Dear Reader,

This issue of *innovations* represents the third volume of this magazine. The feedback we have received since first publishing this magazine continues to strengthen our efforts in working on this publication anew every time.

In the future, we will continue to deliver to you quarterly insights into the world of WITTMANN and BATTENFELD products, the development of new concepts and their implementation in practice, and last but not least, the activities of our branches all over the world.

The acquisition of BATTENFELD by WITTMANN in 2008 brought about the merger of some of the Viennese WITTMANN organization with that of WITTMANN BATTENFELD in Kottingbrunn.

The best example for this is the manner in which our Viennese Graphic Department (including the Editorial Office of *innovations*) and the Marketing Department in Kottingbrunn are working hand in hand on their – now collective – projects: brochures, flyers and handouts used at shows, press releases and on the *innovations* magazine, the product you are holding in your hands or reading online right now.

From the beginning, it has been our ambition to provide you with pertinent information that does not become obsolete rapidly. We have focused on the documentation of applications so that past issues can be referenced with benefit.

Representing all those who are contributing to *innovations*, I am convinced that you will read the following issues of our magazine with the same amount of professional curiosity we are feeling when editing this information for you.

Sincerely,

Michael Wittmann

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*WITTMANN innovations – 1/2009*
At the Fakuma show 2008 in Friedrichshafen, Germany, WITTMANN presented some interesting innovations, including the Variothermal Tempering method, developed in collaboration with the German Kunststoff-Institut Lüdenscheid (Plastics Institute Lüdenscheid). An impressive demonstration for the production of structural foam parts was presented at the show.

Gerald Schodl

Variothermal Tempering enables shorter cycle times to be achieved for thick-walled injection molded parts requiring a high-gloss surface when manufactured with the aid of a foaming agent. For a long time this combination of requirements could only be met with certain reservations as thick-walled parts typically experienced increasing cycle times as that was the only way to prevent sink marks.

In addition, the use of foaming agents usually leads to poorer quality part surfaces. Variothermal Tempering is a successful approach to avoiding these problems.

Outcome of successful cooperation

The WITTMANN BATTENFELD production unit displayed at the Lüdenscheid Institute booth at Fakuma demonstrated the necessary quality improvements that have rapidly become possible combining the competence and experience of both organizations in a target-oriented collaboration.

Two sides of the same product: the high quality front side of the bottle opener has been molded in a cavity with Variothermal Tempering and the rough and dull back side being processed in a cavity that hadn’t been equipped with this feature.

As an example, a bottle opener with a challenging design and demanding requirements was produced at Fakuma using Variothermal Tempering. The performance of this part gained the true respect of the expert visitors.

The molded part was produced from ABS with a chemical foaming agent added to prevent the part from having sink marks or warpage and which also led to a reduction in weight.

For molding the front side of the part, inductive heating was implemented in the mold developed in cooperation with the Lüdenscheid Institute. The inductive mold heating results in heating up of the mold surface to a temperature approaching the melting temperature of the material in just a few seconds. The outcome when using this technique are parts showing impressive quality with a high-gloss surface and no joint lines visible. In direct comparison, the back side of the bottle opener – being formed with no inductive heating in the mold – shows the rough marbled surface and flow marks typical of conventional structural foamed parts.
**WITTMANN auxiliary equipment**

A WITTMANN W811 robot inserted the metal parts into the mold and removed the finished parts before placing them on a conveyor.

A DRYMAX ES40-50 M provided drying of the material and for all other steps within the process, WITTMANN equipment was used.

Three FEEDMAX S3 loaders were used for material conveying, a GRAVIMAX 14R blender for measuring the foaming agent and a WITTMANN TEMPRO plus C temperature controller specially modified for the mold tempering.

**Principles and advantages**

For Variothermal Tempering applications, high-performance molds with form-fitting heating/cooling channels need to be used. This allows synchronized tempering with the cycle for two different temperatures.

