Wittmann innovations

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The cover shows some cooling coils that are used with TEMPRO temperature controllers from WITTMANN.

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Editorial

Dear Reader,

2022 will certainly not be ... a year like any other. The trend of the first few weeks already indicates that the supply bottlenecks in primary materials will persist at least until the end of this year. We are making every possible effort to procure and ensure the delivery of components, especially electrical parts. The challenges and additional expenses we are facing in this area are enormous. Never before in our corporate history has the proportion between order intake and sales figures been so widely out of balance. Consequently, the delivery lead times for many of our products are still becoming longer.

Of course many other companies are in the same position, but this is only a small comfort and does not help us solve the problem. At any rate, we have provided additional capacities to secure the procurement of parts and will continue to do so until an improvement of this situation comes into view. However, there is not yet any short-term prospect of a change for the better.

In other respects, a relative degree of normality may come back this year – for instance in trade fair events, especially the K 2022 in Düsseldorf to be held in October. In the course of the first (rather hesitant) beginnings last year, starting with the Fakuma 2021, we were able to build up sufficient confidence as exhibitors and have simultaneously come to believe that although this year's K fair will actually show a decline in the number of visitors, it will otherwise proceed largely unaffected by Corona. Our preparations for this event are already running at full steam, and we are planning to deliver our most extensive K show presentation so far on a total exhibition area of more than 1,540 m².

The main themes of this year's K show are circular economy, sustainability and digitization. These are topics which fit in perfectly with our modern products and latest developments.

Digitization, in particular, is gaining significance among manufacturers of machines and appliances and becoming increasingly important as a performance feature.

Machines and appliances must be easily interconnectable without having to call in an IT engineer. The keyword: WITTMANN 4.0 & data interchange. Machine learning and AI facilitate working with machines, robots and auxiliary appliances and increase the "intelligence" of automatic process decisions. These issues will be a main theme of our trade fair presentation and illustrate the future of injection molding. But there are still a few months to go until then.

In the meantime I wish you a lot of enjoyment in reading this issue of *innovations*, which presents to you news and activities from our company around the world.

Sincerely, Michael Wittmann

Content

Kärcher Romania relies on WITTMANN Group technology

CER Cleaning Equipment in Romania, a company of the German Kärcher Group, has been using machines, automation and auxiliaries from the WITTMANN Group for many years. In late 2020 and early 2021, another 18 machines of the *MacroPower* series were installed at CER Cleaning Equipment.

Gabriele Hopf

Kärcher is the world's leading provider of efficient and resource-saving cleaning systems. The company's cleaning devices are characterized by functionality, ease of use and a sophisticated look. More than 1,300 patents and utility models testify to the innovative strength of the Kärcher company. The cleaning equipment is used in both commercial and private areas.

The wide range of products from Kärcher includes high-pressure cleaners, scrubbing and suction machines, sweepers, window and surface vacuum cleaners, steam cleaners, air cleaners, generators and dirty water pumps, washing systems, irrigation systems, garden tools, and much more.

In the year 2016, Kärcher began its own production of professional and home & garden vacuum cleaners in Romania, establishing CER Cleaning Equipment based in Curtea de Arges. CER Cleaning Equipment is a 100% subsidiary of the German Kärcher Group.

Supplied by the WITTMANN Group

From the beginning, the WITTMANN Group was chosen to supply CER Cleaning Equipment with machines from the *EcoPower* and *MacroPower* series, together with robots and auxiliary equipment. The first sixteen *MacroPower* machines – clamping force range of 4,000 kN up to 11,000 kN – were delivered in 2016.

Due to the continuing growth of CER Cleaning Equipment and the high demand for vacuum cleaners, the delivery of a second batch of machines took place in 2018. As growth continued without interruption, another factory building next to the original building had to be constructed – starting in middle of 2020 – with more machines, robots and a central material handling system following as well. At the end of 2020 and the beginning of 2021, WITTMANN BATTENFELD installed in the new CER facility a further batch of 18 machines from the WITTMANN BATTENFELD *MacroPower* series in the clamping force range from 4,500 to 9,000 kN.

