

Wittmann

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innovations

Technics - Markets - Trends

Volume 5 - 4/2011

Make a trip to ...



... the "world of innovation"

Battenfeld

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Michael Wittmann

Dear Readers,

“Déjà-vu” – The Fakuma trade fairs in 2008 and 2011 seem to show some features in common. Up to the start of each fair, a positive view of the economic situation prevailed. Then there was a prolonged phase during which readiness to invest in the plastics industry fell off dramatically. Is it possible, as prophesied by some, that Fakuma 2011 will mark a similar turning point? The first indications of a collapse in the machinery sector were only too apparent in September 2008 – even if the actual slump had not yet started. In September 2011, such signs are much less apparent.

A quite different picture is shown, however, in the newspapers and current affairs programmes. While the onset of the deep recession of 2008/2009 took most economists by surprise, the majority of experts is now predicting with even more certainty that the economy will suffer a dent in 2012, but will not collapse completely. Sometimes it almost seems that a recession has to be talked into existence, if only to ensure that the forecasts of an imminent drop in industrial output do not prove inaccurate. (Advertising, it seems, “helps” everywhere.)

But let us return to the (still) positive present and our trade fair presentation at Fakuma 2011, which will again be held in Friedrichshafen from 18–22 October. Our world of innovation – our motto this year – continues to revolve; this year too, we have many new developments to show you. In the machinery sector, we can present two world premieres, the *EcoPower* 300 and the *MacroPower* 650 with clamping forces of 300 and 650 tonnes, respectively. So while the clamping force range of the *EcoPower* series has now been raised to 300 tonnes, the new *MacroPower* represents an extension of the clamping force range of the large machine series in the other direction. Both new machines have been developed with a view to optimum output figures and maximum energy efficiency.

In the robot and periphery sector, we also have new products to present. Our robots are now equipped with the R8.2 control, which features many new real-time functions, including the so-called *SmartStart* function. We have also completely redesigned the *QuickEdit* mode, a procedure for the easy graphical definition of sequential programmes. The list of new presentations also includes the W818 robot, our temperature controller TEMPRO plus D Micro, the gravimetric dosing unit GRAVIMAX B14 and a comprehensive user management system for material conveyors.

We shall be pleased to show you all these on booth 1204 in hall B1. We very much look forward to your visit and a personal chat.

With best wishes, Michael Wittmann

Fakuma 2011

Our Trade Fair Novelties



We are introducing our novelties at the Fakuma in Friedrichshafen, hall B1, booth 1204.
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Series

„My EcoPower” – India



Part 2 of our series: Interview with M. Karthik Krishnan (United Industries).
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Conveying

Many hoppers on the shop floor



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Perfect multi-component stuff



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Injection Molding

Production of high-tech filters



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New premises for the Turkish branch.
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Portrait
New challenges for the Italian team.
(p. 15)





Our new products at Fakuma 2011

Fakuma, alongside K in Düsseldorf certainly the most important trade fair in the German speaking region, takes place again in Friedrichshafen from 18–22 October. The WITTMANN and WITTMANN BATTENFELD companies are represented under the motto "world of innovation" on a joint booth where, among other things, the latest injection molding machine models, robots, material dryers and temperature controllers are presented. Visit us on booth 1204 in hall B 1.

New dimensions in injection molding



As a result of its extremely positive acceptance in the market since its introduction, WITTMANN BATTENFELD is now extending its *PowerSeries* range of injection molding machines. New machines are the *EcoPower* 300 with clamping force increased to 300 t and the *MacroPower* 650 which, with a clamping force of 650 t, is now the smallest model among the large machines.

The full electric *EcoPower* – now available in the clamping force range from 55–300 t – wins points in particular through precision, cleanness and maximum energy efficiency.

The *MacroPower* models are characterized by their particularly short construction length. The *QuickLock* locking system ensures the shortest locking and pressurisation times. The molds can be installed very easily above the rear

EcoPower 300 and MacroPower 650 – the two new injection molding machines presented by WITTMANN BATTENFELD at Fakuma 2011. While the clamping force range of the EcoPower Series has now been extended upwards to 300 tonnes, the new MacroPower represents a downward extension of the clamping force range of the large machine series. Both new developments have been carried out with a view to optimize performance data and maximize energy efficiency.



of the machine. The *MacroPower* injection molding machines now covers clamping force range from 650–1,000 t. The *MacroPower* is also available in all sizes as an energy-optimized version using a variable speed servo motor instead of a conventional alternating current motor with constant speed.

The hydraulic pumps are electrically variable axial piston pumps with variable displacement. Regulation of the delivery flow in this system takes place through the motor speed or through the swing angle of the hydraulic pump.

In this way, the optimum between pump efficiency and motor speed can be determined for every point in the operation and automatically regulated by the machine control system. Energy savings of up to 35 % can be achieved here in comparison with traditional drives.

