

Wittmann

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innovations

Techniques – Markets – Trends

Volume 10 – 3/2016



*Always
a winner!*

Battenfeld

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Editorial

Content



Michael Wittmann

Dear Reader,

It has been a long time since WITTMANN Kunststoffgeräte GmbH was first founded in Vienna in 1976. Having reached 2016, we can now take pride in announcing this year's 40th anniversary of the WITTMANN Group. This jubilee anniversary would not have been possible without the inventiveness and entrepreneurial spirit of the company's founder, my father, Werner Wittmann, in combination with the uninterrupted innovative force which has become the core corporate philosophy, and to which our employees have been contributing so actively and effectively for such a long time now. We all feel an extremely profound commitment to the idea of continuous innovation – day after day – the world over.

Naturally, we wanted to celebrate this joyous anniversary in grand style. On June 8th and 9th, we welcomed 1,650 guests to Hall D of the Vienna fair. They came to celebrate with us and to get an overview of our current product range – including a large number of innovations. "Plastics, Key Driver for Sustainability", was the title of the opening address by Dr. Rüdiger Baunemann, General Director of *PlasticsEurope Deutschland e.V.*

This was followed by an impressive show, which set the stage for the subsequent product presentations. Innovations on display included injection molding machines from our *PowerSeries* range in a variety of sizes and for all types of products. Also, with regard to automation and peripheral equipment, we presented new solutions from every area: robots and pickers, units for material drying and conveying, a new temperature controller model, and a new granulator.

Visitors eagerly took advantage of the opportunity to attend the professional lectures that were offered in multiple languages. Those lectures examined an extremely wide range of topics – particularly questions concerning equipment and processes of particular interest to plastics processors including recycling, optimized automation systems, special injection molding techniques, and the integration of production resources – all current topics that encouraged participation in lively discussions. On the evening of June 8th, we took the liberty of inviting our guests to a gala dinner in the Orangerie of Schoenbrunn Palace. Prominent visitors gathered around the many tables and the rich variety of impressions they had experienced throughout the course of the day were again the subject of many a discussion.

I would like to take this opportunity to thank not only the guests of our jubilee anniversary celebration, but also all of our employees – for the success of this event, and for the past 40 years. Congratulations on your impressive accomplishment!

Yours cordially, Michael Wittmann

Injection Molding

Stüdtli and the MacroPower



Thomas Robers on the Swiss injection molder and its successful business philosophy. **Page 4**

High-class products for ERF



Gabriele Hopf portrays the Taiwanese manufacturer of demanding cosmetics packaging. **Page 6**

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Robots for more efficiency



Sabine Koll, K-ZEITUNG, was present when the 7,000th W818 robot was delivered to Kroma. **Page 8**

Flow Control

FLOWCON optimizes processes



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New subsidiary in Poland



New: WITTMANN BATTENFELD Polska acting on a great market. **Page 13**

40 years of WITTMANN



Impressions from our 40th anniversary party. **Page 14**

Stüdtli Plast in Switzerland pledges allegiance to *MacroPower*

Stüdtli Plast AG of Romanshorn, Switzerland, consistently relies on advanced technology and innovation as well as the expertise and motivation of its employees – and that's what makes it successful in a challenging business environment.

Thomas Robers

Stüdtli Plast AG is one of the oldest injection molding operations in Switzerland. Established as a metal foundry near Winterthur by Hans Stüdtli at the beginning of the last century, the company soon turned to the pressing and injection of what were then considered new plastics.

Willi Kälin (center), General Manager of Stüdtli Plast, and Heinz Grob (right), Production Manager, express their satisfaction together with Thomas Robers (left), General Manager of BATTENFELD Schweiz AG, about the two efficient and reliably operating MacroPower 800 injection molding machines with W843 robots.

Today Stüdtli employs 47 people and operates 28 injection molding machines with up to 11,000 kN clamping force.

The company processes 2½ thousand tons

of plastic per year. Nearly all orders take the form of contract manufacturing work, and 80% of them are for Swiss customers. The company produces structural components, housings, covers and technical parts for well-known brand manufacturers of coffee machines and refrigerators. It also makes technical parts for customers from the machinery construction, cleaning technology, gardening, sports and leisure sectors.

Very successful in a challenging market environment

The strong Swiss franc makes Swiss export products more expensive. Even though Stüdtli Plast mainly supplies domestic customers, the company still feels the effects of this situation, because Stüdtli's customers market their appliances abroad. In order to ensure its own profitability, Stüdtli relies on continuous innovation and on the know-how of its employees.



