

Wittmann

www.wittmann-group.com

innovations

Techniques – Markets – Trends

Volume 12 – 1/2018



*Always
with the
customer*

Battenfeld

Articles that appeared in WITTMANN innovations so far

Conveying/Drying/Entire Systems

- Central system at BOSCH 1/2007
- Quality control of dryers 1/2007
- Kromberg & Schubert's system 2/2007
- Cost efficient material drying 2/2007
- FEEDMAX for the clean room 3/2007
- The new DRYMAX ED80 3/2007
- Focus on material feeding 1/2008
- Network control at Arge2000 2/2008
- Changing parameters conveying 2/2008
- Optimizing a conveying system 3/2008
- Dryers with energy rating 3/2008
- The Metchem central system 4/2008
- Auxiliaries at Delphi in China 1/2009
- LISI COSMETICS' central system 2/2009
- Planning of central systems 3/2009
- Testing energy claims at FKT 4/2009
- The new FEEDMAX B 100 1/2010
- Greiner's dryers saving energy 2/2010
- The A.C.S. conveying system 3/2010
- FEEDMAX Primus conveyor 4/2010
- The new DRYMAX Aton 2/2011
- The BKF conveying system 2/2011
- WD Kunststofftechnik system 4/2011
- PET processor's conveying 1/2012
- The PLASTICOM system 2/2012
- The NICOMATIC system 3/2012
- Saving energy in material drying 4/2012
- The Bespak material handling 2/2013
- Vision Technical Molding 3/2013
- WPC injection molding 1/2014
- New Pollmann central system 2/2014
- The HELLA Mexico system 3/2014
- The Procopi system, France 4/2014
- The SLM material management 4/2014
- WITTMANN in Slovenia 1/2015
- Alliance Precision Plastics, USA 2/2015
- Our Spanish customer Fushima 2/2015
- Injection Molding at Tielke 2/2015
- The WiBa QuickLook App 2/2015
- FRANK plastic central system 3/2015
- Johnson central system (China) 1/2016
- Drying at Lek Sun (Malaysia) 1/2016
- GÖTMAR system (Bulgaria) 2/2016
- The Havells (India) system 4/2016
- FC plus module for dryers 1/2017
- Axjo + BATTENFELD Sweden 1/2017
- The REINERT central system 2/2017
- The PT. WIK central system 3/2017
- The new ATON plus H dryer 4/2017
- 3A Plastics (F) central system 4/2017

News from the Subsidiaries

- Australia 2/2008, 2/2013
- Austria 2+3/2008, 1/2010, 3/2011, 4/2012, 3/2013, 2/2015, 3/2015, 2/2016, 3/2016
- Benelux 3/2008, 2/2009, 3/2017
- Brazil 3/2007, 1/2009, 2/2017
- Bulgaria 2/2009
- Canada 1/2007, 1+2/2008, 3/2009
- China 2/2010
- Colombia 2/2012
- Czech Republic/Slovakia 4/2009, 3/2014, 1/2017, 3/2017, 4/2017
- Denmark 1/2009, 1/2013
- Finland 4/2008+1/2012
- France 2/2007, 3/2008, 4/2015, 2/2017
- Germany 1/2007, 3/2012, 4/2013, 3/2014
- Great Britain 2/2009, 2/2010, 3/2017
- Greece 2/2014
- Guatemala 1/2013
- Hungary 1/2008, 4/2015
- India 2/2008, 3/2010, 2/2012
- Israel 1/2012
- Italy 4/2008, 1/2010, 4/2011
- Mexico 3/2007, 3/2009, 1+2/2011
- Morocco, 1/2017
- Poland 2/2013, 3/2013, 4/2015, 3/2016, 3/2017
- Russia 4/2012
- Serbia/Kosovo/Albania 1/2017
- Slovenia/Croatia 1/2010
- South Africa 1/2016
- Southeast Asia 2/2007
- South Korea 3/2010, 2/2017
- Spain 3/2007, 1/2017
- Sweden 2/2009
- Switzerland 1/2008, 2/2012
- Taiwan 4/2009, 4/2015
- Turkey 3/2008, 2+4/2011
- USA 2/2008, 3/2009, 1/2011, 4/2013, 4/2014, 2/2016, 4/2016, 4/2017
- Vietnam 4/2015

Injection Molding

- Injection molding one stop shop 4/2008
- MIM at Indo-US MIM 4/2008
- Cost optimization: EcoPower 1/2009
- IT assisted services 1/2009
- The water injection process 2/2009
- The Krona Indústria equipment 2/2009
- Micro-parts: Microsystem 50 3/2009
- wolcraft: multi-component 4/2009
- Process data acquisition 4/2009
- The new all-electric EcoPower 4/2009
- The Thomas Dudley company 1/2010
- IML with TM Xpress 1/2010
- AIRMOULD®/AQUAMOULD® 1/2010
- Design Molded Plastics 2/2010
- Stadelmann relies on Wille 2/2010
- The new MicroPower 3/2010
- AQUAMOULD® + projectiles 3/2010
- New benchmark: MacroPower 4/2010
- The STELLA company 4/2010
- The ServoDrive technology 1/2011
- The 75th machine for Krona 1/2011
- Packaging specialist TM Xpress 2/2011
- WAVIN (Czech Rep.) 3/2011
- SANIT molding a success 3/2011
- WEPPLER's molding machines 4/2011
- MacroPower producing cable ties 1/2012
- The CELLMOULD® process 2/2012
- The 43 ESMIN machines 3/2012
- Remote connectivity 3/2012
- Foamed high-quality parts 4/2012
- LECHNER MacroPower 4/2012
- MacroPower at GT LINE 1/2013
- Praise for the standard machine! 1/2013
- Vertical machines at Electricfil 2/2013
- BECK's molding technology 2/2013
- ESCHA using HM machines 3/2013
- Hoffer Plastics' HM machines 3/2013
- Guppy using the EcoPower 3/2013
- The Backhaus success 4/2013
- Incapsulation: clean and safe 4/2013
- Multi-component parts 1/2014
- Success through versatility 1/2014
- The tried and tested at Philips 2/2014
- Light-weight foamed parts 2/2014
- The KRESZ & FIEDLER systems 3/2014
- SME molder Autenrieth 3/2014
- Top micro parts from Küng AG 3/2014
- Opening up efficiency reserves 4/2014
- HiQ Shaping 4/2014
- ServoPower saves energy 1/2015
- Best quality at hünersdorff 1/2015
- The Grip It Fixings success story 1/2015
- Gerresheimer system in China 2/2015
- MicroPower at Tessy (USA) 3/2015
- Molding at Interplex (China) 3/2015
- RT-CAD Tiefenböck (A) 4/2015
- Dieter Wiegelmann (D) 4/2015
- OneSeal ApS in Denmark 4/2015
- Denk Kunststofftechnik (D) 1/2016
- ELASMO Systems (A) 1/2016
- REUTTER Group (Germany) 2/2016
- P.P.H. LIMAK in Poland 2/2016
- MacroPower at Stüdl (CH) 3/2016
- Ever Rich Fountain, Taiwan 3/2016
- The Ackermann production (D) 4/2016
- Micro molding at Eletk, Italy 4/2016
- Moto Tassinari, USA 1/2017
- Linear Plastics, UK 1/2017
- LMBK (D) compact cells 2/2017
- Teflon micro precision parts 2/2017
- The HIDROTEN company (E) 2/2017
- PLASTIKA BEVC, Slovenia 3/2017
- Buzek processes PVAL 3/2017
- Fakuma Highlights 2017 4/2017
- Hybrid technology: high precision 4/2017
- EPC (USA) is still growing 4/2017

