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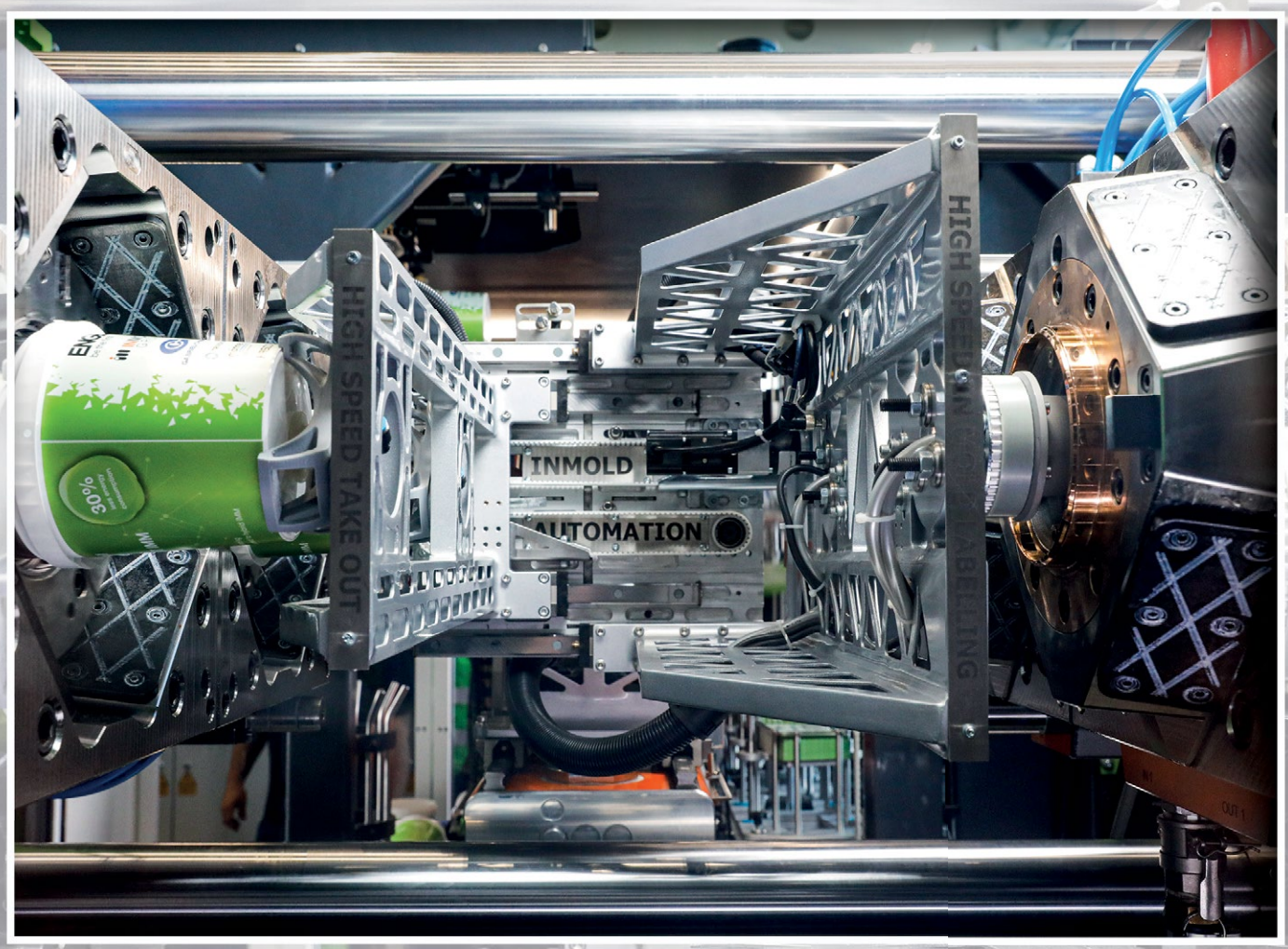

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Front page picture: ENGEL

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The new ACH TURNMIX HTV dosing technology offers the possibility to process solid silicone (HTV) in Shore hardnesses between Shore A 20 and Shore A 80. The ACH TURNMIX is designed as a stand-alone system and can communicate with various control systems via existing interfaces. This new automatic dosing system ACH TURNMIX was acknowledged with great interest among Fakuma visitors. In combination with a 4-cavity injection molding tool with ACH cold runner technology, ACH SERVOSHOT® 2G system and needle gate technology, interesting items were manufactured.

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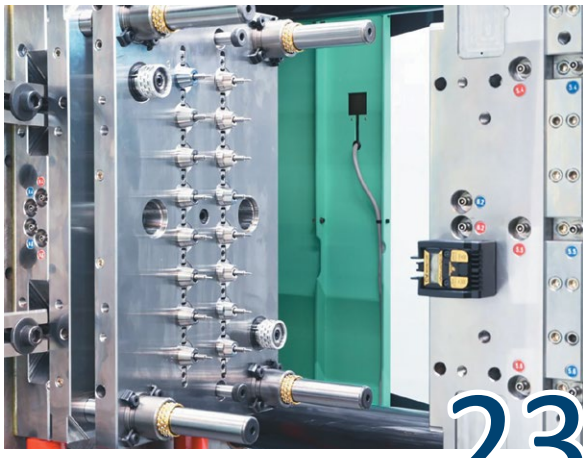
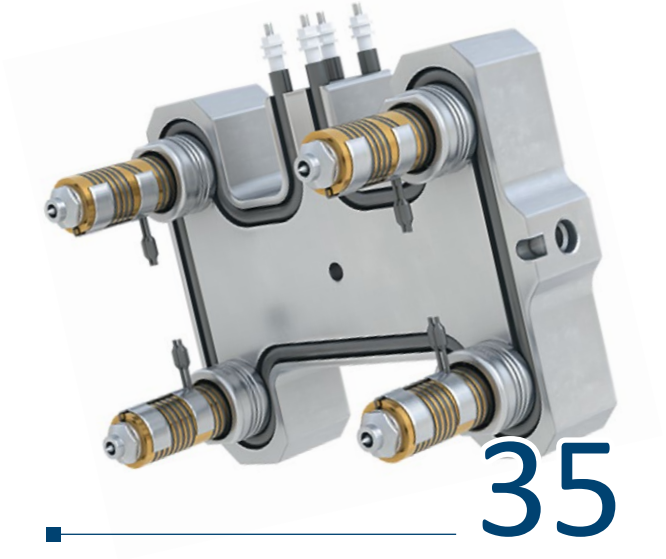
Marc Segura, President ABB Robotics Division, identifies three drivers for robotics-driven AI solutions in 2024, as ABB continues expansion in new segments not previously served by robotic automation. “The coming year will see a growing focus on the critical role of AI,” said Marc Segura, President ABB Robotics Division. “From mobile robots and cobots to enabling new robotic applications in new sectors and creating new opportunities for people to learn and develop, these new frontiers for AI are redefining the future of industrial robotics.”



At Fakuma 2023, ZAHORANSKY was exhibiting the associated Z.SONIC 16 luer-lock syringe injection mold from the PRIMA Z syringe production system, which can be used to manufacture luer-locks from plastic instead of glass. The advantages of the plastic versions are clear: plastic products are significantly more robust and easier to clean, both in handling and storage, compared to their glass counterparts.

Swedish medical technology company CYTO365 and Eastman worked together to create a new medical component for infusion therapy that lowers patient risk. CYTO365's founder and CEO Micael Törnblom noticed that, with current infusion treatment, medical professionals could unintentionally mix incompatible drugs during infusion therapy. To help prevent that, the company has developed RondelO™, a turn valve with multiple inlets that stops unintentional mixing. It can connect six drugs, which are given one at a time with flushing fluids in between.



Mold-Masters®, a leading developer and supplier of hot runners, controllers, auxiliary injection, and co-injection systems, is pleased to announce the availability of the new Mold-Masters EcoONE-Series Hot Runner System. The EcoONE-Series is a highly economical solution suitable for processing commodity resins for simple, cost sensitive applications such as consumer goods, small home appliances, basic automotive components, electronic peripherals/accessories and more. The EcoONE-Series system offers a wide range of standard nozzle options.

Traditionally, the automotive industry has only utilized recycled maritime plastic in the form of fibers for new vehicle components. However, with the introduction of CirculenRecover PPC TRC 2179N, this recyclate can now be used for the first time in injection molding. This breakthrough opens up new possibilities for the application of recycled plastics. As part of this collaboration, end-of-life fishing nets are collected and meticulously sorted by type. They are then processed to create a high-quality plastic recyclate.

Navigating the future: trends in plastics for 2024 by KRAIBURG TPE

As we embark on the journey through 2024, the plastics industry is standing at the crossroads of change, driven by key trends that promise both challenges and opportunities. Oliver Zintner, KRAIBURG TPE CEO, has commented on three key topics shaping the landscape and influencing the strategies of manufacturers and businesses.

Trend 1: Safety and Ecological Impact

The relentless pursuit of environmentally friendly products is at the forefront, driven by the EU Green Deal and its profound impact on the industry. With stringent regulations on the horizon, there is an urgent need for a thorough re-evaluation of basic chemicals. Manufacturers in the industrial sector are facing increased reporting requirements and strict raw material restrictions, including use restrictions and mandatory labeling. Navigating this complex landscape requires a robust partnership with a solutions-oriented supplier with a forward-looking view of regulations. Companies must align with these partners to meet sustainability goals and ensure a harmonious blend of compliance and environmental responsibility.

Trend 2: Digitalization in the Automotive Market

The automotive sector is undergoing (another) profound digital revolution, marked by increased diversification and the entry of new suppliers. Cars are evolving into sophisticated "computers with tires," ushering in a wave of technological advances, particularly in battery technology. The U.S. and Asia are at the forefront of these transformative changes. At the same time, recycling quotas and stringent legislation are reshaping the industry landscape. Anticipating these changes, KRAIBURG TPE has been diligently preparing for the past three years, offering ready-to-buy solutions to meet the evolving requirements.

Trend 3: Customers' Expectations and Changing Purchase Behavior

"Cocooning" is becoming a prominent lifestyle choice in affluent societies. The sports and leisure sector is experiencing a surge in demand for high-quality, durable products that prioritize sustainability. Evolving consumer preferences require companies to strategically adapt to serve a market that seeks both luxury and eco-conscious choices. Understanding and responding to changing buying patterns is critical in this dynamic landscape.

In conclusion, 2024 represents a pivotal year for the plastics industry, presenting a dual landscape of challenges and opportunities. Companies willing to embrace sustainability, harness the power of digital, and understand the nuances of evolving customer dynamics will be well-equipped to successfully navigate this transformative journey.

About KRAIBURG TPE

KRAIBURG TPE is a global manufacturer of custom thermoplastic elastomers. KRAIBURG TPE was founded in 2001 as an independent business unit of the KRAIBURG Group and is now the industry's competence leader in the field of TPE compounds. The company's goal is to provide safe, reliable and sustainable products for customer applications. With more than 660 employees worldwide and production sites in Germany, the USA and Malaysia, the company offers a large product portfolio for applications in the automotive, industrial and consumer goods industries, as well as for the strictly regulated medical sector.

KRAIBURG TPE
www.kraiburg-tpe.com

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RÖSLER® finding a better way ...

Ilham Kadri, Syensqo CEO, launching the new company at Euronext (photo: Syensqo)

Entering a new chapter

Solvay has successfully completed the spin-off its Specialty activities to Syensqo, a pivotal moment in its rich history. This move marks a significant strategic shift for the Group, positioning it as a frontrunner in essential chemicals on a global scale. It prepares Solvay to enter a new stage of sustainable growth, sharpening its focus on core business areas and reaffirming its dedication to market leadership, decarbonization, and social responsibility.

Global Presence and Diverse Customer Base

With over 9,000 employees spanning 40 countries, Solvay is committed to offering sustainable products that meet society's fundamental needs. These include purifying air and water, preserving food supplies, safeguarding health and well-being, creating eco-friendly clothing, enhancing automotive tire sustainability, and contributing to the thermal insulation, cleanliness and protection of homes.

Built on strong foundations, the Group has consistently propelled industry progress through ongoing process innovation. With a portfolio encompassing key mono technologies such as soda ash, bicarbonate, silica, hydrogen peroxide, fluorine and rare earths, phenol, and solvents, Solvay serves as a vital and reliable supplier across global markets. The company's unique global footprint and well-balanced presence enable it to cater to a diverse and sustainability-focused customer base.

Pierre Gurdjian, Chairman of the Solvay Board, conveyed enthusiasm about the completion of the spin-off, stating, "I'm excited about the successful spin-off, a strategic move that underscores our commitment to long-term value. This decision reflects our dedication to creating sustained value for stakeholders and ensuring Solvay's ongoing success. Collaborating with experienced and highly qualified directors, we're positioned to closely work with the executive leadership team, establishing Solvay as a leader in essential chemicals. The prevailing megatrends present compelling opportunities for enhancing value. Leveraging our leadership and insight, we will confidently guide Solvay into the future."

Philippe Kehren, Solvay CEO, added "At Solvay, our mission is to harness the power of chemistry to create sustainable products for the world's most pressing challenges. Our commitment involves introducing process innovations and sustainable products, all while minimizing our environmental footprint. With the simplification driven by the separation, Solvay is poised to reinforce its track record of achieving robust top-quartile industry margins, generating cash, and delivering attractive returns. Our aim is to create enduring value for employees, communities, customers, and shareholders through our integrated approach."

Ilham Kadri, Syensqo CEO, commented, launching the new company at Euronext, "With our customers at the heart of everything we do, we are ready to discover and unleash breakthrough technologies that will extend our leadership position and as the benchmark for innovation, we will redefine the boundaries of what is possible in materials and consumer applications."

The completion of the partial demerger was effective on December 9, 2023. Solvay and Syensqo started trading as separate entities on Euronext Brussels and Paris under their respective ticker symbols on December 11, 2023. "I would like to take this opportunity to wish our Syensqo colleagues a successful future as a standalone company," added Pierre Gurdjian.

Solvay
www.solvay.com

HASCO writes history: 1924 – 2024
The company celebrates its 100th anniversary

No company has shaped the tool and mouldmaking industry to such an extent as HASCO, the Lüdenscheid/Germany-based manufacturer of standard mould units. The new year will now be marked by a very special event: in 2024, HASCO, the inventor of the standard mould unit and pioneer of mouldmaking, will celebrate its 100-year company anniversary with customers, employees and friends.

The historical and technological development of tool and mouldmaking in Germany is, however, also closely linked with the name HASCO worldwide. It is a history that began in 1924 when company founder Hugo Hasenclever built the first moulds for processing the then new material Bakelit in a cellar workshop in Lüdenscheid. It was a history that later underwent a decisive turning point through his son Rolf Hasenclever, when the latter invented the modular system for standard mould units and, in 1960, had it patented. His idea revolutionised the market. It was a milestone that paved the way for advancing from a small crafts enterprise to a globally operating company.

Many milestones would follow and repeatedly demonstrate the reputation of a pioneering company. What was true of the analogue age of tool and mouldmaking really started for HASCO with the beginning of digitalisation in the 1980s. HASCO set innovative standards to design products and processes ever more easily for designers, mouldmakers and injection moulders.

The claim “Enabling with System” describes in only three words how HASCO has, in 100 years, through its pioneering and inventive spirit, always pointed the way for an entire branch of industry and continues to do so today as the leading manufacturer of standardised, modular structured standard mould units and accessory components, and as a supplier of customised hot runner systems.

In its anniversary year 2024, HASCO will report extensively about the company’s historical development and its recipe for success. It will also share these experiences with its customers around the world. Hardly anyone still knows that common products such as the shut-off coupling or the latch locking device are patented creations from Lüdenscheid in Germany. “With 100 ideas in the past and 100 ideas for the future, we will continue along the chosen path! Our aim is, as a pioneer for mouldmaking, to also set innovative milestones for the industry in the next 100 years,” says CEO Christoph Ehrlich.

HASCO’s history is recounted in a fascinating publication, namely a two-language book (German and English). It explains that a roly-poly toy played a key role in the company’s historical development. Highlights are examined and insights are given into a company whose actions in the future will continue to be driven by the brand values of innovation, agility, simplicity and performance.

HASCO will enable its friends and companions to follow the history in different ways. There will be reports in the trade press, on the various social media channels, in the newsletter and naturally also on the HASCO homepage.

Picture: HASCO

HASCO
www.hasco.com

Krones signed agreement to acquire injection molding technology company Netstal

Picture: Krones

Krones announced about the imminent acquisition of 100% of Netstal Maschinen AG (Netstal) based in Naefels, Switzerland, from KraussMaffei in the press release dated January 29, 2024. The contracting parties signed the purchase agreement just a week later. The transaction is subject to approval under the relevant antitrust legislation. Krones expects the transaction to be completed within the first half of 2024.

