

innovations

Techniques – Markets – Trends

Volume 9 – 4/2015



The
Anatomy
of
Success



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WITTMANN innovations (Volume 9 - 4/2015)

Quarterly magazine of WITTMANN Kunststoffgeräte GmbH and WITTMANN BATTENFELD GmbH. Appears to meet the informational demands of staff and customers. Editorial office: WITTMANN Kunststoffgeräte GmbH, Lichtblaustrasse 10, 1220 Vienna; tel. +43-1 250 39-204, fax +43-1 250 39-439; bernhard.grabner@wittmann-group.com; <http://www.wittmann-group.com>
Issue 1/2016 of "WITTMANN innovations" will appear at the beginning of the first quarter 2016.

Editorial

Content



Michael Wittmann

Dear Reader,

There was no summer holiday off-season in the news this year. Over the last few months, the newspapers were overflowing with reports about the refugee crisis, stock exchange turbulences, speculations about an increase of interest rates in the U.S., and successive record heat waves in large parts of Europe. Regardless of all these turbulences, the economic development of our company has continued on a high level (even though a number of threshold countries have temporarily opted out as drivers of growth). So we look forward to the fall and winter months with confidence, and in particular to this year's Fakuma to be held from 13 to 17 October in Friedrichshafen. Totally committed to our traditional motto *world of innovation*, we are once again presenting numerous novelties.

As this year's fair highlight, we will have our new servo-hydraulic *SmartPower* 350 injection molding machine on display, which simultaneously constitutes one of the highlights of our corporate history. This completes our *SmartPower* series, which also comprises the smaller sizes of 180 and 240.

Today, the complete *PowerSeries*, which we started to develop a little more than seven years ago, includes the *EcoPower*, *MicroPower*, *MacroPower* and finally *SmartPower* machine series. All models combined cover the entire clamping force range from 5 t to 1,600 t. Proudly – and rightfully so – we can now say that the WITTMANN Group is able to offer its customers the most modern machinery available on the market for the purposes of the plastics processing industry.

No less innovative are the many novelties from the segments of automation and peripheral equipment we will also show at the Fakuma. We have equipped our medium-sized robot series with rotary servo axes, a feature which gives them even greater compactness and accelerates their movements even further. In future, robots can also be fitted as an option with weighing stations to enable immediate weight control of removed parts. In the area of temperature controlling, we are introducing the FLOWCON plus, an intelligent flow controller which is also available as a stand-alone version. Completely new as well are the Junior 3 Compact granulator model and the FEEDMAX B203 net material loader.

All of this – and much more – will be on show at our booth 1204 in hall B1. You are cordially invited to make use of this opportunity to gather first-hand information. I speak for our entire Fakuma team by saying that it is always a great pleasure for us to welcome you at our booth (or at one of our production facilities).

Yours cordially, Michael Wittmann

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Sophisticated plastic parts – from the idea to series production

The RT-CAD company based in Uttendorf, Upper Austria, develops, designs and manufactures technically complex plastic parts. Since the beginning of 2014, RT-CAD has been using a MacroPower 1500/8800 from WITTMANN BATTENFELD to produce large-sized parts.

Gabriele Hopf

Roland Tiefenböck established RT-CAD in 1997 as a company designing plastic parts. In 1999, the production of prototypes was added to its range of services with the acquisition of its first FDM machine for rapid prototyping. Only one year later, Roland Tiefenböck concluded a cooperation contract with Moldflow, so that he was able to offer his customers manufacturing simulation as well. Since then, RT-CAD has also been operating as a distribution partner for the Moldflow simulation software in Austria, and has been cooperating in this matter since 2011 with WESTCAM, which has taken over the distribution of Moldflow in Austria. The introduction of the rapid prototyping and simulation business was followed by a further extension of the service portfolio with vacuum injection molding in 2001, and the foundation of the company's own mold making shop in 2003 – a logical consequence for the professional mold maker Roland Tiefenböck.

In 2008, the company's first injection molding machine went into operation, only 2 years later, production began in a new manufacturing hall and then grew further over the years. Today, RT-CAD runs its production plant with 48 employees and 13 injection molding machines ranging from 50 to 1,500 t in clamping force and operating in 3 shifts to make technically complex parts for well-known customers from the two-wheel industry, the electrical industry, welding technology and the furniture industry, with the two first-named sectors contributing about 80% of the company's sales. Among its products are parts for metal substitution, light-weight components, hybrid parts and parts in multi-component and IML technology.

Cladding components for KTM motor cycles, manufactured using the IML technology (back injection molding of foil).

(Photo: RT-CAD)

Cladding components in different designs.

(Photo: RT-CAD)

Side mirror for the KTM X-Bow – product development and mold making took place at RT-CAD.

(Photo: RT-CAD)



An ambitious company

In geographical terms, RT-CAD is mainly active in Austria, Germany and India, where it supplies parts to the country's second largest motorcycle manufacturer.

For the two-wheel sector, RT-CAD supplies above all cladding components and technical parts connected with the motor in the motorcycle segment of the Austrian manufacturer KTM, including mass production as well as products made of extremely hard-wearing materials for motor racing.

Roland Tiefenböck sees the key to success primarily in consistency from the initial product idea all the way through product development, engineering, manufacturing simula-



tion, prototyping mold making to series production. Above all, the simulation with Moldflow software and the company's own engineering expertise create substantial added value for customers by avoiding errors in the preliminary stages.

Apart from the cladding parts and technical components for motorcycles already mentioned, a few examples of products developed and manufactured at RT-CAD are AC inverters for photovoltaic systems delivered to Fronius, "Macao" chairs for Wiesner Hager, for which the company actually won the reddot Design Award, display screens for the housing front panels of welding equipment or pushbuttons for cigarette vending machines, with the special feature of having the brand logos insert molded with a 2 mm layer of transparent plastic.

For his injection molding machines, Roland Tiefenböck requires above all easy maintenance, user-friendliness and a long service life, in addition to a favorable price/performance ratio. Good technical support is also important for him.