Innovation and technology

Today Stüdtli Plast manufactures in modern facilities with many new machines and efficient logistics. For large machines, a new hall with a generous storage area was built in 2001. Willi Kälin, General Manager of Stüdtli Plast, reports: "The major OEMs of the household appliances industry demand storage. Deliveries have to be timed with a tolerance of plus-or-minus zero. That means the requested quantity must be there on the date of order, not one day sooner and not one day later."

MacroPower as one of the core elements

The new three-story building now provides adequate storage space on the first and second floors. The ground floor is designed as a production hall and currently offers enough room for nine injection molding machines ranging from 3,000 to 11,000 kN.

Recently, two *MacroPower* 800/5100 from WITTMANN BATTENFELD with clamping force of 8,000 kN were installed. Their injection units are rated for a shot volume of up to 3 liters. Both machines are equipped with a WITTMANN W843 robot, which ensures rapid and gentle part removal. The robots are integrated into the control system of the machine so that the complete system can be operated from the machine's control screen. Operational settings are stored and loaded in an integrated fashion for machine and robot which eliminates any risk of mix-ups.

In 2011, almost immediately after taking over responsibility as general manager, Willi Kälin negotiated the purchase of a 1,000-ton machine from BATTENFELD Schweiz AG. The large *MacroPower* two-platen machines from WITTMANN BATTENFELD with 8,000 and 10,000 kN clamping force, had just been unveiled for the first time at the Fakuma trade fair. In the following year, Stüdli ordered the first *MacroPower* for Switzerland, including WITTMANN robots, and one year later the second machine of that same type followed.

Willi Kälin and his production manager Heinz Grob were particularly enthusiastic about the smooth operation and the precise and cleanly regulated movements. Willi Kälin reports: "The *MacroPower* features very smooth clamping action even with heavy molds and high closing speeds. No abrupt transition in the drive profile, barely any drive noises, and of course no impacts whatsoever during the final closure of the mold. It's only fair to say that not all of our machines operate as well as this, even if you might actually expect that from modern machine technology."

The two-platen machine also scored high marks with its short configuration, its small footprint, and its energy-efficient and low-noise drive technology. The *MacroPower* uses speed-regulated servomotors, which supply the process with only as much energy as it actually needs. During the residual cooling time and other waiting periods, they shut off completely.

Besides the technical benefits of the *MacroPower*, a completely different criterion played an important role in Stüdli's purchasing decision, the level of trust established by the personnel representing WITTMANN and WITTMANN BATTENFELD and by their local Swiss organization. The personal contacts – from the service technicians



to the corporate management of the WITTMANN Group – and the many years of successful collaboration with BATTENFELD made the difference. Placement of an order for a second identical *MacroPower* one year later proved that their decision was the right one. Along with the increase in the company's own competitiveness by technical means, Stüdli is also blazing completely new trails. The mold procurement know-how that the company has meanwhile gained the world over serves as the basis for a business field of its own, and is therefore also benefiting Stüdli's customers. This in itself is continuing to grow sales and also broaden activities.

Know-how and motivation

Another, no less important success factor for Stüdli Plast is the continuously expanded know-how and motivation of their employees.

Willi Kälin is a longstanding authority on the injection molding industry, who has contributed his experience to nearly every step of the process, from order acquisition to delivery. For his customers, he is the guarantor of reliable collaboration in the future. Stüdli recruits young, extremely well-trained employees, and ensures continued qualification of existing personnel.

The corporate culture is characterized by taking on challenges as a team. Whoever finds a defect or an opportunity for improvement helps to optimize the situation.

General management and the executive board (owners) have also taken this same attitude to heart and actively demonstrate it. When a good order situation requires additional weekend shifts, for example, the executive board is perfectly willing to work a Saturday shift on the machines now and then, and is not above performing even the most mundane of tasks. That earns the respect of the

employees while strengthening cohesion and motivation. All in all, this strategic approach has made it possible for Stüdli Plast to achieve considerable growth over the past several years. That growth already shows signs of continuing in 2016. That is good news for both Stüdli and WITTMANN BATTENFELD, because further investments in injection molding machines might not be far off. ♦

The new, generously proportioned production and warehouse building ...

... and 3 new silos (right) as part of the central material supply system, which is also new.

Typical molded parts produced on the *MacroPower*: Component carrier and base for a coffee machine (black) and vegetable drawer for a refrigerator (transparent).

Willi Kälin and Heinz Grob of Stüdli Plast are clearly pleased with the molded part quality and performance of the two new *MacroPower* machines.

Thomas Robers is the General Manager of BATTENFELD Schweiz AG in Volketswil, Switzerland.

Premium-quality packaging with WITTMANN BATTENFELD

Ever Rich Fountain Co., Ltd. (ERF) based in Taichung, Taiwan, is a leading Taiwanese manufacturer of premium-quality cosmetics packaging. In addition to locally produced injection molding machines, the company uses state-of-the-art injection molding technology from WITTMANN BATTENFELD on its production floor.