Based in Naefels, Switzerland, Netstal is a leading supplier of injection molding machines to the beverage market (PET preforms and caps) as well as to the medical and thin-wall packaging market. The company is a technological leader in its markets and has already been a strategic partner of Krones in the past.

In the 2023 fiscal year, Netstal generated with a workforce of more than 500 employees revenue of more than EUR 200 million. The profitability of the company is currently below the Krones Group level but is expected to close this gap over the coming years. Netstal will be reported as part of the segment Filling and Packaging Technology. Krones finances the purchase with existing liquid funds, but also may take advantage of partial debt financing.

The acquisition of Netstal is benefitting Krones on various dimensions. Netstal's PET and Cap businesses complement Krones' product portfolio for the beverage market. With respect to PET closed-loop solutions Krones then covers all technologies required from injection molding to PET container production through to filling/packaging and recycling. The medical and thin-wall packaging segments of Netstal support the Krones strategy to diversify into the medical/pharma market as well as into food and home-personal-care applications. Netstal will retain its business responsibility within Krones, while benefitting from the international set-up and scale of Krones.

With the acquisition of Netstal, Krones continues to successfully implement its M&A strategy. About Krones

The company is headquartered in Neutraubling, Germany, and employs around 18,500 people worldwide. Consolidated sales in 2023 totalled 4,720 billion euros. Around 90 per cent of Krones' products are sold abroad. Its roughly 2,600-strong international service team make sure customers get fast and targeted support – no matter when and where it is needed. The Krones Group includes not only Krones AG (listed on the stock exchange), but also more than 100 subsidiaries and production, sales and service companies worldwide.

Krones significantly increased revenue and profitability in 2023 and the Executive Board forecasts continuation of profitable growth path in 2024

Krones
www.krones.com

Picture: ZAHORANSKY

ZAHORANSKY has sold mold and tool shop in Rothenkirchen

In the course of the future-oriented further development of the group of companies, ZAHORANSKY has sold the production site for injection molds ZAHORANSKY Formen- und Werkzeugbau GmbH in Rothenkirchen (Steinberg) to MT Management GmbH. As part of a management-buy-out, the long-standing managing director and toolmaking expert Monty Tepper will take over the entrepreneurial responsibility. Since 1991, the site has been producing injection molds for a wide variety of plastic products in the personal care and consumer products sector in the Vogtland region of Saxony with around 70 employees.

In the future, the company will operate under the name Molding Tec Steinberg GmbH and will continue to focus on the production and sale of molds and tools. The new ownership and management structures will allow for a smooth continuation of business activities.

With the completion of the transaction, ZAHORANSKY has reached a significant milestone in the future-oriented further development of the group of companies and is focusing its production capacities for injection molds on the sites in Freiburg and Coimbatore (India) in order to achieve further synergies between injection molding, automation technology and mechanical engineering. "We would like to thank the employees of ZAHORANSKY GmbH Formen- und Werkzeugbau for their many years of loyalty and commitment and are pleased that the completion of the transaction has secured the jobs of the approximately 70 employees. The management of the companies has decided to continue to work closely together in the future," said Ulrich Zahoransky after signing the contract.

ZAHORANSKY
www.zahoransky.com

Arkema completes its 40% increase in global Pebax® elastomers production capacity

To support its customers' strong growth, in particular in the sports and consumer goods markets, Arkema has increased its global manufacturing capacity for Pebax® elastomers by 40% at its Serquigny plant in France.

Arkema has successfully started its new Pebax® elastomer unit at the Serquigny plant in France. This new unit, designed with the latest advancements in industrial processes, can produce both the bio-circular Pebax® Rnew® and classical Pebax® elastomer ranges.

These advanced materials are used extensively in sports equipment such as running shoes, soccer shoes and ski boots, but also in electronic devices, and other specialty markets such as antistatic additives and medical devices.

"We are excited to start the production of this expansion in our Pebax® elastomers capacity. This represents a great opportunity for us to meet growing demand in existing and new applications while simultaneously improving our processes as water consumption at the site will be reduced by approximately 25%." Erwoan Pezron, Senior Vice-President of Arkema's High Performance Polymers Business Line.

Arkema
www.arkema.com


Photo: Arkema

Husky's Grand Opening of new state-of-the-art service center (photo: Husky)

Husky's Grand Opening of new state-of-the-art service center in Jeffersonville, Indiana

Husky Technologies™, a pioneering technology provider enabling the delivery of essential needs to the global community, today celebrated the grand opening of a new state-of-the-art service center in Jeffersonville, Indiana. This strategic investment comes as Husky celebrates its milestone 70th year anniversary, confirming an ongoing commitment to service excellence and innovation.

Tony Black, Husky's President of Service, reflects on this milestone, "Our new, state-of-the-art facility in Jeffersonville is more than just a building; it's a testament to our seven decades of commitment to providing unparalleled service to our customers. With its cutting-edge operational capabilities, this service center represents our vision for the future. It sets a new standard in service delivery, offers a comprehensive range of readily available OEM parts, and reaffirms our commitment to our customers in the Americas region. "

Leveraging its relationship with Neovia Logistics, a global leader in third-party logistics, the new service center has been designed to include key features, such as, enhanced warehousing equipment and innovative processes, alongside a packaging area redesigned to deliver optimal service levels. In addition, the center implements advanced inventory optimization technology, securing a wider selection of readily available OEM parts, parts kits, upgrade, and modernization solutions.

Husky
www.husky.co

The union of Thermal Care and Aquatech

PiovanGroup launches a new strategic division in industrial and process cooling, the result of the integration of the business segments operated by the recently acquired Thermal Care and the existing Aquatech. The two companies share a 50-year history of designing, selling, and servicing high-quality heat transfer solutions for the plastics, food, beverage, and 50 other industry segments.

The newly formed division, specialized in innovative sustainable solutions of excellence for industrial process cooling, thus becomes a global player in its market sector, operating worldwide and with a branched manufacturing capability ranging from North America to Latin America, from Europe to Asia, with a widespread service structure capable of ensuring proximity to customers in all countries where its assets operate.

PiovanGroup headquarters (photo: PiovanGroup)

The integration of these business units will provide R&D efficiencies and an expanded portfolio of products, solutions and services capable of serving a wide range of market sectors.

The new division will be headed by Lee Sobocinski, current president of Thermal Care Inc. and will operate under the Thermal Care brand and have global consolidated sales of approximately 100 million euros.

PiovanGroup
www.piovan.com

WITTMANN establishes subsidiary in Vietnam

"Vietnam is growing rapidly more and more significant as a production location for the injection molding industry", emphasizes Michael Wittmann, owner and CEO of the WITTMANN Group. "We are now responding to this trend by establishing WITTMANN Vietnam Co., Ltd in Ho Chi Minh City. This will enable us to serve our local customers there even more effectively and to provide flexible support for the development of new production facilities. With this action, we are further strengthening our customer base in Southeast Asia."

The plastics industry in Vietnam has already shown continuous dynamic growth in recent years. WITTMANN is now further developing its already significant customer base in that area. Since 2015, the company has been present in Vietnam with a local agency, and its cooperation with TAO BANGKOK (VIETNAM) Co. LTD will be continued. In this way, WITTMANN will provide optimal continuity and security for its customers in the region.

Giang An Le is the General Manager of the new subsidiary. He will now further expand the company's sales and service network in Vietnam. The graduate electrical engineer contributes 20 years of experience in international production and mechanical engineering companies, mainly in the plastics industry. As a German citizen with Vietnamese roots, Giang An Le is at home in both the European and Asian cultures.

Innovative technologies and application technology counselling in demand

Ho Chi Minh City is situated in southern Vietnam and thus in an important center of the plastics industry. The corporate headquarters of the new subsidiary are located in the Tan Binh District, in the immediate vicinity of the international airport. This makes WITTMANN in Vietnam also very easy to reach for international customers.

With its new subsidiary in Ho Chi Minh City, WITTMANN is located right in the middle of Vietnam's vibrant plastics processing region

Giang An Le has taken over the management of WITTMANN Vietnam Co., Ltd. (all photos: WITTMANN Group)

Numerous global players are building up new production sites in Vietnam, including many companies already using injection molding machines, robots and auxiliary equipment from the WITTMANN Group in other countries.

"With our great complete solution expertise and the ability to supply entire production cells from a single source, we are in a position to provide excellent support to these companies as well as to local plastics processors", says Wittmann. "The requirements for higher efficiency and quality standards are continually rising in Southeast Asia. Accordingly, innovative processing technologies, automation solutions and application technology counselling are in high demand."

Presence strengthened across Southeast Asia

With a total of nine subsidiaries and additional agencies, WITTMANN shows a very strong presence throughout all of Asia and ensures short distances to its customers in all industrial centers. In China, WITTMANN operates its own production plant for robots and auxiliary equipment thus shortening delivery times for its Asian customers and simplifying logistics.

Simultaneously with the foundation of WITTMANN Vietnam, the Group has also strengthened its presence in the Philippines. There, AustroPlast based in Noveleta near Manila has been engaged as the new sales partner for the entire WITTMANN product portfolio. AustroPlast has more than 20 years of experience in the Philippine plastics processing industry.

WITTMANN Group
www.wittmann-group.com

Picture: Sumitomo (SHI) Demag

New regional headquarter for Sumitomo Heavy Industries in Europe

Sumitomo Heavy Industries, Ltd. (SHI), a global leader in diverse industries, has announced the launch of Sumitomo Heavy Industries (Europe) B.V., a new regional company and headquarters in Amstelveen, Netherlands.

This strategic move reinforces SHI's commitment to Europe, a key market for the company with around 60 businesses managed and operating across all four SHI segments: Mechatronics, Industrial Machinery, Logistics and Construction, and Energy and Lifeline.

"Europe is a critical region for SHI, and this establishment reinforces our dedication to serving our European customers effectively and driving growth across the continent, " said Shaun Dean, Senior Vice President of SHI and Managing Director of Sumitomo Heavy Industries (Europe) B.V. "SHI Europe BV will unlock synergies across sales, service, and infrastructure, fostering enhanced collaboration and governance for European success amongst our businesses. It will be a catalyst for innovation and growth, ensuring the Group's continued success in this dynamic marketplace."

The new company aims to strengthen growth by optimising operational excellence and implementing strategic initiatives between European businesses; expand its market reach by driving SHI's market impact within and beyond Europe; champion sustainability by supporting the ever-increasing European environmental initiatives and regulations within the Group; and develop diverse talent by fostering talent mobility and development.

Photo: Sumitomo Heavy Industries

With a rich 135-year heritage of delivering cutting-edge solutions in four segments, SHI boasts market leadership in mechatronics (motors, power transmission, and controls) through well-established European subsidiaries like Sumitomo (SHI) Cyclo Drive Germany GmbH, Hansen Industrial Transmissions NV, (Belgium) Lafert S.p.A. (Italy), and Invertek Drives Ltd (UK).

In the Industrial Machinery segment, Sumitomo (SHI) Demag Plastics Machinery GmbH and Leifeld Metal Spinning GmbH, manufacturers of plastic moulding solutions and metal forming machines, and Sumitomo (SHI) Cryogenics of Europe that offers medical solutions based in Germany and UK further solidify SHI's global presence.

The Logistics and Construction segments provides world-leading construction machinery and material handling systems with excellent environmental performance and operation performance.

The Sumitomo SHI FW Energie B.V. Group also contributes to a decarbonised future through innovative technologies and digitalisation.

"These are exciting times for SHI in Europe and globally," added Mr Dean. "The new company and regional HQ in Europe strengthens our commitment to the future growth of both the individual businesses and the collective group as a whole."

The official opening ceremony in early January was attended by key personnel, including Shinji Shimomura, President and CEO of SHI, Toshiharu Tanaka, Executive Vice President and General Manager of SHI's Globalization Department, and Floor Gordon, Deputy Mayor of Amstelveen. The ceremony included "Kagami biraki," a traditional Japanese sake barrel-breaking ritual symbolizing well-being and happiness for the future.

Sumitomo Heavy Industries
www.sumitomo-shi-demag.eu

NISSEI's 2nd factory in China opened to increase production capacity in the region

As part of its efforts to strengthen global production structure, NISSEI PLASTIC INDUSTRIAL CO., LTD. recently completed the construction of a new injection molding machine factory "NISSEI PLASTIC MACHINERY (HAIYAN) CO. LTD. " in Haiyan County, Zhejiang Province, China. The factory's construction was completed in December 2023 and it was operationalized in January 2024.

As a global supplier of injection machine, NISSEI has a management strategy of producing and delivering ideal machines from the nearest production bases to meet demands in each region. NISSEI has followed its strategic plan and established a global production system with five production bases in Japan, China, Thailand, United States, and Italy.

In China, NISSEI established their first overseas wholly owned production subsidiary NISSEI PLASTIC MACHINERY (TAICANG) CO., LTD. in July 2009 in Taicang City, Jiangsu Province. As the market in China grew, the Taicang Factory expanded its floor space, improved production capacity, and added the number of machine types to be produced at the factory.

In addition, NISSEI has been anticipating growing demands for injection molding machines in the global market, including China and Asia, from a long-term perspective and gauging its production capacity of the Taicang Factory. NISSEI PLASTIC MACHINERY (HAIYAN) CO. LTD., NISSEI's second factory in China, was established in January 2022 in order to meet these growing demands.

The purpose of the newly established Haiyan Factory is to expand production capacity in China and promote cost reductions through in-house parts machining. Two types of all-electric injection molding machine NEX Series with 294kN (30-ton) and 490kN (50-ton) clamping force are currently planned to be assembled at the Haiyan factory. The initial injection molding machine production capacity at the Haiyan Factory will be 15 units per month. The site will also serve as a parts supply base to strengthen the global procurement and supply chain structures of their five production bases around the world.

Photo: NISSEI

NISSEI
www.nisseiplastic.com

Oerlikon HRSflow expands its Italian manufacturing plant to serve growing European markets

The hot runner manufacturer Oerlikon HRSflow will start the construction of a new fully automated plant in San Polo di Piave (Italy) to expand its capacity to better serve its European partners.

The plant will increase Oerlikon HRSflow Italian output by +30% to meet growing demand in packaging, consumer goods and automotive sectors.

Located in San Polo di Piave near its two existing plants, the new facility will use the latest technologies in terms of organization, processes, and machinery to manufacture Oerlikon HRSflow's expanded portfolio of hot runners, geared towards customers in the packaging, consumer goods and automotive sectors. The new plant is expected to start production by the end of 2024.

Picture: Oerlikon HRSflow

With this additional capacity, Oerlikon HRSflow aims to retain its technology leadership as a valued partner of European mold makers and end users in hot runners for multiple applications, while providing customers with the right flexibility and an even more reliable and faster service.

Oerlikon HRSflow CEO, Antonio Bortuzzo, states, "Our expansion in Italy enables us to stay close to our European partners, and to continue to provide and test innovative solutions in our facilities. We are committed to offering customers the highest technology and professional skills and to serving our European customers closely and sustainably".

Oerlikon HRSflow
www.hrsflow.com

Mold-Masters® introduces latest technology at NPE 2024 in Orlando

Mold-Masters, a leading developer and supplier of hot runners, controllers, auxiliary injection, and co-injection systems, will showcase its latest products at NPE 2024: The Plastics Show, held May 6-10 at the Orange County Convention Center in Orlando, Florida. The new products include hot runner systems, temperature and motion controllers, an auxiliary injection unit, a gate seal, and sustainable processing solutions.

The new hot runner systems include the Fusion Series® G3 and the EcoONE-Series™. The Fusion Series G3 hot runner system comes pre-assembled and features the following enhancements: compound nozzles; a heated nozzle flange; quick change headless valve pins; and waterless actuators featuring passive actuator cooling technology.

The EcoONE-Series 1-8 drop hot runner system is a highly economical, standardized solution suitable for processing commodity resins for simple, cost-sensitive applications such as consumer goods, small home appliances, basic automotive components, electronic peripherals/accessories, and more. It's offered with a wide range of standard components including nozzles with a shot range capacity of <5 g up to 3,500 g in lengths ranging from 50 to 300 mm. Manifolds are available with custom pitch ranges.

Also on display will be the new TempMaster™ M4 hot runner temperature controller and the M-Ax™ mold motion controller. The TempMaster M4 features Mold-Masters' new HR-Connect technology, which eliminates conventional mold thermocouple and power cables and replaces them with a single lightweight cable connecting the mold to the control head unit. Featuring an innovative new Mold Direct Mount design, the TempMaster M4 sets a new standard for temperature controller design.

The next-generation M-Ax mold motion controller features a simplified user interface with special features, including preprogrammed mode functions and energy and torque monitoring. Energy monitoring allows molders to measure and track the energy consumption of their motion controls, while torque monitoring can be used for a variety of purposes as determined by the user.

