Santa Has Got It!
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Dear Reader,

This was 2009: Hardly a year in the history of WITT-MANN – and the whole plastics industry – has been as challenging as the now ending year 2009. In the first half of the year we had to face continuously advancing drops in orders from month to month. Exactly in the middle of the year the turnaround happened. Since then we are happy about constantly rising contract volumes – by month. This does not mean that we were able to reach the level of the previous years, but the expected trend reversal has obviously happened. This upswing will certainly continue in the year 2010, and will even intensify. We will raise our glasses to that on New Year’s Eve.

Unaffected by the economic circumstances, our product developers have soared up to new heights. A complete list of all our 2009 innovations would go beyond the scope of this editorial. But I am proud in equal measure to announce our Competence Days that will be held again in 2010. On April 28th and 29th we are inviting you to the “open house”, held in our production plant in Kottingbrunn, Lower Austria. The event is themed Simply the Best, and will present to our guests the most innovative injection molding techniques and intelligent auxiliary equipment.

More than 70 exhibits will be presented. During the Competence Days we are leaving the tight corset of any industrial fair, and we are giving our customers a comprehensive review of all our latest developments. We will use the opportunity to introduce multiple methods of application in the fields of multi-component injection molding, high-speed applications, medical and clean room technologies. In addition to the product presentations, lectures will be held relating to current topics (keyword: energy efficiency). Once again, this will turn out to be an ambitious event presenting a balanced mixture of experiencing the practice and transferring theoretical knowledge. And of course, meat and drink will not be disregarded.

This issue of innovations is opening up the forth year of our magazine. We hope that our articles dealing with applications and new products are of interest for you, and that you are benefiting from these. With our efforts we are trying to assist you in your daily work. In this spirit our innovations magazine will be continued. At all events, the editorial staff of innovations wishes you pleasant holidays and a successful year 2010!

Sincerely,

Michael Wittmann
Simply the Best WITTMANN Group Is Inviting to the Competence Days 2010

As in the past, the WITTMANN Group Competence Days 2008, the event is taking place again April 28th and 29th, 2010 – themed Simply the Best. Once again, WITTMANN Group is inviting the industry to come to our WITTMANN BATTENFELD headquarters in Kottingbrunn (Lower Austria) to present the latest technical developments.

Susanne Binner

Customers, journalists and other interested persons are offered the opportunity to have a look at the new products and latest trends in the field of molding technology – already in the forefront of the K 2010 show.

Simply the best

The motto of the Competence Days 2010 – Simply the Best – references the newly developed injection molding machines, covering the new EcoPower, MicroPower and Macro-Powerseries. The new concept highlights energy efficiency and an excellent price-performance ratio.

The all-electric EcoPower (55–300 tons clamping force) had its premiere at the Fakuma 2009 show. WITTMANN BATTENFELD experts now are working on further models: the re-engineered all-electric MicroPower machine (5 and 15 tons clamping force), and the new 2-plate MacroPower series of large-scale ma-chines with clamping forces from 800 to 1,600 tons.

“We are very proud of our new developments. They are the result of long lasting experience and continuous innovation, giving our customers the competitive edge. And without overstatement, they are simply the best”, says WITTMANN BATTENFELD Managing Director Georg Tinschert.

Intelligent auxiliary equipment

Bringing together intelligent technology and highly efficient control systems is allowing for the development of auxiliary equipment that is giving a competitive edge to the customer: either with regard to the process itself, or the handling of the finished parts. The WITTMANN series 8 robots will impressively show the real-time capabilities of the R8 control and their interaction with the surroundings. Highly precise path planning, torque control and limitation, and the synchronization of several robots and conveyor belts are only some of the many possibilities that WITTMANN robots are providing. The demonstration of high-speed removals and IML technology are further highlights in the field of robotics presented at the Competence Days.

The WITTMANN series of temperature control units is represented by several models for the tempering of water from 90 to 180°C, with units using either direct or indirect cooling, and with oil units for up to 250°C. The new WITTMANN segmented wheel dryer is combining a constant dew point with energy efficiency; and the central conveying loaders of the FEEDMAX B series are impressively designed and of high functionality. Highly precise gravimetric blenders with real-time weighing technology and the complete series of screenless and screened granulators are completing the presentation.