Gabriele Hopf



PMMA cream jar – left: colored inner part, right: finished jar.

Left:
Double-walled airless bottles.
Right:
Cream jars, single-component variant.
(Photos: ERF)

ERF, established by the two brothers Mini and Max Liu in 1991, is today with its 110 employees one of the leading cosmetics packaging manufacturers in Taiwan. As a turn-key supplier of packaging solutions, ERF offers its customers around the world a complete service portfolio including counseling and design, mold technology, production and printing of the products, all using latest technologies such as metalizing, vacuum anodizing, hot stamping, screen printing, UV varnishing or soft-touch coating.

The company's product range includes airless pump bottles made of PP and PETE, double-walled airless bottles, lotion dispensers, PETG and PP extrusion molding bottles, PP and PETE cream jars, pipettes and many other items in a great variety of colors and shapes. Its main product line is airless bottles. These were developed in-house by ERF. The technology of this product enables



100% removal of the liquid from inside the bottle. Consequently, these bottles are used primarily as packaging for lotions in the top price segment.

The absolutely convincing MicroPower

High quality standards and excellent service are the top priorities at ERF. This is why the company also insists on top quality in the choice of its injection molding equipment in terms of both the machines and the service provided by the supplier.

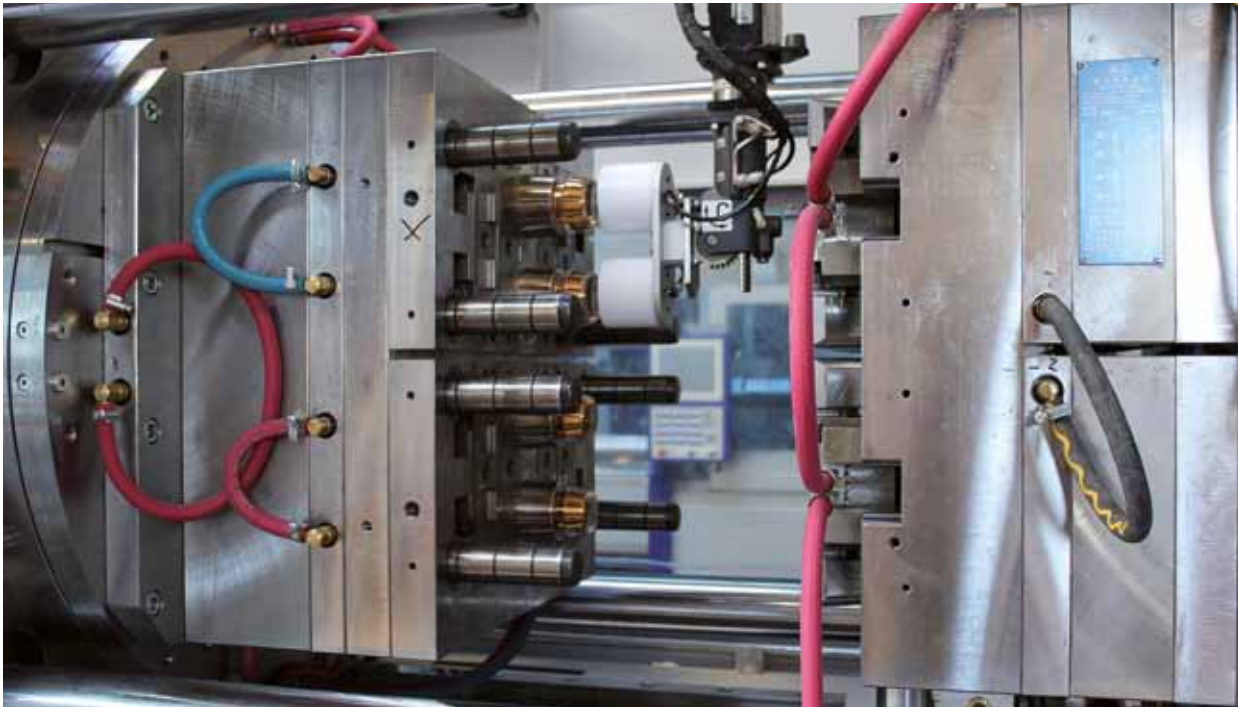
In 2012, WITTMANN BATTENFELD successfully established business relations with ERF with the *MicroPower*, its machine series specifically designed for injection molding micro and nano parts. Today, ERF makes high-precision parts for dosing pumps in cosmetics bottles on two machines from the *MicroPower* series with 150 kN clamping force. The reliability and cost-efficiency of this

innovative machine model, whose two-step screw-and-plunger injection unit's thermally homogeneous melt is injected with shot volumes ranging from less than 0.05 up to 4 cm³, with process stability and short cycle times, has convinced ERF of the quality of injection molding technology from WITTMANN BATTENFELD. "With a single *MicroPower*, we have achieved the output of four standard machines previously used in this area," says Mini Liu, Owner-Manager of ERF. "WITTMANN BATTENFELD is our partner when it comes to innovative machine technology."