Additional products featured at the show will include the company's E-Multi® product line of auxiliary injection units, which now includes the E-Multi mini. A compact, lightweight unit designed for small shot weights, the E-Multi mini is affixed to the mold and can be mounted in nearly any orientation. It also has a pivoting hopper that can move from left to right to accommodate challenging installation positions.

The most versatile, all electric servo driven, thermoplastic auxiliary injection unit

Mold-Masters' new innovative premium Sprint APEX gate seal, designed to serve as the new standard for cap and closure molds (all pictures: Mold-Masters)

The Sprint® APEX gate seal minimizes flow lines, improving environmental stress crack resistance (ESCR) of CSD caps by up to 40% to support light weighting. It is also designed to enhance part quality, improve color change by up to 65% and minimize maintenance costs by eliminating the insulation cap associated with other industry standard gate seal designs.

Mold-Masters' co-injection multi-layer systems maximize the use of recycled content. This technology allows molders to incorporate recycled content up to 50% of total part weight as the core layer positioned between two layers of virgin resin. The co-injection technology is compatible with small to large packaging products and a range of other applications. Mold-Masters offers both complete system solutions and a retrofit package to convert conventional single shot injection machines to co-injection. A system producing 5-gallon pails with recycled cores on a 950t machine will be on display and running live.

The company's various processing solutions for bio-resins and recycled materials, will also be on display at the booth.

Mold-Masters
www.moldmasters.com

Chinaplas 2024: MCC Label showcases IML product offering

MCC Verstraete, MCC Korsini and MCC Karydakis, part of Multi-Color Corporation and leading players in the in-mold labeling (IML) industry with several locations around the world, are pleased to announce about their own booth at this year's Chinaplas 2024.

Chinaplas, the world's leading exhibition for the plastics and rubber industry, will be held in Shanghai from April 23-26. Known worldwide for its groundbreaking innovations and providing a stage for the latest technological developments, the event offers companies such as MCC an excellent platform to showcase their products, services and expertise to an international audience.

MCC's three leading IML companies (MCC Verstraete, MCC Korsini & MCC Karydakis), will showcase their extensive product range, sustainable packaging solutions and creative possibilities. Visitors to the booth can expect to be immersed in a world of innovation, with the opportunity to discover the power of IML and explore its benefits for various applications in the packaging industry.

HighGloss IML
(picture: Multi-Color Corporation)

"We are excited to participate in Chinaplas 2024 and showcase our comprehensive portfolio of IML solutions to an international community of plastics and rubber professionals. This event provides us with an opportunity to network, share knowledge and explore new business opportunities, and we look forward to sharing our passion for innovation and excellence with show attendees." Murat Akbulut, IML Sales Director Asia Pacific at MCC.

Multi-Color Corporation
https://iml.mcclabel.com

Molding novelties in 2023

Throughout 2023, various companies, focussing on designing and manufacturing of machines, automation, auxiliary systems and tooling, were tirelessly launching their new developments for benefit of the injection molding sector. Many of these state-of-the-art novelties were demonstrated at the 28th edition of Fakuma - one of the world's leading plastics and rubber trade fair, that was held in Friedrichshafen, Germany, from 17 to 21 October 2023.

Innovative dosing technology for solid silicone

With more than 1,600 exhibitors (+10% compared to 2021), Fakuma 2023 trade fair was a fully booked event. Around 40,000 visitors visited 12 exhibition halls and discovered numerous innovations. Key topics such as recyclability and energy saving attracted visitors to the exhibition stands for lively discussions. Almost half of the exhibitors came from abroad.

In the current difficult global political situation, the plastics processing industry is seen to be well positioned.

This also fits with ACH Solution's concept of presenting itself as a leading manufacturer of tool and automation solutions for the processing of silicone rubber.

The new ACH TURNMIX HTV dosing technology offers the possibility to process solid silicone (HTV) in Shore hardnesses between Shore A 20 and Shore A 80.

The ACH TURNMIX is designed as a stand-alone system and can communicate with various control systems via existing interfaces.

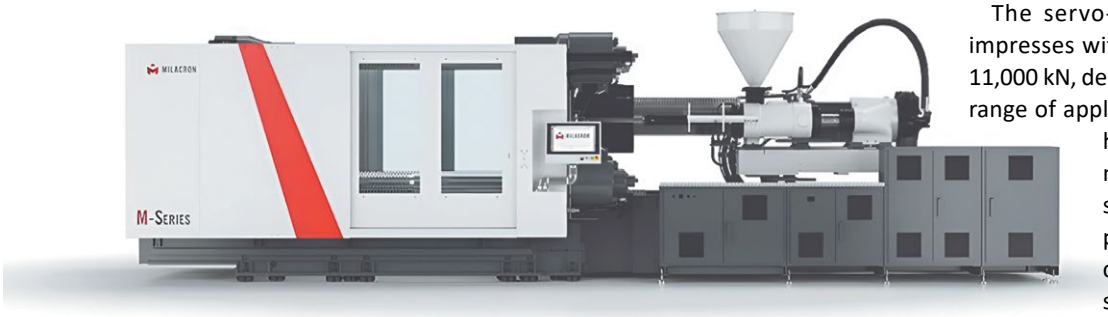
- Continuous feeding process
- Bubble-free and pressure-constant material delivery
- In-line (in process) precise feeding of liquid masterbatches
- Dosing for small to medium shot weights

This new automatic dosing system ACH TURNMIX was acknowledged with great interest among Fakuma visitors. In combination with a 4-cavity injection molding tool with ACH cold runner technology, ACH SERVOSHOT® 2G system and needle gate technology, interesting items were manufactured.

Difficult optical components were produced with a 2-cav fully automatic tool concept, using the new ACH MAXIMIX 3G metering pump. The compact design of the dosing system enables space-saving and flexible installation.

The ACH TURNMIX can communicate with various control systems via existing interfaces (picture: ACH Solution)

Milacron showcased M-Series in European debut at Fakuma 2023



The M-Series marks a new milestone in Milacron's product development (picture: Milacron)

Milacron's product innovation, the M650-6610 injection moulding machine with a screw diameter of 110 mm, was on display in practical use at Fakuma 2023. With tooling from Allit, the machine was producing a storage container with a shot weight of 935 g.

The M-Series marks a new milestone in Milacron's product development. The series builds on the company's proven machine technology and sets new standards for medium-tonnage solutions. Powered by a servo motor hydraulic system, the M-Series' versatility and performance serve to meet the demanding needs of global industries.

The servo-hydraulic two-platen machine impresses with clamping forces from 4,500 to 11,000 kN, demonstrating its flexibility for a wide range of applications. Driven by a servo motor hydraulic system, the injection moulding machine offers improved specifications and all-inclusive performance, as well as integrated control. In addition, faster clamp speeds, reliable tonnage assembly, and unsurpassed eject access for quicker mould changes, deliver optimal productivity and space savings.

"The M-Series not only demonstrates outstanding performance potential, but also scores with a compact clamp footprint and fast clamping speeds, " said Winfried Stöcklin, managing director of Ferromatik Milacron.

Sustainability is at the forefront of the M-Series plastics processing solution that offers reduced dry cycle time, power consumption and less lubrication requirements.

Retrieval of the machine's sustainable, moulded part at the show was executed by the SEPRO robot, model Success 33 TE. This auxiliary solution offers integration of automation technology. Tasks are performed quickly and accurately via a user-friendly control system.

New technology for predicting sink marks in injection molded parts made of DURACON® POM

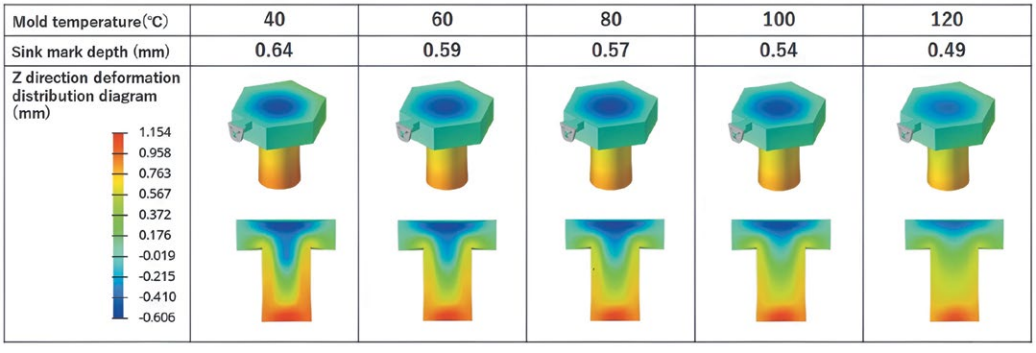
Polyplastics has developed a technology that uses CAE analysis to predict sink marks (depressions on the surface of the molded product) in injection-molded DURACON® POM components. This innovative technology predicts the risk of sink marks before the creation of molds, which can help to decrease the number of prototypes required, shorten the development cycle, and save energy.

In products with intricate shapes, the thickness distribution can lead to sink marks on the surface. In some cases, certain areas of the molded product cannot have sink marks due to dimensional accuracy requirements, sealing surface precision, or design parameters. It is critical to have a method to manage the factors responsible for sink mark formation and their location.

Polyplastics has developed a new technology that combines flow and structural analysis to predict sink mark formation during resin curing. By considering shrinkage, elastic modulus, and pressure distribution, the new technique can accurately predict sink marks before the molding process begins. This can reduce development time, costs, and energy consumption.

The new technology has been validated with experimental results, confirming its high predictive accuracy. Polyplastics specialists are also testing its capabilities for predicting vacuum void and sink mark formation in various shapes and materials. Additionally, they are developing a solution technology that takes into account fiber orientation, especially for anisotropic materials.

Polyplastics uses this technology to help the customers with product development right from the design stage.



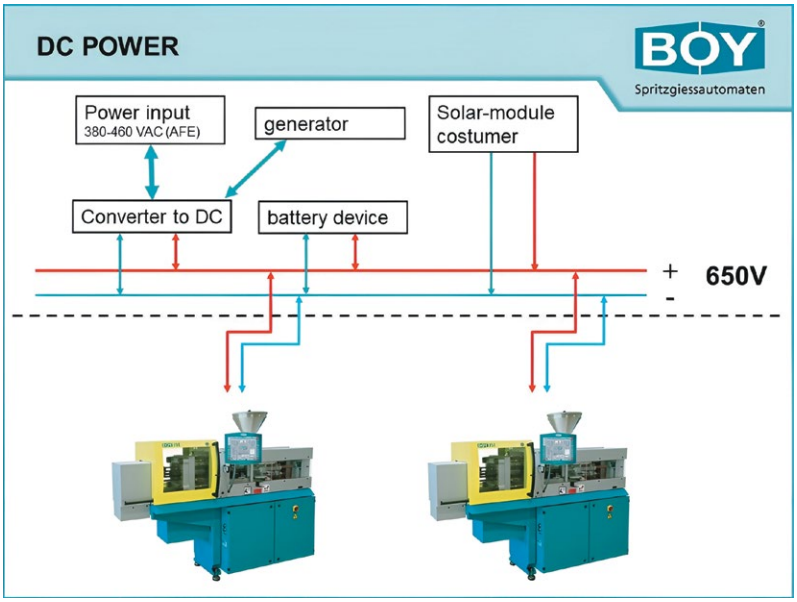
Comparison of surface sink marks (picture: Polyplastics)

BOY 35 E injection moulding machine with DC-power

The topic of efficient utilisation of renewable energy in the production process is becoming more and more important. One way of increasing efficiency is to set up a DC- network in the production facility. In this case, production machines are not supplied by the usual alternating current network, but by an independent direct current system.

This system is fed via a so-called Active Front End (AFE). The AFE is connected to the standard 3-phase 400V AC-network. After active input conversion with integrated stabilisation, a DC-network with a voltage of 560 to 840 VDC is available. The AFE automatically provides a feed-in and feed-back direction, both ways have the same high degree of efficiency.

An additional buffering can be created with battery systems. Photovoltaic systems or other energy generation systems can then be integrated directly into the system without further conversion.



BOY presented a practical example of this technology at Fakuma 2023 (picture: BOY)

In comparison with conventional production machines, conversions can be saved as the converters are powered directly with the so-called intermediate circuit voltage. This saves energy and improves electromagnetic compatibility (EMC). Braking energy is also used to charge the battery instead of converting it into heat via a braking resistor.

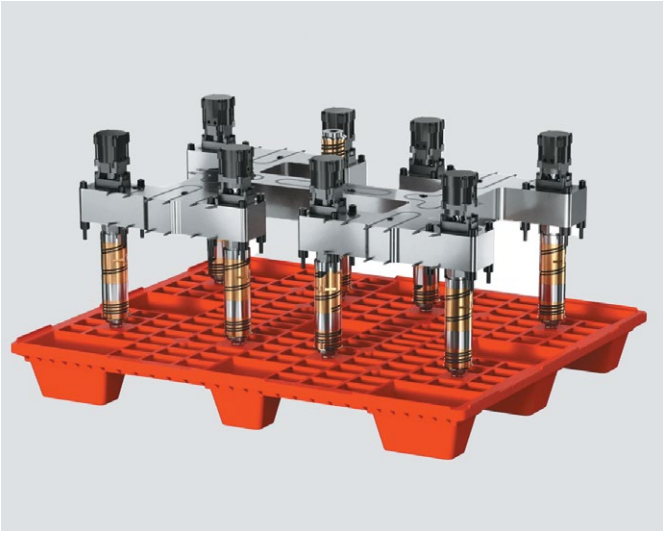
BOY presented a practical example of this technology at Fakuma 2023. The BOY 35 E with electric removal handling was operated by a 650V DC network. With an average power requirement of approx. 1.5 kW /h, the machine can be powered via a PV-system when the sun is shining, so that no external energy needs to be purchased.

This means that PV-energy generated on site can be utilised directly without the energy losses resulting from the conversion of direct current (of the PV-system) to alternating current to direct current (intermediate circuit). In addition, these systems help to protect the supply network, as no idle power is generated. EMC-interferences are also reduced and power peaks are minimised.

In areas with unstable power supplies, network fluctuations and short-term breakdowns can be bypassed and thus prevent machine damages and production downtimes.

Thomas Kühr, Head of Electrical Design at BOY: "This is an innovative way to make the company's energy supply more secure."

Optimal hot runner design for recycled material pallets



Ribawood, the plastic pallet manufacturer, partnered with Oerlikon HRSflow to develop a hot runner solution able to produce lightweight pallets. The product is composed of fully recycled material. Quality issues swayed from surface defects to more serious issues that could affect the safety and function of the finished product, as well as the performance of the hot runner system. The main challenge was primarily connected with clog problems of the hot runner channels due to the foreign particles usually present in the recycled material.

The first step was understanding the behaviour of the polymer within the mold cavity.

The balanced hot runner solution would guarantee the high structural result of the entire part (picture source: Oerlikon HRSflow)

The complexity of processing recycled material is usually related to foreign particles, leading to obstructions in the hot runner channels. The use of software to conduct a rheological analysis helped to define optimal injection pressure and speed based on the special material features.

The technological solution was a hydraulic 8-drop hot runner system equipped with conical valve gate (Wa nozzle series) from Oerlikon HRSflow. Special attention was given to the gate configuration, due to a 14 mm diameter and a hot runner bore diameter of 32 mm. Any issues related to channel clogs would be avoided. In addition, the gentle injection pressure combined with low speed allowed for better control of the melt flow. This prevents any streaking or flow marks that could jeopardize the cosmetic and functional result. Continuing, the lower injection pressure allowed for the use of LPIM (low pressure injection molding) technology, maximizing production efficiency. With this design approach, system maintenance can be significantly reduced, avoiding long and costly downtime.

Oerlikon HRSflow: José Moreno, General Manager of Spain stated, “developing and producing high-performance hot runner systems for plastic injection molding is a complex process. It requires high expertise and continuous desire to face new challenges. The project carried out together with Ribawood is a clear example of great collaboration. Both parties put into play their own knowledge to get the best result: a 100% reusable and recyclable pallet which combines a strong attention to sustainability with a high structural result”.

Several tests revealed that the balanced hot runner solution from Oerlikon HRSflow would guarantee the high structural result of the entire part. There would also be no internal stress, despite working with 100% recycled material.

Beck Automation presented a high-precision IML solution for medical applications

The new Beck Medical IML presented at the trade fair in Friedrichshafen was a high-precision manufacturing system specially designed for the production of medical components. The application is part of a joint project with partners ARBURG, Intravis, KEBO and MCC Verstraete. The partners set themselves the goal of developing a system that enables high-precision IML in large quantities using the latest technologies.

A low-torsion, powder-coated steel profile frame forms the basis of the Beck Medical IML. The machine design is based on a modular structure, where each individual production step is assigned to a module. In this principle, production units for screwing, welding, printing or packaging can be added. All motion sequences are executed energy-efficiently by servo and stepper motors of the latest generation.

