

**Wittmann**

[www.wittmann-group.com](http://www.wittmann-group.com)

# innovations

Technics – Markets – Trends

Volume 6 – 1/2012



*He made it  
like this!*

**Battenfeld**



**WITTMANN innovations (Volume 6 - 1/2012)**

Quarterly magazine of WITTMANN Kunststoffgeräte GmbH and WITTMANN BATTENFELD GmbH. Appears to meet the informational demands of staff and customers. Editorial office: WITTMANN Kunststoffgeräte GmbH, Lichtblaustrasse 10, 1220 Vienna; tel. +43-1 250 39-204, fax +43-1 250 39-439; [bernhard.grabner@wittmann-group.com](mailto:bernhard.grabner@wittmann-group.com); <http://www.wittmann-group.com>  
Issue 2/2012 of "WITTMANN innovations" will appear at the beginning of the second quarter 2012.

# Editorial



**Michael Wittmann**

Dear Readers,

One year ago, I predicted at this point the economic development in the year 2011, and – almost traditionally – I was wide off the mark. I talked about going back to normal in regard to our professional lives – and it came about the exact opposite. The economic up and down of the last years continues, whereas the year 2011 is characterized by an even more massive growth.

After the sudden, strong re-start in 2010, we could increase our turnover once again by 22% in 2011. This increase stands for a special accomplishment, because it is not only due to the regained zest for investment in our industry, but to a high extent due to our innovative product portfolio and the commitment of our members of staff. I really want to thank all our employees and business partners for an excellent 2011.

May I now force on you my 2012 forecast? This one really could conform to reality, despite the fact we would wish it not to come true. Investment plans are linked very closely to the actual practice of the banks' deals in credits. It seems that deals in credits are made rather cautiously by the banks at the moment, due to the debt crisis and perhaps also due to the negative news coverage.

Therefore it seems that the year 2012 will be comparatively weak. We have already noticed some merely isolated indication of the coming slowdown, even though the complete downturn that has been predicted by numerous officials – and not least by the media – has not at all appeared so far.

We are not in the least misled by any foretelling, therefore we are continuing our quickly proceeding expansion in 2012. The *MacroPower* series of big injection molding machines will be widened with models of less clamping force, and the advanced R8.2 robot control will come up with some new real-time functionalities. Our Temperature Controllers Department is steadily pushing on the development of its technologies. The new DRYMAX Aton series of drying wheel dryers will be completed with models of higher dry air capacity, and our gravimetric blenders of the GRAVIMAX series are scoring with the most precise measurement results on the market.

But first of all, I wish all of you, co-workers and business partners, a happy and successful new year 2012.

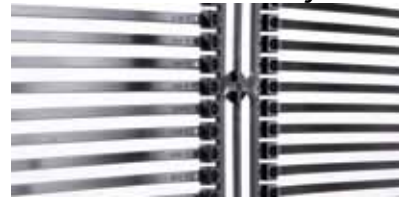
With best wishes,

Michael Wittmann

# Content

## **Injection Molding**

### *The MacroPower on duty*



**Gabriele Hopf** writes about a high-class Taiwanese application.  
**Page 4**

## **Automation**

### *Highly precise insert molding*



**Joe Varone** on the automation of problematic parts.  
**Page 6**

## **Conveying**

### *System for PET processing*



**Nanda Kumar** is introducing an Indian WITTMANN central system.  
**Page 8**

## **Tempering**

### *TEMPRO plus D in practice*



**Christina Ebert** is sure of the temperature controller's adaptability.  
**Page 10**

## **Series**

### *„My EcoPower“ in Thailand*



Part 3 of our Series: Interview with Chawat Trangadisaikul (BKF, Thailand).  
**Page 12**

**Series**  
*Finland and the Baltic countries:*  
WIBA Finland Oy.  
(p. 13)



**Portrait**  
*The agents in Israel:*  
A. ZOHAR LTD.  
(p. 14)



# The *MacroPower* as the ideal solution for the production of cable ties

*K.S. Terminals, a well-known Taiwanese manufacturer of connection elements and accessories for lighting systems, ordered their first four WITTMANN BATTENFELD injection molding machines at the end of 2010. In 2011 WITTMANN BATTENFELD received an order for another 10 molding machines.*

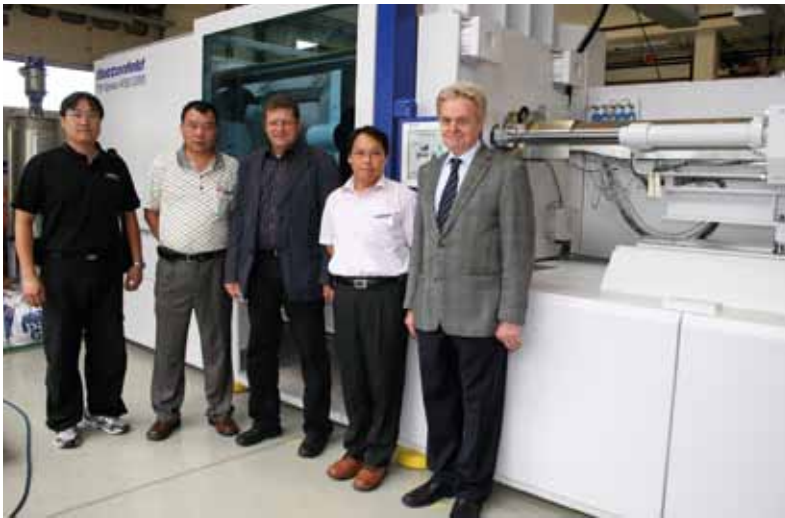
**Gabriele Hopf**



*One of the most important products of K.S. Terminals are cable ties (here shown attached to their sprue) – highly precise parts, manufactured by using MacroPower injection molding machines with 800 t of clamping force.*