The Variothermal Tempering method is ideal for either thin-wall parts with long flow paths, for parts with micro-structure surface or, for thick-wall structural foam parts that require excellent surface quality. It is applicable anywhere the combination of high mold surface temperatures, precise mold filling, impulse cooling and short cycle times are required.

Furthermore, high mold surface temperatures offer a number of positive side effects. On one hand they lead to lower mold cavity pressure and on the other hand they minimize hold pressure – both influencing clamping force and thus, the injection molding machine size in a positive manner.

The combination of a variothermal temperature controller, a mold with form-fitting heating/cooling channels and inductive heating, allows for the creation of a comprehensive temperature profile for the cavities and thus, optimum part cooling.

**Course of the process**

The TEMPRO plus C dual zone temperature controller first heats up the mold cavity to the required temperature for the respective material (i.e. 60 °C).

Then – within about six seconds – heating of the cavity to a temperature of about 330 °C occurs via an inductor built in the mold and actuated by a generator. After the generator turns off, a signal is sent to the injection molding machine and the injection sequence occurs.

After the injection sequence, a signal from the molding machine then switches the temperature controller to its second zone (cooling circuit) with a low set temperature (i.e. 20 °C), rapidly cooling the mold cavity. This cooling sequence lasts for about 25 seconds.

Then another signal from the injection molding machine switches off the first tempering zone of the temperature controller and the heating up of the mold cavity occurs again to the required temperature for processing the material (i.e. 60 °C). When this temperature is reached the part is removed from the mold and the cycle starts over again.

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**Gerald Schodl**
is Sales Manager of the Temperature Controllers Department at WITTMANN Kunststoffgeräte GmbH in Vienna.
Auxiliary Equipment at Delphi Connection Systems in China

Delphi Connection Systems (DCS), a product business unit of Delphi Packard, is a large, well-known worldwide supplier of automotive connection systems. The Delphi Packard Connection Systems Shanghai Plant is the only connection manufacturing and technology service base of Delphi Group in China—and relies on WITTMANN auxiliary equipment. – An Interview with Zhang Zhiwei.

Leonardo Lin

Delphi is a leading global supplier of mobile electronics and transportation systems, including power train, safety, steering, thermal, controls and security systems, electrical/electronic architecture and in-car entertainment technologies.

Engineered to meet and exceed the rigorous standards of the automotive industry, Delphi technology is also found in computing, communications, consumer electronics, energy and medical applications.

The 48,000 m² DCS Shanghai plant was established in the Shanghai Anting Automotive Town in December 2003. The plant also has its own mold making and repair department. DCS offers a comprehensive range of connector components and connection systems that are widely used in automotive electronics, telecom and computer equipment. They are committed to being a global mold manufacturing center for the Delphi Group. As a world class automotive parts supplier, their products are widely used by the major automotive manufacturers worldwide.

Leonardo Lin:

Firstly, I’m very glad to point out our successful cooperation. As we know, the Delphi Packard Connection Systems Shanghai Plant is their one and only connection manufacturing and technology service base in China.

And, WITTMANN is a single source supplier of auxiliary equipment offering plastics processors worldwide, a complete range of innovative automation technology and auxiliaries. WITTMANN provides “One Stop Shopping” for all their customers. Now, your company has purchased many WITTMANN products such as CNC robots, temperature controllers, dryers and EOAT (end-of-arm-tooling). Sharing your experience of the concern and attention we have provided – could you describe the processes you are using WITTMANN auxiliary equipment for?

Zhang Zhiwei:

Delphi Packard Electric Systems Shanghai Plant supplies almost all the major automotive producers in China including General Motors, Shanghai Volkswagen, Faw-Volkswagen, Chery, Ford, Toyota, Dongfeng-Nissan, Dongfeng-Citroën, etc.

The DCS Shanghai Plant is one of the biggest suppliers of products for electrical/electronic connections worldwide, offering a comprehensive range of connector components and connection systems which are applied widely in automotive electronics, telecom and computer equipment. They are also engaged in connector related mold design and manufacturing.