Moldflow software simulation of a plastic part.

(Photo: WESTCAM)



The MacroPower 1500/8800

What he appreciates about the MacroPower 1500/8800 delivered last year – currently the largest injection molding machine operating at RT-CAD – is the good accessibility, easy lateral mold insertion, the machine's compact design and its outstanding user-friendliness via the modern B6^p control system. Roland Tiefenböck comments: "The menu overview of the control system follows a logical concept, and the control system can be

Bernd Aigner, WITTMANN BATTENFELD Sales (left), and Roland Tiefenböck, Managing Director of RT-CAD in front of the MacroPower 1500/8800 with examples of parts produced on this machine (including the award-winning Macao chairs for Wiesner Hager).

integrated into the existing network without any problems. The graphic display provides a clear overview." Additional vital features for Tiefenböck are the machine's low noise level and its low energy consumption, due to the efficient servo drive. "Our power consumption hardly changed at all following the installation of the MacroPower", says Roland Tiefenböck.

The MacroPower installed at RT-CAD is a machine with 15,000 KN clamping force with special equipment for processing flame-retardant plastic materials and a WFC system fully integrated into the control system, which enables flow rates and temperatures of the individual cooling circuits to be displayed and monitored directly on the machine.

This particular *MacroPower* is a complete production cell including fully integrated temperature controllers, a W843 servo robot from WITTMANN and a protective enclosure.

Another positive aspect from Roland Tiefenböck's point of view is the possibility to purchase everything from a single source at WITTMANN – from the machine to the automation system and the complete range of peripheral equipment. ♦

The tail bracket for the KTM motorcycle is a prime example of substituting plastic for metal.



Machines and processes for highest quality automotive parts

Dieter Wiegelmann GmbH, based in Olsberg-Bruchhausen, North Rhine-Westphalia, has made a name for itself in Germany and beyond its national borders as a problem solver in the area of complex plastics applications. Since last year, a MacroPower 1500 and a hydraulic HM 240 equipped with the CELLMOULD® package have been in operation to complement the machinery of this successful medium-sized enterprise. Closeness to customers, flexibility and high quality standards make Wiegelmann an ideal partner for sophisticated solutions.
Gabriele Hopf

Assembly work on an Audi radiator grille, manufactured at Wiegelmann.



The Dieter Wiegelmann GmbH was established by Dieter Wiegelmann as a model construction and mold making company in 1980. Since then, prototyping is a core competence of this company. Aluminum is the material most frequently used in prototype construction.

One of Wiegelmann's strengths is the machining and assembly of a great variety of aluminum alloys. But depending on requirements, the company also produces molds made of steel for series production.

In 2007, Marc Wiegelmann succeeded his father as Managing Partner. The extension of activities to injection molding of plastic parts took place after he had taken over the company. Initially, this involved only sampling from test runs of the molds, but it wasn't long before this activity was extended further. Today, the company's main focus lies on the production of plastic parts with batches ranging from 500 to 10,000 units or more.

Most of the products go to automotive suppliers, with production targeting primarily the premium segment of the automobile industry. Products from Wiegelmann can be found, for example, in vehicles of the Audi, Mercedes, Ferrari and Bugatti brands. Apart from the automotive industry,

other industries are being supplied as well, such as the sanitary industry, the household appliances sector, the medical technology, packaging, agricultural and telecommunications industries.

The company's customer base includes automotive suppliers such as Kostal, Ackermann and Gerhardt, and the milking machine manufacturer Gea Farm. The market ranges from Germany and Europe to North America and Argentina.

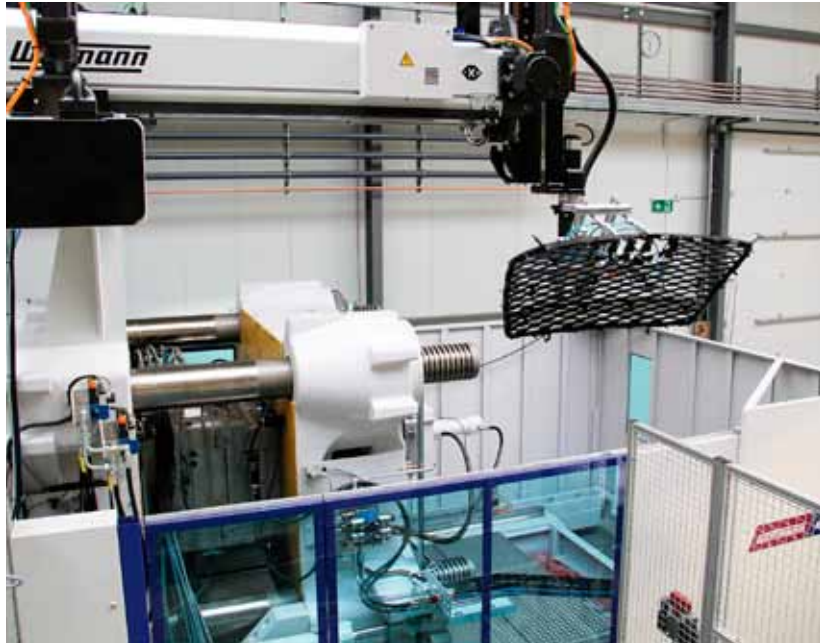
Picture left: Pressure generator from WITTMANN BATTENFELD for the AIRMOULD® gas injection process and the CELLMOULD® structured foam process.

Picture right: WITTMANN conveying system at Wiegelmann in Olsberg-Bruchhausen, Germany.



Pooling of competences

Wiegelmann sees itself as a problem solver for its customers and, besides its top quality standards, stands out primarily by its flexibility and short lead times. From consulting and product development to mold making and finally production, Wiegelmann provides its customers with everything from a single source. It also offers component assembly, which is gaining in importance. Some of the char-



acteristics customers appreciate about Wiegelmann are the short communication channels and response times, as well as the company's high innovation potential.

