NEWS RELEASE
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WITTMANN presents multiple innovations at the Fakuma 2023 show

The WITTMANN Group is taking the opportunity to present a possibly record-breaking number of new innovative product developments in a great variety of different areas at the Fakuma exhibition in Friedrichshafen, Germany. The company will showcase these automation and peripheral developments from 17 to 21 October at its booth No. 1204 in hall B1.

Energy Efficiency Path

In addition to the presentation of new products – in order to bring show visitors closer to the economic and technical advantages of the WITTMANN Group –, an ***Energy Efficiency Path*** with a total of eight stations runs through the group's trade fair booth. In addition to the four machine exhibits, an equal number of peripheral devices will be presented on the energy efficiency path: first, the **EcoDrive vacuum pump** with automatic load control; second, a **Tempro plus D EcoDrive** temperature controller with up to 45% energy savings thanks to variable speed control; third, a **WFC** flow controller with a **Tempro plus EcoDrive** temperature controller (combining frequency control and parallel medium distribution); and finally a drying battery with **EcoDrive** and **SmartFlow** for optimized energy consumption thanks to targeted dry air distribution.

Show novelty: WX90 extends the WX series

The WITTMANN Group owes much of its high level of brand recognition to the success of its extremely flexible robots. The **Sonic** robot series excels in high-speed applications. The **WX** series with payloads of up to 150 kg offers a solution for almost every task that arises in automation of injection molding systems. Robots from the **Primus** series excel in pick&place applications. In injection molding automation, however, applications in the area of efficient part handling and sprue removal respectively should also not be forgotten. WITTMANN is therefore taking the Fakuma 2023 exhibition as an opportunity to put a special focus on sprue removal.

On the left the new WX90 servo device (in the background one of the first historical pneumatic models), and on the right an EcoPower injection molding machine with fully integrated WX90 removal system.

For a long time, the requirements of the users had not changed fundamentally, apart from special requests for the stroke axes. During the last two years – and especially with regard to the most energy-efficient solutions possible – the desire for a full-servo solution and more flexibility was repeatedly expressed, with the sprue nipper still being driven pneumatically.
At the Fakuma 2023, WITTMANN will present for the first time the **WX90**, a servo-driven removal device.
At the WITTMANN Group's booth, an **Insider** work cell with an integrated billet chute will manufacture a holder for a climbing net. The work cell consists of an **EcoPower 110** injection molding machine, the new **WX90** and an **S-Max** screenless granulator. The sprue ejected from the machine will be taken by the **WX90** robot and – using a rotary servo axis – will be swiveled from the mold area to the opposite side of the operator and thrown onto the chute.
This work cell design allows the manufacturing footprint to be significantly reduced, thus enabling higher production capacity. Thanks to faster and more controlled axes, the removal time in the mold area is reduced. Last, but not least, the compressed air consumption is minimized. All of this innovation shortens the time taken for return on investment, often to just 18 months (considering current engergy costs).
The **WX90** robot presented at the Fakuma is ideally used on machines with clamping forces of 35–150 t. The application shown presents the **WX90** as fully integrated into the injection molding machine, which in turn means that the **R9** robot control is also fully integrated into the injection molding machine. This means that there is no need for a control cabinet for the robot, the costs for the device are reduced, and also the space required for the protective housing is reduced. The integration of the device results in a further advantage: the control program of the **WX90** is directly linked with that of the injection molding machine. This ensures optimal coordination between the different devices in the cell. The large machine display also reproduces the robot control. A small display – as is often the case with similar devices – is a thing of the past thanks to this solution.

In addition to the Fakuma version with the pneumatic nipper, the **WX90** can be equipped with a vacuum circuit. This also enables the device to remove finished parts. This increases the field of application of the removal system even further. Further versions of the device are already being planned.
The sales appeal for this integrated work cell consisting of injection molding machine and **WX90** can be expected in time for this year's Fakuma show.

Show novelty: Primus 28

A few years ago, WITTMANN was able to successfully place the **Primus** robot series on the market. The latest **Primus** model in the series will be presented for the first time at Fakuma 2023: the **Primus 28**.

The latest Primus series innovation: Primus 28.

The standards for pick&place applications are becoming more and more demanding. For example, larger removal grippers are used more frequently. These require an extremely stable axis structure in order to be able to absorbe the torques that occur during the movement phases. The new **Primus 28** meets precisely this special requirement thanks to its vertical Y-axis that is based on a steel profile.
Compared to most other common materials, steel offers decisive advantages, especially with regard to its bending and torsional rigidity. The Y-axis is driven by a rack and pinion, with the rack attached to the steel profile further increasing the overall rigidity. So that the user does not incur any additional maintenance work, the **Primus 28** is equipped with a lubrication system for the vertical axis as standard. This ensures the constant supply of lubricant and thus the smooth and low-wear operation of the drive system.
The variant presented at the Fakuma show is designed for a payload of 15 kg. Other versions with vertical strokes of up to 1,600 mm are available.

