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WITTMANN BATTENFELD at the K 2019

威猛巴頓菲爾 2019K 展資訊

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

威猛巴頓菲爾將在 K2019 展會 15 號展廳亮相

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.

在杜塞爾多夫舉行的 K 2019 展會中，威猛巴頓菲爾將首次以“享受創新”為主題，首次在 15 號展廳 C06 攤位展示其產品和應用。相比之前展會攤位，增加了 120 平方米的展覽空間，並於 10 月 16 日至 23 日，將緊鄰其主重要競爭對手，展示其創新的射出成型技術、工藝和應用。

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.

創新始終是威猛巴頓菲爾的首要任務！因此，該公司的產品開發旨在為客戶提供最大的利益，同時還要兼顧保護環境，以可持續的方式為後代著想。

為了做到這些，除了進一步開發和優化機械設備以在能源效率上為市場設立基準外，主要還會通過以下措施來實現，包括：開發並不斷改進自適應 HiQ 應用和工藝技術，利用超現代軟件系統和技術、通過威猛 4.0 來集成射出機、機械手臂、輔助設備和 MES 系統，以及利用傳感器系統監控機器狀態（簡稱“CMS”）。此外，該公司還在與其合作夥伴就材料處理問題而展開合作，以確保他們的產品在生命週期結束時，能 100% 地回收以及（或）完全可自然分解。



Key topic: intelligent machines with adaptive algorithms

核心主題：帶自適應算法的智能機器

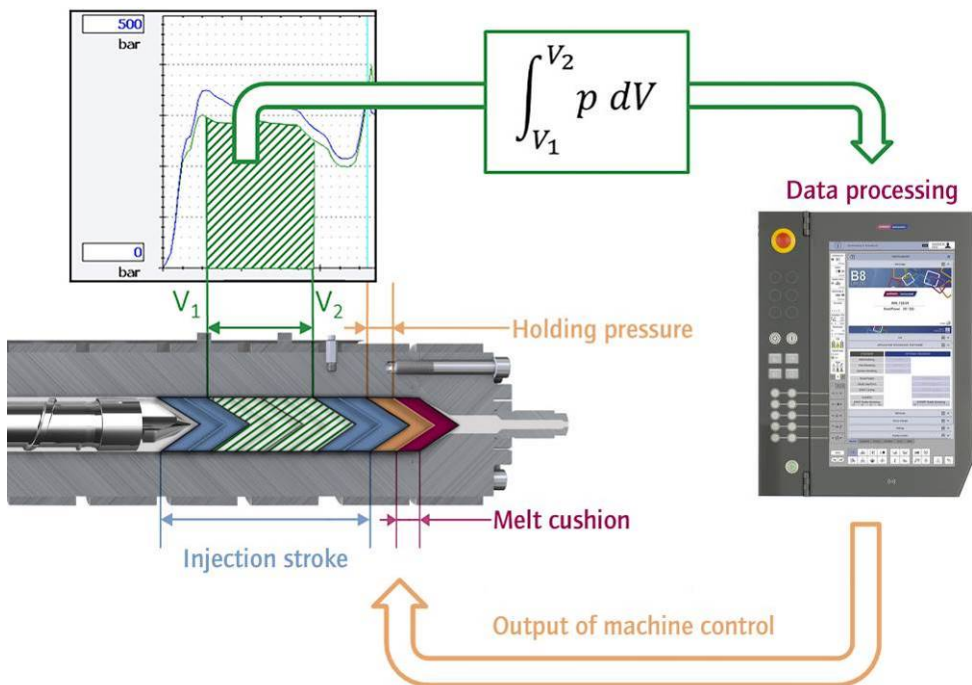


Fig. 1: Schematic diagram of material viscosity-driven injection control

圖 1: 由材料黏度驅動射出控制原理圖

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.

威猛巴頓菲爾參加 2019 K 展的主要主題是展示帶有自適應算法的智能機器，這些機器能夠根據環境條件進行調整。

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.

這將通過一台配有 HiQ-Flow、HiQ-Melt 和 HiQ-Metering 配件包的 *EcoPower 55/350* 全電動射出機進行展示。與機器相連的威猛 W918 機械手臂和所有的輔助設備，以及 TEMI+ MES 系統，均通過威猛 4.0 而被集成到機器的 UNILOG B8 控制系統中，模具數據表也將被用於 UNILOG B8 之中。因此，通過威猛 4.0 路由器而連接在一起的該生產單元能夠檢



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查出連接的輔助設備是否足以滿足所選產品數據集的要求，或者是否需要添加額外的設備。

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.