So, in this vast field, we are using WITTMANN auxiliary equipment for example, to automate the handling of the molded plastic components. The main job of our WITTMANN robots is for the removal of parts from the molds and placing them onto conveyor belts. We are planning to further automate our plant in the future using WITTMANN equipment.

Leonardo Lin:

What were your main considerations when choosing WITTMANN as your equipment supplier?
Zhang Zhiwei:
Firstly, our supplier of injection molding machines (Arburg) recommended WITTMANN as a leading supplier of auxiliaries. WITTMANN offers innovative approaches and customer-friendly solutions worldwide. The concept of “One Stop Shopping” provides us with all the most important auxiliary equipment we can think of and WITTMANN is the leading provider in the ever changing market of automation technology and auxiliary equipment for plastics processors. And, their international presence of course is another important reason for choosing them. WITTMANN is known to everybody in the field of automotive systems. They have made strong efforts worldwide, including financial investments, and eventually have earned “best buy” recommendations by neutral professional journals. Besides, there have been numerous patents awarded to WITTMANN so we trust in them as a manufacturer with guaranteed excellence.

WITTMANN is customer focused with great service and units that are maintenance-free. The FEEDMAX SP5 is just one example as the maintenance-free operation of the loader is virtually achieved by almost entirely avoiding moving components. Of course, customer service is undisputedly important to an industrial company like DCS. All things considered, we have chosen WITTMANN equipment to get the ideal combination of quality and service.

Leonardo Lin is General Sales Manager at WITTMANN Robot Co. Ltd. in Kunshan, China.

WITTMANN BATTENFELD: New Meinerzhagen Location

Following the acquisition of BATTENFELD Spritzgießtechnik by WITTMANN Kunststoffgeräte GmbH in April 2008, the newly formed company WITTMANN BATTENFELD is investing in the future of its Meinerzhagen location in Germany.

Close by the existing office location in Meinerzhagen, Germany, the new sales and service center is being built on a 15,000 m² property in the Darmche industrial area. The symbolic groundbreaking ceremony for the start of construction took place on November 11, 2008.

The new sales and service center will consist of a 3,600 m² warehouse and technical area along with a 1,200 m² office. Completion is planned for June 2009. The design and turnkey construction are in the hands of Meinerzhagen based Freyler Industriebau GmbH.

The path to a successful future

WITTMANN BATTENFELD GmbH is a well-known supplier worldwide of injection molding machines, automation equipment and turnkey production cells for the plastics processing industry. The company has 60 years of relevant experience combined with a long-standing history of production at the Meinerzhagen location beginning back in 1954. The path the company once took is leading the way to a successful future now, as part of the WITTMANN Group with 30 branches and 1,600 staff members worldwide.
Automation – ABA-PGT Confirms It’s Not Just For High Volume Anymore!

ABA-PGT is a world class custom injection molder and mold builder specializing in the manufacture of plastic gears and critical-to-function precision motion transfer components. For many years ABA-PGT survived on molding plastic only parts and shipping them out bulk packed. But over time, more and more of the products made by ABA-PGT required insert molding, tray packaging or both.

Thomas Schaffner

With each new part comes the decision whether to automate or not to automate. For high volume work where a machine is going to be fully utilized the decision to automate is an easy one. For lower volume work, where the part may run for example 10–20% of the time, the decision becomes more difficult. In the past, for low volume insert molding work, jobs were either “no quoted” or quoted with manual labor.

With manual labor, jobs were often not awarded because ABA-PGT was competing against lower labor cost areas of the country or world. When jobs did get awarded, there were often many hidden or difficult to predict costs associated with manual labor that drove down profitability. In order to successfully compete for this “value added” type of work one thing was clear, labor costs had to be taken out of the equation through the use of automation.