A platform for communication

Attending lectures, the guests of the Competence Days 2010 can deepen their knowledge in the fields of innovative injection molding techniques and auxiliaries. Besides the presentation of novelties, lectures will be held on energy efficiency, economic manufacturing, and fluid assisted injection molding.

Subsequent to this, demonstrations and experts will explain, on location, the capability of single products and entire systems.

Showing more than 70 exhibits, the WITTMANN Group is presenting an overview of their range of machines, peripheral and applications technology. The subjects dealt with are the fields of multi-component injection molding, high-speed, medical and clean room applications.

Innovative overall solutions

At the Competence Days 2010 it will be possible to gain a detailed overview of the advanced solutions and the established know-how of the WITTMANN Group.

WITTMANN and WITTMANN BATTENFELD are standing for innovative customized overall solutions in the field of plastics processing. Concerning the whole range from injection molding machines to any kind of auxiliary equipment: this is the one-stop source for plastics processors – and simply the best.
WITTtMANn bATTENFELD UK works for Thomas Dudley Ltd.

WITTtMANn bATTENFELD UK injection molding machinery is being used by West Midlands manufacturer Thomas Dudley Ltd. to make part of its latest suite of bathroom fittings and fixtures.

Adrian Lunney

The latest BATTENFELD injection molding machine at Thomas Dudley was purchased subsequent to the April 2008 Plastics Design and Moulding exhibition, and subsequent to the PDM exhibition – in Telford 2009.

Thomas Dudley’s manufacturing performance

Mike Mohr, Works Director – Plastics Division –, is upbeat about the company’s manufacturing performance and the prospects for the future:

“Our plastics division is putting more into product innovation than ever before. New improvements have been made to our market-leading Vantage concealed cistern with a new dual flush pneumatic button and push-fit flushbend. Advances in sandwich molding here have also enabled us to extend the product range and offer new benefits to clients. Further product developments are in the pipeline, involving sensor technology, and the 160 tons clamping force BATTENFELD machine is playing a key role in the company’s leading edge molding work," says Mohr.

Thomas Dudley and BATTENFELD

"Over the years, the BATTENFELD range of injection molding machinery has helped the company’s plastics division go from strength to strength. We purchased our first BATTENFELD machines after visiting the company’s booth at Interplas in London’s Olympia in the early 1970’s. We now have a total of 36 molding machines in the factory – ranging from 20 tons clamping force up to 650 tons."

Sharing a successful history

The Thomas Dudley group of companies has been involved in manufacturing for the past 90 years – and operations at the plastics division have clearly benefited from the depth of experience and from the services and benefits of the sister companies in the group.

The West Midlands-based plant runs on a 24/7 basis, with an automated lights-out operation being maintained through the night shift. All of the BATTENFELD molding machines benefit from magnetic platens and fast mold change systems. Mohr says, “We have always found the BATTENFELD molding technology to be excellent – so much so that there is very little need to call on any service needs, day to day.” Some 400 live tools are in use through the work of the plastics division at Thomas Dudley. Various systems of lean manufacturing are deployed through the factory and the company also runs its own tool shop, gaining many cost efficiencies in general maintenance and repair.

WITTtMANn granulators are also deployed to help the company’s policy of in-house plastics reprocessing – and are part of many closed loop manufacturing cells on the shop floor.

100% WITTtMANn bATTENFELD

WITTtMANn bATTENFELD UK Managing Director, Barry Hill, says, “I am delighted to be working alongside Thomas Dudley. The company’s 100% BATTENFELD molding shop reminds me of the spread and scale of our molding solutions technology – and the new developments that we at WITTtMANn bATTENFELD have planned in for the next 12 months; from Chinaplas up-and-coming, NPE, Fakuma and, of course the K 2010 exhibition next year.”

Hill says, “At the risk of sounding repetitive, WITTtMANn bATTENFELD is the most comprehensive and full one-stop-shop for plastics equipment worldwide – not just molding machines but all kinds of ancillaries, cell design help; service and training – and all of it generally in the services of the customer’s need to ultimately save cost. •
IML with BATTENFELD TM Xpress Machines

Food packaging has to protect the most sensible products during the entire process of transport and storage – up to the time of consumption. But shape and design of food packaging support another critical purpose of “commercial display” of the wrapped product. Trying to optimize all factors requires the adequate production processes and premium production equipment.