In 2014, Wiegelmann realized 6.5 million Euros in sales with a workforce of about 70. The company is certified according to DIN ISO 9001 and DIN ISO 14001 standards. It also fulfills most of the requirements for the TS 16949 standard – which is important for the automotive industry. Moreover, Wiegelmann has been certified

as a family-friendly company. To counteract the general shortage of skilled workers, Wiegelmann also trains young people in mold making, plastics processing and product design.

The company's machinery includes spotting presses, high-quality milling machines, eroding machines, a deep hole drilling machine, optical measuring devices and 9 injection molding machines, of which 4 are used for series production and 5 for testing purposes. Parts ranging from 10 to 7,000 g in weight are injection-molded from all commonly available materials.

For Wiegelmann, the most important features of injection molding machines are top quality, and monitoring and recording systems to ensure the traceability required by the automotive industry. Other significant aspects are good energy consumption values in production and state-of-the-art process technologies.

**Wiegelmann and
WITTMANN BATTENFELD**

WITTMANN BATTENFELD succeeded 2014 in placing at Wiegelmann a MacroPower 1500/8800 with a WITTMANN W843 robot and ServoPower drive, and a hydraulic HM 240/1330, as well as an WITTMANN material drying system.

The HM 240 was supplied with the equipment packages for the WITTMANN BATTENFELD AIRMOULD® internal gas pressure process and the CELLMOULD® structured foam process, which enable the production of light-weight parts with low warp-age and without sink marks, and with high rigidity as well.

Melanie Wiegelmann, who assists the company's management and is also responsible for quality management, appreciates the technologically mature features of the WITTMANN BATTENFELD machines as well as the flexibility and competence of the machine manufacturer's staff. "The WITTMANN BATTENFELD associates have shown a high level of problem-solving competence",

Wiegelmann comments. Wiegelmann also appreciates the option offered by WITTMANN BATTENFELD to acquire everything from a single source, from the machine, automation and peripheral equipment to ultra-modern process technology.

Frank Karwinski, Manager of Plastics Technology at Wiegelmann, is impressed primarily by the MacroPower's compactness and its energy efficiency, which results from the use of latest servo drive technology. ♦

Removal of a radiator grille from the MacroPower 1500/8800 by a WITTMANN W843 robot.

From left to right: Frank Karwinski, Manager of Plastics Technology at Wiegelmann, Marc Wiegelmann, Managing Partner of Wiegelmann, Melanie Wiegelmann, Management Assistant and Quality Management Officer at Wiegelmann, and Frank Höher, WITTMANN BATTENFELD Sales, in front of the MacroPower 1500/8800

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

OneSeal – making more from less

OneSeal ApS, based in Kokkedal, about 20 km north of Copenhagen, Denmark, was founded in the year 1974 by Michael Remark. The OneSeal company is a longtime customer of WITTMANN BATTENFELD and has become one of the world's leading manufacturers of High Security Container Bolt Seals.

Kasper Johannes Hagemann

OneSeal Production Manager Jens Velschou (left) and Operator Erwin Castillo in front of the newly purchased HM injection molding machine. In the background, some more equipment from the WITTMANN Group can be seen (sprue picker, loader).

A view of the OneSeal production hall in Kokkedal, Denmark. – All WITTMANN BATTENFELD machines were delivered in the color that was chosen by OneSeal as an option.

One of OneSeal's Container Bolt Seals, a worldwide bestseller in the container logistics business.

Kasper Johannes Hagemann is Service and Sales Consultant working for the Danish Agent of the WITTMANN Group: Wiba Tech ApS in Fredensborg, Denmark.

Today, the successful Danish OneSeal company is represented all over the world, working with agents and distributors on six continents and in more than 30 countries.

The Company's products are all made in Denmark. The OneSeal High Security Container Bolt Seals are made of metal, over-molded with plastic material. The manufacturing takes place in a production hall especially dedicated to this product, using a line of WITTMANN BATTENFELD injection molding machines.

OneSeal's special high-value model of High Security Container Bolt Seals is provided with a high-technology laser engravement. This engravement afterwards is over-molded with plastic material in order to protect the seal against tampering.

OneSeal invested in its very first BATTENFELD machine some eighteen years ago in order to achieve this over-molding task. Several more similar machines followed in subsequent years.

OneSeal then invested in equipment from the WITTMANN Group – a complete new production cell. The company purchased a WITTMANN BATTENFELD HM 65/210 injection molding machine, equipped with *ServoPower* technology and the advanced B6P control system. The production cell was also supplied with a FEEDMAX S3 material loader, a DOSIMAX MC Basic dosing unit, and with a WP80 sprue picker, all from the WITTMANN Group.

OneSeal's Production Manager, Jens Velschou, gives an overview of working with the new system: "With this production unit, and its unique WITTMANN BATTENFELD one-stop-shopping options and peripheral equipment, we were able to achieve a number of advantages: compact space saving design, higher precision, and a brilliantly performing control system." And Molding Operator Erwin Castillo adds: "We really achieve a significantly better continuity and stability of the production process." Production Manager Jens

Velschou continues: "The HM *ServoPower* machine is clean, flexible, precise, and the execution of the linear guides guarantees a gentle operation. The machine's noise level is low, and it is operating extremely energy-efficient. The high energy efficiency of the system also results in a much lower consumption of cooling water."

Asked, if OneSeal thus is getting better products for even less money, Jens Velschou agrees: "Yes, absolutely! The Windows™ based B6P control system provides us with almost unlimited possibilities to adjust the functions of the machine. The control system also clearly documents our superior production quality, something that is very important to us."

A strong basis

OneSeal values the versatility in WITTMANN BATTENFELD machine range, which generally offers a wide range of standard features, and also great scope for customization.

For example, the latest OneSeal WITTMANN BATTENFELD HM machine was supplied with further OneSeal specifications, including the color varnishing.