Further advantages of this drive concept are the longer service life of the hydraulic fluid due to reduced heating and particularly quiet operation thanks to the reduced motor speed. With *MicroPower*, *EcoPower* and the servo version of the *MacroPower*, the whole *PowerSeries* could be regarded as the WITTMANN BATTENFELD "energy saving fleet". They are supplemented by the hydraulic machines of the HM series, which are also available with servo drive. WITTMANN BATTENFELD assumes an absolutely pioneering role with its economically and ecologically optimized machines and, in this way, is meeting an ever increasing demand.

The overall concept of all machines is the same, permitting the compact integration of robots and many other peripheral devices. The UNILOG B6 machine control system provides a completely uniform control and operation method for the easy handling of the machine and all integrated peripheral devices.

The control unit employs Windows XP™ as its operating system, greatly simplifying the integration of machines into BDE systems and, in particular, through Internet based service support. Furthermore, all machines can access the operating data acquisition system K4.

The new small robot series

For unloading devices for injection molding machines in the clamping force range from 100–200 t, WITTMANN has been represented for years by the models W711 and W811 which have both received a facestroke in time for this year's Fakuma show.

With the W818, the ideal solution for unloading tasks in this clamping force range is now presented. The basic construction of the W818 is oriented on the proven concept



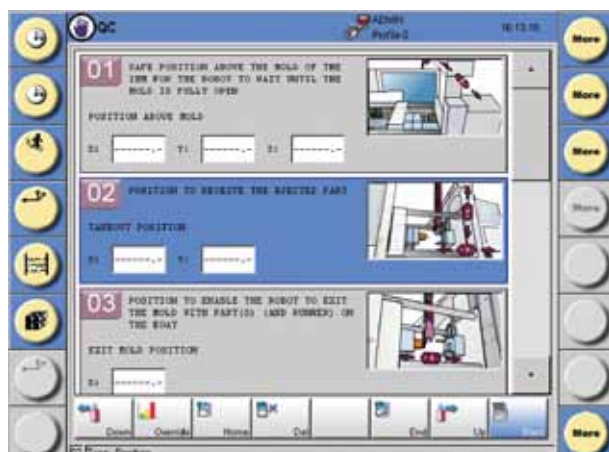
W818 linear robot (left) and the new DRYMAX Aton Primus wheel dryer.

of the rigid ejection axle. Through target reinforcement of the drives, a load of 6 kg can now be reliably handled, opening up additional possibilities for its use. But the new drive packages do not just allow a significant increase in the payload of the robots, but also allow for the implementation of an absolute value measurement system that is leading to shorter start-up times as well as simplifying the interaction of robots and other periphery.

Even if this function is very seldom encountered in this performance class, it is nevertheless part of the WITTMANN Group's standard.

The redesigned drives and the new R8.2 control system form an extremely efficient team. Functions such as the *QuickEdit* function (the very simple creation and modification of programme sequences) or *SoftTorque* (active synchronization of the ejection axle with the ejector motion) open up a number of new possible uses for the series, while the already proven and patented *SmartRemoval* removal sequence achieves an optimum removal cycle.

Machines of type W 818 are from now on available with vertical strokes of up to 1,200 mm, kick strokes with a maximum range of 800 mm and a horizontal stroke of up to 2,500 mm.



View of the R8.2 QuickEdit function screen (left). Picture right: ambiLED is showing the dryer's status – the blue color is indicating that the unit is operating in the wheel mode.

New DRYMAX Primus dryer

Another newcomer is the completely new DRYMAX Aton drying wheel dryer. WITTMANN presented this wheel dryer for the first time at K 2010. Meanwhile, the DRYMAX Aton has already been proven in practice many times and been able to play out its numerous advantages.

At FAKUMA 2011, WITTMANN is now presenting for the first time the new model DRYMAX Aton Primus with a dry air capacity of 120 m³/h, equipped with a 300 l drying silo as standard. All components which come into contact with materials are made of stainless steel.

What makes the decision in favor of DRYMAX Aton so attractive is its combination of a constant dew point with high energy efficiency and extremely low maintenance costs. These benefits have become possible by using an innovative drying wheel, consisting of numerous chambers which are loosely filled with ball desiccants.

This filling concept favors high energy utilization and allows for low-cost maintenance of the wheel – both characteristics which cannot be realized with a conventional honeycomb wheel. The appliance offers a choice of two different operation modes.



In the wheel mode, DRYMAX Aton Primus operates continuously as a wheel dryer, in the so-called *EcoMode* (which is particularly energy-efficient) according to the principle of a cartridge dryer with a controlled dew point. Its dew point reaches values between $-40\text{ }^{\circ}\text{C}$ and $-65\text{ }^{\circ}\text{C}$ under virtually all conceivable climatic conditions.

