," emphasizes Andreas Schramm, Managing Director of the German subsidiary of the Austrian WITTMANN Group. „This is exactly what our developers have firmly in mind. In our new technical center, economic sustainability can be experienced directly."

Exhibits covering the entire product range

The capacities in the technical center are available to all customers of the WITTMANN Group – for individual presentations, joint development work, technical application consulting, material and mold trials as well as factory acceptance tests.

Two large injection molding production cells are located in the technical center, whereby the applications presented will change frequently. A servo-hydraulic SmartPower and an all-electric EcoPower injection molding machine will be the first to produce guest gifts on the opening day. Both applications show how easy it is to exploit the potential for CO_2 savings. Among other things, the high energy efficiency of the machines, digital assistance systems and the processing of recycled materials contribute to this. The advantages of complete solutions from a single source also become clear. "With complete solutions, we can precisely coordinate all components of the production cell right from the start and thus exploit efficiency and quality potential particularly well," says Schramm. „The WITTMANN Group offers solutions from its own development and production across the entire production process – from material preparation, injection molding, temperature control and automation to inline recycling and the integration of digital solutions. Only WITTMANN can do this in this depth."

Other exhibits in the new technical center will present innovations from the areas of mold temperature control, peripherals, automation, recyclate processing and 4.0 networking. These include smart recycling packages, the Expert MouldTemp assistance system, the WX90 servo removal unit and the Feedmax Clean conveyor unit with integrated dedusting.

New information corner for partner presentations

The thematic focus of the exhibition is reflected in the lecture program. WITTMANN was able to attract renowned external speakers for the opening day. The speakers came from the companies WILDPLASTIC, Leonhard Kurz, Kontron Leipzig and Schlaeger Kunststofftechnik.

Guests at the opening ceremony will also notice the new, attractive seating area in the technical center, which is more than just a quiet place to have a coffee with customers or move project discussions to the technical center. "We make this information corner available to our customers and partners," says Schramm. "We offer an appealing atmosphere, top equipment and state-of-the-art presentation facilities – for example for

product presentations or events, whether for a day or an entire week."

Looking ahead to the K 2025

The WITTMANN Group has two locations in Germany – the second location in addition to Nuremberg is Meinerzhagen. The customer technology center there was expanded and technologically upgraded two years ago. The entire product range of the WITTMANN Group can now be experienced live at both locations, with the technologies presented complementing each other very well. One focus in Meinerzhagen, for example, is Cellmould lightweight technology, which is available on several machines there.

"We are looking positively to the future and expect K 2025 in particular to provide new impetus," says Andreas Schramm. "The guests at our technical center opening can already take away one or another preview of our K innovations from the opening day."

Smart Recycling strengthens circular economy

With Smart Recycling, the WITTMANN Group is bringing its full system solution expertise into play. The product packages boost both efficiency and quality standards of in-line recycling. During the opening of the technical center in Nuremberg, they were presented to the public for the first time.

Every Smart Recycling package consists of a granulator, a mobile dryer and a dosing unit. All system components are selected and coordinated to suit the individual requirements of the material, the application and the operational circumstances involved in each case, in order to produce a top-quality regrind with highest possible efficiency.

An integral part of every Smart Recycling solution is a Feedmax Clean material loader specially developed by WITTMANN to meet the more and more stringent require-ments of the circular economy. During material conveyance, the Feedmax Clean reaches extremely high separation degrees of up to 80 per cent (of particles < 1000 µm), thus removing considerably more dust particles and fine parts from the granulate than comparable appliances on the market. This ensures an extremely high consistency of quality in injection molding. Thanks to thorough dedusting, recycled materials can also be used safely for qualitatively demanding applications.

The first customers for this new sales concept are coming from the automotive industry among others. The target group for Smart Recycling generally consists of all plastics processors practicing in-house recycling of sprue and scrap parts.

Saving material and boosting overall efficiency

With a central material supply system from WITTMANN, elasto has reorganized material handling in injection molding production. The investment is part of a comprehensive modernization package aimed at achieving long-term competitive unit costs at the German site.

The new coupling station still leaves room for further growth.

The manufacturer elasto ranks among the largest suppliers of promotional items in Europe. From give-aways right up to high-quality household, lifestyle and sports articles, the product portfolio of its shop includes an immense range of different options. Ever since its foundation in 1980, the company with its headquarters located in the German town of Sulzbach-Rosenberg, has seen continuous growth, and this trend continues. A key factor here: close connection between economic and ecologic strategy. "For promotional items made of plastics, major brand owners increasingly turning to European production", emphasizes Marcus Sperber, who manages the family-owned company in the second generation.