OneSeal also notes that the maintenance costs for the new HM *ServoPower* injection molding machine from WITTMANN BATTENFELD will remain very low for the entire lifetime of the machine. ♦

For further information please visit the OneSeal website: www.oneseal.com



AMRAZ is delighted with its first WITTMANN IML system

With two plants in Israel and one in Romania, AMRAZ keeps its position at the forefront of technological developments, marketing its products in over twenty countries around the globe. Now the highly respected manufacturer has just started-up a WITTMANN IML system in order to produce a food packaging item for the drinks industry.

Arieh Zohar

Since 1939 AMRAZ has been at the forefront of the Israeli plastics industry. The company specializes in plastics packaging, using a wide range of thermoplastic raw materials and an extensive array of advanced production methods.

AMRAZ provides its clients with complete technological solutions and offers the most advanced production methods, such as thin film injection molding, technical injection molding, co-extrusion, extrusion of multi-layer foils and multi-color striped foils, hot fill, in-mold labeling (IML) and much more. AMRAZ gives client service throughout the entire production process, from design and the engineering process, to packaging, palletizing, storing, shipping and logistics. The company's wide customer base includes leading local and international brands, such as Coca-Cola, Pepsi, Nestlé, Unilever, Danone, Yoplait, Ikea, Keter Plastics, Jaffora-Tavori, Prigat, Mei Eden, Neviot, Osem, Tnuva, Strauss, and many more. The AMRAZ headquarters are located in Rishon le Zion, the location of one of the Israeli plants.

The WITTMANN IML system at AMRAZ

AMRAZ is the largest IML-based packaging supplier in Israel. Most of the company's IML systems are producing parts for the food industry.

Last year, AMRAZ purchased its first IML system from WITTMANN, a very sophisticated system that is able to produce complex parts. This system is producing a unique milkshake cup with a banderole label. At the end of the process the cup's top is sealed with an aluminum lid.

The IML label is inserted by a horizontal WITTMANN W837 robot that also removes the cups from a 4-cavity mold. A tilting arm takes the four cups from the horizontal robot and presents them to a transfer robot which then places the cups on the rotary table of the aluminum lid sealing machine.

A conveyor then transfers the cups from the lid sealing machine to a 5-camera vision control station. There, the sealing is checked by means of specially generated 360° 3D-monitored pictures. The vision system evaluates the accuracy of the banderole label positioning, and also checks if the labels have defects, and if the sealing has been done



Eitan Ben Shalom, Head of the AMRAZ IML Department (left), and Ya'akovi Schlosberg, the local Service Engineer of A. ZOHAR Ltd., in front of the AMRAZ IML system.



Picture left: View of the vision system display installed at AMRAZ, showing the inspection of the produced parts. Picture right: Finished cups, stacked on a conveyor belt using a WITTMANN W818 robot.

accurately, providing a full data display and data logging. Quality assured production is then transferred to an accumulation section where a WITTMANN W818 robot stacks the cups on a conveyor belt.

The whole system was very easily installed, running very smoothly from the beginning. Eitan Ben Shalom, the Head of the AMRAZ IML Department, expresses his entire satisfaction about the WITTMANN IML system by simply saying: "It's our best production line." And he emphasizes the remarkable support and service provided by A. ZOHAR, the local WITTMANN Group agent.

Recently, AMRAZ and WITTMANN agreed to extend their business cooperation – installing further IML systems in the future. ♦

For further information please visit the AMRAZ website: www.amraz.co.il

Arieh Zohar is the Director of A. ZOHAR Ltd., the Israeli Agent of the WITTMANN Group based in Zichron Ya'akov, Israel.

The new FLOWCON plus has arrived!

At this year's Fakuma trade fair in Friedrichshafen, WITTMANN will be introducing FLOWCON plus, a new, intelligent flow controller. This sets new standards in terms of process safety, process documentation and reproducibility when it comes to injection molding high-quality plastic components.

Walter Lichtenberger

WITTMANN Kunststoffgeräte GmbH, based in Vienna, has for 40 years been the undisputed number one in the development and manufacture of water distribution systems for plastics processing, having sold more than 600,000 flow controllers. With their latest innovation in this key area of injection molding, the company will be presenting the first example of a new generation of intelligent flow controllers – FLOWCON plus.

A new approach to flow control

With its proportional valve and zero-wear flow measurement, the WITTMANN FLOWCON plus intelligent water flow controller ensures constant flow and a constant temperature, all achieved in reproducible fashion through the whole period of manufacture.

The equipment achieves permanent monitoring of the amount of fluid passing through a cooling duct, which gives it a decisive advantage.

Disruptive factors, such as constriction of cooling ducts or fluctuations in pressure are detected and the flow is controlled proportionally using stepper motors instead of the old manual regulating valves. These stepper motors operate the fine adjustment valves of the FLOWCON system.

This prevents irregularities in the temperature and improves the safety of the process, which ultimately contributes to a superior quality of components. This is all accomplished with comprehensive reproducibility, since all of the process data can be saved and very easily called up for subsequent production runs.

The compact design of the equipment means it can be mounted directly on the clamping plate of the injection molding machine. This also avoids the need for long hose

connections to the tooling and concomitant high pressure losses. FLOWCON also makes it possible to connect 4 × 12 circuits together by means of data cables.

The FLOWCON plus offers sustainability and flexibility

The housing components for FLOWCON plus are made of high-quality plastic capable of withstanding temperatures of up to 120°C and allow water distribution equipment to be used as temperature control units. In this way, the flow can be matched to the dimensions of the cooling ducts, while permanent monitoring of multiple circuits is taking place.

A uniform distribution of heat over the entire surface of the cavity is thereby obtained, which guarantees that the parts remain largely undistorted in the manufacturing process.

If FLOWCON plus is used in conjunction with a WITTMANN temperature control unit from the TEMPRO basic C120 range – which allows for a flow of 280 liters per minute – it ensures that there is turbulence in the tool ducts, making it possible to provide the optimum dissipation of heat.