The DRYMAX Aton Primus dryer is equipped with an integrated 16A CEKON socket, permitting the use of various peripheral devices around the machine or dryer.

In its operating logic, the design of the operating panel closely resembles that of other WITTMANN peripheral units to simplify its handling, but it has also been improved in one essential point. The so-called ambILED – different colored light around the edge of the operating unit – clearly shows the current operating mode of the dryer from a distance: *EcoMode* (green), wheel mode (blue) or alarm (light flashes red).

The most compact temperature controller



Compact, efficient and especially developed for the use with small injection molding machines and molds of up to 600 kg: the new TEMPRO plus D Micro temperature controller. Pictures right: recorded temperature pattern (above) and flow rate curves.

WITTMANN has developed the new TEMPRO plus D Micro temperature controller in close collaboration with the constructing engineers of the WITTMANN BATTENFELD *MicroPower* injection molding machines. This new development is based upon the already proven technology of the TEMPRO plus D.

This new temperature controller model is widening the product range towards smaller injection molding machines, but also is suitable for molds weighing up to 600 kg. This is made possible through the unit's dual zone construction, in which the heating capacity of 6,000 W – in combination with a maximum pump capacity of 30 lit./min and 5 bar (max.) – are carrying out the best possible heat transfer.

The TEMPRO plus D Micro features low dimensions of $584 \times 265 \times 607\text{ mm}$ (H \times W \times D) that allow for direct installation in the inside bottom of the *MicroPower* injection molding machine.

This integration into the machine saves valuable floor space and reduces the overall footprint of the system. Also with regard to its handling, the TEMPRO plus D Micro can

be fully integrated into the *MicroPower* injection molding machine. Using an Ethernet port, the TEMPRO user interface can be completely mirrored on the machine's control panel. There, the setting and adjusting of the process parameters can be executed, as well as the presentation of the complete course of the process over any predefined time period.

WITTMANN is offering the TEMPRO plus D Micro in three different designs, for process temperatures of up to $100\text{ }^{\circ}\text{C}$, $140\text{ }^{\circ}\text{C}$ and $160\text{ }^{\circ}\text{C}$, the latter with a maintenance-free magnetically coupled pump. For the first time, WITTMANN thus is altering the tradition of offering $90\text{ }^{\circ}\text{C}$ units, breaking new ground with a pressurized and pressure controlled version for $100\text{ }^{\circ}\text{C}$. For this $100\text{ }^{\circ}\text{C}$ version – as well as for the $140\text{ }^{\circ}\text{C}$ and $160\text{ }^{\circ}\text{C}$ units – the system pressure is first measured, and then controlled above the saturation pressure that is subject to the water temperature. This approach guarantees the cavitation-free operation of the pump, thus contributing to a longer life cycle. The closed construction

is leading to unlimited mold-discharging volume, because the mold water is not delivered into the heat exchanger, but into the return line.

The very small entire volume constitutes a further essential aspect of the TEMPRO plus D Micro: due to the unit's overall size, the volume was reduced to only 1 liter! The WITTMANN flow technology engineers managed



aged to fully optimize the control of such a small volume. After having executed numerous elaborate tests, and after having developed a special vibration damper, the predefined control accuracy of $\pm 0.2\text{ }^{\circ}\text{C}$ was realized – even at water temperatures of $160\text{ }^{\circ}\text{C}$ and flow rates of 5 lit./min.

One more advantage: due to the small water volume that the temperature controller has to hold, the molds can be heated up and cooled down very quickly, because there is no need to heat/cool unnecessary masses. Through indirect cooling that is done by a cooling coil, the TEMPRO plus D Micro reaches cooling capacities that are matching the values of common size models! Beyond that, the integrated standard direct cooling that can be switched on additionally is exponentially increasing the cooling capacity, thus much more rapidly cooling down the mold when a mold-change is impending.

Serial interface and flow measurement are optionally available, perfecting the TEMPRO's technical profile and guaranteeing highest process security – using a minimum of space. ♦

Saving energy using the *EcoPower* machine

Here comes the second part of our "My EcoPower" series: An interview-based field report about an Indian high precision molder using the *EcoPower* 110 injection molding machine from WITTMANN BATTENFELD.

- **Your business?**

We have 4 plants at Chennai, India and want to expand in multiple locations in India and overseas. We are a high precision and contract molder. UI's certifications include ISO 9000:2001, TS 16949 and standards complying with strict norms of any OEM. Our awards include best vendor by TI CYCLES of India, and Hanil Automotive. Our specialties include various kinds of value-added assembly work. We are pioneers of on-molding and on-line assembly for automotive parts.

- **What EcoPower model?**

EcoPower 110

- **Date of EcoPower purchase?**

Best ever purchase decision was made on November 3, 2010.