Wolfgang Roth

Safety is the highest commandment when dealing with food packaging. But it’s not the only one. Because when a product has found its place on the shelves or on the counters of the supermarkets it has to stand up to competitive products displays – as it seeks the attention of the consumer.

Food packaging very often consists of either transparent polypropylene that enables the consumer to see the product, or it is made of colored plastics in flashy coloring. Both types ideally create further attraction. Therefore, it is not a surprise, that the packaging industry kept growing in the special field of food packaging, even in times of difficult economic recession.

When applying the in-mold labeling technology (IML), it is possible to combine the advantages of shaping plastics (infinite design possibilities, transparency, and chromaticity) with appealing graphic design – with the benefit of eliminating several operations.

Thus food packaging is becoming a real eye catcher, manufactured under extremely efficient production conditions.

Turnkey in-mold labeling systems

In-mold labeling means the insertion of already printed labels into the open mold. After that the injection molding machine integrated into the (fully automated) IML system is molding around the inserts. IML-molded cups or tubs are impressive through their high quality. The label is intrinsically fused to the plastic part. Thus all the disadvantages of conventional labels do not exist.

Turnkey IML systems from WITTMANN and WITTMANN BATTENFELD are supplying the packing industry – mainly in the field of food packaging – with the possibility of getting complete IML solutions for the production of high class packaging products from one source.

Concerning thin-walled packaging, high plasticizing capacity, high injection capacity, and short cycle times are of special importance. For this kind of IML packaging products BATTENFELD TM Xpress series injection molding machines are applied. The molds are delivered from the WITTMANN in-house mold-making division in France. And the adequate high-speed automation is also produced by WITTMANN.

The high-speed TM Xpress injection molding machines are the ideal basis for realizing a big range of applications. They are providing the opportunity to choose additional machinery perfectly aligned to the respective purpose. No matter, whether it’s food packaging like yoghurt cups or cream cheese bowls – IML-decorated or not –, or if it’s containers in the field of non-food like paint buckets for instance.

Depending on the product and the output, either single molds (1 mold parting surface) with several cavities or stack molds can be used. Through their mold-making division that is specialized in IML molds, WITTMANN not only is supplying maximum performance molds at an outstanding quality, but is also supporting their customers’ development work dedicated to parts and labels.

The insertion of the labels is done by WITTMANN automation systems with the W727 and W737 high speed side entry robot series – as well as the extraction of the parts.

WITTMANN W727 FLEX

As the application of the in-mold labeling technology is spreading more and more, the demand of highly flexible manufacturing systems has risen considerably. These systems allow for an easy changeover from one product and or one label to another. In the field of robotics, WITTMANN recently has presented a new complete IML system, the so-called W727 FLEX.

This in-mold labeling system manages the insertion of the labels on both sides of the machine by means of a single side entry arm unit – on the stationary mold half, and on the moving mold half.

The W727 FLEX system has the ability to insert either simple flat labels, 3-sided and 5-sided labels, or banderole labels. As a standard, the system is equipped with “lock-and-fix” mechanisms for a quick change of grippers and magazines.
Mobile Control Unit for AIRMOULD® and AQUAMOULD® with UNILOG B6 Control

A striking advantage for every operator: For both fluid assisted injection molding techniques only one control unit is necessary. This control unit has Windows XP™ operating system for the highest ease of use – also like WITTMANN BATTENFELD injection molding machines.

Rainer Grießmann

The UNILOG B6 control uses the well-approved WITTMANN BATTENFELD philosophy of operation and imagery. The new control has taken over numerous elements of the previous version. In addition to that, some new features have provided for even more ease of use.

It was a real special challenge for WITTMANN BATTENFELD to develop a mobile control unit that can be used for both kinds of fluid assisted injection molding techniques – AIRMOULD® and AQUAMOULD®. After starting up the unit, the operator is given the opportunity to choose whether the control should be used for the AIRMOULD® technique or for AQUAMOULD®. The fact that controlling the production processes requires only one single control unit from now on means a further advantage of the two proven WITTMANN BATTENFELD injection molding techniques.

