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Filtec: since 1993 an excellent partner in the world of plastics

The company, with seat in the Land of Venice, focuses on a wide range of services customized to the customer

Italian leader company in the plastics sector, Filtec produces pelletizing systems using various technologies for the granulation and filtration of this important material. The quality, performance and durability of its solutions are just some of the ingredients that have led Filtec to recently celebrate 30 years in business, marked by important goals achieved both in Italy and abroad, with 1,600 installations worldwide and over 700 active customers.

In fact, the company from Badia Polesine arises not as a simple supplier: Filtec's mission is to act primarily as a partner and collaborator of excellence, capable of supporting its customers on a daily basis and accompanying them step by step throughout the sales and after-sales cycle, thus establishing lasting relationships based on professionalism, transparency and mutual trust.

It is no coincidence, therefore, that Filtec provides a wide and varied range of services as well as a customized production designed for every need. With top-level technical assistance for machines start-up, preventive, ordinary and extraordinary maintenance, remote monitoring and up to scheduled maintenance, Filtec guarantees ever more economical management of the production system.

A central aspect of Filtec services is also training, not only internal to its team, but also aimed at the customer: in fact, the company offers "on-site" training activities at

its buyers' plants, with the aim of offering them the correct training of the operators and thus guarantee the acquisition of basic knowledge for the rapid identification of any problems and the execution of maintenance activities on the purchased system. By doing so, no detail is overlooked and technical problems are drastically reduced, facilitating production.

Last but not least, the spare parts service is the flagship of Filtec which can count on a large spare parts warehouse managed by trained operators ready to search

and select the required components, with the utmost rapidity both in research and in sending the pieces. Thanks to the use of a management system monitoring each single item, the spare parts service is therefore transformed into an aftermarket of excellence including thousands of items and is supported by a multilingual help desk service which immediately accompanies the customer in search of the right component, even when the available data is scarce or the necessary piece is outdated.



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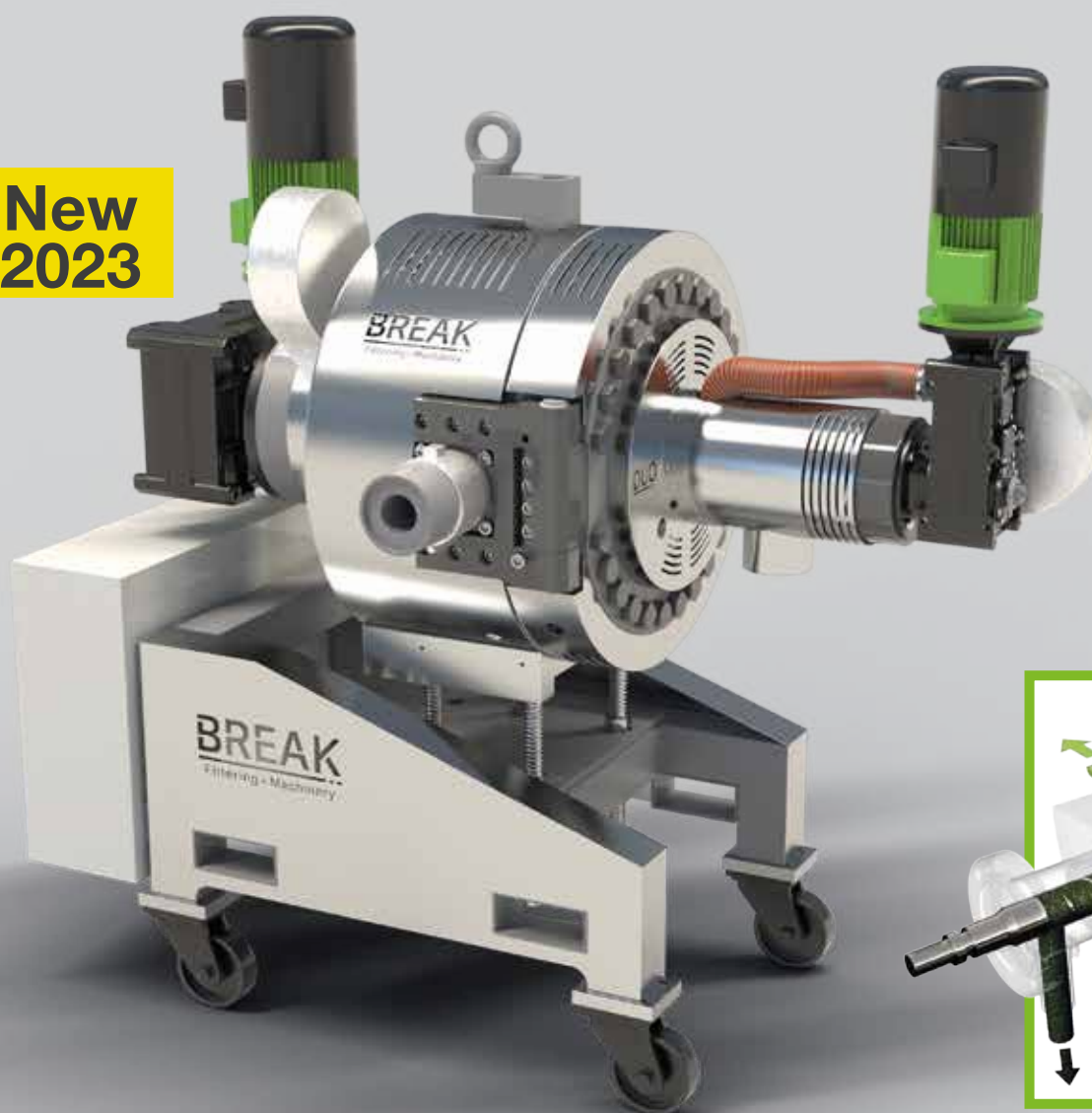


Training

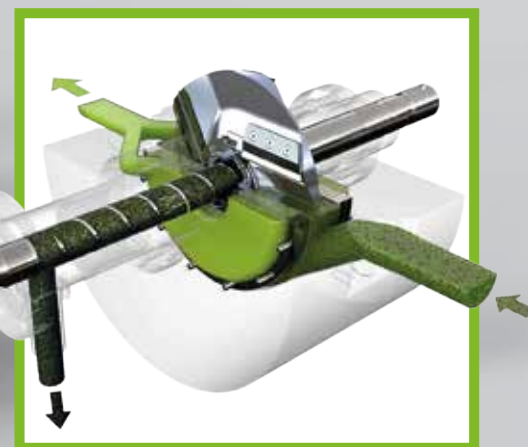


Spare Parts

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FAKUMA 2023

Fakuma 2023 ready for take-off

The 28th Fakuma international trade fair for plastics processing is being eagerly awaited with great anticipation. The world's leading trade fair for injection moulding, which also serves as a technology and industry barometer for extrusion technology, thermoforming and 3D printing, will offer information on new solutions and provide fresh impetus for circular economy in Friedrichshafen from the 17th through the 21st of October, 2023.



Expert visitors will gain an up-to-date, comprehensive overview of all processes, technologies and tools covering all aspects of plastics processing, in particular injection moulding, extrusion technology, thermoforming

and 3D printing Fakuma. Halls A1 to A7 and B1 to B5, as well as the east and west foyer areas and the east concourse, will be occupied at the Friedrichshafen Exhibition Centre. Major issues addressed at this year's trade fair include, of course, circular econ-

omy, efficient use of resources and sustainability. The tasks currently faced by the industry are well known: reduced energy consumption, the digitalisation of production processes and the processing of recyclates into high-quality products.

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Marco Mastrosanti

#plasticisfantastic

Fresh from a good edition of the Plast Fair held in early September in Milan Italy, here we are already thinking about the next Fakuma. The sector is always in motion, and although there are some hints of recession in the air, key sectors such as recycling, food packaging and medicals do not show any signs of slowing down the good moment of positive wave that has dragged the fate of the companies of our field. The Fakuma returns after two years, having left room for the K fair in 2022, and promises to be a resounding edition. As always, Italian companies will be in the front row, as usual the largest team after that of the host country. Almost 100 players from the "Bel Paese", demonstrating a now full-blown and certified importance in the world of plastics. Years pass, Covid rears its head every now and then but above all it remains a bad memory, and the normality of trade fairs is finally regaining the upper hand. And free from all those fears that surrounded us at the time, we can only confirm and see how plastic truly is the answer: to the circular economy, to sustainability, to a better world where the balance between energy consumption and industrial needs improves more and more. It is paradoxical how much the bad reputation of plastic, in the end, has contributed to forging a new image where it is clear, and which does not stop at the banality of bar talk, how much this advanced material (plastic) is at the center of the most extraordinary changes taking place on the planet. Electric batteries for new mobility, energy saving, smart construction, total recycling, etc. In short, I know I'm being repetitive, but without hesitation I feel like stating, and repeating, that among many things in motion, one fixed point remains:

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Dry Air Moretto: patent confirmed by European Patent Office

With more than 15,000 units sold, Moretto's Dry Air mini dryers are one of the most appreciated solutions by customers around the world thanks to high-performances, product compactness with a design studied down to the smallest detail.



Mini dryer Dry Air product range- From the left side:
D TX, XD TX and XD XM

Recently, the European Patent Office (EPO) has definitively recognised the uniqueness and exclusivity of Moretto's mini-dryer Dry Air technology, a system patented in 2005 but objected by two competitors. After 18 years between the approval and opposition processes, the EPO, Europe highest patent authority, confirmed the international patent for the Moretto product, recognising the inventive and distinctive character of the system, stating its uniqueness and exclusivity.

Thanks to their compact dimensions, the Dry Air mini dryers can be installed directly on the processing machine. They are suitable for treatment of polymers used in demanding sectors such as medical, optical, electronics and telephony. This is a success factor in the treatment of technical polymers such as PA6, PBT,

PEEK and several others. These materials are, in fact, in continuous evolution and development and require extensive treatment to ensure that the finished product meets the strict standards needed.

The Dry Air range includes three product lines with a total of 15 models to meet different customer expectations.

Dry Air is a dryer with twin self-regenerating towers based on zeolite technology. It works with compressed air and allows the regulation of the air flow sent to the hopper. In the D TX version, the operator, guided by the system database, can independently set the machine according to the type of polymer to be processed and the production required, defining the air flow. The machine monitors the temperature of the air entering and leaving the hopper. The anti-stress function allows

a limit temperature to be set for the return air, reducing the air flow when this temperature is exceeded to protect the material from over-drying.

The airflow adjustment is automatic in the XD TX series. By simply setting two parameters – polymer type and hourly throughput – the dryer automatically manages in a self-adaptive way the necessary airflow to treat the material with a significant energy efficiency.

The excellence in the mini dryer family is reached with the XD XM series, dedicated to medical and optical applications. In this version the OTX hopper evolves and becomes transparent by using Pyrex to show the contents, placing it at the top of the range in terms of features and performance.

The anti-stress system prevents the over-drying of the polymer and it is a standard feature of the range.

The use of the OTX (Original Thermal eXchanger) increases and completes the performance of the drying unit, realizing an exceptionally energy-efficient solution.

The multiple connection possibilities via USB and MODBUS serial port make these products perfectly integrable to Mowis, the Moretto supervision and management system, as well as connectable to individual instruments for process data collection. Versions are available for connection to Master 300 palmtop device for improved ergonomics in multi-hopper applications, or in the case of on-machine installation.

Reliability, excellent performance and attention to details are therefore the benefits that best summarise Moretto technology in the mini dryer segment.

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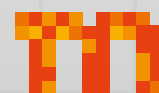
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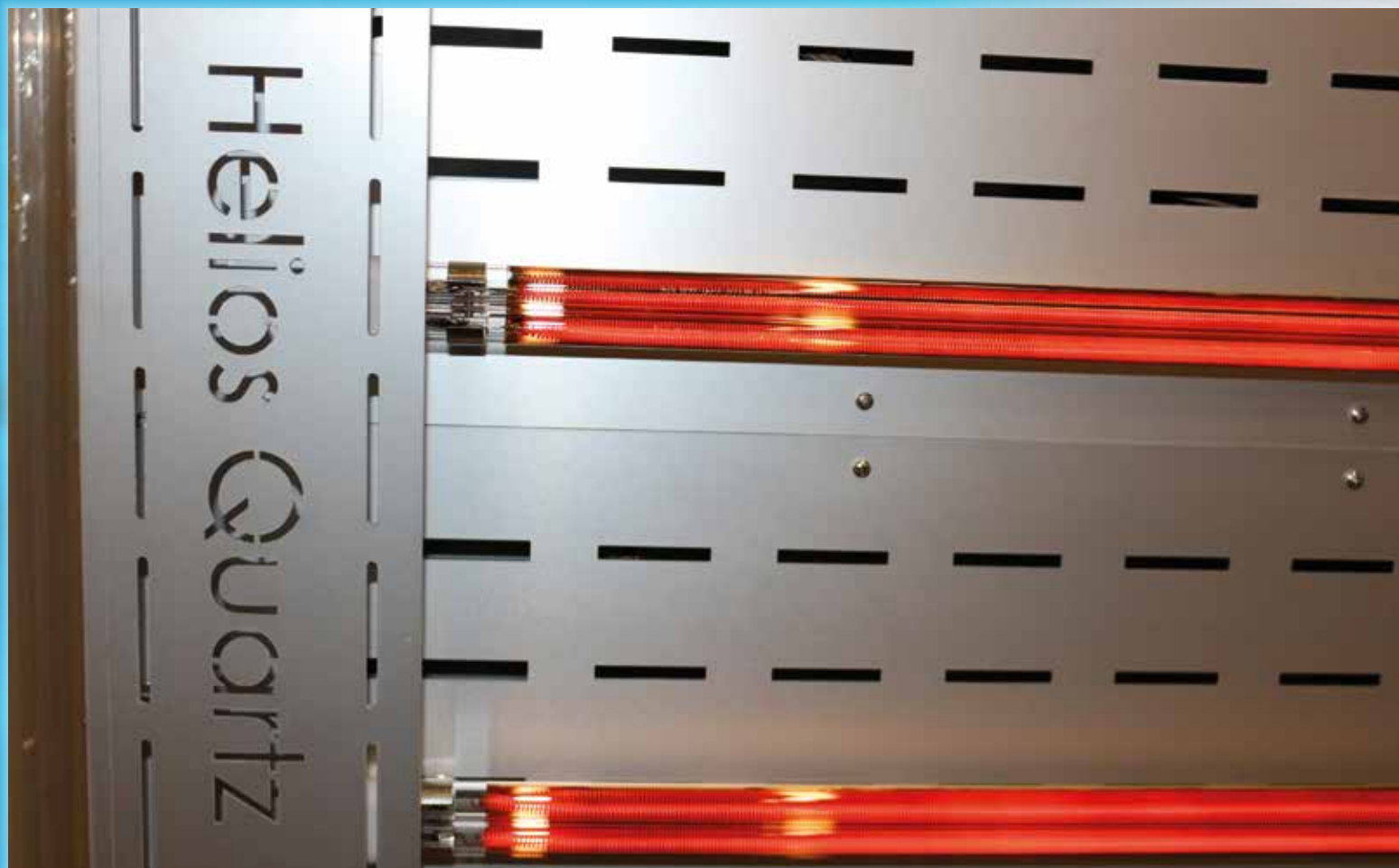
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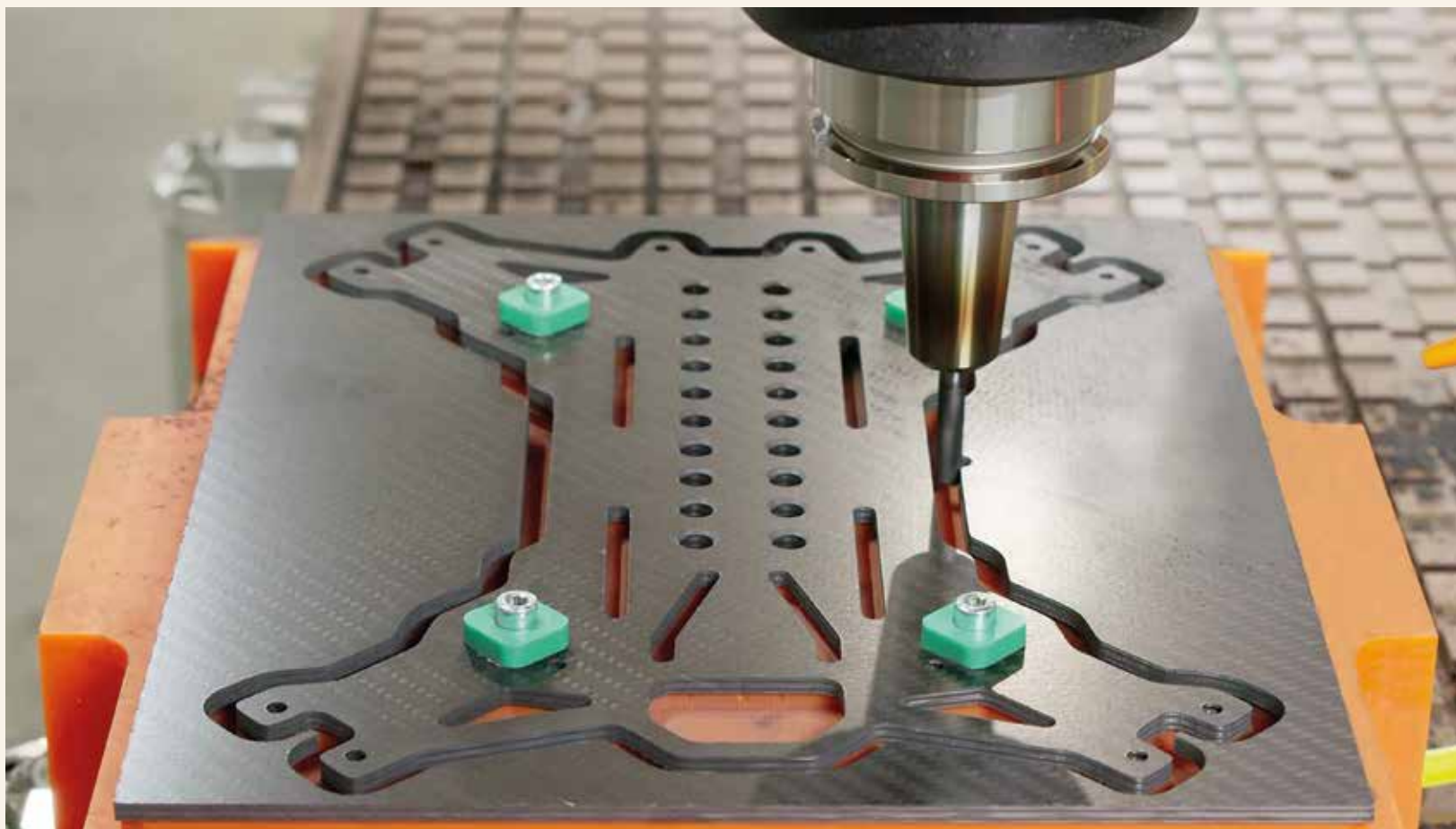
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Thanks to a strong partnership, Biesse and Hufschmied design new machining processes

Hufschmied, a leading manufacturer of specialist milling tools, and Biesse, an international company that manufactures integrated lines and machines to process wood, glass, stone, plastic, and composite materials are pleased to announce their strategic collaboration.



This collaboration brings together the expertise and capabilities of both companies to offer enhanced solutions to partners and customers operating in the plastics and composites sector. The partnership between Hufschmied and Biesse aims to rev-

olutionise the industry by providing cutting-edge technologies and optimised processes for working with plastics, composites, and thermoformed materials. By combining Hufschmied's specialised milling tools with Biesse's comprehensive range of machinery, customers can

expect increased productivity, precision, and efficiency in their operations. With the aim of strengthening this collaboration, at the beginning of 2024, the Hufschmied showroom, located in Bobingen, Germany, will host a Biesse Materia technology, giving customers the opportunity to attend new customized demos.

"We are excited about the strategic collaboration with Biesse," says Ralph Hufschmied, CEO of Hufschmied. "Together we will leverage our respective strengths to provide innovative solutions to the unique challenges of working with plastics and composites. This collaboration will drive our customers' success and open up new opportunities in these industries".

Through this cooperation, partners and customers can benefit from a

wider range of solutions, expert advice, and tailored support. The combined expertise of Hufschmied and Biesse will enable the companies to optimise their processes, increase product quality and take the lead in an increasingly competitive market. "At Biesse, we are committed to providing our partners and customers with the most advanced solutions for processing plastics, composites and thermoformed materials," said Ettore Vichi, Chief Regional Director Emea e Apac. "By partnering with Hufschmied, a recognised leader in specialist milling tools, we are able to offer a comprehensive and integrated approach that increases efficiency and productivity while delivering exceptional results".

The new cooperation between Hufschmied and Biesse represents



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"We're an international company that produces integrated lines and machines for machining wood, glass, stone, plastic, composite materials and the materials of the future. Founded in Italy in 1969 and listed on the Euronext STAR segment of the Italian Stock Exchange, we aid the business evolution of our clients in the furniture, housing & construction, automotive and aerospace sectors. Today, about 80 per cent of our consolidated

turnover is achieved abroad thanks to an ever-growing worldwide network with 4 production campuses and over 30 showrooms, through which we're able to reach more than 160 countries.

With the expertise of our 4,200 employees, we encourage the imagination of sector-leading companies and prestigious names in Italian and international design, bringing out the potential of any material".



a powerful alliance that combines technical excellence, innovation, and customer-centric solutions. Both companies are dedicated to supporting their partners and customers in achieving their goals, driving growth, and staying at the forefront of the industry.

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COMAV, your partner in bulk material handling

Since 1980 COMAV Srl has been a reference point in the supply of pneumatic conveying parts, automatic and semi-automatic bag emptying solutions, Big Bags, Octabins, containers and related engineering solutions.



To ensure an increasingly rapid response to the needs and demands of the market, COMAV Srl is now part of a widely acclaimed international group that supplies complete sales and technical support to major global markets.

Material management through automatic bag emptying machines.

In recent years, the management of raw materials has evolved strongly, requiring concepts of product traceability, contamination control, interfaces to company supervisors and optimization of the working ergonomics of products stored in bags, Big Bags, Octabin, tanks and containers.

COMAV has developed specific technologies that allow machines to meet all these needs.

For the extruders and plastic molding market, a bag emptying machine has been designed to guarantee high levels of production while minimizing product waste.

SVR COMPACT stems from the need to provide a model for plastic granule management with low maintenance impact that ensures the highest levels of safety at the loading points and an

automatic plant management.

A patented gripping technology allows to minimize bag lifting stress. This is possible thanks to a “layer by layer” emptying concept. Bag emptying coefficients increase with an emptying mechanism through rotating blades and rotating dischargers. Subsequently, a gravimetric fall ensures the separation of most of the material from the bag, released by a counter comb.

The pallet loading takes place through a forklift. The loading point can be both laterally and frontally. After the emptying cycle is done, the empty pallet is removed by the forklift.

Greater automation can be achieved by integrating an empty pallet stacker and a full pallet storage unit.

The SVR COMPACT ELITE and SVR COMPACT DELUXE versions integrate these possibilities. They're autonomous up to 8 pallets, after which, to allow the continuation of the emptying cycle, the stacked pallets must be unloaded.

The technologies developed for these two versions of bags emptying machine are particularly interesting.

The SVR COMPACT ELITE is equipped with a

fully electric and non-hydraulic roller shutter stacker, i.e., a system that allows you to manage all types of pallets regardless of the status and configuration, protecting any blind spot that could become a risk for the operator.