Flex Cell – The flexible automation cell

This started Tim Vale, Director of R&D at ABA-PGT, down the path of developing the Flex Cell concept. The automation cell had to be flexible enough to allow for molding of one product with one type of insert and/or packaging tray and then, switch over to a completely different product within a few hours. Additionally, the upfront costs to the customer needed to be low enough to provide them with payback over the span of a few hundred thousand pieces as opposed to a few million pieces. The Flex Cell concept which includes the molding machine, robot, automation system for presenting inserts to the molding process and a similar system for handling the finished product (tray pack or bulk pack), is owned by ABA-PGT. The only costs to the customer are for the product specific components. This includes the end-of-arm-tooling (EOAT), trays and insert pallets for presenting inserts to the robot during the automatic molding process. An operator is still required to place the inserts on the pallets but this requires less than 15–30 minutes every 2 hours. As a result, the labor content can be significantly reduced to only a few times per shift, allowing operators to perform other functions.

Automatic insert molding and tray packaging was nothing new for the WITTMANN/ABA-PGT team and had been successfully implemented previously by the two on a number of occasions. ABA-PGT already has three WITTMANN robots running higher volume jobs, all with quick paybacks. Based on these prior successes, ABA-PGT knew that WITTMANN would be up for the task.

WITTMANN: A professional team player

WITTMANN had already worked closely with ABA-PGT in the past to determine what was involved in making a high quality insert molded plastic gear. Clearances of next to nothing, i.e. 0.0127 mm (0.0005 in.) between the insert and mold leaves no room for error in the end-of-arm-tooling.
construction and robot programming. In addition to the required precision, ABA-PGT relied on WITTMANN’s expertise to design the system with all of the required safeties and sensors to protect the mold and end of arm tool.

Vale presented his concept for the Flex Cell to WITTMANN along with all of the required design parameters for the various parts. “Coming up with the parameters was a challenge because you were making an educated guess on what type of parts you might see in the future based on what was quoted in the past,” states Vale. “Designing an automation cell around a clearly defined product is not always that easy, but it is certainly a degree or two easier than trying to design an automation cell around a bunch of parts that don’t exist yet.” Vale comments. There was no specific size range for the parts as some might be relatively small while others could be up to four inches in diameter. In terms of the inserts, they could be screw machined shafts, stamped metal inserts or some other intricate machine shape. In most cases they would be within a specified size range but all would have tight tolerances. Product changeovers would typically be required every 2–3 weeks but could be of shorter or longer intervals. And lastly, the automation had to be designed for a 110 ton machine and the capital investment kept to a minimum.

One additional consideration Vale requested was that WITTMANN work with ABA-PGT’s existing conveyor supplier, TEC Engineering.

Vale states “WITTMANN’s flexibility and willingness to do this was a key selling point.” ABA-PGT had been working with TEC on the design of a custom dual conveyor system that could handle both presentation of the inserts and movement of the finished product. “I had confidence in both WITTMANN and TEC individually but needed some assurance that the integration of the two halves of the system would be seamless.” As it turns out, WITTMANN offered up a number of solutions for the integration and they were able to easily provide the “handshake” necessary to communicate with the TEC PLC. Even one step better, they were willing and able to control the full automation cell directly from the freely programmable R7.2 TeachBox control pendant.

WITTMANN’s W631 servo robot, a 3-axis linear robot (x-, y-, z-axis) equipped with a pneumatic wrist flip (c-axis), was chosen as the workhorse for the job. The robot was supplied with a quick release system for the EOAT’s to allow for fast, easy product changeover in less than five minutes. Vale makes it clear “The WITTMANN designed and built EOAT’s were the key to the success of the cell. We had to make a lot happen in a very limited amount of space with these EOAT’s. The constraints were not just between the mold plates but also on the conveyor side of the system where floor space is at a premium.”

**Highest flexibility and lowest cost**

The Flex Cell was set up and molding parts within two days of arrival at ABA-PGT. It was delivered pre-loaded with the first EOAT for a two cavity gear mold with a screw machined shaft insert. The Flex Cell utilized an existing mold that had previously required hand loading of inserts and hand packing of trays. The cost savings are shown in the table.