CER Cleaning Equipment now has a total of 44 machines of the *MacroPower* series and one *EcoPower* machine. Among these are machines in the XL configuration with extended platen size together with four 2-component machines. For the implementation of lightweight constructions, three machines are equipped with WITTMANN BATTENFELD AIRMOULD® gas modules, which are connected to a centralized pressure generator.

CER Cleaning Equipment finds benefits in its *MacroPower* machines for many things – particularly for the compact design, speed, cleanliness and also the very high energy efficiency – achieved through the use of the most modern servo motors and pump technology. The machines are equipped with the latest WITTMANN robots from the pro series. The main focus is on the W832 pro, which is characterized by its stable structure, flexibility and high accuracy.

Both of the CER Cleaning Equipment factories are equipped with a central drying and conveying system from WITTMANN. Coded coupling stations for the drying silos as well as for the feeding to the machines are in place. The centralized system was completed with gravimetric external silos. CER scrupulously avoids any kind of plastic waste, such as runners or reject parts. Any post production recovery of plastics is performed strictly by polymer type, ensuring high quality levels with all material reprocessed.

In addition to the central material handling and drying system – and in order to maintain flexibility in production needs for smaller batch sizes – compact WITTMANN segmented wheel dryers of the ATON series are deployed.

WITTMANN temperature controller models TEMPRO basic C90 and C120, as well as TEMPRO plus D, round off the supply of auxiliary equipment from the WITTMANN Group.

Partnerships for the future

Apart from general production competencies Kärcher values the development of its employees in ways which are rather unique: for this purpose a Kärcher Academy and an Innovation Corner have been established. The focus here is on brainstorming for generating innovative ideas, and within small interdisciplinary teams for best practice, ideas and for solution sharing.

In addition to the technology from the WITTMANN Group, CER Cleaning Equipment is particularly valued for the excellent cooperation with the local Romanian WITTMANN Group subsidiary. Ion Bican, Managing Director of CER Cleaning Equipment: "The communication with the team from WITTMANN BATTENFELD Romania is excellent. The service we received after delivery of the equipment was very professional."

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

From left to right:
Eduard Lazea, Sales Manager of WITTMANN BATTENFELD Romania, Ion Bican, Managing Director of CER Cleaning Equipment SRL, Michael Wittmann, President of WITTMANN Technology GmbH, Bogdan Nestor, General Manager of WITTMANN BATTENFELD Romania.

View of the production site of Kärcher in Romania.

Views of the WITTMANN central conveying and drying system installed at CER in Curtea de Arges.

Making a qualitative leap with the Temi+ MES system

Temi+ is at the centre of the industrial reorganization process at Stamplast, an Italian company operating in the contract plastic injection molding sector.

Giorgio Pigozzo

Why should an injection molding company equip itself with advanced systems for collecting and analyzing manufacturing data? For a multinational group which operates numerous injection molding islands, distributed across multiple facilities, the reasons are obvious; however for small to medium-sized companies, the answer can be simple. For some years now, for example, a tax regulation has been in place in Italy which allows for a total tax depreciation of up to 250% of the cost of a new asset acquired for the technological transformation of enterprises under the Industry 4.0 plan, meaning a company can integrate process data with a manufacturing execution (MES) or production scheduling system. The connection to Industry 4.0 must, however, be certified through a technical appraisal. This has resulted in the rapid, widespread use of MES in production, even if the aim has not always been to take full advantage of the benefits it brings to the organization of work.

Stamplast as an example

But this is not always the case. After Stamplast, based in Belluno in the northeast of Italy, decided to reorganize its own internal processes and injection molding facility, it turned to the Temi+ MES system produced by ICE Flex in a joint venture with the WITTMANN Group. Stamplast then purchased a new *SmartPower* 120 machine as part of a plan to expand production capacity.