威猛巴頓菲爾將通過專家講座和現場演示的形式，利用該生產單元來展示 HiQ 功能。在 *EcoPower 55/350* 射出機上，聚碳酸酯的衣夾將在奧地利 Lechner 公司提供的一副 4 腔模具中被生產出來。通過這一全自動化的生產單元，由威猛 4.0 和 TEMI+ MES 系統帶來的集成化優勢將清晰可見。在現場演示中，HiQ-Flow 軟件產品將自動補償材料黏度波動帶來的影響，以確保穩定的產品質量並消除廢品。為避免塑料浪費，澆口以及為演示而故意生產的不良品將在威猛新型 G-Max 9 粉碎機中重新得到回收，然後通過與粉碎機相連的真空輸送設備直接返回到機器料斗中。

Launching of new VPower COMBIMOULD model with special automation package 發布帶有特殊自動化包的新型 VPower COMBIMOULD 機型

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.

在 2019 K 展中，威猛巴頓菲爾將展示其採用 *Power Series* 設計的多組分立式最新開發的射出機。一台 *VPower 120/130H/210V* 射出機，由 PA 和 TPE 製成的用於汽車行業的插頭將在一副 2+2 的模具中被生產出來。用於該機器的完整的自動化系統由位於德國紐倫堡的 WITTMANN BATTENFELD Deutschland 公司設計。在此應用中，使用了威猛的一台 Scara 機械手臂和一台 WX142 線性機械手臂，它們負責埋入插針，傳送預製件，然後取出並放置成品。



Introduction of new *EcoPower Xpress* in medical version

推出新型醫療版 *EcoPower Xpress* 射出機

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.

在今年 K 展中推出的另一款新產品將是一台高速醫療版 *EcoPower Xpress* 160/1100+ 射出機。在這台鎖模力 1600 kN 的射出機上，由 PET 材料製成的採血管將在台灣公司 Pass Card 提供的一副 48 腔模具中被生產出來。為滿足 PET 塑化的嚴格要求，該機器配備了改進版高性能螺桿，此外，還在射出單元的上方安裝了特殊的乾燥料筒，塑料粒子通過變頻控制的威猛 DRYMAX 300 乾燥機進行乾燥。

威猛新型高速機械手將從模具中取出這些採血管，然後將其放到運輸箱中。該機械手控制著一個箱子更換裝置，該裝置會移走每一個裝滿的箱子，然後立即替換上備好的空箱，以確保採血管的不間斷生產。