Blending

- The new GRAVIMAX series 2/2007
- Blender economics 3/2007
- GRAVIMAX 14V blender 3/2009
- The art of blending regrind 3/2011
- Dosing on the highest level 1/2013
- Precision for safe rail traffic 4/2013
- How to get to better blending 4/2015

In-Mold Labeling

- IML stack mold systems 3/2007
- WITTMANN 2 + 2 stack mold 1/2008
- ATM d.o.o. in Serbia 3/2009
- PLASTIPAK in Canada 4/2010
- Tea Plast in Albania 3/2012
- EcoPower: fourfold IML 1/2013
- IML as a multifaceted process 4/2013
- IML at AMRAZ in Israel 4/2015
- 3D-IML at VERTEX in Poland 1/2016
- The W837 IML lid-system 2/2017

Flow Control/Temperature Control

- Advantages of pulsed cooling 1/2007
- Comparing water to oil 2/2007
- The new TEMPRO plus C series 3/2007
- COOLMAX cooling units 2/2008
- TEMPRO "guarding" IMMs 3/2008
- TEMPRO with DUO cooling 4/2008
- Variothermal tempering 1/2009
- TEMPRO plus C180 2/2009
- TEMPRO direct C120 [C250] 3/2009
- WFC: Water Flow Control 4/2009
- TEMPRO plus C180 1/2010
- TEMPRO: Universal benchmark 2/2010
- BFMOLD® mold cooling 3/2010
- TEMPRO plus D 4/2010
- Online-thermography 1/2011
- Tempering at Fuchs & Sohn 2/2011
- TEMPRO plus D in automotive 1/2012
- Oscilloscope function 2/2012
- Compact temperature controller 4/2012
- Optimal tempering = quality 1/2013
- The Starlinger special solution 2/2013
- New WITTMANN equipment 4/2013
- TEMPRO uses heat waste 1/2014
- Clean solution at DELPHI 4/2014
- Blum using a special solution 1/2015
- The new FLOWCON plus 4/2015
- TEMPRO plus D at Fischer (D) 1/2016#
- WFC retrofit kit is available 2/2016
- FLOWCON plus at COLOP (A) 3/2016
- TEMPRO plus D180 at Wethje 4/2016
- The new TEMPRO basic C120 1/2017
- Rejlek Group uses TEMPRO 3/2017
- TEMPRO plus D with SpeedDrive 4/2017
- Water: high-temperature medium 4/2017

Automation/Control Technology

- Medical production and control 1/2007
- Large structural foam parts 2/2007
- The new R8 robot control 3/2007
- High-end: Seat adjustment rods 1/2008
- Drive engineering for robots 1/2008
- Transponder pin production 2/2008
- Automated remote control keys 3/2008
- Automation at Carclo, UK 4/2008
- The flexible automation cell 1/2009
- Growth with robots 2/2009
- Bruder toy wheel production 4/2009
- Pallet production at Utz, Poland 1/2010
- EcoMode for efficient robots 2/2010
- Automated oil level sensors 2/2010
- Automating rotation welding 3/2010
- The new R8.2 robot control 4/2010
- Linear robots in the clean room 1/2011
- Super-fast part removal 2/2011
- Automation of cups and lids 3/2011
- Superior multi-component parts 4/2011
- Automating insert molding 1/2012
- The expert automation of lids 2/2012
- LSR parts at Silcotech (CH) 3/2012
- Zero-reject production 4/2012
- Smallest parts at JENOPTIK 2/2013
- The Schramberg automation 3/2013
- The Busch-Jaeger automation 1/2014
- Automating In-Mold Decoration 2/2014
- Automation at Port Erie Plastics 3/2014
- Automating STAR PLASTIK 4/2014
- Jones Plastic and WITTMANN 1/2015
- Robots at Greeland/Singapore 2/2015
- SEB tandem robots (F) 3/2015
- The Sacel automation (I) 3/2015
- Automation in Korea 4/2015
- Suzuki India and WITTMANN 4/2015
- IMI special solution (Bulgaria) 1/2016
- Innoware in Indonesia 2/2016
- 2 robots at Sanwa, Singapore 2/2016
- 7,000th W818 at Kroma (D) 3/2016
- COMBI-PACK automates IML 4/2016
- Jaeger Poway in China 1/2017
- RenyMed's automation solution 3/2017
- Digital robot twin 4/2017
- Cyber security 4/2017

