July 2019, Kottingbrunn/Austria

PRESS RELEASE

WITTMANN BATTENFELD at the K 2019

WITTMANN BATTENFELD presents itself at the K 2019 for the first time in hall 15

At the K 2019 in Düsseldorf, WITTMANN BATTENFELD will exhibit its products and applications under the motto "Enjoy Innovation" for the first time in hall 15 at booth C06. WITTMANN BATTENFELD has thus an additional 120 m² of exhibition space at its disposal, and from 16 to 23 October the company will now be presenting its innovative injection molding technologies, processes and applications right next to its key competitors.

Innovation has always been a top priority at WITTMANN BATTENFELD. The company's product developments are designed to offer customers maximum benefit and simultaneously to protect the environment and preserve it for future generations in a sustainable way. Apart from further development and optimization of machinery and equipment, which are setting benchmarks in the market in terms of energy efficiency, this is achieved primarily through the development and continuous improvement of the adaptive HiQ application and process technologies and use of ultra-modern software systems and technologies to enable the integration of machines, robots, auxiliary appliances and MES systems via WITTMANN 4.0, plus sensor systems for machine condition monitoring, abbreviated CMS. Furthermore, the company is working together with partners on processing materials which at the end of their product life are 100% recyclable and/or completely degradable.

Key topic: intelligent machines with adaptive algorithms

The main theme of WITTMANN BATTENFELD's presentation at the K 2019 is to showcase intelligent machines with adaptive algorithms, which adjust themselves to the ambient conditions.

This will be demonstrated with an all-electric *EcoPower* 55/350 equipped with the software packages HiQ-Flow, HiQ-Melt and HiQ-Metering. A W918 robot from

WITTMANN and all auxiliary appliances connected with the machine, as well as the TEMI+ MES system, are integrated in the machine's UNILOG B8 control system via WITTMANN 4.0. The electronic mold data sheet will also be used on UNILOG B8. The production cell linked together via the WITTMANN 4.0 router is thus able to check whether the connected auxiliaries are sufficient for the selected product data set, or if additional equipment is needed.

At the WITTMANN BATTENFELD booth, this production cell will be used to present the HiQ functions in the form of specialist lectures and live demonstrations. On the *EcoPower* 55/350, polycarbonate clothes pegs will be manufactured with a 4-cavity mold supplied by Lechner, Austria. Using this fully integrated production cell, the advantages of integration via WITTMANN 4.0 and the TEMI+ MES system can be clearly seen. In a live demonstration, the product HiQ-Flow will automatically compensate the effect of material viscosity fluctuations, thus ensuring stable parts quality and eliminating scrap. To avoid plastic waste, pieces of sprue and bad parts deliberately produced for demonstration purposes will be re-granulated in the new G-Max 9 granulator from WITTMANN, and then directly returned to the machine hopper via the vacuum conveying device connected with the granulator.

Launching of new *VPower* COMBIMOULD model with special automation package

At the K 2019, WITTMANN BATTENFELD will show its latest further development of the vertical machine in *PowerSeries* design in the multi-component version. On a *VPower* 120/130H/210V, a plug made of PA and TPE for the automotive industry will be manufactured with a 2+2-cavity mold. The complete automation system for the machine is designed by WITTMANN BATTENFELD Deutschland in Nuremberg. In this application, a Scara robot and a WX142 linear robot from WITTMANN are used, which insert the wrap pins, transfer the preforms, then remove and deposit the finished parts.

Introduction of new *EcoPower* Xpress in medical version

Another new product at this year's K will be a high-speed *EcoPower* Xpress 160/1100+ in a medical version. On this machine with 1,600 kN clamping force, PET blood tubes will be produced with a 48-cavity mold supplied by Pass Card, Taiwan. To meet the stringent requirements for PET plasticizing, this machine has been equipped with a modified high-performance screw. In addition, a special drying hopper has been mounted above the injection unit, where the granulate is dried by a frequency-controlled DRYMAX 300 dryer from WITTMANN. The tubes will be removed from the mold and deposited in transport boxes by the new WITTMANN high-speed robot. The robot controls a box exchange device, which removes every full box and replaces it immediately with one of the empty boxes held ready, to ensure uninterrupted production of the tubes.