The Taiwanese company K.S. Terminals was established in 1973 as Ken Shing Industrial Shop and has been trading as K.S. Terminals since 1978. The company, which is listed on the stock exchange and has about 900 employees, produces plugs for the communications, electrical and automotive industries, but also cable ties and accessories for lighting systems. K.S. Terminals exports almost 80% of its production worldwide, with its main markets being located in Asia, America and Europe.

Since K.S. Terminals manufactures its products in large-batch production, speed is an important consideration next to high quality standards.



### **K.S. Terminals relies on WITT-MANN BATTENFELD**

K.S. Terminals has a total of 45 injection molding machines installed at its facilities, of which 15 are used to produce cable ties. By the end of 2010, K.S. Terminals ordered the first machines from WITT-MANN BATTENFELD. These are a TM Xpress 450 and a *MacroPower* 800, which are used to manufacture cable ties. In addition, a Plus 35 and a *MicroPower* 15 for the production of plug-in connectors for the automotive industry have been ordered.

In September 2011, K.S. Terminals ordered another 10 *MacroPower* 800 molding machines. The *MacroPower* has been especially convincing for K.S. Terminals, since the company – above all – needs high clamping forces as well

as high and constant speed for the production of cable ties. The platens of the machine are especially designed for force transmission through the central part of the mold. This gives WITT-MANN BATTENFELD a unique selling point for machines of this size, compared to most competitors. In terms of cycle times, the *MacroPower* beats the machines previously installed at K.S. Terminals by several seconds, and it also meets K.S. Terminals' requirements concerning the quality of finished parts in every respect.

### **WITT-MANN BATTENFELD *MacroPower***

The *MacroPower* stands for shortest footprint, speed, modularity, ultimate precision and cleanliness. The modular design of this new large machine model makes it suitable for a great variety of applications. The linear guide system of the moving platen ensures a clean mold space and maximum precision in mold protection.

The *MacroPower* reaches its high speed by means of fast movements, minimal locking and high-pressure build-up times, achieved by the innovative *QuickLock* locking system, recently developed by WITT-MANN BATTENFELD.

A special highlight of this new machine generation is the ease with which molds are inserted from the rear of the machine. An extended safety gate stroke at the rear, combined with tie-bars kept at below-average length (thanks to the locking system that has been integrated in the moving platen), allows insertion of bulky molds in most cases without using a tie-bar pulling device. Extremely large molds in several parts can also be inserted sideways. Because of this, low ceilings in production halls are often no longer a problem. The extremely convenient functionality of the machine during mold changes carries the additional benefit of short set-up times and extra safety through handling heavy molds at reduced heights.

WITT-MANN BATTENFELD offers the *MacroPower* also in an energy-optimized

version with a speed-controlled and highly dynamic servo motor instead of a three-phase motor with constant speed. Instead of traditional hydraulic pumps, electrically adjustable axial piston pumps with variable displacement volumes are used. In this system, the delivery is regulated exclusively via the motor speed and the pivoting angle of the hydraulic pump. In this way, the optimal relationship between the pump's degree of efficiency and the motor speed is calculated for every operating point and regulated automatically by the machine's control system. Energy savings of up to 35% compared to conventional drives can be achieved in this way. Additional benefits of this drive concept are a longer service life for the hydraulic oil, as it is heated less, and a lower sound level due to a lower average motor speed. ♦

*From the left: David Chen, WITT-MANN BATTENFELD Taiwan, Rog Cheng from K.S. Terminals, Roland Pechtl from WITT-MANN BATTENFELD, Chih Hsin Lin, K.S. Terminals, and Dr. Werner Wittmann in front of a TM Xpress 450.*

*Special plugs for the automotive industry, manufactured on a WITT-MANN BATTENFELD *MicroPower*. (Photo: K.S. Terminals)*

**Gabriele Hopf** heads the WITT-MANN BATTENFELD Marketing Department in Kottlingbrunn in Lower Austria.

# A successful collaboration and an upfront planning for a turnkey project

*Back in the summer of 2009, WITTMANN BATTENFELD, Inc. and the Florida based Legacy Custom Plastics LLC decided to collaborate on a new insert molding work cell project. It involved a new tight-tolerance pin-insertion automation system, a molding machine, and an existing 4-cavity hot runner precision mold.*

**Joe Varone**

**B**ased in Clearwater, Florida, the company Legacy Custom Plastics LLC has a very long history in the field of plastics processing, mold design and mold making. Legacy has plenty of experience with insert molding and hot stamping, fabrication and assembly etc., in its molding shop, which features 27 presses ranging from 35 to 500 tons. The challenge here was, as it is for many custom molders, to evaluate opportunities to automate any labor-intensive insert



*Darryl Crowe (left) and Daniel Redmond, Legacy Custom Plastics co-owners, in front of their fully automated work cell from WITTMANN BATTENFELD.*

molding applications – and to do it simply and economically. This is where WITTMANN BATTENFELD was a perfect match for Legacy's needs. The company offers several molding machine models that can be supported locally and are economically priced.

