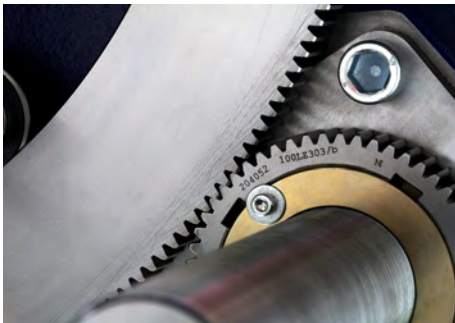




Wittmann innovations

Volume 17 - 2/2023





The cover photo shows the mold height adjustment device of an EcoPower injection molding machine with a low-clearance tie bar nut.

WITTMANN innovations (Volume 17 - 2/2023)

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Editorial

Dear Reader,

25 years ago, we took over the Cramer Trocknerbau company, which constituted an important move towards becoming a complete system supplier. In this issue of *innovations*, we



are reporting about the extension of our product portfolio made at that time and the further development of this product line to this day. A fascinating story, since dryers have now come to play a key role in process reliability and energy efficiency of injection molding cells. Numerous similar extensions of our product portfolio were implemented in the following years.

Especially for the purpose of digitization and of setting innovative trends, control of as many components as possible and their complete integration in an injection molding cell are decisive factors. Communication standards based on the promising OPC UA technology, which may qualify to become EUROMAP standards later on, can already be implemented at an early stage – as well as additional functions going be-

yond that scope, for which we have coined the designation WITTMANN 4.0.

Energy efficiency plays a vital part in all of our products, and this time we have asked our Temperature Control Department

for a contribution. What are the advantages of frequency-controlled pumps and parallel distribution of the medium with the help of our automatic flow controllers? Only by in-depth study of this topic has the huge energy saving potential inherent in mold tempering been revealed. Of course, we want to share this with you, as well as the short payback periods for temperature control systems fitted with the relevant equipment, also taking into account the current electricity prices.

The fact that, in view of the energy crisis and the energy revolution, electricity prices in Europe are unlikely to return to their original level, makes saving energy a permanent, overriding issue not only for temperature control equipment, but in all other areas as well.

Another problem, which has now been with us for two distressing years and made our working life rather complicated, will hopefully be solved or at least mitigated in the near future, that is, the global supply chain difficulties.

An important factor in reducing this problem is the abandonment of the zero covid policy in China, which could bring about a short-term aggravation of the problem, but in the medium to long term lead to a substantial improvement of the situation. In our production plant in Kunshan, too, an almost complete immunization by way of infection occurred within just a few weeks.

According to the principle of "better a horrible ending than endless horror", a return to normal operation has now become possible again at our Chinese facility. Jointly with our Chinese colleagues, we are of course very happy about this development towards further normalization.

What remains for me, is to wish you great enjoyment in reading this issue of *innovations*.

Very cordially yours,
Michael Wittmann

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25 years of WITTMANN dryers

A review of WITTMANN's dryer production history reveals the large number of innovations launched over the last quarter century in area of granulate drying.

Christoph Schweinberger

Following its takeover of the German company Cramer Trocknerbau, WITTMANN started to produce dryers in 1998. At that time, Cramer ranked as one of the best-known manufacturers of plastic granulate dryers. The drying method then in use cannot be compared with today's technology: it was like that of a simple hot air fan, which basically corresponded to the state of the art of the time.

Drymax mobile dryers

In search of a better technical solution, WITTMANN developed in the following years its series of Drymax mobile dryers, which was presented for the first time in 2000. The first appliances of this series already stood out by their ultra-modern process control technology, which even then offered an optimal drying process combined with low energy consumption. Energy-saving features such as the well-known SmartReg function (temperature-controlled regeneration) and SmartFlow (automatic air quantity control for every drying hopper) were part of the standard equipment for all WITTMANN dryers from the very beginning. So, this series quickly met with wide-spread approval among processors and was intensively further developed over the next years.

Drymax C

The successor series Drymax C, in which the well-proven technology was left unchanged, was launched in 2002. These appliances were now specially optimized in terms of space requirements. This happened at a time when many processors were not yet paying any special attention to the problem of space limitations on production floors. This is just another indicator of the fact that the developers of the WITTMANN mobile dryers were ahead of their time right from the start.

PDC

In those days, the Drymax C series of appliances was available with volumetric flow rates (dry air capacities) of up to 30 m³/h

and 60 m³/h, and it was extended in 2004 by adding the revolutionary PDC option. PDC stood for the first solution on the market to enable plastics processors not only to dry the material, but also to transport it automatically with dry air to the processing machine as well. An important development step, since the requirements for plastic parts had become more and more demanding. Thanks to this new development, it was now possible to convey even highly sensitive materials to the material consumers dry and demand-oriented regardless of the prevailing environmental conditions – and all of that by using just one appliance, on which the machine operator could enter all necessary settings comfortably via a central control panel.

Drymax ES40

Since the requirements in plastics processing continued to become more and more stringent, and increasingly high expectations were also placed on small-quantity drying, the family of mobile dryers was extended in 2005 by adding the Drymax ES40. This appliance offered plastics processors a low-cost solution for effective drying of smaller material quantities, too.

M7.2 network control

Further development was continuously advanced not only in the segment of mobile dryers, but also in the area of large-scale drying systems, with the result of numerous improvements in both areas. For instance, in 2006 the third generation of the M7.2 IPC network control system was already brought to market. Even at that early stage, the M7.2 control system featured a special unique selling point. Thanks to sophisticated functionality, it offered for the first time a graphic illustration of the material flow within a production plant, which enabled operating staff to have the material fed safely and comfortably to the consumers. That this solution had been devised to meet a genuine need is shown by the fact that at this point – just scarcely five years after the

market launch of the first generation – 160 central vacuum circuits controlled by M7.2 were already in operation worldwide.