Medical application on *MicroPower* 15/10 production cell

在 *MicroPower* 15/10 生產單元上的醫療應用

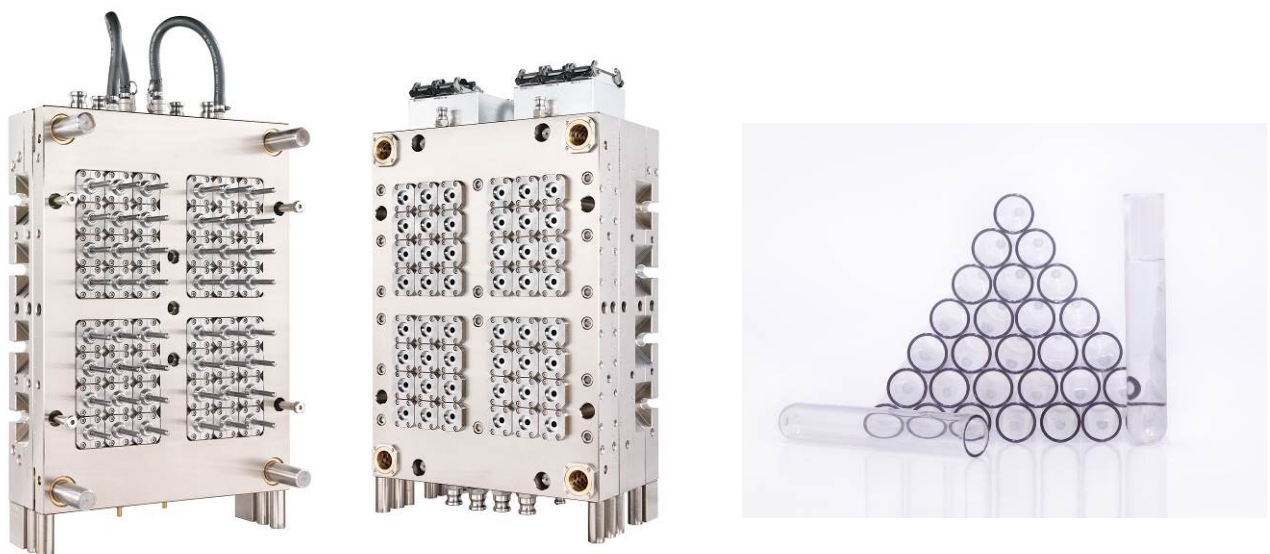


Fig. 2a, b, c: Mold for blood tubes – and finished product, manufactured on an *EcoPower Xpress* 160, in medical version

圖 2a.b.c: 用於生產採血管的模具及最終成品，該產品由醫療版 *EcoPower Xpress* 160 射出機生產



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.

另一項醫療技術應用將在一台 *MicroPower* 系列射出機上展出，該機器是威猛巴頓菲爾專為微型部件的生產而設計的潔淨室版本的機型。

一台鎖模力 150 kN 的 *MicroPower* 15/10 射出機，將搭載一副由奧地利 Wittner 公司提供的 8 腔模具，採用 PC 材料生產醫用微型管的微型扣環，該產品重量僅 2 mg。該機器配有旋轉盤裝置、集成了威猛 W8VS2 機械手和對部件進行全面檢測的攝像機，在取出和攝像檢測後，部件被送到運輸箱中，按單個型腔分模號擺放。

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 cm³.

MicroPower 機器中的一個新變化為進一步改進的塑化螺桿和射出柱塞的兩級射出單元，現在它能夠處理高達 6 cm³ 的射出量。

Lightweight technology for the automotive industry

用於汽車行業的輕量化技術



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

圖 3a: MacroPower 1100 射出機上的 CELLMOULD® 模塊

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.

通過來自汽車行業的一個例子，威猛巴頓菲爾將在 K 2019 證明其 CELLMOULD® 微發泡結構技術的競爭力，該技術能夠生產汽車行業所需的極輕質部件，以減少燃油消耗以及（或）延長充電電池的續航里程。

一台配有節能伺服驅動的 *MacroPower* 1100/12800 射出機將搭載德國 Frimo 公司提供的一副單腔模具，採用 PP 材料為一款德國跑車生產座椅骨架。該機器配有威猛巴頓菲爾開發和製造的 SEDE“氮氣與壓力”組合式發生器裝置，這項技術所需的氮氣取自環境空氣，並被壓縮到 330 bar 的工作壓力。所加工的材料是由北歐化工提供的一種適合汽車行業應用的 ME225SY 聚丙烯，它含有 25% 的消耗後可回收材料和 25% 的滑石粉。通過在乘用車內飾中使用可回收材料，威猛巴頓菲爾為促進汽車行業的循環經濟作出了重要貢獻。部件將由一台威猛 WX152 機械手取出並放置。



Fig. 3b: SEDE nitrogen and pressure generator unit

圖 3b: SEDE 氮氣和壓力發生器裝置

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.



該機器還安裝了威猛巴頓菲爾的 CMS 狀態監控系統，以確保對最重要的機器參數進行連續的狀態監控。*MacroPower 1100* 射出機的當前狀態可以從 CMS 信息和直接放在機器旁邊的控制站中讀取。除此機器外，還有一個 AIRMOULD® / CELLMOULD® 信息台，由此，參觀者們可以獲得有關正在演示的工藝的詳細信息。