- **Reason for purchase?**

We went for a state-of-the-art capital equipment purchase in order to win over customers in the competitive contract molding market. And we decided to do a long-term visionary investment and advanced machineries, where we have the lowest cost of production. We included many factors in our purchase rationale, including cycle time, injection unit, cooling stage, mold-open and product removal stage. We felt that constant innovation and commitment towards the customer makes WITTMANN BATTENFELD our preferred choice of suppliers – and the start of a new era for us.

- **Nick name yet for the EcoPower?**

Yes in fact. At UI we believe in numerology where No. 5 is considered to be our best ever figure

for business and growth. My machine order to WITTMANN BATTENFELD just happened to be 023, which ends up 5 in total. I therefore felt that this purchase decision would represent great

have sourced almost all our auxiliaries from the WITTMANN BATTENFELD one-stop shop – including robots, conveyors, dryers, granulators and temperature controllers. Single-point

My EcoPower

Part 2

Respondent:
M. Karthik Krishnan

Position:
Managing Director

Company:
United Industries (UI)

Location:
Chennai, India



WITTMANN BATTENFELD's Georg Tinschert (left) and Michael Wittmann flank M. Karthik Krishnan, director of United Industries and proud owner of a new *EcoPower*.

beginnings for both of us. In consequence we have christened our *EcoPower* machine the *High Five!*

- **First impressions?**

At UI we settled in immediately to using the unique features. Our people were very keen to apply the basics in working certain new concepts such as pressure control, melt pressure transducer, in-built power pack, web service, and sealed bushings.

- **Any customer endorsements?**

One of my customers immediately carried out a comparative process study of our *EcoPower* machine with another machine – involving their own testing protocols. The results were beyond compare: We then were given a separate order specifically for the *EcoPower*. I therefore invite all my clients for a shop floor visit to see the quality for themselves! At UI we are proud to blaze the trail for the first *EcoPower* in India, we believe. Furthermore we

sourcing eases my operational overhead and integrated solutions save a great deal of time.

- **EcoPower – a green solution?**

This investment represents more than just monetary benefit. We wanted our business to have some social and environmental interest. On that basis only, we built and presented our new facility as "The Green House". Our current energy savings have come to be the "talk of the town". Having purchased the machine with the least consumption, we feel that we have made a clear contribution to our society.

- **What next for United Industries?**

Our *EcoPower* machine gives us the best available and competitive technology with which to expand for the future. We have ambitious expansion plans and have determined that future projects or any plastic capital requirement will be fulfilled only with *EcoPower* and with WITTMANN BATTENFELD. ♦

A drying hopper for every material

*An interview with **Karl Lenz**, Technical Manager of WD Kunststofftechnik in Huglfing, Germany, about large and small central units, the splitting of system functions and how such systems can be operated to save energy. **Gottfried Hausladen** talked to him.*

Gottfried Hausladen: *What was the reason for moving your production from Bergkirchen-Günding (near Munich) to Huglfing (near Garmisch-Partenkirchen)?*

Karl Lenz: In Günding we were tenants. And because of the continual increase in the size of injection molding machines over the years, the production shop no longer met the demands of modern injection molding.

On 1 January 2010, we were able to acquire the firm L+N Plast, where a suitable site existed for the construction of a state-of-the-art production shop for WD Kunststofftechnik.

For the third time now, you have purchased a central material system from WITTMANN. What made you decide again to invest in WITTMANN equipment?

The determining factor for the purchase decision in the end was the operational reliability of the whole system. Unlike other systems we have used, all operations on the WITTMANN central conveyors are carried out pneumatically. As we feed our ground material directly from the granulators via a 2-component switch point, our dust content is naturally high. Spring actuated systems are much more susceptible to errors here, particularly with regard to the material output. Another advantage is the central touchscreen control unit, which is intuitive and very easy to operate. This displays all the data from the conveyor unit and the drying station.

What was your focus in the design of this system?

In order to achieve a maximum of machine availability and reliability, some essential components of the system were split. For example, while a filter test is being carried out on a central filter, the vacuum line concerned can be switched to the equivalent reserve pump.

The machine operator can now carry out this task without stress and without the risk of an injection molding machine running out of material. This design also has another advantage, in that, if a vacuum pump fails, the reserve pump

steps in. Also, to avoid having to rely on a single dry air generator, two smaller units are used instead of one large machine. This means it is still possible to supply all the drying hoppers with at least half the dry air capacity during any maintenance work.

WD Kunststofftechnik, Huglfing near Garmisch-Partenkirchen, possesses a total of 42 injection molding machines and employs 50 people. It is owned by Claus-Jürgen Stengel. The photo shows a view of the drying system mounted on a platform. The space below the platform contains the filter stations, the coupling station and part of the material store.



One of the WITTMANN XM B filter stations.

An important indicator of the profitability of an injection molding shop is its efficiency. How much of a consideration was this in the design of the system?