Aton segmented wheel dryers

The next milestone in the area of mobile dryers was the introduction of the Aton series in 2008. This move was based on feedback and field reports from processors. The yardstick for this new development was high, since the new segmented wheel technology had to meet the requirement for maximum efficiency in drying, as well as cope with particularly adverse climatic conditions, such as those found in some parts by Asian processors. In fact, the Aton series was the first generation of mobile dryers which made perfect material drying possible, even under the most difficult conditions in tropical climates. At the same time, this technology met with a more and more positive response in all other markets, since, due to its special control algorithm, the Aton's energy consumption is considerably lower than that of other solutions available on the market.

Touch-screens

In the next years between 2010 and 2012, the existing series were continuously further improved. Graphic displays facilitated the entry of parameter settings still further. From 2013 onwards, the Aton was equipped with a large 5.7" touch-screen, by which the dryer plus originally six, later on up to 24 material loaders could be controlled.

Cross-product standards

Throughout the entire history of development, the main focus lay invariably on the operating staff and functionality of the appliances. Feedback from processors was and still is an essential impulse for improvements. Numerous processors criticized that the large numbers of different appliances on production floors required an enormous number of skills from every staff member. This is why from 2015 onwards, WITTMANN developers gave an increasing



M7.2

amount of thought to simplifying operation. This led to a cross-product concept of menu navigation and standardization of displays for important process data. Once familiarized with one product, operators are now able to run virtually any appliance from WITTMANN without an additional long training period.

Aton 1000

In 2019, an Aton segmented wheel dryer with a volumetric flow of up to 1,000 m³/h was presented for the first time at the K trade fair. Many years of experience in segmented wheel technology culminated in creating the Aton 1000, which meets the demand for a powerful and simultaneously energy-saving large dryer model – and all of this with a footprint of less than 1.4 m². Thanks to the integrated heat exchanger, the energy input is used several times, which in combination with other standard energy-saving features enables an extremely energy-efficient drying process.



Aton

Card compressed air dryers

The latest highlight in the history of WITTMANN's dryer production is the extension of the product portfolio to include the area of small quantity dryers, which was implemented in 2020 with the takeover of the Austrian company Farrag Tech. The compressed air dryers of the Card (= Compressed air resin dryer) series constitute the optimal solution for drying small quantities and are available from a minimum drying hopper volume of just one liter. After all, the fact that 25 years of development work have been invested in the Card series of appliances has made these small quantity dryers the most efficient devices of their kind. In combination with the other drying and materials handling equipment from WITTMANN, plastics processors can benefit here also from made-to-measure solutions.

Christoph Schweinberger is the International Sales Manager for auxiliary appliances at WITTMANN Technology GmbH in Vienna, Austria.



Drymax ES40



Drymax E



Aton 1000



Card 20S

1998

Takeover of the company Cramer Trocknerbau (Kierspe, Germany), specialist in hot air technology.

2000

Further development of the appliances into dry air dryers. First mobile beside-the-press appliances of the Drymax 60/100 series.

2002

Use of the M7 central control system for entire production halls with drying equipment. Further improvement of the mobile dryer series Drymax C30 and Drymax C60.

2004

Presentation of a Drymax mobile dryer with integrated PDC material conveying. Further improvement of the M7 control system, first M7.2 installation for central materials handling.

2005

To extend the range of dryers, the Drymax ES40 specially designed for small material throughputs is launched.

2006

Use of the central network control system M7.2 IPC for the first time with Ethernet connection und VNC access facility.

2008

First Aton mobile dryer with touch-display for easy operation and the integrated materials handling system, extendable to up to six material loaders.

2010

Further improvement of the Drymax E series of mobile dryers.

2013

Extension of the Aton series' functionality, integrated materials handling system for up to 24 material loaders.

2019

The range of dryers is further extended by launching the large Aton dryer with a volumetric flow of up to 1,000 m³/h.

2020

Takeover of the compressed air dryer specialist Farrag Tech (Wolfurt, Austria).

Saving energy with smart temperature control solutions

Long before the current energy crisis last year came to affect all walks of life and all sectors of industry, the WITTMANN Group had already been promoting energy-efficient industrial production with numerous innovative and eco-friendly solutions – not least in the area of temperature control technology for injection molding, which plays such an important role in this respect.

Gerald Schodl

A decisive step towards substantial energy savings in injection molding production can already be taken at an early stage by providing temperature control equipment with correct and functional connections to the mold.

Parallel instead of serial

In contrast to traditional serial medium distribution systems, a parallel connection of the temperature controller, using a WITTMANN flow controller – a WFC (Water Flow Controller) or a Flowcon plus – can more than triple the actual flow quantity. Where maximum or minimum tolerance limits are exceeded, temperature and flow rate sensors will respond with appropriate error signals and thus ensure absolute process reliability. The devices can be connected to the injection molding machine via all common standard interfaces.

Parallel connection of temperature controllers thus not only contributes to improving parts quality, but also to cutting costs. A direct comparison between parallel and serial connection, with all other aspects of the application unchanged, will clearly show that parallel connection allows the pump pressure to be reduced, since pressure losses do not accumulate – and this lengthens the pump's service life considerably, thus minimizing servicing and investment costs. The following results have been obtained from a relevant practical comparative test:

Serial connection:

- pump operating pressure 3.0 bar
- total flow quantity 8.2 l/min

Parallel connection:

- pump operating pressure 1.2 bar
- total flow quantity 24.9 l/min

The results derived from this comparison are clear: with parallel distribution, more than three times the total flow rate could be achieved with a pump pressure reduced by about two thirds.