In many ways, Stamplast is the very model of an Italian company operating in the contract plastic injection molding sector. It has a fleet of 20 injection molding machines of various different brands and clamping force sizes, a total of 43 employees and a turnover of around 4 million euros. The company operates three shifts, seven days a week, though the weekend is limited to overseeing the supply of raw materials and the loading of molded components for shipment. The Stamplast business has a well-equipped mold-making department with 550 molds and these to produce a thousand different items. The company is also a world-class specialist in fields of excellence such as medical and cosmetic products, electrical/electronic components and parts for household appliances. Such elements and factors add up to positioning the company akin to a manufacturing "laboratory", with a strong interest in analyzing opportunities and complex issues that arise from process digitization.

Reorganization

Industry 4.0, of course, spells change. A strong proponent for reorganization within the company was Managing Director Piero Casagrande who, working alongside the founder Elio Pierobon, has contributed a very specific managerial vision that contains thirty years of technical experience; first in mold-making and then in the subsequent expansion into the contract molding business.

"Over the years, injection molding has taken over from mold manufacturing, the number of molding machines has increased, and this has necessitated a reorganization of our operations in order to make them more efficient", Casagrande explains. "It is a process which involves every level of business – from order scheduling (which is itself a complex process considering the number of items we produce for our customers) to the management of raw materials, injection molding machines and our stock of molds."

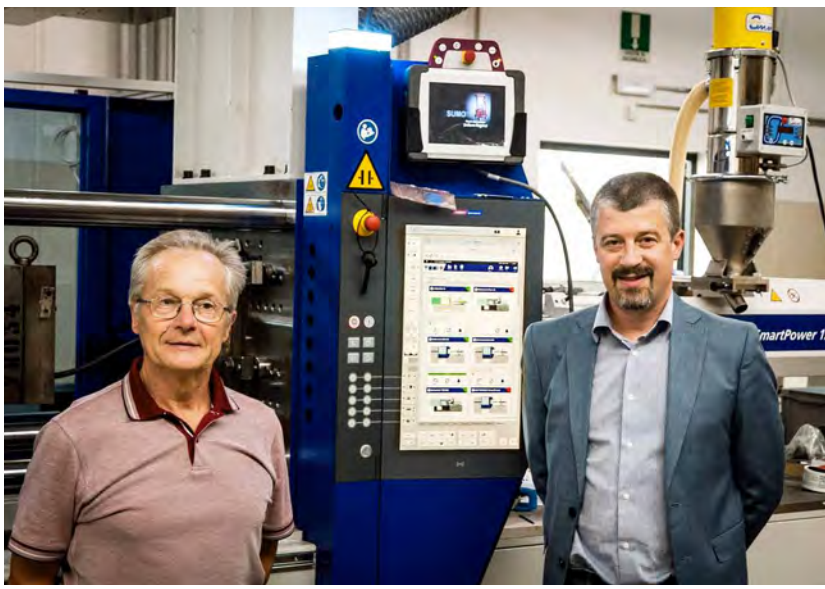
Driven by the growth of the company, Pierobon and Casagrande understood that, without analytical data on the efficiency of individual molding machines and the entire molding department, it would not be possible to reduce machine downtime and scrap, and thereby increase the company's efficiency and profitability – essential factors for a market that is becoming more and more competitive every day.

"Having to cope with numerous production changeovers, 5 or 6 on a single day, sometimes at the last moment following a request from a customer, knowing the status of each machine in real time, the quantity still needed to complete an order and how much stock is available in the warehouse is fundamental to minimizing unnecessary downtime and avoiding delays in delivery", adds Casagrande. With a glance at the screen installed in the office, which displays the Temi+ MES screen, the order scheduling manager can assess the status of each machine without entering the production area and respond to customer requests, which makes production economical even for small production lots and maximizes machine uptime. The analysis of tool setup times, a critical factor for Italian molders will, in the future, make it possible to optimize the use of each machine in the department and thus reduce downtime.