The new Beck Medical IML was on display at Fakuma 2023 (picture: Beck Automation)

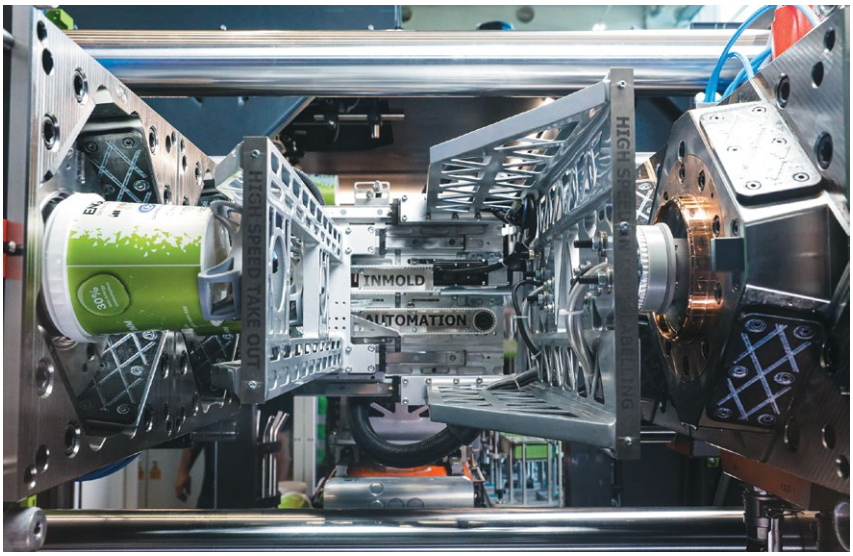
The IML area includes the label magazines, the label transport, the placement of the labels on the insertion cores and, for products that require the highest accuracy, the label adjustment. Label adjustment, which compensates for the print-to-cut tolerance resulting from production, is performed by Beck's high-precision label adjustment head. The label adjustment head measures each individual label using laser sensors and compensates for inaccuracies. For this purpose, the label is moved in two axes and one angle. In the medical field, where labels can be very small, the label adjustment heads are arranged in a centering plate and not on the moving main arm. This avoids disturbing vibrations. The readjusted label is placed on the insertion core by means of a transfer gripper and electrostatically charged. The label, which is thus optimally positioned, is vacuum-assisted into the cavity of the injection mold. The adjustable head technology ensures that the cut edges do not determine the position of the decoration or functional elements.

The processing area contains the central transport unit, around which various production modules can be arranged in modular ways. Label insertion and finished part removal can be performed in parallel or sequentially. The robot's intervention times of 1.0 - 1.4s (signal to signal) thus have no or only minimal influence on the cycle time. A fully integrated vision system ensures 100% quality control. All bad parts are automatically rejected. The good parts are then fed to further processing or the packaging unit.

The lightest 1.3-litre pail with all-electric thin-wall injection moulding

At the Fakuma event, ENGEL was presenting a highly efficient, all-electric application for the packaging sector. Addressing the ever more important consideration of weight reductions in impressive style, an all-electric e-motion 765/280 T was being used to produce the world's lightest 1.3-litre pail.

The continuing trend towards reduced wall thicknesses is being driven by economic concerns. In the case of injection moulding machines used for continuous mass production, small weight reductions in specific products have a big effect on the viability of production cells. An understanding of injection moulding processes and the particular features thereof, developed over decades, makes ENGEL the ideal partner to any injection moulding business – especially in the field of thin-wall packaging.



A two-cavity mould and automation from Inmold complete the high-performance system (picture: ENGEL)

What until recently could only be produced with a hybrid solution involving hydraulic accumulators is now possible with an all-electric machine: ENGEL has set new standards in the performance of all-electric machines with the e-motion 765/280 T. Until now, a 1.3-litre pail with a wall thickness of 0.45 millimetres as produced at Fakuma could only be manufactured using a hybrid machine. Despite the extreme flow path to wall thickness ratio of over 1:400, ENGEL is demonstrating how thin-wall performance can be combined with energy efficiency. The pail is being produced using easy-flowing polypropylene supplied by Borealis with an MFI of 100. The new 765 injection unit also ensures high injection speed and dynamism. Speeds of 600 millimetres per second and injection pressures of up to 2,600 bar guarantee machine performance in spite of short fill times and injection strokes. Another benefit of the e-motion series lies in the variety of available components for plasticising. In thin-wall applications, ENGEL takes advantage of this by adapting the plasticising unit to high demands in terms of the throughput rate and melt homogeneity.

For the first time, two packages aimed at packaging are available for the e-motion. Package 1 contains all high-performance options required on the e-motion platform to facilitate the fastest cycle times with maximum machine stability. Package 2 comprises a hydraulic package that replaces the standard electric ejector with a hydraulic ejector drive. This is operated by an integrated hydraulic unit, which also controls the nozzle movement automatically.

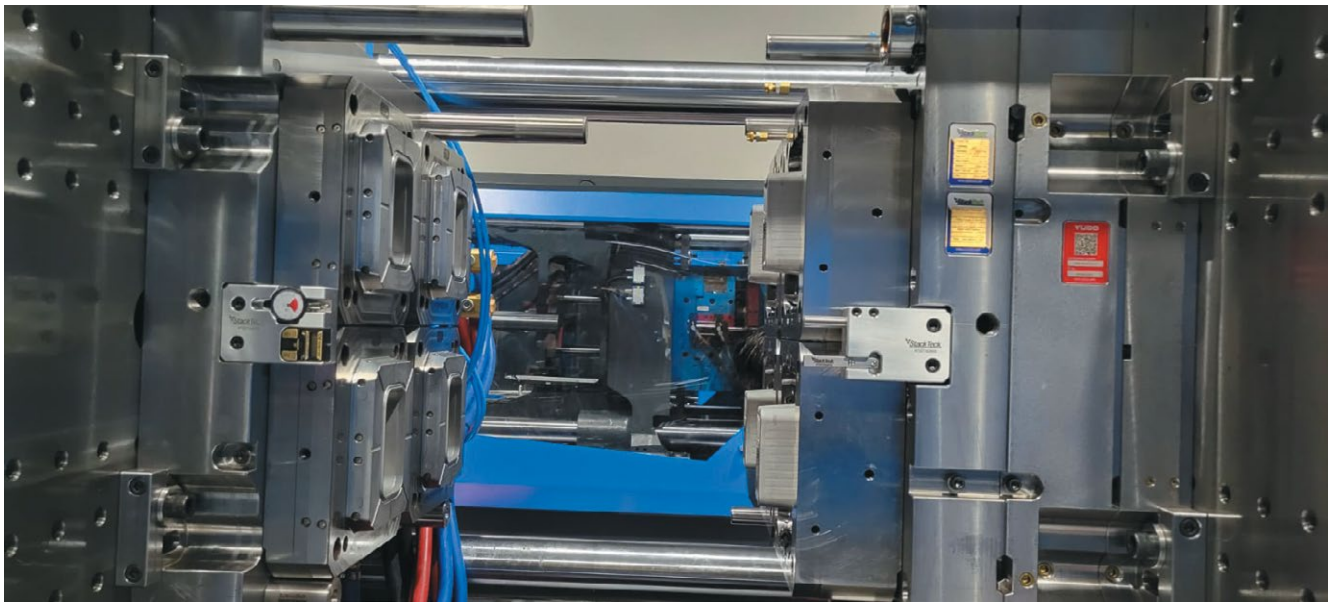
The system is completed with a two-cavity mould and an automation solution from Inmold. The former is ideally coordinated to component geometry characterised by a smaller wall thickness, ensuring the mechanical stability of the pail. As an option, a handle for the pail can be injected in the same cycle using a mould attachment. The automation comprises a side-entry robot which fills the cavities with labels from MCC Verstraete. The labels are picked up electrostatically and positioned in the cavities. Visual quality control is then performed to check the geometry and ensure the labels are correctly positioned, with any missing parts separated fully automatically.

At the Fakuma event, machine performance – so essential in the field of thin-wall packaging – was going hand in hand with resource conservation. An all-electric drive and ideal temperature control add up to potential energy savings of around 30% compared to hybrid machines. The 1.3-litre pail, which weighs just over 26 grams, is being produced with maximum energy efficiency.

Bringing high performance molds to Mexico and Latin America

StackTeck was exhibiting once again at the Plastimagen 2023 that was taking place in Mexico City from November 7th to November10th, 2023, having a high precision injection mold running at the show, featuring a sustainable packaging solution.

This ultra-thin molding technology was running in a Sumitomo Demag El-Exis SP 4200 machine which is part of an ultra-high speed hybrid series of injection molding machines. The system was running a 1x4 500g rectangular container mold that featured the TRIMTM (Thin Recess Injection Molding) light weighting



technology allowing for 20%-part weight savings. In addition, the part was molded with a hybrid PP resin with 30% recycled content supplied by Total Energies. This ultra-lightweight 500g container has TRIM panels as thin as 0.25mm.

According to Christopher Day, Authorized Sales Representative for Mexico and Latin America:

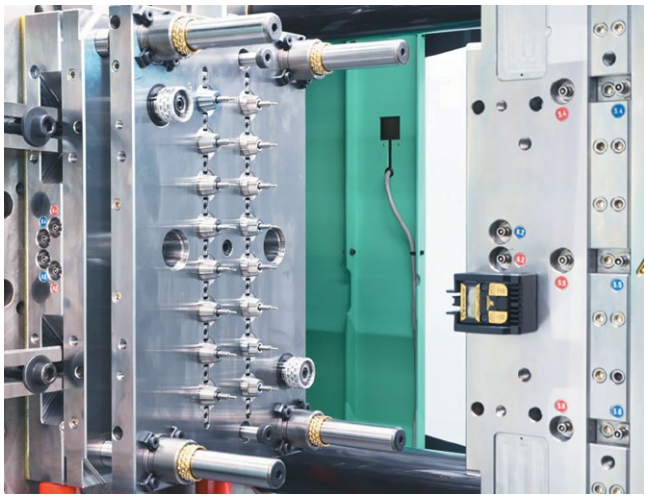
"We are proud of our track record of bringing high performance molds to this region allowing us to demonstrate our different technologies with some of our partners at this tradeshow. This newest high productivity fast cycling mold running at Plastimagen, adds more to our portfolio of mold technologies, which are driven by our desire to offer more sustainable options and real advantages to our customers, pushing part weight boundaries, and including recycled content in the resins used."

1x4 TRIM Mold in Sumitomo Demag El-Exis SP 4200 Machine (picture: StackTeck)

Manufacturing luer-lock from plastic instead of glass

Even a good 150 years after their invention, the standardized luer connection systems for infusions and injections are still frequently made of glass. At Fakuma 2023, ZAHORANSKY was exhibiting the associated Z.SONIC 16 luer-lock syringe injection mold from the PRIMA Z syringe production system, which can be used to manufacture luer-locks from plastic instead of glass. The advantages of the plastic versions are clear: plastic products are significantly more robust and easier to clean, both in handling and storage, compared to their glass counterparts. In addition, syringes made of plastic impress with their pH-neutral surface, a significantly lower heavy metal content, and greater freedom in product design. This results in increased shelf life for highly sensitive medications.

16 luer-lock syringe injection mold from the PRIMA Z syringe production system (picture: ZAHORANSKY)



The PRIMA Z production line makes it possible to produce plastic syringes with screw threads – the so-called Luer-Lock – extremely cost-efficiently and safely. Disposable needles, for example, can be screwed on easily afterwards and do not have to be injected during production. Syringes with volumes between 0.5 and 10 ml can be produced as standard, but special sizes of up to 50 ml are also possible. The material can also be varied: ZAHORANSKY injection molds easily process various technical polymers such as COC or COP. Based on customer-specific product designs, a cycle time of 15 to 17 seconds can be achieved on the production lines using the no-human-touch process. In the 16-cavity injection mold version, the Z.SONIC mold is thus capable of producing up to 3,840 parts per hour. ***smi***

BOY presence at Chinaplas 2024 in the Far East

In Shanghai, the German company will demonstrate two small injection moulding machines: a two-bar, fully-hydraulic reciprocating BOY 25 E and compact highly energy-efficient BOY XS.

Chinaplas 2024 in Shanghai will take place from 23 to 26 April 2024. BOY will demonstrate two small injection moulding machines. The company's Chinese representative, Andeli Co., Ltd. will present two medical special parts to the visitors.

On a BOY 25 E a screw made of PEEK will be produced which is intended to be implanted into the tendon sheath area. The individual weight of the part is 0.093 g only and the mould is operated with two cavities for high-precision injection.

On a BOY XS an osteosynthesis-plate with a single-cavity, sprueless mould will be produced. This part is frequently used in the orthopaedic industry for the fixation of the skeleton. The individual weight of 0.05 g with a cycle time of just 4.7 seconds requires a high level of repeatability of the machine.

The compact and highly energy-efficient injection moulding machine BOY XS (picture: BOY)

The BOY 25 E is a two-bar, fully-hydraulic reciprocating injection moulding machine with a two-platen clamping unit and a swivelling injection unit. This machine is not only the most compact one of its kind with the lowest machine hour rates, the price/performance ratio is remarkable, too. With the plasticising unit EconPlast, available as an option, the energy consumption of a BOY 25 E will be significantly reduced. Five injection units in different sizes with screw diameters from 14 mm to 32 mm guarantee a precise manufacturing of injection moulding parts with a parts weight of up to 69.5 g (PS).

The BOY 25 E can process a wide range of thermoplastics, elastomers, silicones and thermosets as well as metals and ceramics (PIM technology).

With a clamping force of 100 kN on a footprint of 0.78 m², the BOY XS sets standards in continuous industrial operation. The compact and highly energy-efficient injection moulding machine with its innovative and proven technologies offers a wide range of applications in micro and sprueless injection moulding of small parts. With an efficiency classification of 7+ according to Euromap 60.1, the BOY XS only requires 0.49 kWh of energy per kilogramme of material processed.

The intelligent design is perfectly adapted to the requirements of micro injection moulding. A 12 mm plasticising unit (optional: screw diameters from 8 to 18 mm available) ensures the shortest dwell times - a major advantage for the gentle processing of temperature-sensitive materials.

About BOY

Dr. Boy GmbH & Co. KG is one of the leading worldwide manufacturers of injection moulding machines with clamping forces up to 1,250 kN. The very compact, durable machines work precisely, energy-saving and thus highly economically. With innovative concepts and solutions, BOY has proved itself again and again as a trendsetter. Automation, digitalisation as well as sustainability and CO2 savings are particularly in focus. Since the company was founded in 1968 more than 50,000 Injection Moulding Machines have been delivered worldwide. The privately-owned company continues to put special emphasis on engineered performance and high-class "made in Germany" workmanship. ***smi***

BOY
www.dr-boy.de

ESG and Digital Transformation

LS Mtron is committed to building a sustainable future by developing innovative injection molding solutions. At NPE2024, the company plans on showcasing the state-of-the-art technological achievements to the trade fair visitors based on its own unique eco-friendly molding methods as well as AI technology fully in line with the era of Digital Transformation.

Developing smart injection molding machines and digital molding solutions in line with the digital and Industry 4.0 era, LS Mtron Co., Ltd. (LS Mtron) is spearheading innovation in injection molding machines segment, leading the global injection molding industry. At NPE2024 The Plastics Show (NPE2024), where industry leaders converge, LS Mtron will introduce its unique injection molding solutions.

The Orange County Convention Center (OCCC) in Orlando, Florida, USA will host NPE2024 from May 6th (Monday) to May 10th (Friday), 2024. It is an exhibition, considered to be the largest plastics trade fair in the Americas, every time well-attended by global industry leaders. Held every three years to promote innovation and sustainability in plastics, NPE2024 is a plastic materials and manufacturing exhibition covering all industries, including automotive, medical, packaging, consumer goods, construction, and many others. This year's NPE2024 will feature over 2,000 exhibitors in a vast exhibition space that exceeds 1 million square feet under the theme "Made for You." Anticipating approximately 55,000 visitors from 110 countries, the event promises a dynamic showcase of the latest industry innovations. Despite the current economic instability in North America, the region continues to stand as one of the most crucial industrial and consumer markets.

NPE2024 will comprise six zones: Advanced Manufacturing, Bottle, Materials Science, Moldmaking, Recycling and Sustainability, and Packaging. The exhibition will showcase the latest technologies and products like injection molding, extrusion, and blow molding machinery as well as various automation equipment, resins and compounds.

During the remarkable period of high growth known as the miracle of the Han River, LS Mtron has grown together with its major Korean clients. Now firmly established as a global standard, LS Mtron is positioning itself as the company that will take a firm lead in the next half-century by continuously developing its capabilities. LS Mtron plans to participate in NPE2024 trade fair to get closer to its customers.