Whilst FLOWCON plus is versatile in its applications, the ideal solution is to use it in conjunction with a WITTMANN BATTENFELD injection molding machine, which allows all WITTMANN peripherals to be fully inte-

grated into the control system. For the stand-alone versions of the equipment,

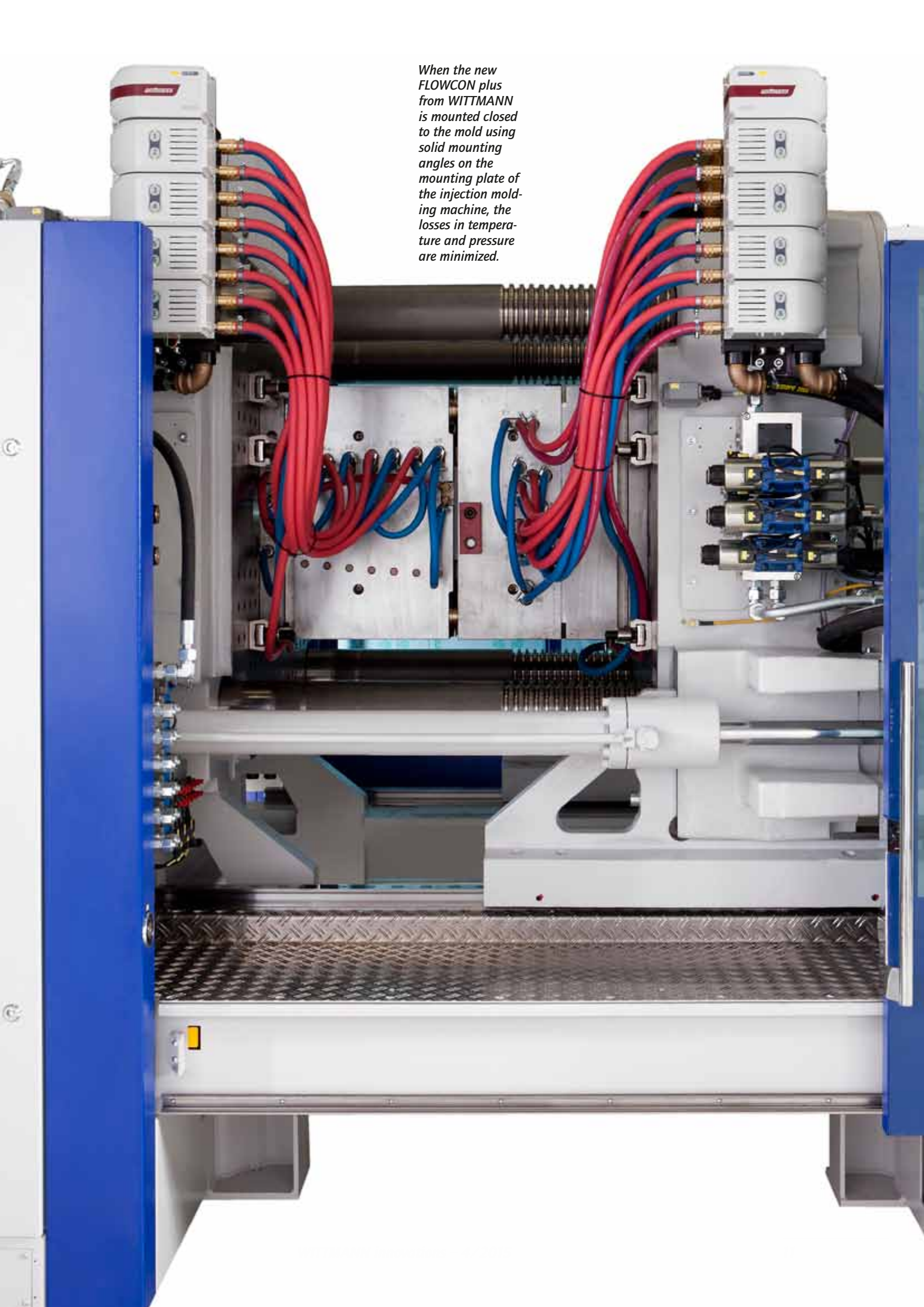
WITTMANN provides a remote control system with a touch screen display, which is connected to FLOWCON plus via a serial port. And last but not least, the valves of the FLOWCON plus can either be used as simple control valves with flow monitoring or can be used for closed-loop control of tool temperatures in conjunction with temperature sensor in the return channel. ♦



The newest development in flow control for injection molding processes: FLOWCON plus, the intelligent flow controller from WITTMANN, shown here with the cover partially open.

Walter Lichtenberger is Temperature Control Department Manager of WITTMANN Kunststoffgeräte GmbH in Vienna.

When the new FLOWCON plus from WITTMANN is mounted closed to the mold using solid mounting angles on the mounting plate of the injection molding machine, the losses in temperature and pressure are minimized.



5 quick steps toward better blending

Rising costs of resins and of additives, along with higher demands for quality and use of regrind, place a premium on proficient material blending. Here are some steps to get you there.

Nicholas Paradiso – Jonathan Fowler

With the rising cost of raw materials, and tighter demands for product consistency, many processors struggle with blending their resin recipes. Re-introducing regrind into the final product is becoming more and more common, driven by environmental mandates and cost savings.

Here are five blending tips to help processors keep their material and labor costs down and aid in manufacturing a more consistent and compliant final product.

Step 1 – Blend it up close

The closer the blender is to the processing machine, the more homogeneous the mixture of materials. Separation can occur when the blend has to be conveyed great distances before reaching the feed throat of the machine. This is the case when blending materials with different bulk densities and is especially true when blending regrind with virgin material, as the bulk density and size of the regrind can vary greatly. The inconsistency in bulk density causes the smaller, lighter pellets to separate from the larger, heavier pellets, resulting in uneven “layering” of material on the feed throat.

It is ideal to blend directly on the feed throat or above the feed throat on a mezzanine. If the blender must be located remotely then place it beside the machine or as close as possible. Also, a good-quality low-speed, high-torque granulator can help by providing a more consistent bulk density and regrind size with fewer fines.