Medical application on *MicroPower* 15/10 production cell

Another medical technology application will be demonstrated on a machine from the *MicroPower* series from WITTMANN BATTENFELD designed for the production of micro parts in the clean-room version. Using a *MicroPower* 15/10 with 150 kN clamping force, a micro retaining ring for medical miniature tubes will be produced from PC with an 8-cavity mold supplied by Wittner, Austria. This product has a part weight of only 2 mg.
The machine comes with a rotary unit, an integrated WITTMANN W8VS2 robot and a camera for complete parts inspection. Following removal and camera inspection, the parts are transferred to transport containers, separated according to individual cavities.

A novelty in the *MicroPower* is a further improved, 2-step screw-and-plunger injection unit now able to process shot volumes of up to 6 cm^3.

Lightweight technology for the automotive industry

With an example from the automotive industry, WITTMANN BATTENFELD will demonstrate at the K 2019 its competence in CELLMOULD® structured foam technology, which enables the production of extremely light-weight parts as are required primarily in the automotive industry to reduce fuel consumption and/or increase the battery range. On a *MacroPower* 1100/12800 with an energy-efficient servo drive, a seat bench support for a German sports car will be manufactured from PP with a single-cavity mold supplied by Frimo, Germany. The machine is equipped

with the SEDE combined nitrogen and pressure generator unit developed and manufactured by WITTMANN BATTENFELD. The nitrogen required for this technology is taken from the ambient air and compressed to the working pressure of up to 330 bar. The material processed will be a type of PP suitable for automotive applications supplied by Borealis. It is the type ME225SY, which contains 25 % post-consumer recycling material and 25 % talcum. With the use of recycling material in passenger car interiors, WITTMANN BATTENFELD makes a significant contribution to promoting the recycling economy in the automotive industry. The parts will be removed and deposited by a WX152 robot from WITTMANN.

On this machine, the CMS condition monitoring system from WITTMANN BATTENFELD has been installed, too, which ensures continuous condition monitoring of the most important machine parameters. The current condition of the *MacroPower* 1100 can be read out from a CMS info and control station placed directly next to the machine. Beside this machine, there is also an AIRMOULD®/CELLMOULD® info stand, where visitors can get detailed information about the processes being demonstrated.

High-tech sheet for the automotive industry

A second application for the automotive industry will be presented on a machine from the *SmartPower* series in XL configuration. With a *SmartPower* 240 XL, a module for a car headliner with a functional surface will be produced with a single-cavity mold supplied by Georg Kaufmann, Switzerland. The module consists of an operating section mounted at the center and lighting sections on each side. For the production of this module, the IMD VARIOFORM process developed by LEONHARD KURZ (hall 5, booth A19 – E09) is used. In this process, a partially translucent decoration sheet is combined with a functional sheet with a printed-on sensor structure on the inside of the molded part. The poly TC sensor demonstrates the touch operation of light on/off and dimming functions as well as setting of the color of the LED light source behind it.

The machine is equipped with an automation system from WITTMANN BATTENFELD Deutschland in Nuremberg. It consists of a WX142 robot from WITTMANN with a C axis and an infrared radiation heater on the Y-axis to heat the continuous sheet used for this application. The WX142 inserts the functional sheet with sensor structure into the mold. The next step is to pull the IMD VARIOFORM sheet through, heat it and then thermoform it using a vacuum. During the same production step, both sheets are overmolded. In this application, the sensor sheet

can be optionally selected via a touch button. In this way, it is possible to injection-mold parts either with or without sensor sheet.