In the past we had the problem that we regularly had to change the material in our drying hoppers. Apart from the work involved, there was a risk that the material needed had not been pre-dried by the start of production. So it was not possible to run the injection molding machines concerned without first waiting for the pre-drying time to be com-



Central system at WD Kunststofftechnik in Huglfing

- ◆ Supply to:
 - 25 injection molding machines
 - 1 blow molder
- ◆ Dry air generator:
 - 1 × 450 m³ frequency regulated for output adjustment
 - 1 × 450 m³ incl. emergency circuit
- ◆ Drying hoppers:
 - 3 × 300 litres
 - 2 × 200 litres
 - 3 × 150 litres
 - 3 × 50 litres
 - 2 × 20 litres
- ◆ Conveying:
 - 1 × 4.3 kW side channel blower for machine loading
 - 1 × 4.3 kW for dryer loading
 - 1 × 4.3 kW as standby with automatic switch-on
 - 1 × 4.3 kW for loading of the blowing unit

pleted. In the new solution, we decided to use separate drying tanks for each material. Before starting production, the operator merely has to replug the corresponding line to the correct material in the coupling station and this material flows with the correct degree of dryness. The handling was simplified in this way, resulting in an increase in quality, and, thanks to the constant dryness of the granulate, the molding machine parameters are also more uniform. Water is known to act as a lubricant in the melt, increasing its fluidity. Uni-

form material moisture also leads to more constant production. Another reason for assigning a separate drying hopper to each material was the risk of contamination in the course of a material change in a hopper. This subject was repeatedly brought up in our internal audits – that too is history now.

Apart from contamination when the material is changed, there is also the risk of an incorrect coupling in the coupling station. How has this risk now been eliminated?

Below each drying hopper there is a suction box with a pneumatic locking system. If a separator requires material, only the seal on the correct drying hopper opens – and the transport begins. In the case of an incorrect coupling in the coupling station, the closure seal of the incorrectly connected drying hopper does not open and no material is conveyed. In this case, the system gives an error alarm.

Is there not a risk in such a solution – one hopper for each material type – that the dimensions of the drying system will have to be increased, resulting in higher energy consumption?

It is true that the dimensions of the drying system have grown, as a corresponding number of drying tanks have to be accommodated. So that the units do not occupy too much floor space, they are mounted on a raised platform. The power consumption of the system is comparable with that of a smaller one.

As the WITTMANN drying hoppers are equipped with an automatic air volume regulator which reacts extremely sensitively to the throughput at any moment, only the volume of air actually required for the drying process is heated to the drying temperature. And if no material is taken from the hopper, it switches to standby mode (material protection function). As a result, the dry air generator does not have to be designed for the volume of the hopper, but for the capacity to handle the total throughput of the system. Because of this, the power consumption is only nominally greater than that of a smaller central drying system. ◆

25 injection molding machines and 1 blowing machine are fed with perfectly prepared granulate from the central drying system.

Gottfried Hausladen is Head of the Sales Department South for Material Handling at WITTMANN Robot Systeme GmbH.

Multi-component molding, styled throughout for zero error

Maximum yield and zero error production demand highly efficient automation to meet the requirements of the automobile industry. With sophisticated logistics and technically high quality components, TRW Airbag Systems in Aschau, Germany, produce the ignition units for gas generators and belt tensioners in pyrotechnic safety areas – with WITTMANN Equipment.

Walter Klaus

The objective of this project was to realize the cost-efficient manufacture of safety relevant automobile components in continuous communication with the TRW line computer system. For this purpose, the PLC-based components needed for complex injection molding processing were first assembled. All these had to be connected up in a complex control unit in order to map the complete system of a 100% monitored production line within the line concept.

The component to be produced is an overmolded detonator which must trigger the initial ignition of the airbag gas generator with absolute reliability. A safety relevant component that saves life.

It is therefore essential to produce by the zero error method, to monitor the production in its whole fabrication depth and to document it immediately.

Production, monitoring and documentation

In semi-automated production, however, this can only be achieved by frequent and costly controls which further slow down the production process and increase the manufacturing costs.

Experience has shown that automation is greatly superior to manual production here. The monitoring and documentation of every operation taking place in a production cell can be ensured.

Errors can be reported to the module controller in real time and the necessary correction can be initiated. In this way it is guaranteed – by automation – that 100% of parts detected as faulty are ejected from the production process and only serviceable parts are processed in the further course of production.



Highly automated production unit at TRW Airbag Systems in Aschau, Germany: On a servo-motorized rotary axis, 50 motion modules are integrated in a gripper system. Through linkage in a complex control system, a complete system is created for a 100% monitored production line. The result is the zero error production of high quality parts.

The following operations had to be handled by the system described here:

- Orienting the detonator.
- Orienting the closure piece.
- Automatically placing the pieces in the mold.
- Overmolding of the detonator units.
- Unloading the mold.
- Cavity-based separation of good/bad parts.