In addition to the empty pallet management technology, COMPACT DELUXE is supplied with conveyors to feed pallets with bags.

To facilitate the handling of the pallets, which often aren't in optimal condition due to truck or sea transport, we added roller shutter conveyors that guarantee a linear movement.

The insertion part of the full pallets is managed by a Muting concept that identifies the object that's been inserted into the machine, so that if an operator were to climb over the protections placed on the loading side of the machine, the bag emptying machine will immediately stop emptying the bags.

A crucial point in the whole bag emptying process is to ensure that any unwanted material residues have been cleaned or removed before cutting new bags. This is possible by activating a bag cleaning system before cutting.

Internally, the machine is free of any gaps that

could possibly risk contamination between products, however, it's equipped with one or more inspection doors to facilitate cleaning, additionally, nozzles can be integrated for the input of compressed air.

Any escaped residues are retained by a protective grid placed in the collection hopper, easy to clean thanks to an inspection door. This can become particularly useful when the material of the bag isn't high quality, defective, or if the pallet has been stored outside for many months. If the bag is deteriorated it will be automatically cleaned, as described in the various accessories of the machine.

The management of the empty bag is also important and our orientation towards a "Green Thinking" policy has challenged us to transform waste, in our case empty bags, into productive value.

SAVE MONEY is the latest technology that allows you to manage the volume of empty bags without any operator intervention.

A special mill is inserted at the exit of a pre-dosing auger inserted in the machine body. When possible, the empty bag is automatically shredded to be put back in its re-granulation state.

There's also the possibility of storing the empty bag flakes in Big Bags to later re-sell it at market price.

In addition to this technology, a Hydraulic Press or a Compact Auger complete the solutions for the management of the empty bags.

Our hydraulic press with manual tying can compact up to 1000 empty bags per meter.

In case of high productivity, one of these two solutions is recommended, while the compacting auger is normally used by customers who conduct lower levels of production.

When handling granular products, we recommend using our SVR Compact machines, whereas when handling powder or very compacted materials, we suggest using our SVR DEPA, which can also be supplied with an ATEX 1/3D certification and with EC1935/2004 when

required.

We can conclude that, with over 40 bag trays between models and versions, COMAV is able to provide solutions fitted for each case.

All our bag emptying machines have many accessories and optionals that can be integrated according to specific needs.

The main ones are:

Video Control Camera, that allows you to monitor the state of wear of the blades and check the status of the working area through the appropriate rotation of the camera.

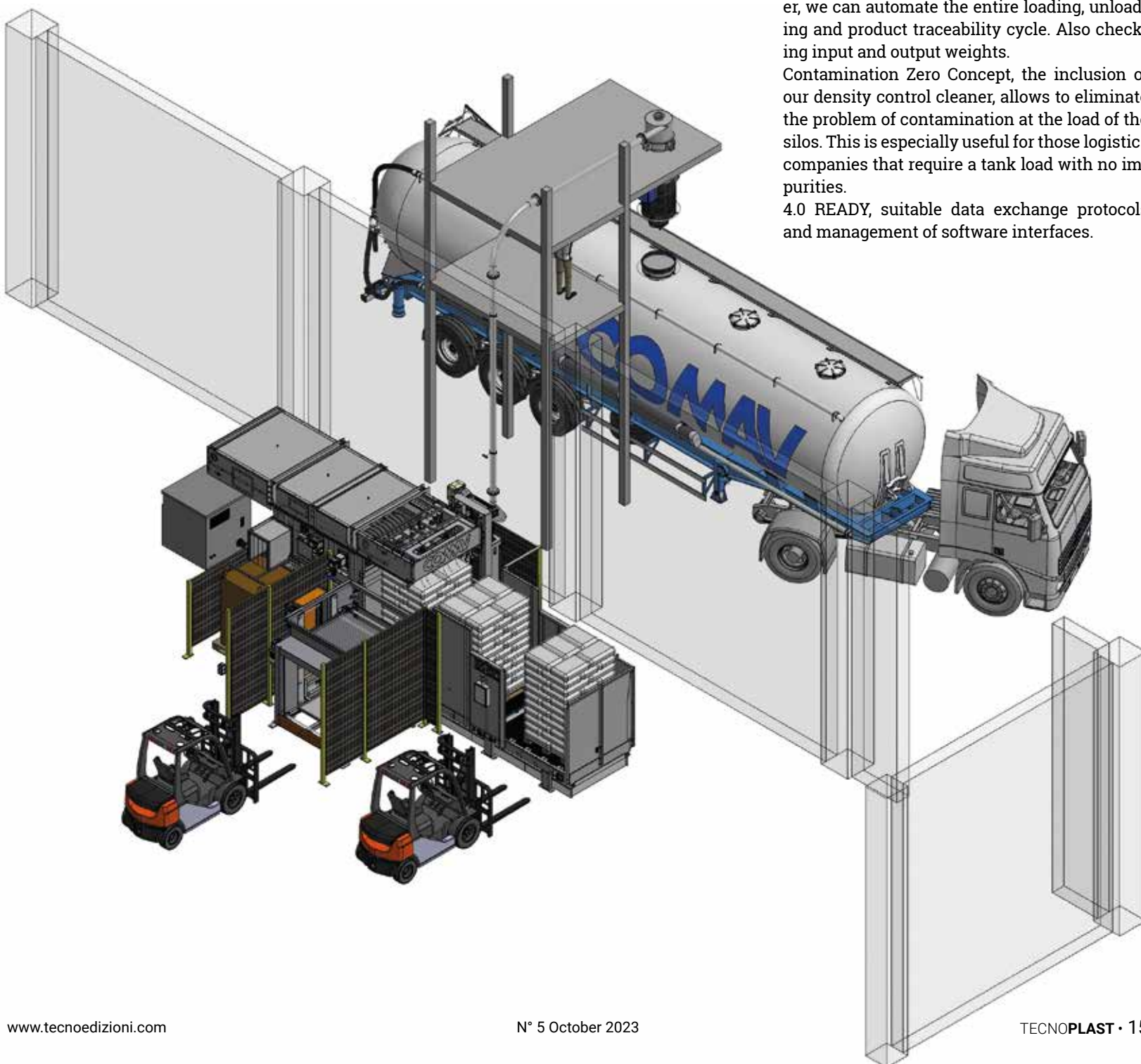
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Integrated Pneumatic Transport Management, we can supply all the pneumatic conveying valves like rotary valves and diverter valves and oversee the silos load meant for storage through a specific software.

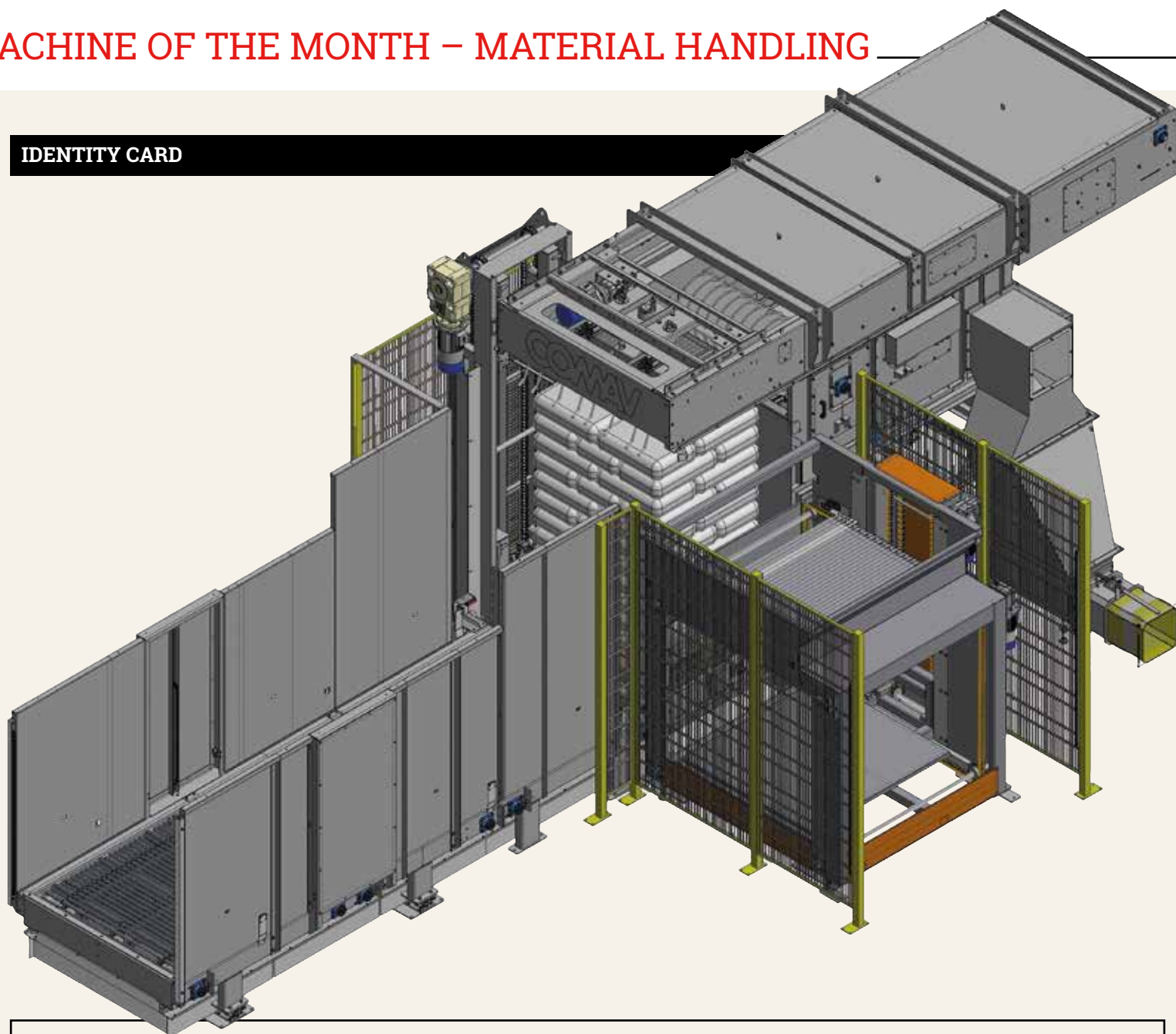
Product Traceability Management, by inserting a barcode reader or an augmented reality viewer, we can automate the entire loading, unloading and product traceability cycle. Also checking input and output weights.

Contamination Zero Concept, the inclusion of our density control cleaner, allows to eliminate the problem of contamination at the load of the silos. This is especially useful for those logistics companies that require a tank load with no impurities.

4.0 READY, suitable data exchange protocols and management of software interfaces.



IDENTITY CARD



NAME

SVR COMPACT

USE

Automatic emptying of bags on pallets

MANUFACTURER

COMAV SRL

Via Statale 337

44047 Terre del Reno (Ferrara)

Italy

Phone +39 0532848348

Mail info@comav-srl.com

SVR COMPACT MODEL

Production Capacity: 750 bags/hour

SVR COMPACT ELITE MODEL

Production Capacity: 660 bags/hour

SVR COMPACT DELUXE MODEL

Production Capacity: 10,5 pallets/hour

MACHINE SIZE

On request, many variations of each model are available.

Bag management

Raffia and plastic

Bag Weight

25 kg

Pallet Size

1300x1100 mm

Pallet Weight

1500 Kg

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of dust/moisture



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system with targeted
water routing in base
& side wall



Multi-stage mixing tools
for high friction
&
perfect homogeneity



Additional options such
as ATEX version,
weighing, injection,
remote maintenance, etc.

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Tel. +49 2392 9644-0 - Fax +49 2392 62013
info@mixaco.de

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1784 Poplar Drive
Greer, SC 29651 - USA
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Coextrusion technology in EBM for food and dairy industry

After 5 years from the previous edition, at the recent Plast 2023, the International Exhibition dedicated to the Plastics and Rubber Industry, which took place at Fiera Milano, from 5 to 8 September 2023, Plastiblow exhibited at Hall 22 Stand A01 B02 a fully electric blow molding machine Mod. PB15ES-700, one of the most successful models in the mid-size range of Plastiblow machines.



This model is available in both single and double carriage with strokes ranging from 480 mm to 800 mm and a mold clamping force of 15 tons that allows a very flexible production. Thanks to the recent upgrade of the carriage clamping system on linear guides, this model has become even more robust, reliable and high-performance.

The exhibition machine, in single carriage version, Coex3 with 3 extruders, had a stroke of 700 mm and was equipped with a double head and a mould to produce 4-liter vinegar bottles with handle and it was a perfect example of application of coextrusion technology for the food industry.

In an era where sustainability and environmental concerns are paramount, industries like food and dairy packaging are seeking innovative solutions to reduce their environmental footprint. One such solution is coextrusion technology, a method that plays a pivotal role in producing recycled plastic containers that meet the stringent requirements

of the food and dairy industry, creating eco-friendly packaging solutions for these critical sectors. For food and dairy containers, materials must meet stringent safety and hygiene standards. Regulation 2022/1616/EC defines new rules for the production and placing on the market of recycled plastic products intended for contact with food, manufactured with materials obtained with a suitable recycling technology, capable of obtaining sufficiently inert and safe plastic materials from a microbiological point of view.

Coextrusion technology offers numerous advantages when producing recycled plastic containers for the food and dairy industry:

Enhanced Barrier Properties: Coextrusion enables the incorporation of specialized barrier layers that protect food and dairy products from external factors such as moisture, oxygen, and UV radiation. This extends the shelf life of perishable goods.

Customization: Manufacturers can tailor the prop-

erties of each layer to meet specific requirements. For example, one layer may provide rigidity, while another offers printability for branding and product information.

Sustainability: The ability to use recycled plastics as one of the layers aligns with the industry's sustainability goals. Coextrusion allows for the integration of post-consumer recycled materials without compromising product safety.

Cost-Efficiency: Despite its advanced technology, coextrusion can be a cost-effective solution in the long run due to reduced material wastage and improved product performance.

Versatility: Coextrusion is adaptable to various container shapes and sizes, accommodating the diverse needs of the food and dairy industry.

Applications in Food and Dairy Packaging

Coextrusion technology finds numerous applications in food and dairy packaging, including:

Milk and Dairy Containers: Multi-layered coex-

truded containers effectively maintain the freshness of dairy products, extend shelf life, and prevent leakage.

Sauces and Condiments: Barrier layers protect sauces and condiments from oxygen, light, and moisture, ensuring product integrity.

While coextrusion technology offers remarkable benefits, there are challenges to address. These include optimizing recycling processes for multi-layered containers and increasing consumer awareness of recycling options. The future of coextrusion in food and dairy packaging lies in continued research to enhance recyclability, reduce

environmental impact, and promote sustainable practices throughout the supply chain.

Coextrusion technology stands as a beacon of innovation in the production of recycled plastic containers for the food and dairy industry. Its ability to create multi-layered, customizable packaging solutions with enhanced barrier properties and sustainability aligns perfectly with the industry's evolving needs. As the world moves towards a more sustainable future, coextrusion will play an increasingly vital role in reducing waste, conserving resources, and ensuring the safety and freshness of food and

dairy products.

The choice to exhibit at PLAST 2023 an electrically driven multi-layer coextrusion system that allows the use of recycled plastic, with minimal energy expenditure, confirms Plastiblow's commitment to the development of a virtuous production process that is more environmentally friendly and more attentive to the enhancement of resources and the containment of waste.

www.plastiblow.it

Plastiblow at Plast 2023 in Milan (Sept. 5-8, 2023)

Hall 22 Stand A01 – B02



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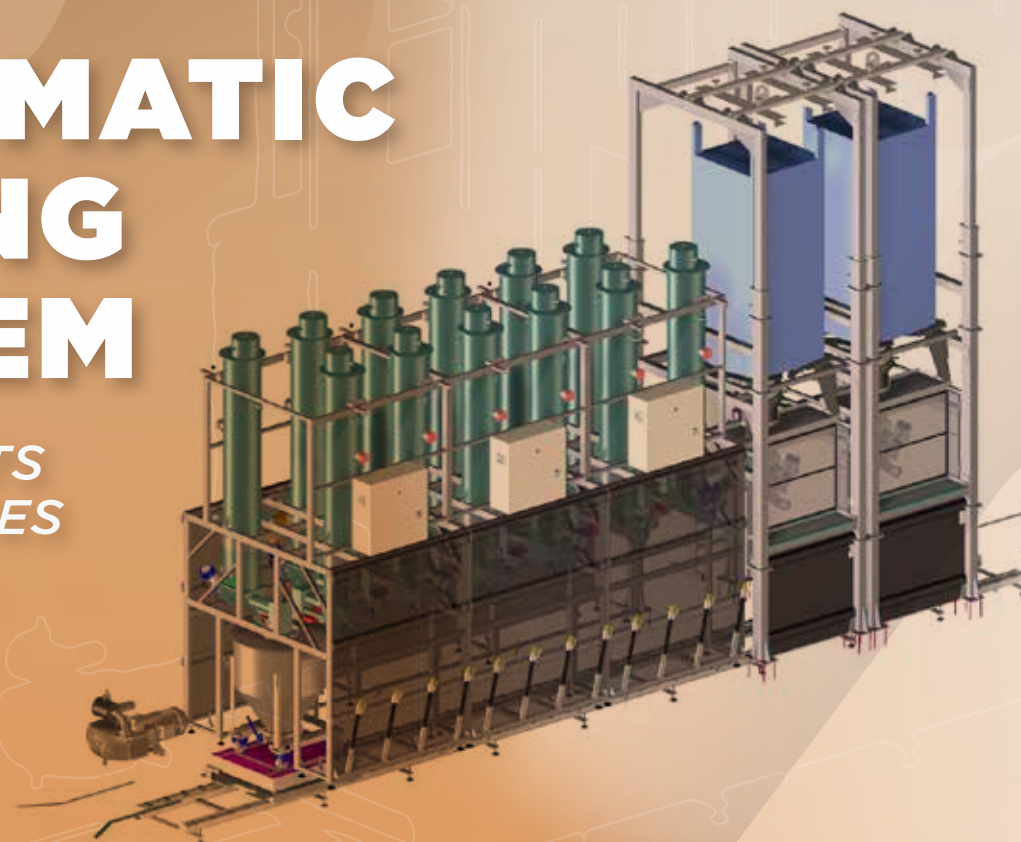


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FAP: “We support our partners in every step of the foam production process”

FAP is a dynamic second-generation family-run company with over 36 years of international experience.

The core business is the design and construction of counter-rotating twin-screws extrusion lines for non-crossed linked PE and PP expanded films (foams), fully automatic winders and converting machines (lamination lines, cutters and welding machines)

The foamed materials produced with FAP technology are very versatile, 100% recyclable and have infinite applications in packaging, building, automotive, food, cosmetics, medical and sport industry. Today, non-crossed linked expanded materials have the best characteristics for a more sustainable future.

In the **internal R&D department** called **Italian Foacm Centre**, which will be expanded with the construction of the new production site in 2024, FAP has a laboratory extrusion line for foamed materials, with which new polymers and blowing agents are tested daily. Thanks to this laboratory, a patent was obtained in 2022.

This activity places FAP among the leaders in the continuous evolution that plastic products have been experiencing in recent years.

The close collaboration of the team of technologists, engineers and universities allows FAP to design updated extrusion lines operating with dif-

ferent gases. Excellent results have already been obtained by lowering the densities of **PP and PE materials expanded with CO2** compared to those already available on the market, arousing the interest of manufacturing companies in the sealing, food, automotive and medical markets.

Another innovative aspect is the possibility of producing **physically expanded cross-linked polyethylene** in the form of sheets and tubes. This process significantly increases the range of application of PE foam in the automotive industry, in the production of thermic insulation for hot water pipes, steam pipes with a range of operating temperature up to 115-120 °C offering an alternative to PP foam or to foamed rubber.

Not just technical, but also technological support

Even the most innovative technology alone is not enough for the sustainable growth and development of any production. Complex production and technological processes require constant verification, control and improvement. Although all the machines built by FAP are equipped with automatic production and consumption control systems with interfaces to support users, the human factor always remains the central point of the project.

To overcome the difficulties of finding qualified engineers and technicians, FAP offers to its customers, worldwide, customizable support solutions such as training and optimization in the use of FAP technologies, qualified technical assistance for audits, TPM, checks on existing machines, technological support for the production with expanded polymers as well as organizational support for the start-up and management of new production sites.

The flexibility, reliability and professionalism with which FAP has always operated on the market are recognized by its partners around the world.

www.fapitaly.com












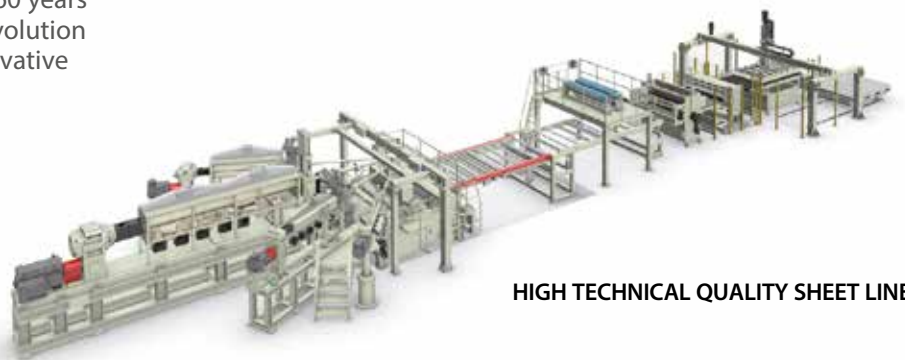
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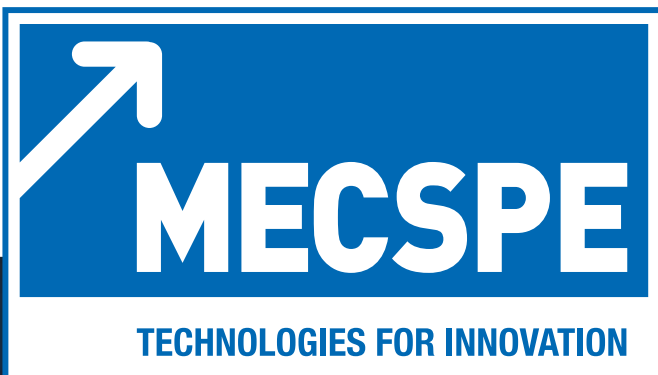
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SCAN ME

CLEANTECH OVEN, by PHT Petrelli Heating Technologies

Controlled atmosphere cleaning oven: get rid of unwanted contaminants and restore the efficiency of your equipment with our innovative cleaning oven.

In the early days, extrusion processes primarily relied on conventional heating methods such as electric heaters, steam, or diathermic oil. However, the advent of infrared heating brought several advantages that led to its adoption in the extrusion industry. It was then, back in the 80's, when Antonio Petrelli, passionate on heating technology, patented a new heater based on the infrared technology. These new heaters offered direct, controllable, and efficient heat transfer by emitting the infrared radiation, in the spectrum of the microwaves, which can penetrate materials to a certain depth, allowing for a particularly rapid and precise heat transfer. This property makes them useful in applications such as heating and industrial processes like polymer processing and drying. This enabled a better control over the temperature profile during the extrusion process, resulting in improved product quality and production efficiency.