The machines are equipped with a W8VS2 SCARA robot from WITTMANN as well as WITTMANN temperature controllers and dryers.

consequently a much higher output. ERF is a pioneer in the production of cream jars in 2-component technology. Mini Liu regards the production of cream jars with this technology as a pilot project, with more products to follow if this project proves successful. The improvement in product quality combined with the reduction in cycle times, which enables shorter delivery times, constitutes a major step towards a significant increase in market share for Mini Liu.

In addition to the 2-color products, crystal-clear containers will be produced on this injection molding machine as well, which does not present any problems whatsoever with the multi-component machine from WITTMANN BATTENFELD.

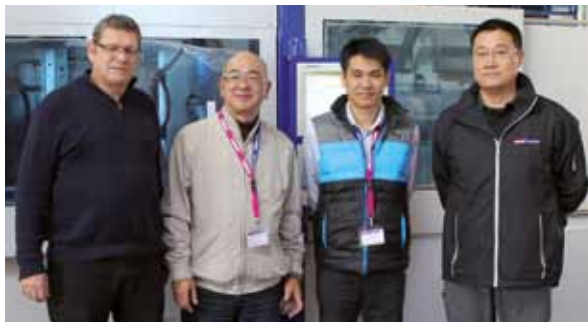


Mold for the production of cream jars with 2-color technology.

The hydraulic HM multi-component machine

In December of last year, ERF added a hydraulic multi-component machine from WITTMANN BATTENFELD to its equipment. It is an HM 240/525H/525S with a vertical rotary unit. The multi-color machine is used in the production of PMMA cream jars. The outer layer of plastic is crystal-clear and the inner layer is pre-dyed, in order to create a piano finish effect. Mini Liu explains that this technology offers a number of major advantages compared to the previous varnishing of the cream jars by an external service provider. In this way, both potential transport damage to these sensitive products and down-stream finishing with chemical varnish can be avoided.

The 2-component technology also enables a significant reduction in cycle times in contrast to injection molding of a single thick-walled part from one component, and



In his selection of a suitable machine for the multi-color injection molding technology, good service and the highest quality of the injection molding machines were the most important considerations for Mini Liu, as he states: "WITTMANN BATTENFELD is well

known for the quality of its multi-component injection molding machines", he comments. "We could also see this for ourselves on various reference visits to other users. Moreover, WITTMANN BATTENFELD maintains a subsidiary in Taiwan, which ensures immediate, direct support for us."

The engineering support provided by WITTMANN BATTENFELD Taiwan to Ever Rich Fountain in its project, and by the team of experts in Kottlingbrunn, Austria, was one of the vital factors for Ever Rich Fountain in its decision to invest in the multi-component injection molding system from WITTMANN BATTENFELD. ♦

From the left: Roland Pechtl, WITTMANN BATTENFELD Sales Director Asia, Mini Liu, ERF Owner-Manager, Long Chiao Chen, Mold Designer ERF, David Chen, Managing Director of WITTMANN BATTENFELD Taiwan at the commissioning of the multi-component machine at WITTMANN BATTENFELD in Kottlingbrunn.

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

Highest quality through automation

The WITTMANN Group delivers their 7,000th W818 servo-robot to Kroma. – The Baden-based injection molding operation promotes enhanced quality and efficiency through the use of part removal systems.

Sabine Koll, K-ZEITUNG

Smaller batches, more complex molds, and increasingly demanding quality requirements – those are the reasons why Kroma International, with main office in Lahr, Germany, has started a project to increase efficiency in its injection molding operation. One component of that effort is the installation of linear robots on all injection molding machines over 1,000 kN clamping force. For WITTMANN BATTENFELD, the delivery to Kroma was

Kroma General Manager Männle praises the WITTMANN robot systems' easy programming and operation.

(Photo: K-ZEITUNG)

their 7,000th W818 robot. Sales Manager Andreas Hollweg and Sales Engineer Manfred Nerz, who has been handling customer support for Kroma for a long time now, set out together to personally hand over the CNC robot – along with a commemorative certificate – to Kroma's General Manager Erik Männle.

While WITTMANN BATTENFELD already has decades of experience with robot systems, this type of equipment application is still relatively new to Kroma. Until recently, the owner-managed company had equipped only their large injection molding machines with handling systems in order to be able to remove large and heavy components – and those were supplied together with the machine.