LSR application on *EcoPower* 160

One of WITTMANN BATTENFELD's main application technology themes at the K 2019 will be silicone injection molding. WITTMANN BATTENFELD will demonstrate its expertise in this area at its booth in hall 15 by producing a valve for medical technology from an LSR formulation on a machine of its all-electric *EcoPower* series, an *EcoPower* 160/350, with a 16-cavity mold supplied by Nexus, Austria (hall 12, booth E49-01). The injection unit in open design enables easy integration of the LSR metering unit. The Nexus Highline metering unit comes with a new servomix metering system with OPC-UA integration. In the mold, latest cold runner technology is used including TIMESHOT needle shut-off control. Parts removal and depositing will be handled by a WX142 robot from WITTMANN.

Recycling economy with a product from the packaging industry

"Circular economy" is not only a modern buzzword, but also a strategic focus of WITTMANN BATTENFELD. At the K 2019, WITTMANN BATTENFELD will present one of its current projects jointly with a partner company.

Here, cosmetic jars with lids will be manufactured from a material completely based on natural ingredients on an *EcoPower* 240/1100H/130L COMBIMOULD using a 4+4-cavity mold. This material can be recycled without any loss of its functional properties. The jar is injected by the machine's main aggregate, the lid by the L aggregate. The machine is equipped with a fully integrated W842 pro robot from WITTMANN, which takes a round paper label from a magazine and inserts it on the clamping side for the bottom of the jar. Next, the W842 pro removes the parts from the nozzle side and passes the jars on to a W818 robot, which inserts them into a screwing station. The W842 pro then transfers the lids for the jars to the screwing station, where they are screwed onto the jars and deposited.

TEMI+

In addition to the AIRMOULD®, CELLMOULD® and condition monitoring system info stands, there will also be an info corner presenting the TEMI+ MES package at the WITTMANN BATTENFELD booth. TEMI+ is able to work with injection molding machines as well as robots and auxiliary appliances around the machines. This

makes it possible to obtain complete, comprehensive data acquisition and analysis of the quality parameters from all appliances involved in the production of a part.

Info point for plasticizing systems

The plasticizing system of an injection molding machine is the central unit determining the quality of a plastic component. WITTMANN BATTENFELD supports its customers with tailor-made solutions in terms of geometries, materials and surface finish. At the K 2019, visitors will have an opportunity to gather information about the latest developments at a separate info point.

Central material supply

The machines at the WITTMANN BATTENFELD booth are supplied mainly via a central material handling system from WITTMANN. In addition to a drying system for PET, mobile ATON dryers and GRAVIMAX gravimetric blenders will be used. FEEDMAX central material loaders and stand-alone material loaders complete the picture.

Machines at other companies' booths:

***EcoPower* Xpress at the booth of Blue Air Systems, hall 10 / H60**

A machine from the *EcoPower* Xpress high-speed series, an *EcoPower* Xpress 160/1100+, will be shown in hall 10, at the booth H60 of BlueAir. On this machine, sealing caps will be produced within 2.5 seconds cycle time with a 32-cavity mold supplied by HTW, Austria.

LSR applications at SIGMA Engineering and Momentive

At the booth of **SIGMA Engineering (hall 13, booth B31),** the fully automatic production of potholders made of Silopren LSR 2650 will be demonstrated, with a shot weight of 83 g and 1 mm wall thickness over 135 mm flow length. The potholders will be produced on a *SmartPower* 90/350 from WITTMANN BATTENFELD, equipped with a W818 robot from WITTMANN and grippers for parts removal and depositing. The mold and cold runner block from EMDE MouldTec are

combined with a pump and a mixing unit from Nexus, Austria and integrated in the machine's B8 control system.

At the booth of **Momentive (hall 6, booth B15),** a cell phone holder made of PC and LSR will be manufactured on a multi-component machine from the servo-hydraulic *SmartPower* series, a *SmartPower* 120/130H/130S COMBIMOULD LSR, equipped with a W921 robot from WITTMANN and a WITTMANN TEMPRO plus D2 140 dual-circuit temperature controller, as well as an ATON plus H30 dryer and a 1+1 transfer tool with needle shut-off cold runner supplied by Elmet, Austria. The Top 5000P metering pump also comes from Elmet. The LSR used is a Silopren LSR 2749, which offers particularly good adhesion on PC. The material feeding system for the thermoplastic material is geared to processing extremely small quantities to ensure adequate material drying.