A typical EOAT for the Flex Cell costs anywhere from US$ 15,000.00 to US$ 25,000.00, depending on the complexity and number of cavities in the mold. The total cost of the pallets for the inserts is about US$ 6,000.00 but this includes 8 to 10 pallets. Clearly, in terms of the total investment, the payback for the customer is very fast as noted in the above example.

The success of the first product to run on the Flex Cell gave ABA-PGT the confidence to quote additional jobs for the automation work cell. ABA-PGT now uses the Flex Cell to get jobs they previously couldn’t get because they weren’t price competitive using manual labor.” Vale adds “The design of the flexible automation cell has allowed us to share our total investment over several jobs, making the individual cost to each customer much less than that for a dedicated system for each specific part”.

By all accounts this endeavor has been considered a success by both ABA-PGT employees and its customers. Additional jobs have been added to the Flex Cell with similar success.

Currently, there are five jobs sharing time on the Flex Cell resulting in about 80% utilization. “There is capacity to probably run one more job on the Flex Cell and then it’s time for Flex Cell #2,” Vale adds.

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**From above: **
- Dropping off the parts.
- The finished parts in the tray.
EcoPower: Cost Optimization and Increased Efficiency with Reduction of Reactive Load

Energy consumption of machinery and energy efficiency are becoming more and more significant in the plastics processing industry. The WITTMANN BATTENFELD EcoPower option for injection molding machines offers a low-cost tool to reduce reactive load.

Bernhard Zöhling

A increasing number of energy suppliers and public authorities offer incentives to companies for reducing their energy consumption and/or investing in energy optimized machinery.

Apart from this, it is always in the interest of manufacturers to reduce direct energy costs for long-term cost optimization.

The problem of reactive load

Since the reactive load of any machine imposes an extra load on the power grid of energy suppliers (overhead lines, transformers, power stations) without any benefit, regulations requiring adequate compensation for such reactive loads have already been in place for a considerable time. Normally, such compensation equipment is installed in the main distribution center of the plant.

However, the drawback of this approach is that the reactive power on the production floor must then be taken into account in planning the capacity of the company’s internal energy transfer network. This can only be achieved by installing reactive load compensation directly where it originates.

However, conventional systems are hardly suitable for injection molding machines since the performance peaks and periods of low energy input, alternating regularly in quick succession, require a system that is able to respond within fractions of a second.

The optional EcoPower package for injection molding machines from WITTMANN BATTENFELD provides the optimal solution to this problem.

Example 1: HM 110/525 injection molding machine with 18.5 kW drive output at 400V/50Hz – without compensation (top) and with compensation (bottom).

<table>
<thead>
<tr>
<th>Channel</th>
<th>Min.</th>
<th>Med.</th>
<th>Max.</th>
<th>Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.800 k</td>
<td>4.163 k</td>
<td>5.800 k</td>
<td>2.300 kW</td>
</tr>
<tr>
<td>2</td>
<td>7.500 k</td>
<td>8.590 k</td>
<td>10.000 k</td>
<td>7.500 kW</td>
</tr>
</tbody>
</table>

Without compensation: Normal state

<table>
<thead>
<tr>
<th>Channel</th>
<th>Min.</th>
<th>Med.</th>
<th>Max.</th>
<th>Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.400 k</td>
<td>0.039 k</td>
<td>-1.100 k</td>
<td>-600 VA</td>
</tr>
<tr>
<td>2</td>
<td>1.600 k</td>
<td>1.800 k</td>
<td>1.800 k</td>
<td>1.200 k</td>
</tr>
</tbody>
</table>

With MotorMaster: Normal state

<table>
<thead>
<tr>
<th>Without compensation</th>
<th>With compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average effective power</td>
<td>4,163 W</td>
</tr>
<tr>
<td>Average reactive power</td>
<td>8,590 VAr</td>
</tr>
<tr>
<td>Average apparent power</td>
<td>9,546 VA</td>
</tr>
<tr>
<td>Average current</td>
<td>13.8 A</td>
</tr>
</tbody>
</table>

The EcoPower Option

Depending on the size of the drive unit, a varying number of compensation levels are activated. This is accomplished with semiconductor switches free of contact or wear and with very modest maintenance requirements. This de-
Injection Molding

already installed in the field with a complete compensation set including a control cabinet, which can be connected at any time by a service engineer within a few hours, and is immediately ready for operation. No alterations to the injection molding machine are required.