Linear robots for greater efficiency

In 2015, an order for six linear robots to be retrofitted to existing machines in the medium clamping force range was placed with WITTMANN BATTENFELD, including the W818. Kroma now wants to invest further in automation: "Having focused the efficiency increase project in mold-making in 2014, we expanded it last year to the injection



molding area. Equipping the injection molding machines with robots plays a key role in that context", says General Manager Männle.

Männle took over the company in 2002 and has been expanding it continuously ever since. Today he employs some 90 people in design, in mold-making, and in the injection molding area. Kroma generated sales of EUR 9.2 million in 2014. For 2015, Männle expects to break the EUR 10 million mark. The lion's share of sales is generated in the injection molding segment, and 20% comes from the mold sector. Forty-two molds are made every year with 18 metalworking machines. In all, Kroma has nearly 800 molds in its production department today.

Kroma has more than 38 machines with clamping forces ranging from 200 kN to 7,750 kN, most of which were supplied by WITTMANN BATTENFELD. Those machines produce parts weighing from 0.1 g to 2 kg, and three of them are designed for two-component applications. Insert molding of components is also one of the production techniques Kroma provides to its customers. Those customers come from an extremely broad spectrum of sectors, ranging from the automotive industry and household appliances to

construction and medical technology. “On the one hand, that variety is a big advantage, because we are not dependent on any one industry. That definitely helped us a lot during the 2008/2009 crisis”, explains Männle. “On the other hand, that heterogeneity creates significant challenges for us in injection molding production. Moreover, we have only a few products running continuously on the machines, the batch sizes are getting smaller and smaller in many sectors, and that means we have to change molds often. But we still have to be able to manufacture cost-effectively and deliver rapidly, because many customers are reducing their inventories and want to have the parts delivered on demand instead.” So he is obliged to use standardized machines, automation and processes.

More broadly, in order to outperform competitors from Eastern Europe and elsewhere over the long term, Kroma is striking a balance between cost-effective production on the one hand and specialty products on the other. Examples of their specialty products include technical parts made from hard-to-process, high-temperature resistant plastics such as PPS, PPSU and PEEK. Männle is convinced: “The only way for an injection molding operation to survive in Germany is by concentrating on specialty products and/or offering logistical advantages. This

can take the form of suitable storage services or, where the size of the components makes it uneconomical for the customer, to transport them over long distances.” The air ducts produced by Kroma in high volumes on their large injection molding machines represent but one example of this.

Along with its own mold-making operations, Männle sees an additional advantage in his company having its own engineering department. This enables Kroma to offer complete projects to its customers – from development to mold-making to production, all from a single source. “As a result, we are able to acquire new customers through engineering while also offering very fast response to customer demands.”

Although Kroma has been growing for years now, Männle also feels the price pressure on the market. That’s why he imposed measures to increase efficiency in the injection molding area in 2015, together with the goal of achieving increased quality. “The two are closely interconnected”, insists Männle. “When we supply goods and then the customer later complains and rejects them, that costs us money and hurts our image. We want to improve that performance significantly.”

Equipping nearly all of the injection molding machines in the medium clamping force range with robots is a fundamental part of this quality and efficiency drive. “With robots, the process runs with far greater consistency and precision”, explains Männle. “The employees in the production department operate multiple machines. Sometimes they were unable to clear all of the parts from the conveyor belts

fast enough to prevent stoppages. As a result, the injection molding machines had to be shut down.” When material remains in the nozzles, that has a negative impact on part quality. Kroma’s removal robots now ensure that cycle times are precisely maintained.

Another benefit is that the robots now automatically place parts from family molds (right-left variants, for example) in separate packages, thereby eliminating the need for manual sorting and the potential for mix-ups. This speeds up assembly and improves quality.

The handling systems from the WITTMANN Group have ultimately reduced the part reject rate where falling had previously been a potential source of deformation. Overall processes have also been streamlined through the placement of parts directly into their packaging.



Retrofit in-progress

Kroma now wants to gradually retrofit all medium-size injection molding machines with robots, as well as certain smaller machines in special cases. The use of a robot, for example, eliminated the need for a sophisticated unscrewing system on a 400-kN injection molding machine which Kroma uses to make fine screws out of PPSGF. Männle is convinced that the decision to continue in

the direction of consistent automation was the right one: “We are improving quality in production and reducing costs. And the robots from WITTMANN BATTENFELD are very user-friendly and easy to program, so we have very few handling problems.”