Show novelty: Tempro plus D200 EcoDrive

With its **Tempro plus D200 EcoDrive** high-temperature water device, WITTMANN is using Fakuma 2023 to expand the tried-and-tested range of temperature controllers in the **Tempro plus D** series – and thereby responding to the increasing number of inquiries for energy-efficient high-temperature solutions.

Tempro plus D200 EcoDrive.

The maximum operating temperature of the new water temperature controller is 200°C. It is also important to note that the high water temperatures and the pressures they require increase the demands on the durability of tools and mechanical components. The baseline requirement for this new device is that its components that come into contact with the medium are made of stainless steel in order to counteract possible corrosion. And thanks to the sophisticated design, the water quality is kept constant through the use of special fine filters in the mold circuit.
The operation of the **Tempro plus D200 EcoDrive** has also been kept as simple as possible: This includes fully automatic cooling and mold emptying, as well as the option of recording the process data and of downloading these data via an USB interface. Last but not least, the **Tempro plus D** generation of temperature controllers offers the option of integrating the device control into the control of the injection molding machine via **Wittmann 4.0**. In addition, OPC UA or Euromap 82.1 interfaces are optionally available.
The process parameters of temperature and pressure are all permanently monitored. A standard temperature controlled cooling water bypass prevents any temperature related damage to the return lines of the cooling system. The extensive standard equipment of the **Tempro plus D** devices also includes automatic leakage and hose break monitoring and a pump pressure monitoring. In addition, all pumps of the **Tempro plus D** pressure devices are equipped with magnetically coupled pumps and are operated without mechanical seals.

The special option for the new **Tempro plus D200** temperature controller is the **EcoDrive** pump. This frequency-controlled pump of energy efficiency class IE4 allows the process to be controlled using the freely selectable parameters pressure, temperature and rotational speed – maintaining the necessary process reliability.

Show novelty: screenless granulator S-Max Dual 6

The **S-Max Dual 6** is the ideal granulator for central scrap reclamation, but can also be used for inline recycling of sprues from injection molding machines. It substitutes the forerunner model **Junior Double 6**. The main design difference between the two models: the new **S-Max Dual 6** is driven (just like the forerunner model) by two gear motors with 2.2 kW; however, these are now installed vertically for the smallest possible footprint to accomodate tight spaces in shop floors.

S-Max Dual 6.

The **S-Max Dual 6** is designed for a throughput maximum of 40 kg/h. It is equipped with two counter-rotating cutting rotors as standard, with six blades and eight toothed rollers in total, and a cutting chamber with dimensions of 530 × 467 mm. The design of the granulator allows for easy and safe cleaning of the cutting chamber due to free access from the top. The speed of rotation is 27 rpm, ensuring maximum torque for the granulation of hard and brittle materials, as well as materials that are filled with glass fiber. Low granulator speed also means less wear on cutting tools for reduced maintenance, low sound levels, and low energy consumption. The low speed also decreases flyback during operation and provides a consistent regrind and better quality, minimizing dust and fines.

Cutting chamber with the additional feeding shaft in the swiveling part of the material hopper.

An optional feeding shaft keeps large runners/parts in motion, and pre-breaks them, thus helping to avoid bridging or nesting of parts within the material hopper.The shaft

also helps to avoid downtime eventually caused by material backing-up or material overflow, and keeps the production process running smoothly. The optional feeding shaft is completely independently driven and it has elongated hooks to pre-cut the plastic parts/runners and push them into the cutting chamber for a subsequent regular feeding. The feeding shaft therefore reduces the dimensions of the parts before they reach the cutting chamber, and this may allow the use of an altogether smaller type of granulator, possibly saving capital expenditure.
An optional **Automatic Reversing System (ARS)** boots the cutting performance under high load conditions. The **ARS** helps minimize blockages in the cutting chamber and aids the granulation of thick-walled or harder plastics such as those heavily reinforced with glass fiber. The **ARS** enables the granulator to determine if the resistance to the cutting rotor is too high. When this should be the case, the rotor reverses, thus repositioning the part, allowing cutting from a different angle.
The sound-insulated feeding hopper of the **S-Max Dual 6** is made of stainless steel. It features a viewing window that allows the filling level in the cutting chamber to be estimated and the material flow to be checked – without the need to switch off the granulator.
Toothed rollers are available with teeth in different sizes: 5, 7 and 10 mm, to obtain regrind with different particle size.

Show novelty: central conveying control E-Max 2

With the presentation of the new **E-Max 2**, the road to success – that was taken with the widely used WITTMANN forerunner model – will continue uninterrupted. The **E-Max 2** is a compact conveying control system that can be used to implement material conveying with up to 24 conveying points and up to two vacuum circuits.

E-Max 2 conveying control (in the background) with TeachBox plus with 5.7" touch display.