For machines equipped new, the compensation unit is integrated into the machine with an additional control cabinet requiring very little space. Thanks to the EcoPower option's attractive price, this investment is amortized within only one to two years.

The advantages are obvious:

- Particularly for hydraulic machines, a noticeable load reduction is possible through a combined reduction in reactive and effective power (depending on the machine cycle and load).
- The size of the power supply installation required on the production floor can be downsized by reactive power compensation on the machine.
- More reserve and expansion possibility at existing production facilities.
- Effective power reduction units up to 37 kW have a soft start function integrated also.
- All compensation units are available for voltages from 230 to 480V (and upon request, for 600V) and frequencies of 50 or 60Hz, to meet the requirements of the North American market.
- More and more national economies penalize high reactive power, but offer incentives for optimized compensation.

The economic advantage of EcoPower is that electricity consumption can be substantially reduced, which is illustrated by the examples.

Example 2:
HM 300/1330 injection molding machine with 45 kW drive output at 400V/50Hz – without compensation (top) and with compensation (bottom).

<table>
<thead>
<tr>
<th></th>
<th>Without compensation</th>
<th>With compensation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average effective power</td>
<td>17.9 kW</td>
<td>17.58 kW</td>
</tr>
<tr>
<td>Average reactive power</td>
<td>17.87 kVAR</td>
<td>9.66 kVAR (~ -45.9 %)</td>
</tr>
<tr>
<td>Average apparent power</td>
<td>27.3 kVA</td>
<td>21.03 kVA</td>
</tr>
<tr>
<td>Average current</td>
<td>39.45 A</td>
<td>30.4 A (~ -22.9 %)</td>
</tr>
</tbody>
</table>

So far however, this type of voltage adjustment has presented just as much of a challenge as highly dynamic reactive power compensation and has been extremely difficult to realize. To ensure an optimal solution for their customers, WITTMANN BATTENFELD offers two alternative solutions. The first is retrofitting of machinery...
The Competitive Edge with IT Assisted Services from WITTMANN BATTENFELD

Worldwide communication – anywhere and anytime – has come within reach thanks to Web-Service, Remote-Service and Web-Training, the innovative IT assisted services provided by WITTMANN BATTENFELD. This comprehensive training and service program helps WITTMANN BATTENFELD customers save time and money.

Dietmar Schabauer

WITTMANN BATTENFELD is a pioneer in offering comprehensive IT assisted services to the injection molding industry. Their Web-Service marks the beginning of a new era in customer support. Through an Internet connection between the customer’s machine and the service engineer, the machine’s service requirements can be analyzed at low cost without delay.

Networking between injection molding machines and corporate PC workstations has been made possible by Remote-Service.

This is the most innovative and cost-efficient service solution on the market for injection molding offering in-house production monitoring, remote diagnostics and quality assurance. Their Web-Training ensures maximum flexibility and cost optimization for staff training.

Web-Service – New generation of customer support

WITTMANN BATTENFELD’s proven global teleservice network – to which about 700 machines are connected – has now been upgraded with Web-Service, which offers an interactive function for the UNILOG B6 control system. With the customer’s consent, experienced service engineers are now able to contact the machine directly via the Internet.

A considerable amount of troubleshooting can be carried out quickly by way of remote diagnostics, eliminating the need to call in a service engineer first. Any on-site service and spare parts requirements can then be arranged and carried out more efficiently. The long-term investment and productivity of the equipment can be maintained at reasonable cost.