Some years later his son, Patrizio Petrelli, following his father footsteps, used the advantages infrared offered to optimize the functioning of the heaters and gave them new and innovative application, such as the CLEANTECH inert atmosphere cleaning oven. The oven, equipped with an innovative Petrelli's patented infrared heating system works in a controlled atmosphere to break down and remove a wide range of polymers, including stubborn or hardened deposits from extrusion dies, injection nozzles, die plates, filter elements, "by pass" valves, head dies, etc. without effort. The new oven technology aims to revolutionize the production process for polymer companies, integrating the cleaning phase seamlessly into the overall production workflow.

The reason why Petrelli took the challenge of creating a high-performance cleaning oven was that in the past, companies did not have an immediate need for cleaning, but nowadays, laws have become stricter regarding the use of polymers in their products. For instance, the requirements for recycled products have increased from 30% to 55% (and continuing to rise) of recycled material in the products. This leads to a higher level of contamination in the equipment, necessitating more frequent maintenance of the components.



While other traditional methods for cleaning polymer residues exist, such as mechanical or chemical cleaning and ultrasonic cleaning, these methods entail a series of problems. Mechanical cleaning may not be able to remove hardened or tightly adhered polymer residues completely and the improper use of mechanical tools can cause damage to the equipment surfaces, not mentioning that it can be time-consuming and physically de-

manding, especially for complex designs or when dealing with a large number of pieces. Solvent and/or chemical cleaning may not effectively remove certain types of polymer residues and cleaning agents may react with certain die materials or coatings, leading to degradation or damage of the surfaces. The use of these substances can also be hazardous to the environment and require proper disposal procedures, as well as be hazardous



to handle, requiring proper safety precautions and personal protective equipment. Lastly, ultrasonic cleaning may not be able to remove polymer residues completely from extremely small or intricate channels, forcing the operator to use excessive ultrasonic energy or extended cleaning times potentially damaging delicate surfaces or coatings.

The Petrelli CLEANTECH oxygen-free oven offer some key advantages:

1. Complete breakdown of the polymer residues: By working in absence of oxygen, it reduces the risk of fire or combustion during the cleaning process helping to mitigate oxidation, with no chance of ignition, and to alleviate surface damage. As a consequence, any carbon deposit on the surfaces due to the degradation of the polymers is avoided.
2. Time and energy efficiency: Thanks to the infrared technology and the controlled atmosphere the CLEANTECH Oven is able to complete the cleaning cycles in very short times, saving time and energy and allowing for increased productivity and reduced operational costs. Depending on the size (mass) of the component to be cleaned and the type of polymer to be removed, a cycle can range between 60 min to 120 min with

a consume of energy of approximately 12 kW/h per cycle.

3. **Controlled process:** Thanks to the PLC (Programmable Logic Controller), which controls all the cleaning phases, degradation and damage to the element during the process due to excessive temperatures (deformations, cracks, surface carbonization) are avoided.
4. **Versatility:** The CLEANTECH Oven is produced in 3 different sizes handling different sizes and shapes of equipment, making them a versatile option for cleaning in different industries. The sizes of the oven depend on the internal diameter of the container: 400mm, 700mm and 1500mm. For the CLEANTECH 700 there is an alternative CLEANTECH 700 EVO, suitable for cleaning heavily contaminated components; unlike other models, the external collection tank is cooled with nitrogen allowing the solidification of waste material for easy cleaning up to 60 kg.
5. **Safety first:** The maximum temperature during the cleaning process is limited to 450°C, and the operator can only override this limitation voluntarily and with a password. In addition, the oven cannot be open until the interior equipment surface temperature falls below safety and non-oxidation temperatures, avoiding any damage to the pieces and, more important, to the operator.
6. **Customizable:** The operator initiates the cleaning process based on the type of polymer, selecting the appropriate program on the PLC through a password device. The programs include parameters such as set-point temperature or length of the cycle among others. The cleaning process is fully automated, providing great flexibility in work.
7. **Environmentally friendly:** The oven is equipped with an exhaust system composed of a catalytic device and an electric afterburner for the neutralization of exhaust gases at 900°C. This minimizes the release of harmful emissions into the environment. The pyrolytic breakdown of polymer residues in an oxygen-free environment can reduce or eliminate the formation of volatile organic compounds (VOCs) and

other hazardous byproducts.

8. **Plug & Play:** The oven works with only electrical and compressed air connections. It is also equipped with an internal nitrogen generator, which controls the gas levels inside the chamber during the cleaning cycles, making the oven completely autonomous.

Easy to use. How does a cleaning cycle work?

The use and maintenance of the CLEANTECH Oven are very easy. The operator places the dirty pieces inside the oven, ensuring that the infrared thermocouple measures the temperature of the surface of the piece. The smallest model, designed for cleaning small components, features a basket at a "man-height" position, while the biggest models are designed with a basket free for loading heavier components, thanks to the assistance of a hook or forklift.

The cleaning cycle starts when the oven is properly closed, and the operator selects the specific recipe on the PLC based on the type of polymer being processed. The duration and temperature of the cycle typically depend on the type and composition of the polymer. The recipe can also be customized by the user.

At this point, the preheating phase begins: after the nitrogen generator, which is included in the oven, depletes the oxygen in the oven chamber, the chamber starts to heat up. The duration of the preheating phase depends on the mass of the pieces being cleaned. Once the surface temperature of the pieces reaches the set temperature, the cleaning phase begins. It is important to note that the CLEANTECH Oven controls the temperature of the surface of the component (that won't never go over 450°C) during all the process and not of the chamber in order to safeguard the integrity of the pieces to be cleaned. This process decomposes the polymer residues into volatile gases, which are safely vented out through the afterburner. Throughout the process, the operator can monitor the pyrolysis process using the PLC, checking the chamber temperature, the temperature of the surface of the pieces, the temperature of the afterburner gases, the input nitrogen, the energy consumption, etc. Information from each cleaning cycle can be downloaded using a pen drive. Additionally, the oven is compliant with Industry 4.0

requirements and can be connected to your management systems for remote control.

After the cleaning cycle is complete, the oven remains safely closed until the temperature of the piece reaches a safe level, avoiding any risk of combustion and/or oxidation.

O-LIFE: Express Polymers Cleaning Service. Dedicated To Customer Service

Achieve optimal performance and reduce downtime with our thorough and efficient oven and component cleaning service

PHT's commitment, with small and medium-sized companies that need to clean their components from polymer residues less frequently, has been to develop an express cleaning service network using a dedicated company, "O-Life S.r.l.", which exclusively employs our Cleantech ovens. O-Life's operational headquarters is located in Azzate (Varese) for service in northern Italy. This new approach is gradually expanding nationwide through franchising, with a service centre in Reggio Emilia for central Italy, and another service point planned for southern Italy. O-Life has also expanded internationally, reaching Poland and Turkey. The idea is to offer a cleaning service network within 24/48 hours for pieces up to 1500mm, thus optimizing production cycles.

Currently, using our biggest oven (CLEANTECH 1500) located in the province of Varese, components up to 1500 mm diameter can also be cleaned. It is capable of accommodating extrusion heads up to 20 tons without the need for disassembly. The advantages of cleaning the die heads in this type of oxygen-free oven without disassembling them include time savings avoiding prolonged interruptions in production, with optimal cleaning results and without leaving any residue or altering the surfaces of the parts. These advantages contribute to improving efficiency, productivity, and profitability in the plastic extrusion process. Without any doubt, we also offer a complete service disassembling completely the head dies.

Considering market demands, we already have plans for a new oven that can accommodate screws, cylinders, and flat heads up to 9 meters in length.

IDENTITY CARD

NAME
CLEANTECH

PRODUCER
PHT – Petrelli Heating Technologies S.r.l.
Via Primo Maggio 10/A – 21022 Azzate (Varese)
Tel. +39 0331 89 33 00 – Fax +39 0331 89 23 22
e-mail: info@p-h-t.it – Sito web: www.petrelliheating.com

QUALIFICA
Oxygen-free cleaning oven

APPLICATIONS
Cleaning polymer residues in controlled atmosphere ADVANTAGES:
✓ It does not carbonize the polymer but decomposes it
✓ The surfaces of the pieces are not altered
✓ Fast cleaning process completely controlled by PLC
✓ Simple and safe operations
✓ Customizable programming
✓ Only electrical and compressed air connections are required

TECHNICAL CHARACTERISTICS:

	CLEANTECH 400	CLEANTECH 700	CLEANTECH 700 EVO	CLEANTECH 1500
Dimensions	H.2300 x W.1100 x L.1000mm Kg. 1000	H.2140 x W.1740 x L.2260mm Kg. 1700	H.2360 x W.1740 x L.2260mm Kg. 1700	H.2360 x W.1740 x L.2260mm Kg. 5000
Charging capacity	D.400 x H.300mm 150Kg	D.700 x H.500mm 1300 Kg	D.700 x H.500mm 1300 Kg	D.1500 x H.1500mm 20 ton.
Setup temperature	0 - 450 °C v			
Installation	7 kW (oven) + 3,5 kW (catalytic afterburner)	14,5 kW (oven) + 3,5 kW (catalytic afterburner)	14,5 kW (oven) + 3,5 kW (catalytic afterburner)	90 kW
What can be cleaned?	Extrusion dies, nozzles, die plates, filter elements, bypass valves, etc.	Extrusion dies, nozzles, die plates, filter elements, bypass valves, etc.	Extrusion dies, nozzles, die plates, filter elements, by-pass valves, etc.	Head dies
Special features			CLEANTECH 700 EVO, suitable for cleaning heavily contaminated components; unlike other models, the external collection tank is cooled with nitrogen allowing the solidification of waste material for easy cleaning up to 60 kg.	The oven is equipped with a condensation system for the treatment of fumes for the neutralization of the exhaust gas. Available only for cleaning service.



Sabic offers bio-based versions of all Noryl™ resin grades

To further advance the bioeconomy of plastics

SABIC, a global leader in the chemical industry, is now offering bio-based versions of all NORYL™, Flexible NORYL, NORYL GTX™ and NORYL PPX™ resin grades to help customers meet increasingly rigorous sustainability goals. The bio-based versions, formulated with polyphenylene ether (PPE) resin feedstocks certified under International Sustainability & Carbon Certification (ISCC) PLUS, provide properties similar to those of fossil-based grades. Customers may select from multiple levels of bio-based content for their chosen NORYL product.

To demonstrate the feasibility of this bio-based approach, SABIC has proactively commercialized three popular NORYL grades; however, these example materials represent only a small percentage of the full offering. The availability of bio-based versions broadens the choice of environmentally responsible NORYL resins beyond the company's recently introduced post-consumer recycled (PCR)-based materials containing more than 25 percent PCR content.

"We're pleased to provide customers with new choices to reduce the global warming potential of both existing and new applications made with NORYL materials," said Joshua Chiaw, director, Business Management, LNP & NORYL, Specialties, SABIC. "Bio-based PPE feedstocks enable SABIC to efficiently produce sustainable NORYL materials that can serve as drop-in replacements for traditional grades – with equivalent performance and processability. Expansion of our NORYL resin portfolio with bio-based versions is a key part of our strategy for helping brands, OEMs, tier suppliers and molders achieve their sustainability goals."

Example Bio-based NORYL Grades

The following bio-based products are available now. Customers wishing to order bio-based versions of other NORYL, NORYL GTX, Flex NORYL or NORYL PPX materials should contact their SABIC representative.

- **NORYL NH5120BIO4** resin is well suited for evaluation in housings and enclosures, heating/ventilation/air conditioning (HVAC) compo-

nents and photovoltaic/solar junction boxes. It is a bio-based, non-brominated/non-chlorinated flame-retardant resin with a UL flame rating of V1 at 1.5mm with no intentionally added per- and polyfluorinated substances (PFAS). NORYL NH5120BIO4 resin delivers a balance of heat resistance, flow, hydrolytic and dimensional stability, and creep performance, and retains its good mechanical properties in harsh outdoor environments.

- **NORYL GFN2BIO3** resin features high strength, hydrolytic and dimensional stability, low warpage and low specific gravity. This bio-based material carries a UL746C outdoor suitability rating of F1 and is an excellent candidate for indoor and outdoor applications in the building & construction and lawn & garden industries.
- **NORYL GTX902BIO3** resin is a bio-based PPE

alloy that provides excellent chemical resistance and paintability for potential use in applications such as automotive wheel covers, automotive electrical components and painted automotive trim.

ISCC PLUS Certification of Feedstock Production Facility and NORYL Materials

"Our Selkirk, New York, facility was one of the first production and compounding facilities to receive ISCC PLUS accreditation for the production of PPE resin and compounds based on renewable, bio-circular sources," said Evelyn Pearson, senior manager, Process Technology, Technology & Innovation, Specialties, SABIC. "We plan for NORYL grades formulated with these bio-based feedstocks to be certified under ISCC PLUS at Selkirk and other global NORYL compounding plants. This achievement underscores SABIC's commitment to building a circular plastics industry."

ABOUT SABIC

SABIC is a global diversified chemicals company, headquartered in Riyadh, Saudi Arabia. It manufactures on a global scale in the Americas, Europe, Middle East and Asia Pacific, making distinctly different kinds of products: chemicals, commodity and high performance plastics, agri-nutrients and metals.

SABIC supports its customers by identifying and developing opportunities in key end-use applications such as construction, medical devices, packaging, agri-nutrients, electrical and electronics, transportation and clean energy.

SABIC recorded a net profit of SR 16.53 billion (US\$ 4.41 billion) in 2022. Sales revenues for 2022 totaled SR 198.47 billion (US\$ 52.92 billion). Total assets stood at SR 313 billion (US\$ 83.46 billion) at the end of 2022. Production in 2022 stood at 61 million metric tons.

The company has more than 31,000 employees worldwide and operates in around 50 countries. Fostering innovation and a spirit of ingenuity, SABIC has 9,948 patents and pending applications, and has significant research resources with innovation hubs in five key geographies – USA, Europe, Middle East, South Asia and North Asia.





● Plastic Recycling Plant - Mono Screw Extruder
Type TR 300 with 2 degassing.

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Chemical recycling of polycarbonates reaches a major milestone

Robust process developed on a laboratory scale: pilot-scale technical implementation starts. Recycled monomer can be used for the production of polycarbonate.



Covestro has developed an innovative process for recycling polycarbonate, i.e. polychain plastics. In this process, plastics are converted back into their monomers, a precursor of plastics, so that they can be fed back into the production process as alternative raw materials. At Covestro in Leverkusen, the technical implementation of chemical recycling is now beginning on a pilot scale. On the way to industrial scale, the process is still being optimized and is under-

going further development stages.

"As a manufacturer of plastics such as polycarbonate, we naturally have a responsibility in dealing with these important materials, including at the end of their product life. Our advantage is: we know how our products are designed and can therefore conduct targeted research into recycling solutions," says Dr. Thorsten Dreier, Covestro's Chief Technology Officer. "The chemical recycling of polycarbonate is another example with which our

colleagues in development show that closed cycles are possible in the future. We need to use end-of-life plastics as a resource and reuse them as alternative raw materials to close the loop."

The return of plastics through recycling replaces primary fossil raw materials in production. Comprehensive recycling thus contributes to climate neutrality and the protection of natural resources and the environment. Mechanical recycling of polycar-



bonate is already an important component of Covestro's recycling strategy. The mechanical recycling process is used whenever waste streams are sufficiently pure and the recycled polycarbonate meets the requirements profile of the future application.

Chemical recycling works in a complementary way to mechanical recycling - it converts plastic building blocks back into monomers, i.e. their individual building blocks. These can be separated and serve as raw materials for future plastic. Chemical recycling can therefore make larger waste streams that are unsuitable for mechanical processes in particular accessible for recycling; it allows the production of plastics that meet the highest quality requirements. Covestro is therefore actively developing chemical recycling.

Chemolysis can directly close the polycarbonate cycle

The newly developed process, which was driven by an international team, is a specific chemolysis process adapted to polycarbonate. "Pre-sorted waste streams containing a product content of more than 50 percent polycarbonate can be recycled this way. This has been successfully demonstrated with various polycarbonate-containing plastic waste streams," explains Markus Dugal, Head of Process Technology at Covestro. "With the help of this chemolysis, the cycle can be closed to a direct precursor of polycarbonate. This makes the recycling process very sustainable."

Direct use of recycled product as raw material possible

The recycled product, a precursor of polycarbonate, can be mass-balanced and reused as a raw material for the production of polycarbonate without further processing. "Such high-quality recycled raw materials are needed for applications that require top quality. These include, for example, applications in the automotive sector with special requirements in terms of safety, optical transparency or aesthetics, and products in our everyday lives such as consumer electronics," says Lily Wang, Head of the Engineering Plastics Business Entity.

Millions of euros will be invested

Following successful development in the laboratory, the next stage of development, the technical implementation of a continuous process, has already started. A pilot plant, which is currently in the planning stage, will be used to gather the experience needed for further expansion to industrial scale. Millions of euros will be invested in this over the next few years. The pilot plant will be built in Leverkusen, Germany.

At the same time, Covestro is driving forward further processes for innovative recycling of polycarbonate in its research laboratories. These include chemolytic alternatives, recycling with enzymes that break down the plastic, and smart pyrolysis. Promising alternatives can also be tested with the pilot plant.

Plastics are key to sustainable growth and a

green future. To ensure that plastic products do not become waste at the end of their life, they must be reused as alternative raw materials. Innovative recycling is one of the four fields Covestro is actively driving forward on the road to a circular economy. Covestro is therefore stepping up its research into recycling methods, with an open approach to technology, and promoting innovative approaches such as chemical recycling.

About Covestro:

Covestro is one of the world's leading manufacturers of high-quality polymer materials and their components. With its innovative products, processes and methods, the company helps enhance sustainability and the quality of life in many areas. Covestro supplies customers around the world in key industries such as mobility, building and living, as well as the electrical and electronics sector. In addition, polymers from Covestro are also used in sectors such as sports and leisure, cosmetics and health, as well as in the chemical industry itself.

The company is committed to becoming fully circular and is striving to become climate neutral by 2035 (scope 1 and 2). Covestro generated sales of EUR 18 billion in fiscal 2022. At the end of 2022, the company had 50 production sites worldwide and employed approximately 18,000 people (calculated as full-time equivalents).

www.covestro.com

Material for the future: PreZero Polymers introduces new r-LDPE Granules

Giving new life to plastics is more than just a slogan for PreZero. With more than 30 years of experience, PreZero Polymers is one of Europe's leading companies in the recycling of post-consumer plastic waste.

With our products and unique material developments, we contribute to support our customers' success. Based on their requirements, we develop customized plastic recyclates from post-consumer and industrial waste that meets the exact specifications in terms of color, elasticity, and stability.

Our recycled polymers are suitable for applications in various industries, such as: Automotive, home and office furniture, building and construction, household appliances, gardening and many others.

PreZero Polymers operates 5 production plants in Europe, located in Italy, Austria and Germany, with a team of more than 450 employees.

Innovation 2023: Finally, recycled LDPE from PreZero.

During the last 30 years, PreZero Polymers has specialized in the production of HDPE granules for rigid applications, always customized according to the different needs of our customers.

In 2023, we have committed ourselves to expand the business to LDPE material for the production of high quality flexible materials. By producing films from this plastic, we can replace some or all of the virgin material while maintaining high quality.

Our films made from the LDPE granules are available in various quality grades. They are ideal for packaging applications such as tissue paper packaging or plastic bags. The wide range of recycled films enables our customers to increase their use of recycled materials, promoting the circular economy and reducing environmental impact. This in turn supports self-imposed sustainability goals and reduces CO2 emissions.

One of our latest success story: a cooler bag made from our PCR material

- Colored handles are 100% r-HDPE
 - The structure of the bag is more than 90% r-LDPE
- The special feature: Our customers can produce a recycled product with the same properties as a virgin product, helping to keep plastic in the loop.

Visibly Resource Conscious: Our Logo as a Sign of Partnership

With the aim to help and support our partners in their business, we as PreZero, are offering our customers the opportunity to use our logo on their products and/or packaging.

This allows our customers to highlight their commitment to reduce their environmental impact through the use of recycled material and to communicate a positive and sustainable image of their business to the end user.

Together with our customers, we document the amount of recycled material used in the product in a license agreement. This can then be published with our logo as shown below.

Of course, we also support the correct use and publication with a style guide and personal advice.

Safety First: Certified Recyclates for Toys

PreZero Polymers has developed recycled recyclates suitable for the toy industry. The Toy Directive requires the manufacturer to certify the material according to EN71, a European technical law that regulates safety requirements.

The latest update we are proud of is the toy kit available on the shelves of Kaufland stores: the bright new colors and the design have been a great success.

Now we are working on a new goal within Q3: the homologation of our Austrian plant for the TÜV certification.

The goal is ambitious, but we are working every day to improve and innovate based on market growth.

prezero-international.com



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Powerpol: the partner for innovative and future-oriented technical solutions

Present on the market since 2015, the Turin company has reached remarkable milestones in the production of compounds based on polypropylene and polyamide of any type and, on request, also of other polymers such as PBT, PC/ABS, ABS. This versatility, combined with the flexibility resulting from a young and dynamic structure, devoted to innovation, is the strength of Powerpol.

During the Plast 2023 fair where Powerpol was present with its stand for the first time, there were many new proposals that mainly concern the recycling aspect on which the company is focusing a lot. Many customers expressed considerable interest in the two new product families that were presented at the fair:

- **CICLY Compounds:** products that contain a percentage of recycled material from Post Consumer (PCR), created to meet high standard properties with lower costs and reducing environmental impact. The products made on PP and PA basis guarantee the use of recycled material from Post Consumer in the amount of at least 30%.
- **THETA-C Compounds:** products made using recycled material from Post Consumer (PCR), designed to meet the new needs of the global market with particular attention to recycling and circular economy. Products made on PP and PA basis guarantee the use of recycled material from Post Consumer (PCR) in the amount between 70% and 98%.

These two new families arise from the need to meet a constant demand for recycled material from Post Consumer (PCR) that comes from the market. The challenge is to make Technical Compounds using this recycled material from Post Consumer that is ennobled by adding special additives and fillers and transformed through cutting-edge technologies that allow the material to not miss the mechanical and thermal characteristics. The realization of these new materials takes place through a constant research and development path that has as its strong point the internal laboratory completely renovated and that can carry out a very wide and detailed range of analysis starting from raw materials up to fin-

ished product.

The key aspect in the creation of Compound Post Consumer based is in fact to select and control very carefully the raw materials used; this in fact allows to study the formulations

in a much more accurate way, thus obtaining a reduction in the timing of the realization of the offers and the samples.

This speed in responding to the customer today allows Powerpol to be an ideal partner





for those companies that want to push themselves towards new horizons using materials that do not yet exist and that must be studied and manufactured in customer-supplier partnership. For its part, Powerpol guarantees the flexibility and experience that distinguish it and that have allowed it in recent years to achieve important milestones in the recycling of industrial waste (PIR) used in the realization of the two families of materials already consolidated: the EASY Compounds and the THETA-R Compounds. Powerpol ensures the optimal response to the needs of the market, both in sectors that require strict requirements for thermal and mechanical properties, and for consumer products that need to better meet the aesthetic character. The daily commitment goes in the direction of optimizing the production process by developing more and more new products in the field of material recovery to ensure its customers a constant quality and make its contribution to the protection of the environment creating a real and effective circular economy.

The compounds produced by Powerpol are able to meet the needs of the most diverse sectors, from the automotive sector, which must guarantee at least 30% of recycled raw material, to industrial components, gears, agriculture, white goods, furniture, gardening and construction.