"We have estimated – conservatively – that the reorganization of internal processes, which includes the use of Temi+ to provide decision-making support, could improve our productivity by 5%. This means that, with 20 machines, it would be comparable to adding a molding machine without having to purchase one", says Casagrande. "In addition, it will increase our flexibility, and this is critical, given that we manage lots from 500 to several million units per year."

Other benefits are expected to come from a more effective management of raw materials and this is is significant in the case of medical or high-tech items. Industry 4.0 means real-time and ex-post production analyses for factors such as overall equipment effectiveness (OEE).

This, in turn, means being able to calibrate and monitor the overall effectiveness of each individual machine and the entire company molding department – while taking into consideration factors such as downtime, production speed and the number of rejects.



Elio Pierobon, founder (left), and Piero Casagrande, Managing Director of Stamplast, in front of a WITTMANN BATTENFELD *SmartPower* 120.

The MES system installed at the Stamplast plant in Belluno makes it possible to control the production process not only at the machine directly, but gives also remote access.

Critical issues

Given the unquestionable advantages offered, the introduction of MES in the company has revealed some critical issues, the main one being the need to electrically reconfigure the workshop, connecting machines of different manufacturers and ages, not all originally set up for interconnection according to the Industry 4.0 concept. The possibility of connecting different machines was a decisive factor in tipping the balance towards the "open" Temi+ software, developed by ICE Flex specifically to meet the needs of small and medium-sized businesses, which are less structured and do not have large budgets for the process digitization.

While the physical wiring of the facility is a technical issue which, all things considered, can be overcome, it has not been so easy to integrate pre-existing management software, introduced at different times, with the new MES; an integration on which the company is still working. Nevertheless, the introduction of advanced software has had an impact on existing organizational processes, requiring workers to change their approach to handling various activities, from the management of presses to order scheduling. This latter aspect was taken into account, as the management had already decided to reorganize the processes by increasing the level of automation and analysis, and by involving the employees.

Perspectives

At present, the transition of Stamplast from a traditional molder to a "pocket-size" smart factory is still ongoing and will probably take a few years to complete. The next steps will be the online management of orders, remote monitoring of the machines – especially useful on weekends, when the factory operates in semi-manned mode – complete digitization and electronic filing of process records (orders, job orders, quality reports, traceability) and the systematic analysis of production data, in order to "fine-tune" the processes and thus recover even the most hidden productivity reserves. Digitization will also be extended to the mold workshop, where machine tools – some only recently introduced – will be interfaced with specific management software and, as in the case of Temi+, will be integrated with the company's management system.

"We are aware that MES by itself does not resolve the problem, it is not a magic wand that only needs to be waved to increase company productivity", concludes Pierobon, "but we are also convinced that it is a fundamental tool for improving the organization of processes, identifying and measuring costs, inefficiencies and waste. It is also a useful tool for demonstrating to our partners the objectives we wish to achieve and how we will achieve them, by evaluating the consequent results together."

Giorgio Pigozzo is Product Manager Digital Products at WITTMANN BATTENFELD Italia S.r.l. in Ceriano Laghetto, the Italian subsidiary of the WITTMANN Group.

Finest products for the cosmetics and perfumery industries

Since its foundation in 1981 in Blotzheim, France, three generations of the Riss family have succeeded each other in fulfilling the management tasks of the Société Alsacienne de Fabrication (SAF). Today, Sandrine Riss-Kuntzelmann is acting as the company's General Manager, relying on equipment from the WITTMANN Group.

Julie Filliere

The SAF company specializes in the injection molding of plastic materials, producing caps, lids, spraycaps and containers for the cosmetics and perfumery industries. The company's turnover reaches 15 million euros, exporting eight percent of the overall production output.