Granulation

- Inline recycling of sprues 1/2007
- Giant granulator MCP 100 2/2007
- The new MAS granulator 3/2007
- Challenging recycling process 1/2008
- The MC 70-80 at Centrex 2/2008
- Gibo Plast enforces recycling 2/2009
- MC granulators with AF auger 4/2009
- Grinding of ferrite 1/2010
- Grinding critical material 3/2010
- The TMP CONVERT solution 1/2011
- Inline recycling with Minor 2 3/2011
- Granulators under the press 2/2012
- Large solutions for large parts 1/2013
- Minor 2 at JECOBEL, Belgium 2/2016
- MIHB and JUNIOR 3 Compact 4/2016
- ARaymond and the G-Max 33 3/2017

WITTMANN innovations (Volume 12 - 1/2018)

Quarterly magazine of the WITTMANN Group. The magazine appears to meet the informational demands of staff and customers. Address: WITTMANN Kunststoffgeräte GmbH, Lichtblaustrasse 10, 1220 Vienna - Editorial office, layout, graphic production: Bernhard Grabner - tel.: +43-1 250 39-204, fax: +43-1 250 39-439 - e-mail: bernhard.grabner@wittmann-group.com Issue 2/2018 of "WITTMANN innovations" will appear at the beginning of the second quarter 2018. - www.wittmann-group.com

Editorial

Content



Michael Wittmann

Dear Reader,

Every time I write this quarterly editorial I realize once more how quickly such a quarter of a year passes – which invariably astonishes me and also frightens me a little. Then I could swear I had written the previous contribution only just recently. But shortly before I started, our Editor reminded me politely but firmly that this last contribution to the current issue was still missing – as usual.

The year 2017 generally seems to have passed very rapidly. And many things have happened within the WITTMANN Group, driven by an extremely positive development in the entire plastics industry. We are closing this year with a new record in sales and can now look back on eight years of uninterrupted growth. An extraordinary state of affairs in view of the fact that in our fast-moving era eight years seem like a small eternity. But even such an “eternity” can come to an end. Caution is necessary. Political decisions can have an effect on the global economic development. In this connection, I am thinking of the re-negotiation of the NAFTA Agreement, the restriction of the bond purchase program by the central banks and, as a representative of an export-oriented company, I always keep an eye on the development of the euro exchange rates against other currencies. After all, the liberal monetary policy in various markets has contributed to the formation of bubbles which can burst at any time without warning.

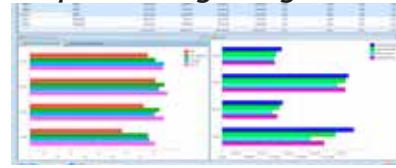
Nevertheless, we are starting the year 2018 with great optimism. There is no sign of a decline in project inquiries. For some time now, we have almost continuously been working at the limit of our capacity in many areas. And we are starting into 2018 with a high order backlog, which is expected to last for a considerable time – far beyond the publication date of our next editorial, and in some areas even beyond the one after that. Remedial action is already underway. The extension of our machine production plant in Köttingbrunn is nearing completion, which means that our production capacity for *MacroPower*, our large machine series, will be doubled. In the medium-sized machine sector, we and our customers will also benefit from this extension from March 2018 onwards. In the product segments of robots, temperature controllers and bulk material technology, we have already increased our capacities in recent years in line with the growing demand. So we are in an excellent starting position for new record figures.

I take this opportunity to thank all our staff members and business partners once more for this highly successful year 2017. And I wish you all great pleasure in reading this issue of innovations, where many interesting articles await you again.

Yours cordially, Michael Wittmann

Injection Molding

Cooperation regarding MES



Gabriele Hopf
on the partnership
with MPDV
Mikrolab GmbH.
Page 4

Russian automotive parts



Dmitry Maksimenko
visited JSC Apex in
Tolyatti.
Page 6

Recycling

Large-scale recycling



Jassen Sterev
on the special
Liebherr system in
Bulgaria.
Page 8

Conveying

The fortell central system



Milan Vácha
describes the
conveying system
of the Czech multi-
specialist.
Page 10

Automation

PLASSON's robots in Israel



Arieh Zohar
on a successful
cooperation in the
field of automa-
tion.
Page 12

Portrait

WITTMANN Canada Inc.