"Made in Germany" as a quality seal is an integral part of the sustainability strategy. This strengthens the local economy, but also involves some new challenges. After all, people are not always willing to pay more for "Made in Germany" products. So, efficiency and productivity on the shop floor must be improved continuously to keep unit costs competitive.

12.5 million Euros for new, resource-saving processes

More than 600 from the total range of 1400 articles are manufactured in Germany. Primarily plastics products, for this is what the parent company in Sulzbach-Rosenberg has specialized in. The machinery is housed in a new and sparkling production hall which has been bespoke-designed and equipped fit-for-purpose. The company molding fleet consists of eighteen machines with clamping forces from 50 to 300 tons as well as a stretch blow molding and a blow moulding machine.

Most recently, elasto has invested 12.5 million Euros in a new, resource-saving pro-duction and logistics center. A completely new hall was built for the logistics depart-ment, and the production was moved into the original hall after it had been vacated and thoroughly refurbished. This hall now offers significantly more space and thus caters to the growing demand for advertising articles made in Germany. "Over the last few years, we had already added some new, larger injection molding machines, which stretched the original hall to the limits of its capac-ity", reports the Production Manager Markus Rösel. "A constant challenge was the low, gable-shaped ceiling of the hall. All machines had to be positioned in such a way that the robots could operate below the gable top." This restricted flexibility, since the installa-tion of an overhead crane was not possible either. Material supply was stored decentral-ized in the old hall. The granulate containers stood directly beside the injection molding machines, and the granulate was filled into the hoppers by hand. "Two staff members were fully occupied with refilling granulate", reports Rösel. Simultaneously, valuable hu-man resources were lacking elsewhere, as the shortage of skilled workers has been notice-able for some time now. With the expansion of production, it was therefore necessary to increase automation.

Any color is available for orders of 5000 or more

The heart of the new production is now a large central material supply system from WITTMANN. "With this central material sup-ply system, we have also provided the struc-tural basis for further growth", Sperber points out. Several large Drymax material dryers are standing on the platform, placed below them are 750-kg containers for the most frequently used materials and colors. Polypropylene makes up the lion's share. Via a closed pipeline system, the granulate is transported to the coupling station and from there to the individual processing machines. Currently, not all of the coupling points are yet in use – here, too, the equipment has been planned for further growth. Characteristic for elasto is its vast range of different colors. "Batch sizes from 5000 units upwards are available in any color", says Sperber.

The coordination of material flows with the machines takes place via bar code labels and hand scanners. The M8 control system of the central material supply system automatically checks whether the particular combination fits and only then releases the material transfer. A risk of confusion, such as existed previously, is thus excluded. "The M8 control system was accepted very well by the whole team", says Rösel. "Following training at WITTMANN, they could all work with it without any problems, although the RFID-controlled granulate supply was a complete novelty for everyone."

New start-up accomplished in only two weeks

The WITTMANN subsidiary in Nuremberg with a large training center and application technology center is less than an hour's drive away. This is an advantage also for servicing.

The granulate is transported inside a closed system. Feedmax Clean material loaders are also used. In this way, dust generation is reliably prevented.

Round waiter's trays are well-known products from elasto.

The M8 control system of the central material supply system met with a very positive response from staff members.

The dryer platform provides a view across the material storage area. The space directly under the platform is reserved for containers filled with the most frequently used materials.

"Whenever we cannot help online, we will come very quickly in person", emphasizes Wolfgang Prütting, Regional Sales Manager at the WITTMANN Group. "In selecting our suppliers, we have a strong preference for regional partners", underscores Marcus Sperber. But the decisive incentive for choosing WITTMANN as their supplier of the central material supply system came from visiting a reference customer. "We visited a major manufacturer of electronic components to see how they work with WITTMANN's system. We spoke with staff members on site and saw that their response was very positive", Rösel reports. Another confirmation that they had made the right choice came to elasto during the installation of the equipment. For the time schedule was more than tight. The Christmas vacation was used to move the injection molding shop and to start up the new central material supply system. Then, after a break of only two weeks, production resumed again at the beginning of January with the plant's capacity fully utilized – just as if the equipment had only been shut down for the Christmas holidays.