High-tech sheet for the automotive industry

用於汽車行業的高科技片材

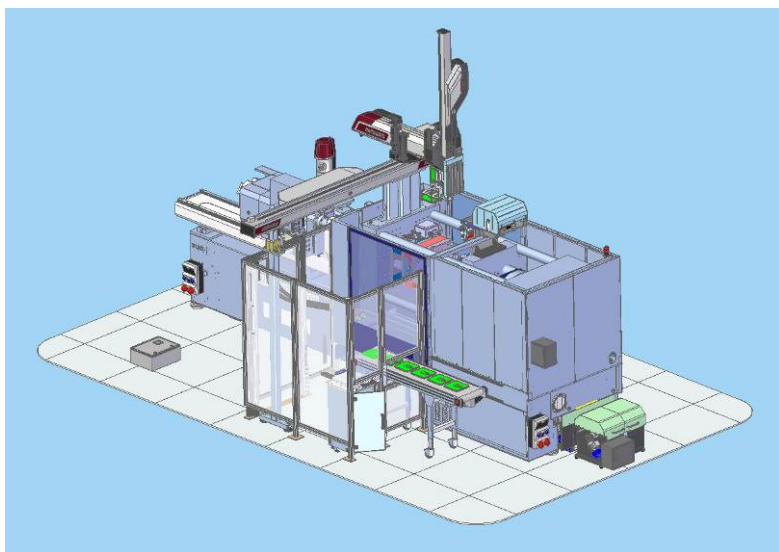


Fig. 4: *SmartPower 240 XL* with automation from WITTMANN BATTENFELD Deutschland, Nuremberg to produce sensor sheet

圖 4: *SmartPower 240 XL* 射出機配備位於德國紐倫堡的 WITTMANN BATTENFELD Deutschland 公司提供的自動化系統，用於生產傳感器片材

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.

針對汽車行業的第二項應用將在一台採用 XL 佈局的來自 *SmartPower* 系列射出機上展出。一台 *SmartPower 240 XL* 射出機將搭載瑞士 Georg Kaufmann 公司提供的一副單腔模具，生產擁有功能表面的汽車頂篷模塊。該模塊由安裝在中央的操作部分和安裝在每一側的照明部分組成。為生產該模塊，採用了 LEONHARD KURZ（展位：5A19-5E09）開發的 IMD VARIOFORM 工藝。在此加工中，一個半透明的裝飾材材與一個功能性材材結合在一起，該功能性片材擁有一個位於成型部件內部的印製傳感器結構。這種 poly TC 傳感器演示燈光開關和調光功能的觸摸操作，以及對其後面 LED 光源的顏色設置。



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.

該機器配備的自動化系統由位於德國紐倫堡的 WITTMANN BATTENFELD Deutschland 提供，它由帶有 C 軸的威猛 WX142 機械手和安裝在 Y 軸上的紅外加熱器（用於加熱此應用中使用的連續片材）組成。WX142 機械手將帶有傳感器結構的功能片材放入模具中，接著拉出 IMD VARIOFORM 片材，將其加熱後進行真空熱成型。在同一生產步驟中，兩個片材得到塗覆成型。在此應用中，可以通過觸摸按鈕而有選擇性地選用傳感器片材，這樣，就能夠射出成型帶有或不帶有傳感器片材的部件。

LSR application on *EcoPower 160* EcoPower 160 射出機上的 LSR 應用



Fig. 5: Medical valve made of LSR

圖 5: LSR 製成的醫用閥

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.

矽膠的射出成型是威猛巴頓菲爾將在 2019 K 展上展示的重要應用技術主題之一。



一台全電動 *EcoPower* 系列的 *EcoPower* 160/350 射出機，將搭載一副由奧地利 Nexus 公司（展位：12E49-01）提供的 16 腔模具，採用一種 LSR 配方來生產醫療技術用閥，以此展示威猛巴頓菲爾在該領域的專長。採用開放式設計的射出單元為集成 LSR 計量裝置提供了便利。Nexus Highline 計量裝置採用了新的 servomix 計量系統與 OPC-UA 集成。在模具中，採用了含 TIMESHOT 針閥控制的最新的冷流道技術。取出和放置部件將由一台威猛 WX142 機械手完成。

Recycling economy with a product from the packaging industry

針對包裝行業產品的循環經濟



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

圖 6: 100%基於天然材料的複合料製成的化妝品瓶

“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.

“循環經濟”不僅是一個現代流行詞彙，也是威猛巴頓菲爾的戰略重點。在 2019 K 展中，威猛巴頓菲爾將與一家合作夥伴公司，共同展示其當前的一個項目。

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.



一台 EcoPower 240/1100H/130L COMBIMOULD 射出機將搭載一副 4+4 模具，採用完全基於天然原料的材料生產帶蓋的化妝品瓶。這種材料可以回收而不會損其任何功能。瓶子由機器的主集料筒射出成型，蓋子則由 L 料筒射出成型。該機器配有完全集成的威猛 W842 pro 機械手，它從料盒中拾起圓形的標籤紙，將其嵌入動模側瓶子底部。接著，W842 pro 機械手從噴嘴側取出這些部件並將瓶子傳遞給 W818 機械手，該機械手將它們放入一個擰緊工作站中。然後，W842 pro 機械手再將用於瓶子的蓋子傳送到擰緊工作站，在此，這些蓋子被擰到瓶子上，然後保存。

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.