Functions of the new control

The system can control up to eight pressure regulator modules or Monomodules. This gives the opportunity to manufacture molded parts that are especially demanding. In addition, the quality control functions have further essential advantages. The actual value pressure curves are displayed graphically and can be furnished with envelopes, and for each pressure the pressure integral is collected individually.

To ensure comprehensive process security, the mobile control has several programs: a pressure monitoring program, an impulse program (for automatic blow-out of the AIRMOULD® injection modules), and a program controlling the core pull functions for slides and valves in the mold.

The graphic program surface

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The mobile control unit is connected to the injection molding machine via a Euromap 62 interface. The AIRMOULD® interface developed by BATTENFELD also continues in use. WITTMANN BATTENFELD supplies suitable converters for adaptation to both interface types.

- 2 soft key rows to select machine functions.
- Access authorization via USB stick.
- Password system protection.
- Freely configurable status bar.
- Logbook with filter function.
- Quality table, 1,000 storage depth.
- Internal data storage via USB or network.
- Online language selection.
- User configurable text.
- Hardcopy function.

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Pallets and Pallet Boxes: The Automation of Agriculturally Used Products

Georg UTZ, a plastics processing group of companies, was founded in the year 1947 as a family business, and is operating as a corporation since 1955. For its Polish subsidiary, UTZ is relying on the established WITTMANN robot technology.

Martin Stammhammer

In 2008, the entire Georg UTZ group of companies achieved a turnover of 260 million CHF (Swiss francs). All in all the group is operating about 80 injection molding machines on different locations and at clamping forces of up to 3,500 tons. On location in Poland (subsidiary founded in 1997), plastic parts are produced on five injection molding machines, and eight thermoforming machines.

The 80 UTH employees in Katy Wroclawskie primarily are specialized in the production of workpiece and component carriers for the automotive industry – and the production of solutions in the field of food technology.

In particular pallets and pallet boxes (= “paloxes”) are produced, the latter combining the functionalities of pallets and boxes. These are predominantly used in agricultural technology, for instance when transporting or warehousing fruit and vegetables.

A new installation …

In the year 2008 – to be able to meet the Polish market’s increasing demand – this product division needed investment in a new injection molding machine including robot automation. The molding machine comes with a clamping force of 3,200 tons, and it is equipped with two WITTMANN W773 robots.

The production entire system is designed for the effective manufacturing of pallet boxes, and within only one hour it is able to produce either 24 pallet boxes with closed endwalls and closed flooring, or to produce 24 units with perforated parts. The shot weight is about 28 kg, depending on the product type.

The new pallet boxes that are produced on this system are especially designed to meet the Polish market’s demands. The concept of these pallet boxes has been developed completely anew, in close collaboration between UTZ and their customers.

Using PP as a material and applying a totally revised product design have made it possible to essentially decrease the part weight. At the same time it has been necessary not to disregard the capacity and stability of the pallet boxes. The products available at that time had a weight of 44 kg and offered a load of four tons at most. The new pallet boxes
can deal with a load of three tons at an empty weight of 28 kg. The long lasting experience of UTZ in this field, combined with the results of a detailed market investigation made before in Poland, finally have made possible this new development.

The optimization of the pallet boxes‘ design resulted in a much better stackability. Zbigniew Putz, Head of the Technical Department at UTZ in Katy Wroclawskie, points out: “Because of the now optimized shape, our product is enabling the user to make stacks of up to five pieces. This means a load of 15 tons for the pallet box at the very bottom.

The work cell possibilities

The automation solution consists of two WITTMANN W773 robots. One is mounted on the fixed machine platen, and the main axis of the second unit is traversing the moving platen. The decision for WITTMANN robots had many reasons. At first, the flexibility of the two separately operating robots is allowing different approaches for different products.

On the one hand, it is possible to work with only one of the robots. This alternative is used when pallet boxes with high capacity (= height) are produced. Very important is the fact, that the robot resting over the moving platen does not handicap the then working robot (which is mounted on the fixed platen by means of an adapter). In principle the installation consists of two autonomously working robot systems that are operating within the same production cell. So on the other hand, it is possible to work with stack molds to simplify the operation of bringing together two different components of one product.