Remote-Service – Most reasonably priced network

The new remote visualization program from WITTMANN BATTENFELD allows networking of injection molding machines and PC workstations in production facilities without using an Internet connection. Remote-Service supports injection molders for all important production steps such as machine monitoring, diagnostics, quality assurance and process optimization. The machine is connected to the network by Ethernet. Once the Remote-Service tool has been installed, it can be contacted via the corporate network. Other locations or home PC’s included in the corporate network can also connect to the machine. Screen pages from the machine can be viewed simultaneously with the control system operation so that the production process is not disturbed.

Web-Training – New benchmark in staff training

The new Web-Training program from WITTMANN BATTENFELD provides processors with an alternative learning environment. This virtual training environment provides more flexibility in basic and advanced training of company personnel, independent of time and place. The short two-hour training sessions minimize interruption of the production process which means complex shift planning around training is a thing of the past. After making an appointment, customers can take part in online training sessions with knowledgeable instructors and in discussion with experts. The basic training curriculum includes machine design, control system, process technology and core pull programming. The content and main topics of the training program can be individually adapted to customers’ specific requirements. Course topics and dates for the next Web-Training seminars are listed on the company’s website under www.wittmann-battenfeld.com.

The aim of all these new IT assisted services is to give customers a significant competitive edge by optimizing the maintenance and service of their machines, as well as providing easy, convenient access to comprehensive training programs. An overview of the web services and their specific functions is available from www.wittmann-battenfeld.com.
Denmark: WITTmann Battenfeld ApS

The small and picturesque town of Fredensborg (pop. 11,000) is situated 35 kilometers northwest of Copenhagen, Denmark and has two claims to fame: the first being that Queen Margrethe’s summer palace is situated there and the other, it is the home of WITTMANn BATTENFELD ApS, with 500 m² and 8 specialized employees.

From a global viewpoint, Denmark is a small community with about 5.4 million people. The Danes are known and respected as innovative, reliable and industrious people. Their creativity is an important factor since they have no raw materials.

There are about 500 companies in the plastics processing industry of which about 380 are in the molding business.

The molding industry produces mainly appliances, technical, medical and packaging products. On this basis the size of machinery is limited, which means that companies typically operate machines with 20–800 tons clamping force and there are very few machines larger than that. Like many other European countries Denmark witnessed an exodus of production to Eastern European and Asian countries. But, in recent times, production has been returning because of problems related to cultural differences and long distances.

WITTMANn BATTENFELD in Denmark

The Danish company was originally founded in 1978 by Peder Andersen with sale and installation of HUNKAR process controls for injection and blow molding machines. Since 1983, WITTMANn BATTENFELD ApS has specialized in automation for the injection molding industry. The concept has always been one of technical competence combined with the highest level of service for supplying the best products in the market.

They have always had a dedicated department for planning all automation projects and produce smaller automation systems, end-of-arm-tooling and modular screening systems in-house while the larger automation systems are produced by subcontractors in Scandinavia. WITTMANn BATTENFELD ApS takes complete responsibility for the turnkey automation systems and their delivery. After the acquisition of BATTENFELD Injection Molding by the WITTMANn Group, WITTMANn BATTENFELD ApS has also taken over the representation of these machines in Denmark. This has also resulted in the representation of WITTMANn Kunststoffgeräte in the Swedish and Norwegian markets to be transferred to the Swedish BATTENFELD Sverige AB.

In addition to the complete WITTMANn BATTENFELD product range, they also represent ASS end-of-arm tooling components as well as SCHUMA conveyor and sorting equipment.

The service team handles service for all of the above products as well as for in-house calibration of temperature controllers.

Many customers have entered into service contracts with the Denmark team.