As far as Kroma’s General Manager is concerned, the quality and efficiency drive in their injection molding operation is not over yet. He now plans to introduce a PD (production data acquisition) and CAQ (computer-aided quality assurance) system, so that the settings and parameters required for the individual parts can be transmitted to the machines from a central point and the actual data can subsequently be played back for quality assurance purposes. “This will enable us to optimize the specification data, thereby closing the control loop. In this way I hope not only to reduce the error rate even further, but also to raise overall efficiency through shorter downtimes.”

Long term, Männle also wants to implement organizational changes. “There is hardly a machine technician anywhere who knows all of the functionalities of modern injection molding machines. More and more manual skills are now being replaced by modern technology. Consequently, the role of machine technicians will tend to involve more process support, monitoring and optimization in the future. In that context, we will need production supervisors to monitor the machines via the PDA system. Manual intervention in the machine control system will then become the exception and not the rule.” ♦

WITTMANN BATTENFELD Sales Manager Andreas Hollweg (right) and Sales Engineer Manfred Nerz (left), present a certificate to Kroma General Manager Erik Männle to commemorate the handover of the 7,000th WITTMANN W818 robot.

(Photo: K-ZEITUNG)

Sabine Koll is a trade journalist. This article first appeared in the March 11, 2016 issue of K-ZEITUNG.

FLOWCON plus: optimal temperature distribution made easy

The stamping manufacturer COLOP of Wels in Austria prides itself on the quality and precision of its products. When it comes to molding technology, COLOP has placed 100% of its trust in the solutions from WITTMANN BATTENFELD. For the optimal distribution of the tempering medium, COLOP uses the new intelligent WITTMANN FLOWCON plus.

Gabriele Hopf – Walter Lichtenberger



View inside the COLOP production facility in Wels, Upper Austria.

Established by Karl Skopek in 1980, today COLOP Stempelerzeugung Skopek GmbH & Co KG based in Wels, Austria, is one of the most important Austrian companies in the WITTMANN Group. The COLOP Group employs about 450 people and is one of the world's leading manufacturers of innovative marking devices of all kinds, especially self-inking stamps. COLOP supplies the impressive variety of its products in more than 120 countries. Along with the entire European area, COLOP has established its main markets in the USA, Russia, South America and Southeast Asia.

Beside the now classic address stamps made of plastic with which everyone is familiar, the product range also includes stamps with a high share of steel components for heavy-duty applications, small handy stamps for use "on the road", flash stamps, and stamps that permit users to set their own text, as well as band stamps and embossing presses. COLOP, whose environmental management system complies with the ISO 14001 standard, has developed a new product line under the name "Green Line", with models containing 65 to 80% recycled plastics.

The latest innovation from COLOP is the new "Printer Standard" stamp, which is now available in its seventh generation and features both a unique, modern design and a large number of technical advancements. As a highlight, the design of this stamp offers the ability to customize its generously sized ABS plastic image window.

Technology from the WITTMANN Group

COLOP's commitment to innovation, quality and sustainability is apparent not only in the company's products, but also in the decision to use the best available production technologies. At the Wels site, COLOP uses only the most modern injection molding technology from the WITTMANN Group.

Most of the 22 injection molding machines installed in Wels are from the fully electric *EcoPower* model series made by WITTMANN BATTENFELD with clamping forces ranging from 350 to 2,400 kN. Depending on the area of application, the machines are equipped with WITTMANN sprue pickers and/or linear robots and tray

changers or with an INSIDER cell. Where an INSIDER solution has been implemented, robots and conveyor belt are integrated into the injection molding system along with other upstream and downstream processing peripherals, thereby resulting in decisive advantages in terms of space requirements, material flow and robot cycle time. Moreover, the machines have been equipped with hot runner and cavity pressure sensor systems.

Philipp Pointner, deputy department head for COLOP's injection molding operations, appreciates the *EcoPower* range above all for its high precision and repeatability, both of which are supremely important in stamp production, along with its low energy consumption. This latter feature of the *EcoPower* model series derives from, among

Every single injection molding machine is connected to a temperature controller from the TEMPRO plus D Micro series. With reference to those units, Pointner emphasizes above all their low-maintenance operation and high process stability.