When realizing this alternative, each of the two W773 robots is running in one half of the mold, and is removing one of the two components. A basic precondition for this mode of operation has been the strictly seperated configuration of the robots‘ mountings.

Currently, the use of a stack mold is already tested by producing pallet boxes with movable side parts. The box floor and the side parts are molded simultaneously.

The specifics of the WITTMANN robots

A further important point for the purchase of WITTMANN robots was the broad dimension of the Y-axis stroke. This vertical stroke of 3,600 mm assures that the height of the roller conveyor (where the parts are dropped) has not to be adjusted, not even for parts that are low in height. This means, a removed part can be placed on the same level every time, no matter what its dimensions are. The robot over the moving platen of the machine has been equipped with a shortened X-axis.

This has made it possible to optimally integrate the entire system (consisting of one injection molding machine and two handling robots) into the overall infrastructure of the production hall.

The integrated rotating A/C servo axis (one module for each of the robots) and a payload of 60 kg for each robot are ensuring the highest flexibility for future projects.

The WITTMANN partner in Poland

WITTMANN Kunststoffgeräte GmbH and their Polish partner Dopak Sp. z.o.o. have supervised this challenging automation project together. The Polish Dopak company has been selling the WITTMANN products on the local market for a long time.

The new Georg UTZ installation in Katy Wroclawskie has been offered by Dopak as a complete system (machine and robots). This new system at UTZ has started operation in March, 2009.

And exactly this has been a crucial requirement for the new product, because most of the storerooms in Poland are constructed with regard to stacks of five boxes. The pallet boxes with trenches that we now can produce have further advantages.

They are assuring the save handling even of products that are emitting liquids. Before, wooden pallet boxes have caused problems frequently. Not least we are able to offer our products at a better price, due to the decreased material requirements.”

Schematic view of the new injection molding production cell at Georg UTZ in Katy Wroclawskie, Poland: 1 Fixed plate 2 Adapter 3 Moving plate 4 Short X-axis 5 Roller Conveyor

Corner picture: The finished product – a pallet box ("palox") for transporting or warehousing fruit and vegetables.

Martin Stammhammer is Sales Manager for Robots and Automation Systems at WITTMANN Kunststoffgeräte GmbH in Vienna, Austria.
Grinding of Ferrite with Minor 2 Granulators

In collaboration with the MS-Schramberg Magnet- and Kunststofftechnik Company based in Schramberg (Germany), WITTMANN equipped their screenless granulators with especially surface treated cutting tools that are enabling a perfect inline-recycling of ferrous materials.

Denis Metral

The MS-Schramberg Company had a challenge for WITTMANN with an interesting problem in the field of granulation: Would it be possible to grind hard ferrite by means of a low speed screenless granulator?

The WITTMANN Kunststoffgeräte GmbH agreed promptly to accept this challenge.

A difficult material

Hard ferrite is a special ceramic material of great hardness and brittleness. It is used for the production of permanent magnets, and it is processed on especially adapted injection molding machines using modified molds.

As one of the leading manufacturers of permanent magnets and entire assembly groups, MS-Schramberg is specialized in the processes around the production of magnets for more than 40 years now.

The grinding of the sprues was historically done with a screened granulator, – including all the disadvantages of this technique: Formation of dust, generation of noise, and a very short tool life due to extreme wear.

The MS-Schramberg requirements

The main challenges were for a new solution to offer a reduction of dust formation and the best possible wear resistance of the cutting tools. The grinder had to be a beside-the-press granulator that had to recirculate the regrind inline to the process.

Sprues weighing 50 to 150 grams, accumulating during three shifts, seven days a week, and the cycle time per sprue should not exceed 20 seconds. The granulator had to be able to meet all these requirements, and to produce a proper regrind that would not cause deterioration of quality of the end product.

Choosing the right granulator

The material properties required a screenless granulator. Finally, a WITTMANN Minor 2 granulator was chosen. This unit excels at its compact design, thus is perfectly suited to operate directly besides the injection molding machine. The formerly used screened granulators had produced much dust that had settled in the surrounding area. A low speed screenless granulator (rotor speed 27 rpm) minimizes the formation of dust, and is optimizing the quality of the regrind. The knives of the conventional granulators had massive wear despite the wear protection measures such as hard impact protection or hard metal covering.