Regrind processing with thorough dedusting

"The central material supply system has substantially improved our processes", is the conclusion drawn by Markus Rösel. Color changes are now carried out much faster. Residual material is simply sucked back and no longer lands inside a handheld vacuum cleaner. There are no more scattered granulate grains falling on the floor either. "The extremely clean materials handling increases occupational safety, process reliability and material efficiency", says Rösel.

Dust generation has been completely eliminated, which is due to the closed pipeline system as well as the Feedmax Clean material loaders with their integrated dedusting function. "The Feedmax Clean reaches extremely high extraction rates of up to 80 per cent of all particles below 1 mm in diameter", explains Prütting. WITTMANN originally developed the Feedmax Clean to meet the increasing requirements of the circular economy and with the aim of being able to use recycled materials safely also for high-quality applications, thanks to thorough dust extraction.

"For products not certified for direct contact with food, we use regrind more and more often", says Rösel. In part, this is regrind produced in-house from sprue and scrap parts.

As an example, they point to a "Profi 320" tray, made of recycled polystyrene. The round waiter's tray with a high rim and a slip-resis-

The Central Material Supply System includes Drymax material dryers.

Working together for higher competitiveness: Marcus Sperber and Markus Rösel from elasto, and Wolfgang Prütting from WITTMANN BATTENFELD Germany (from right to left).

tant inner surface, on which beer advertising is often shown, is one of elasto's top sellers. It is produced by two-component injection molding with in-mold labeling (IML).

Down-stream finishing of injection molding products is one of elasto's main specialties. In addition to IML, the available options include screen print, pad print and digital print. Moreover, items such as drinking bottles and cups are engraved with a name, logo, or other motif.

20 per cent more effective

elasto is the first company on the promotional item market to be ISCC Plus certified and thus furnishing evidence of its generating resource-saving materials and manufacturing ecologically valuable products. In addition to recycled materials, polypropylene produced from agricultural and forestry waste has contributed to the successful certification.

A particularly large contribution to the reduction of greenhouse gases comes from the company's own photovoltaic system. 1560 solar modules are installed on the new logistics center alone. "On a sunny day, we can operate entirely with energy produced in-house", Sperber emphasizes.

On 5500 square meters, the new logistics hall offers space for 5000 pallet racks and a storage area for 7000 small parts. The latter contains stores of small injection-molded products which are most frequently in demand, and which elasto also sells via online market places. Products ordered are sent fully automatically by mouse click directly to the person responsible in the shipping department. The latter carries out the final finishing step – for example, engraving – and then packages the products for dispatch. "We can only handle such small individual orders efficiently, because we have optimized and automated our processes also in the logistics department", Sperber points out. The overall flexibility of production at the corporate head-quarters has increased substantially – and this, too, pays off in terms of high competitiveness.

What is the proportion of the efficiency gain contributed by the new central material supply system? – This is not quite so easy to calculate, since the total number of optimization measures is very large. "But we have certainly become about 20 per cent more efficient in granulate feeding", estimates Rösel.

"The central material supply system definitely helps us to produce competitively", Marcus Sperber confirms. "We now have the necessary efficiency to make products in Germany, which others buy from Asia. "

"A partner we can rely on"

Greater efficiency and productivity – this was the target set for establishing a new injection molding department at the São Paulo facility of Amanco Wavin. No easy task, since PVC is processed in large, bulky molds to manufacture pipe segments and fittings. Here, MacroPower machines have proved to be the ideal equipment.

With a total area of 250,000 square meters, the São Paulo facility is the largest production plant worldwide belonging to Amanco Wavin, a company of the Orbia Group. Here, PVC pipes are produced for the Brazilian building construction and infrastructure industries. During our visit, the Production Director Adriano Perboni leads us past the extruders into the new injection molding facility. Here, several machines are standing in a row. In 2021, it was decided to extend the plant by adding an in-house injection molding facility – "a strong commitment to local production here in Brazil", emphasizes Perboni. "We are strengthening our production site with the extension of our product range".

Pipe elbows produced efficiently: Amanco Wavin invested in a new injection molding department to strengthen the local facilities in Brazil.

Two and a half times more productive

The injection molding machines were supplied by WITTMANN. In addition to the machines for the new injection molding plant in São Paulo, the scope of delivery also included a few additional machines for the Joinville production plant in the south of the country. The facility in Joinville houses a large injection molding production, which has already existed for a long time and served as a blueprint for establishing the injection molding shop in São Paulo, 600 kilometers away. But the production was not to be a one-to-one copy. Instead, the opportunity was taken to optimize the production processes with the new equipment. "We had set ourselves the goal to increase the efficiency of production processes compared to the existing injection molding shop", says Perboni. So, the Amanco Wavin team thoroughly analyzed the existing processes and exploited all potentials for more efficiency. "The new, fully automated production of fittings is two and a half times more productive", Perboni sums up.