Step 2 – Say no to static

Static build-up is a blender’s worst enemy. Static will cause material to stick to the walls of the mixing chamber, resulting in inconsistent batches. With low additive



Photo at left shows a WITTMANN FEEDMAX material loader containing a blend that has been conveyed 200 ft from the press. Notice that the mixture of white virgin material and blue colorant is uneven, as separation has occurred. The image on the right shows the same FEEDMAX loader with a blend that has been conveyed from beside the press, and the mixture is homogeneous.

percentages, even a handful of pellets hung up in a mixing bowl can have a dramatic effect on the finished product. With proper grounding of vacuum receivers and blenders, and using good-quality grounded hose, static build-up can be greatly reduced.

Static rings on the walls of the mixing chamber are also essential to ensuring pellets fall back into the blend if static-charged pellets creep up the wall. Mixing chambers with a hemispherical geometry also help eliminate dead spots and material hang-up.

Step 3 – Pay attention to receivers

The type of receiver on the blender hoppers can affect the accuracy of the blender. Volumetric and gravimetric blenders that rely on time only can be adversely affected by outside influences, such as pressure changes in the material hopper.

A venturi or pressure cyclone style of separator receiver creates a positive pressure in the hopper. This will force material through the material hopper valve more rapidly, resulting in overdosing material during the receiver’s conveying cycle.

A gravity-style discharge valve on a vacuum receiver, most typically a flap, can create a negative pressure in the material hopper if the flap is leaking. This can result in underdosing material because of a slight suppression of material flow due to the vacuum created in the hopper during the receiver's conveying cycle.

Vacuum receivers with positive discharge valves help eliminate this, as the valve can positively close and seal with compressed air.



Picture left: The mixing bowl of the WITTMANN GRAVIMAX blender is equipped with static rings on the walls of chamber. These rings ensure that as material climbs up the walls of the mixing bowl due to static, the pellets fall back into the mixture.
Picture right: Pneumatic material discharge shut-off valve of the FEEDMAX loader models. When a load cycle starts, this air cylinder is actuated, and the discharge bell is forced to make a perfect vacuum seal.



Picture left: Inside the WITTMANN GRAVIMAX blender hopper, there are no valves in the way that could affect material flow.
Picture right: Sensor on the blender hopper of the WITTMANN GRAVIMAX monitors material level for automatic selection of a high/low regrind recipe.

Step 4 – Thwart those bridges

When working with “difficult” materials such as regrind, flake, or sticky additives, there is a chance the material can bridge in the hopper. Bridging materials will hinder blender performance because of lack of material flow. Valve size is crucial to help the flow of difficult materials; use larger hoppers if the blender is available with different hopper sizes.

Agitation of difficult materials is also an option to enhance material flow. Bridge breakers can be installed inside material hoppers; they pulse a knife-style actuator when the dosing valve pulses.

Step 5 – Learn to deal with regrind

One headache in blending regrind is either running out of it or having too much. It seems that no matter how hard you try, there is no magic blending recipe that will keep up with your regrind production without running out of regrind five

minutes after you walk away. One method to help eliminate this is to use an intermediate regrind bin between the granulator and blender. This can help by storing surge during high-regrind production times and providing material during low-regrind production times. Another approach is to vary the recipe on the blender relative to the amount of regrind production. Doing this manually is a time-consuming and tedious task. Use a blender that will adjust the recipe automatically depending on your regrind capacity. This type of blender

uses a level switch to monitor the regrind level. This switch can be mounted in an intermediate hopper, or in the blender's regrind material hopper. The operator sets two different recipes. For example: a high-level recipe may have a recipe of 40% regrind, 60% virgin, 2% colorant (the colorant is automatically calculated to relative to the 100% of virgin-plus-regrind material). As long as the regrind level stays above the level switch, this recipe will be used. If the regrind level drops below the switch, a second recipe comes into play: It may have a recipe of 20% regrind, 80% virgin, 2% colorant. This will allow the regrind to build back up to the level switch again.

Analyzing and adjusting your material blending needs can go a long way towards reducing operator headaches, downtime, and rejects, and producing consistent, high-quality molded parts. Spending some time up front on your blending profiles will save you time and money in the long run. ♦

Article originally appeared in “Plastics Technology” (September 2014).

Jonathan Fowler is the Material Handling Systems Specialist for WITTMANN BATTENFELD Inc. in Torrington, CT, USA.
Nicholas Paradiso from WITTMANN BATTENFELD Inc., is Lead Engineer for Material Handling & Auxiliaries

South Korean automation expertise

In Yongin, south of Seoul, is the headquarters of PETRA Corp. Ltd., representatives for the WITTMANN Group in South Korea. Founded as recently as 2014, the company already counts many renowned Korean industrial concerns among its customers.

Chong Geun Kim

The five employees at PETRA make up a small, but tight-knit team, and are all the more effective because of it. In their first year of business, they made more than a million euros. For its customers, PETRA is highly regarded for the total reliability of its products and its great price/performance ratio – and not least for their readiness to tackle the most varied of assignments.

Their customers include Namdo Mold Corporation, Hansung Solutec, Faurecia Korea and Wonil Hydraulic, to name just a few.



View of an open injection molding machine: Prior to installation of the WITTMANN robot at automotive component manufacturer MGS, metal parts had to be inserted into the cavity by hand.

Automation of a plastic frame

In order to automate an MGS injection molding machine, Petra supplied a W853 robot (a large piece of kit with a z-axis 4 m long) and WITTMANN W832 robot, both of which are equipped with the latest R8.3 robot control system.

A special automation solution was to be implemented for MGS. The automotive supplier manufactures plastic frames for sliding sun roofs using injection molding. Thirty-two metal components in all need to be put inside the cavity in order to make this plastic component: 6 screws for the stationary part of the tool and 24 more metal parts (nuts, bolts, clamps and pins) in the moving half.