50% of the products is dedicated to exports to countries such as France, Germany, Spain, Tunisia and Portugal where 70% is sold under the Powerpol brand, while the remaining 30% is delivered to foreign distributors. This propensity to export has always been a strong point of the company that despite the small size, has always believed in the collaboration with its partners that are a fundamental support for the growth and development of the company.

www.powerpol.it

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HYPERION

Thanks to the role of 3U Vision optical sorters in recycling we are helping to create a more sustainable future.



Recycling has become an increasingly important aspect of waste management as the world strives to reduce its environmental impact. Optical sorters are a technology that, in recent years, has become a key tool in the recycling sector.

These machines use advanced sensors and artificial intelligence to select different types of materials, including plastics, metals, and glass, based on their unique properties. Without a doubt, the optical sorting technology in plastic recycling offers numerous benefits, including increased efficiency, better quality of recycled material and reduced reliance on manual processes prone to human error. It also helps reduce pollution from mixing different types of plastics in recycling processes and promotes the production of purer and better-quality recycled plastics. Thanks to the role of 3U Vision optical sorters in

recycling we are helping to create a more sustainable future.

3U Vision is an innovative company based in Imola, Italy, specialized in the field of artificial vision and advanced artificial intelligence technologies. Founded by 40 years' experts in the world of optical sorting, the company has quickly gained a solid reputation for its technical expertise and innovation-oriented approach. The 3U Vision HYPERION optical sorter fits into this world, which, thanks to their fast and precise detection capabilities, guarantee the efficiency and quality of production processes.

Hyperion: customizable, modular, versatile and ready for everything

3U Vision HYPERION, with the HY600 and HY1200, is a cutting-edge, state-of-the-art technology designed to revolutionize the sorting and

quality control processes in various industries. This advanced optical sorter combines the power of artificial intelligence and high-resolution imaging to achieve unparalleled accuracy and efficiency.

Key Features

High-Resolution Imaging: The 3U Vision Hyperion utilizes advanced cameras and imaging sensors to capture high-resolution images of objects passing through the sorting conveyor. This ensures that even the smallest details are detected and analyzed.

Artificial Intelligence: The sorter is powered by advanced AI algorithms that can recognize and classify objects based on a wide range of parameters such as size, shape, color, and texture. This intelligence allows for precise sorting and quality control.

Customizable Sorting Criteria: Users can easily configure the sorter to meet their specific sorting requirements. Whether you need to sort products by size, color, defects, or any other characteristic, the 3U Vision Hyperon can be tailored to your needs.

High Throughput: This optical sorter is designed for high-speed sorting, making it suitable for industries with demanding production requirements. It can process a large volume of items per minute while maintaining accuracy.

Low False Reject Rate: Thanks to its advanced AI and image processing capabilities, the 3U Vision Hyperon boasts an impressively low false reject rate, minimizing product waste and maximizing efficiency.

User-Friendly Interface: The sorter features an intuitive user interface that allows operators to monitor and adjust sorting parameters easily. It also provides real-time feedback and statistics, enabling operators to optimize the sorting process continually.

Durable and Easy to Maintain: Built with robust components and materials, the 3U Vision Hyperon is designed for durability and long-term use. Additionally, it is designed for easy maintenance and servicing, minimizing downtime.

3 unique patents on the market: This sorter is the first in the world to mount full-spectrum LED lighting for hyperspectral cameras, making the machine more stable and sustainable. The use of LEDs allows to avoid additional cooling systems because, compared to classic incandescent systems, which increase consumption and make the machine unstable, they are more efficient with regard to energy dissipation. The European Community has banned incandescent lamps because of their limited lifespan and high consumption that makes them difficult to

supply. 3U Vision has developed an innovative system to overcome these problems.

HYPERION is equipped with patented smart custom design cameras, 100% made in Italy, with a four-wavelength multispectral system. This new system combines RGB and IR wavelengths, all in a single 4K sensor. This feature is a valuable advantage for detecting defects in similarly colored products that respond to different infrared lengths.

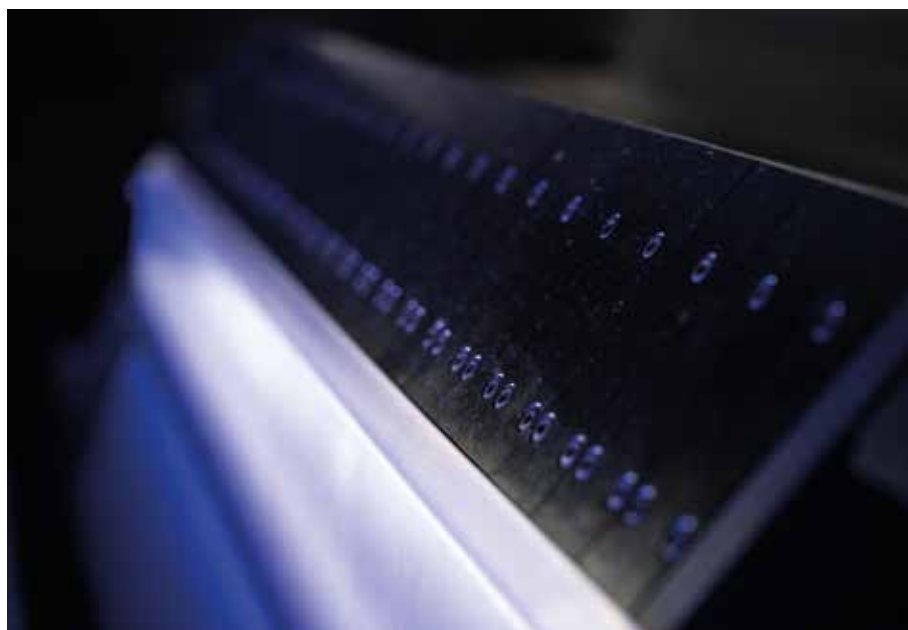
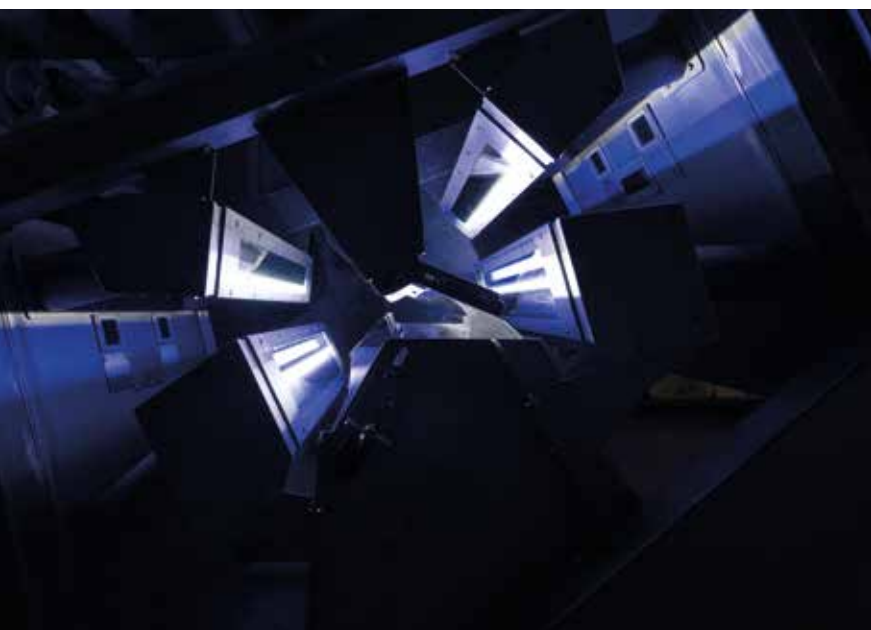
Patented, high-resolution, multispectral, four-wavelength SWIR cameras (1024 pixels). These cameras guarantee results previously unattainable by recognizing the trace of the analyzed plastic and establishing the type of polymer of its conformation, a distinction impossible to make with the naked eye.

The third patent used in HYPERION are the latest ejectors, electrically and mechanically controlled. These solenoid valves have been custom designed with a compact design (twice as many

ejectors as our competitors per chute and with 3.2 mm pitch). These new ejectors require even less compressed air, increase production capacity, and reduce the amount of good product discarded.

3U Vision HYPERION optical sorter represents a significant advancement in sorting technology, offering unmatched accuracy, flexibility, and efficiency. It is a valuable asset for industries seeking to improve their quality control processes and enhance overall productivity.

In conclusion, optical sorters are changing the rules of the game when it comes to recycling. With their advanced technology and ability to select materials quickly and accurately, they are helping to create a more sustainable future. As we continue to develop new ways of managing waste, 3U Vision optical sorters will play an increasingly crucial role in creating a more circular economy and reducing our impact on the environment.



IDENTITY CARD



NAME

HYPERION optical sorter

PRODUCER

3U Vision Srl
Sorting Solutions
+39 0542 1881791
info@3uvision.com
www.3uvision.com
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Gianeco[®]

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TPU

TPE

SBS

SEBS

TPO

ELASTOGEO product line offers post-production regrind and recycled granules of top-quality **thermoplastic elastomers**, filled and unfilled, with very high performance suitable for both injection and extrusion use.

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LK IMM Europe is rapidly growing

LK IMM Europe, the European division of LK Technology Holdings, has made great progress in importing and distributing injection molding machines in Europe in the two years since its debut. With a commitment to quality, reliability and energy efficiency, the company has seen remarkable results. In a short time, 100 machines were installed, with 100 more on the way to meet growing demand. Investments are underway to expand further, with a focus on exports and the opening of new European branches.

Looking to the future, LK IMM Europe is rapidly growing its reputation thanks to positive word of mouth about its products. Large industrial groups are using LK IMM Europe presses, achieving surprising results that until recently seemed unimaginable. To address the growing demand for machinery, the company is planning a major expansion, with new sales offices and service centers across Europe. Furthermore, the Research and Development team is working on new models for different applications, demonstrating a constant commitment to innovation and customizing solutions for customers.

LK IMM Europe's product range is now popular and offers a large selection of models that are in high demand in the industry. Thanks to significant investments in research and development, the company can remain at the forefront, offering advanced and specific solutions to meet the diverse needs of customers. The ability to customize machines to suit specific production needs has become a hallmark of the brand, positioning LK IMM Europe as an ideal partner for companies looking for high-quality injection molding solutions.

In other words, LK IMM Europe has achieved notable successes in a short time, and is ready to face future challenges while maintaining a constant commitment to innovation and customization to meet the ever-changing needs of the market.

POTENZA: the evolution

Of the servo-hydraulic toggle machine

The Potenza series, known in the injection molding industry, offers models with clamping forces from 800 to 10,000 kN, renowned for their reliability and performance. These machines use advanced technology, including a gear pump and

permanent magnet servo motors for efficiency and precision. The toggle closure system, based on finite element analysis (FEA), guarantees superior resistance and performance. To address environmental challenges, LK IMM Europe has introduced the Potenza III Hybrid, which incorporates the Green package with eDosing motors and nano-infrared heaters, reducing energy consumption by 30-50%. This series leads the way in the injection molding industry, promoting efficiency and sustainability.

The FORZA Series: Innovation in Double Deck Machines with Electric Die

The FORZA series is a revolutionary innovation in the field of injection molding. Designed for the needs of the automotive industry, this series of double deck machines offers extraordinary versatility, with clamping forces ranging from 4,500 to 70,000 kN, adapting to different applications. The FORZA series is based on advanced technology that combines a servo pump and an electric die, guaranteeing significant advantages in terms of energy saving and precision. Precise control and exceptional injection performance are made possible by servo technology.

The FORZA series is known for its electric die, Vite Group bi-metal STELLITATO and Single Cylinder Injection, which offers superior performance even in the most demanding applications. Advanced control and integrated SPC system ensure high-quality results.

The attention to energy efficiency and sustainability is reflected in the Nano Infrared Heaters technology and eDosing motors, which significantly reduce energy consumption. This series contributes to more sustainable production, demonstrating the company's commitment to

the environment.

With versatile features such as EM 2 Tables, T-Slots and oil temperature control, the FORZA series maximizes production efficiency. Thanks to the hybrid technology and the integrated electric die, it is the ideal choice for companies looking for high performance and sustainability.

LK IMM Europe continues to innovate to meet customers' complex needs and promote efficient and sustainable manufacturing.

The ELETTRICA Series: The Technological Advancement of Full Electric Presses

The Elettrica series is a testimony to advanced engineering in the injection molding industry, designed for the most demanding applications in delicate manufacturing environments such as cleanrooms for medical devices, pharmaceuticals, cosmetics and optical/electronic components. With clamping forces from 1,000 to 3,500 kN, this series offers a highly efficient all-electric drive, with key advantages such as stability, fast response, energy saving, precise control, and ease of use.

The Elettrica series stands out for maintaining parallelism and multi-axis synchronism, allowing faster production cycles. The use of sensitive load cells for monitoring the injection pressure and high-frequency control processors ensures immediate response.

Furthermore, an open control system enables the intelligent interconnection of all integrated units for global process management. For those who require hydraulic control for some functions, there is the possibility of equipping the machines with an additional hydraulic power unit.

The Elettrica Hybrid series offers a compromise between full electric machines and traditional hydraulic management, guaranteeing performance and efficiency. Customization can include nano infrared resistors for further energy savings. In summary, the Elettrica series represents a notable step forward in the evolution of injection molding presses. With an exceptional mix of performance, energy efficiency and versatility, these machines are ready to tackle complex challenges in critical environments such as cleanrooms, while also contributing to environmental sustainability.

www.lkimm.com

LKIMM @ Fakuma: booth B1-1213



LKIMM

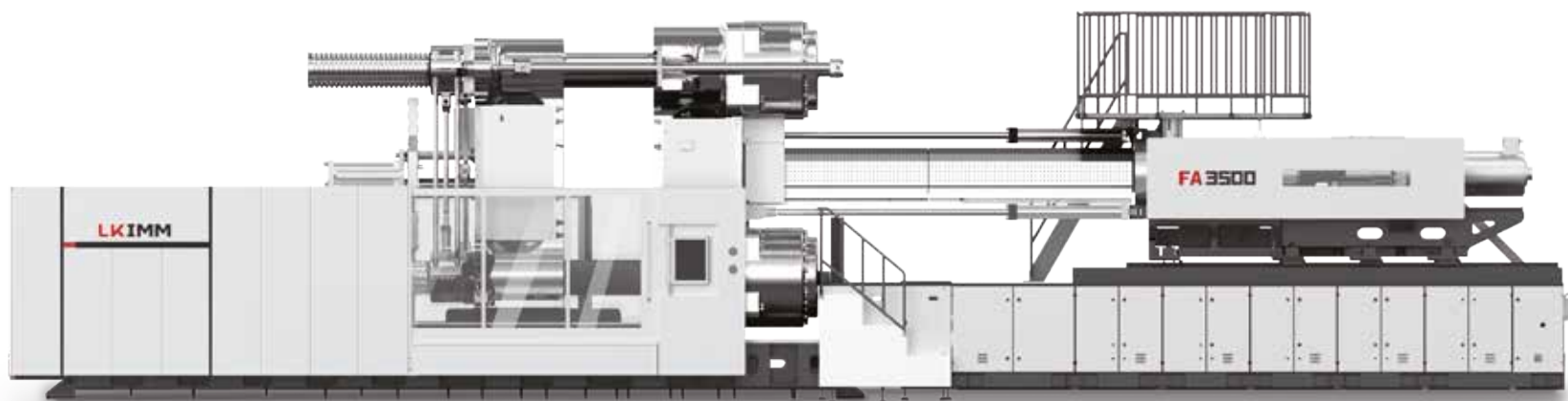
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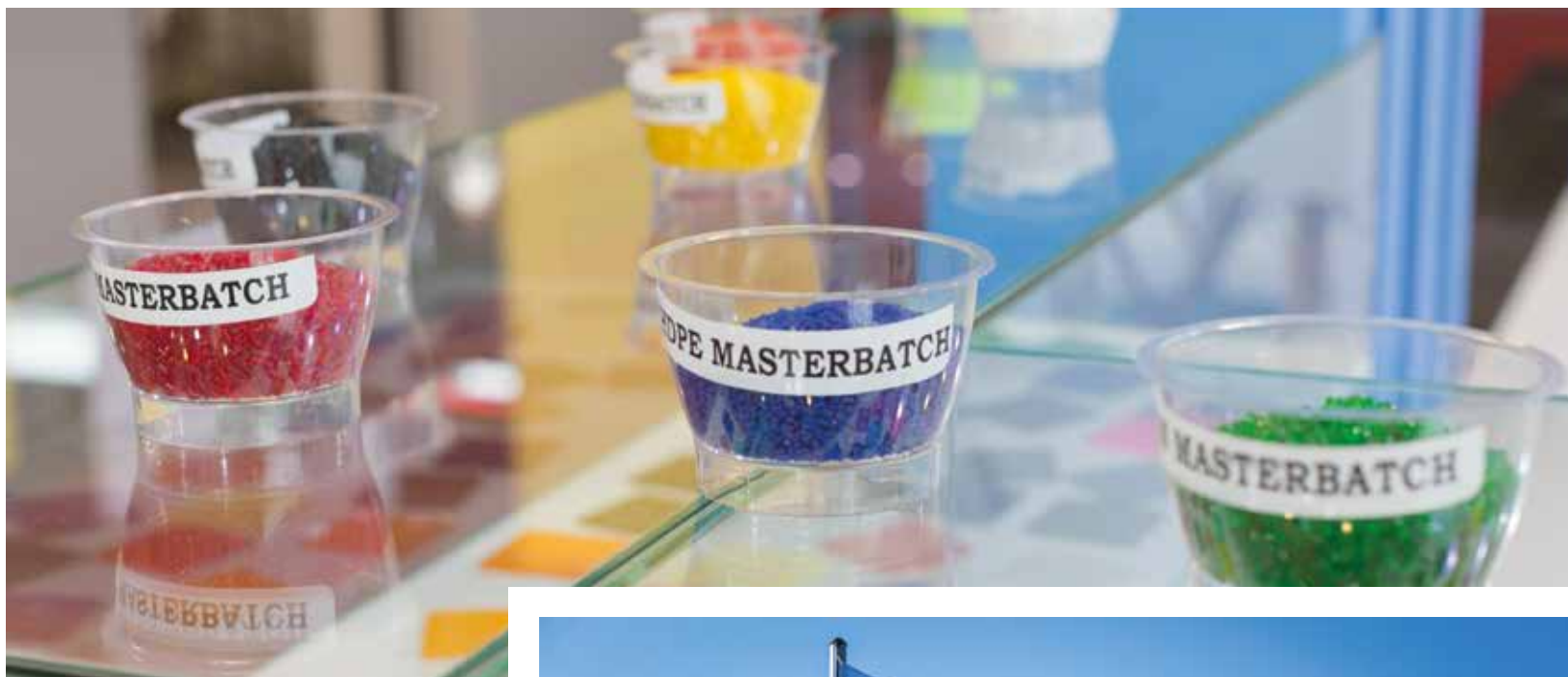
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Fakuma 2023 ready for take-off

The 28th Fakuma international trade fair for plastics processing is being eagerly awaited with great anticipation. The world's leading trade fair for injection moulding, which also serves as a technology and industry barometer for extrusion technology, thermoforming and 3D printing, will offer information on new solutions and provide fresh impetus for circular economy in Friedrichshafen from the 17th through the 21st of October, 2023.



Expert visitors will gain an up-to-date, comprehensive overview of all processes, technologies and tools covering all aspects of plastics processing, in particular injection moulding, extrusion technology, thermoforming and 3D printing, at Fakuma from the 17th to 21st October, 2023. Halls A1 to A7 and B1 to B5, as well as the east and west foyer areas and the east concourse, will be occupied at the Friedrichshafen Exhibition Centre. "Roughly 6 months before the trade fair opens, we've already achieved very good booking levels," explains Annemarie Schur, Fakuma project manager from trade fair promoters P. E. Schall. "We're receiving additional bookings continuously – from abroad as well. In any case, we'll make optimum use of available floor space once again this year. The exhibition halls in Friedrichshafen will be packed, and everyone involved is looking forward to a lively and inspiring Fakuma 2023," says the project manager.

Lively participation and high levels of internationalism underscore Fakuma's significance as an outstanding technology and business event. Major issues addressed at this year's trade fair include, of course, circular economy, efficient use of resources and sustainability. The tasks currently faced by the industry are well known: reduced energy consumption, the digitalisation of production processes and the processing of



recycles into high-quality products. "You can clearly sense the needs which are currently driving the plastics industry," says Annemarie Schur. "Plastic products are designed for recycling right from the start. The issues of recycling, environmental protection and sustainability are omnipresent, amongst the exhibitors as well. They're focusing on sustainable and efficient plastics manufacturing and processing."

Visiting the Trade Fair Pays Off

"The technologies presented at Fakuma are ready for series production. The trade fair visitors know this," notes Markus Hanetseder, vice president of product management, marketing and communications at Engel. "The trip to Friedrichshafen pays off for them very quickly," says Hanetseder. He stresses the fact that Fakuma's high levels of innovative power and great dy-



namics are the basis for a world-class trade fair audience. As a result, trade visitors will experience trailblazing, future-oriented solutions at this year's industry event on Lake Constance.

As the world's leading trade fair highlight for injection moulding and as an industry and technology barometer in the fields of extrusion technology, thermoforming and 3D printing, Fakuma 2023 is being eagerly awaited. The issues of digitalisation, process automation and energy efficiency are just as high up on the agenda as circular economy and sustainability. Enhanced

machines and optimised processes will also be exhibited. New products and forward-looking business models are expected as well. The exhibitor forum with world-class expert presentations will deliver inspiring impetus for all relevant topics.

"Fakuma is internationally recognised as a business platform for innovations throughout the value creation chain," observes Bettina Schall, trade fair promoter and managing director of P. E. Schall GmbH & Co. KG. "We cordially invite all industry players to visit Fakuma 2023

in Friedrichshafen. It's the ideal platform for discovering new products and technological solutions, as well as for personal and professional dialogue concerning present and future challenges," says the managing director of the trade fair promoters. Fakuma 2023, with its practice-oriented format and informal atmosphere, will be an essential milestone for finding solutions to the demanding tasks currently faced by the industry.

<https://www.fakuma-messe.de/en/>

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Caldara Plast: 60 years to remember in the name of the circular economy

Between fairs, celebrations and awards, investments to improve the recovery and regeneration process of plastic waste continue.

Caldara Plast is a Como based company specialized in the recovery and regeneration of plastic. From the recovery of plastic waste to the production of green technopolymers, Caldara's story is one of people, passion and tenacity which has transformed from a small family business into a solid and high-performance SME, capable of giving its customers a 360-degree personalized service on the finished product and on the correct recovery of waste according to legal regulations. A truly sustainable business that allows plastic to have a new life and drastically reduce waste production. For an increasingly green future.

The Sixtieth

Once the summer period is over, the last part of

2023 reopens for Caldara Plast. A year full of satisfactions for the company which celebrated its 60th anniversary since its foundation with various events during these months. These events involved customers, suppliers, stakeholders, employees and even local schools. A year-long celebration to remember that the company is strongly linked to the territory in which it operates in a positive synergy that is good for everyone. The milestone achieved will be further highlighted during the Plast trade fair in Milan and Fakuma in Friedrichshafen, underlining how much this anniversary highlights the company's reliability and continuity towards all its customers and suppliers.

The BtoB Awards

Not just an anniversary but many occasions were favorable for Caldara to make itself known and respected in the area. In the last period, in fact, the company was selected among the 5 finalists of the green section of the BtoB Awards which involved numerous companies from several provinces of Lombardia region, placing it in good company with other local companies operating in various sectors, all deserving for social, environmental, business continuity or innovation initiatives. An experience for Caldara Plast to learn about local excellence and create synergies.