The first consideration was a scale-up. For the São Paulo plant, the number of cavities in the molds has been increased. And with the molds the machines have also grown. While the equipment in Joinville includes numerous WITTMANN machines from the SmartPower series, the new machines in São Paulo are exclusively large-scale MacroPower models.

Although injection molding technology from WITTMANN is already being used in many places by the Amanco Wavin group of

WITTMANN delivered MacroPower injection molding machines to the production plant in São Paulo.

Cássio Luís Saltori from WITTMANN BATTENFELD do Brasil, Ricardo Domingues and Adriano Perboni from Amanco Wavin as well as Marcos Cardenal from WITTMANN BATTENFELD do Brasil (from left to right).

companies, this brand was by no means a foregone conclusion for the line extension of the extrusion plant. For – and here another efficiency factor comes into play – the footprint of the production cells was also a criterion. "Floor space is at a premium in Brazil, and especially in urban regions extremely expensive", explains Perboni. "Here, the production floor space is not determined by the machinery, but instead, the amount of production space determines the choice of machines."

Enquiries were sent to a number of different suppliers. "Some suppliers were sorted out quickly, simply because their machinery would have taken up too much space", says the Production Director. The MacroPower machines showed the best performance in this regard. Firstly, because their two-platen design already ensures a relatively compact machine footprint. Secondly, because the large distance between tie-bars enlarges the mold space. "With the MacroPower, we have a machine with a particularly large tie-bar spacing available", emphasizes Cássio Luís Saltori, Managing Director of WITTMANN BATTENFELD do Brasil, located in Vinhedo, only an hour's drive north of São Paulo.

What does the distance between tie-bars have to do with the machine's footprint? "A lot", explains Saltori. "Thanks to the generously dimensioned mold clamping plates, large, bulky molds can be clamped on smaller-sized injection molding machines."

Optimal utilization of clamping plates

The new molds with higher numbers of cavities come with quite a sizeable volume. Added to this must be the many core pulls radially protruding from the steel block while the mold is open. This is why often larger machine models are used than would be needed for the clamping force required by the process. Not so with MacroPower machines: they make it possible to choose the machine size according to the clamping force actually required, rather than the volume of the mold.

Thanks to short tie-bars and a large platen stroke, the clamping system of MacroPower machines reaches a large distance between the ends of the tie-bars and the moving platen. This enables mold insertion and mold clamping laterally from the rear end of the machine, using a crane. Where the platen stroke is not sufficient to free the tie-bars for a mold change, a hydro-mechanical tie-bar pulling device integrated in the pressure pad is used. Pulling or pushing back the tie-bars are fully automatic processes taking only few minutes. All of this put together enables extremely fast set-up processes without having to remove the core pulls. This is an additional efficiency benefit, even though this particular aspect is of minor importance in São Paulo. Here, set-ups are rare. Most products are manufactured in continuous operation.

The distance between tie-bars was a convincing argument for Amanco Wavin. But before WITTMANN finally won the contract, still another hurdle had to be cleared. "Here, we are not processing standard PVC", is how Perboni describes this further challenge. This is why the teams of Amanco Wavin and WITTMANN BATTENFELD carried out extensive test series at the injection molding department in Joinville. Starting with the existing PVC plasticizing unit, the attributes of screw and barrel were varied and finally adapted precisely to the specific types of PVC to be processed. In this way, the new machines are able to yield maximum performance. "The project was under time pressure. We succeeded in developing a customized screw in terms of geometry and surface attributes within only 30 days", reports Marcos Cardenal from WITTMANN BATTENFELD do Brasil. The technical specifications were then transmitted to the WITTMANN factory in Austria, where the production of screws was started immediately. The positive test results finally made it clear that the order would go to WITTMANN. "That was outstanding teamwork", confirms Adriano Perboni. "When my colleagues informed me that the optimal screw had been found, we immediately broke off our negotiations with other suppliers."

Technical support is also a vital factor for high efficiency and productivity in injection molding production. Not only during the planning stage for new production cells, but above all in after sales service, as Perboni points out. "The first months after the start-up of new machines are like the honeymoon. Everything is running perfectly. But the fine art is to make the partnership function until the end of life. With WITTMANN, we have a partner we can rely on throughout the entire life cycle of our machines."