Current and future prospects

In Denmark, the company is known mainly for their robots and temperature controllers but interest in their granulators and material handling equipment is however increasing. In 2008 they sold the first mold from WITTMANn France, a 4 + 4 stack mold for Ø 97 mm lids, and the biggest granulator ever, a WITTMANn MC 70-100, for which they are a market leader in this specialized field and are known for supporting customers with immediate and great service.

The biggest challenge for the future will be the promotion of WITTMANn BATTENFELD injection molding machines, having never before been involved in this part of the industry, WITTMANn BATTENFELD ApS are enthusiastically welcoming this challenge!

The Danish WITTMANn BATTENFELD ApS team (clockwise from left to right): Tino Bjerregaard, Technician; Hans Erik Nielsen, Service Manager; Henning Fyhn, Sales Consultant; Peder Andersen, Owner; Christian Ziegler-Carlsen, In-House Technical Service; Karen Madsen, Financial Manager; Michael Juul-Andersen, Sales Manager.

– And they let us know the exact geographic position of the Denmark office. –

Latitude: 55° 58’ 7.4” N; Longitude: 12° 23’ 26.24” E.
In 1998, BATTENFELD do Brasil Ltda. was founded in the city of Osasco/SP. The 800 m² facility is used to stock machines and spare parts as well as for service.

The BATTENFELD trade mark is highly regarded in Brazil as it is so closely associated with the development of technology. In the mid-sixties, when the plastics industry began in Brazil, BATTENFELD was the most important supplier of machinery contributing to the development of this new market.

With a staff of 12 employees for sales, administration and service, and an additional 9 sales and service agents, BATTENFELD do Brasil has expanded their activities to cover the entire Brazilian market. The most widely known and recognized characteristic of BATTENFELD do Brasil is their great after sales support. The expert team can provide solutions to any problem, including applying their knowledge to machines that have been running for more than 20 years. The BATTENFELD do Brasil team has established a very good relationship with the industry players relying on their products and excellent service over the years which has contributed to the great success of the company.

Serving different industries

The best argument for processors choosing BATTENFELD as a supplier is the vast spare parts inventory they offer – essentially any part is available on-the-shelf for shipment without delay. This is a huge competitive advantage for BATTENFELD and its customers.

Today, BATTENFELD do Brasil serves all sectors of the Brazilian plastics processing industry including: construction, pharmaceutical, medical, packaging, automotive, electronics and white goods.

The success of the company is based on the wide appreciation for the highest product quality, the most innovative solutions and the best service and spare parts in the market.

BATTENFELD Sverige AB Open House a Success

WITTMANN’s Swedish sales partner, BATTENFELD Sverige AB, welcomed visitors to its Open House event in Halmstad, Sweden November 20–21, 2008. There were several reasons to celebrate. For one, this year marks the company’s 30th anniversary. In addition, the company’s head office recently moved into a new, larger building. More than 100 customers and other interested guests from all over Sweden assembled in Halmstad.

Technical presentations provided information on processes such as AIRMOULD and AQUAMOULD gas and water injection techniques, COMBIMOULD multi-component technology, CELLMOULD structural foam technology and micro-injection molding.

Afterwards, visitors had the opportunity to experience the performance of WITTMANN BATTENFELD machinery and WITTMANN auxiliary equipment themselves in a live demonstration of machines in the adjacent showroom. One of the machines demonstrated was a hydraulic HM 110/750 machine with 110 tons clamping force molding ice cream scoops out of ABS. The machine was equipped with various components from WITTMANN’s comprehensive portfolio of auxiliary equipment.

The demonstration also featured an HM 65/210 and WITTMANN W733 robot along with various granulators, temperature controllers and dryers. Experts from WITTMANN BATTENFELD and WITTMANN Kunststoffgeräte GmbH shared their know-how with visitors throughout the event.
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- 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
- Conveying: 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
- The Metchem central material handling system 4/2008

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### In-Mold Labeling
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- The WITTMANN 2 + 2 stack mold 1/2008

### Temperature Control
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- Temperatur controller “guarding” injection molding machines 3/2008
- Temperature controllers with DUO cooling 4/2008

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