Page 13

News

Experts convention 2017



Page 14

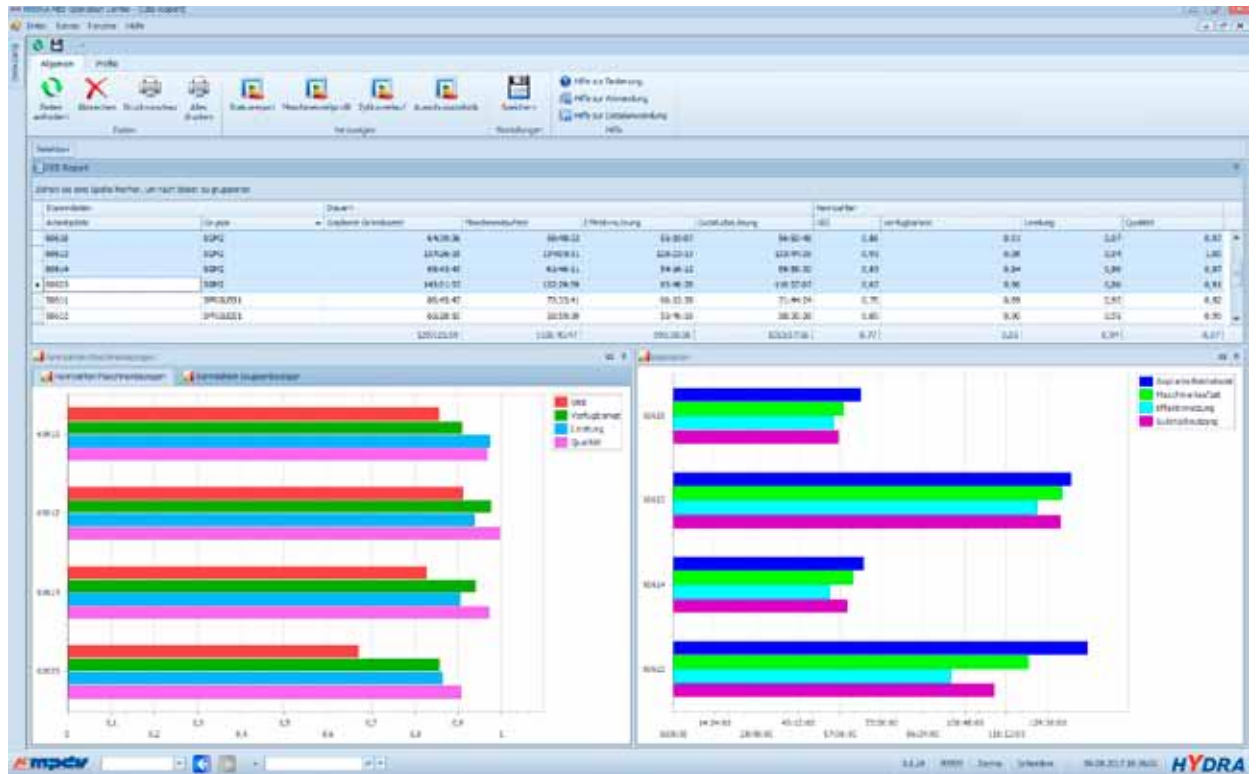
25 years in Spain



Page 15

WITTMANN BATTENFELD and MPDV Mikrolab cooperate in MES

WITTMANN BATTENFELD from Kottingbrunn/Austria and MPDV Mikrolab GmbH based in Mosbach/Germany now cooperate in selling the MES Software HYDRA from MPDV.
Gabriele Hopf



Integration of the WIBA-MPDV SmartMonitoring module into the UNILOG B8 control system.

(Source: WITTMANN BATTENFELD, MPDV Mikrolab GmbH)

As a manufacturer of injection molding machines, automation technology and peripheral equipment, WITTMANN BATTENFELD offers a complete product range for modern injection molding technology. A high degree of integration and virtually interface-free communication within a production cell has already been achieved on the basis of virtually uniform control system technology, which is an important step into the world of Industry 4.0 with the WITTMANN 4.0 networking concept.

MPDV Mikrolab GmbH has been a leader in the field of MES (Manufacturing Execution Systems) for many years and is operating worldwide with subsidiaries in Germany, Switzerland, the USA, China, and Singapore. This enables MPDV to serve customers with production plants around the world.

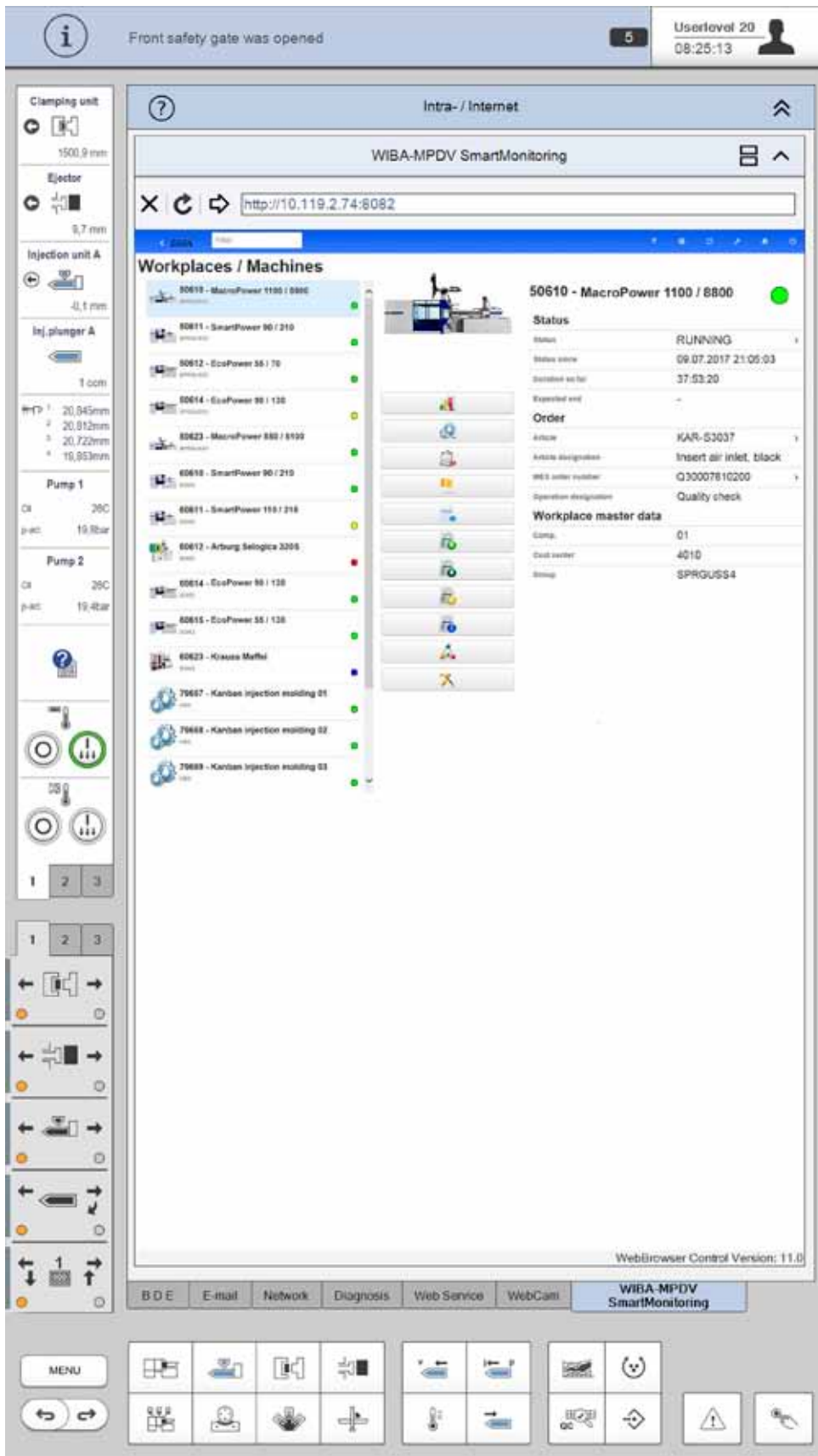
The HYDRA software

The MES software HYDRA is characterized by modular design and includes a wide range of functional elements, which can be combined according to customers' needs. A high degree of standardization provides ergonomic user

interfaces and scalability. This enables precise adaptation of the MES system to every customer's individual requirements, to fit every company's size and specific needs.