LS Mtron plans to increase market presence with unique smart injection molding solutions, using NPE2024 as a stepping stone

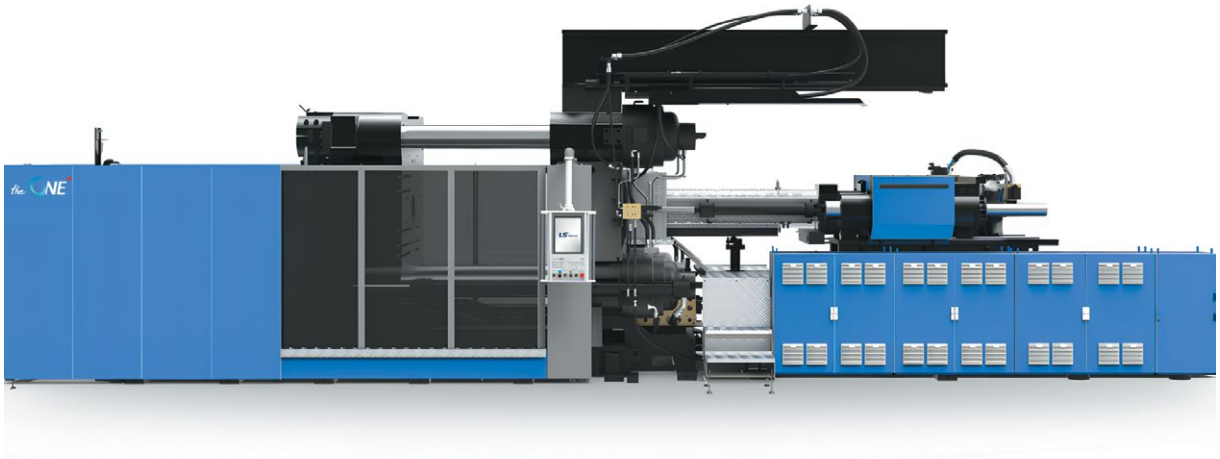
LS Mtron plans on demonstrating the latest technological achievements to the trade show visitors based on the development of their own unique eco-friendly molding methods (here including multi-color, foaming, and many more.) as well as AI technology fully in line with the era of Digital Transformation.

LS Mtron aims to leverage NPE2024 as a platform for advancing its smart injection molding developments. The objective is to expand sales channels and provide customers with innovative and efficient solutions.

LS Mtron's Smart Injection Molding Solution (CSI4.0: Connected and Smart Injection) can be categorized into Smart Production, Smart Machines, Artificial Intelligence (AI), and Smart Service.

Smart Production involves advanced monitoring features that can be accessed and managed through mobile devices anytime and from anywhere. It also includes real-time production

All pictures: LS Mtron



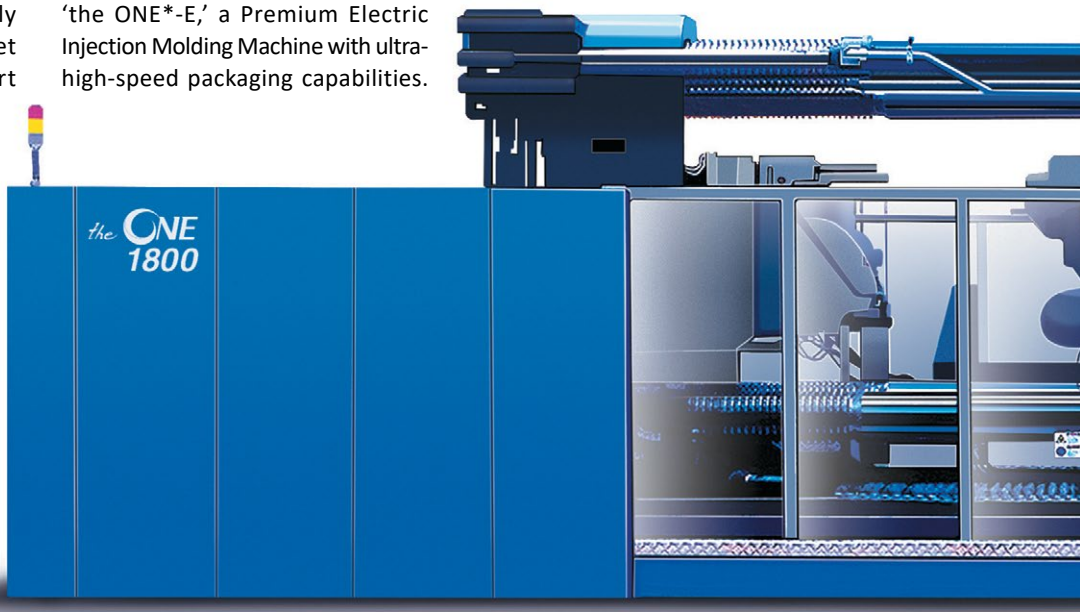
control capabilities that enable users to monitor and control the manufacturing process efficiently. The system features Smart Mold Recognition and an Injection Machine Controller capable of quickly verifying mold production details via QR codes and implementing the information. Additionally, it integrates Smart Peripheral Equipment Control that enables the seamless control of peripheral devices and a smart data interface that caters to customers' datafication needs.

LS Mtron provides its customers with the latest technology and services to ensure they receive the best experience. Among these, Smart Weight Control and Smart Remote Service are two state-of-the-art services that guarantee smart machines and smart services. Smart Weight Control technology is designed to automatically adjust the process conditions to correct the weight of molded products, which increases user convenience. The software of the Injection Molding Machine detects the weight change factor of the molded product, and the machine can change its conditions accordingly to partially correct the weight back to the target weight. On the other hand, Smart Remote Service is a system that allows experts to share the remote Injection Molding Machine screen in real-time, enabling another method to problem identification. This service offers the advantage of allowing customers to solve problems in real-time with LS Mtron experts and shorten the offline service time.

The AI Injection System is the first Injection Molding System incorporating Artificial Intelligence technology for process optimization. Its integrated weight measurement device, connected to the Injection Molding Machine, detects changes in the weight of the molded product. With an Artificial Intelligence Weight Control System (AI Weight Control), the machine can autonomously adjust the conditions to achieve the target weight. Moreover, the AI Injection System features an Artificial Intelligence Molding Assistant System (AI Molding Assistant) that learns and replicates the process conditions derived from highly skilled molding experts which significantly reduces the time required for initial process stabilization.

A dedicated digital zone will be set up within the booth during the exhibition based on the previously mentioned Smart Injection Molding solutions. LS Mtron aims to showcase its unique technical capabilities by utilizing unmanned factories, fences, and more. As an all-around player, LS Mtron can supply a diverse range of products tailored to customer needs, from electric to hydraulic and from small to large.

Meanwhile, at NPE2024, LS Mtron will showcase the recently launched 'the ONE*-E,' a Premium Electric Injection Molding Machine with ultra-high-speed packaging capabilities. Through an optimized toggle link design, this machine maximizes productivity by achieving a dry cycle of just 1.49 seconds, making it the fastest domestically produced machine in its class. During the last KOPLAS 2023 event, visitors were captivated by the 'WIZ PMC', which demonstrated the injection molding of electric vehicle interior materials. The materials used in the surface layer were new, while the core layer utilized recycled materials through a technology known as the sandwich method. The resulting products were sound in terms of exterior quality and product rigidity. LS Mtron's 'the ONE*-E' is another Injection Molding Machine developed to respond to changing trends and meet customer demand. It is a premium machine based on safety standards and utilizes the company's accumulated R&D on molding technology and design. Visitors can expect to see this machine on display and watch an injection demonstration at the upcoming event.



Sustainability: LS Mtron is with you through environmentally friendly injection solutions!

Since the implementation of the Kyoto Protocol, there has been a concerted global effort towards the development and industrialization of eco-friendly plastics to combat the effects of global warming. In recent times, researchers have been exploring the use of non-edible resources such as waste paper, cellulose, rice straw, corn husk, and sawdust as materials for the production of eco-friendly plastics, and some of these solutions are already being applied in practice.

As environmental concerns continue to gain traction around the globe, the traditional focus of the packaging industry on the research, development, and commercialization of biodegradable plastics is gradually evolving. This shift in focus has led to increased investment in the development of eco-friendly materials from the packaging industry and the automobile parts industry, among others.

An eco-friendly production process goes beyond just using sustainable raw materials. It also involves incorporating environmentally friendly elements into every stage of the completion process, from raw materials to production. This can be achieved by altering some of the raw materials or implementing new technology during production, which ultimately reduces carbon dioxide emissions.

The demand for eco-friendly solutions is on the rise with the growing implementation of ESG management and carbon reduction policies worldwide. The South Korean government's recent announcement to replace all petroleum-based plastics with bioplastics by 2050 has further brought attention to the need for sustainable solutions. At LS Mtron, people are committed to contributing towards a better future by integrating ESG management practices and eco-friendly injection solutions in their operations.

LS Mtron is a company that specializes in injection molding technology that is energy-efficient. In keeping up with the eco-friendly trend, the company is reaching out to customers through exhibitions such as KOREAPACK2022 and KOPLAS2023. At NPE2024, the company is also showcasing its energy-efficient technology that has gained popularity in Europe and North America. Additionally, LS Mtron is planning to present its unique technology, which focuses on crisis management and energy conservation, during the exhibitions.

LS Mtron operates with a customer-centric approach, ensuring that all its subsidiaries, including its headquarters, North America (IU), and China (MW), work in unison to meet customer needs. This seamless integration enables the company to provide consistent service across all areas, including sales, development, production, quality, and service. LS Mtron is committed to getting closer to its customers through various means, including NPE2024. The company strives to provide exceptional service to its customers.

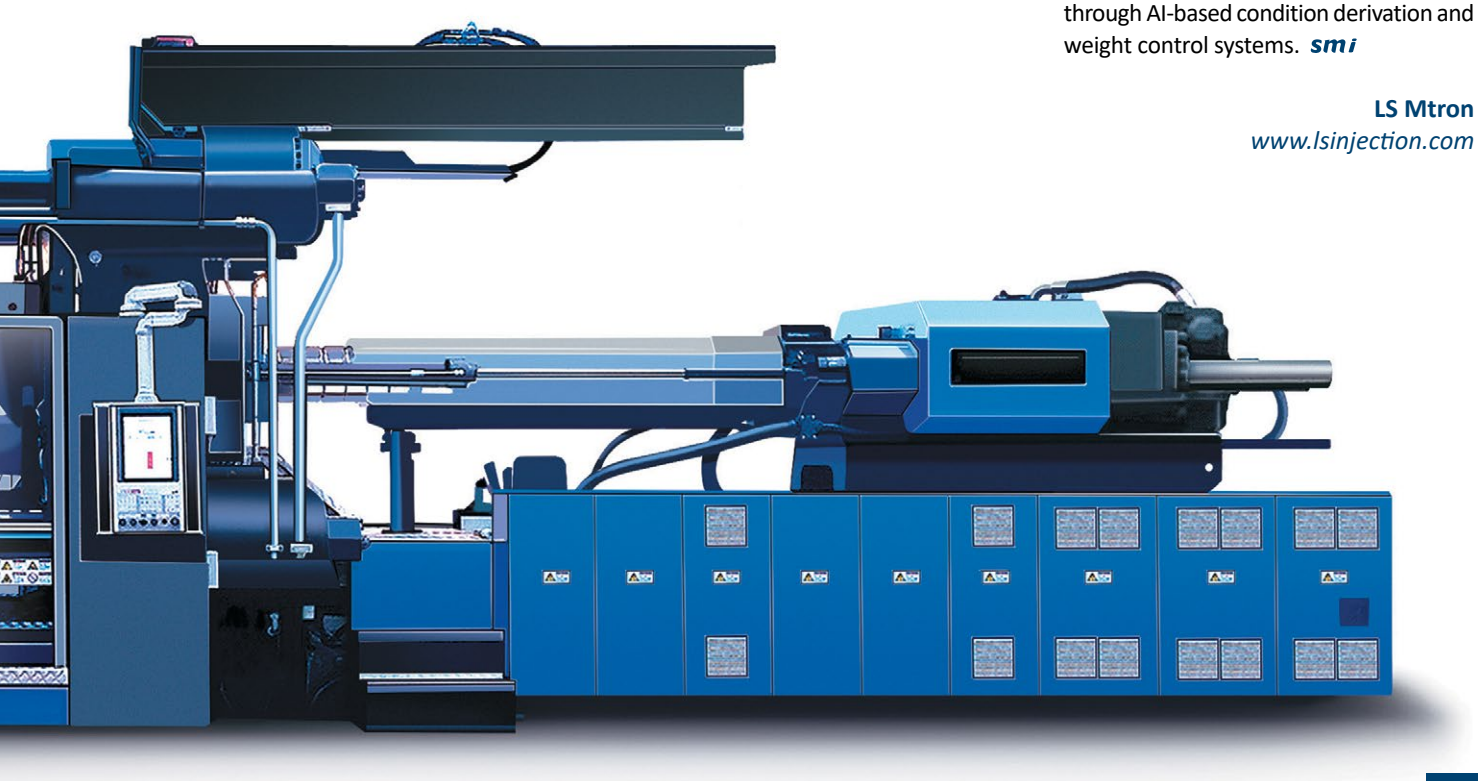
About LS Mtron

Since launching the first product in 1969, LS Mtron's Injection Molding Machines has been the industry standard for half a century continuous technological development and quality innovation, including the first direct pressure and electric injection molding machines in Korea. LS Mtron's Smart Injection Solution CSI 4.0, developed in line with the Digital Transformation trend, is leading innovation in global production sites.

LS Mtron offers a full lineup of Hydraulic and Electric models with clamping forces ranging from 18 to 3300 tons, providing customer-tailored machines that are optimized to satisfy the needs of various industrial sectors.

By developing Korea's first digital injection solution CSI 4.0, LS Mtron has provided the customers with convenience through the smart monitoring and remote service features. Leveraging an artificial intelligence engine, LS Mtron delivers an ideal molding process environment through AI-based condition derivation and weight control systems. *smi*

LS Mtron
www.lsinjection.com



from the left: Martin Stammhammer, Int. Sales Manager Robots, WITTMANN Technology, Maximilian Högn, CEO of FUSO, Klaus Großtesner, CSO of FUSO, Andreas Högn, Majority Shareholder and Advisor, FUSO, Roland Pechtl, Area Sales Manager WITTMANN BATTENFELD (photo: WITTMANN BATTENFELD)

Sustainable injection molding technology for high-quality plastic parts

Joh. Fuchs & Sohn based in Ybbsitz / Lower Austria is a well-known manufacturer of high-grade plastic parts for a great variety of applications. Ultra-modern machine technology enables this company to offer its customers injection-molded solutions which are both sustainable and cost-efficient.

Joh. Fuchs & Sohn – FUSO – was established in 1947 in Waidhofen on the river Ybbs in Lower Austria. In 1964, it started off into plastic injection molding by producing the orange-colored lids for Ovomaltine cans. Today, the family-owned company managed by its CEO Maximilian Högn and its CSO Klaus Großtesner makes highly sophisticated plastic parts from a great variety of materials, including high-temperature plastics, for many different sectors of industry, with about 80 workers on a production floor of just under 3,000 m². The company makes a point of supplying technical plastic parts and assemblies to a solid, mixed industrial customer base. The various sectors served by FUSO include the automotive and railway industries, as well as consumer goods, electronics, medical technology, building construction, telecommunication, mechanical engineering and renewable energy generation.

To make all these parts, a number of injection molding machines ranging from

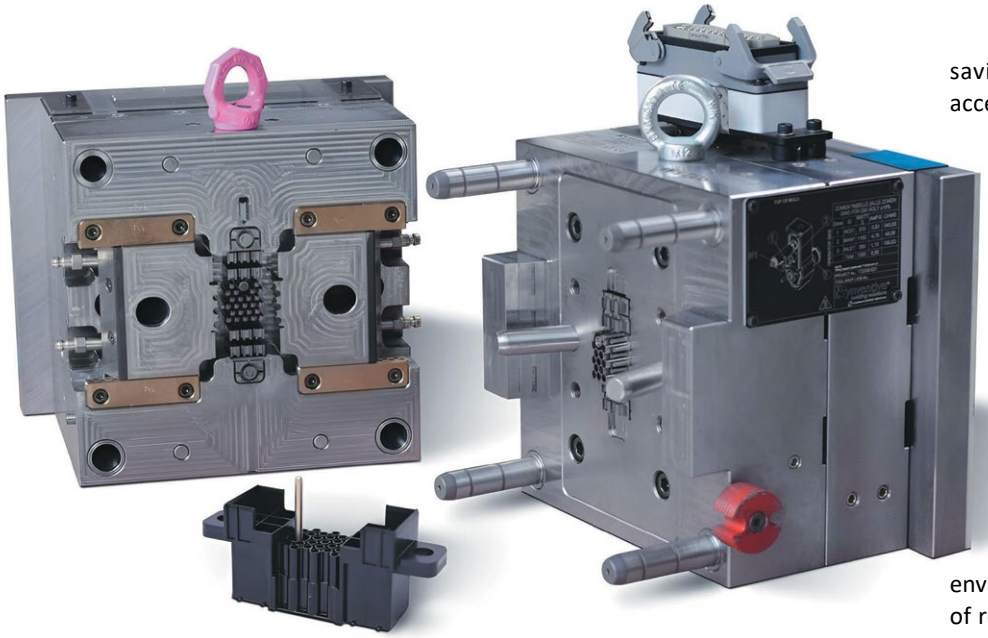
SmartPower machines from WITTMANN BATTENFELD designed as Insider cells with WITTMANN linear robots (photo: WITTMANN BATTENFELD)

450 to 5,200 kN in clamping force are in operation, 17 of which have come from WITTMANN BATTENFELD. Moreover, FUSO is also a long-standing customer of the WITTMANN Group for automation equipment, using more than 40 handling devices with load capacities from 5 to 30 kg, including No. 7 robots as well as latest No. 9 series models with R9 control systems.