Insertion of all these parts, which was previously done manually, was now to be accomplished by robot. Apart from the savings in personnel costs (for three operators), the objective set was to reduce cycle times by a third (from 300 seconds to 200).

Now that the automation for the production of the plastic frames is running smoothly, it has actually reduced cycle times down to an outstanding 160 seconds – almost halving the time needed. The insertion of the 32 metal parts is handled by a WITTMANN W853 robot.



Picture left: Finished injection molded component: plastic frames for a sliding sun roof. Pictures right: Views of the WITTMANN robot installed for the production of frames at MGS.



This project – just one example of the many PETRA can accomplish for its Korean customers – demonstrates vividly the potential for savings that can be made with well thought-out automation systems. It will also certainly spread awareness of WITTMANN Group's presence in Korea. ♦

Chong Geun Kim is the CEO at PETRA Corp. Ltd, the WITTMANN Group's representatives in Korea, based in Yongin.

Suzuki Motorcycle buys equipment from WITTMANN BATTENFELD

WITTMANN BATTENFELD India, based in Chennai, is very proud to have equipped motor scooter and bike manufacturer Suzuki Motorcycle India Private Limited (SMIPL) in Gurgaon with an automation solution consisting of several WITTMANN robots, and with additional downstream equipment, including conveying solutions. The Japanese giant now occupies a prominent place on the customer list of the WITTMANN Group's Indian subsidiary.

Ravi Soni

Suzuki Motorcycle India Private Limited (SMIPL) became established in India in 2005, and has grown its business ever since, producing scooters and bikes for the local and international markets. Recently, SMIPL has made the decision to acquire several WITTMANN robots equipped with special EOAT (End of Arm Tooling) together with downstream equipment such as belt conveyors.

SMIPL, building motorcycles in Gurgaon (Haryana), has adopted the proprietary company's manufacturing philosophy of producing highvalue products.

The locally built Suzuki models of scooters (with the brand names Let's, Swish and Access) and bikes (named Gixxer, Hayate, and Inazuma) have found wide acceptance. Strong market demand has led SMIPL to expand the production within a short space of time. The company manufactured approximately 100,000 units more motorcycles in 2014 – compared with the previous year. The then new Let's and Gixxer models played a key part in achieving record production numbers.

The Suzuki purchase criteria

Though WITTMANN is already strongly involved in the Indian automotive sector – being a supplier to almost all automotive plastics parts manufacturers – a separate approach was needed in relation to the SMIPL motorcycle business and the merits of the WITTMANN product range.

So SMIPL is quite open for best of technology and machinery available globally with their local support on our capital equipment purchase process.



Choosing WITTMANN as automation partner

SMIPL INDIA operates strong Technical Process Engineering and Project Management Teams who strictly follow well-defined Suzuki corporate purchase and engineering guidelines. Finalizing contracts with any supplier requires several process steps in terms of the technical evaluations required through the whole transaction. The WITTMANN Group performed exceptionally well throughout this process. SMIPL Engineering Team noted that WITTMANN key features such as detachable controllers, SoftTorque, or QuickEdit had significant impact in day-to-day operations. The SMIPL team also appreciated the EcoMode energy saving function that comes as a standard with WITTMANN

robots, as well as the depiction of the so-called Safety Areas on the robot controls. In addition, WITTMANN committed to developing a controller language in Japanese exclusively for SMIPL. It was also noteworthy that most all manufacturers of automotive plastics parts in India are now using WITTMANN products to enhance their productivity, a factor included in the SMIPL decision, together with the increasingly global presence of the WITTMANN Group.

Perfect installation, easy startup

The local WITTMANN team provided exemplary installation work and subsequent training, incorporating all the SMIPL installation guidelines. The WITTMANN End of Arm Tooling (EOAT) worked faultlessly from the first stroke; picking up products without the need for a single adjustment. ♦

Ravi Soni (left) with key members of the SMIPL Plastics Engineering Team.

Suzuki bike, manufactured by SMIPL in Gurgaon.

The WITTMANN robot control now is available also with Japanese as an operating language.

Ravi Soni is the North India Sales Manager of WITTMANN BATTENFELD India Pvt Ltd in Chennai.

The new WITTMANN BATTENFELD subsidiary in Hungary

From the beginning of September this year, the WITTMANN Group is present in Hungary with a new sales and service subsidiary. The new company will be domiciled in Budaörs, near Budapest.

With the separation of sales and service activities from the WITTMANN production plant in Mosonmagyaróvár and their relocation to Budaörs near Budapest, the WITTMANN Group is now located geographically within easy reach for customers from all parts of the country.

The new house of WITTMANN BATTENFELD Kft., the new sales and service subsidiary in Budaörs, not far from Budapest.

The new, enlarged sales and service organization with a workforce of 14 staff members will now take care of all tasks with customer contact, including project planning, customer support, repairs and spare parts service.

The organization has been completely restructured to enable it to provide customers with optimal support from a central location in Hungary. The management of the new sales subsidiary lies in the hands of Zsolt Rápolti, who has distributed the products of the WITTMANN Group in Hungary successfully as a regional salesman since 2012.

Zsolt Rápolti, Managing Director of the new Hungarian subsidiary.



This move also enables the WITTMANN production company under the management of Thomas WITTMANN to proceed with the necessary extensions of

production capacity and buildings to accommodate the production start-up of the EcoPower machine series and

the ongoing production of the robot series with up to 12 kg load capacity and the TEMPRO basic temperature controllers.

The members of the Management Board and Sales Management of the WITTMANN Group are confident that the new sales organization in Hungary will ensure even better support to the local customers and wish Zsolt Rápolti and his team every possible success. ♦

The WITTMANN Group reorganizing Polish activities

Picture left: The premises of BATTENFELD Polska, the prospective WITTMANN BATTENFELD Polska company, in Grodzisk Mazowiecki. Picture right: Managing Director Bogdan Zabrzewski.

On January 1st 2016, BATTENFELD Polska based in Grodzisk Mazowiecki (about 30 km southwest of Warsaw) will become WITTMANN BATTENFELD Polska.