Employee awards

In the month of July, in the beautiful setting of the Antico Borgo of Annone Brianza, the company welcomed employees, family and friends for a party among the people who allow Caldara Plast to achieve great results every day. The occasion was a good one to reward the company's long-term employees who received recognition and greet the new retirees. A novelty for Caldara Plast which wanted to underline the importance of its collaborators in achieving great goals.

The core business

In addition to these so-called "worldly" occasions, Caldara continued to work to improve production and production processes, product traceability



and to obtain product certifications. Caldara Plast's mission remains to reduce non-recoverable plastic waste to a minimum, promote the culture of using regenerated material, significantly reducing the use of virgin raw materials. Our technicians support customers every day in choosing the most suitable formulations for their products.

On one hand the continuous search for waste suppliers, i.e. companies that decide to give a new life to production scraps by entrusting them to the expert hands of Caldara Plast, on the other a service to customers for the creation of the product best suited to their needs, supported in the physical, mechanical and color tests carried out by laboratory technicians and then starting with the production of higher quantities of "tailor made" products.

Business can only go through investments. The year 2023 also heralded new developments from a production point of view for the improvement of the plants both at the Erba site dedicated to the recovery and grinding of plastic, and at the Alzate Brianza site dedicated to the compounding of regenerated or modified technopolymers. The challenge is to always be technically up to date, with higher performing machinery and systems capable of improving the production process as well as increasing it but also of having adequate and trained personnel capable of quickly adapting to an increasingly unpredictable market.

Ever greener

The market is constantly evolving and green products are growing thanks also to the greater ecological awareness of the final consumer. At an industrial level, a lot of work still needs to be done to overcome the cost barrier. The reopening of South-east Asian markets has increased the presence of

first choice products at lower prices. Hence, first choice granules are sometimes preferred to green compounds which, however, at the same price, have a much higher environmental impact.

Companies that care about the environment and that want to undertake a certification path towards an LCA or a Sustainability Report must also take into account the supply chain impact of their production. So Caldara Plast's regenerated products (ABS, PC, PC/ABS, PS, PA, PBT, POM, PPS, SAN and PET) are the most correct choice for truly green companies.

These granules can be completely regenerated, in virgin and regenerated formulations designed to satisfy even the most demanding customers. These granules are also available with certifica-

tions in the "Caldara 2nd Life" line. We are also able to modify virgin materials for color or characteristics requested by the customer.

To underline its green conscience, the company itself has undertaken the process of evaluating its impact on the surrounding environment, studying its impact upstream and downstream of production. This study resulted in an LCP (Life Cycle Perspective), a document that evaluates the company under various environmental data with a view to having an ESG Report.

Sustainability and circularity continue to be Caldara Plast's challenges in the near future.

www.caldara.it

Caldara Plast @ Fakuma : Hall B5 Stand 5011



Ultra System presents Ultra Plast, latest generation of purging materials

Ultra System: a name that for almost 20 years has been synonymous with waste reduction, excellence, optimization of color change processes, material changes, preventive maintenance and machine shut-down. All this is achieved through the correct and regular use of ULTRA PLAST, latest generation of purging materials.

In the last few years the use of purging compounds has grown exponentially (data confirmed by various studies and research), synonymous with the awareness on the part of processors that waste is no longer acceptable and that quality, in a world which is flattening towards mediocrity, still makes the difference.

Ultra System's growth is also due to targeted marketing operations and field promotions; the participation in the main trade fairs worldwide allows us visibility that would otherwise be unachievable.

Of course the quality itself that our technicians have achieved in the formulations of ULTRA PLAST plays the fundamental role.

Materials without abrasive additives (which can be injected without risk of damage), without the need for soaking times, without smells, smokes or odors, quick and efficient, with over twenty certifications each (Reach, ISO, FDA, food contact, clean room,... among others), this is what our customers get by working with Ultra System. Of course the "green" part is very important; the

world of plastic is constantly in the eye of the storm due to many people still not recycling in the proper way.

All Ultra Plast products are recyclable after use and this is our contribution to avoiding unnecessary waste.

Thanks to our six production sites (Switzerland, Russia, Thailand, Mexico, Brazil, USA) we are therefore able to have a widespread presence in the main world markets.

Just a few weeks ago PLAST exhibition ended in Milan. A fair that we have been waiting for 5 years and which always connects us with the difficult (due to fragmentation) Italian market.

This edition, although much smaller than the previous edition of 2018, proved to be interesting both for the quality of exhibitors and visitors. This is what has been evident for some years now and what we notice from the questions they ask us; more concreteness in the approach and increasingly pertinent and precise questions.

The fact of exhibiting two of our laboratory machines allows us to carry out cleaning tests di-

rectly in front of customers on the booth, and to give everyone colored plastic small glasses branded Ultra System.

Seven more fairs await us before the end of the year, both in markets where Ultra System is well present and in others where there is still a lot of work to be done.

We will be present at Interplas in England, Meximold in Mexico, Fakuma in Germany, Plastimag in Mexico, Plast Eurasia in Turkey, Plastivision in India and "last but not least" ArabPlast in Dubai.

Although participation in fairs takes up an important part of our time (and our budget...) we are aware that our participation is necessary to be close to customers who cannot meet regularly.

Among our customers we also include our agents and distributors who tirelessly meet producers every day and offer our products.

Who knows if you, the one reading this article, are not the next person we will meet... at a fair!

www.ultrasystem.ch

**ULTRA SYSTEM @ Fakuma 2023:
Halle A7 – booth 7307**



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EIDOS SE

FB Balzanelli: “Pipes are in our DNA”

For over 25 years, FB Balzanelli automatic and semi-automatic coilers have been synonymous with technology and quality.



In all these years, FB Balzanelli has never lost sight of its mission: technology, innovation, quality, and customer care excellence. Avant-garde and technology constantly evolving for a better return on investment. Constant innovation to offer the perfect technical solution for every specific need in the fields of pipe coiling, packing, and palletizing; quality of all products, customized and guaranteed to the smallest detail. Customer care to ensure correct and reliable operation of the long-life systems. FB Balzanelli is a modern and dynamic com-

pany in constant growth, with a high level of know-how and the ability to accompany its customers throughout the entire production process, offering them the most suitable solutions for coiling and packing all types of flexible pipes.

In the 1980s, the founder of FB Balzanelli Mr. Vincenzo Balzanelli was a leader in the production of electrical conduits. Dissatisfied with the lack of automatic coilers available in the market at that time, he felt the urge to design and build his own automatic coilers. They had to be really fast, reliable, and guar-

antee high-quality packing.

Since 1994 when he built his first automatic coiler, a process of development and growth has been underway at the company's production facility in Fano (Italy), which has made FB Balzanelli a leader in the automatic and semi-automatic coilers market.

Operating in the automatic coiler sector since then, FB Balzanelli is synonymous with state-of-the-art technology and high-quality automatic coilers for pipes. More and more large and technological pipe manufacturers choose FB Balzanelli because they are sure they will



find the best solution for their production lines meeting a serious and durable solution for the next years. The heart of the company's mission is constant technological research and continuous improvement: which are possible thanks to the over 100 automatic coilers produced and installed every year around the world. FB Balzanelli is able to satisfy new customers' needs and be prepared for a continuously evolving market with innovative solutions. The company has always been the most innovative in its proposals for the automatic coiler market, such as side-by-side reels, the fully pneumatic strapping unit, or the special haul-off to reduce the pipe ovalization.

Alongside its know-how, it offers excellent customer care service that listens to its customer's production needs. FB Balzanelli was the first company in the sector 15 years ago to introduce an online catalog for spare parts and remote connection to respond as quickly as possible to any customer request. With FB Balzanelli customers are sure to always find the best solution in terms of both processing efficiency and rapid payback on their investment in the range of coilers offered.

Today, the company is able to offer the largest range of automatic coilers in the market, automatic palletizing systems, and is able to follow its customers during the entire production project with the best and most appropriate automatic coiler and full automatic coil handling solution.

www.fb-balzanelli.it
FB Balzanelli @ Fakuma: Hall A6
Stand A6-6316a

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Arburg special exhibition: "100 years of the Hehl family company"

Arburg will be present at Fakuma 2023 with nine exhibits on Stand 3101 in Hall A3, plus ten additional machines on partner stands.

Trade visitors who "only" know Arburg as a globally leading manufacturer of injection moulding machines today can still learn a lot of new things during the special exhibition. For example, the fact that Arthur Hehl founded a company in Lossburg in the Black Forest in 1923, initially to manufacture surgical instruments in his own home. Or that in 1954, during Germany's economic miracle, a "flash of inspiration" by son Karl Hehl led to the invention of the first small C1 injection moulding machine, which was able to overmould flash contacts with plastic. And that it was his brother Eugen Hehl who, with his great marketing talent, carried the presence of Arburg and the Allrounder out into the world.

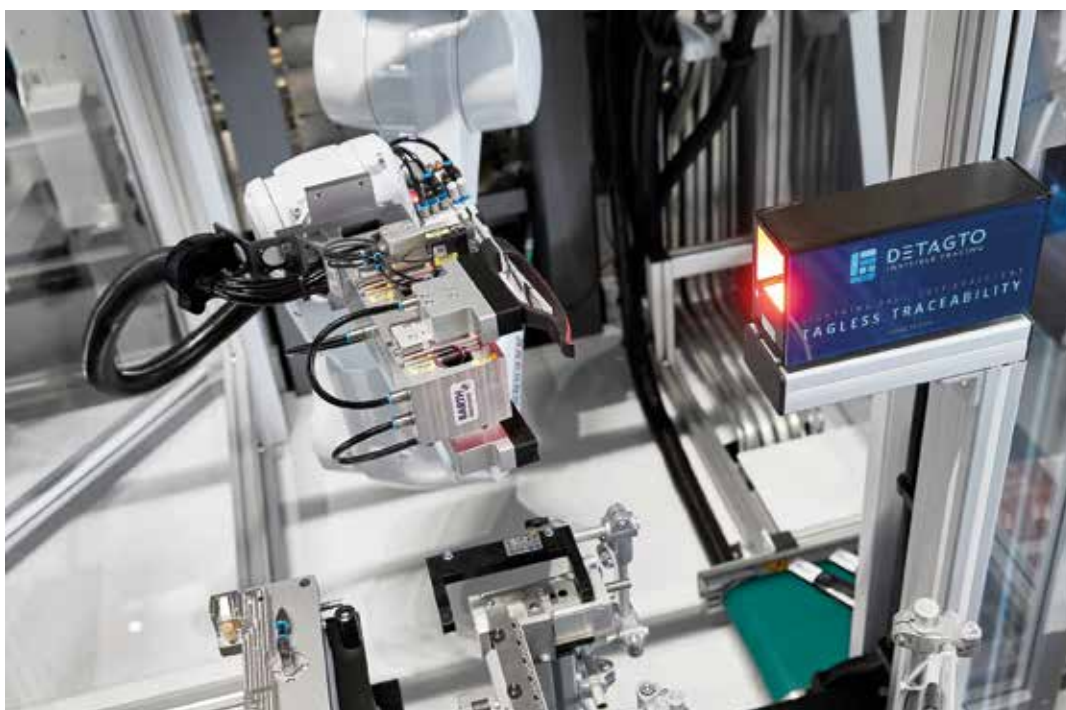
Arburg Cosmos: Continuous growth in Lossburg

The "Arburg Cosmos" area will show how the company grows with a vision. As early as 1949, the first apprentices are hired and trained by Karl Hehl himself. In 1957, the prospering company moves from a residential building to the current factory premises. Arburg develops the Allrounder principle with a pivoting clamping unit and reversible injection unit in 1962, thereby also becoming a pioneer in multi-component injection moulding. One distinctive feature is that Arburg still builds all its controllers itself – from the first Polytronica in 1972 to the Selogica in 1992 and the Gestica, which has been setting standards in the industry since 2016.

In 1966, Eugen Hehl creates a grid system for the building structures, which allows the company to expand continuously. In 1985, the first subsidiary is founded in France. In 2023, Arburg has around 3,600 employees at 35 locations worldwide and still manufactures centrally in Lossburg on a current floor space of around 210,000 square metres.

Allrounder: Historic machine exhibit

A very special exhibit will show just how viable the company's historic machine technology has remained to this day: a manually operated C1 single-lever machine, reconstructed by Arburg trainees themselves, will be producing



shopping trolley chips from post-consumer recycled plastic (PCR) based on PP "live" at Fakuma 2023.

Environment

Arburg has also been playing a pioneering role in environmental matters for decades. From facade heating (1976) and the introduction of a building management system (1983) to the use of rainwater (1997), wind power (2001) and geothermal energy (2009). Since 2019, Arburg has been bringing together all its activities relating to resource conservation and the circular economy in the arburgGREENworld program. Many exhibits at Fakuma 2023 will demonstrate what this means for injection moulding in practice, for example in the processing of recyclates and sustainable materials, as well as with innovative technologies for traceability and separation by type.

An innovative IML application for medical technology

While in-mould labelling (IML) is standard for packaging products, this process is still rarely used in the medical industry. Using centrifuge tubes with labels as an example, Arburg will be unveiling an innovative IML application with added value for the pharmaceutical industry and medical technology. Renowned partners KEBO (tooling), MCC/Verstraete (label), Beck (automation) and Intravis (camera inspection) are involved in the innovative joint IML project centred around an electric Allrounder 520 A in clean room design.

IML labels enable functional integration in a single step with no need for printing associated with rejects, for example, or further downstream work steps. As a result, the production process is fast, space-saving, cost-efficient and without any additional hygiene risk. The intelligent linking of data is essential for smooth digital communication between patients and doctors or home care applications. Individual codes can be used to track data on processes, quality and patients, for example, with 100 per cent traceability for each individual part. The monitoring of temperature profiles or information on recycling and warehouse management can also be implemented with these labels.

The exhibit, an electric Allrounder 520 A "Ultimate" with 1,500 kN clamping force, is designed for fast and demanding processes such as thin-wall applications. The high-performance machine in clean room design meets the requirements of class ISO 7. An 8-cavity mould from KEBO is used to produce 15 millilitre tubes from PP. A label applicator head from Beck is used to apply the labels, while optical control is carried out via a camera system from Intravis. The servo-electric drives of the injection moulding machine ensure precise and reproducible mould positioning. With the exhibit, attention was also paid to a low carbon footprint, energy efficiency and a compact production cell.

The project managers from Arburg, Beck, Intravis, Kebo and MCC will explain the advantages and potential of IML products for medical technology at

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two expert talks during the trade fair. These will take place on Wednesday 18 and Thursday 19 October, both at 2 p.m. in the "Schwarzwald" room, Conference Centre West.

Registration:

<https://iml.mcclabel.com/en/expert-talks-at-fakuma2023>.

Transparency thanks to digital "Fingerprint"

The application example of a tyre lever will show how digitalisation and automation go hand in hand to produce plastic parts efficiently and with 100 per cent traceability. Each product is clearly identifiable using "Invisible Tracing", a technology from partner Detagto.

The turnkey system with multi-axis robot, overmoulding of inserts and parts assembly is a sophisticated production solution with a high degree of autonomy. With the bicycle tool, tyres and inner tubes can be quickly and easily removed from the rim and mounted again.

The tyre levers are produced ready to use by a compact turnkey system built around an Allrounder 375 V with 500 kN clamping force and a 1+1-cavity family mould. The vertical machine overmoulds inserts with 50 per cent glass fibre-reinforced PA 66/6 into a "remover" and an "installer". The insert is made of ISCC-certified POM, while the PA material is a single-grade post-industrial recyclate (PIR). The cycle time is around 45 seconds. The exhibit is equipped with Arburg's recyclate package for homogeneous material preparation and consistently high product quality.

The complete parts handling process is carried out by a Kuka six-axis robot. No additional floor space is required for automation: the six-axis

robot is suspended to save space and integrated into the machine controller. It first feeds clips provided via a vibratory bowl feeder to a camera inspection and inserts them into the mould. The removed moulded parts are given a DM code in a laser station. Then they are supplemented with operating instructions and the two-part tyre lever is assembled ready to use.

Before the tyre lever is placed on a conveyor belt, a camera system in a separate station photographs a defined area of the component's surface. The comparatively new "Invisible Tracing" technology from partner Detagto is used here. The image data of the registered surface is converted into a few kilobytes of easily storable character string and compressed before being transferred to a database. As every surface has

tiny differences, similarly to a human fingerprint, each component can be clearly identified later at a separate test bay – in a way that is reliable, tamper-proof and requires little effort.

On the exhibit, this invisible "fingerprint" is transferred to the Arburg Turnkey Control Module (ATCM) Scada system. To do this, the ATCM records the data from the injection moulding process for each component ID and links it with the results of the optical inspection of the insert and the digital fingerprint, thereby ensuring 100 per cent traceability. The part-specific data can be retrieved by scanning the DM code, e.g. with a mobile device.

www.arburg.com

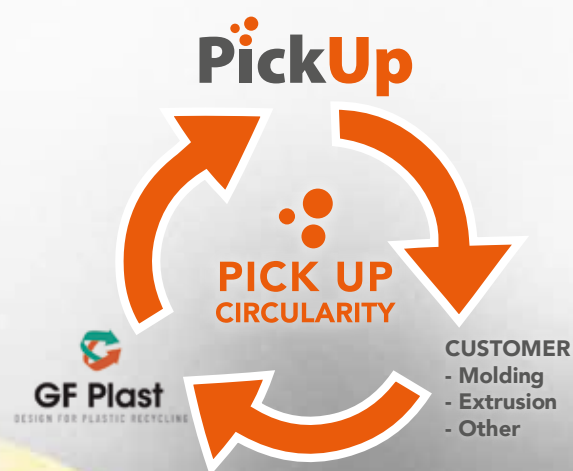
Arburg @ Fakuma: Stand 3101 in Hall A3



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Hellweg: digitally controlled grinders for energy-saving plastics recycling

These include the MDSi 340/150 Smart Control machine-side grinder with fill level monitoring, the MDSi 600/300 Smart Control Plus central grinder and the MDSGi 1500/600 as a representative of a newly developed series of wet grinders with forced feed which have particularly low power consumption.

The MDSi 340/150 Smart Control machine-side grinder is the highest power model of the series with drive powers of 1.5 kW to 4 kW for grinding capacities of 10 kg/h to 80 kg/h. Its primary application is to save raw materials by enabling the recirculation of even the bulkiest sprue stars, spiders or ladders directly beside one or more injection molding machines. Material can be fed in by chute, feed hopper or conveyor belt, and discharged by suction. A film edge strip feeder is available as an option.

Hellweg's 300 series central grinders combine a compact design with high performance. Thanks to the sturdy machine housing and the high

At Fakuma, Hellweg Maschinenbau will be presenting a selection of its pioneering, digitally controlled grinders for efficient, energy-saving plastics recycling at booth A1-1005 in hall A1.

moment of inertia of the massive, solid rotor they enable powerful grinding of thick-walled moldings, sheets, sprue cakes, pipes and profiles and, when using the special BR rotor, even single-stage shredding of solid lumps from production start-ups. The MDSi 600/300 Smart Control Plus version on display at Fakuma features power consumption analysis to optimize economy and automated lubrication with Bluetooth monitoring to minimize maintenance effort.

Hellweg will be presenting the new MDSGi 1500/600 wet grinder featuring a forced feed system for film recycling to visitors as a 3D printed model due to its considerable weight of around 25 metric tons. In addition to its rugged, durable design typical of this manufacturer, it offers an

unprecedentedly good ratio of throughput to energy consumption, enabling very low operating costs. Its cutting geometry is also outstanding, producing flakes of consistently optimum quality, as well as a particle size distribution and geometry which are perfect for further processing with a very low proportion of unusable "fines".

Smart Control for Optimized Operation

All these systems feature Hellweg's in-house developed digital Smart Control System which captures parameters such as power consumption, motor speed and bearing temperatures, as well as blade, screen and V belt status. Because the control system is capable of continuously optimizing the relationship between motor load and throughput, it ensures particularly economical operation while requiring little input from operators. Smart Control is generally available for all models and sizes of Hellweg's systems, starting from the 150 series machine-side grinders for granulating small parts and sprues up to the 600 series heavy duty grinders designed for the toughest applications.

Hellweg Maschinenbau GmbH & Co. KG, founded as a family business in 1985, is now managed by the second generation of the family. The company manufactures machinery and systems, including many custom designs, for the global plastics and recycling industry in its own production facilities. The product range includes laboratory grinders, machine-side grinders, toothed roll grinders, central grinders, lump grinders, punched skeleton grinders and film & edge strip grinders, edge strip feeders, film cutters as well as dust extraction and removal systems including accessories. Robustly constructed, Hellweg grinders are synonymous with advanced technology and meet the most stringent quality requirements – and all with a well-balanced price-performance ratio.

www.hellweg-maschinenbau.de

Hellweg @ Fakuma: booth A1-1005 in hall A1





YELLOW OUTSIDE GREENER IN THE HEART

IMG finds innovative and **effective solutions** for the entire molding of elastomers and thermosets sector, while paying great attention to its **environmental footprint and sustainability**.

IMGMACCHINE.IT



COIM presents Laripur RS range, the biobased products leading the transition from fossil to renewable sources in various sectors of industry

The polyurethane products in the Laripur RS range - formulated with a raw material component from renewable sources of up to 75% - initially used above all to produce soles for footwear in the luxury bracket, are now requested also for applications in the sports and technical sectors.

COIM, an Italian multinational that has manufactured chemical products since 1962 and that operates all over the world through nineteen manufacturing and trading companies, will be present at FAKUMA 2023 with its Laripur RS biobased thermoplastic polyurethane products. Obtained from products derived from vegetable crops with a controlled supply chain, they can be supplied with a carbon content from renewable sources of up to 75%.

"The replacement of fossil-based materials with materials from renewable sources represents a major shift towards environmentally friendly solutions that can be adopted on a large scale: the biobased materials developed by COIM using renewable plant sources, were formulated in such a way as to replace the traditional products, while preserving the same and, in some cases, even better properties without our customers having to make changes to their machinery or consolidated production methods," explains Raimondo Baldassarri, Laripur R&D Manager. "We also offer our customers a comparative life cycle assessment (LCA) of the products, in order to be able to document their advantages in terms of sustainability."

"The Bio Laripur RS new line of granules, - explains Gilberto Nini, EMEA Business Manager of Laripur TPU - initially aroused the interest of the luxury footwear industry, for the production of soles. The sustainability of products is of stra-

tegic importance in this sector. There is now an increase in demand also in the technical sectors and those that produce less "visible" solutions, such as films and tubes. This is a tangible sign of the commitment of all companies towards greater environmental awareness. We are sure that the bi-

obased product market will continue to grow considerably in the years to come, also on the basis of increasingly strict regulatory requirements."

www.coimgroup.com

COIM @ Fakuma 2023: Hall B1 stand B1-1118



C.O.I.M. S.p.a. is the brain-child of Mario Buzzella and Cesare Zocchi, two entrepreneurs driven by the same passion for chemistry, who founded the company in 1962 to meet the increasing demand for chemicals resulting from a booming economy. 60 years later, COIM has become an Italian multinational company that develops, produces, and sells chemical specialities for the manufacturing industry worldwide. It ensures local presence through 19 companies - 10 of

which are production sites - in Italy, Germany, Russia, Turkey, Singapore, China, India, USA, Brazil, Mexico, Chile, Colombia, Spain, Austria, and the Netherlands.