The company is today the last family business in its field, producing only in France. Among its customers are famous brands: Paco Rabanne, Chanel, Bulgari, Lanvin, Kate Spade, Carolina Herrera, Dior, Clarins, Givenchy, Estée Lauder, Lancôme, and also Emporio Armani.

Machinery and materials

The production site situated in Hésingue, the neighboring commune of Blotzheim, has a workshop of 8,500 m² that houses 40 injection molding machines with clamping forces ranging form 40 to 500 tons.

A total of 66 employees work here and Frédéric Da Silva is the Technical Director of the Hésingue production site. Recently, two electric WITTMANN BATTENFELD *EcoPower* 240 injection molding machines – automated with WITTMANN W832 pro robots – have been added to the workshop. These machines allow for the production of inventively designed bottles, since the company manufactures bi-material parts, including decoration work using different techniques: metallization, galvanization, and UV-varnishing.

One of the specialties of SAF is in the production of polyester bottles that – in every respect – resemble glass bottles with regard to transparency, weight, and shininess. The materials processed by SAF are Surlyn®, PCTG, PCTA, PETG, PMMA, SAN, ABS, PBT, TRITAN, and PP. The company produces between 8 and 10 million caps and spraycaps every year.

One of the company's workcells – an *EcoPower* 240 machine with W832 pro robot – makes one of the components for Paco Rabanne's PHANTOM perfume bottle spraycap. PHANTOM is Paco Rabanne's latest development. The marketing communication for the product is highly media based; giving users access to an entire PHANTOM universe online, containing games, music playlists and other materials.

SAF and the WITTMANN Group

When asked about WITTMANN Group machinery, Frédéric Da Silva says that though he has trusted in WITTMANN robots for many years, this was not always the case with regard to the BATTENFELD molding machines. Indeed, the molding machines that SAF bought from WITTMANN BATTENFELD France are a first for the family business. Frédéric Da Silva notes that it takes time to change and certain experiences with BATTENFELD in the distant past had influenced his judgement.

However, now WITTMANN has been associating its name with BATTENFELD for almost 15 years, and today, for him this is a sufficient and final guarantee of quality. Today, Frédéric Da Silva states that he is very happy to have trusted in WITTMANN BATTENFELD injection molding machines.

When asked why he finally chose the WITTMANN Group as a machine supplier, he points to the support of the French government's CEE bonus system (CEE = Certificat d'Économie d'Énergie) that has made possible this investment. A further reason was WITTMANN BATTENFELD's offer of a complete production solution comprising robot, injection molding machine, and auxiliary equipment.

Lastly, Frédéric Da Silva points out that trust is essential for him: For the WITTMANN Group, honest advice, transparency and the expertise of the company's sales teams and technicians are the supporting pillars of their work. WITTMANN BATTENFELD France absolutely enjoyed the collaboration with SAF, and they hope that this partnership will last for many years to come.

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

From left to right: Florian Risser, SAF Process Technician, Domenico Ianni, WITTMANN BATTENFELD France Sales Manager, Frédéric Da Silva, SAF Technical Director, Kemal Kaya, SAF Process Manager.

The cap of the perfume PHANTOM by Paco Rabanne is produced using an *EcoPower* 240 injection molding machine that is automated with a W832 pro robot.

Views of cap handling actions on the conveyor belt within a secure environment.

AIRMOULD® technology for the domestic appliance industry

The Belarusian GEFEST companies comprise the parent enterprise JV Brestgazoapparat, UE Gefest-Tekhnika, and UE Gefest-Quartz. The GEFEST group of companies is highly valued by the WITTMANN Group and is one of the largest enterprises in Belarus dedicated to the production of high-quality domestic appliances.

Andrei Lysenko

Domestic appliance door handles injection molded by GEFEST, applying the WITTMANN BATTENFELD AIRMOULD® technology.