All new injection molding machines are now optimally run in. The new projects currently under way include digitalization. "Networking via OPC UA helps us to collect process data and use them for process optimization", says Perboni. "Digitalization will give us the opportunity to become more independent of machine operating staff." To achieve this goal, the automation of processes is not enough. Instead, Adriano Perboni has autonomous, self-optimizing production in mind. "Naturally, this also has the effect of keeping the costs of human resources down. But in fact, we are finding it more and more difficult to hire skilled personnel ", says the Plant Manager. "So, the no-touch machine must be our target."

"Secure your high-quality PCR now"

The circular economy requires new technologies and, above all, the courage to break new ground - not just trying things out, but just doing them. This is the plea of Dieter Gottschalk, co-founder of WILDPLASTIC in Hamburg, and Andreas Hollweg, Sales Manager Injection Molding Technology at WITTMANN BATTENFELD Deutschland in Meinerzhagen, in Episode 19 of "Wir sind Spritzguss." In the podcast with Susanne Zinckgraf, they give a first preview on their joint exhibit at the K 2025 this October in Düsseldorf.

Susanne Zinckgraf: Before we reveal what we are planning for the K, Dieter, could you please give us a glimpse of what WILDPLASTIC GmbH is actually doing?
Dieter Gottschalk: We founded our business in 2019 with the idea of dealing with global plastic waste – in regions which have not yet solved this problem. The aim is to give the waste some value, to create socially acceptable jobs and to use the materials for making something new. We are currently working with three-digit quantities of tons. The target for next year is to reach four-digit figures.

What regions are actually involved?
Gottschalk: Main target areas are sub-Saharan Africa – at present, we are cooperating with an organization in Senegal – and also the Far East, for instance Indonesia. The material is collected and cleaned locally, to create as much added value as possible in the countries of origin. An important point in each case is reaching an industrial standard to ensure stability in further processing.

Who are your customers?
Gottschalk: We are very proud of our partners in the mailing bag business. Here, we name the mail order company Otto as a partner based in Hamburg. And what I am particularly pleased about: jerseys and track suits of the German BVB First-League soccer club are delivered in our mailing bags. Most recently also the fan products of the major soccer club FC Nuremburg.

In your opinion, where do we currently stand on the path to a circular economy in 2025?
Andreas Hollweg: We have the technologies for processing post-consumer recyclates (PCR). What we need now is a commitment for actually using these materials – for high-quality products too, to avoid the downcycling spiral. The problem is that the use of recyclates is often not yet profitable. We need to ask: what's in it for me, if I give those materials a second life? We are planning to give answers to this at the K 2025, taking the Wild Pots as an example.

Visiting Susanne Zinckgraf's podcast studio: Dieter Gottschalk (left) and Andreas Hollweg (right).

What exactly awaits the visitors to the fair in Düsseldorf?
Hollweg: We combine an energy-efficient all-electric injection molding machine with a local direct current grid, as well as Cellmould light-weight technology and a post-consumer material that has been collected in a region still without a suitable infrastructure for the re-use of plastics.

It is becoming clear how strongly the CO_2 footprint can be reduced by really pulling out all the stops. Take Cellmould: together, you have thoroughly checked the behavior of PCR in foam injection molding.
Hollweg: Exactly. We have carried out various tests and sometimes deliberately not washed the material so thoroughly in order to see the effect of residual contamination. Here, we have got excellent results with degassing. We started with the coat hangers presented at the Süddeutsches Kunststoffzentrum (SKZ) last year. These hangers are also of special interest, because we were able to give them quite an attractive surface finish.

Gottschalk: An exciting point is always the volatility of PCR materials. Their flow behavior can change within one and the same batch. And precisely here, the Cellmould process ensures a certain degree of consistency.
Hollweg: Well, we never know what comes next. These are certainly challenges – for both humans and machines.
Gottschalk: Precisely this is a part of the story. We vary the blend on purpose to see how this influences the perception of the product. We also aim to impress potential buyers by a special unique appearance and feel.

Incidentally, the quality of materials collected in places like Senegal is often better than that of PCR found in collections from Germany or Austria.
Gottschalk: Yes, and this is because here we get too many incorrect materials thrown into the yellow bags. In the countries our materials come from, sorting is carried out by hand and very carefully – if desired even down to sorting according to colors.

What are the availability and costs of such materials?
Gottschalk: Basically, we are always talking about projects with quantities we are able to deliver from stocks. For the costs, we need to calculate a surcharge on standard PCR. But our materials are purchased very deliberately because people are willing to do so. In this way, we can pay fair wages to the collectors and counteract child labor. In the countries of origin, there is always a business concept behind our work.