Over 1,200 specialised collaborators are committed to meeting customers' expectations with three main product families:

1. Polyesters and polyols;
2. PU Case: coatings, adhesives, sealants, and polyurethane-based elastomers;
3. Polyesters and special resins.

COIM can meet technical, commercial, and logistics needs of customers located in 90 countries for a turnover of 1 billion euros. This is possible thanks to its integration of raw materials, focus on polyurethane systems, a wide and diversified offering - 18 product ranges from polyesters to PU systems -, and a large production capacity. COIM focuses on continuous and sustainable development based on corporate values, such as care and respect for people and the environment.



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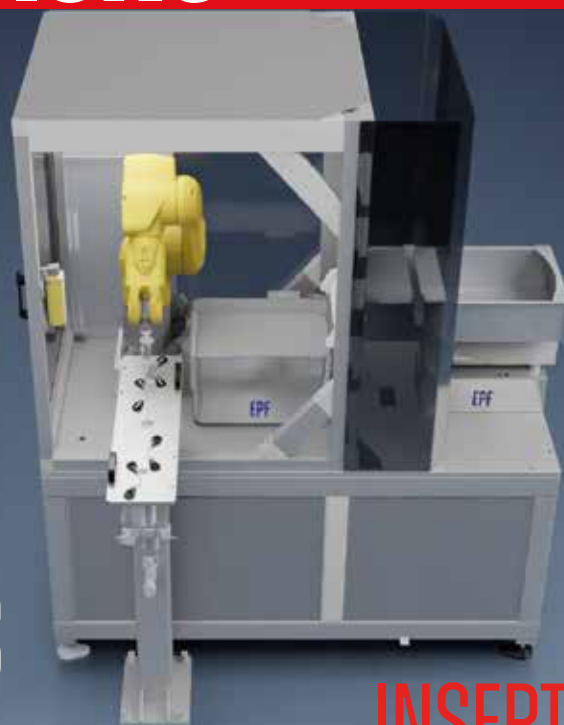
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READY FOR
NEW PRODUCTS



INSERT MOLDING



HALL A5 - BOOTH 5215



Haitian: the future is still electric!

Responsible management in plastics processing relies on energy-efficient and at the same time economical technologies. Electrical solutions from Haitian International have been setting new standards with technology to the point for over 15 years. In the process, injection molding machines are constantly adapting to growing requirements and market trends. Advances in digitalization, precise application solutions and innovative options continuously increase their efficiency as well as that of related technologies.

Made by Zhaifir

The long-established "Zhaifir" brand revolutionized the price level of electric injection molding machines. In 2007, the first all-electric injection molding machine - a Zhaifir Venus Series - was delivered in Germany. "Since then, demand for our electric machines has increased tremendously. In the current, as well as in previous years, one in two machines sold was electric. In clamping forces up to 4500 kN, which are rather smaller for us, sometimes even in the range of 70 %," explains Niels Herz, Sales Manager Germany at Haitian.

Not only the acquisition costs, but also the operating and maintenance costs are impressive: With proven energy savings in the mid to high double-digit range, Zhaifir sets the standard in terms of efficiency. With clamping

forces ranging from 400 to 33,000 kN via application-specific solutions, from all-electric to hybrid, toggle or two-platen, from dynamic high-speed to large, yet affordable, electric injection units, Zhaifir offers one of the broadest ranges of electric injection molding machines on the market. Currently, Haitian International Germany is about to deliver Haitian's largest electric toggle machine to date in the German market at 9000kN (13800kN delivered in Europe).

Live at Fakuma 2023

The successful Zhaifir Zeres Series with integrated hydraulics is showing off as a fast-cycling "F version" and a packaging solution. The cell consists of a Zhaifir ZE2300F/830h as well as IML automation, safety fence and conveyor from Pages. A 200 ml container made of

PP (MOL Group), labeled by Vappiani, is produced on a 4-cavity mold from Bazigos. Further application data:

- Shot weight 32 g
- Wall thickness incl. label 0.4 mm
- Cycle time 3.4 s
- Energy consumption (Machine) ~0.48 kWh/kg

www.hmmi.it

www.haitiangermany.com

Haitian @ Fakuma: Hall A1, booth 1103.




About Haitian International Germany

Haitian International Germany is a subsidiary of Haitian International Holding, one of the leading companies in the development and manufacturing of injection molding machines. Based in Ebermannsdorf, Bavaria, Germany, nearly 100 employees, plus another 70 employees in German sales offices and over 200 sales and service technicians throughout Europe, guarantee reliable and fast order processing. In line with the principle of "technology to the point", Haitian and Zhaifir machines from 400 to 33,000 kN are assembled on 12,000 square meters of production space and equipped according to customer specifications right up to the finished automation cell: servo-hydraulic solutions with toggle lever or two-platen technology as well as electric and hybrid solutions. The extensive range of services includes a large pool of stock machines, spare parts, regular and free customer training, application tests and a comprehensive service network.





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CHEMICAL RECYCLING
DRY CLEANING OF PLASTIC

FKuR: Keeping carbon sustainably in the cycle with recyclates and biobased plastics

Keeping carbon in the cycle” is the motto under which FKuR will be presenting its broad portfolio of sustainable plastics solutions, including bio-based bioplastics, a comprehensive recycle portfolio and customized recycle compounds for injection molding and extrusion, at the NRW state joint stand B4-4405 in Hall B4.

Binabo construction toy - softer, more bendable, more fun to play with - made from customized Green PE Compound.

“With our bioplastics and recyclates, we give our customers the key to a carbon-neutral future and more responsible use of the limited resources we are given.”, emphasizes Niklas Voß, associate sales manager at FKuR.

For TicToys, these, along with improved mechanics and recyclability, were the reasons to switch to a bio-based, recyclable plastic from FKuR for their creative construction game Binabo.

„Our main focus is on the stability and durability of the material to ensure a sustainable and robust product.”, explains Matthias Meister, Managing Director at TicToys. The previous material occasionally fractured when the components were exposed to high degrees of tension over a long period of time.

“With the new formulation, we have now found a plastic that is both soft enough to be effortlessly assembled by smaller children (ages 3 and up) and strong enough to meet the stability requirements of the constructed objects,” Tony Rameda adds.

By simply snapping together, children and adults build their own toys with Binabo! Thus, Binabo playfully promotes creativity, fine motor skills and three-dimensional thinking.

Natural & white Terralene® rPP recycled compounds put an end to gray uniformity in recycled products

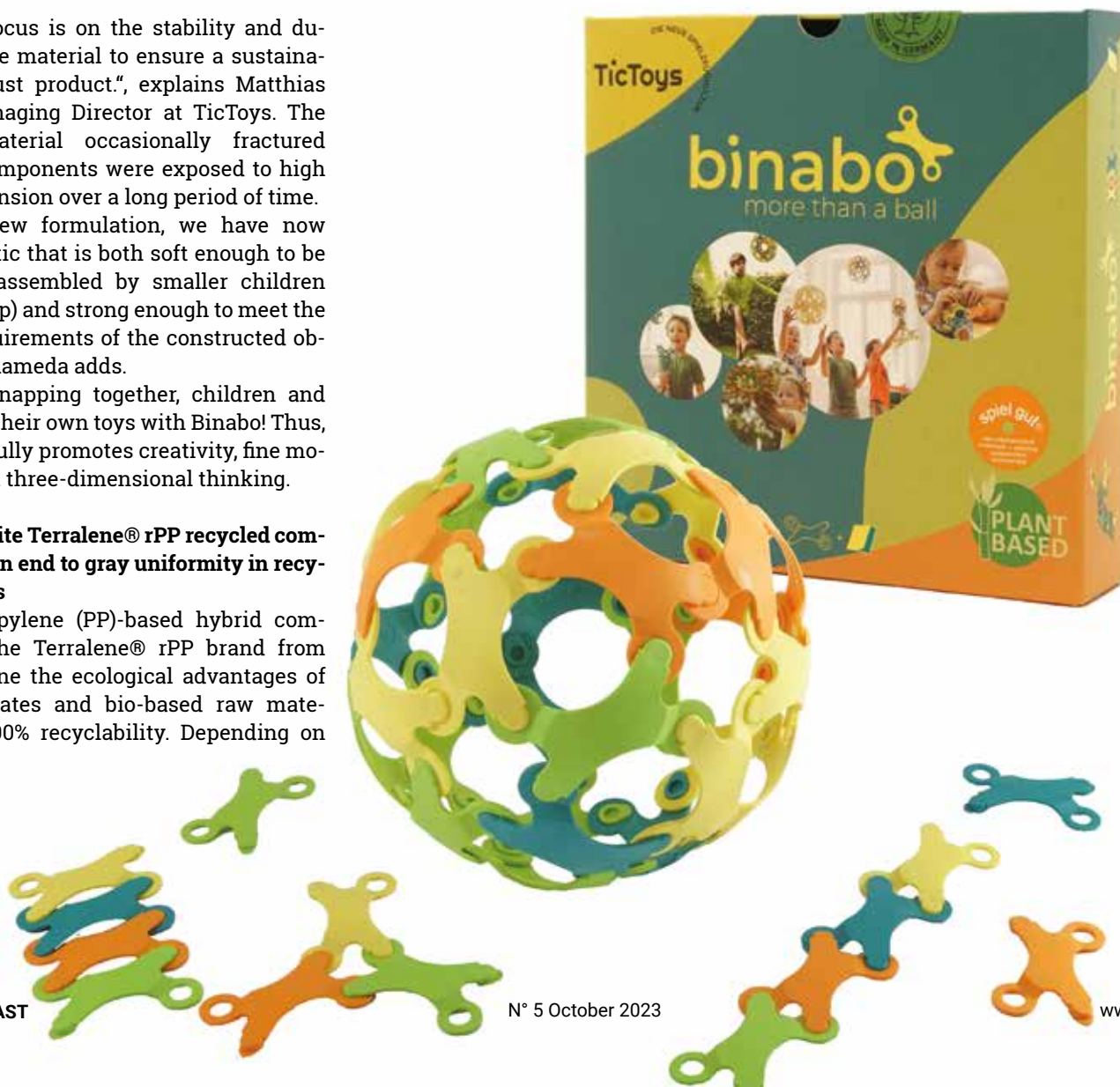
The polypropylene (PP)-based hybrid compounds of the Terralene® rPP brand from FKuR combine the ecological advantages of using recyclates and bio-based raw materials with 100% recyclability. Depending on

the product grade, the recycle content from post-consumer waste streams ranges from 30% to 60%. The bio-based share can reach up to 33%. The Terralene® rPP drop-in product range can be used in a wide variety of applications due to its good flowability and the natural or white color of the granules. However, applications are currently still limited to the non-food sector.

Recycled polyolefin compounds based on PCR

Under the brand name Macolen® R, FKuR

presents an extended portfolio of recycled materials. It includes both high-quality customer-specific compounds and standard formulations based on post-consumer recyclates. All grades are characterized by low odor and consistently high quality, while at the same time meeting demanding requirements in terms of technical properties. With Macolen® R, FKuR meets the specific requirements of various extrusion and injection molding applications thanks to the high quality of the recycled raw materials used.



TicToys - Matthias Meister
and Tony Rameda



"Plastics care for Future" or how to keep carbon in the cycle

The bioeconomy has the potential to provide innovative bio-based materials and packaging solutions, ensuring the sustainability and competitiveness of the European plastics industry while reducing dependence on fossil resources.

„At FKUR, we are convinced that a CO2-neutral economy is not feasible without products made from renewable raw materials. That is why we aim to keep carbon in the cycle for as long as possible with our biobased or compostable granulates and high-quality recyclates in a technologically oriented, innovative and resource-saving way.“ explains Carmen Michels, member of the management board at FKUR and responsible for production and development.

For the plastics industry, this means in particular that all those raw materials available should be used that lead to a sustainable circular economy and, above all, to a reduction in fossil CO2. In this context, the potential offered by mechanical, chemical and organic recycling as well as by renewable raw materials must be considered in a solution-oriented and equal manner.

Interested visitors can get an idea of the diverse application potential of FKUR's granules at Fakuma in Hall B4 at Booth B4-4405.

In addition, the company Gear Motion, part of KAP Precision Components, will be injection molding the bio-based, recyclable bioplastic Terralene® PP 3505 from FKUR live at the wvib booth (Hall B2 - Booth B2-2204).

www.fkur.com

FKuR Group @ Fakuma: Hall B4 Booth: B4-4405



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Hall B3
Stand 3208

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UniteChem to showcase its large light stabilizers portfolio

UniteChem Group, the world's leading supplier of light stabilizers for plastics in a broad range of high-end industrial applications, is taking the opportunity of the Fakuma 2023 tradeshow in Friedrichshafen, Germany, to highlight its expanding global footprint in the high-quality additives business with increased manufacturing capacity, innovative products and extended customer support.

UniteChem to showcase its large light stabilizers portfolio at Fakuma driven by reliable delivery, market response and respect for people and planet

Key Highlights:

Comprehensive Product Portfolio: At Friedrichshafen, UniteChem Group will bring its extensive range of products and solutions to the European market. Their products are designed to meet the dynamic needs of customers in the region.

Local Presence: Three years ago, UniteChem opened a sales office in Düsseldorf, marking an important step in the company's develop-

ment into a major force in the European performance additives business. The office is equipped to a skilled group dedicated to offer fast and close technical customer support. Thanks to its 3Rs motto as operating as a reliable, responsive and respectful partner in all its activities, UniteChem has established its position as a trusted, fully integrated supplier in Europe.

Investment in Innovation: The broad and growing performance additives portfolio is backed by major recent investments in UniteChem's development and manufacturing capacities, including a fully equipped second R&D and Innovation Center in Shanghai.

Firmly committed to invest in future solutions for its global customers, the Group regularly allocates five percent of its total revenue to R&D and has also gone public at Shanghai's Main Stock Market to secure the funding of its expanding production base.

Expanding Production and Logistics Network: New capacities for intermediates and finished products have been added at various sites in China, and downstream supply security is ensured by an expanding logistics network, including a state-of-the-art warehouse in Antwerp.

www.unitechchem.eu

UniteChem @ Fakuma: Booth A2-2217



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ITIB Machinery International with its experience of more than 60 years can supply extrusion lines for the production of single and double wall corrugated pipes starting from 4,5mm ID up to 800mm OD



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Frigel, Global Solutions Provider for Business, is the only player with a global footprint, with more than 10.000 customers worldwide and a focus on Customer businesses. Our innovation and expertise is always applied to your industrial process.

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- Maximizing productivity, thanks to significant cycle time reductions
- Energy savings

Frigel Group will participate in Fakuma 2023, the International Trade Fair for Plastics Processing, in Friedrichshafen (Germany) from 17 to 21 October, presenting the latest process cooling solutions, designed especially for the following Plastics fields: automotive, packaging, medical, chemical, pharmaceutical, household, etc.

- Water savings

"Simply Synchronized Proven Result" - RSY Microgel Syncro will be officially launched, with its own brand and identity. Our target is to Establish a New Technology Standard, another Frigel paradigm shift.

"Engineering a more efficient and sustainable industry" - Sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs. The design and development of the new MDK Adiabatic cooler has been carried out having as goal



an improvement of all KPI linked with the Environment. Less kW of electricity per kW of cooling and lower usage of water (up to 95% less).

Visit us and meet our engineers and they will be able to show you the best solutions for your precise industrial process. Learn about our important innovations in cooling and temperature control systems:

- **New Microgel RSY Syncro** (provides an important increase of productivity up to +60%)
- **New Adiabatic Cooler Series** (centralized closed-circuit adiabatic cooling systems designed to replace old cooling tower technology)
- **New 3PR 4.0 control system** (complete real-time control of the entire cooling system (parameters, functions, alarms etc.)
- **Thermogel TDK Series:** High precision Single Zone pressurized water TCUs
- **A wide range of upgraded models:** Microgel RSM/RSD provides an optimized mechanical design, increased reliability and a wide range of options. Powerful pumps and precise temperature control up to 90°C ensure long-term high performance and product quality improvement with minimal cycle cooling times.

Microgel™ SYNCRO

Frigel presents to the market Microgel SYNCRO, the new machine-side unit that revolutionizes the temperature control method for injection molding. Microgel Syncro technology provides for a drastic reduction in cycle time (up to 40%), while maintaining the surface quality, dimensional characteristics and mechanical performance of the finished product. The reduction of the total cycle time is obtained thanks to the reduction of the cooling time only: this result, achieved through the digital synchronization with the molding machine, has the great advantage of not requiring modifications of the other molding parameters, with the unit communicating with the press but remaining completely autonomous and easily implemented by the operators.

MICROGEL RSY SYNCRO Series

The Microgel SYNCRO product line features more than 10 models, with cooling capacities from 16 kW to 56 kW and heating capacities from 12 kW to 24 kW.

The big difference compared to the traditional method consists in the fact that the Syncro control unit supplies cold water to the mold only



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during the cooling phase, drastically reducing its duration. The advantages for the customer are easily understood: increased productivity and profitability of the dedicated production cell, against an investment with an average payback time of less than 6 months.

ECODRY MDK Series

Adiabatic Closed Loop Fluid Coolers with enclosed chambers and patented booster cooling technologies

Frigel expands its Adiabatic product family line, introducing the Ecodry MDK range, designed for flexible configuration of modular adiabatic solutions for small to large plastic factories. MDK takes advantage of some of the technological advances already introduced in the LDK range (new efficient PADs, new generation of EC fans, modular design, wide and deep configuration).

MDK is characterized by a high efficiency humidification system (COOLPADTM) and by a new generation of EC fans which, combined with a more effective dry cooler, obtain a new level of compactness in a powerful new adiabatic cooler product line.

The new Ecodry MDK is designed to integrate

easily into existing Ecodry 3DK systems, of which Frigel has an existing installation base of thousands of units, in addition to responding to the new needs of industries, including energy efficiency, sustainability and saving of raw resources such as water.

NETGEL 3PR 4.0

Industry 4.0 Intelligent Central System Control Platform

The 3PR 4.0 product platform is a dedicated Frigel solution that provides complete control of Frigel central cooling systems. 3PR 4.0 control meets the needs of processors to supervise and manage the whole cooling system from a single control point. All the connected central system components are controlled via a unique control panel that has been designed specifically for Frigel systems. 3PR 4.0 is available in two versions, Lite and Premium, depending on the size of the system and the equipment to control.

Full native connectivity to MiNDTM and its new HMI (Human Machine Interface) offer a flawless user experience and compatibility with Industry 4.0 architectures, providing easy visualization and process diagrams of the connected equipment, dashboards for main parameters, performance graphs and alarm management and history.

NETGEL MiND

Industry 4.0 central system and machine-side Web Interface and Monitoring Platform

Frigel releases the MiNDTM 2.0 platform, the

evolution of its Industry 4.0 concept. MiNDTM 2.0 is an innovative digital solution to meet the ever increasing needs of modern companies to reach Industry 4.0 and IIOT (Industrial Internet of Things) standards. MiNDTM 2.0 is now able to provide customers a perfect supervision and maintenance tool for all Frigel equipment and accessories, both central and machine-side, allowing for monitoring and management of all working parameters and events and registering performance and energy consumption of every single cooling system component through a multifunctional user interface, both locally and remotely, through a user-friendly webpage.

THERMOGEL TDK Series

High precision Single Zone pressurized water TCUs

Frigel introduces advancements in its growingly popular direct injection pressurized water TCUs up to 120°C for applications in Automotive, Medical and any other Technical Molding sector where accuracy, repeatability and process control are fundamental for the profitability of the injection molding cell. The TDK units are fully adaptable to any molding condition and are equipped with reliable features and redundant safeties to operate over the entire temperature range. Flow meter options and connectivity to MiNDTM or other Industry 4.0 architectures enable complete process monitoring and data recording.

Microgel RS Series

The distinctive product brand of Frigel. High performance Single and Dual Zone TCUs with Booster Pumps and Integrated Portable Chillers

Frigel releases the full range of Microgel RS for Injection Molding. These unique single zone (RSM) and dual zone (RSD) machine-side temperature control units are designed for molding throughputs ranging from 10 to 240 kg/hr. The new Microgel RS range includes important advancements in temperature accuracy over the entire control range (-5 to 90°C), functionalities, pumping performance and overall energy efficiency.

The RS range features additional configurations specifically designed for Packaging (RSP) and Extrusion (RSB). Options such as flowmeters, VFDs, return/remote temperature sensors enable full process control capability. Its new user interface offers a flawless experience and full connectivity and interoperability via the Frigel MiNDTM platform.

www.frigel.com

Frigel @ Fakuma: Hall A5-5123



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FAKUMA 2023

Solvay integrates sustainability into its high-performance portfolio

Solvay, global supplier of specialty materials, is set to feature its latest innovations in sustainable polymer solutions, confirming the company's commitment towards circularity. Visitors are invited to discover the new products at the booth and to join Solvay experts in their live presentation at the Exhibitors' Forum.

Specialty Polymers Innovations in E-Mobility

Brian Baleno, Head of Automotive Marketing, announces "Solvay will launch two new grades of Ryton® polyphenylene sulfide (PPS) Supreme resins, bringing enhanced performance benefits in e-mobility applications." These new grades are produced with 100% renewable electricity and complement Solvay's Amodel® polyphthalate (PPA) Supreme resin launched in 2021.

In order to address the latest battery applications requirements, Solvay is also introducing a new Xencor™ Xtreme PPA grade for higher safety and reliability in thermal runaway events.

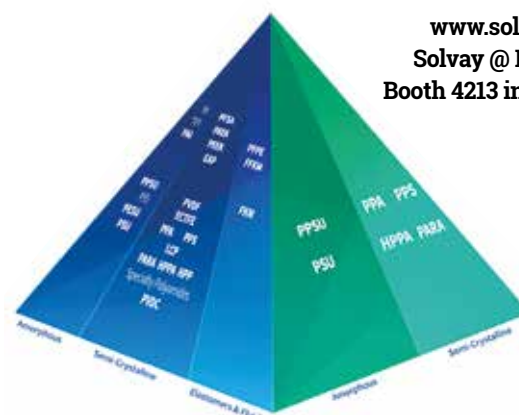
Nicolas Bataille, Marketing Manager Transportation, and Elisa Piedimonte, Customer Technical Development Engineer, will present on October 17th at 11:40 'The Supreme range: designed to meet e-mobility challenges and make drivers' lives easier' at Fakuma Forum.

Introducing the new ECHO Portfolio

At Fakuma 2023, Solvay's diverse range of circular materials will be presented under the new ECHO attribute which resonates customers' needs towards carbon neutrality. ECHO's portfolio is engineered with bio-based and recycled technologies in an encompassing integral approach from sourcing to manufacturing.

Ysée Genot, Marketing Manager Transportation, and Ricardo Calumby, Marketing Manager Consumer Goods, will present on October 20th at 10:20 'New circular materials with no compromise on performance'.

www.solvay.com
Solvay @ Fakuma:
Booth 4213 in Hall B4



Servomold: servo-automated injection mold tools

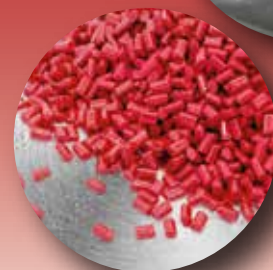
At Fakuma 2023, Servomold, a leading specialist in the automation of injection mold tools, will present a new generation of control units for servo drives and a newly developed series of actuators for the execution of linear movements at booth A2-2111 in hall A2.