The required cycle time had to be realized with a very fast control unit and with the help of multi-functional, intelligent software.

Advantages of professional project management

Regardless of the technical requirements mentioned, it is of fundamental importance that, for the planning and implementation of such a system, a professional project management be demanded by the client and be applied by the supplier. This management bears the responsibility from preparation of the tender to the production, test run, delivery, commissioning and final acceptance. Björn Dünfelder, WITTMANN Key Account Manager, acted in the course of the project described here as a link between WITTMANN Construction or Production and the corresponding departments at TRW. "For the success of such a complex solution,



Components linked with the control system

- Vertical rotary table machine with interface connection to the mold internal pressure monitoring
- Closed cold water system for temperature control of the whole system
- High pressure temperature control devices for mold temperature control
- Material deployment by energy optimized PLC-based drying unit
- Consumption optimized heating systems to prepare material for the injection molding machine
- 100% monitoring via PLC interfaces
- Integrated automation with tandem robots for the loading and unloading of detonator units

a clear assignment of responsibilities and smooth cooperation within the project team are indispensable," states Rainer Watzka, Technical Manager at WITTMANN Robot Systeme in Germany. Here, a high-performance software is an essential tool for employees who, in their function as Key Account Managers, have to support such extensive automation projects.

Module computer connects system parts

Two systems from WITTMANN Robot Systeme GmbH which could do full justice to these highly complex requirements started operations at TRW at the beginning of this

year, one of which produces the detonator unit for airbags. The closure piece for the driver and passenger airbags is produced on the other system. The jigs required for the feed, separation and positioning of the parts increase the complexity of this system. It was possible to realize the assembly, unloading and packing of the three parts within the overall cycle time specified at the start of the project.

Both systems have the same basic structure. Each production cell comprises a WITTMANN BATTENFELD vertical injection molding machine with a rotary table and a WITTMANN Series 7 tandem linear robot system. In addition, the systems share the use of the main module computer, which brings together all the control units of the individual system components. The computer monitors and documents the operating status and issues error messages in clear text, indicating the location and type of the error.

The production cycle

Production planning generates the production order and passes it to the line computer, which is connected with the modules on the production line via a TCP/IP Ethernet interface. One of the stations comprises the granulate store, which provides the material intended for the production of a specific part. The corresponding material data are mapped on the touch panel of the module computer, which releases the correct material.

The operator makes the connection of the WITTMANN DRYMAX with the material hopper. When the material has reached the degree of dryness necessary, i.e. the required processing

quality, the hopper releases the material flow to the injection molding machine. After the correct quality related data has been reported back by the process monitoring system and the injection molding machine has reached all its specified values, the automatic cycle of the processing machine is entered on the operating panel.

System 1 positions the pyrotechnic detonator correctly. The corresponding discs are oriented and positioned by the second handling unit. Before this assembly step, the positions and orientation of the detonator and discs are checked. The gripper of the robot picks up the two part sets from the part centering unit and places them in the lower half of the empty mold, from which the unloader gripper has first removed the finished parts. In order to achieve absolute, reproducible precision here, the gripper is set to "float", i.e. its power is switched off, just before the insertion operation by means of a special device.

The second machine produces overmolded closure pieces. Here, the parts fed in (detonator and cover cap) are laid on a rotary table, from which a SCARA robot removes the parts, orients them correctly and puts them in position.

For the specified use of the system in Aschau, two further essential conditions were fulfilled. Firstly, the automation cell is located in the Class 1.4 safety area of the production unit, meaning that all machine parts which touch the product are ESD protected. Secondly, the module control system monitors and documents the entire production sequence. ♦

The central piece of all the system components is the central operating position.

Walter Klaus was Technical Manager of WITTMANN Robot Systeme GmbH in Schwaig, Germany, until his retirement in 2008.

Success in the automotive industry with machines from WITTMANN BATTENFELD

In January this year, WITTMANN BATTENFELD delivered the fifth hybrid vertical rotary table machine to the internationally successful filter manufacturer WEPLER FILTER GmbH. With its highly innovative special filters for the automotive industry all over the world, WITTMANN BATTENFELD's long-established customer, based in Oberursel near Frankfurt, has made a name for itself that stands today for tradition, innovation and high-tech.

Gabriele Hopf

WEPPLER has now been in family ownership for three generations. The firm's success story began in 1935 with tank and carburetor filters for motorcycles. In 1945, it started production of filters for the automotive industry – at first for the VW Beetle. WEPLER is regarded as one of the pioneers in the field of precision and microfilter technology, now indispensable in the automotive industry. With its microfilters for suspension controls, brakes and injection systems, WEPLER is the leader worldwide. 95 % of its production goes to automotive suppliers all over the world, especially those based in Europe, the USA, Brazil and Asia. The great majority of vehicles today are fitted with filters from WEPLER.