Right pump: even greater efficiency

By combining parallel connection to the mold with a speed-controlled (or "frequency-controlled") pump installed inside the temperature controller, the energy efficiency can be increased even further. A temperature controller equipped with a speed-controlled pump offers the option of freely selecting a second control parameter only for the pump in addition to the process temperature, that is, either the flow rate, the pump pressure, or Δt . Now the temperature controller will also regulate the pump speed as well as the process temperature, until the desired set value of the selected control parameter has been reached. In this way, the activity of the pump takes place precisely within the load range which is necessary for the application. This means that the pump consumes only as much energy as required for proper application functioning – to put it in a nutshell, it operates with extreme energy efficiency.

Another practical comparative test series conducted at a WITTMANN customer's plant, involving the same application, yet this time with three different pumps, produced the following – results concerning the energy consumption of the pumps (l/min = flow rate per channel):

Pump with 500 W asynchronous motor:

- pump operating point 7.5 l/min @ 2.2 bar
- motor's power input / energy consumption 360 W/h

Pump with 1,000 W asynchronous motor:

- pump operating point 8.6 l/min @ 2.6 bar
- motor's power input / energy consumption 720 W/h

Speed-controlled pump with 1,100 W synchronous motor:

- pump operating point 8.6 l/min @ 1.9 bar
- motor's power input / energy consumption 390 W/h

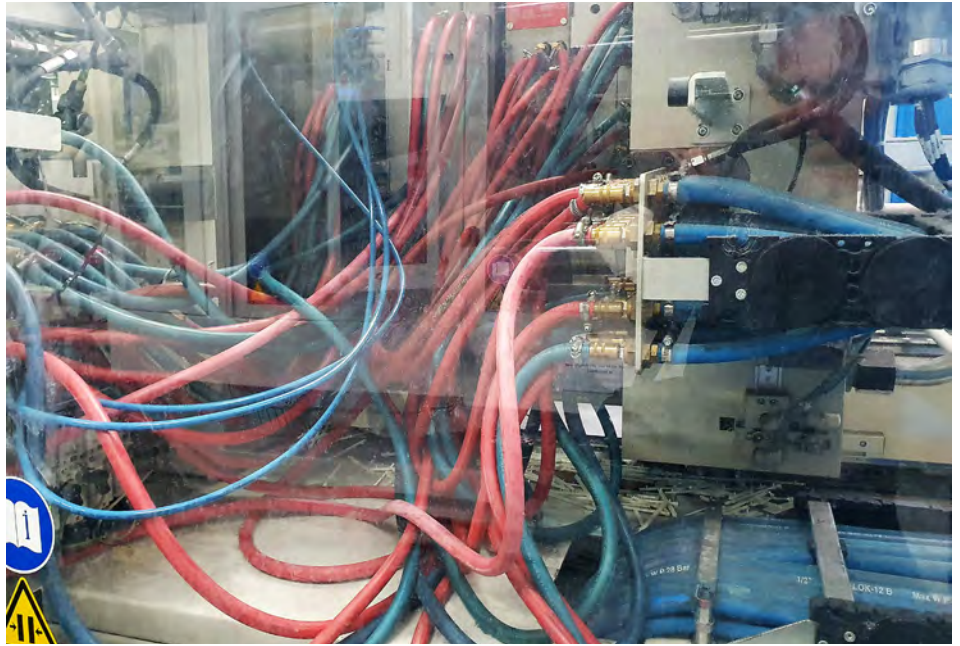
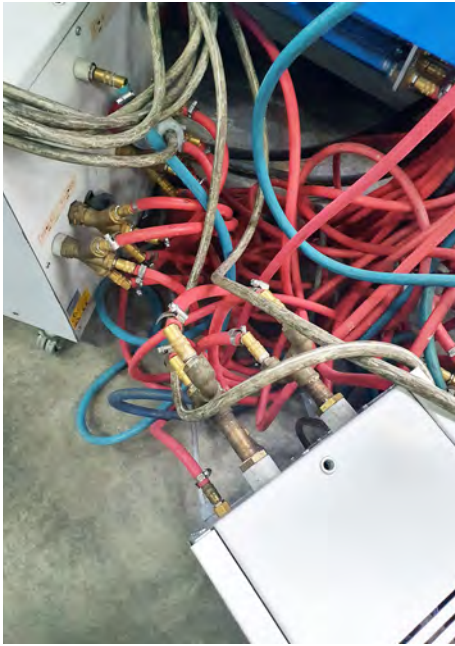
Using a standard 1,000 W motor size as reference, this showed for the speed-controlled pump an energy consumption of 45.8% below that of the two other pump models. It has also become clear that the speed-controlled pump runs with the lowest operating pressure of 1.9 bar, which means a longer service life, while still reaching the maximum flow rate of 8.6 l/m for this application. The 1.0 kW pump also reaches this flow rate, but shows a substantially worse performance in terms of pressure and energy consumption (roughly + 67%).