At the same time, as a market leader in robots and automation systems, WITTMANN BATTENFELD had the experience and designs to develop a plug-n-play custom work cell for Legacy, well within a reasonable return on investment (ROI) timetable.

## **An ambitious goal of operator-free insert molding**

The molded parts at Legacy are used in water metering applications. They are produced using a proprietary grade of Nylon 12 with a metal pin insert.

Legacy's goal was to produce these parts consistently while holding very tight dimensional tolerance, and minimizing or eliminating the direct labor cost that is common of pin-insertion molding. These costs include the direct labor of operator machine tending – manual cycles are usually longer than target cycle times.

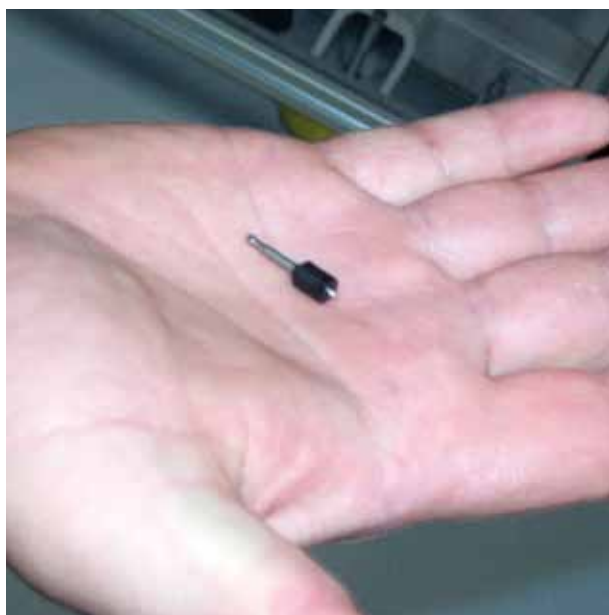
While the project goals offered many opportunities for a simple and easy return on investment, the project had plenty of real challenges, both from a technical point of view and with project management. Close, upfront collaboration and communication between WITTMANN BATTENFELD and Legacy allowed the companies to develop a work cell specification that met the tight tolerances the part and process required.

This was all accomplished while minimizing implementation costs and lead time. In the early stages of the project Tom Betts, molding machine manager for WITTMANN BATTENFELD, developed a machine specification with Legacy Custom Plastics that included the BATTENFELD B2 control system.

This controller proved very easy to set-up and operate. The machine selected was a BATTENFELD Plus series, 35 ton hydraulic machine. The machine had advantages for the project that includes items such as:

- Plus UNILOG B2 control with closed loop feedback. This enabled ease of machine set-up for the technicians while having the power and control for precision molding.

- Mold-open repeatability, critical for insert molding especially when the inserts are loaded to the B-side of the mold – the machine holds a mold-open position of  $\pm 0.0004$  inches.
- Plasticizing technique, injection speed and accuracy of the production process hold for tight-tolerance repeatability and consistent parts. This was accomplished using WITTMANN BATTENFELD's method of 4-step injection velocity profile and WITTMANN BATTENFELD's technique of 3-step holding pressure with interpolation.
- Looking at energy efficiency: using variable displacement pump with complete velocity control and pressure control proportional valves.



- Two tie-bar clamping systems with maintenance-free greaseless tie-bars.
- A particularly small footprint of the entire system which saves molders floor space while allowing automation options (such as the longitudinally mounted robot in this work cell) that other machines suppliers cannot.
- Economy and pricing: this machine, while having many technical advantages for the molder, is very cost-effective. In fact, this application had a return on investment of less than one year. This means a significant achievement when considering the use of a new molding machine, robot, tooling and bowl feeder escapement system.

### *Integrated automation work cell*

The next step was to develop a robot and automation work cell specification that would be integrated with the molding machine to minimize the work cell footprint, be easy to access, have direct E67 communication with the

machine and simplified set-up, and of course remove direct operator labor. Like the molding machine, the WITTMANN robot had many features and advantages to handle this insert project such as:

- A servo floor standing, longitudinally mounted WITTMANN W711 robot. The WITTMANN 7 series traverse Z-beams are modular. This allowed the robot to not be platen mounted and oriented in a way that created a small footprint and at the same time keeping the work cell “inline” making set-up and maintenance easier.
- The all servo robot was fitted with precision end-of-arm tooling (EOAT) to handle the tight-tolerance placement of pins within the mold.
- The color touch-screen servo robot control was pre-programmed for the automation sequence and had editing features making it easy for the molder to “tweak” and “dial-in” the sequence before, during and after installation.
- The WITTMANN BATTENFELD engineering group designed and built an elaborate bowl feeder and escapement system to feed and present the servo robot the pins for insertion into the mold.

While the BATTENFELD molding machine was being specified, the WITTMANN robot, EOAT and bowl feeder system were designed concurrently while the existing mold specification was reviewed for changes as needed for full automated work cell integration.

Legacy Custom Plastics president, Darryl Crowe, had examined the existing mold for enhancements to facilitate the automated pin loading process. The 4-cavity mold (4 pins to insert) with hot-runner needed few modifications so fortunately the mold needed little work to automate it – as a result, retrofit costs were minimal.

### *The outcome: results, even better than expected*

Not only did all facets of this project come together concurrently, saving time, but they were all supplied and implemented while minimizing costs.