As a standard, WITTMANN granulators are equipped with hardened knives, rollers, and combs that can be resharpened. The knives, combs and counter combs are reversible, thus doubling their lives. Also the tooth geometry of screenless granulators – in relation to the material – plays a decisive role. Considering this is the only way to get regrind that is easy to process. For the granulation of hard ferrite, rotors with trapezoidal teeth were used. This reduces the contact surface, thus the material is immediately milled without noteworthy attrition.

To increase the longer lifetime even further, the cutting tools have been subjected to a special surface treatment. During a 1-year trial period executed at MS-Schramberg, the test granulator did not show any significant wear.

Notably the energy consumption reduction is an additional gain when choosing a WITTMANN screenless granulator. Its 1.1 kW motor uses very low energy cost compared to the larger motors nd rpm speeds of the conventional screen type granulators.

A highly satisfactory result

Meanwhile, MS-Schramberg is using ten Minor 2 screenless granulators. To adapt the units to the respective kind of feeding, the units have been partially equipped with special hoppers. The high-class regrind is re-fed to the process immediately. Due to the little wear (until now no rollers had to be changed) and the low energy consumption, MS-Schramberg was able to considerably shorten the payback period.

Denis Metral is International Product Manager for granulators at WITTMANN France SA in Seyssinet-Pariset, France.
To be able to cope with a multitude of most different applications in the plastics processing industry, WITTMANN Kunststoffgeräte GmbH has recently developed a new conveying unit for smallest quantities. The new FEEDMAX B100 series of material conveyors has been successfully integrated in the extensive materials handling range.

Philipp Kaiser

Even when using small processing machines, one should think of an effective automation. In any case, a conveying unit has to be of a very high compactness to avoid collisions with the robots.

The very best method of resolution was to integrate the material discharge valve into the machine hopper, allowing a maximum total height of only 515 mm for the FEEDMAX B105 and 583 mm for the FEEDMAX B110. This innovation is leading to several coexistent advantages:

- Optimal material inventory through simple adjustment of the proximity sensor.
- Reliable demand of material; proximity sensor is positioned out of the material flow.
- Visual material flow control via amply dimensioned clear tube section in the hopper.

The slanted center section is producing a bigger cross section surface, resulting in an easier access for a thorough cleaning.

After having opened the lid via a self-locking toggle latch, the integrated steel filter is freely accessible. The filter can be unhinged smoothly from its fixture, and can be cleaned very easily, for example by means of a blast of compressed air. Not least, the simple handling is providing more security because the cleaning itself has not to be done on the machine.

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Details:
Proximity sensor, integrated pneumatic discharge valve, lid with stainless steel filter, pneumatic material and vacuum valves (from left to right, from above).

Philipp Kaiser is Sales Manager of the Material Handling Department at WITTMANN Kunststoffgeräte GmbH in Vienna, Austria.
WITTMANN innovations – 1/2010

Tempering

TEMPRO plus C180: Water Temperature Controller Is Outplaying Thermo-oil Unit

Since its launch at the K 2007 show the TEMPRO plus C series of water temperature controllers have been very well received by the marketplace. By enhancement of the functional range, the extension of the temperature range, and the launch of the revolutionary LCD color display, WITTMANN once more had caused some great attention – according to the company’s motto: “Progress through Innovation”. Gerald Schodl

For WITTMANN, the year 2009 to a great extent has been a year of new developments in the field of temperature control technology. Some of the respective developments have been motivated by customers – and finally developed and realized in close collaboration. The WITTMANN technical department and the sales department are working hand in hand, exchanging information.

Thus it is possible to make allowances for the practical requirements of the plastics processors – even in an early stage of development. Sophisticated technical possibilities and expertise recently have led to temperature controlling solutions that are already successfully positioned on the market. For example the WITTMANN TEMPRO direct C120, the TEMPRO plus C180, and not least the new WFC unit (Water Flow Control) that will be available in February 2010, being already highly demanded now.