Its main plant is situated in Oberursel near Frankfurt, with a workforce of about 160. Over the years, three more locations have been established in the Czech Republic, with a total of 600 workers, in order to meet the increased demand for high-tech filters from such well-known customers as BOSCH, Continental, TRW, Magneti Marelli and Schaeffler. By the middle of 2012, it is planned to extend the Czech production facilities by a further 2,000 m². WEPLER is deeply committed to building up a qualified next generation for its production. Within the framework of its apprentice programme, many young workers are trained every year as mechatronics technicians, precision engineers, electrical and plastics engineers.

Tradition, innovation and high-tech are accepted as obligations at WEPLER. The aim is all-round customer satisfaction through continuous progress in the perfection of its products. WEPLER has a Quality Assurance system certified according to ISO TS 16949:2002. And the certification of its Environmental Management system according to the ISO 14001 standard is proof of the company's consistent employment of environmentally friendly processes.

For example, WEPLER operates its own district heating power plant which draws on renewable energy sources. The high quality standards applied to its products and processes are confirmed by the number of awards conferred on it

by its customers. "We are particularly proud that, for the twelfth time in a row, we have been honored by one of our major customers, the firm BOSCH," says Stephan Wepler, Technical Manager of WEPLER FILTER GmbH. "We are the only BOSCH supplier in the world ever to achieve that."

Hybrid vertical rotary table machine from WITTMANN BATTENFELD.

Stephan Wepler (right), WEPLER FILTER GmbH and Bernd Wedler, WITTMANN BATTENFELD.



WEPPLER and WITTMANN BATTENFELD

It is 25 years now since the WEPPLER company bought its first BATTENFELD injection molding machine. Since then the two firms have been linked in an extremely successful collaboration in the field of injection molding.

WEPPLER possesses more than 100 injection molding machines, about half of these from WITTMANN BATTENFELD. The majority of these are vertical rotary table machines ranging in clamping force from 23 to 40 t. In 2008 the first hybrid vertical WITTMANN BATTENFELD rotary table machine was delivered. This was the first machine of its type in the world fitted with an electrical injection unit and a servo-electric rotary table – a combination which

material,” explains Stephan Wepler. And the same requirements also apply for the molding machines and the process: high positioning and repetition precision in the shortest possible cycle times.

Since 2004, WEPPLER has mainly acquired fully electric machines, as these are best able to meet the high requirements of the firm. And the vertical injection molding machines supplied by WITTMANN BATTENFELD are specially tailored for these extreme requirements.

What Stephan Wepler values most in WITTMANN BATTENFELD is their close collaboration in the development of project solutions and the readiness to react to very specific wishes. “The intensive collaboration with WITTMANN BATTENFELD in the development of the electric rotary table machine was the determining factor ensuring that, with this machine, we today possess a system tuned to the last detail to our needs.” Last, but not least, he has a special word of praise for the quality of service.



**Vertical rotary table machine:
flexible, precise and modular**

Die VM R rotary table machines from WITTMANN BATTENFELD, available in the clamping force range from 40 to 270 t and with rotary table diameters from 752 mm to 1,755 mm, represent a benchmark with regard to flexible part production, maximum precision and the strictest possible quality controls, as well as the many expansion possibilities.

The series features a rotary table at an ergonomic working height in order to permit either fully automatic operation or semi-automatic operation with some work steps carried out manually. Robot systems capable of carrying out simple transfer tasks or complex variable operations can be supplied by the WITTMANN Group’s own production.

The safety of the loading and unloading area is ensured by light barriers. This system provides optimum access for the removal of parts and allows the implementation of a wide range of automation concepts.

According to customer requirements, the individual drive axes of the machines can be equipped with electrically variable control pumps, servo-hydraulics or servo-electric control.

This permits short cycle times thanks to time-saving parallel movements, maximum precision and energy-efficient operation. The servo-electric rotary table drive, in particular, many of which have now been installed, provides for maximum rotation speeds with adjusted acceleration ramps, ensuring the safe positioning of parts.

The machines are equipped with the proven UNILOG B6 control system, providing a continuous control and operation concept for the easy handling of the injection molding machines, including all integrated peripheral units. The control system, which runs under Windows XP™, greatly simplifies the integration of the machines into BDE systems, especially through the Internet-based service support. ♦

Also an EcoPower 110 is already installed at the WEPPLER company.



High-tech filters from WEPPLER FILTER GmbH.

received an enthusiastic welcome. Four more machines of this type have meanwhile been installed at WEPPLER. And WEPPLER also uses many different models of hydraulic WITTMANN BATTENFELD horizontal machines and, since the end of last year, a new fully electric *EcoPower*.

The requirements

In filter production, two things are especially important: constant quality, even in a production of millions, i.e. the narrowest of tolerances, and high production speed. “For some products we have to fulfill tolerance specifications that, until recently, could only be achieved using steel as a

Gabriele Hopf heads the WITTMANN BATTENFELD Marketing Department in Kottlingbrunn in Lower Austria.