The new Polish subsidiary that is thus created will offer the entire product range of the WITTMANN Group to the very active Polish industry.

For some time now, Managing Director Bogdan Zabrzewski is intensely busy to adapt himself and his team to the forthcoming duties and responsibilities and to respectively adjust the structure of the company. The Polish representation was always character-



ized by being very close to the customer. In order to further underline this aspect, the Polish sales team was strengthened correspondingly. Beyond that, additional service engineers have taken their positions in Wrocław, Katowice, and Poznań.

With manpower of nearly 30, the subsidiary is well prepared to meet the upcoming challenge. Several



smaller stocks will be created that will contain service packages for the needs of the service engineers. And the headquarters in Grodzisk

Mazowiecki will house an extensive spare parts storage. The months of November and December 2015 will still be used for the specialized training of the service team. And the completing training for the sales team will follow up in January 2016. ♦

What's cooking at the French branch?

On June 23rd, WITTMANN BATTENFELD France SAS held the first Open House event.



The aim of this event was to invite the WITTMANN Group subsidiaries to discover the new French plant, to meet the people working in the Granulators Department, and subsequently to get an overview of the latest changes in regard to the granulators business. Representatives of 17 subsidiaries from Europe and North America met in Moirans and helped make the event a real success.

There was a tight program: presentation of the French team, product upgrades and a price list review, a lecture about MC granulators, a presentation of some customer success stories – and many constructive discussions also took place.

The time was also right to unveil the latest member of the WITTMANN granulators family, the new Junior 3 Compact granulator. This machine will be presented to the public at the 2015 Fakuma exhibition October 13–17.

With regard to automation, the French team demonstrated its competence by running an IML side-entry robot for the automation of a 16-cavities molding process. This unit was manufactured in Moirans and was handling the production of six round lids including their stacking into cardboard boxes.

"Cooking for the future"

At the end of the event, a special surprise awaited the numerous visitors. All were invited to participate in a French cooking event. Dressed as chefs, the guests of the Open House cooked their own meal together, using a professional kitchen, and assisted by real chefs. ♦



The Open House event in Moirans offered many opportunities to get in contact with each other ...



... to have a close look at the machinery in the exhibition hall ...



... and finally, also to explore one's own cooking skills.

The new location for WITTMANN BATTENFELD Taiwan

In July 2015, the WITTMANN BATTENFELD subsidiary in Taiwan moved to a brand new building located in the Taichung district. The new facility provides more space, offers more possibilities to expand business in the future, and is surrounded by a more interesting businesslike environment.

WITTMANN Taiwan was founded 2007 in Taichung. From the beginning, it was the company's declared ambition to provide the entire Taiwanese market – which is a demanding one – with robots and peripheral equipment from WITTMANN. In 2008, the company was renamed WITTMANN BATTENFELD (Taiwan) Co. Ltd and from that time has also sold the WITTMANN BATTENFELD injection molding machines.

Working in an active market

Presently, the Taiwanese market is becoming more and more important for the WITTMANN Group. Partly, this is due to the many Taiwanese companies that are relocating back to Taiwan from China.

In addition, there is a strong and noticeable trend in the industry towards more investment. There is also high demand for new production equipment with a higher degree of automation.

As a consequence, the new WITTMANN BATTENFELD facility was created. The building is located in the Taichung Industrial Area and is perfect for administration, sales and service, stockholding and training. The new premises cover 2,280 square

meters and the building area itself comprises 1,400 square meters of floor space. David Chen, the Director of WITTMANN BATTENFELD Taiwan, says: "Our current team now

consists of fourteen people – and all of us were very happy to move into the new facility. It is really a great setting for the exciting work we are doing here." ♦

Exterior view of the new premises of WITTMANN BATTENFELD (Taiwan) Co. Ltd. ...



... and some interior views. – The Taiwanese subsidiary of the WITTMANN Group is located in the Taichung Industrial Area.



WITTMANN Group is represented in Vietnam

The T.A.O. BANGKOK CORPORATION LTD. was founded in Thailand in the year 1994 where the company has its headquarters. The company also owns two branch offices in Vietnam – in Hanoi and in Ho Chi Minh City. This year, it became the Vietnamese agent for the WITTMANN Group.

The T.A.O. BANGKOK CORPORATION has a workforce of 76 employees working in Thailand and Vietnam.

It has extensive experience in supplying high-quality screen printing ink and plastic film to several industries in both countries, covering automotive, electronics, packaging, textiles, and toy manufacturing.

The T.A.O. BANGKOK CORPORATION also represents a fully automatic screen printing line, high pressure forming machines, pad printing machines from Germany – and from now on also the entire product portfolio of the WITTMANN Group.

The strategy focuses on providing the best solutions for customers. Short response times and a rapid service count among the daily business practices. T.A.O. BANGKOK also creates an especially customized training for customers, including special demands, and helping generally with plant efficiency.

Good reputation in Vietnam

Economically, Vietnam has been one of the fastest growing countries for decades. The local T.A.O. BANGKOK staff works closely with the Vietnamese customers, having reached a full understanding of culture and attitude.

Many important Vietnamese customers – such as Long Thanh Plastic, to name just one of the most prominent – place great confidence in the BANGKOK CORPORATION because of the company's perseverance with regard to good service and the cultivation of long-term business relationships.

Both the T.A.O. BANGKOK management, and the WITTMANN Group, are looking forward to a long-lasting and fruitful partnership. ♦



The T.A.O. BANGKOK Vietnam office in Ho Chi Minh City.



Picture left: Chitlada Vichyastit, Marketing Operation Manager (left), Apichart Angspatt, Managing Director and Head of Technical Service (in the middle); and Chanachai Osornphasop, Managing Director of T.A.O. BANGKOK (Vietnam) Ltd. Picture right: Headquarters of the T.A.O. BANGKOK CORPORATION Ltd., in Samut Sakhon south of Bangkok, Thailand.



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