A very special customer request

The worldwide known GARDENA company – member of the Husqvarna Group – is one of WITTMANN’s long-time and highly regarded customers. GARDENA has been furnished with the many different products, for example, they bought the thousandth W621 linear robot. Lastly Harald Wöhrl, the head of the service department at GARDENA – and being aware of the approved WITTMANN quality –, had asked for an especially demanding temperature controller solution. He thought, a TEMPRO plus C series temperature controller should cover the temperature range of up to 180°C (350°F).

Safety for man and machine

Covering this increased temperature range, the TEMPRO plus C 180 has distinctive advantages in optimized process control, over the oil alternative, and therefore providing constant part quality – and all the while, consuming even less energy. As a result of the much higher pressure, the new unit had to be completely redesigned: The entire construction was strengthened.

The tank has been designed completely anew, and a high temperature pump has been installed. At a temperature of 180°C (350°F) the minimum value of the system pressure is 11 bar (160psi), and this ensures a safe operation.
Best experience at GARDENA

At GARDENA the plastics material RYTON is processed in the context of a 180°C high pressure/temperature application where the mold is heated up to 155–170°C via the TEMPRO plus C180 unit. Before that, primarily the models TEMPRO basic C90 and C140 have been used at GARDENA. WITTMANN had provided a TEMPRO plus C160 unit with interface and flow measurement for test purposes. After the tests Harald Wöhrle at GARDENA decided to order four TEMPRO plus C180 temperature controllers from WITTMANN. The units are working trouble-free, they are contributing considerably to process security, and they are ensuring an excellent part quality.

Harald Wöhrle has pointed out the different criteria for switching to WITTMANN temperature controllers:

He says that the tank is rather small, and subsequently so is the amount of the circulating medium that has to be heated up or cooled down. This means that the TEMPRO plus C units have a much faster control response time and use less energy. Further highlights are the control circuit board and the new software – enabling very high control accuracy with a deviation of no more than ± 0.2°C. The heating is activated via the solid-state relay.

And Harald Wöhrle wanted to point out especially another function: The possibility to purge the mold with suction. This purge function can be activated very simple and directly via the LCD color display. The purged medium is flowing – through the purge valve – into the cold water return of the water supply. It is possible to empty molds of any size without overflowing the tank of the TEMPRO unit or to try to drain molds into a bucket, a drain, or the floor.

The unlimited purge function has led to mold changes that can be done much quicker, cleaner and therefore much more efficient.

During the last year, mold changes have occurred very frequently at GARDENA due to small lot sizes. The unlimited purge function of the TEMPRO units has helped to gain additional production time.

Two booster pumps and their purge valve provide for an internal system pressure that is exceeding the vapor pressure curve by a value of at least 1 bar. That means cavitation of the pump can be avoided. The two pressure sensors are monitoring the system pressure and the flow pressure, and they are passing over the input signal to the control system for controlling the system pressure. The system pressure is controlled in such a manner that it is exceeding the needed saturation pressure of the water (at 180°C) by a value of also at least 1 bar. The maximum system pressure that can be reached is 13 bar (190psi). Combining the system pressure with the pump pressure makes it possible to reach a flow pressure of up to 19 bar (275psi).

Thus the hoses for the mold circuit should consist of PTFE Teflon and have an outer steel braiding. They should also be heat resistant up to 190°C (375°F) at a pressure of 20 bar (290psi).

The construction of the tank has been done by using the 3D version of the Solid Edge software, and all calculations have been made applying finite element analysis. The tank has been designed for a testing pressure of 23 bar (333psi).

The outcome – the new TEMPRO plus C180 temperature controller – is a true alternative to thermo-oil temperature control units. The high specific heat capacity of water (4.2 kJ/kgK) that is perfectly suited and preferred to the requirements of heat transfer whereby oil has several other handling and safety concerns.
Italy: BATTENFELD Italia Srl

BATTENFELD is present in Italy since 1954, first through an agency, then with its own subsidiary BATTENFELD Italia Srl. After 55 years, there are still some customers who are buying BATTENFELD injection molding machines since then – a fact that BATTENFELD Italia is very proud of, and that opens up the best perspectives for the future.

BATTENFELD Italia Srl is located in Solaro, 20 km from Milan, right in the middle of the most important industrial region of Northern Italy. The customers' faithfulness and their satisfaction have always been the main target of BATTENFELD Italia.