The GEFEST site in Brest has evolved quite some way from the "Brest Mechanical Plant" which had a staff of 49 people back in 1951. Today the business is a full-fledged holding company consisting of three enterprises with a total number of more than 4,500 employees.

The main activity of the GEFEST companies is the production of built-in stoves that are run either with gas, electricity, or gas and electricity, and also of air cleaners. The GEFEST trademark is widely known throughout the countries of the Eurasian Economic Region.

The GEFEST company currently produces some 900,000 units of stationary cooking plates annually, and 80% of this total is exported. Thanks to an extensive dealer network, GEFEST sells its products outside the Republic of Belarus to Russia, Ukraine, Kazakhstan, Moldova, Georgia, Azerbaijan and Uzbekistan. In Russia, GEFEST kitchen appliances occupy 46% of the gas stove market.

GEFEST relies on the WITTMANN Group

The company always monitors market trends, is always eager to improve the product quality, and implements new ideas and manufacturing technologies in order to meet the needs of the final consumers. GEFEST constantly invests in the development of its production facilities and therefore is always open to the recommendations of new equipment suppliers. The WITTMANN Group is one of GEFEST's long standing suppliers of production equipment: in 2021, the Moscow based Russian subsidiary of the WITTMANN Group supplied not only a new *SmartPower* XL180/1330 UNILOG B8 injection molding machine in AIRMOULD® technology configuration, but also a WITTMANN PRIMUS 26T robot.

To complete this working cell, GEFEST also ordered a FEEDMAX S 3-net material loader, a DOSIMAX MC Basic volumetric dosing system, and two TEMPRO basic C90 temperature controllers.

Before that, the WITTMANN Group had frequently supplied GEFEST with a variety of different equipment. GEFEST's employees have therefore been very familiar with the WITTMANN technology for several decades now and praise it in glowing terms. The WITTMANN workcell delivered last year is used for molding hollow handles that are mounted on gas stove doors. Thanks to the application of AIRMOULD® technology, GEFEST achieves significant material and product weight savings. GEFEST's production staff also appreciated the convenience brought about by the complete and seamless integration of the PRIMUS 26T robot into the injection molding machine's control – as well as the easily and intuitively operable interface of the DE 250 pressure generator. This compresses the nitrogen used to a sufficient pressure for all AIRMOULD® applications.

Finally, and not least, GEFEST is now looking forward to the possibilities of connecting and handling all the other WITTMANN auxiliaries.

Andrei Lysenko is Project Manager for the countries forming the Eurasion Economic Union at OOO WITTMANN BATTENFELD in Moscow, the Russian subsidiary of the WITTMANN Group.

Views of a WITTMANN Group production cell at the GEFEST production plant in Brest, Belarus, consisting of a WITTMANN BATTENFELD *SmartPower* XL180 injection molding machine and a PRIMUS 26T robot from WITTMANN as well as different WITTMANN auxiliaries such as conveying equipment and temperature controllers.

"There is no reprocessing system like ours anywhere else."

With some 10 years of practical experience in reprocessing and over 60 million pounds of plastic materials reprocessed, the American company Monoflo International leads the way – with active support from WITTMANN BATTENFELD, Inc., the WITTMANN Group subsidiary in the USA.

Brent Strawbridge

Based in Winchester, Virginia, USA, Monoflo International is a well-known manufacturer of injection molded totes, bins, pallets and other packaging solutions. They supply their products to some of the world's largest companies including CVS, General Motors, Amazon, and many others.

What Monoflo is perhaps not as well-known for are its large-scale plastics reprocessing operations. Starting back in 2010 with their first foray into recycling, Monoflo has worked for years to perfect the process. Today, Monoflo's plastics reprocessing business is booming; the company now features two highly automated lines that feature 3,000 lbs/hour capacity. To keep up with the growth, Monoflo has added new buildings, new equipment, and new technology – and it's just getting started.