MPDV – the MES specialists

MPDV Mikrolab GmbH based in Mosbach in Germany develops modular Manufacturing Execution Systems (MES), drawing on 40 years of project experience in production environments. MPDV Mikrolab offers MES products, MES services and also complete MES solutions. The company currently employs more than 330 people at a total of ten locations in Germany, Switzerland, Singapore, China and the USA. Users from various industries, such as metal processing, plastics processing and medical technology, already benefit from more than 1,000 installations of the multiple award-winning MES solutions from MPDV Mikrolab. These companies include medium-sized manufacturing companies as well as major international groups. As a TOP100 company, MPDV Mikrolab ranks among the most innovative medium-sized companies in Germany.



of close cooperation between the machine manufacturer and the MES specialist with the required production equipment on the one hand, and simultaneously with the software management modules needed for flexible production, thus promoting the optimization of manufacturing processes and quality management systems with maximum transparency of all processes.

The partnership and close cooperation of the injection molding machine manufacturer WITTMANN BATTENFELD with the independent MES specialist MPDV Mikrolab brings concentrated competence to the customer's project management, yet at the same time ensures a well-balanced combination of counseling, training and support on the production floor in companies with a heterogeneous range of processing machines and other equipment from several different makers.

A special benefit for users of WITTMANN BATTENFELD injection molding machines combined with MES HYDRA from MPDV is the facility to have various status signals from the MES displayed on every UNILOG B8 monitor screen of the WITTMANN BATTENFELD machines. In this way, a comprehensive

In many production plants, several upstream and downstream manufacturing processes are integrated into MES HYDRA in addition to injection molding, such as materials management, assembly jobs, printing, packaging, etc. The aim of the WITTMANN BATTENFELD/MPDV partnership is to supply plastics processors by way

overview of all machines connected to the MES system can be obtained from every UNILOG B8 monitor screen. Depending on the equipment package installed, functions such as production monitoring, OEE evaluation or maintenance management are all visualized directly on the screen of the UNILOG B8 control. ♦

Flexible, clear OEE evaluation for several machines in MES HYDRA.

(Source: MPDV Mikrolab GmbH)

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

Russian injection molder relies on WITTMANN BATTENFELD

JSC Apex is an important Russian supplier of automotive components. Apex is an expert in molding parts of the highest quality using WITTMANN equipment. Dmitry Maksimenko, the Managing Director of the Russian WITTMANN BATTENFELD branch, met some of Apex's executives.

Dmitry Maksimenko

JSC Apex in Tolyatti, an industrial city in the southeast of the European part of Russia, was founded in 2005. From the beginning, Apex has specialized in the production and assembly of automotive climatic and cooling systems, serving many auto brands. Today, Apex operates a facility with a floor space of 20,200 m², employing a personnel of 117 (45 of whom are engineering personnel). Apex's production not only required a large number of plastic components, Apex had also received many customer inquiries relating to the manufacturing of plastic parts. Thus, in 2014, the decision was made to start the in-house production of plastic components.

Views of the Apex injection molding facility in Tolyatti, Russia.



Defining the requirements

In this regard, Irina Markelova, the Apex Director of Business Development, comments: "When we started to look for a partner that could supply us with the equipment we needed – injection molding machines, conveyors, robots, dryers, temperature controllers, chillers, etc. – we strictly

wanted to get everything from one single source, and not from different suppliers. Furthermore, all the equipment had to fit into the existing building. We had to deal with restrictions in height (5.3 m), and in width (6 m of free floor space between columns). Such were the conditions of placing all the plastics processing equipment, including the crane. It was clear that we needed complex injection

molding solutions of minimum dimensions. Finally, the finished parts had to absolutely meet our strict technical requirements with regards to the quality as well as the cycle time.”

Having checked about 10 different equipment suppliers, Apex finally decided to choose WITTMANN BATTENFELD, not least because of their comprehensive technical support, the individual customer service and attention, and – as was known – their very quick response time.

Irina Markelova adds: “The project was realized in the course of 6 months: 2 months of calculation, and 4 more months of work on the ground, comprising the rebuilding of the facility, preparation of floors, installation of the

The WITTMANN Group equipment

The Apex production applies WITTMANN BATTENFELD injection molding machines of the *MacroPower* and *SmartPower* model ranges with clamping forces from 300 to 650 tons. All machines are equipped with WITTMANN robots, removing the parts from the machine, and placing them on a conveyor belt.

In addition, all of the peripheral equipment (material dryers, mold temperature controllers, material conveyors, chillers) comes from WITTMANN. Using all production equipment from the WITTMANN Group, JSC Apex fabricates – among many other parts – PP cases weigh-

ing 100 to 1,500 grams, components of fans made from either PP or PA weighing 100 to 700 grams, parts of irregular shape made from the same materials (70 to 500 grams), and also solid products made from PA66-GF50 with a weight of 10 to 150 grams.

Picture left: Almost all of Apex's molds are equipped with hot-runner technology where the shut-off nozzles are hydraulically operated. Picture right: Highly accurately injection molded gear pinion. Tolerance for the central bore: only 0.06 mm.



Demanding part production

Konstantin Uryupin, the Apex Project Manager, refers to some examples of especially demanding parts: “Here, for example, we have one part that is applied in car starters: a gear pinion with inwardly arranged gear teeth. Formerly, this part was made from metal. Today we use PA66-GF50, but still we have to meet the same tolerances: for example only 0.06 mm for the part’s central bore. For the production of such a part, you really need sort of a symbiosis of high-quality processing equipment and the mold itself. Only one weak link in the chain, and it wouldn’t work. Another successful example was the project we did for Calsonic Kansei where we had to revert to the technique of cascade injection. For Valeo and Erea, we produced a group of components for a ventilation device where we had to thoroughly balance the different elements. Another showcase was the production of a radiator tank element for Erea that had to feature a high degree of planeness which also wasn’t easy to achieve.”