Who is mainly responsible for using more PCR?
Hollweg: The real question is: where does it begin? Actually, with the consumers who may not always need to have perfectly glossy surfaces, for example, under the hood of a car. Or do the law-makers need to impose regulations for individual product groups? – That is like the famous question about which came first – the chicken or the egg. One thing is clear: we all need to do some rethinking.
Gottschalk: Of course, we cannot ignore the issue of product liability. But I still think that we have not yet pulled out all the stops that can be pulled. Precisely this is now our approach: to say, just go ahead and test it! Find applications where this material really makes sense and the higher price is justified. I still see too many business partners who say: "Why should I do this when I can get virgin material much more cheaply, and my production keeps running smoothly?" My impression is that people quite often simply ignore the problem. But for packaging, for example, there is an EU directive requiring the fulfilment of certain recyclate quotas by 2030. Many people are not aware of the fact that PCR quotas will be distributed. As soon as these are enforced at some stage, many will have to fall back on left-over materials – and those will not be of class A quality. Today, we are already experiencing a kind of cannibalization. A classic example is the fleece jacket. I will never understand why it is great to have PET bottles transformed into fleece jackets. This material is food approved and could be re-used for food packaging. But instead, it becomes a fleece jacket, because consumers see this as something positive. Here we need to address social perception, too.

"EINFACH MACHEN" = JUST DO IT. Dieter Gottschalk (right) presented this poster to his hosts following his speech at the official opening of WITTMANN's new technical center in Nuremberg, Germany.

Do you have any specific wishes for increasing the awareness of the PCR issue and promoting it more strongly?
Gottschalk: We want to convert. Which means, we don't want to make just bracelets or small shovels out of the PCR, but rather work on a larger scale. We actually want to process 1,000 tons next year, including a 20 to 30 per cent proportion of rigid polyolefins. For that, we need partners who are interested and ready to simply start experimenting with the material. This is why I am really looking forward to the K fair, and to the many discussions there. It is a matter of brainstorming, validation and being active, as well as networking. Not all processors are competing against each other. So, why can't they check out what may be done together? This is our open invitation: please come and bring your ideas. We would like to continue discussing the topic of PCR together.

Listen to the full-length version of the podcast in German language:

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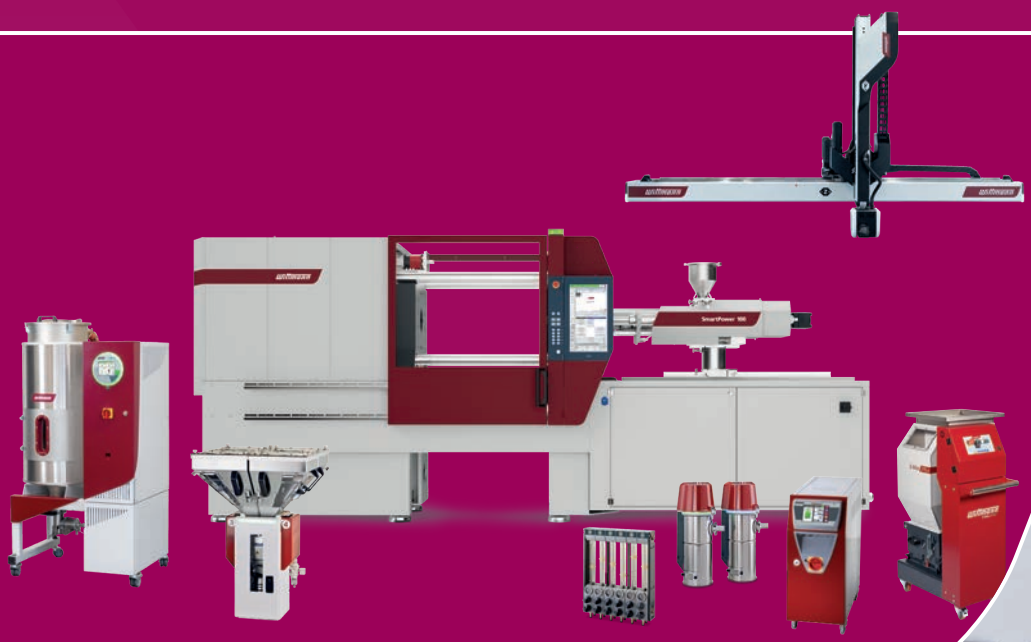

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