Trends in temperature control

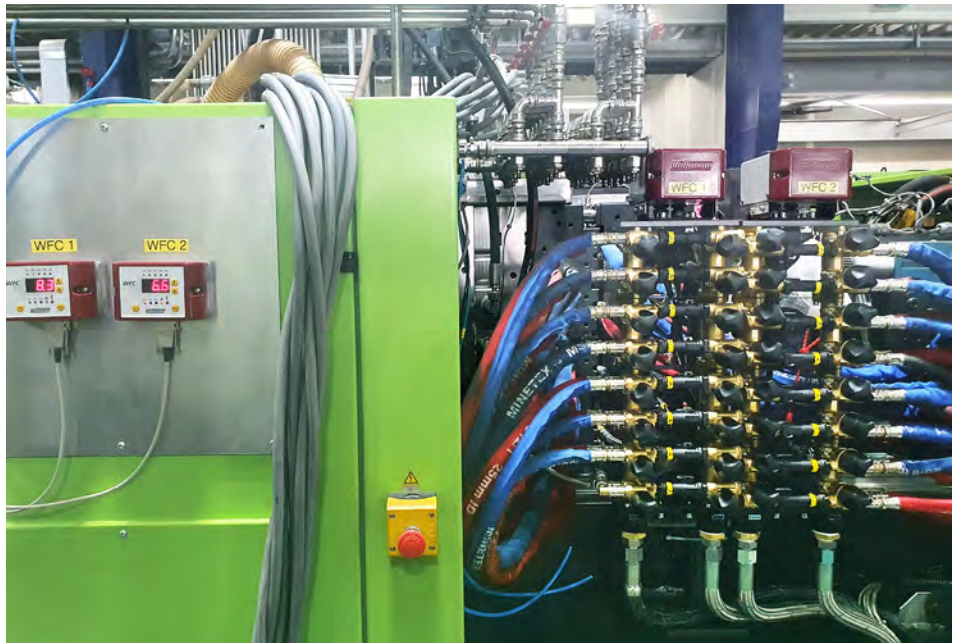
An increasing trend among injection molders moves towards reducing the number of temperature controllers and arranging their parallel connection to the mold. The advantages inherent in this type of procedure are quite obvious: a reduced investment volume, lower costs for maintenance and spare parts – and, of course, the enormous energy saving potential.

What is required in every case is one temperature controller with a high heating performance and a powerful, speed-controlled pump, which distributes the possibly enormous total flow volume to the individual cooling channels via appropriate water distributors.

Once processors have decided to install such a solution on the basis of direct comparisons, they will invariably be prompted to gradually retrofit all of their machines accordingly. The large number of arguments in favor of this concept simply cannot be ignored:

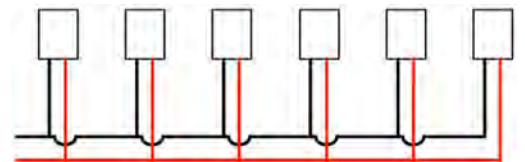
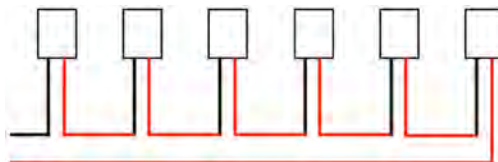


Before: several temperature controllers per cooling circuit, hosing in a confusing tangle, higher investments, higher maintenance costs, higher energy input.



After: A Tempro plus D L120 temperature controller (the "L" in the name stands for "large") with a frequency-controlled 4.0 kW pump with a max. capacity of 300 l/min, a max. heating performance of 36 kW, as well as a direct cooling capacity of up to 250 kW. Here, the medium water is distributed to 16 cooling circuits via a 2 x 8-fold WFC 100 (WFC = Water Flow Control).

Schematic diagrams:
serial connection (left), parallel connection (right).



- Connection close to the mold.
- Low temperature and pressure losses.
- Temperature and pressure flow monitoring.
- Maximum flow rate.
- Effective temperature transfer.

- Lower investment costs.
- Energy cost savings.
- Cutting of maintenance costs.
- Reduction of scrap.

With WITTMANN as their equipment supplier, processors have the additional advantage

of being able to purchase their entire equipment just from this one manufacturer – that is, everything from a single source!

Gerald Schodl is Sales Manager for Temperature Control Technology at WITTMANN Technology GmbH in Vienna, Austria.

PLASTIFAL on the way to eco



The French plastic
EcoPower injection
from the WITTMANN
not only saving mo
care of the e

Julie F

PLASTIFAL is a subsidiary of the French INVOLVE GROUP, established in Corveissiat dans l'Ain since 1985. A total of 25 employees work in the PLASTIFAL premises, specializing in overmolding, injection blow molding, screen printing, pad printing, in-mold labeling, in-mold decoration, assembly (e.g. ultrasonic welding or gluing), and final inspection.

The workshop is composed of nine 100% electric EcoPower injection molding machines with clamping forces ranging from 55 to 300 tons and also six injection blow molding machines. All the injection molding machines are equipped with Primus 16, Primus 26, or Primus 48T robots from WITTMANN.

PLASTIFAL produces childcare accessories, household containers, kitchen utensils, ski bindings and ant traps. Their list of customers includes Dodie, Tupperware, Salomon, Evergreen, and Royal Canin.

In 2020, PLASTIFAL decided to use electric injection molding machines built by WITTMANN BATTENFELD. This intention was supported by the "CEE bonus" that was set up by the French government to help French companies manage the transition to less energy-intensive production equipment. After having made this choice, PLASTIFAL is today the second production site of the

INVOLVE GROUP (the first is in Slovakia) that is now fully equipped with injection molding machines from the WITTMANN Group.

Commitment to the environment

Strongly committed to environmental issues, one of the INVOLVE GROUP's central objectives is to develop and run "clean" processes and factories, to manufacture durable and resistant parts and products, and not to make plastic components for single use only. In addition, the company works to minimize its carbon footprint.

Undertaking environmental responsibility is a key objective of the INVOLVE GROUP. Half of the group's machinery is made up of electric injection molding machines. Recycling of production waste is an integral part of the group's operations - in order to reduce waste, and to save raw materials at the same time.

Advantages of the EcoPower

When asking President, Franck Lapierre, Industrial and Technical Manager, Pierre Delhorme, and Quality and Logistics Manager, Virginie Neuville about the advantages of the all-electric EcoPower injection molding machines, they unanimously point out the pleasant effects of reduced noise

and also the cleanliness of the workshop due to the absence of oil. Another highlight is the energy savings that electric injection molding machines offer.