The items produced range from micro parts weighing just 0.03 g right up to large parts weighing 2 kg. In addition to manufacturing complex plastic parts by 1- or 2-component injection molding, the company offers insert molding for functional parts, mounting of complete assemblies, as well as glueing and welding, plus decoration by 4-color pad printing and laser printing, and 3D scanning for reverse engineering. 3D prints for rapid prototyping are also possible. Injection molding tools and automation systems are planned, designed and manufactured in-house at the company's own mold-making shop. For ecological purposes, the company has made a special point of installing tool-friendly cooling water systems. Further evidence of FUSO's commitment to protecting the environment are waste heat utilization and a photovoltaic system.

Requirements from the customer base concerning quality standards and attributes of the parts in terms of tolerances, outward appearance and materials used are constantly becoming more and more stringent. FUSO scores with purchasers by its extensive technical know-how and many years of experience in making high-quality parts and assemblies. This wealth of expertise enables the company to offer top-quality solutions which are both sustainable and cost-efficient. FUSO also stands out on the market by its high supply availability and reliability towards its customers.

With the rising demands from customers on the parts and assemblies produced, FUSO's own demands on the injection molding equipment used are also increasing. The company's machinery is state-of-the-art, with a high level of automation on its production floor. All systems are fitted with matching robots to ensure careful parts handling. In addition to a good price-performance ratio, FUSO requires from injection molding machines above all stability, as well as easy access for servicing and cleaning, a smooth, easy-to-clean surface, user-friendliness in operation and a high standard of repeatability. Other factors gaining increasingly in significance are the machines' energy efficiency, their networkability with robots and auxiliaries and availability of assistance systems. Last, but not least, the quality of the after-sales service including the possibility of using an online service also play an important part in the purchasing decision according to Klaus Großtesner. In the acquisition of robots, easy programmability is a top priority in addition to all other criteria which are also applicable to the machines.



Mold to produce an AMP plug for communication units in critical infrastructure, manufactured in-house by reverse engineering at Joh. Fuchs & Sohn's own mold-making shop (photo: FUSO)

The cooperation between FUSO and WITTMANN BATTENFELD has already been in existence for four decades. The machines most recently supplied by WITTMANN BATTENFELD are exclusively models from the SmartPower series. The machines from the SmartPower series are hydraulic machines equipped with fast-responding servo motors and powerful constant displacement pumps. This technology, combined with the KERS (Kinetic Energy Recovery System) to recover the deceleration energy within the machine, which is included as standard, provides the SmartPower's high level of energy efficiency. Further characteristics of the SmartPower are its small footprint and its pivotable injection unit, which ensures easy access to the barrel for quick and comfortable barrel change.

All SmartPower machines except one are designed as Insider cells, which means that they come with a WITTMANN robot and a conveyor belt integrated in the production cell. This variant offers a number of advantages, ranging from an enormous amount of space saved compared to systems with conventional automation solutions, all the way to cost advantages from the fact that all hazardous areas are already secured and certified ex works. Moreover, the robot cycle time can be minimized due to shorter travel distances and direct parts depositing on the conveyor belt.

The machines delivered in 2023 also come already equipped with the new B8X control system and the HiQ Flow assistance system. The B8X control system includes several control components developed in-house. These allow a higher internal clock frequency with shorter response times to sensor signals and consequently a higher standard of parts reproducibility, with user-friendliness and familiar visualization remaining unchanged. The HiQ Flow assistance system is an injection regulation function by which viscosity fluctuations in the material used can be compensated. This function enables automatic process automation and compensates even minimal fluctuations in the material quality. FUSO is so completely satisfied with this system that all of the company's other machines have been retrofitted with it, too, wherever technically feasible and economically advisable.

"The Insider cells based on the servo-hydraulic SmartPower and WITTMANN linear robots meet our requirements in every respect", Maximilian Högn confirms. "The equipment is space-saving, highly energy-efficient, easily accessible and easy to operate."

About the WITTMANN Group

The WITTMANN Group is a globally leading manufacturer of injection molding machines, robots and auxiliary equipment for processing a great variety of plasticizable materials – both plastic and non-plastic. The group of companies has its headquarters in Vienna, Austria and consists of two main divisions: WITTMANN BATTENFELD and WITTMANN. Following the principles of environmental protection, conservation of resources and circular economy, the WITTMANN Group engages in state-of-the-art process technology for maximum energy efficiency in injection molding, and in processing standard materials and materials with a high content of recyclates and renewable raw materials. The products of the WITTMANN Group are designed for horizontal and vertical integration into a Smart Factory and can be interlinked to form an intelligent production cell.

The companies of the group jointly operate ten production plants in six countries, and the additional sales companies at their 36 different locations are present in all major industrial markets around the world.

WITTMANN BATTENFELD pursues the continued strengthening of its market position as a manufacturer of injection molding machines and supplier of comprehensive modern machine technology in modular design. The product range of WITTMANN includes robots and automation systems, material handling systems, dryers, gravimetric and volumetric blenders, granulators, temperature controllers and chillers. The combination of the individual areas under the umbrella of the WITTMANN Group enables perfect integration – to the advantage of injection molding processors with an increasing demand for seamless interlocking of processing machines, automation and auxiliaries. ***smi***

WITTMANN Group
www.wittmann-group.com

Shibaura Machine Company, America introduced new EC110SXIII for medical molding

The new medical-specific all-electric molding machine offers the same speed and functionality as other ECSXIII models, with enhancements that are ideal for medical molding and clean room environments.

The first medical-specific all-electric injection molding machine from Shibaura Machine Company, America was introduced to the North American market during Plastec West in Anaheim, CA, February 6-8. LIVE demos of the new EC110SXIII (110 US tons) molding medical pipettes were held throughout the show at Shibaura Booth.

"For years, medical device manufacturers have been using our general purpose ECSXIII machine to mold a variety of products," said Chad Clawson, Key Accounts Sales Manager - Medical Casting/Molding Division, Shibaura Machine Company, America. "Our new medical-specific machine offers the same speed and functionality as other ECSXIII models, with enhancements that are ideal for medical molding and clean room environments," he added.

These enhancements include:

- Plated platens to control particulates and contamination
- Stainless steel guarding and panels ideal for clean room environments
- Raised frame for easy access to clean below the machine
- Special NFS H1 Certified lubrication grease
- Extended ejector stroke (+30 mm)

At Plastec West, Shibaura was using the new EC110SXIII medical machine to produce medical pipettes. Fully integrated with the EC110SXIII was a Mold-Masters hot runner controller and Mold-Masters water manifold system, which are available as optional add-ons.

The latest addition to Shibaura's popular ECSXIII series of all-electrics, the new medical machine delivers fast injection speeds and dry cycle times, ensures longer mold life and provides uniform clamping force, for greater productivity, flexibility and versatility. It features the same user-friendly V70 controller built into all ECSXIII models, making it easy for operators to decrease mold set up time, optimize cycle times, analyze part defects, troubleshoot defects and more.

Included with the new machine is a full year subscription to machiNetCloud, Shibaura's exclusive industrial IoT service providing manufacturers with remote, real-time access to machine data so they can control validated processes for molded components anytime, from any location.

The new medical-specific EC110SXIII is currently available in 110 US tons, with larger sizes to be available in the future.

About Shibaura Machine Company, America

Celebrating their 50th year of business in North America, Shibaura Machine Company, America is a wholly owned subsidiary of Shibaura Machine Co., Ltd., of Tokyo, Japan. Based in Elk Grove Village, IL, Shibaura Machine's Injection Molding Division designs and builds all-electric molding machines ranging from 33 to 3,350 tons, generally stocking over 100 injection molding machines in its North American inventory for quick delivery. Supporting customers throughout North America are a network of field sales representatives, a 24/7 technical hotline, extensive inventories of replacement parts, machine financing, installation and start-up services, training programs and more. *smi*

Shibaura Machine Company, America
www.shibaura-machine.com

Picture: Shibaura Machine Company, America

Sustainable and lightweight: efficient production of thermoplastic composite parts

With its many years of experience in injection moulding and its high level of automation expertise, ENGEL develops highly cost-effective production concepts for the manufacture of composite parts in large quantities. At JEC World 2024 in Paris, France, the machine manufacturer was demonstrating how high production efficiency and cost effectiveness can be combined with sustainability for both the aerospace and automotive industries.

In the ENGEL organomelt process, thermoplastic fibre composite preforms - for example thermoplastic sheets and UD tapes - are formed and functionalised in a single integrated process step. For example, reinforcing ribs or assembly elements are moulded immediately in the same mould after thermoforming using a thermoplastic from the same matrix material group as the thermoplastic sheet. This not only enables a highly efficient and fully automated production process, but also contributes to the circular economy. The consistent thermoplastic mono-material approach facilitates subsequent recycling of the parts.

At its stand in Paris, ENGEL was demonstrating the huge potential of organomelt lightweight technology with a live machine exhibit. An ENGEL victory 660/160 injection moulding machine and an ENGEL easix articulated robot were being used to automate the production of inspection flaps for the fuselage of passenger aircraft. The production cell also included an IR oven, which also comes from ENGEL in-house development and production.

To enable a sustainable and cost-effective process, a composite material with a recycled long-fibre core was used in combination with fabric-based cover layers. The thermoplastic sheets were heated in the IR oven, taken into the mould by the robot, formed in the mould and immediately overmoulded. The reinforcement ribs and a mounting clip were formed.

Heating up the thermoplastic sheet is a process step which determines the cycle time and is also relevant to quality. The thickness of the preform defines the heat-up and cool-down times. Heating up the material quickly without damaging is important, as are short paths for transporting the heated thermoplastic sheet to the mould, to avoid the sheet cooling down again on the way to the mould and losing its malleability. This is where the tie-bar-less technology of the victory machine plays to its strengths. Barrier-free access to the mould area makes it possible to position the IR oven very close to the mould. And the robot can take the shortest path to the mould without working around interference contours. Both factors accelerate hot handling and ensure process consistency and high component quality.

In integrated ENGEL system solutions, the robot and the IR oven are integrated into the injection moulding machine's

CC300 control unit. This allows the entire process to be operated centrally using the machine display. Another advantage is that the injection moulding machine, robot and IR oven access the same database and precisely coordinate their motion sequences with one another. This reduces the cycle time in many applications.

ENGEL was showcasing the production of the inspection flaps at JEC World 2024 in cooperation with its customer FACC (Ried im Innkreis, Austria). The other project partners are Ensinger (Nufringen, Germany), Neue Materialien Fürth in Germany and Voidsy, based in Wels, Austria. The latter was showcasing an ultra-compact system for contactless and non-destructive material and component testing using active thermography.

Great potential in all areas of mobility

In addition to the live exhibit on display, ENGEL and its Austrian partner KTM Technologies, based in Anif, Salzburg, were also focusing on another aspect. On display was a motorbike seat base produced using the newly developed tape sandwich process. This makes it possible to achieve a more compact part design with higher rigidity, lower weight and high cost efficiency.

"In the tape sandwich process, we work with very thin, single-layer reinforcement materials such as tapes and fabrics with a polypropylene matrix, which are inserted into both cavity halves of the injection mould without preheating before the cavity is filled with polypropylene," as Franz Füreder, Vice President Automotive & Mobility at ENGEL's headquarters in Schwertberg, Austria, explained. "Due to the specific mechanical properties of the sandwich structure, we can already meet the stiffness required for motorcycle seat bases with a single-layer UD-tape. This means that the tape sandwich process requires significantly less energy and simpler production cell technology than conventional fibre-reinforced plastic composite processing methods. At the same time, the production costs drop."

In the case of this technology demonstrator, the seat bottom, with identical stiffness, the necessary installation space could be reduced by 66 percent and the weight by about 26 per-cent. "The new sandwich structure, in which the reinforcing fibres are as far away as possible from the neutral fibre, offers maximum stiffness while minimising the number of fibres required," said Hans Lochner, Team Leader Material and Applications at KTM Technologies. Another advantage of the sandwich structure is that standard thermoplastics can be used in components exposed to high mechanical stresses, since the part performance is driven exclusively by the tape structure. And that boosts cost efficiency, too.

Reducing global warming potential by up to 85 percent

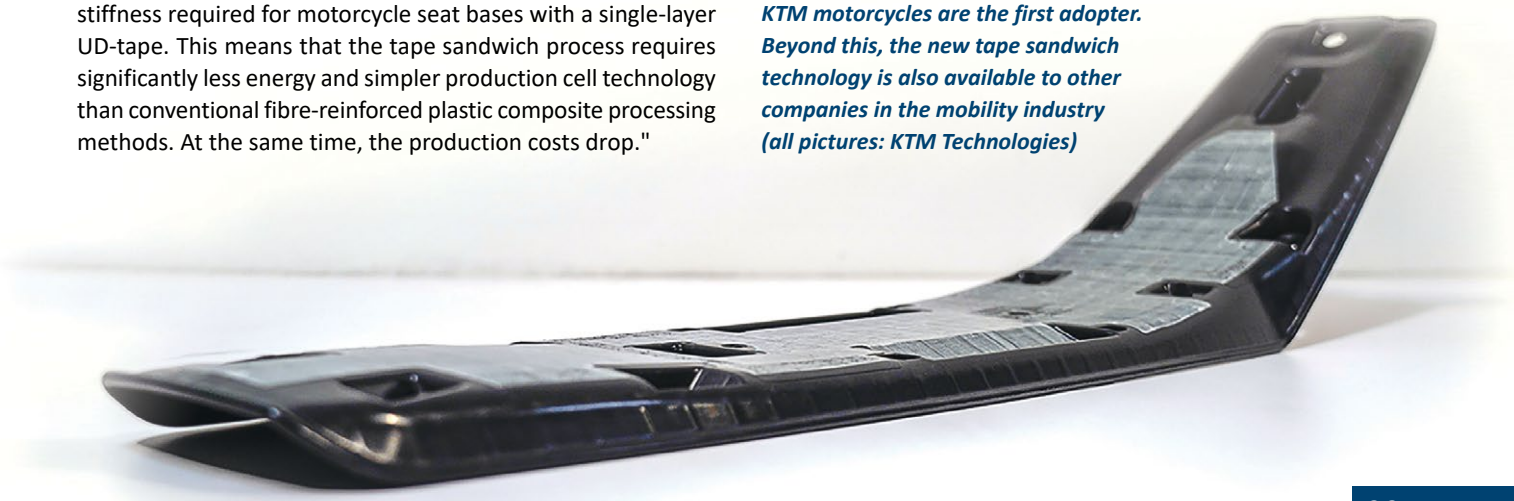
The development partners had tested a variety of injection moulding materials, including bio-based and recycled PP grades in addition to conventional PP from fossil sources. The global warming potential (GWP) was determined for the various material combinations. Compared to the series production version - a seat made entirely of fossil PP - the tape sandwich technology reduces the GWP by 27 percent when also using fossil PP. This value is achieved solely by reducing the material. Using polypropylene from renewable sources reduces the GWP value by 85 percent. The component weight was reduced by 26 percent in each case. This is possible because even very thin components achieve high stiffness.

The consistent single grade plastic approach also contributes to the reduction of greenhouse gases. In combination with tapes from a PP matrix, parts can be created which can be recycled at the end of their service life. "This new development sees us open up an affordable and sustainable solution for future mobility," Füreder emphasised.