Konstantin Uryupin sums up the partnership with WITTMANN BATTENFELD as follows: “In our opinion, the equipment that was delivered by WITTMANN BATTENFELD is of the highest quality, and it perfectly fits our needs regarding the dimensions. WITTMANN BATTENFELD offered us the best price-performance ratio. Above that, the close collaboration with the Russian subsidiary was a huge advantage for us, including the smooth communication.” ♦

From left to right: Konstantin Uryupin, Apex Project Manager; Aleksandr Kuzin, Head of the Apex Technology Department; Dmitry Maksimenko, Managing Director of WITTMANN BATTENFELD Russia; Irina Markelova, Apex Director of Business Development; Evgeny Kabanov, General Director of Apex.



crane and the ventilation system, etc. In January 2015, the first parts were produced for the Calsonic Kansei company.

Gradually expanding the production volume, we became suppliers to Valeo, Erea, and AVTOVAZ-RENAULT-NISSAN. Currently, there is still an increase in the numbers of customers and products.”

Dmitry Maksimenko is the Managing Director of OOO WITTMANN BATTENFELD in Moscow, Russia.

Granulation and transport: system solution for Liebherr Bulgaria

In 2015, Liebherr Bulgaria started up a new system for granulating plastic parts and transporting the regrind. Designed and installed by WITTMANN BATTENFELD Bulgaria, this system has substantially improved the quality of the regrind as well as the efficiency and sustainability of the processes involved.

Jassen Sterev

The Liebherr group has been active in the Bulgarian market for many years. At its facility in Radinovo, Liebherr-Hausgeräte Marica EOOD has been producing high-quality refrigerators and freezers since 1999, which are used in households as well as industrial kitchens, warehouses and production plants around the world.

In the Trakia industrial zone of Radinovo near Plovdiv, the second largest city of Bulgaria, Liebherr has a production floor of 89,000 m². In 2000, just 14,000 appliances were manufactured there. Today, the facility's workforce of 2,050 employees produces 950,000 units per annum.

The problem

In response to the facility's extremely dynamic growth and the simultaneous constant striving for highest quality standards, combined with the search for sustainable production processes, a special recycling project was developed in 2014. Thermoforming of large chest freezers produces scrap material. Following granulation of this material, the regrind is used in injection molding; however, a prerequisite for high-quality injection-molded parts is that the regrind must be free of dust. Prior to the start-up of the new system, the scrap was collected in mobile containers, which were taken out of the actual production area, and the parts were subsequently ground in an extremely large central granulator.

The optimal solution would be to have the parts to be granulated immediately and directly fed into a granulator standing beside the processing machine, remove the resulting regrind automatically from the production area and collect it in big bags somewhere else.



Close-up views of the pipelines which are part of the regrind transport system installed at Liebherr in Radinovo, Bulgaria.



WITTMANN BATTENFELD develops the solution

WITTMANN BATTENFELD Bulgaria was able to offer a flexible, innovative solution at a competitive price and therefore won the contract to install the system, which was built at the production plants of the WITTMANN Group in Austria and France.

The complete system now installed at Liebherr in Bulgaria consists of four WITTMANN ML 33 plastics granulators with water-cooled rotors and material hoppers for long parts, five vacuum pumps with filter stations to extract the dust from the regrind, four suction valves, 16 stainless steel material containers, each equipped with a controlled suction box, and the material feed lines installation.

The vital factor for the quality of the regrind – and the big difference compared to regrinding the plastics parts in a central granulator – is the meticulous extraction of dust from the regrind and subsequent collection of the dust in special containers placed underneath the XMB filters of the vacuum pumps.

Every single thermoforming line is equipped with an ML 33 grinder. Each one of these grinders has a material throughput capacity of 150 kg/h. The regrind is transported automatically from the regrind containers over a vertical distance of 10 meters and a horizontal distance of more than 200 meters, before it is filled into the big bags, which are located outside the manufacturing area.

Every one of these transport lines is independent and can be lengthened without any restriction by adding more interim depots as required.

The conveyor belt transporting the pieces of scrap to the ML 33 grinder, which has been placed inside a special sound-insulated cell.

The ML 33 grinder from WITTMANN inside its cell. The grinder outlet marks the beginning of the regrind transport system.



Regrind interim depot in the transport system.



The end point of the regrind transport system: filling the regrind into big bags.

Continuing success

The complete planning of this system, as well as its delivery, assembly and commissioning, was the responsibility of WITTMANN BATTENFELD Bulgaria. The acceptance and warranty protocol was signed in mid-2015, and the system has been functioning absolutely trouble-free ever since.

And WITTMANN BATTENFELD Bulgaria supplies Liebherr locally with original spare parts as required and supports the company with maintenance work, too. ♦

Jassen Sterev is the Managing Director of WITTMANN BATTENFELD Bulgaria EOOD in Kalekovets, Bulgaria.

fortell in the Czech Republic uses a WITTMANN central system

Based in Lanškroun, the company fortell s.r.o. offers the design and making of injection molds, metal stamping and assembly, and injection molding of plastic parts. When it comes to drying and conveying of plastic material, fortell relies on the expertise of WITTMANN BATTENFELD CZ spol. S.r.o., the Czech branch of the WITTMANN Group.

Milan Vácha

Since 1995, fortell s.r.o. has been providing its customers with comprehensive services, particularly in the field of supplying plastic and metal products. fortell started from scratch with a small metal stamping production and only 5 employees. Having expanded to a more competitive size, the company today employs a staff of 200, concentrating all activities under one roof, including a stamping department, a mold

shop, and an injection molding department. fortell offers extensive support to their customers in the fields of product development, in-house mold design, mold-making, and mass production of plastic and metal components.

Over the years, fortell has won several awards. In 2004, the company was awarded the DHL Export Award for the most outstanding exporter in the Czech Republic. In 2016, fortell was honored with the regional title of "Company of the Year 2016". More than anything else, however, fortell is proud of the people that are working with the company. fortell has built a team of professionals that represent the finest Czech engineering traditions. These experts supply a wide range of custom-made products to many high-profile companies from all different sectors (electronics, automotive, consumer goods, medical equipment), and all over Europe, Latin America, the USA, and Japan, something they are understandably very proud of. Having been a content WITTMANN robot customer for many years, fortell installed a WITTMANN central drying and conveying system in 2017.