Today, the work cell has increased productivity by 46%. It has all but eliminated the need for operator involvement, and Legacy produces these parts at a rate of 45,000 per week. All the benefits calculated initially did in fact materialize. The learning curve was simple, the benefits of cost savings realized, and the experience was positive overall for Legacy Custom Plastics.

Legacy Custom Plastics is now looking for other projects in-house where they can expand their cost savings through automation work cell implementation. With the mold and plastics processing expertise of Legacy and their new venture success with WITTMANN BATTENFELD, it is likely that future collaboration will continue to increase their productivity. ♦

*The finished product was molded using an application of tight-tolerance pin insertion.*

**Joe Varone** is Southeast Robot Sales Manager USA, working for WITTMANN BATTENFELD Inc. in Torrington, Connecticut.

# PET processor uses a WITTMANN central drying and conveying system

*The PET packaging market in Pondicherry was really changed, when Swashtik Preforms started their operation in 2007 with their commitment to quality and innovation. Always a part of Swashtik's philosophy, they are very successfully manufacturing quality preforms and bottles from PET.*

**Nanda Kumar**



*A view of the central drying and conveying system at Swashtik Preforms based in Pondicherry, India. The entire system is dedicated to PET processing.*



Thanks to the Manufacturing Director, Ramnath Ashok, Marketing Director Vijaykumar Surana and Finance Manager Mahendra Kumar: The evaluation of the PET market and a visionary technical approach led Swashtik Preforms to establish a single stage bottle manufacturing process (instead of a two stage process) – and to the company’s rapid expansion. Today, Swashtik is not only running an all-around proven solution for the production of PET bottles with different threads, they also have developed the ability to work on any other PET project.

Swashtik Preforms was looking for a high-quality PET drying and conveying system for their state-of-the-art single stage bottle manufacturing machinery. Such a system had become especially necessary in regard to their medical clean room products and their beverage packaging production. Swashtik turned to WITTMANN BATTENFELD to get a one-stop shopping world class solution consisting of PET dryers, an entire central material conveying system, blenders, and – in addition – temperature controllers.

### Energy-efficient PET dryers

The effectiveness of the drying process normally is measured by using the parameter of the dew point. WITTMANN devices are coming up with an ambient independent dew point of up to -65°C.

The material protection function is another important feature of the WITTMANN dry air dryers. This essential technology prevents over-drying and thermal degradation of plastic resin during periods of reduced throughput by automatically lowering the drying temperature.

The so-called *SmartFlow* function provides an intelligent air distribution. This feature, available on units with 2 drying hoppers, means that the air distribution is automatically adjusted to different materials and fluctuating material demands. Thus not only the material processed is protected, but also wasting energy due to over-drying is totally avoided. WITTMANN finally has introduced a comprehensive testing program to establish energy ratings for their DRYMAX dry air dryers. After several years of research, WITTMANN has developed a standardized rating method based on stringent test conditions. Since then, every dryer model is labeled with an Energy Sticker showing the measured test result in terms of kWh per unit weight of dry air.

Apart from this, other features like a 7-day timer and integrated CAN communication interface are standard with all WITTMANN dryers.

### Conveying system

Plastics processors need to have an absolute hassle-free operating conveying system that is enabling non-stop production. Beyond that, Swashtik wanted to have a system for the secure production of delicate medical parts and beverage packaging. Ramnath Ashok, Manufacturing Director, is summing up the main reasons that led to opting for the WITTMANN equipment as follows: “WITTMANN simply is offering the most advanced technical features, providing maximum production security. Even at the first glance one can realize the depth of engineering behind the surface: for example, the control devices are placed absolutely

conveniently, everything is executed with a view to highest usability. We have already gained experience with other manufacturers. But there is no regret having chosen now the WITTMANN equipment and the services that go with it.”

### Material loaders

Regarding material loaders, most of the other manufacturers are supplying their units with vacuum flap seal mechanisms. But these seals are tending to bend when operated continuously, causing bad results upholding the vacuum. This would change the performance of the entire system for the worse.

As opposed to this, WITTMANN is offering loaders that are equipped with specially shaped material discharge shut-off valves ensuring highest functionality through a completely leak-proof seal. Most of the WITTMANN FEED-MAX loaders have a modular construction. This makes it for example very easy to upgrade a 6 l loader to a volume of 8 or 10 l, demanding only the exchange of the loader’s center section. None of the competing manufacturers is offering such flexibility. Generally, WITTMANN’s effort is to always design a totally customized system, giving much consideration to the existing space – as it was with Swashtik.

### Cost-saving PET drying

Technologies like the dew point controlled drying, material protection and the so-called *SmartReg* function are contributing to saving energy to a remarkable extent. Along with this, some other key features led to Swashtik’s decision to order a WITTMANN drying system: material bins made of stainless steel, uniform air distribution, multiple temperature measurement and control, and 45 mm thick insulation for highest drying efficiency.

Swashtik was able to achieve considerable energy savings of almost 50% in comparison to using other equipment. Mr. Vijaykumar Surana, Swashtik Marketing Director, points out: “The PET packaging business is highly vibrant and is demanding the highest parts quality. It is a brisk market, and you have to watch your cost. In reference to all these points, WITTMANN helped us a lot.”

### One-stop solution in PET processing

When processing PET, a lot of key parameters have to be matched:

- Intrinsic viscosity (IV).
- Acetaldehyde level (AA).
- Aesthetic appeal (clarity).
- Uniform part weight.
- Uniform wall thickness.