The first step will be to set up tape sandwich technology for use in the KTM family of motorcycles. Besides this, ENGEL and KTM Technologies have their sights set on many other lightweight applications in a wide range of mobility disciplines. The two development partners are offering the tape sandwich process jointly, and developing solutions tailored precisely to the specific use case. ***smi***

ENGEL
www.engelglobal.com

KTM motorcycles are the first adopter. Beyond this, the new tape sandwich technology is also available to other companies in the mobility industry (all pictures: KTM Technologies)

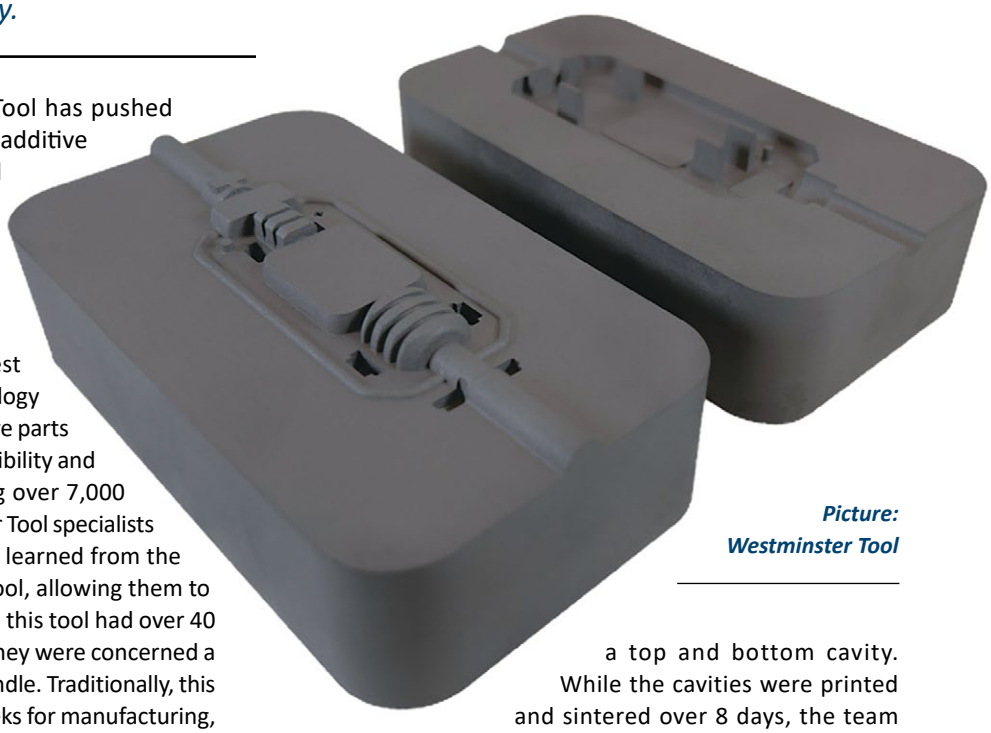


Bridging medical product development to production with additive

Westminster Tool used additive manufacturing to quickly create a production-level mold in a fraction of the time compared to traditional machining methods. The project required over 40 swipe-by shut offs, a testament to its complexity.

Since July of 2022 Westminster Tool has pushed the limits of the new Mantle Beta additive manufacturing machine, worked with Mantle to improve the machine's quality and efficiency, and completed numerous trials to identify ways to add value using this technology.

One of Westminster Tool team greatest success stories is utilizing Mantle's technology to quickly deliver production-representative parts for a medical OEM to complete biocompatibility and functional testing. This included molding over 7,000 pieces for development trials. Westminster Tool specialists were then able to implement the lessons learned from the prototype mold build into a production tool, allowing them to save over 30% in design costs. Most of all, this tool had over 40 swipe-by shut off conditions, something they were concerned a printed technology wouldn't be able to handle. Traditionally, this project would have required at least 8 weeks for manufacturing, requiring over 30 electrode shapes alone.



Picture: Westminster Tool

THE CHALLENGE

A large medical device OEM needed production-representative parts quickly in order to complete biocompatibility and functional testing. Development trials needed to be completed before large-scale production could begin. Secondly, the complex part design included over 40 swipe-by shut off conditions, posing major risks to quality.

THE SOLUTION

Westminster Tool used metal additive manufacturing to quickly produce H13-equivalent, production-level cavities in a fraction of the time compared to traditional machining methods. By spending more time on risk mitigation upfront with the printed prototype mold, the customer was able to save over 30% in design costs for production tooling.

PHASE ONE: Production-Quality Prototype Parts in Under 4 Weeks

The first step was designing a prototype mold using MUD frame inserts and H13-equivalent printed cavities to replicate a production environment as quickly as possible. To do this, Westminster Tool used Mantle's Trueshape Technology to print a top and bottom cavity. While the cavities were printed and sintered over 8 days, the team finalized a post-print machining strategy, ordered MUD inserts and began the insert modifications.

The cavities required 55 hours of post machining including the following:

- Grinding the bottom of the blocks to have a flat base to start from.
- Squaring the blocks to bring molding geometry to center using hardmill.
- EDM wiring ejector pin holes.
- Tapping water lines and bolt holes.
- Hard-milling and EDMing difficult swipe by areas (6 areas total).

These operations took an additional 1.5 weeks before Westminster Tool specialists were ready for final assembly and molding: resulting in molded parts within 4 weeks. The parts had minimal flash, and all critical dimensions were within +/- 0.003". The parts were then molded in batches for development and biocompatibility testing in two different materials. The first was an ABS and the second was a PC/ABS blend. Ultimately over 7,000 pieces were produced for the customers development needs.

PHASE TWO: Reviewing Lessons Learned

The first of several lessons learned involved warp and sink challenges. Westminster Tool specialists were able to improve

some of these by adjusting process parameters but not all. Despite achieving success for development testing, these remaining defects needed to be addressed in a production tool. While Westminster Tool team waited for feedback from the customer, they began identifying root causes and mitigation strategies such as surface finish, ejection, and gating strategies for the production mold.

The prototype tools also gave a better understanding of how the material performed during molding. In particular, the part length shrank more than anticipated, thus moving a dimension out of tolerance. Traditionally, it would have been suggested staying steel safe in this area to hit the tolerance adding additional cost and time. But based on the successful fitment of the prototype part into the assembly, Westminster Tool and the customer could confidently move forward with the current length.

CONCLUSION: Real Saving Opportunities for Production Molds

Westminster Tool specialists complete a thorough design for manufacturing process for every production mold they build. This is heavily focused on risk identification and mitigation and accounts for about 20-30% of their design costs. By learning and understanding the prototype tool and the risk related to the part, they were able to remove most of these costs from their production tool build. In addition, they already had majority of the cavity stacks designed which saved an additional 10% of design time.

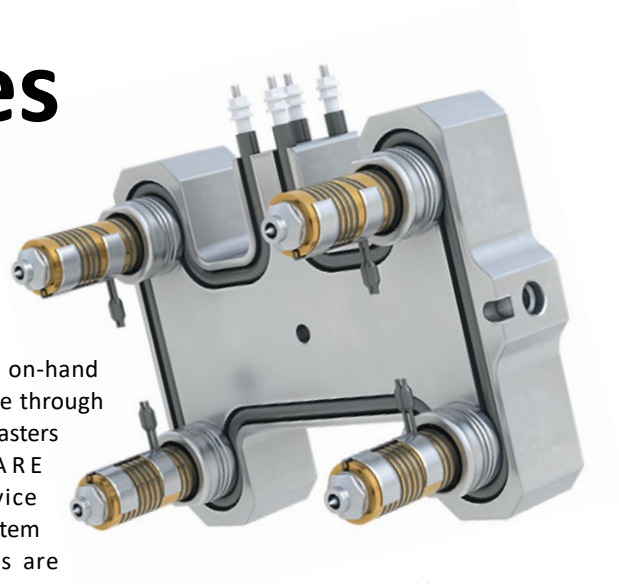
During the process of building tools, the pride comes from working towards real savings on the back end of the project. Most of the time, projects get hung up on the qualification phase of tools. Whether it's learning the hard way, for example, that a material is shrinking differently than expected or dealing with a mechanical challenge, troubleshooting can unnecessarily add weeks to a timeline.

Westminster Tool team's ultimate goal is that by getting involved sooner in part development, they can seamlessly transition a mold from qualification to production. *smi*

Westminster Tool
www.westminstertool.com

New EcoONE-Series hot runner system

Mold-Masters® has introduced an economical hot runner solution for commodity applications.



Picture: Mold-Masters

Mold-Masters®, a leading developer and supplier of hot runners, controllers, auxiliary injection, and co-injection systems, is pleased to announce the availability of the new Mold-Masters EcoONE-Series Hot Runner System. The EcoONE-Series is a highly economical solution suitable for processing commodity resins for simple, cost sensitive applications such as consumer goods, small home appliances, basic automotive components, electronic peripherals/accessories and more.

The EcoONE-Series system offers a wide range of standard nozzle options with a nozzle shot range capacity of <5g up to 3,500g in lengths ranging from 50-300mm. Five standard non-valved and five standard valved gating options are offered. Manifolds are available in 1-8 drop configurations with custom pitch options. Currently, it is available as a manifold system only and is expected to be shipped and delivered in as little as 3-4 weeks.

The EcoONE-Series standardized components enable Mold-Masters to offer rapid delivery and reduce costs to minimize investments for simple projects. The purchase price is significantly lower than Mold-Masters' premium hot runner solutions.

The EcoONE-Series system is also field serviceable to minimize downtime and operating costs. The system's nozzles use replaceable brass heater sleeves while manifolds incorporate push-in heater elements. As these are standard components, inventory is on-hand and available through the Mold-Masters MasterCARE global service network. System components are covered for up to two years under the products global warranty.

About Mold-Masters®

Mold-Masters® is a leading global supplier of hot runners, controllers, auxiliary injection and co-injection systems. We design, manufacture, distribute, sell and service highly engineered and customized plastic processing equipment that caters to every market. Mold-Masters is credited for patenting the first commercially viable hot runner system in 1965. Today, Mold-Masters conducts business in more than 100 countries and employs a diverse workforce that exceeds 2,150 professionals. Mold-Masters Global Headquarters is located in Georgetown, ON Canada. Mold-Masters is an operating company of Hillenbrand (NYSE: HI). *smi*

Mold-Masters
www.moldmasters.com

ABB identifies new frontiers for robotics and AI in 2024

From mobile robots and cobots to enabling new robotic applications in new sectors and creating new opportunities for people to learn and develop, these new frontiers for AI are redefining the future of industrial robotics.

ABB AMR in factory with Visual SLAM navigation (all pictures: ABB)

Marc Segura, President ABB Robotics Division, identifies three drivers for robotics-driven AI solutions in 2024, as ABB continues expansion in new segments not previously served by robotic automation.

"The coming year will see a growing focus on the critical role of AI," said Marc Segura, President ABB Robotics Division. "From mobile robots and cobots to enabling new robotic applications in new sectors and creating new opportunities for people to learn and develop, these new frontiers for AI are redefining the future of industrial robotics."

1) AI will drive new levels of autonomy in robotic applications

Accelerating progress in AI is redefining what is possible with industrial robotics. AI is enhancing everything from robots' ability to grip, pick and place as well as their ability to map and navigate through dynamic environments. From mobile robots to cobots and beyond, AI is giving robots unprecedented levels of speed, accuracy, and payload carrying ability, enabling them to take on more tasks in settings like flexible factories, warehouses, logistics centers and laboratories.

"AI-enabled mobile robots can transform sectors like discrete manufacturing, logistics and laboratories," said Segura. "Robots equipped with ABB's new Visual Simultaneous Localization and Mapping (Visual SLAM) technology, for example, have advanced mapping and navigation skills, granting new levels of autonomy, while greatly reducing the infrastructure needed by previous generations of guided robots. This paves the way for a shift from linear production lines to dynamic networks, creating significant efficiencies and taking on more dull, dirty and dangerous tasks, to enable workers to take up more rewarding jobs."

2) AI will see robots enter new sectors

The potential offered by AI-enabled robotics is influencing sectors far beyond manufacturing. In 2024, these technologies are expected to bring substantial efficiency improvements to more dynamic environments, such as healthcare and life sciences, as well as retail. Another example is the construction industry, where AI-powered robotics can make a material contribution to boosting productivity, enhancing safety and sustainable construction practices while spurring growth.

"The construction industry is a great example of a sector where AI-powered robots will prove transformative, delivering

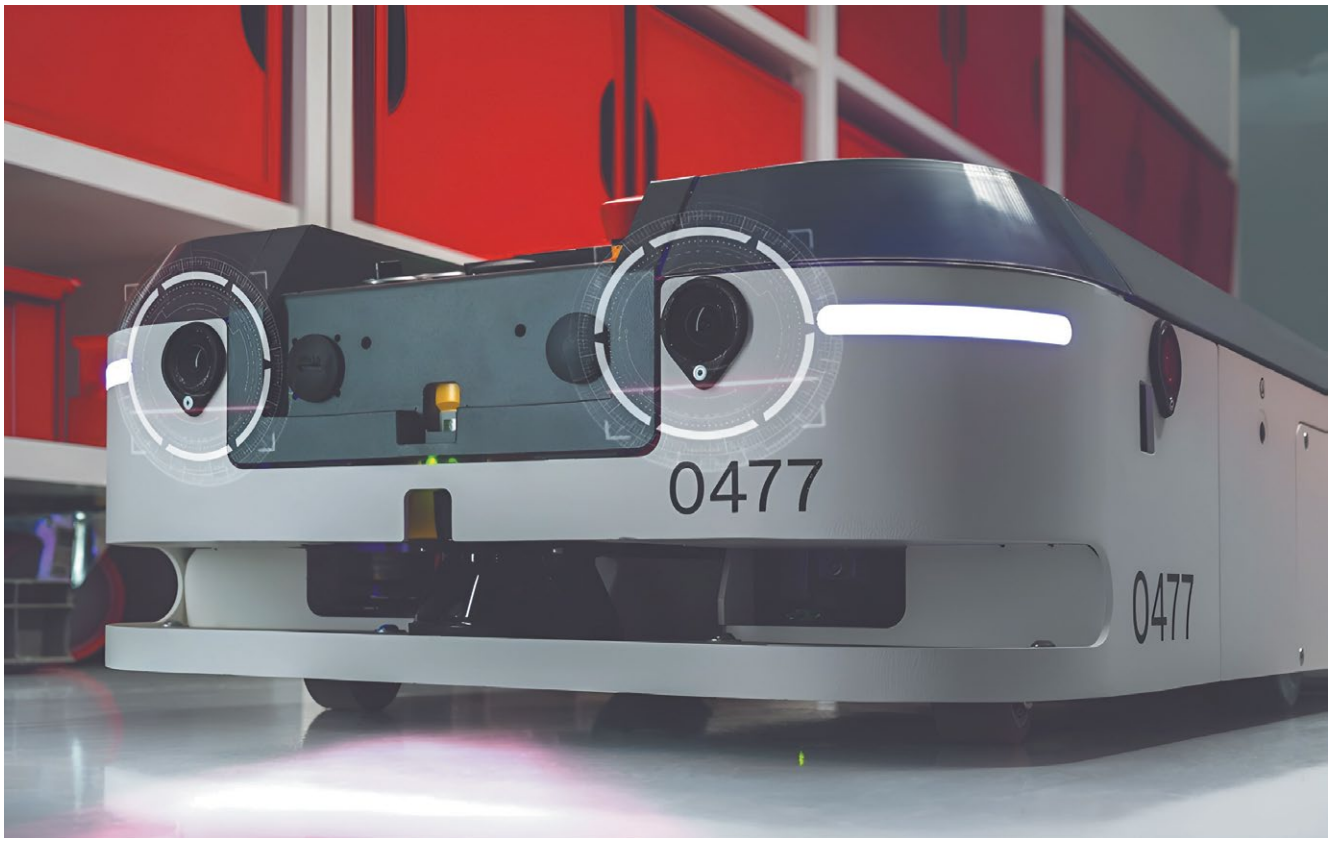


ABB AMR using Visual SLAM navigation

real value by addressing many of the issues facing the industry today, including worker shortages, safety issues and stagnant productivity," said Segura. "Abilities such as enhanced recognition and decision-making offered by AI, coupled with advances in collaborative robots enable safe deployment alongside workers. These advances also enable robots to perform key tasks such as bricklaying, modular assembly and 3D printing with greater precision and speed, all while contributing to more sustainable construction by lowering emissions, such as concrete mixing on site, to reducing the need to transport materials across far distances with on-site assembly."

3) AI will offer new opportunities for education and working with robots

The advances being made in AI and robotics is significant for training and education, closing the automation skills gap and making robots more accessible to more people and businesses. With AI making programming easier, through lead-through and even natural language, education can shift more towards how robots can assist humans more effectively, rather than just teaching programming skills. This transition will make robots more approachable and bring them to a wider audience, leading to new job prospects while helping alleviate labor and skills shortages.

"A shortage of people with the skills needed to program and support robots has long been a hurdle to the uptake of robotic automation, especially in small to medium sized manufacturing companies," said Segura. "We will see this increasingly being overcome as advances in generative AI lower the barriers to automation and expand the focus of education beyond programming. Developments in natural language programming, powered by AI in which workers can verbally instruct a robot in its task, will create a new dynamic in human-robot interactions."