After having turned to electric injection molding machines, PLASTIFAL noticed a 25% decrease of electric power consumption. Furthermore, the Unilog B8 control allows the production teams a comfortable and simplified operation of the injection molding machines.

A lasting partnership

WITTMANN BATTENFELD France SAS - the French subsidiary of the WITTMANN Group - is proud to support customers like PLASTIFAL that are committed to environmentally responsible production. The partnership between INVOLVE and the WITTMANN Group began in 2007.

This beginning is well remembered by Franck Lapierre, because it was Fabien Chambon - the current Managing Director of WITTMANN BATTENFELD France - who, back then, had installed the first WITTMANN robot in INVOLVE's VULPIPLAST workshop in Frontonas, France.

Julie Filliere is the Communications & Marketing Manager of WITTMANN BATTENFELD France SAS in La Buisse, France.

Production with WITTMANN

cs processor uses
molding machines
ANN Group - thus
ney, but also taking
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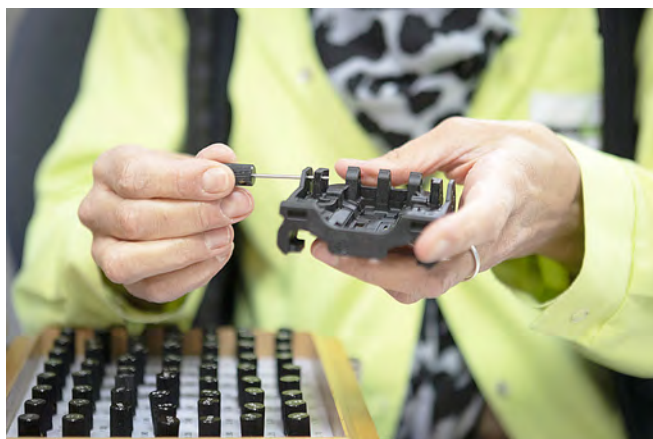
View of the PLASTIFAL production workshop in Corveissiat dans l'Ain, France.

INVOLVE GROUP

The French INVOLVE GROUP has been designing and manufacturing parts and products from technical polymers since 1973. INVOLVE has highly qualified know-how in the field of injection techniques (multi-component and overmolding) as well as injection blow molding, injection stretch blow molding, decoration, assembly and different treatment procedures. The INVOLVE GROUP is divided into four business units: Packaging, Automotive, Sport & Leisure, and Industry. The group runs the INVOLVE Development department and five autonomous production units: VULPIPLAST, VAPEPLAST, PLASTIFAL, SP PLAST, and DP PLAST.

The group turnover represented 26 millions of euros in 2021, whereof 60% were achieved through exports. INVOLVE has 200 employees and operates about 100 injection molding machines, one third of these are equipped with WITTMANN robots, and nearly every fifth injection molding machine originates from the WITTMANN Group.

PLASTIFAL machine operator working an injection molding machine via the Unilog B8 control.



One example of a more complex part produced at the PLASTIFAL plant.

The White Horse Goes Green with WITTMANN

Paul Bobby, the Managing Director of White Horse Plastics, speaks about the company's sustainability objectives and the purchase of a new Junior Double 4 granulator from WITTMANN.

Denis Metral – Adrian Walters



White Horse Plastics is a UK-based injection molding company, established in 1973. The company specializes in the design and production of tight tolerance components and sub-assemblies for the medical, automotive, and UK manufacturing sectors and is based in Stanford in the Vale, close to the research laboratories of South Oxfordshire. It runs more than 30 molding machines in nearly 1,900 m² of space and employs more than 20 specialist engineers and operators.

IMT (Injection Molding Tools) is White Horse Plastics' sister company. IMT and White Horse Plastics share premises in Oxfordshire and frequently team up to offer services including tool manufacture and servicing, mold flow analysis and parts validation.

Both companies are committed to improving sustainability within their industry and work with a number of supply partners who offer recycled, renewably sourced and sustainable polymer materials.

Paul Bobby about sustainability and a WITTMANN recycling solution

"Our responsibility as a company is to reduce our impact on the environment as much as possible. To achieve this objective, we intend to embrace the shift to sustainable plastics materials quickly and recycle the traditional materials we still use, so the least amount of waste is produced. One way we do this, is to regrind sprues and faulty components, so they do not enter the waste stream and end up in landfill. We chose to partner with WITTMANN to select a granulator as we had a special requirement; the largest single polymer type we use is PA66 with the majority being 30% glass-filled, which is very aggressive on granulator chambers, blades, and screens etc. This had broken our previous equipment, so we needed the specialist advice of WITTMANN BATTENFELD UK Ltd to find a more robust solution.

Following an evaluation of our needs, the UK-subsiary of the WITTMANN Group recommended the screenless Junior Double 4 granulator which is equipped with two rotors in the cutting chamber, so it is ideal for large sprues and parts. This granulator is located on our site and runs 24 hours a day.

We granulate all our polyamide sprues and waste which is then fed into an octabin. This material is then sold back to the material manufacturer and re-compounded in the UK to produce industrial grade material for injection molding – a perfect sustainable circular economy solution.

Another option for this process would have been to regrind our waste off-site. However, we get approximately 750 kg of regrind into each octabin, as opposed to about 200 kg of loose sprues/waste, so regrinding in-house significantly reduces the environmental impact of the process.

Apart from these obvious environmental benefits, from a commercial perspective the return on investment from the purchase of the Junior Double 4 granulator will be less than 24 months, due to the revenue received from sale of the ground material, the reduction of transport costs for the waste and the elimination of waste collection costs if we were not managing this waste stream ourselves.