To achieve the respective specifications, not only the molding/blowing machines are of highest importance, but also all the auxiliaries, especially drying and conveying equipment, blenders and temperature controllers. In collaboration with Swashtik, WITTMANN once again proved their ability to provide ideal customized systems – in this case for PET processing, but also as a one-stop solution. ♦

**Nanda Kumar**  
is General Manager  
of WITTMANN  
BATTENFELD  
India pvt Ltd. in  
Chennai.

# TEMPRO plus D – A success story in the automotive parts production

*In steady communication with a big German manufacturer of automotive parts based in South Hesse, WITTMANN was successful in adapting the new TEMPRO plus D temperature controller to the very special needs of this demanding customer. By now 18 units were integrated into the respective production processes.*

**Christina Ebert**



*TEMPRO plus D140 dual zone temperature controller, especially adapted to the needs of a demanding customer in the automotive industry. Attracting attention at first sight: the additional acrylic glass covering of the screen and the additional electric alarm.*

Plastics processors that are molding parts for the automotive industry have to face formidable quality requirements— and this case was no exception. For to surely meet the standards for this special application, the tempering requirements were specified in the course of a workshop that was attended by WITTMANN experts and the customer's specialized staff.

Even before this, test runs concerning a very critical part had happened over a longer period. It was the aim of these combined efforts to work out a concept that would allow the seamless integration of customized temperature controllers into delicate processes.

## *Challenging applications*

Two different applications had to be managed by using temperature controllers of possibly identical technical construction.

Within the scope of the first application, technical parts of the “car interior” sector for different automakers had to be produced in 4-cavity-molds, with the cavities heated-up to temperatures ranging from 70 to 100°C. The flow pressure reached a value of 3–6 bar, resulting in a flow rate of 8–12 l/circuit, every mold having at least 4 cooling circuits and 8 as a maximum.

The second application originated from the field of precision injection molding, being as challenging as the other one. In this case, steel shafts should be coated with different kinds of plastics: PBT, POM, PMMI, and PC. 8-cavity-molds and 16-cavity-molds had to be heated-up to a temperature range of 70–140°C. The flow rate had to reach 8–15 l, and the flow pressure 4–6.5 bar. All molds having 6 to 9 cooling circuits that had to be sufficiently served by the temperature controller.

### Temperature controller requirements

The temperature controllers had to be absolutely interchangeable with each other, and they had to absolutely fully serve both of the different applications. On the part of the customer, great importance was attached to some further characteristics:

- Simple operation.
- Compact design.
- Easiest access for maintenance and cleaning.
- Rugged execution.
- Optical and audible alarm.
- Temperature tightness even when rapidly cooling down.
- Elimination of possibly every cause of defect.
- Low noise level at operating state.
- Modified electronics in terms of fuse protection.
- Water inlet and outlet made of stainless steel to avoid corrosion.
- Minimized loss of water when changing the mold.
- Accuracy of temperature measurement to guarantee a continuous process, being of highest priority in the field of precision injection molding.
- Interface for connexion to injection molding machines of all brands.

### TEMPRO plus D for different applications

Even a conventional TEMPRO plus D140 dual zone standard unit satisfies some of the above mentioned criteria. After having adapted the standard unit, the ideal solution for both of the different applications in question was found.

Because of its compact construction, this temperature controller has not only a rather small footprint, but it is equipped with two separate circuits for the tempering of two different mold channels. Thereby, the circuits are working entirely independent from each other. In principle, the device is laid out for a temperature of up to 140 °C, and up to this temperature it is working with a control accuracy of  $\pm 0.2$  °C.

The TEMPRO plus D is designed to meet the operator's convenience to a great extent. The generously dimensioned color touch screen is offering simple menu navigation, thus allowing for the quick modification of process parameters. The display is enabling recalling the most different process

data: for instance set temperature, flow pressure, pump pressure, and so forth. By request of the customer, the control and display panel was given additional protection against dirtiness and other damaging extraneous causes by installing a premium hinged acrylic glass covering.

### High process security, short cycle times

To guarantee highest process security and to be able to reproduce possible manufacturing errors, it is necessary to record the run of the process. The new oscilloscope function of the TEMPRO plus D is recording the temperature conditions, pressure and flow rate, and thus is contributing to constant part quality, which is of special importance when it comes to molding parts for the automotive industry.



*The new TEMPRO plus D oscilloscope function is recording the temperature and flow profiles. By means of these data, possible manufacturing errors can be easily reproduced.*

Flow and pump pressure measuring is integrated in all TEMPRO plus D models as a standard. Beyond that, the optional ultrasonic flow measurement was applied especially for the applications in question. This flow measurement is permanently controlling the cooling channels. The unit was equipped with an enhanced magnetically coupled pump that comes with a capacity of 1 kW and a flow volume of 60 l.

One more important aspect in regard to acquiring the TEMPRO plus D was the unit's internal volume of 3 l that again is shortening the cycle times through its short heating and cooling phases. Because of the tankless construction, the volume of the circulating medium is kept possibly low, shortening the heating and cooling phases essentially. The heater can be actuated arbitrarily often due to the use of solid state relays that are free from wear.

Meeting one more customer requirement, the temperature controller is equipped with ball taps made of stainless steel. These prevent the loss of water when changing the mold. As an additional measure of safety, an alarm light was mounted at the temperature controller's front door. The electric alarm also is including an audible signal.