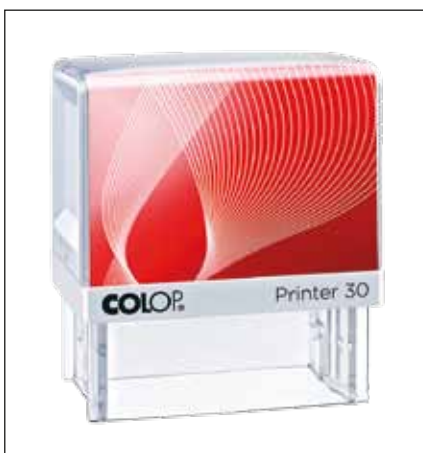
WITTMANN BATTENFELD technology for a highly demanding product

In terms of its manufacturing process, the "Printer Standard" stamp from COLOP is by no means a forgiving product. The "Printer" stamp series is offered in a large number of sizes, so the so-called "image window" associated with the stamp models of that range is also injection



Philipp Pointner, Deputy Head of the Injection Molding Department at COLOP (on the right in the foreground), speaking with Walter Lichtenberger, Head of Temperature Control Technology at WITTMANN.

other things, the use of KERS technology (Kinetic Energy Recovery System), which makes it possible to use the braking energy released within the machine. Sustainable and environmentally sound



production of precision products in high volumes – these are decisive factors in our success. "The machines of the *EcoPower* model range work with high precision and are extremely clean and energy-efficient", explains Philipp Pointner. And Pointner is also favorably impressed with their compact design and their relatively quiet operation.



molded in multiple sizes. When injection molding the image window, the position of the two lateral surfaces with respect to one another presents a very specific challenge. If the lateral surfaces are

Left: Stamp from the "Printer Standard" product group produced at COLOP. Right: The image window used with the Printer.

too close together, they rub against the stamp housing – which can, in the worst case, cause the stamping function to jam.

If the lateral surfaces are too far apart, it becomes difficult to attach the image window to the housing element. In both cases, the stamp cannot be used. >>



FLOWCON plus and TEMPRO plus D temperature controller.



In operation at COLOP: The new FLOWCON plus from WITTmann improves temperature distribution in the mold.

FLOWCON plus, integrated in the B6^P machine control system.



Gabriele Hopf is the Marketing Manager at WITTmann BATTENFELD in Kottlingbrunn, Lower Austria.
Walter Lichtenberger is Head of Temperature Control Technology at WITTmann Kunststoffgeräte GmbH in Vienna.

FLOWCON and TEMPRO for mold temperature control

In order to ensure an optimal distribution of the tempering medium – thereby ensuring the required stability of the parts – COLOP uses two quadruple FLOWCON plus flow regulators from WITTmann. One of the two units is used on the nozzle side of the injection molding machine and the other is used on the ejector side. The two flow regulators are connected to the injection molding machine via an Ethernet interface, thereby implementing the model known as the WITTmann Group's WITTmann 4.0, which enables the integration of an extremely wide range of devices in the control system of the WITTmann BATTENFELD injection molding machine. WITTmann 4.0 permits the accurate representation of the user interface of a peripheral device (here the FLOWCON plus) on the control system display of the processing machine. Moreover, all production data can be stored in the injection molding machine and easily retrieved for future use.

As a result of the compact design of the mold, the cooling channels are very tightly spaced. That limits the effectiveness of cooling in the individual cores and therefore requires a highly accurate temperature control within narrow tolerances. For that reason, a WITTmann temperature controller was installed ahead of the FLOWCON plus. It has special pumps which generate high pressure, resulting in a 40% increase in the flow rates in the individual cooling channels.

Through the parallel distribution to the cooling channels, each individual core of the mold can now be monitored and controlled via the FLOWCON. As a result of this method, the outlying cores of the mold, which generate significantly more heat radiation, can also be brought to the optimal core temperature via a reduced flow rate. Stepper motors maintain a constant flow rate, deviating from the preset value by no more than 0.1 l/min.

Prior to the start of production, it is recommended that a reference value be recorded, whereby all of the FLOWCON's regulator valves are opened in order to determine the maximum flow in the mold. These flow rate values can be stored and compared with those recorded prior to the next production run. This enables the operator to determine whether the mold flow rate values still permit reliable production.

The use of the FLOWCON plus as described here – in combination with a suitably modified temperature controller – has made it possible to ensure that the sides of the stamps' image windows are always in the right position.

Ideal conditions have been established which now form the basis for increasing latitude in production. ♦

100 injection molding machines for Hayco

On November 4th, 2015, the WITTMANN Group signed a framework agreement with Hayco. The agreement covers the production of SmartPower and MacroPower series for Hayco in the coming 5–10 years.

Hayco, headquartered in Hong Kong, is a world leader in the manufacturing of modern household products and appliances. The company has a diverse portfolio of products that it supplies to leading consumer brands. Hayco has been manufacturing in China for over 30 years. Its three plants in Shenzhen are over 1.5 million square feet.

In August, 2015, Hayco announced that it would invest over USD 50 million for a brand-new injection molding and assembly plant in the Dominican Republic to expand its global footprint and improve deliveries to the USA and Europe in the future. The need for world class technology in this new facility and reinvestment in its existing Chinese operations in Shenzhen led them to partner with WITTMANN BATTENFELD and the integrated injection molding solutions they provide.