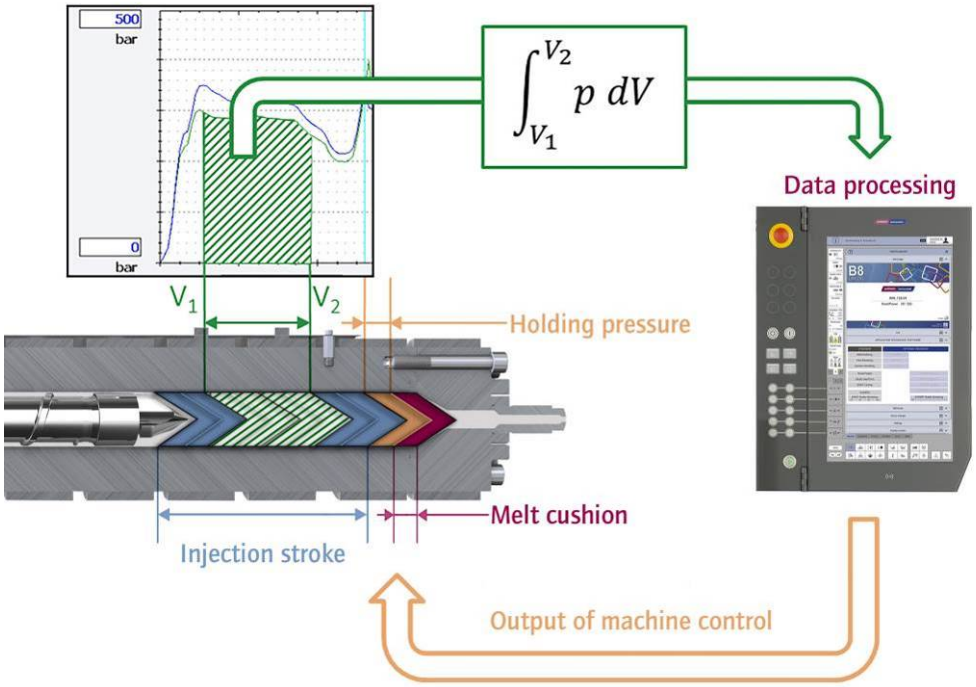

Fig. 1: Schematic diagram of material viscosity-driven injection control

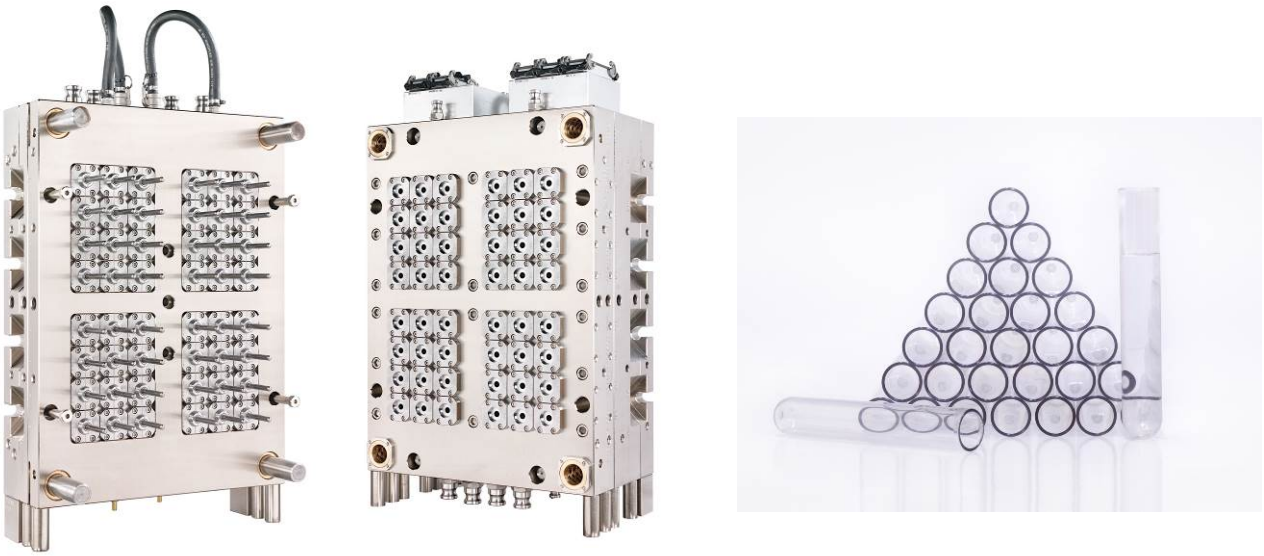

Fig. 2a, b, c: Mold for blood tubes – and finished product, manufactured on an *EcoPower* Xpress 160, in medical version

Fig. 3a: CELLMOULD® module on a *MacroPower* 1100

Fig. 3b: SEDE nitrogen and pressure generator unit

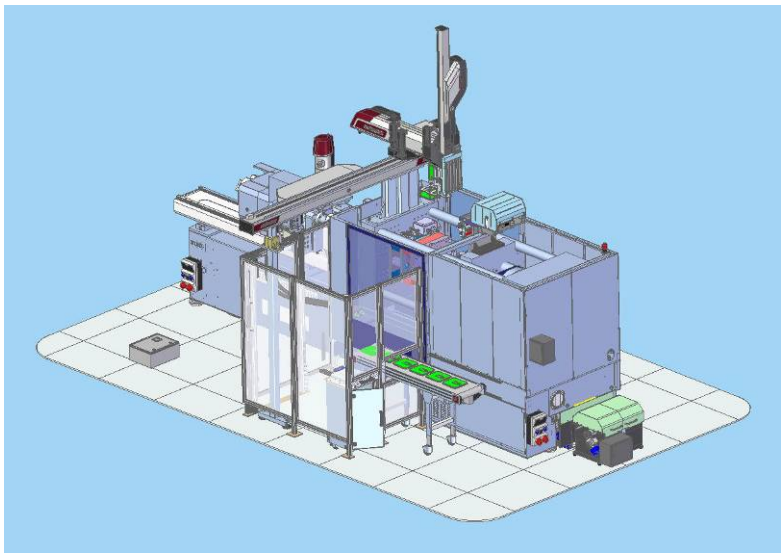

Fig. 4: *SmartPower* 240 XL with automation from WITTMANN BATTENFELD Deutschland, Nuremberg to produce sensor sheet

Fig. 5: Medical valve made of LSR

Fig. 6: Cosmetic jars made of a compound 100% based on natural materials

The WITTMANN Group

The WITTMANN Group is a worldwide leader in the production of injection molding machines, robots and auxiliaries for the plastics processing industry, headquartered in Vienna/Austria and consisting of two main divisions: WITTMANN BATTENFELD and WITTMANN. They jointly operate the companies of the group with eight production plants in five countries, and its additional sales and service companies are active with 34 facilities on all important plastics markets around the world.

WITTMANN BATTENFELD pursues the further expansion of its market position as an injection molding machine manufacturer and specialist for state-of-the-art process technologies. As a supplier of comprehensive, modern machine technology in modular design, the company meets both present and future market demands for plastics injection molding equipment.

The WITTMANN product portfolio includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. With this diversified range of peripheral units, WITTMANN offers plastics processors solutions to cover all production requirements, ranging from independent production cells to integrated plant-wide systems.

The syndication of the various segments under the umbrella of the WITTMANN Group has led to complete connectivity between the various product lines, for the benefit of plastics processors with an increasing demand for seamless integration of processing machinery with automation and auxiliaries.

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