### A resounding success

Closely collaborating with the customer, WITTMANN again was recognized as a competent and reliable partner in the field of temperature control. In the meantime, this special customized solution was implemented at the customer's plant 18 times. – Success that speaks for itself. ♦

**Christina Ebert** is working for WITTMANN Robot Systeme GmbH in Gross-Umstadt, Germany, for the Temperature Controllers and Granulators Sales Department.

# BKF in Thailand using the *EcoPower*

*Third part of our "My EcoPower" series: BKF in Thailand – so far working with WITTMANN BATTENFELD especially in the field of material drying and conveying – has purchased two EcoPower injection molding machines in 2010.*

- **Your business?**

The core business of BKF, founded 1963, is in the fields of plastic injection molding, aluminum die-casting and the production of rubber tires for motor-cycles and bicycles. BKF's main markets are in aerospace, food/ beverage and railway companies in Europe.

- **Date of *EcoPower* purchase?**

August 2010.

- **What *EcoPower* Models?**

*EcoPower* 110/350 and *EcoPower* 180/750.

- **Reason for purchase?**

We have been expanding in the past few years, and when we needed additional machines we only wanted to buy the best. Regarding the quality of the machines and especially the competence of the WITTMANN BATTENFELD staff, this was a very easy decision.

- **What products are the machines typically making?**

Engineering parts, automotive parts.

- **What are your favorite design features on the machine?**

The design of the injection unit really stands out in the market – and at BKF we have tried a few all-electric and hybrid injection machines. The *EcoPower* servo-hydraulic circuit for the ejector is a very good idea since we often run molds with core pull and we do not like the very inefficient hydraulic circuit most machine makers use for this option, using even more energy than the machines themselves. WITTMANN BATTENFELD has

done a wonderful job turning weak points into strengths. The clamping unit is one of the best in the industry. The UNILOG B6 control is the icing on the cake, providing just the right

Other electric machines have some maintenance problems, especially in regard to the belt-driven mechanisms and the ball screw assemblies. And the bigger the machine, the worse the prob-

*BKF Director Chawat Trangadisaiikul (left) taking over a new WITTMANN BATTENFELD EcoPower injection molding machine.*

## *My EcoPower* Part 3

*Respondent:*  
Chawat Trangadisaiikul

*Position:*  
Vice President

*Company:*  
Bangkok Metropolis Motor Co., Ltd. (BKF)

*Location:*  
Kratumban/Samutsakhon, Thailand



balance of precise control, great flexibility, intuitiveness and user-friendliness.

- **What operational advantages have you noticed in regard to the *EcoPower*?**

Fast, clean, less cooling water needed, very energy-efficient. Accessibility is a key factor. It is very easy to access all the components, to maintain the machine and also to integrate further auxiliary equipment.

- **What changes in energy consumption have you noticed on the *EcoPower*?**

There has been a drastic reduction in energy consumption and also a large reduction in cooling water usage. This has given us substantial cost savings and has indirectly helped to maintain our ISO 14000 environmental management standards.

- **What other energy savings/efficiencies have you noticed?**

lems. Our *EcoPower* machines are completely eliminating this issue due to their great injection unit designs. Lubrication around toggles has previously caused headaches – no longer.

- **What sort of payback period are you expecting?**

2 years.

- **Does your *EcoPower* have a nickname?**

Not yet.

- **Have any of your customers seen your new *EcoPower*?**

Yes, many. Usually they are very impressed about the technology.

- **Where next for your business?**

More machines (from BATTENFELD) – for sure!

- **Where next for you and the *EcoPower* series?**

We are seriously considering the *EcoPower* for the next purchase. What a great design! ♦

# Agents for Finland and the Baltic countries: WIBA Finland Oy

*WIBA Finland Oy started operations in July 2010. The company is run by the experienced team of the former WITTMANN agent for Finland and the Baltic countries whose manager had retired. BATTENFELD meanwhile has been present in Finland since the 1970s, always being committed to the plastics industry's needs.*

Based in Salo, in the southwest of Finland, a team of six persons is selling WITTMANN auxiliary equipment and WITTMANN BATTENFELD injection molding machines to customers in Finland itself and to the plastics industry in the Baltic countries. They share over 100 years of experience in sales and service, including the management of spare parts. Besides offices, the Salo premises houses the spare parts inventory and an appropriate showroom.

WIBA Finland Oy is a family-run business, Petri Häggman being assisted by his wife working in the office and by the helping hand of his father.

Three more people running their own companies are taking care of the service agenda, two of them servicing the Finnish WITTMANN BATTENFELD customers.

## *The market situation*

The Finnish plastics market underwent many changes during the last years. In fact, it has lost a lot of its former mobile phone business that is concentrating now in Asia. But one thing Finland will never lose: its ambition of being a hotspot for innovative ideas – not least due to its excellent educational system.

Finnish companies have over 50 years of experience in the plastics processing industry – and still, about 600 companies are working in this field, achieving an overall turnover of EUR 3 bn and employing about 14,000 persons.

## *The WIBA philosophy*

The WIBA Finland Oy company is working ambitiously on strengthening the WITTMANN and WITTMANN BATTENFELD brands and



*The WIBA Finland Oy Team (from left to right): General Manager Petri Häggman, Sari Salonen, Matti Häggman, Rauno Tuominen, Keijo Heikkilä, (Kalev Vähajaus absent).*



*View of the WIBA Finland Oy showroom in Salo.*

on making them even more visible right in the middle of the challenging Finnish business environment. Service and partnership have appeared to be the key concepts of Petri Häggman and his ambitious team players. They are always trying to offer the most advanced service on the local market, thus making not only customers, but lifetime partners.