The central requirements

It was fortell's intention to get a central drying and conveying system for the supply of the one half of the production which was comprised of the larger machines,



The Lanškroun plant of fortell s.r.o., Czech Republic. The company is an important manufacturer of metal and plastic parts.



The RFID coded CODEMAX coupling station makes sure that the right material is conveyed to every injection molding machine.

as the other half with the smaller machines was already being served by existing mobile material dryers. A strong emphasis was laid on the possibility of the system's ability to extend to be able to also serve the smaller injection molding machines in the future. As a result, fortell looked for a modular system, one that was reliable, secure, and technically state-of-the-art.

These requirements were easily met with WITTMANN DRYMAX E battery dryers with their standard FC plus function. The special FC plus dryer function enables a more efficient configuration and operation of drying systems.

If the system consists of several dry air generators, some dryers can be shut off by an automatic control if there is low demand. Thus, an important additional advantage of

Reliability of the production process

WITTMANN BATTENFELD CZ integrated a CODEMAX coupling station into the drying and conveying system. The CODEMAX station makes sure that the right material is always conveyed to each of the injection molding machines. In case the operator makes a mistake in connecting the wrong material source to a molding machine, the conveying process does not start, and an error message appears on the screen of the M7.3 system control unit.

Furthermore, the system features a VNC license (Virtual Network Computing) which enables the operation of the M7.3 control from a common personal computer (4 participants maximum). In case a WITTMANN BATTENFELD customer should ever need any help in setting the system's

parameters, a WITTMANN Group service technician can join the customer's personal computer via TeamViewer and clearly demonstrate how to proceed – without costing any travel expenses.

Highest flexibility

WITTMANN BATTENFELD CZ turned out to be very flexible in every respect. The company even enabled the integration of existing equipment from other manufacturers, including some material loaders and two material dryers with four drying hoppers. In addition to that, these devices could be connected to the WITTMANN alarm system.

Another challenge was the integration of gravimetric blenders into the system, because they had to keep their advantage of being mobile. This problem was solved using quick disconnectors and bus modules. WITTMANN BATTENFELD CZ has made it possible for three mobile gravimetric units to be moved easily from one injection molding machine to another, while still allowing for the feeding of these blenders via the central conveying system. Altogether, WITTMANN BATTENFELD CZ met all of fortell's requirements and

Views of the fortell central drying and conveying system, installed at the company's plant in Lanškroun, Czech Republic.



the FC plus function is the saving of energy. In addition, additional dryers can be added to the system at any time, allowing the customer to always be very flexible in case of any extensions (dryers and/or drying hoppers).

expectations. The Czech branch of the WITTMANN Group was able to use the opportunity to further strengthen the relationship with fortell, a customer that is looking for both, reliable equipment and reliable business connections. ♦

Milan Vácha is a collaborator of the Business Department of WITTMANN BATTENFELD CZ Spol. s.r.o. in Písek, Czech Republic.

PLASSON, Israel, uses WITTMANN Group equipment

Since 2002, the Israeli PLASSON Group (PLASSON, RION, PLASTOKIT) has acquired 75 WITTMANN robots, and since 2012, they have put 26 WITTMANN DRYMAX material dryers to use.

Arieh Zohar

Founded in 1963, PLASSON, which runs its main production plant in Ma'agan Micha'el at the southern end of the Carmel Coast, Israel, is engaged in the development, manufacturing, and marketing of technical products.

PLASSON's primary products include fittings and valves made from PE and PP, as well as PVC pipes for water and gas conveying systems. Furthermore, PLASSON produces customized poultry house equipment, particularly water and food dispensers, ventilation systems, and other related equipment.

PLASSON is a well-established manufacturer with more than 1,500 employees, providing a wide range of high-quality products. The company is internationally active, exporting about 90% of their manufactured items.

PLASSON owns subsidiaries not just in Israel, but also in Germany, Italy, France, UK, Spain, Poland, Australia, USA, Brazil, and India as well. Additionally, their extensive system of distributors allows customers easy access to PLASSON's products everywhere in the world, in addition to the ability to provide optimal local customer support and service.

PLASSON also is committed furthering the development of manufacturing techniques, and therefore succeeds in constantly improving its products and production efficiency.



Ya'acovi Schlosberg, Service Technician of A. ZOHAR Ltd. (left), and Y. Kuper, PLASSON's Automation Manager.

A few examples of PLASSON's highly differentiated product range.

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

In addition to all of that, PLASSON also runs in-house mold and automation engineering departments.

PLASSON and the WITTMANN Group

Having used automation systems from other manufacturers before, PLASSON decided to acquire their first WITTMANN robot in 2002.

"Immediately after having put into operation the first WITTMANN robot, it was absolutely clear to us that WITTMANN robots – due to their advanced features – were the most suitable ones for PLASSON. They come with an excellently elaborated CNC control, offering the most user-friendly teach-box and teach-program", says Tamir Bacharach, PLASSON's Maintenance Manager. "And since WITTMANN has come up with the latest features for the R8 control – *SmartRemoval* and *EcoVac* for example

– the robot's advantages have become even more obvious. In short: WITTMANN robots easily meet all our requirements."

PLASSON had been very satisfied with the first WITTMANN robots, and therefore the decision was made to adopt WITTMANN as their standard supplier of robots whenever an automation solution for the injection molding process is needed. ♦

The WITTMANN Group branch in Canada

Started in 1985 as Nucon Systems, WITTMANN Canada has a long and exciting past. Growing from just two people, and becoming part of the WITTMANN Group of companies in August of 1999, the Canadian branch is an integral family member for over 18 years now.

With a loyal and steady staff of long-term employees, WITTMANN Canada, based in Richmond Hill, Ontario, is a family in itself, dedicated to doing what's best for their customers and the WITTMANN Group as a whole. The company's manufacturing space consists of six primary assembly departments.