New premises for the Turkish WITTMANN BATTENFELD subsidiary

Earlier this year, WITTMANN BATTENFELD Plastik Makineleri Ltd. Sti. – the WITTMANN subsidiary in Turkey – had announced moving to bigger premises in Istanbul. At the end of June, this step was executed.

As the old office got much too small for the growing Turkish business, WITTMANN BATTENFELD Turkey had planned for some time to move to more sufficient premises. The branch suffered especially from not being able to stock enough equipment – apart from smaller units like temperature controllers and material conveyors.

The new 600 m² premises come with a 200 m² showroom a 250 m² office floor, and a storage space of 150 m². There is now plenty of space to store an injection molding machine along with several linear robots and a wider selection of peripheral equipment – to meet the requirements of very urgent projects at any time.

And from now on the Turkish WITTMANN BATTENFELD subsidiary is in the position to offer their customers not only demonstrations of the entire product range, but also in-house training possibilities.

In addition, investing in a new operational building meant strengthening the company's image locally, thus increasing customer loyalty. As WITTMANN BATTENFELD has become



General Manager Muzaffer Engin (in the middle) and his team.

The new premises of WITTMANN BATTENFELD Plastik Makineleri Ltd. Sti. in Istanbul, Turkey.

The Turkish branch of the WITTMANN Group now has enough space for product presentations and customer trainings.



much more visible on the market, one additional service technician had to be added to the team.

Market situation

Without a doubt, 2011 will prove to be the most successful year WITTMANN BATTENFELD Turkey has had since the branch was established in 2006. Despite negative press and talk about the near economic future, the company's market share is further increasing almost daily. WITTMANN BATTENFELD became one of the best-known robot suppliers on the local market. More than this, General Manager Muzaffer Engin and his team are working intensely on propagating all the other product lines as well, especially injection molding machines.

The trade fair PLAST EURASIA 2011 will take place in Istanbul October 27–30. It is the biggest fair for the plastic injection molding sector in Turkey. WITTMANN BATTENFELD will present the whole product range at a 160 m² booth to the professional Turkish audience. ♦

New duties: BATTENFELD Italia becomes WITTMANN BATTENFELD Italia

New challenge for BATTENFELD Italia: Effective May 2011, BATTENFELD's Italian branch changed its name to WITTMANN BATTENFELD Italia and from July 1st took over the responsibility for the full WITTMANN Group product range in Italy. A "natural" development according to the "one stop shopping" motto.



The Italian WITTMANN BATTENFELD Sales Team – including the Italian agents – visiting WITTMANN Vienna: Italian Managing Director Luciano Arreghini (middle, eighth from the right) with Michael Wittmann and Dr. Werner Wittmann (on the left from Mr. Arreghini, same row), and with Georg Tinschert, WITTMANN BATTENFELD General Manager in Kottlingbrunn (third from the right).

The year 2011 is a very special year for the WITTMANN Group's Italian branch in Solaro, Northern Italy. Not only has the name changed and the duties and responsibilities have grown immensely – it is also the branch's 20th anniversary.

So 2011 means also the starting point of further growth and some exciting challenges that involve every part of the Italian subsidiary's organization, although WITTMANN BATTENFELD Italia has been gaining experience with some peripheral products for two years now.

They have been responsible for the sales and servicing of the TEMPRO range of temperature controllers, and they have successfully provided several entire work cells, each complete with injection molding machine, robot, dryer, and granulator. To continue to grow and service the market properly, the Italian service department was expanded.

Coping with new challenges

In addition to the Injection Molding Department (managed by Gianmarco Braga), the Peripheral Products Department had to be brought into being by selecting and hiring new employees. Giuseppe Di Fina – who is experienced with different brands of peripheral equipment as well as injection molding machines – was appointed as the Peripherals Product Manager, assisted by two additional Service Engineers. Altogether, 15 employees are working today with WITTMANN BATTENFELD Italia in Solaro, headed by Managing Director Luciano Arreghini.

Market position and trend

The WITTMANN brand is well known in Italy, especially for its range of linear robots. But all the other WITTMANN peripherals are also enjoying a good reputation in terms of first-class

product quality. The situation of the Italian plastics processing market has been fairly good for the first six months of 2011, including a slight increase in business with the beginning of the second half. However, for the second quarter, it has been possible to achieve a result that was 25% above the expectations.

In 2012, the main target will be to continue with the positive robot line sales trend, as well as to increase the sales volumes of the other WITTMANN peripherals. In general, the Italian market is rather interested in centralized material drying and handling systems, and in specialized automation equipment.

Through some exclusive collaboration with selected external suppliers, WITTMANN BATTENFELD Italia is able to face every customer requirement for the most complex grippers as well as for any kind of downstream automation. ♦

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