In the near future, this philosophy shall also be strengthened in regard to the activities in the Baltic countries.

The local Finnish plastics show held in November in Lahti was a complete success, Petri Häggman commented: "Great! I really want to thank the WITTMANN BATTENFELD customers and team who made it possible to succeed to such an extent. The next issue of the Lahti show will be in 2014. In the meantime, until then, there's of course a lot of interesting work to do: taking care of our customers, and participating in the next Fakuma and K shows in Germany." ♦

# WITTMANN BATTENFELD's agent in Israel: A. ZOHAR LTD.

*A. ZOHAR LTD. was founded by Arieh Zohar in January 1992 and nominated as the WITTMANN agent in Israel in the same year. At that time, WITTMANN was not well known in the Israeli market. With 250 CNC robots sold by the end of the 1990s, WITTMANN became the leader in the Israeli robot market.*

*Left picture: Ya'akov Schlosberg, Director Arieh Zohar and Magi Glucker (from the left, absent: Doron Arbel). Right picture: A. ZOHAR LTD. office, located in the trade center of Zichron-Ya'akov.*



The premises of A. ZOHAR LTD. are located in Zichron-Ya'akov on the Carmel Mountains. The company's team consists of four persons, managing marketing activities, installing machinery, and providing after sales service for the complete product range of the WITTMANN Group.

Over the years, A. ZOHAR has taken over more and more duties and responsibilities in respect of selling the WITTMANN Group's equipment in Israel. In 2004, the company became the WITTMANN agent for material handling systems. In 2010, A. ZOHAR

took another step – and a quite logical one – when they finally decided to get started with their activities in the field of WITTMANN BATTENFELD injection molding machines.

In May 2011, the first *EcoPower* machine with a clamping force of 110 tons was put into operation very successfully.

The new WITTMANN BATTENFELD machines of the *PowerSeries* are showing great promise in Israel – in fact, they are already considered as an alternative by several leading Israeli molders.

## Some market figures

510 plastics processing plants are native to Israel. Amongst them are 200 injection molding plants, 150 extrusion plants, and 160 others. Thus, the injection molding sector represents the largest share of about 40%. The annual raw material consumption of the sector was over 700,000 tons in 2010 (that's about 120 kg per capita).

Altogether, the plastics processing industry achieved a 2010 total revenue of \$ 4.3 bn, and it has about 22,000 employees. 52% of the plastic goods that are being exported are shipped to Western Europe, 22% to North America, 8% to Eastern Europe, 9% to Asia, and 9% to the rest of the world. On an average, the plastic sector is contributing about 5.5% to the total Israeli gross national product. Over the last years, the plastics industry has shown growth values between 4 and 12%.

Almost all brands of injection molding machines and of peripheral equipment are sold in Israel. Therefore, the competition is rather keen, especially when considering the presence of Chinese and other Far Eastern manufacturers of machinery.

Keeping up with this competitive situation, is one of the main challenges when working the Israeli market for plastics processing. ♦

## Successful at Plastimagen show 2011

*Plastimagen show team of the WITTMANN Group in 2011 (fourth from the left: Michael Wittmann).*

At the international Mexican plastics exhibition that took place from 4 to 7 October in Mexico City, the WITTMANN Group presented to the trade visitors the latest injection molding technology and peripheral equipment, all from a single source. This year's visitors at the Plastimagen show were highly interested and the exhibition was a great success, reflecting the rebounding Mexican economy. ♦



*The new EcoPower was presented to the public in a noticeable charming way.*

# Articles that appeared in *WITTMANN innovations* so far

## Injection Molding

- WITTMANN BATTENFELD: One stop shopping for injection molding 4/2008
- Metal injection molding at Indo-US MIM 4/2008
- Cost optimization: EcoPower by BATTENFELD 1/2009
- IT assisted services 1/2009
- Water injection for all-plastic parts 2/2009
- Krona Indústria and WITTMANN BATTENFELD 2/2009
- Molding micro-parts with the Micro-system 50 3/2009
- Multi-component process at wolcraft 4/2009
- Process data acquisition: partnership with Wille System 4/2009
- The new all-electric EcoPower injection molding machine 4/2009
- Thomas Dudley and WITTMANN BATTENFELD 1/2010
- IML with TM Xpress 1/2010
- AIRMOULD® and AQUAMOULD® Mobile 1/2010
- Design Molded Plastics and their molding machines 2/2010
- Stadelmann relies on Wille and WITTMANN BATTENFELD 2/2010
- The new MicroPower molding machine 3/2010
- AQUAMOULD® and projectile injection technology 3/2010
- New benchmark in large machines: MacroPower 4/2010
- STELLA relies on WITTMANN BATTENFELD machines 4/2010
- The ServoDrive technology 1/2011
- The 75<sup>th</sup> machine for Krona 1/2011
- Packaging specialist TM Xpress 2/2011
- WAVIN (Czech Rep.) and WITTMANN BATTENFELD 3/2011
- SANIT molding a success 3/2011
- WEPPLER Filter using BATTENFELD machines 4/2011