From 2024, the new SMC (Servo Mold Control) control system will replace the complete, universal and rack control systems that have proven themselves in over 700 units sold since 2012 and will then be available on the market in four variants. Common to all versions is the intuitive operability via the uniformly used touch panel achieved thanks to a wide range of innovations, as well as automatic switching between different encoder systems. As a basis, the SMC Mini will be limited to one drive controller, while the SMC Standard version will be able to control up to four servo drives and the SMC Rack version up to eight. In addition, there will be a combination unit developed in conjunction with Feller Engineering that is designed as a plug-in unit for Feller's rack. In this configuration, up to five servo drives and up to 60 hot runner zones can be controlled together via the SMC control panel. As compact, powerful and clean alternatives to hydraulic and pneumatic cylinders traditionally used to perform translational slide, core or platen movements in injection molds, Servomold has developed the new SLK, SLR and SSK servo-electric linear actuators. The letter K stands for the compact version with ball screw, R stands for the high performance version with roller screw. SSK denotes the servo worm actuator ball screw, which has a particularly compact and flat design thanks to the 90-degree arrangement of the drive unit. All three are suitable for stroke lengths up to over 1000 mm and offer high nominal thrust forces thanks to an integrated gear stage. By enabling the use of different spindle systems as well as individually configurable servo motors, they ensure maximum flexibility. In addition to these innovations, Servomold will provide detailed information at Fakuma 2023 about its expertise in developing application-specific solutions and its entire portfolio of cost-effective, standardized servo system components. In addition to servo-electric single to fourfold unscrewing units and worm-drive units for unscrewing threads, this portfolio also includes complete unscrewing halves ready for operation, high-performance servo drive units and linear actuators, space-saving index plate turners that can be integrated, threaded core sets and rotating thread core cooling systems for unscrewing units.

www.servomold.com

Servomold @ Fakuma: booth A2-2111 in hall A2

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Dreyplas: fluoropolymers and their alternatives

At Fakuma 2023, Dreyplas will show where UHMW-PE-based thermoplastics can replace fluorine-containing polymers.

At Fakuma 2023, Dreyplas will showcase a variety of options for replacing fluoropolymers caught up in the controversy around PFAS with melt-processable UHMW-PE at booth B1-1004 in hall B1. UHMW-PE can be used for molded parts as well as for profiles, sheet products, films and coatings in applications where very low friction and abrasion, depending on the case in conjunction with high chemical resistance, are of primary importance. Dreyplas bases its advice about this versatile resin on Mitsui Chemicals' products, which are available both as pellets and as powders and micropowders and are also suitable for 3D printing. Dreyplas will contin-

ue to offer an extensive range of fluoropolymers for those applications which simultaneously require high temperature resistance. Highly abrasion-resistant molded parts, extruded sheets, profiles and hoses are some of the applications for LUBMER™ pellets, a self-lubricating, high-impact grade of UHMW-PE suitable for injection molding in both hot runner and tunnel gate systems. Thanks to its food safety and acoustic and electrical insulation properties, potential applications include automotive, electronic, and industrial parts, together with use as a friction-reducing additive in other polyolefins. MIPELON™ with its spherical, particularly

readily dispersible fine particles can be produced with diameters of 10 to 30 µm, whereas the usual dimensions of UHMW-PE powder are 150 to 200 µm. It can thus be an alternative to PTFE for formulating low wear, chemically resistant coatings, where it not only increases abrasion resistance but also reduces the coefficient of friction even more than does PTFE. A further typical application is use as a friction-reducing additive.

Another spherical UHMW powder grade with particle diameters in the range from 120 µm to 160 µm is HI-ZEX MILLION™, which is mainly used for electronic or industrial materials, medical devices, food manufacturing, etc. Its wide range of applications extends from screws, slide rails and gears to battery separators and prostheses. As a friction-reducing blend component, its low density of 930 to 950 kg/m³ helps to reduce product weight.

As Norbert Hodrius, Technical Marketing Director at DREYPLAS explains, "Numerous collaborative projects with customers have demonstrated that, where elevated thermal stability is not essential, it is often possible to do without fluoropolymers. In such cases, our alternative is UHMW-PE, which has up to twenty times the abrasion resistance of conventional PE, combined with good chemical resistance, high flexibility and low-temperature impact strength as well as further advantages such as acoustic and electrical insulation and compliance with food safety requirements. In addition, UHMW-PE has good sustainability since all grades are suitable for the PE recycling loop, while its melt processability means low levels of manufacturing waste."

Sales Manager Markus Geister adds, "If specific requirements mean there is no alternative but to use fluoropolymers, we can supply a wide range of high-performance polymers including PTFE, FEP, PFA, etc. together with comprehensive application engineering know-how to ensure successful use in our customers' applications."

www.dreyplas.com

Dreyplas @ Fakuma: booth B1-1004 in hall B1



PreZero embracing new challenges: New r – LDPE

In 2023, we expanded our business on **LDPE** materials for the production of high-quality flexible materials.

The resulting flexible film can be used for different packaging: hygienic paper packaging, plastic bags, etc.

Our customers can therefore reduce their environmental impact, achieving sustainability goals and reducing CO2 emissions.

The latest: Refrigerate bags

- Colored handles made entirely of 100% PCR HDPE
- Bag structure made with more than 90% PCR LDPE



Check this out personally!
You are welcome in our booth:
Fakuma Friedrichshafen booth B05-5002 – Hall B5



Premium technology for automatic weighing

Founded in 1970, Lawer is an Italian company specialized in industrial weighing systems.

It has developed advanced technologies and know-how in the automatic weighing of powder and liquid products, including pigments, additives, and chemicals, as well as single or multiple weighing systems and equipment for the preparation of compounds, color masterbatch, handling and packaging systems.

Its products, solutions and services provide the technical rubber, tire, color masterbatch industries to increase reliability, safety, and efficiency. At the basis of all the production of the rubber industry and color masterbatch there are the recipes of the compounds. Complex formulations, expertly built with the contribution of many substances, whose quantities are strictly predefined. The qualitative constancy of the final product therefore depends on the ability to feed the machinery of the mixing rooms with perfectly weighed doses and able to perfectly respect the proportions of all the required ingre-

dients: raw materials, additives, dyes and much more. This is where Lawer's expertise and technological capability come into play.

Observing the ongoing trend among manufacturers to automate mixing rooms to improve product quality, safety, and hygiene, Lawer has launched the second generation of its fully automated weighing system for the preparation of compounds and color masterbatches, SUPERSINCRO.

SUPERSINCRO is an automatic horizontal weighing system for chemicals used in the weighing room. This system ensures high productivity, consistent quality, and complete traceability of the process and, at the same time, eliminates the "human error" factor.

It is a customized project that allows you to weigh different materials, stored in silos, hoppers, big-bags and interchangeable silos, in a bag of variable sizes produced automatically.

Supersincro allows precise and safe automatic weighing of products, necessary for the preparation of compounds, in automatic thermoformed bags, starting from tubular films of EVA or LDPE. The modular configuration is based on the number of products used, the physical characteristics and the packaging used. At each cycle, the container with the bag inside is placed on a mobile tray and transported on a ring path, placing the bag under the different weighing units. When the container is in the correct position for the product, the scale lifts the container and starts the weighing process. At the end of the cycle the bags are closed and automatically placed in boxes or pallets.

Our systems improved in productivity and accuracy: one bag can be now processed every 30 seconds.

Flexibility is another benefit: three sizes of EVA or LDPE bags can be handled, which are





made automatically by a device that selects bag sizes proportional to the mixer size. And for qualitative benefits, our automation can reduce the amount of EVA or LDPE film in the mixer as much as possible.

The market seeks to reduce the buffer in terms of production and work as much as possible just in time to reduce costs, so we aim to connect our technology to the mixing line to be more just in time in terms of production: This will make the company's offering even more attractive, economically speaking, for the end customer. The challenge is to understand what the field needs to enable just in time production, because every company has a different approach - though there are similarities - so we are trying to prepare a flexible project that can suit different customers, something that is both standard and flexible.

Compared to the first generation, SUPERSINCRO V2 includes:

- **INCREASED PRODUCTIVITY.** Up to one bag every 30 seconds.
- **GREATER PRECISION.** Up to a tolerance of ± 0.1 gr
- **GREATER REPEATABILITY.** CPK greater than 1.67
- **OEE SUPERIOR.** Overall effectiveness of the equipment
- **GREATER FLEXIBILITY & MODULARITY.** Custom project configuration, variable bag sizes
- **LESS MANPOWER**
- **RESPECT FOR THE ENVIRONMENT.** Latest version of the components that helps reduce the consumption and pollution of the equipment.
- **LOWER CONSUMPTION.** With the use of latest generation servo motors, consumption is up to 30% lower.



IDENTITY CARD



NAME

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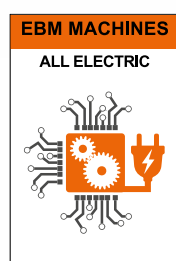
FEATURES MATRIX

ACCURACY	Double screw	Up to +/- 1 g
REPEATABILITY	Servo motors	CPK > 1,67
TRACEABILITY	In loading check product barcode and LOT ID. In output print barcode/QR on the bag	Full process traceability
FLEXIBILITY / MODULARITY	Storage: Silos, big-bag, hoppers, interchangeable silos Flexible output bag size (step of 3 l) ATEX configuration available	Better match actual and future customer need
ENERGY FOOTPRINT	Servo motors	30% less energy consumption
LABOUR SAVING	Full automatize system	Reduce manpower
INDUSTRY 4.0 & DATA ANALYSIS	MES integration and OEE calculation	Average OEE in the running equipment 85-95%

Lawer @Fakuma: Hall 7 stand A7-7508



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New FIMIC RAS 800

Recycling is a game where size matters. Nowadays recyclers need to reach a higher hourly production capacity with efficiency and simplicity, they required right applications for high-throughput recycling lines.

FIMIC has been working many years now on improving its filtration technologies in order to meet and satisfy the needs (quality, characteristics) of recyclers, and at the same time facing the challenges of recycling post-consumer and post-industrial plastics. And knows that to reach high quality recycled plastics from contaminated waste needs automatic technologies to filter out impurities and contaminations from the plastic flow. Today, FIMIC is the only company in the plastic recycling industry with a range of 5 different automatic melt filters and screw pumps, offering all possible filtrations and cover-

ing the many different existing applications. FIMIC historic RAS melt filter has reached so far over 530 units installed world-wide. Versatile melt filter, sold all over the world, allows you to handle the ever-increasing contaminations on the market, allowing at the same time continuous operation at full outputs at the lowest operational costs in the market of continuous filters.

RAS melt filters don't need prefilters and reach up to 2 tons of LDPE or HDPE with a single laser or punched screen, (depending on Customer's filtration needs).

In case of higher throughput needs, the FIMIC

"GEM" melt filter takes over, to reach up to 3 tons of LDPE or HDPE, obviously based on MFI or filtration. In this case we are talking about a TWIN filter, as we increase the filtering surface of the RAS 700 (almost 4.000 cm²) with only two screens by 35%. GEM 600 in fact reaches an astonishing filtration surface of 5.552 cm² on only two screens. In the case of very high and probably aggressive contaminations, where normally a one-step filtration is not enough, there is also the possibility of installing the FIMIC "ERA", a melt filter with two filtration chambers in the same machine. This innovative filter avoids the need to install





two separate filters in same line, because ERA filters twice within a single machine.

FIMIC RAS, GEM and ERA are therefore suggested for materials defined as post-consumer, while if we wanted to talk about post-industrial material, in this case, we have recently completed the development of a filter suitable for an automatic but very fine and delicate filtration. The TEN in fact uses a continuous mesh belt, which as everyone knows, is perfect for the filtration of low contaminated materials (max 1%) and very small in size. To complete the product range, in 2021 FIMIC also launched a FIMIC SPA, a screw pump dedicated to the world of recycling, as it avoids gears (sensitive to contaminations) and uses a single screw instead. In this way there's no need for a protection prefilter, hence reducing dramatically maintenance & manpower costs.

But the research for innovation and passion for improvement didn't stop there, FIMIC is constantly growing and developing innovative tech-

nologies and tailored solutions. This is how for 2023, the year of its 60th anniversary, the company developed two new products. At PLAST 2023, the new RAS 800 was officially presented. With a 30% more filtering surface than a RAS 700, allows to increase a 40% the production capacity being the biggest model of the RAS series. This new addition to the automatic self-cleaning melt filters models produced by FIMIC, thanks to its increased filtration surface (4775cm²) allows recyclers to reach a higher hourly production capacity with the efficiency and simplicity characteristic of FIMIC's filtration technology.

RAS 800 not only has changed the technical aspects of its predecessors, like the filtration surface capacity and the new radial discharge valve, but also its aspect. The body of RAS is heavier than any other melt filter of this series, for this reason has two support arms to assist the mobile lid, a new characteristic that differentiates it from the classic RAS.

The second innovation that FIMIC has prepared for this 2023 to meet recycler's need for a more efficient recycling process, is going to be officially presented during Fakuma exhibition at FIMIC's booth (Hall A6 – stand A6-6209); SPA 190, a bigger screw pump for high throughput needs.

The new SPA 190, the biggest screw pump in the market allows to increase the hourly production transporting the melted plastic material from the extruder to the filter without using any gears, that recyclers know are sensitive to contaminations and that usually get damaged very easily by the many different contaminants. Screw operated, SPA 190 is the ideal solution for those seeking to achieve the highest possible quality.

With the knowledge and experience of more than 890 machines installed world-wide, the support of dedicated sales managers in every region, agents and representatives world-wide, and a clear vision of its mission worldwide: the protection of the environment through the proper recycling of plastic and its optimal reuse, FIMIC orient its strategy towards continuous improvement with the aim of achieving high levels of technological competence, customer satisfaction, social and environmental responsibility. A true commitment to provide solutions to accomplish what is really needed for efficient plastics recycling as part of a circular economy.

MACHINE OF THE MONTH - RECYCLING

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MODEL
Diameter (mm) Surface (cm2)

RAS 800 800
4945.5cm²

Fimic @Fakuma: Hall A6 - Stand A6-6209



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Oerlikon HRSflow: a focus on thin wall packaging, caps & closures

Stack mould for thin-walled packaging

A new stack mould, which has been developed for time, material and energy-saving injection moulding of thin-walled, ecologically optimised packaging, could become a visitor magnet. The new patent-pending solution, soon available on the market, is equipped with nozzles of the new Xd series from Oerlikon HRSflow and thus enables high filling pressures for cost-efficient production with continuously high quality. The stack principle supports the use of smaller injection moulding machines. Thanks to a plug-and-play installation, assembly and maintenance are simplified and highly efficient, avoiding long and costly downtime. The new solution is also suitable for processing PCR plastics and sustainable compounds in line with the requirements of the circular economy. The demo tool with the stack mould system is available for customers to try the most challenging polymers for thin-wall packaging applications. Also available at Oerlikon HRSflow's Test Lab is the ENGEL e-Speed 280 IMM-Hybrid solution to manage mainly R-PET, bio-based and compostable polymers, in line with the new EU Packaging and Packaging Waste Regulation (PPWR).

At Fakuma 2023, Oerlikon HRSflow, Stand A1-1215 in Hall 1, will be focusing on hot runner systems that enable greater sustainability and efficiency in thermoplastic injection moulding. In addition to future-oriented automotive applications, the focus will be on trendsetting technologies and projects in packaging industry. System-typical advantages include short cycle times, fast colour changes, high production volumes, high moulded part quality and a very good suitability also for sustainable polymers.

Multi-cavity system for caps & closures

The expertise and knowhow of Oerlikon HRSflow in the field of caps & closures will be highlighted through the display of the multi-cavity system designed for the simultaneous high productivity production of 72 caps. Thanks to the new Vf nozzle series from Oerlikon HRSflow, it enables very short cycle times of 2.2 to 3.5 seconds while at the same time ensuring maximum process reliability thanks to excellent control and optimum balancing of the filling process. This technical solution, which is equally suitable for carbonated and non-carbonated beverages as well as for liquid and powdered concentrates, meets all the

requirements of the new European single-use plastic directive, which makes tethered closures mandatory for all beverage containers up to three litres in capacity.

Specially developed for HDPE caps & closures, the Vf nozzles of the new multicavity line from Oerlikon HRSflow are suitable for part weights from 0.5 g to 8 g. In any case, they stand for reliably consistent product qualities, fast colour changes and system restarts. A special nozzle tip enables optimum control in the gate area and improves cycle time. The separate replaceability of the nozzle tip makes maintenance particularly fast and cost-effective. Rheologically op-

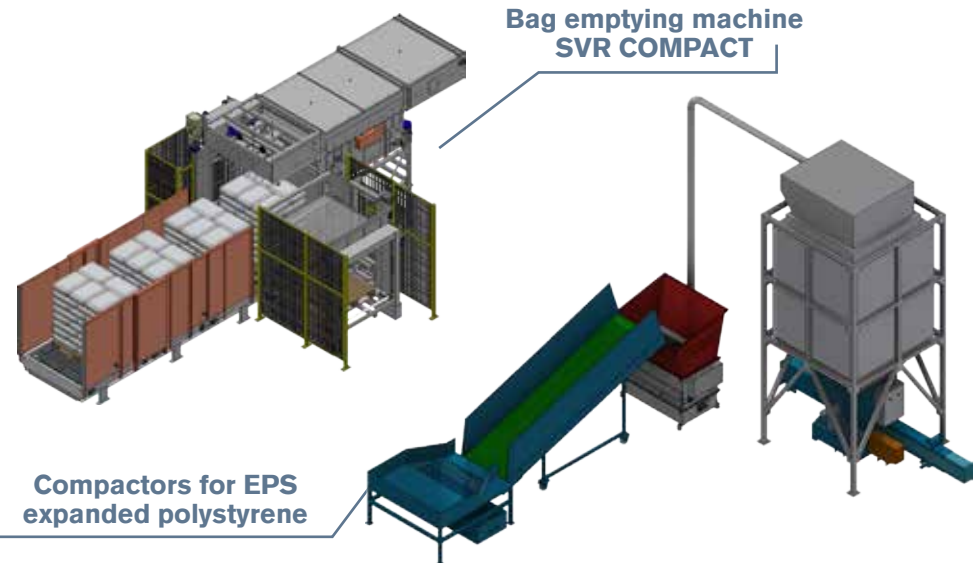




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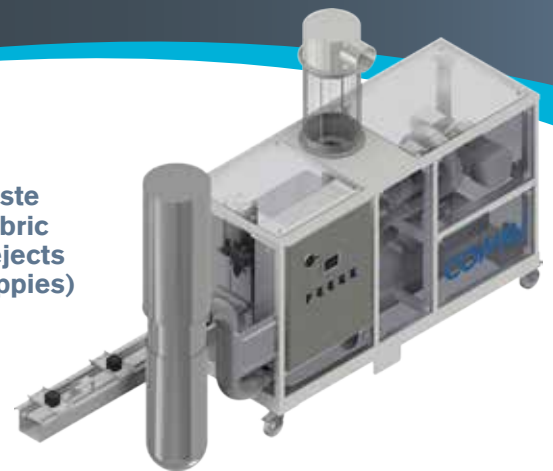
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timized hot runner geometries ensure significantly increased reactivity and thus effectiveness of the system. Special inserts minimize the time required for colour changes while keeping reject rates low, which contributes to the sustainability of production even with particularly critical colours.

FLEXflow for demanding injection moulding tasks

In addition to the aforementioned hot runner solutions tailored to the production of packaging, the FLEXflow technology from Oerlikon HRSflow will be presented at Fakuma 2023 as a sought-after solution for demanding injection moulding tasks. The servo-driven valve gate system is combined with a flexibly programmable control unit. This configuration enables precise and independent adjustment of the stroke and force of the needle position of each individual nozzle during the opening and closing phases of cascading injection processes. Its possibilities are demonstrated by future trends such as back injection of foils, intelligent automotive surfaces and lighting applications. Especially their use in family moulds enables significant cost savings compared to separate injection of the individual parts, even if they are produced in very different sized cavities.

About Oerlikon Polymer Processing Solutions Division

Oerlikon is a leading provider of comprehensive polymer processing plant solutions and high-precision flow control component equipment. The division provides polycondensation and extrusion lines, manmade fiber filament spinning solutions, texturing machines, BCF and staple fiber lines as well as nonwoven production systems. It also develops and produces advanced and innovative hot runner systems and multi-cavity solutions for the injection molding industry. Its hot runner solutions serve business sectors, including automotive, logistics, environmental, industrial applications, consumer goods, beauty and personal care and medical. Moreover, Oerlikon offers customized gear metering pumps for the textile, automotive, chemical, dyes and lacquers industries. Its engineering competence leads to sustainable and energy-efficient solutions for the entire polymer processing value chain with a circular economy approach.

Oerlikon Polymer Processing Solutions Division serves customers through its technology brands – Oerlikon Barmag, Oerlikon Neumag, Oerlikon Nonwoven and Oerlikon HRSflow – in around 120 countries with production, sales, distribution and service organizations.

The division is part of the publicly listed Oerlikon Group, headquartered in Switzerland, which has more than 12 100 employees and generated CHF 2.9 billion sales in 2022.

www.hrsflow.com

Oerlikon HRSflow @ Fakuma: Hall Stand A1-1215

Focus on the essential: close-to-standard solutions with proven ENGEL technology

Get connected – this is ENGEL's claim bringing together experts with machine solutions and the technologies to match at Fakuma from 17 to 21 October. Among other exhibits, the ENGEL stand is presenting an automotive application and a medical application which have one thing in common: with complexity reduced to the bare essentials, these applications show what a close-to-standard solution with proven ENGEL technology can look like.

Being a partner for every injection moulder – this is the aspiration on which ENGEL is focusing at the heart of this year's Fakuma. Decades of experience in developing and building injection moulding solutions have led to a deep understanding of the injection moulding process and its special character. At Fakuma, ENGEL is presenting solutions deliberately reduced to the essentials that impress in terms of performance and efficiency at the same time.

Energy-efficient entry level machine for the dual-platen segment

In the dual-platen machine area, ENGEL is exhibiting a standard application that supports a variety of use cases, manufacturing automotive trims for the vehicle interior made of a PP compound by Borealis in a 4-cavity mould on a duo 1480/500. Us-

ing 30% recycled material, this application clearly shows that processing recovered plastics is a worry-free process on standard machines. The application does justice to an EU directive currently under discussion which envisages a 25% share of PCR (post consumer recycle) in cars by 2030. A viper20 from the ENGEL linear robot family is removing the parts from the 4-cavity mould by Simoldes and placing them on a conveyor belt. The servo-hydraulic drive featuring ENGEL ecodrive is available as standard for all sizes of the duo series. In combination with the digital assistance systems from the iQ family, such as iQ clamp control and iQ flow control, energy savings potentials of up to 40% can be achieved compared with conventional dual-platen machines. This close-to-standard design also offers the advantage of shorter lead times.

Leveraging the maximum machine potential with digital support

Featuring all the iQ solutions available on the market right now, ENGEL is showing how the potential of the standard-based duo 500 can be leveraged to the max. While iQ weight control and other systems ensure process quality, iQ process observer ensures that – wherever changes occur in the injection moulding process – the machine operator is alerted to these in real time. Immediate action can be taken to avoid rejects and keep machine availability high.

e-mac improves productivity per unit of area in the cleanroom

In the medical sector, ENGEL is showcasing a high-precision and, above all, space-saving all-electric application: needle protection caps are



being produced on an e-mac 265/130 – equipped with the ENGEL cleanroom package – in a premiere at Fakuma. This means that the compact e-mac series is now also available for space-saving production of medical parts in cleanroom applications. The 96-cavity mould comes from KEBO AG and was developed specifically for secondary packaging. Secondary packaging does not directly touch the active ingredient and is mainly used to protect and identify the medical device. Moulds with a large number of cavities, like the mould by Kebo, require high precision and dynamics in the injection process – and this is exactly what the new injection unit 265 ensures. The cycle time is a fast 6.2 seconds.