The granulator has now been in operation for more than 12 months, has processed in excess of 20 tonnes of glass-filled polyamide without any issues and is showing no signs of wear. We are very pleased that the design, high specification and quality of build of the Junior Double 4 granulator will ensure we get many more years of trouble-free service."

Features of the Junior Double 4 granulator

The Junior Double 4 is equipped with ARS – the Automatic Reverse System –, detecting the current consumption of the two motors

that makes the toothed rollers turn backwards to avoid jammed material blocking rotors. It also helps processing thicker-walled or tougher plastics.

The Junior Double 4 granulator is also equipped with a magnet along the feeding hopper to limit the consequences of accidentally introduction of metallic parts into the cutting chamber, although White Horse Plastics' operators have been well trained to ensure that the sprues' boxes fed into the Junior Double 4 granulator do not contain any contaminated material particularly metal parts.

www.whitehorseplastics.co.uk

Denis Metral is International Product Manager for granulators at WITTMANN BATTENFELD France SAS in La Buisse, France.

Adrian Walters is Area Salea Manager South England and South Wales at WITTMANN BATTENFELD UK Ltd in Wellingborough, UK.

Granulator installation at White Horse Plastics in Stanford in the Vale, Oxfordshire, UK. The Junior Double granulator is typically used offline, located away from the process.



Material is fed into the granulator by a conveyor belt or by dumping the content of a box directly into the feed hopper of the granulator, as it happens here.

The WITTMANN Junior Double 4 granulator is equipped with two rotors in the cutting chamber for large sprues and parts.



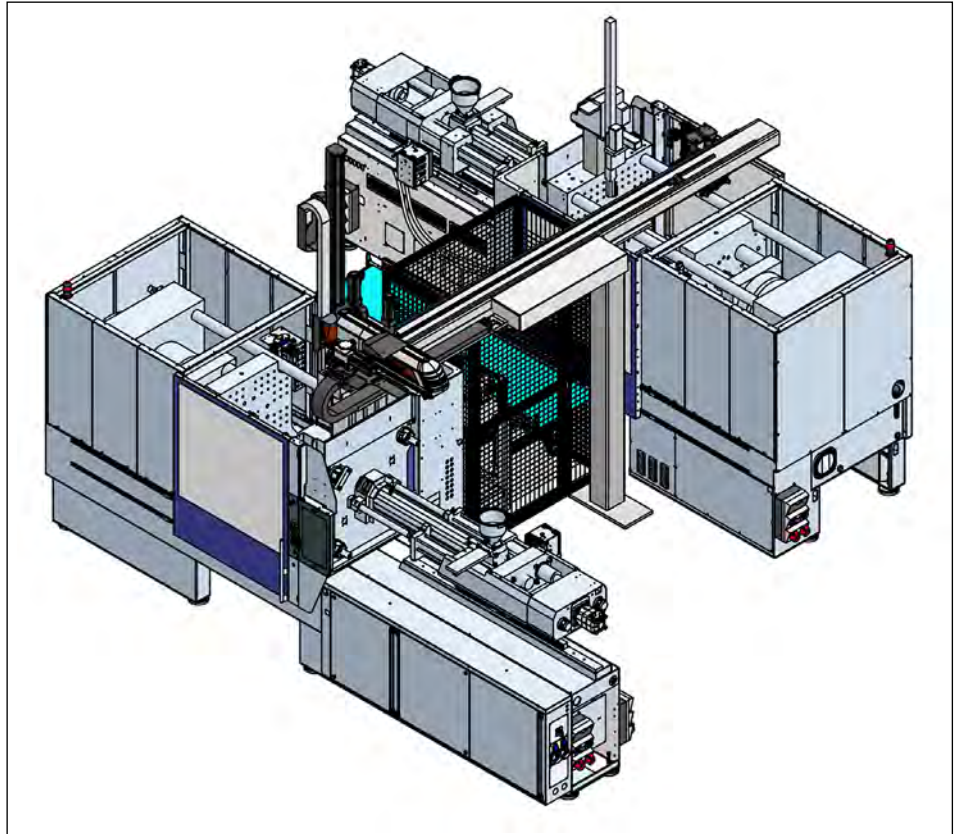
Unique working cell solution causing a furor in Mexico

ISGO Manufacturing is a world-class Mexican custom injection molder. The company's long-term commitment to clients, along with a dedication to provide quality products has allowed ISGO to grow steadily for the past 20 years. WITTMANN BATTENFELD México S.A. de C.V., the Mexican subsidiary of the WITTMANN Group, has helped ISGO Manufacturing with a special injection molding working cell solution consisting of two machines; automation and peripherals are also from the WITTMANN Group.

Hugo Muñoz

Established in 1967 in Monterrey, ISGO has always focused on diversifying the client base across a number of sectors including automotive, electronics, appliances, packaging, and consumer goods. Today, ISGO runs three production facilities in Mexico. The original manufacturing facility in Monterrey offers 12,000 square meters with machine sizes ranging from 65 to 2,000 tons. Special manufacturing techniques include pad printing, sonic welding, hot welding, overmolding, insert molding, two-shot, rotary platen machinery, and assemblies. The second location opened in 2008 in San Luis Potosi. This 16,000 square meter state-of-the-art facility houses 60 injection molding machines ranging from 50 to 1,100 tons. Here, a broad range of assembly is executed, as well as two-shot injection molding. The newest location opened in 2019 in Puebla. This location offers 5,000 square meters with machine sizes ranging from 170 to 1,100 tons.