## News From The Subsidiaries

- Australia 2/2008
- Austria 2+3/2008, 1/2010, 3/2011
- Benelux 3/2008, 2/2009
- Brazil 3/2007, 1/2009
- Bulgaria 2/2009
- Canada 1/2007, 1+2/2008, 3/2009
- China 2/2010
- Czech Republic/Slovakia 4/2009
- Denmark 1/2009
- Finland 4/2008
- France 2/2007, 3/2008
- Germany 1/2007
- Great Britain 2/2009, 2/2010
- Hungary 1/2008
- India 2/2008, 3/2010
- Italy 4/2008, 1/2010, 4/2011
- Mexico 3/2007, 3/2009, 1+2/2011
- Slovenia/Croatia 1/2010
- Southeast Asia 2/2007
- South Korea 3/2010
- Spain 3/2007
- Sweden 2/2009
- Switzerland 1/2008
- Taiwan 4/2009
- Turkey 3/2008, 2+4/2011
- USA 2/2008, 3/2009, 1/2011

## Conveying/Drying

- Central drying and conveying at Robert BOSCH 1/2007
- Quality control of the WITTMANN dryers 1/2007
- Drying and conveying system at Kromberg & Schubert 2/2007
- Cost efficient material drying 2/2007
- FEEDMAX conveying units fit for the clean room 3/2007
- The new DRYMAX ED80 material dryer 3/2007
- Focus on material feeding 1/2008
- The WITTMANN network control at Arge2000 2/2008
- Changing parameters when conveying different materials 2/2008
- Optimizing a material conveying system 3/2008
- DRYMAX dryers complete with energy rating 3/2008
- Metchem central material handling system 4/2008
- Auxiliaries at Delphi in China 1/2009
- The LISI COSMETICS central system 2/2009
- Perfect planning of central systems avoids downtime 3/2009
- Testing the WITTMANN energy claims at FKT 4/2009
- The new FEEDMAX B 100 1/2010
- Greiner is saving energy by using WITTMANN dryers 2/2010
- The A.C.S. conveying system 3/2010
- The new FEEDMAX Primus material conveyor 4/2010
- The new DRYMAX Aton 2/2011
- The BKF conveying system 2/2011
- WD Kunststofftechnik and its central system 4/2011

## Blending

- The new WITTMANN blenders of the GRAVIMAX series 2/2007
- The truth about blender economics 3/2007
- The new GRAVIMAX 14V blender 3/2009
- The art of blending regrind 3/2011

## Granulation

- Inline recycling of sprues 1/2007
- Giant granulator MCP 100 2/2007
- The new MAS granulator 3/2007
- The challenging recycling process 1/2008
- The MC 70-80 granulator at Centrex 2/2008
- Gibo Plast enforces recycling 2/2009
- The new AF auger feed for MC central granulators 4/2009
- Grinding of ferrite 1/2010
- Grinding critical material 3/2010
- TMP CONVERT: Customized solutions 1/2011
- Inline recycling with Minor 2 3/2011

## In-Mold Labeling

- WITTMANN IML stack mold systems 3/2007
- The WITTMANN 2 + 2 stack mold 1/2008
- ATM d.o.o. in Serbia grows with WITTMANN systems 3/2009
- Quadrangular IML design at PLASTIPAK in Canada 4/2010

## Temperature Control

- The advantages of pulsed cooling 1/2007
- Comparing water to oil 2/2007
- The new temperature controllers of the TEMPRO plus C series 3/2007
- The new COOLMAX compact cooling units 2/2008
- Temperature controller "guarding" injection molding machines 3/2008
- Temperature controllers with DUO cooling 4/2008
- Variothermal tempering 1/2009
- The new TEMPRO plus C180 2/2009
- The new TEMPRO direct C120 [C250] 3/2009
- WFC: WITTMANN Water Flow Control functionality 4/2009
- TEMPRO plus C180 water temperature controller 1/2010
- WITTMANN TEMPRO: The universal benchmark 2/2010
- BFMOLD™ mold cooling system 3/2010
- The new TEMPRO plus D temperature controllers 4/2010
- Online-thermography 1/2011
- Tempering and injection molding at Fuchs & Sohn 2/2011

## Automation

- Production and quality control in medical engineering 1/2007
- The handling of large structural foam parts 2/2007
- The new R8 robot control 3/2007
- High-end: The production of seat adjustment rods 1/2008
- Drive engineering for robots 1/2008
- Automating the production of transponder pins 2/2008
- Automated production of remote control keys 3/2008
- Automation at Carclo Technical Plastics, UK 4/2008
- The flexible automation cell as ABAPGT 1/2009
- The cultivation of growth with WITTMANN robots 2/2009
- Bruder toy wheel production 4/2009
- Production of pallets at Georg Utz in Poland 1/2010
- EcoMode helps getting energy efficient robots 2/2010
- Automated production of oil level sensors 2/2010
- Automating rotation welding 3/2010
- The new R8.2 robot control 4/2010
- Linear robots in the clean room 1/2011
- Super-fast part removal 2/2011
- Automation of cups and lids 3/2011
- Superior multi-component molding 4/2011

**WITTMANN  
KUNSTSTOFFGERÄTE GMBH**  
1220 Vienna, AUSTRIA  
Lichtblaustrasse 10  
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(0) 512 5748 3388  
fax: +86(0) 512 5749 3199  
info@wittmann-group.cn  
www.wittmann-group.com

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

**Wittmann**

**Wittmann Battenfeld**