除了 AIRMOULD[®]、CELLMOULD[®]和狀態監控系統信息站之外，在威猛巴頓菲爾的展台上還有一個空間用來展示 TEMI+ MES 技術。TEMI+能夠與射出機以及機械手和機器周邊的輔助設備協同運行，從而能夠獲取全面完整的數據採集以及生產部件所涉及的所有設備的質量參數分析。

Info point for plasticizing systems

有關塑化系統的信息

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.

射出機的塑化系統是決定塑料部件質量的核心裝置，為此，威猛巴頓菲爾從結構、材料和表面質量等方面為客戶提供訂製化解決方案。

在 2019 K 展中，參觀者們將有機會在單獨的信息點收集有關最新開發的信息。



Central material supply

中央供料系統

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.

在威猛巴頓菲爾展台上展出的所有機器由威猛的中央物料處理系統供應材料。除用於 PET 的乾燥系統外，移動式 ATON 乾燥機和 GRAVIMAX 稱重式混料機也將會在現場得到應用。FEEDMAX 中央上料機和獨立的上料機將共同完成其展出使命。

Machines at other companies' booths:

在其他公司展台上的威猛巴頓菲爾機器

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

Blue Air Systems 公司展台上的 *EcoPower Xpress* 射出機

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.

來自 *EcoPower Xpress* 高速系列的 *EcoPower Xpress* 160/1100+ 射出機將在 10H60 Blue Air Systems 公司的展台（10H60）上得到展示。該機器將搭載一副由奧地利 HTW 公司提供的 32 腔模具，在 2.5s 的循環時間內生產密封蓋。

LSR applications at SIGMA Engineering and Momentive

在 SIGMA Engineering 和 Momentive 展台上的 LSR 應用

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.

在 SIGMA Engineering 公司的展台（13B31）上，將演示 Silopren LSR 2650 材料製成的鍋墊的全自動化生產過程。該部件的射出量為 83g，壁厚 1mm，流長超過 135mm，將在威猛巴頓菲爾的 *SmartPower* 90/350 注塑機上生產出來。該機器配有一台威猛 W818 機械手和用於部件取出、放置的夾具。由 EMDE MouldTec 公司提供的模具和冷流道鑲塊與奧



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地利 Nexus 公司提供的送料泵及混合裝置組合在一起，並集成到射出機的 B8 控制系統中。

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.

在 Momentive 公司的展台（6B15）上，由 PC 和 LSR 製成的手機支架將在來自 *SmartPower* 伺服液壓系列的多組分機器 *SmartPower* 120/130H/130S COMBIMOULD LSR 上被生產出來。該機器配有威猛的 W921 機械手、TEMPRO plus D2 140 雙迴路模溫機和 ATON plus H30 乾燥機，搭載奧地利 Elmet 公司提供的一副採用針閥式冷流道的 1+1 轉換模具，所使用的 Top 5000P 計量泵也來自 Elmet 公司。該生產所使用的 LSR 是 Silopren LSR 2749，它提供了與 PC 材料極好的粘附性。用於熱塑性塑料的供料系統適合處理非常小量的材料，可確保材料能得到充分乾燥。



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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.

威猛集團

威猛集團是塑料行業中製造射出機、機械手和周邊設備的全球領航者。威猛集團總部設在維也納/奧地利，由兩個主要部門，威猛巴頓和威猛組成，他們共同經營集團旗下分公司，在全球 5 個國家設有 8 個生產工廠，其中超過 34 個直屬子公司位於世界各大塑料市場，並各自負責該區域的銷售及售後服務。

威猛巴頓致力於製造最先進的射出機和工藝技術的獨立市場增長，提供現代化和全面的機械模組化設計，滿足塑料射出成型的實際和未來要求。

威猛的產品系列包括機械手和自動化系統，中央供料系統，除濕乾燥機，秤重式和體積式的計量機，粉碎機，模具溫度控制器和冷卻器。憑藉這種全面的周邊設備，威猛可為塑料加工商提供涵蓋所有生產要求的解決方案，從自主工作單元到整個工廠範圍的系統。

威猛集團的結合已經使所有產品線連接為一體，提供塑料加工商在射出機、自動化和輔助設備的無縫接軌，為塑料加工廠帶來了益處，對加工機械與自動化和外圍設備的無縫集成日益增長。

更多信息可參訪我們的網站 www.wittmann-group.tw