The central material loaders used can be connected to the central conveying control in a very simple manner, which enables a material conveying system to be set up

quickly and easily. If the requirements increase, the system can be expanded just as easily to include additional material loaders.
The **E-Max 2** is operated and visualized via a high-resolution 5.7" touch display. Simple settings can be made conveniently via the display. It is also possible to make more extensive entries of different conveying parameters – with the goal of optimizing the processes in the conveying system. The **E-Max 2** has a user administration that can be used to define access rights, thus additionally securing the system.
The **E-Max 2** material conveying control represents the optimal solution for small to medium-sized material conveying applications. It easily masters an expansion of the production, up to the expansion of the system to a comprehensive central material conveying system.

Show novelty: Drymax plus 30 / Drymax plus 60 mobile dryers

The new **Drymax plus** series of mobile dryers is available with dry air volumes of 30 and 60 m³/h and is therefore an optimal solution for small to medium-sized material throughputs. A dew point of up to -60 °C ensures the ideal degree of drying for further processing. Depending on the types of plastic to be dried, the **Drymax plus** mobile dryer series can be equipped with drying hoppers with a volume of 30 to 300 liters.

Drymax plus.

The new graphical user interface of the 5.7" touch screen is designed to be very user-friendly and enables the drying process and the integrable conveyors to be controlled in a simple manner. The respective drying parameters can be saved in an integrated material database or loaded when the material is changed, so that the right drying settings are immediately available at any time.
The additional Ambi-LED status display in the front door of the mobile dryer gives the operator feedback on the current operating status at a glance, without having to consult the screen display.

An OPC UA interface enables automated data exchange for the new **Drymax plus** series, a function that can be used for documentation, for example, in quality management.

Show novelty: EcoDrive vacuum pump with automatic load control

The new **EcoDrive vacuum pump** from WITTMANN automatically optimizes the energy consumption of central material conveying systems – reliably carrying all materials to their usage point.
Despite this new and added function, the usual simple and convenient way of operating the entire system remains unchanged, since the optimization steps of the **EcoDrive vacuum pump** are carried out in the background without the system operator having to do anything here.

Vacuum pump (in the background) and XMB filter station.

By using appropriate monitoring mechanisms and the associated technology of automatic **EcoDrive load control**, energy savings of up to 75% can be achieved, depending on the system configuration.
The flexible design of the **EcoDrive vacuum pump** makes it possible to use this new technology in both new and existing systems. This represents another important step in efforts to optimize the energy consumption of plastics production and, last but not least, to reduce energy costs.

Show novelty: dosing of color and recycling materials with the help of sensors

WITTMANN **Gravimax** and **Wittmann 4.0** technology is helping to meet new challenges in the processing of recyclates – challenges that were previously unknown when using only virgin material.
The color and composition of recyclates – especially with regard to the characteristics of the finished component – are crucial factors. It is now important to detect, for example, recyclates that were produced from non-food-grade products and to prevent their use in the food-grade area. The sensory monitoring of the material flows therefore – with regard to the purity and history of the recyclates and their inherent

color – is essential for automated material management and for the best possible quality and high cost-effectiveness.
The sensors required for automated material testing can be mounted directly on the sight glasses of **Gravimax** dosing devices. Thanks to **Wittmann 4.0** connectivity, the digital data from the processing machines can be linked to that of the **Gravimax** dosing devices or the entire dosing process respectively. The validation of different granules takes place in real time and controls the approval process of the processing machine. There are three different measuring methods available in parallel for material testing, these categorize the granules according to color and type of plastic, as well as marked plastic material.
The so-called 0°/45° method serves as the basis for the color measurement. Here the material is illuminated at 0° and detected at 45°. Measurements are made using the tristimulus method, also to determine the type of plastic. However, in contrast to color determination, measurements are taken in the near infrared range. The wavelength range is divided into three measurement windows from 1,000 nm to 1,700 nm, which are then standardized and compared with each other.
In addition, and with the help of phosphorescent markers in the plastic granules, the future intended use (e.g. non-food area) of the granules can be determined. The markers embedded in the granules can be detected with the help of light excitation and corresponding evaluation sensors. Different markers are available for this purpose and these can complement each other.

The WITTMANN Group

The WITTMANN Group is a globally leading manufacturer of injection molding machines, robots and auxiliary equipment for processing a great variety of plasticizable materials – both plastic and non-plastic. The group of companies has its headquarters in Vienna, Austria and consists of two main divisions: WITTMANN BATTENFELD and WITTMANN. Following the principles of environmental protection, conservation of resources and circular economy, the WITTMANN Group engages in state-of-the-art process technology for maximum energy efficiency in injection molding, and in processing standard materials and materials with a high content of recyclates and renewable raw materials. The products of the WITTMANN Group are designed for horizontal and vertical integration into a Smart Factory and can be interlinked to form an intelligent production cell.
The companies of the group jointly operate ten production plants in six countries, and the additional sales companies at their 36 different locations are present in all major industrial markets around the world.
WITTMANN BATTENFELD pursues the continued strengthening of its market position as a manufacturer of injection molding machines and supplier of comprehensive modern machine technology in modular design. The product range of WITTMANN includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and

chillers. The combination of the individual areas under the umbrella of the WITTMANN Group enables perfect integration – to the advantage of injection molding processors with an increasing demand for seamless interlocking of processing machines, automation and auxiliaries.

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