The highly qualified team is offering some “added value” that comes with the machinery by always providing the best pre- and after-sales service and support.

The Italian market

Italy is highly industrialized, with a widespread entrepreneurial capacity. About 4,000 companies are working in the field of the injection molding business. 80% of them are located in the central northern region. 40% of the molding companies are relatively small, operating 6–7 machines on average. Another 40% are of medium size, working with 10–15 machines. These companies are molding parts on behalf of others, but are also mold manufacturers. 20% of all potential customers in Italy are larger companies, even multinational.

Most are specialized in the automotive, medical and packaging industries. Italy also is a very competitive market – after Germany, it is the country with the highest number of injection molding machine and auxiliaries manufacturers. Most of the important international machinery manufacturers are present with their own branch. Linked to this, and concerning the special mix of potential customers, BATTENFELD Italia has to act very flexible. They are offering customized solutions, and they possess a well-organized and elaborate service infrastructure, providing know-how at the highest level.
A successful team

The BATTENFELD Italia staff consists of 13 people, headed by Luciano Arreghini, Managing Director, and Gianmarco Braga, Sales Manager. Nine employees form the department of technical service and spare parts. The sales network is made up of ten agencies that promote the BATTENFELD injection molding machines nationwide.

The premises include a 400 m² show room, also serving as a center for customer training and mold trials. A technical hotline is providing assistance to customers. The engineers are eager to start-up any interrupted process within 24 hours – at the utmost. The committed after-sales service is taking care of about 3,000 BATTENFELD machines running at present. A 200 m² storeroom is ensuring a prompt delivery of any spare part in stock within 24 or 36 hours.

Standing and future prospects

Due to the recent integration into the WITTMANN group, new opportunities emerged for BATTENFELD Italia. Having the possibility of delivering the complete injection molding work cells – the machines and the corresponding WITTMANN peripherals – BATTENFELD Italia find themselves in the unique position of being a single source supplier on the domestic market.

Now with 60% of the delivered molding machines at least one auxiliary unit is sold on the Italian market. Not least due to the fact that in Italy the WITTMANN brand is synonymous for high quality and performance, and that it is known for fair prices.

This of course will contribute to the ongoing success of the Italien BATTENFELD Italia in the future.

Slovenia and Croatia: ROBOS d.o.o. Slovenija

ROBOS d.o.o. was founded in 2008 as a result of the WITTMANN acquisition of BATTENFELD. ROBOS d.o.o. took over all activities for sales, service and after-sales support covering the complete WITTMANN group’s range of products.

The basic mission of the ROBOS company is to provide the highest level of sales and after-sales support to their customers, following the sales policy of the WITTMANN group, and thus fully satisfy the local customers.

The sales program covers the full range of injection molding machinery and peripheral equipment, including an in-house manufacturing department for EOATs (end-of-arm-tooling).

Situated in Skofljica nearby Ljubljana, the Slovenian capital city, ROBOS has a perfect location to access the regional markets. Being only three hours away from Vienna, Austria, it is easy to maintain a close contact to the WITTMANN and BATTENFELD headquarters. The company employs five people; one responsible for sales, three for service and training activities, and one for any kind of spare parts.

A young team, at an average age of 34 years. They are making continuous efforts to increase the WITTMANN group’s market share through dedicated sales service and after-sales support.

Market situation

The Slovenian market has been known for a long time as tightly bonded to the German and French automotive industry as well as being a big market for home appliances. WITTMANN’s and WITTMANN BATTENFELD’s Slovenian customers are in need of equipment that is effective, stable, easy to use, and energy efficient.

The plastics machinery market is technically demanding and fast growing – as well as the rapidly developing market for plastic material.

The current economic downturn had some effect on the market conditions, but despite the unpleasant situation, ROBOS managed to reach the sales figures that have been planned for 2009.

Foresight

The main goal for the near future is to increase the turnkey solutions market share. An application engineer and a sales manager will have to be added to the team to present the range of BATTENFELD injection molding machines to the international corporations that are present on the regional markets.

For the near future it is also considered to furnish the ROBOS premises with an in-house training center and a show room.