Solutions from one manufacturer

Both parties signed the contract for equipment purchase, including over 100 units of WITTMANN BATTENFELD's

SmartPower servo-hydraulic injection molding machine, *MacroPower* series large injection machine, peripheral auxiliary equipment and the central feeding system.

SmartPower combines the advantages of hydraulic machines with those of all-electric machines: energy efficiency, precision, user-friendliness, compact design, high speed, cleanness. The new *MacroPower* spans 400 to 1,600 tons, with servo-driven hydraulic pump a highly recommended option.

WITTMANN BATTENFELD provides comprehensive solutions to Hayco by bringing in proven technology in precision, one-stop procurement and energy efficiency solutions. Moreover, WITTMANN BATTEN-



In the place of signing the contract, Mr. Christopher Hay (left) who is the Chief Executive Officer (CEO) of Hayco Group and Dr. Werner Wittmann who is President of WITTMANN Group.

FELD's globalized network services of highly skilled technical support are available 24 hours a day, 7 days a week. All these showed what the company has committed to doing to make good on its pledge to reinvigorate the venerable WITTMANN BATTENFELD name and its reputation for innovation, and they have proven to be a trusted partner to Hayco. ♦

The new Polish subsidiary of the WITTMANN Group

The WITTMANN Group has been successful in the Polish market for many years. In the past, the products from WITTMANN Kunststoffgeräte GmbH – robots and peripheral appliances – and the injection molding machines from WITTMANN BATTENFELD were marketed in Poland by two separate agencies that were independent of each other.

Last year, WITTMANN decided to pool the Group's entire sales and service activities in Poland in a subsidiary of its own. The previous agency for injection molding machines, BATTENFELD Polska, led by Bogdan Zabrzewski, was taken over by the WITTMANN Group and has assumed responsibility for the Group's entire product portfolio on the Polish market since January of this year.



Bogdan Zabrzewski, Managing Director of the new Polish subsidiary (2nd from the right) and his team.

The newly established company, WITTMANN BATTENFELD Polska, employs a total of 18 associates. With this subsidiary, the WITTMANN Group now has a powerful organization to serve the growing Polish market even better and more efficiently than before.

Michael Wittmann, WITTMANN Managing Director, comments: "It is our strategy to have our own branches in our most important markets. With the foundation of WITTMANN BATTENFELD Polska, we are confident of being able to achieve further growth in sales on this market." ♦

That was the celebration of the 40th WITTMANN Group anniversary!

On June 8th and 9th the wait was finally over. It was time for festivities marking the 40th anniversary of the WITTMANN Group. Some 1,650 guests came to Vienna in Hall D of the Vienna fair and experienced a thoroughly successful event which provided lots of information about the latest innovations from WITTMANN and WITTMANN BATTENFELD.

The guests were warmly welcomed by Dr. Werner Wittmann together with his sons Michael (pictured on the left) and Thomas. Mag. Ina Sabitzer served as the master of ceremonies. The opening address was given by Dr. Rüdiger Baunemann of PlasticsEurope Deutschland e.V.

Pyrotechnic effects provided for a spectacular ambience during the course of the opening show. And the impressive "light figure" "Dundu", known from major television shows, enchanted the visitors.





WITTMANN Group presented machines and peripheral equipment from its full product range to the guests and to the large number of journalists present. This included many innovations, which were presented to the public for the first time.

For the evening of June 8th, WITTMANN Group had issued an invitation to a gala dinner in the Orangerie of Schoenbrunn Palace, where culinary delights decked tables animated by lively conversations.



WITTMANN
KUNSTSTOFFGERÄTE GMBH
Lichtblaustrasse 10
1220 Vienna, AUSTRIA
tel.: +43 1 250 39-0
fax: +43 1 259 71-70
info.at@wittmann-group.com
www.wittmann-group.com

WITTMANN
BATTENFELD INC.
1 Technology Park Drive
Torrington, CT 06790, USA
tel.: +1 860 496 9603
fax: +1 860 482 2069
info.us@wittmann-group.com
www.wittmann-group.com

WITTMANN ROBOT
(KUNSHAN) CO. LTD.
No. 1 Wittmann Rd.
DianShanHu Town
Kunshan City, Jiangsu Province
215245 CHINA
tel.: +86 512 5748 3388
fax: +86 512 5749 3199
info@wittmann-group.cn
www.wittmann-group.com

WITTMANN
BATTENFELD GMBH
Wiener Neustädter Strasse 81
2542 Köttingbrunn, AUSTRIA
Tel: +43 2252 404-0
Fax: +43 2252 404-1062
info@wittmann-group.com
www.wittmann-group.com

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