"It took several years to perfect the most efficient way to run this repro operation", says Ashly Hawkins, Operations Manager at Monoflo. "Now we have a proven system in place that can reprocess 12–15 million pounds of material per year. What we have here is unique."

"Totalizing" the process

When Monoflo first got into reprocessing, they called on WITTMANN BATTENFELD for support. WITTMANN was already supplying robots and material handling systems to Monoflo. "Monoflo reached out to us back in 2011 asking for our advice", says Steve Mussman, Division Manager Material Handling & Auxiliaries at WITTMANN BATTENFELD USA. "They told us they wanted to develop a recycling system that could shred used tote bins, reprocess the materials and reuse the material in new molded bins."

Mussman and other WITTMANN personnel visited Monoflo's plant in Virginia to consult on the new system. "We are experts in material handling, and that expertise helped a lot", he says. "We worked hand in hand with Monoflo to design a system that totalize and convey the reprocessed material to the designated silo or building."

WITTMANN coined the name "totalizer" for the system, and it stuck. Since 2012, with WITTMANN's help, Monoflo has made continuous improvements to the line and now runs two "totalizers" at its Winchester facility. From a modest 1,000 lbs/hour capacity at start-up in 2012, the totalizers now process over 3,000 lbs/hour of HDPE, PP, and structural foam parts.

From tote to pellet

Monoflo's reprocessing operation involves buying back used or end-of-life containers from its customers, regrinding and reprocessing the material, and reintroducing the materials into newly molded containers. What started out as an idea has turned into a major, and growing, part of the company's business model. "The market for recycled and reprocessed resin continues to grow", says Hawkins. "The demand for these materials comes from our customers, but we also have made it part of our mission to encourage the industry to increase its recycling. Lately, the high cost of virgin resin has led to increased customer demand for more repro", she says.

"A major challenge for the business is to keep a steady stream of scrap products coming in", says Calvin Wetzel, Extrusion Supervisor at Monoflo. "We get most of our scrap from our customers, but we also source it from other suppliers", he says. "We need to vet the scrap that we receive to make sure it doesn't include products or materials we can't use."

"The importance of controlling the entire reprocessing in-house at Monoflo is critical", says Wetzel. "We know the source of our materials and can maintain control over, and ensure the quality of the reprocessed resin."

Partnership

Monoflo has their first three WITTMANN M7 control systems managing material handling in their main building; a fourth system was installed in 2021, and another one is being added to a new building in 2022. While the products are working flawlessly, it's WITTMANN's support that means the most to Monoflo.

"Over the years Monoflo has asked us to work with them to continually improve the material handling aspect of their injection molding and reprocessing operations", says Mussman. *(continued on page 14)*

WITTMANN designed and installed material handling systems, including piping and silos, that convey reprocessed materials to designated silos and buildings at Monoflo.

WITTMANN BATTENFELD's Crystal Gagnon, Monoflo's Ashly Hawkins, Monoflo's Calvin Wetzel, and WITTMANN BATTENFELD's Brent Strawbridge (left to right).

"We've helped with numerous things including adding silos to replace storage bins, moving the repro material from the buildings to the silos, and implementing a railcar unloading system to move material from the silos to other parts of the facility. Overall, we've provided the know-how and advice to help Monoflo lay out it's reprocessing operations for the highest efficiency."

"The material handling focus that WITTMANN offers has been a big part of our success", says Hawkins, "but it's their consulting support and advice that has really set them apart. They are transparent and accountable in all that they do. Our relationship with WITTMANN is a true partnership."

Brent Strawbridge is National Key Account Manager of WITTMANN BATTENFELD, Inc., the US subsidiary of the WITTMANN Group.

End-of-life plastic pallets being conveyed into granulator for reprocessing.

Ground up plastic from used totes.

Reprocessed pellets made from the ground up tote plastic.

Wittmann

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MAP
Mold Area Protector

IACS
Internal Air Cooling System

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