The FEEDMAX assembly area has an average monthly output of 150 material loaders of all models. WITTMANN Canada also runs a special VACUMAX assembly area which can build up to 20 vacuum pumps per month along with a host of other large custom equipment and systems, including pressure pumps, railcar unloading systems, and a variety of other custom equipment for the handling of pellets, regrind and powder.

The GRAVIMAX department builds blender models from the 9 kg, up to the 27 kg for high throughput blending applications. Above that, WITTMANN Canada's electrical department wires and assembles a variety of custom control panel solutions, special junction boxes, alarm systems, and a variety of wiring harnesses and associated sub-assemblies.

The welding department deals with small parts and fittings for piping installations, vacuum take-off boxes, small sheet metal fabrications, and connection manifolds.



Rob Miller, Managing Director of WITTMANN Canada Inc. (fourth from the right), and team.



Views of ROTOLOAD installations.

WITTMANN Canada succeeds with ROTOLOAD

The final, but rapidly growing, department of WITTMANN Canada is the ROTOLOAD department. ROTOLOAD is a patented loading/weighing equipment, developed at WITTMANN Canada, and specifically engineered for the powder dispensing process for the rotational molding industry. Working with some specific rotomolding industry partners,

ROTOLOAD has resulted in an exciting growth opportunity, and is most recently responsible for the successful winning of the single largest project in the history of the company at over \$ 2,000,000.

With a dedicated group of employees, and an exciting future ahead, WITTMANN Canada is looking forward to serving the WITTMANN Group, and continuing to support the plastics industry in North America and beyond. ♦

Our convention of experts in Nuremberg

The main focus of the convention of experts held on 21 June 2017 at WITTMANN Robot Systeme in Nuremberg was on the UNILOG B8 injection molding machine control system and the optimization of cycle times through automation.

Michael Tolz, General Manager of the WITTMANN subsidiary in Nuremberg, opened the event and welcomed the numerous guests.

The program started with a presentation of the new UNILOG B8 injection molding machine control system. This was followed by speeches about the servo-hydraulic *SmartPower* injection molding machine and the all-electric *EcoPower*. The keenly anticipated presentation of ways to optimize cycle times with special automation solutions sparked off a lively discussion among convention participants.

Growth and performance

Andreas Hollweg, Sales Manager of WITTMANN BATTENFELD at the Meinerzhagen facility, also addressed the convention participants. He spoke about the almost completed building project at the WITTMANN BATTENFELD production plant in Kottingbrunn, Lower Austria, which will considerably expand the production capacity once more.

On completion, a total of 2,150 m² will be added to the production floor in Kottingbrunn, and the administration building will be extended by an entire storey. And Hollweg was very optimistic about the group's sales figures: "We have continued our growth and expect to pass the 400 million euro mark in sales for the first time in 2017."

The expert guests were subsequently given an opportunity to see for themselves the high precision in production and general efficiency of the WITTMANN BATTENFELD injection molding machines and of the automation equipment also manufactured by the WITTMANN Group: by a demonstration of injection molding production cells commissioned on site and starting to produce high-quality plastic parts. ♦

Michael Tolz, General Manager of WITTMANN Robot Systeme in Nuremberg, opened the convention of experts and welcomed the participants.

*(Photos: David Löh/
Editorial Office
of Plasterarbeiter)*

Talking with a guest at the convention.

Explanations about the UNILOG B8 machine control system.

Injection-molded wheat beer "glasses" with a volume of 0.3 liters were produced as part of the machine demonstrations.



25th anniversary of the Spanish branch



The team of WITTMANN BATTENFELD SPAIN S.L., the Spanish branch of the WITTMANN Group, based in La Pobla de Claramunt, Catalonia.

Coinciding with the Equiplast 2017 show, WITTMANN BATTENFELD SPAIN S.L. celebrated the company's 25th anniversary with a large number of customers, vendors, and employees.

Dr. Werner Wittmann, Michael Wittmann, and Thomas Wittmann also joined the party along with several other senior employees from the WITTMANN Group. The *Teatre Nacional de Catalunya* in Barcelona was the venue for this very special celebration, with some musical and dance performances, as well as the appearance of the actor and stand-up comedian José Corbacho. There were also speeches given by Jordi Farrés and Mercè Margarit – who undertook the opening of the Spanish subsidiary 25 years ago – followed by a speech by the WITTMANN Group's founder, Dr. Werner Wittmann.

Successful history and good prospects

This celebration was an opportunity to express a very positive assessment of the subsidiary's history on the Iberian Peninsula, which started in 1992 with four employees and has grown to today employ a staff of over 35 people.

WITTMANN BATTENFELD Spain works in close collaboration – and exclusively – with the Portuguese company TECNOFRIAS Lda that employs a staff of ten people. Over the years, WITTMANN BATTENFELD Spain



The founder of the WITTMANN Group, Dr. Werner Wittmann, (left), congratulating Jordi Farrés and Mercè Margarit.



An impression of WITTMANN BATTENFELD Spain's birthday party.

has moved into bigger buildings three times – thanks to the constant confidence of their customers that has allowed them to continuously grow year after year. It has to be highlighted

that 2016 was a record year for WITTMANN BATTENFELD Spain with regard to their sales figures, and it seems as if 2017 is on pace to become a record year again. ♦

WITTMANN
KUNSTSTOFFGERÄTE GMBH
Lichtblaustrasse 10
1220 Vienna, AUSTRIA
tel.: +43 1 250 39-0
info.at@wittmann-group.com
www.wittmann-group.com

WITTMANN
BATTENFELD INC.
1 Technology Park Drive
Torrington, CT 06790, USA
tel.: +1 860 496 9603
info.us@wittmann-group.com
www.wittmann-group.com

WITTMANN ROBOT
(KUNSHAN) CO. LTD.
No. 1 Wittmann Rd.
DianShanHu Town
Kunshan City, Jiangsu Province
215245 CHINA
tel.: +86 512 5748 3388
info@wittmann-group.cn
www.wittmann-group.com

WITTMANN
BATTENFELD GMBH
Wiener Neustädter Strasse 81
2542 Kottlingbrunn, AUSTRIA
tel.: +43 2252 404-0
info@wittmann-group.com
www.wittmann-group.com

Wittmann

Wittmann

Battenfeld