All of ISGO's facilities are IATF TS/16949 certified. As the company manufactures many tight-tolerance parts for the automotive and electronic industries, ISGO offers a broad range of quality equipment in each facility, including laser scanner, optical comparators, gloss meters, pull tester, melt flow, moisture tester, along with other technical equipment. Above that, each facility has its own tooling

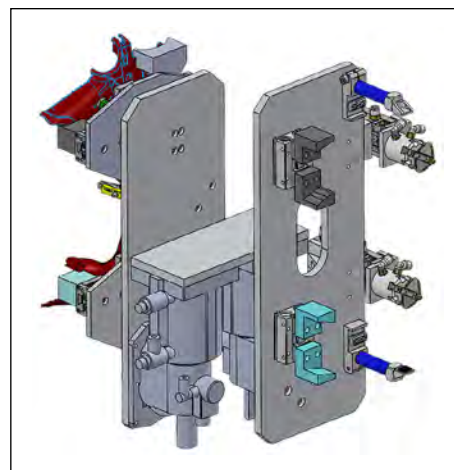


Two injection molding machines are installed with the rear sides facing each other, both automated by only one robot.

maintenance area with the ability to make engineering changes and daily maintenance. ISGO also builds molds, offering design and technical support 24/7 on 365 days.

To better assist ISGO's U.S. clients, ISGO has an engineering and sales office located in the Detroit suburb of Wixom, Michigan.

This facility accommodates Engineers, Program Managers, and Sales Staff that support the development of new products, launches and current business, providing also full design services and mold filling analysis software. The newest sales and engineering office located in Frankfurt, Germany, provides support to all the European area. ISGO really has be-



Design drawing of the gripper system of the W832 pro robot's removal axis.

come one of the largest independent custom injection molding companies in Mexico.

Special turn-key solution from WITTMANN

Over the last years, ISGO has bought different equipment from the WITTMANN Group: injection molding machines as well as ro-

bots and peripheral equipment of all kinds, including blenders, temperature controllers, dryers, and material loaders.

When ISGO was commissioned to make a shell type handle for a Milwaukee screw driller, the company turned to the Mexican WITTMANN Group subsidiary to get advice.



View of an ISGO production hall, housing the WITTMANN two-machine working cell for the production of shell type handles for a screw driller.



ISGO operators, working on the Unilog B8 control of a SmartPower injection molding machine.

The part that should be produced had to be made of two different plastic materials, whereat the second material had to be a thermoplastic elastomer.

It turned out that WITTMANN BATTENFELD México was the only supplier in the area who could offer a complete solution with everything from a single source, and who could build the necessary production equipment. With the completed solution, two injection molding machines had to be installed with the rear sides facing each other – and the big challenge was to use one robot to synchronously automate these two injection molding machines.

The heart of the solution, which is specially tailored to the needs of ISGO, consists of

two SmartPower injection molding machines: a SmartPower 160 with a clamping force of 750 tons and a SmartPower 240 with a clamping force of 1,000 tons. Both machines are each equipped with a Unilog B8 machine control. One W832 pro robot moves between the two machines on a four meter long Z-axis.

interface, as does the WP80 sprue picker. The cycle time is 16 seconds and a cycle works as follows:

- The W832 pro robot picks up the four inserts that were prepared for it.
- Then the robot moves to the SmartPower 240 and places the metal inserts in the fixed half of the mold.
- After the SmartPower 240 has carried out the first injection process – during which the inserts are overmolded – the robot removes the two plastic parts.
- With the two parts, the robot moves to the SmartPower 160 and places them again in the fixed mold half for the second injection process. At this point, the parts are now overmolded with the elastomer.
- The robot removes the finished shell type handles and places them on the conveyor belt between the two machines.

ISGO was so positive about this special solution that the company has just bought two identical installations of this production cell.

Hugo Muñoz is the Vice President of WITTMANN BATTENFELD México S.A. de C.V. in Querétaro, being in charge of automation and engineering.

The pictures on the next page show the process of manufacturing shell type handles of a screw driller on the working cell solution described here.