On show for the first time, box transfer system reduces manual intervention

The box transfer system is a further innovation that supports optimum use of the production cell in partially to fully automated production. The injection-moulded needle protection caps drop out of the KEBO mould into a delivery chute and are transported from there by a Z conveyor belt to a box waiting on another conveyor belt. This box has a capacity of 30,000 units. Once full capacity is reached, the box is cycled forward on the conveyor

belt. All told, there is space for four boxes of this type on the belt. The box transfer system can be connected to an automated guided vehicle (AGV) system – independently of the manufacturer. Besides the digital interface, all that is needed is preparations in logistics to allow the AGV to dock with the box transfer system and accept the boxes.

Combinations for optimum temperature control

Both the duo 500 and the e-mac 130 show how smart temperature control works. The two production cells combine e-flo-mo plus with eco-flo-mo plus to manage the various aspects of temperature control in the best possible way: while e-flo-mo plus takes care of mould temperature control, eco-flo-mo plus is used for hot runner cooling, and more specifically for flow rate monitoring. All manifolds are clearly displayed by the iQ flow control smart assistant.

Solutions deliberately reduced to the essential that enable high-performance, efficient injection moulding production – these are the requirements that ENGEL is squaring up to for its customers at Fakuma 2023.

www.engelglobal.com

ENGEL @ Fakuma 2023: hall A5, stand 5204



INTEGRATED CENTRALIZED DOSAGE AND CONVEYING SYSTEMS

Mainly used in the extrusion sector, **Plasco centralized dosing and conveying systems** can simultaneously feed several lines.

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This complex dosing and conveying system allows to obtain a technical and qualitative improvement of the production processes with considerable economic advantages.



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Manifold blocks Z920/... for the flexible configuration of cooling circuits

Through the continuous further development of its product portfolio, HASCO is able to provide mouldmakers with new possibilities for working more efficiently. With the help of the manifold blocks Z920/..., the configuration of flexible cooling circuits is particularly easy.

The focus of this product is on creating clear benefits for the user.

The central inflow/outflow via the manifold block offers the possibility of using shorter hose lengths. In practice, this saves energy and, thanks to the very clear arrangement of the cooling lines, ensures greater safety at the workplace and more reliable production. Feed and return lines can be easily distinguished through blue and red anodised manifold blocks.

The manifold blocks Z920/..., which can be mounted directly on the injection moulding machine, are compatible with the HASCO cooling elements and can be individually extended through a modular plug-in system. The hoses can be connected via fixed screw connections or nipple/coupling combinations. The system is heat-resistant up to 200 °C and designed for a maximum operating pressure of 15 bar.

Vario Shot Xgate: interchangeable needle-valve pre-chamber

For some years now, the particularly effective Vario Shot nozzle range from HASCO hot runner has been enjoying increase in popularity. With the interchangeable needle valve pre-chamber Vario Shot Xgate, HASCO has extended its proven nozzle portfolio.

This wear resistant Xgate simplifies the maintenance of the injection moulding tool and significantly reduces the maintenance costs. The life of the gates is considerably extended and guarantees perfect moulding quality over millions of injection cycles.

The easily changed pre-chamber with a compact, easy-to-produce tight fit offers precise needle guidance with pre-centring and is also highly resistant to abrasive and chemically aggressive materials.

Individually geared to applications, the two new variants of the Vario Shot Xgate offer the ideal solution, either for amorphous or for semi-crystalline plastics. The gate area and contact surfaces can be varied for applica-

tion-specific temperature control.

Optimum supplement to the Vario Shot nozzle range

The needle valve pre-chamber Xgate perfectly supplements the Vario Shot range, which is noted for its compact dimensions, optimum temperature control, simple servicing, and modular design. More than 1,000 nozzle variants enable countless demanding applications, from gating on lower distributor manifolds up to high-end needle valve solutions. The wide selection of nozzle lengths with runner and individual nozzles offers an elevated level of freedom in mould design.

The HASCO hot runner team will be pleased to support its customers in the optimum coordination of the nozzles, nozzle tips and needle valve pre-chambers to the specific applications.

www.hasco.com

Hasco @ Fakuma: hall A2, booth A2-2202





PERFORMANCE DETAILS

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FAKUMA - BOOTH B3-3209

Coperion and Herbold Meckesheim: high-efficiency technologies for processing and recycling plastics

At Fakuma 2023 Coperion and Herbold Meckesheim will present innovative product and process solutions that make both the compounding and the recycling of plastics markedly more efficient and increase the product quality achieved.

One eyecatcher at Fakuma booth 6312 in Hall A6 is the preconfigured ProRate™ PLUS-S feeder. It serves as a representative of Coperion's comprehensive technology and process expertise in all compounding tasks. From raw material handling to conveying, feeding, melting, dispersing, homogenizing and devolatilizing up to pelletizing, Coperion delivers both high-efficiency individual components as well as complete systems. The added value from the merger of Coperion and Herbold Meckesheim, specialist in mechanical recycling of plastics and plastic waste, is evident at the booth in a virtual PET recycling plant that both companies have created. This virtual plant presents one of the complete solutions for plastics recycling that Coperion, together with Herbold Meckesheim, is now making available from a single source. It demonstrates the entire process and at the same time allows a glimpse into numerous key components and their functions.

Moreover, rotors from Herbold Meckesheim granulators will be on display in several sizes and for various applications. The rotor concept with the cutting geometry is a decisive reason for the high efficiency of Herbold Meckesheim's granulators.

Plastics Recycling Plants from A Single Source

Along with individual components, Coperion and Herbold Meckesheim now build entire systems for plastics recycling. From mechanical processing – size reduction, washing, separating, drying and agglomerating of plastics – to bulk material handling as well as feeding and extrusion all the way to compounding and pelletizing, such plants cover the entire plastics recycling process chain. Since their merger, both companies have continued to develop and



optimally attune their technologies for individual process steps so that entire systems excel in operation with extremely high efficiency.

Coperion and Herbold Meckesheim realize solutions for mechanical recycling of post-industrial and post-consumer waste, chemical recycling, solvent-based recycling, and deodorization, tailored to the type of plastic being processed. Representative of their expertise in these various plastics recycling processes, Coperion and Herbold Meckesheim will be showing a PET recycling plant simulation at Fakuma 2023. Booth visitors can look directly into all process steps and view the construction and

functionality of key technologies.

Pivotal for the high efficiency of Herbold Meckesheim's granulators are both the rotor concept and the cutting geometry, individually adapted for the task and the raw material. Herbold Meckesheim granulators work with true double cross cutting action: not only the rotor knives are mounted at an inclined angle, even the stator knives are creating a clean cut with a constant gap across the entire knife width. The end product is a regrind with very good flow characteristics, low fines percentage, and high bulk density that can be easily reintroduced into the process. Various rotors from

Herbold Meckesheim granulators will be available to view at the booth.

Smart Solutions For More Efficiency In Classic Compounding Tasks

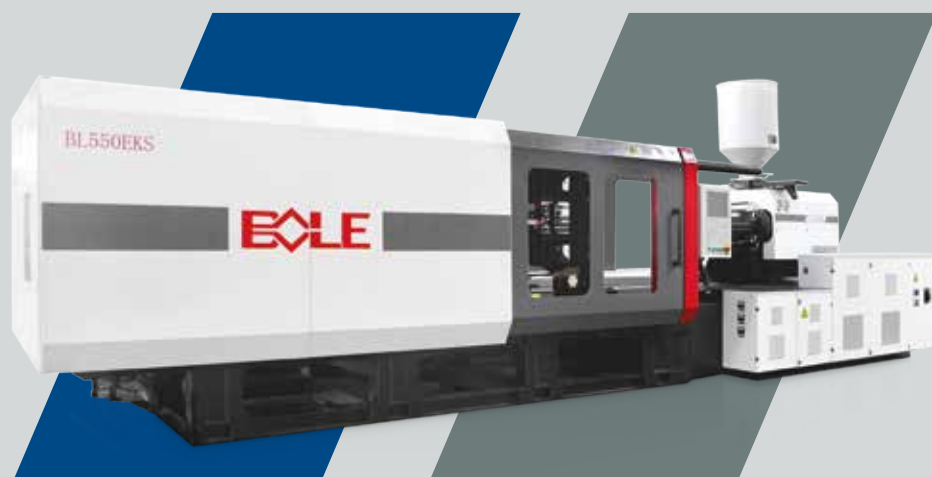
At Fakuma, Coperion will also present versatile and efficient uses of its ZSK and STS twin screw extruders as well as its feeding and conveying technologies in classic and forward-looking compounding tasks.

Coperion technologies are ideally suited for manufacturing demanding compounds such as bioplastics. Due to the number of possible base polymers and the variety of recipes, bioplastics manufacturing creates very high demands upon compounding technology. Coperion has already supplied numerous systems for the production of bioplastics. The company's comprehensive process expertise is leveraged to design each process step such that the required mechanical properties of bioplastic end products are achieved.

Representative of its first-class compounding technology and process solutions, Coperion is showing the preconfigured ProRate PLUS feeder in size S with integrated refill system at its Fakuma booth. This continuous-operation gravimetric feeder from Coperion K-Tron is very robust and stands out with a good price-performance ratio. This single screw feeder is an especially economical solution for reliably feeding free-flowing bulk materials. Coperion K-Tron has also expanded the ProRate PLUS feeder line with a PLUS-MT twin screw feeder especially for feeding powders.

www.coperion.com

Coperion @ Fakuma: booth 6312 in Hall A6



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Tosaf presents the full range of advanced masterbatch technology

At Fakuma 2023, Tosaf will be presenting their latest developments in masterbatches for applications ranging from agricultural films to rigid and soft packaging and technical parts on stand B4-4402 in hall B4.

For example, Tosaf's new additives for contour-sharp laser marking are also suitable for transparent plastics in a wide range of applications. Also in focus are a new masterbatch carrier system with approval for direct food contact as well as masterbatches to produce light-diffusing elements, for example for covers of LED lights. Adapted to growing sustainability requirements are blowing agents for foamed plastics that help to reduce the ecological footprint, as well as colour and functional masterbatch solutions for compounds containing recycled materials. Contour sharp marking with the laser beam

A new laser additive family from Tosaf can be used for transparent applications without affecting the optical properties. It enables contour-sharp, high-contrast markings on thermoplastics that originally show poor or no colour change during laser marking, as well as on compounds with fillers such as calcium carbonate, talcum, titanium dioxide or carbon black. Depending on the substrate, optional settings for marking colours ranging from white to grey to black are possible. Since very low dosages are sufficient and the laser marking process can be fully automated, the new masterbatches help to reduce production costs compared to conventional processes such as labelling or embossing. By eliminating the need for chemicals, varnishes or stickers, their use is also non-critical and more sustainable. Typical applications include pipes, fittings, profiles and irrigation systems as well as, thanks to their suitability for food contact, caps and closures for beverages and other food packaging. Customised combi-masterbatches are also possible.

Food compliant masterbatch carrier system
A new universally applicable masterbatch carrier system from Tosaf Color Service meets all common food contact requirements, including those in Germany, the USA and China. Masterbatches based on this carrier system can thus be used without hesitation across



continents for applications ranging from translucent and opaque materials for rigid and flexible packaging, toys and household items to components for food processing machinery and equipment.

Light diffusing Masterbatches

To achieve uniform light distribution even

with point-shaped LED light sources, Tosaf Color Service has developed light diffusing (LD) masterbatches that contain microfillers. Even very small amounts in the range of 1 to 2 % result in highly efficient scattering of light in originally transparent material, mainly polymethyl methacrylate (PMMA) and

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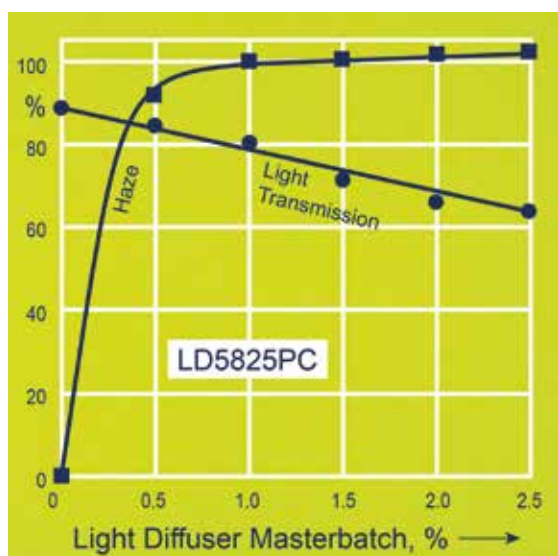


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polycarbonate (PC). The light transmission and mechanical properties of the base material are almost completely retained. Both colour-neutral grades and combinations with specific colours and functional additives such as UV stabilisers are available.

Sustainability in mind

In the spirit of the circular economy, Tosaf has developed colour masterbatches specifically for recyclates, with a focus on post-consumer plastics. They compensate for origin-related inconsistencies that are typical for such materials. A special additive masterbatch range from Tosaf is based on biodegradable carriers such as polylactic acid (PLA) and resin (rosin) and gives corresponding agricultural films properties such as increased UV stability, anti-fogging and IR filtering.

Also geared towards sustainability in plastics processing are chemically active blowing agents that Tosaf has developed for the material-saving foaming process. The portfolio includes endothermic and exothermic types for a wide range of thermoplastics. Endothermic grades are considered safe to use, are approved for food contact and generally require relatively low temperatures for activation. Their applications range from thin-walled films and moulded parts with high surface quality as well as PP tapes to XPS and XPE trays for food packaging and large and thick-walled parts. The exothermic grades combine a high foaming effect with very good dispersibility. Exothermic and endothermic blowing agents combined in one concentrate are particularly suitable for PVC applications such as sheets, profiles and pipes.

Beyond colour and foaming agents, Tosaf's portfolio includes other additives that can contribute to greater sustainability, including antioxidants, moisture and odor absorbers, processing aids and chain extenders.

www.tosaf.com

Tosaf @ Fakuma: stand B4-4402 in hall B4

Promix Solutions: solutions for mixing, foaming and cooling of polymer melts

The focus is on saving raw material costs, reducing the carbon footprint and increasing production capacity. Find out how Promix Microcell Technology can help you save 20 % on raw material costs in extrusion processes and reduce your company's CO2 footprint.

For manufacturers of light foams such as XPS, XPP, XPE, XPET, Promix will show how P1 cooling mix technology can be used to achieve better mechanical properties and lower foam densities. Promix displays clever solutions for efficient cooling or tempering of viscous media and for inline viscosity measurement. Thanks to further optimized mixing nozzle technology, it is even easier to save costs and improve processes in injection molding.

Microcell Technology - saves raw material costs and protects the environment

In plastics processing, materials account for 80% of the CO2 footprint and this is exactly where the company comes in. Promix Microcell Technology creates a microcellular foam structure in the polymer by adding environmentally friendly atmospheric gases (N2 and CO2). This reduces the product weight by 20 - 50 %, which leads to massive savings in raw materials. This not only saves production costs, but also the environment!

Promix Microcell Technology is suitable for packaging films, sheets, foam core and corrugated pipes as well as profiles, cable sheathing, blow molding and blown films. Promix will

exhibit relevant key components at the Fakuma and will provide information on possibilities within specific fields of application. In the meantime, more than 300 industrial references are in operation and various machine manufacturers are successfully integrating the technology into their plants.

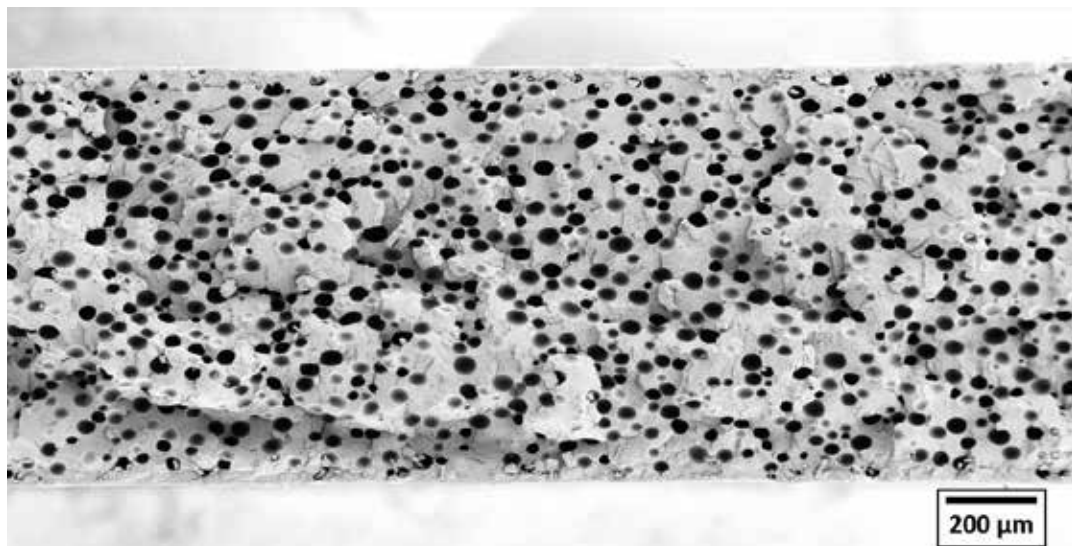
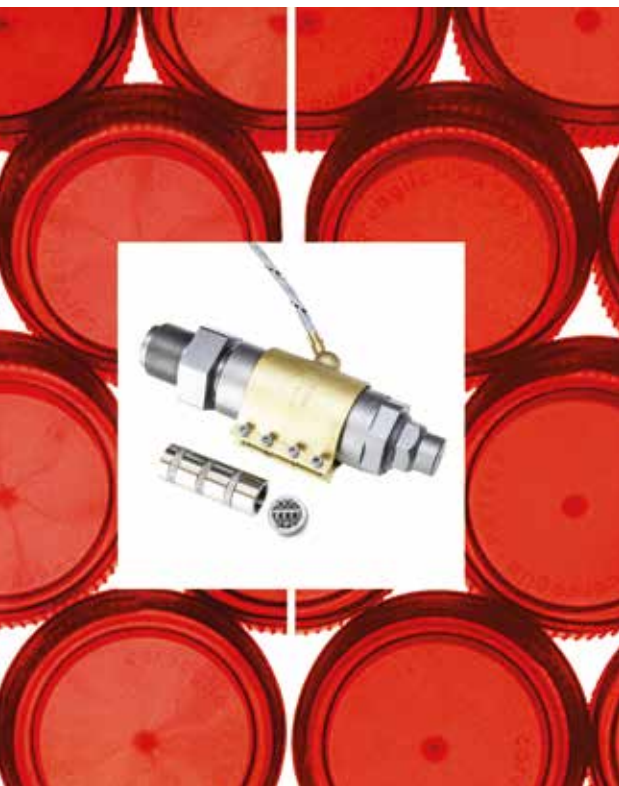
Promix Microcell Technology can be used for almost all raw materials. For example, for PP, PE, PET, TPE, TPU, PA, hard & soft PVC and bioplastics. The technology is available both for newly planned extrusion lines and as a retrofit solution.

Cost and process optimization in injection molding

Promix Solutions, the leading supplier of mixing nozzles and static mixers for injection molding, has further optimized its technology. As a result, injection molding processes can be further improved and maximum cost savings achieved. Promix mixing nozzles and static mixers ensure improved melt homogeneity immediately upstream of the molding tool. This means that additives can be better distributed and undesirable color streaks eliminated. Thanks to the improved color distribution, in most cases the

masterbatch concentration can also be reduced by 20 - 40 %, which sustainably lowers consumption. The installation of a mixing nozzle not only enlarges the process window but also allows the process parameters to be adjusted. Since a significant part of the mixing task is taken over by the mixing nozzle, the back pressure can be reduced. This protects the gear-box and increases the service life of the screw. Depending on the component, the lower back pressure reduces the melting time and thus also the cycle time, which has a positive effect on productivity. Due to a more homogeneous temperature profile, the melt temperature can usually be reduced by 10 - 20 ° C, which favors a shorter cooling time and thus an energy-saving injection molding process. Promix mixing nozzles can be delivered ready for installation within a few weeks, including heater bands and thermocouples. Conclusion: With a mixing nozzle from Promix, it is easy to save money and reduce the CO2 footprint.

**www.promix-solutions.com
Promix-Solutions @ Fakuma: Hall A2,
booth 2105**





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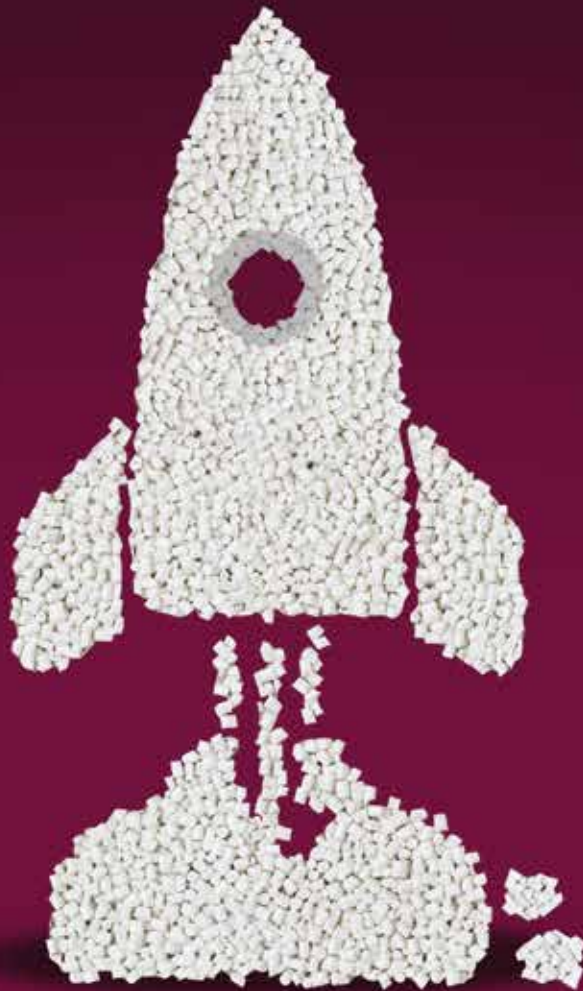
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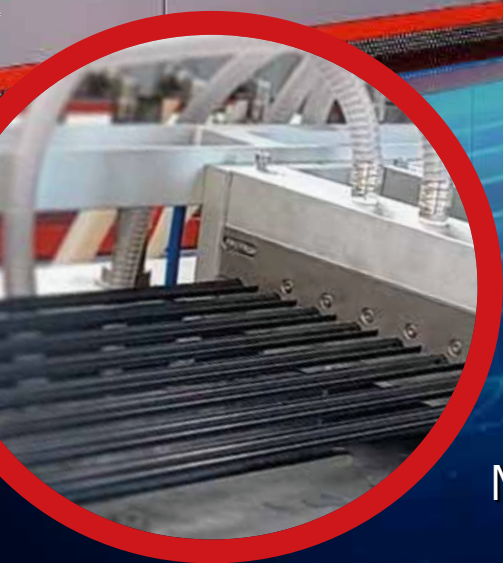
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