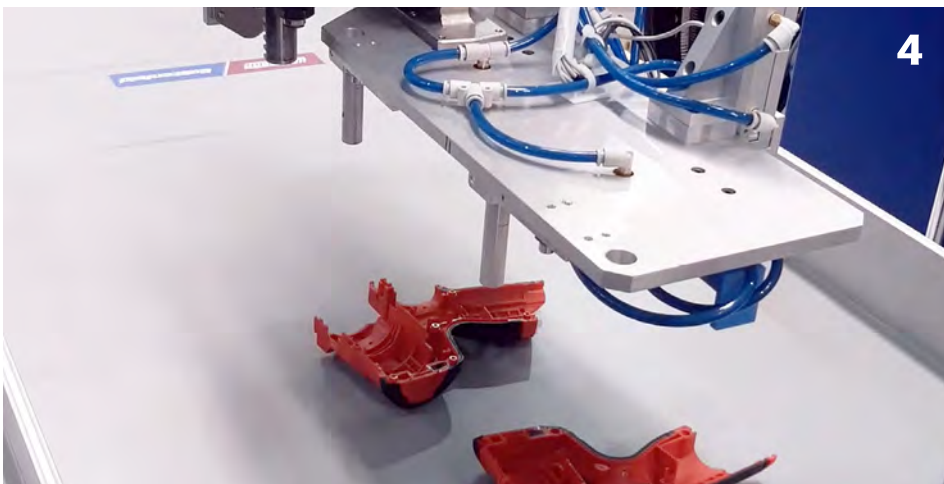
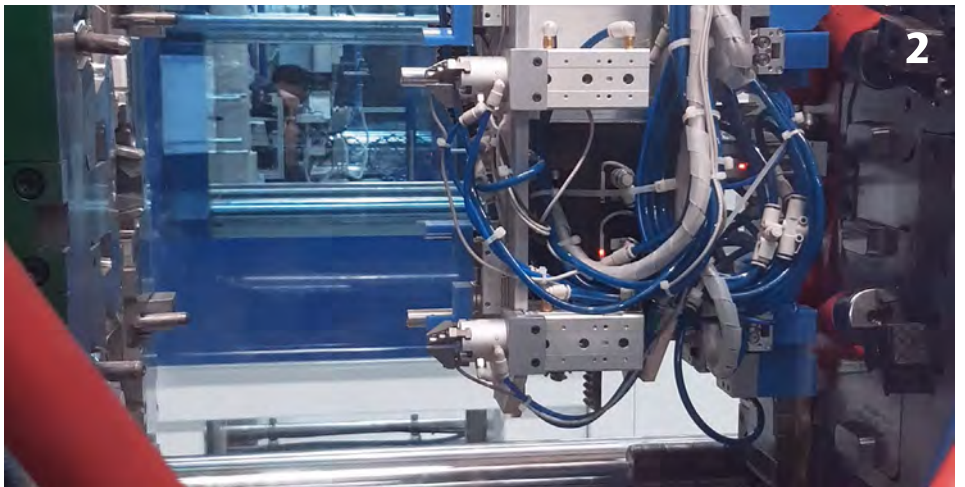
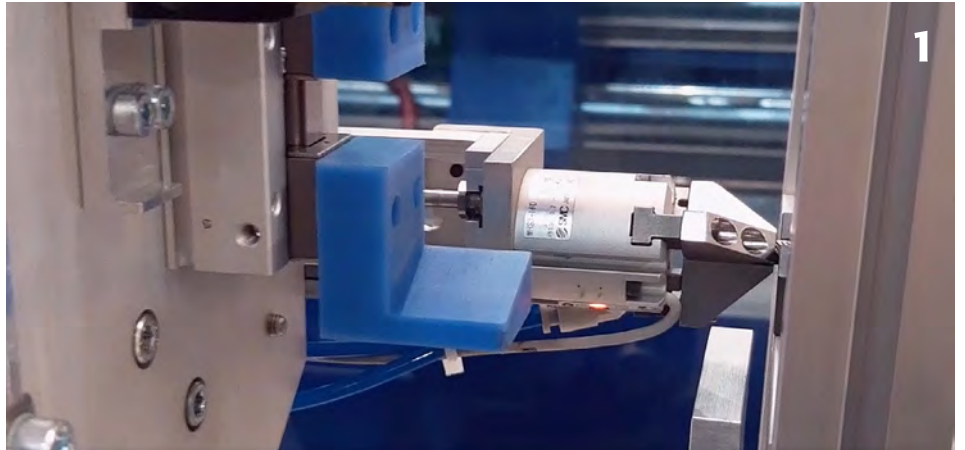
Two special gripper solutions are attached to the end of the removal axis.

To remove sprues, a WP80 sprue picker is used on the SmartPower 160, and a bowl feeder provides the robot's EOAT (end-of-arm tooling) with inserts. A conveyor belt runs between the two machines, on which the parts – that are molded from two materials in the two machines – are finally dropped. WITTMANN temperature controllers, dryers and material conveyors form the additional peripherals.

As far as communication with the injection molding machines is concerned, the W832 pro robot is fully integrated into the SmartPower 240; it communicates with the SmartPower 160 via a EUROMAP 67

Production process of shell type handles of a screw driller on the ISGO working cell solution from WITTMANN.

- 1: As a part of the end-of-arm tooling, a clip receives a metal part that has to be inserted in the mold.
- 2: The inserts have been placed in the fixed mold half (on the left in the picture), and now plastic parts are taken out from the moving half after the first injection process (on the right in the picture).
- 3: Viewed from the other side, the gripper has taken out the molded parts after the first injection process.
- 4 +5: After the second injection process executed by the second injection molding machine, the gripper places the parts on the conveyor belt.



The Hungarian sales organization of the WITTMANN Group receives a new base

The Hungarian production plant of the WITTMANN Group in Mosonmagyaróvár has been continuously extended over recent years. Now the Hungarian sales company is also moving to new, larger premises.



With its member company WITTMANN Robottechnikai Kft., the WITTMANN Group has already been present on the Hungarian market since the mid-1990s. Initially, the main focus of the activities lay entirely on building up a production plant in Mosonmagyaróvár close to the Austrian border. In the meantime, this production plant has come to take up a key position within the WITTMANN Group in various fields. These include sheet metal processing as well as series production of robots and temperature controllers – and now injection molding machines in sizes of up to 180 t have also been manufactured here for a number of years. The continuous further extension of this facility is tangible evidence of steady further growth in the Hungarian production

volume. The fifth extension stage already nears completion within the next few weeks. Intensive work on preparing the sixth extension stage is already in progress.

Successful sales

Apart from the production sector, the support of the Hungarian market by the Sales Department has also gained substantially in significance. As a consequence, the independent sales and service organization WITTMANN BATTENFELD Kft. was established in Budaörs in 2015. Due to very intensive and successful market cultivation, its Managing Director Imre Bocskor and his team of 22 staff members gradually succeeded in securing a bigger and bigger share of the Hungarian market, which has now left the sales and service company no alternative to

relocating into a new and larger building. In September 2022, the construction of a two-story building was started in Törökbálint in the outer metropolitan area of Budapest. Some 1.000 m² of office and warehouse space are now available there. Construction work is progressing fast, so that the building is expected to be completed late in spring, and then nothing more will prevent the company from moving into it. Imre Bocskor expresses great satisfaction with the new premises and the additional options for training programs thus becoming available. "The new sales office building provides sufficient space for further growth in the number of staff members, which will also enable us to respond optimally to future phases of growth." The official opening ceremony is planned for the autumn of this year.