ABB Robotics – 50 years of innovation

The continued development of AI-powered robotics is the latest chapter in ABB's fifty-year story of robotic innovation that began in 1974 with the sale of the world's first commercial all-electric robot, the IRB 6. Fifty years later, ABB is pioneering new ways of helping customers boost their productivity, efficiency, and sustainability through robotic automation. ABB will be celebrating 50 years of robotic innovation throughout 2024.

About ABB

ABB Robotics & Discrete Automation as one of the world's leading robotics and machine automation suppliers, is the only company with a comprehensive and integrated portfolio covering robots, Autonomous Mobile Robots and machine automation solutions, designed and orchestrated by our value-creating software. ABB helps companies of all sizes and sectors - from automotive to electronics and logistics – become more resilient, flexible and efficient. ABB Robotics & Discrete Automation supports customers in the transition towards the connected and collaborative factory of the future. The business area employs approximately 11,000 people at over 100 locations in approximately 53 countries. **smi**

ABB
www.new.abb.com

A manufacturing cell at Schneider Electric GSC China

Innovative digitalization, lower energy consumption, improved production yield

With the help of intelligent injection molding solutions and professional consulting services from Kistler, Schneider Electric's production team successfully achieved all the key objectives.

Intelligent injection molding is a cornerstone of Schneider Electric's worldwide digitalization strategy – and Kistler technology is helping this global giant to ride the trend of Industry 4.0. Measurement and process monitoring solutions from Kistler are key to digitalizing and optimizing Schneider's production processes for challenging electrical components – leading to higher product quality, process stability and transparency across the board.

Founded in 1836, Schneider Electric SE is a Fortune Global 500 company headquartered in Rueil-Malmaison, France. This renowned multinational electric group has main businesses spanning intelligent power distribution equipment, electrical sockets, and industrial automation control components. With over 120,000 employees worldwide in 2022, Schneider Electric posted revenues of €34 billion from over 100 different locations and areas. Performance in two pillar industries – energy management and industrial automation – was particularly strong, with growth of 10 percent. Present in China since 1987, Schneider Electric now owns 4 R&D centers and 23 plants there with around 17,000 employees countrywide. The company has also taken on a crucial role in the “digital innovation” and “green decarbonization” initiatives advanced by the Chinese government at all levels.

Real-time monitoring: the key to improvement

Schneider Electric aims to implement an intelligent injection molding approach throughout its globally distributed production operations. To achieve this goal, Schneider promotes Kistler technology within the company – specifically, in the form of a one-box package solution that includes cavity pressure sensors and matching data processing/software modules. Schneider Electric China and Kistler launched their collaboration in the

second half of 2020, not long after the two companies first made contact. The molding department at Schneider Electric China now truly benefits from this partnership, as they are supported by engineers from Kistler China with technological expertise and constructive suggestions. In this way, many practical problems were solved collaboratively.

Long Shunmao, KIP Technology Leader at Schneider Electric GSC China and an injection molding expert, is responsible for production of the Minitop, a component used in the company's low-voltage electrical distribution products. To ensure high product quality and process reliability, Long combined a scientific molding approach with cavity pressure and temperature sensors as well as a process monitoring system from Kistler. The particular aims here were to understand and control the interrelated changes in five invisible variables during the injection molding process: injection velocity, plastic temperature, plastic pressure, and cooling temperature/time.

"The Minitop products have to meet strict quality criteria for strength, dimensions and service life, among other attributes," Long notes.

Higher product quality, less scrap

Four 6182D cavity pressure sensors and two 6195B temperature sensors from Kistler were installed in the mold for quality control and process data visualization. The 6182D sensor is a miniature piezoelectric pressure transducer with a diameter of 2.5 mm, a measuring range of up to 2,000 bar, and a flexible connecting option (single cable or conductive spacer sleeve).

Data provided by the pressure and temperature sensors is visualized and evaluated by the ComoNeo process monitoring system, which delivers real-time curves throughout the injection molding process. As was expected, the combination of submarine gates and a long glass fiber material presented additional challenges for the quality of the molding process, so issues showed up in various aspects of the finished parts such as dimension variation and viscosity.

Consequently, the pressure curves in ComoNeo revealed a mismatch between the submarine gates and the long glass fiber, so melt flow near the gates was often hampered or obstructed. ComoNeo also identified filling imbalances between cavities. Long again: "First, we verified the real cause of the problem; then, as soon as we'd adjusted and defined the quality standards for each process, we were able to boost production performance significantly." Here are details of the quality control and optimization features of the Kistler process monitoring system that were applied:

> *"In the initial technology assessment, that's why we chose side gates for the mold design and polyamide 66 (PA66) – a material with glass fiber content of up to 60% and a 12 mm glass fiber length. But then we had to find a way to make everything work together – and Kistler provided us with the right solution to ensure reliability throughout the entire process."*
> Long Shunmao, KIP Technology Leader at Schneider Electric GSC China

Injection molding with pa66 (all pictures source: Kistler)

- Monitoring and control of mold temperature via sensor signals
- Control of V/P switchover and guarantee of balanced filling (ComoNeoSWITCH)
- Separation of scrap based on defined quality criteria
- Production halt in case of abnormal conditions (e.g. wear, high temperature etc.)

Heading for automated optimization

Holistic process optimization greatly reduced the scrap rate in this application – from 13 to 8 percent overall. Completed parts also undergo X-ray and force testing (clamping, tripping, bending) to ensure consistent quality. And Long already has the next steps in view: "Theoretically, the scrap rate for this challenging component could be lowered to about 1 percent – especially if we make use of the ComoNeoMULTIFLOW feature as well." This software extension for ComoNeo allows for a cavity pressure-based balancing of the hot runner and therefore automatically compensates material and process fluctuations.

Schneider GSC China's overall goal is to establish a closed-loop interactive control system based on dynamic measurement technologies for injection molding. This implies intelligent and automatic adjustment in a self-adaptive process to guarantee stable product quality without human intervention. Such an outcome would represent level three of intelligent injection molding, involving automatic adjustment of temperature (multiple nozzles), and automatic switchover (V/P) by means of screw position and cavity pressure.

Long Shunmao concludes: "Molding engineers rely on efficient methods to verify various ever-changing combinations of molds, materials, and equipment. With the help of intelligent injection molding solutions and professional consulting services from Kistler, Schneider Electric's production team successfully achieved three key objectives: innovative digitalization of the injection molding process, lower energy consumption, and improved production yield." smi

Kistler
www.kistler.com

Expertise and proven technology

Laboratory automation, precision bottle measurement and innovations in automated blowmolder control to be a focus for Agr International at NPE 2024.

Agr will display several new product developments as well as an array of quality management and process control equipment for plastic containers at NPE 2024 in the South Hall.

Featured the Gawis 4D®, Agr's all-in-one automated laboratory measurement system, which streamlines laboratory measurement operations by performing a multitude of critical dimensional and thickness measurements in one simple operation. The Gawis 4D features Agr's patented AutoJob® that provides the ability to create complicated job setups in a matter of seconds. When paired with the robotic handling system, up to 128 bottles or preforms can be measured, hands-free, with unmatched accuracy, repeatability, and operational throughput.

Process Pilot®+ – reflects the latest advancements in automated blowmolder control for PET bottles and will be the focal point of Agr's display. Built upon Agr's iconic Process Pilot automated blowmolder management system, the Process Pilot+ incorporates a patented technology that significantly improves blowmolder efficiency and profitability by enabling operators to optimize the blowmolder based on performance, energy efficiency or operating costs. The Process Pilot system works in conjunction with the blowmolder to continuously measure material distribution on every bottle, and proactively manage the blowmolder to maintain optimal material distribution. With its ability to manage the blowmolder to maintain quality and performance attributes in spite of environmental, blowmolder and, especially, material variations due to rPET that occur during the production process, the Process Pilot+ system is an essential tool for PET bottle manufacturers that are committed to incorporating rPET into their product mix.

ThicknessPen™ - portable, non-destructive, accurate thickness measurement of non-ferrous materials (all pictures: Agr)

Pilot Vision+™ – Agr's latest and most powerful in-the-blowmolder vision system. This system is uniquely positioned for the quality management of bottles with high percentages of rPET. Designed to work in conjunction with today's high-speed reheat stretch blowmolding equipment, the Pilot Vision+ system offers a modular approach to defect detection that works within the blowmolder. The open architecture of this system allows for simultaneous management of up to six cameras, in multiple locations. As part of Agr's Process Pilot family of products, Pilot Vision+ can be combined with Process Pilot+ for a total bottle management solution, providing the ability to detect random occurring defects as well as manage the process to maintain precise material distribution, even with the lightest and/or most difficult-to-process bottle design.

Gawis 4D® - comprehensive, automatic laboratory-based measuring systems for plastic containers and preforms

In addition, Agr will have the newly released ThicknessPen™ handheld thickness measurement device available

Process Pilot+™ - automated blowmolder control system for PET container production

to try out on a variety of samples and materials. The ThicknessPen offers an innovative approach to portable thickness measurement with its patent pending dual mode design. Developed to address the multiple and diverse thickness measurement applications of the production environment, the ThicknessPen can be used anywhere, from the laboratory, the plant floor or even in a wet environment at a job site in the field. Used with or without a target ball, the ThicknessPen provides a unique advantage and offers versatility not found in any product in this marketplace while still providing the precision necessary for the laboratory and the portability, ruggedness and safety for use on the production floor.

Agr measurement and processing experts will be available to discuss these products as well as the complete line of process monitoring and quality control equipment available from Agr for the plastic industry.

Agr products are designed to assist container producers, converters and fillers stay competitive while meeting the increased quality demands of today's changing world. As an industry leader, Agr is committed to providing the plastic container industry with the most technologically advanced products available for quality control and productivity improvement. **smi**

Agr
www.agrintl.com.

Pure material, best quality

No chance for contamination with inspection and sorting technology from SIKORA.

In 2013 SIKORA launched with the PURITY SCANNER a new type of technology on the market that differed significantly from existing technologies. The development of a system for inspection and sorting of pellets was achieved in close cooperation with partners from the power cable industry. Today, the device is established on the market and helps users during sorting for the highest quality and sustainability.

Particularly in the production of high-voltage cables, it is essential that no metal contamination, which can occur during production, gets into the insulation of the power cables. The aim was then and now to detect and sort out impurities in the plastic pellets. A particular challenge was to detect impurities even if they were melted into the pellet. The PURITY SCANNER's unique combination of X-ray technology and a flexible optical system laid the foundation for 100 % inspection of plastic pellets already ten years ago. Discolorations and black specks in transparent or on translucent and colored raw materials are detected by up to three optical black and white cameras. In addition, the X-ray camera detects metallic contaminants from 50 µm in size in the pellets. The contaminants are then automatically sorted out so that only pure material is processed further. The system has been continuously developed since its introduction. The PURITY SCANNER ADVANCED, the successor to the PURITY SCANNER, has now been successfully established on the market. Depending on the material and requirements, the customer decides how many and which camera types are used.

The pellets are conveyed to the inspection area via a stainless steel vibrating chute (picture: SIKORA)

The pellets are conveyed via a wear-free vibrating chute made of stainless steel, which is perfectly encapsulated to create a clean room within the system. The pellets fall evenly down the inspection area via the vibrating chute. This creates optimum conditions for optical inspection from the various camera viewing angles. With the PURITY SCANNER ADVANCED, customers have also the option of adapting the by-catch to the respective application using hybrid blowing. For rarely occurring, larger burns or metal contamination, for example, a larger ejection can be set than for small, light discolorations that are not critical.

Thanks to the combination of the highest possible detection and hybrid blowing, the PURITY SCANNER ADVANCED enables material of the highest quality. This further optimizes production processes, and the reduced bycatch contributes to cost-efficient and sustainable production. **smi**

SIKORA
www.sikora.net

Introducing Supernova:

A new company born from the carve-out of BCN3D's Viscous Lithography Manufacturing (VLM) business unit, set to revolutionize AM in real production applications.

January 31, 2024, a leading 3D printing solutions manufacturer BCN3D, together with the newly formed company Supernova, jointly announced that during Q4 2023, BCN3D executed a carve-out of its Viscous Lithography Manufacturing (VLM) business unit into Supernova. This new company has been incorporated in the US and will have headquarters in both Austin (Texas, US) and Barcelona (Spain). Supernova is not a subsidiary of BCN3D; instead, the two entities are completely independent, and since the carve-out, there are no further bonds between the two entities.

Supernova's vision is to elevate products through advanced technologies, based on its breakthrough VLM technology. Supernova unlocks real production applications by providing solutions that combine quality, productivity, and a competitive cost per part.

BCN3D's purpose is to enable innovators to create the future by making industrial additive manufacturing (AM) accessible. The company focuses on enabling engineers to enhance product design through functional prototyping and to improve factory operations with tooling, jigs, and fixtures.

To be successful, each of those visions will require a distinct business model, company structure, and, most importantly, a laser-focused team. The technologies, customers, applications, and materials all differ significantly. By carving out its VLM business unit into Supernova, BCN3D ensures that each has its own space to flourish in the long term.

Supernova will be led by Roger Antunez as CEO, who previously served as the General Manager of BCN3D since 2019. Joining him as a co-founder is Marta Mico, formerly the VLM Head of Business Development at BCN3D. Additionally, Eric Pallares, the former CTO of BCN3D, will join Supernova as a Distinguished Technologist. Meanwhile, the rest of the team will remain at BCN3D, with Pol Domenech, the Sales Director, stepping up as the new General Manager.

Under the leadership of its CEO Xavi M. Faneca, BCN3D will continue to focus on its core business of extrusion-based technologies. The company aims to expand its leadership in the IDEX segment that the company created in 2016, and grow its industrial offering with products like the BCN3D Omega I60, an all-in-one industrial FFF 3D printer built for the factory floor featuring IDEX technology, an actively heated printing chamber, a massive print volume, and an architecture ready for high speed.

At the core of Supernova there is Viscous Lithography Manufacturing (VLM), a lithography-based AM process that laminates thin layers of high-viscosity resins onto a transparent transfer film prior to photopolymerize the resin into the 3D printed object. The resins can be up to 100 times more viscous than those used in traditional DLP, SLA, or MSLA processes, unlocking an unparalleled range of properties. These properties are closer to thermoplastics than standard thermosets, achieved in an efficient and scalable manner.

With the formulation freedom enabled by high viscosity, Supernova's materials portfolio benefits from a broader set of available ingredients, achieving superior properties. From a chemical-base standpoint, the process can handle not only acrylates but also silicones, epoxies, or filled materials, among others. To support its long-term materials strategy, Supernova has formed partnerships with major chemical companies in AM. These relationships include a Joint Development Agreement (JDA) with Arkema and other partnerships with Altana, Elkem, Henkel, and Rahn.

VLM technology has garnered significant interest in the market, evidenced by the registration of over 500 companies in the Technology Adoption Program. These companies span various industries, including Automotive, Aerospace, Manufacturing, Consumer Goods, Footwear, Audiology, and Healthcare, among others. Strategic partnerships with customers such as Puma, Saint Gobain, Orbea, Hutchison, and Prodrive have since been driving the materials and technology development in alignment with customer needs. Apart from industrial markets, Supernova will also concentrate on the Defense and Space sectors, aiming to develop industry-specific materials that other existing AM technologies cannot process.

During the next year, Supernova plans to leverage the Technology Adoption Program to develop applications in key vertical markets. This initiative aims to influence both materials development and the industrialization of hardware systems, ultimately forming a production-ready ecosystem. Beta deployments in customer sites are expected during 2024. In line with these goals, the company will be expanding its R&D teams in both materials and product (or hardware and software), as well as its business departments. *smi*

BCN3D
www.bcn3d.com

All pictures: BCN3D

KIMYA and CAMBOX: the continuation of a “French tech” collaboration

All the plastic components of the CAMBOX onboard cameras are manufactured using the industrial 3D printing process and KIMYA ABS-S filaments.

CAMBOX, a French manufacturer of unique onboard cameras in the world, designs, manufactures, and assembles its models in Clisson (Loire-Atlantique department, France). Their specific features include ergonomic and boomerang-shaped design, allowing the device to be positioned in helmets or under visors, in front of the user’s forehead, just above the eyes. This safe placement for the user allows, during viewing, a perfect restitution of what the user is looking at, thus producing a feeling of total immersion. All the plastic components of the CAMBOX onboard cameras are manufactured using the industrial 3D printing process and KIMYA filaments.

Picture: CAMBOX

Industrial 3D Printing at CAMBOX

Following the launch of CAMBOX in the early 2010s and after exploring various production options, industrial 3D printing emerged as the most flexible and agile solution for manufacturing camera parts. Initially, CAMBOX set up an industrial 3D printing park with several dozen Zortrax machines, situated directly within the premises. This farm further expanded in the second half of 2023 with the addition of ten new industrial 3D printers, bringing the total to 48 machines. With a commitment to both “Made in France” and short supply chains – with Cambox’s premises being less than 15km from KIMYA’s production site – CAMBOX then launched the first onboard cameras with parts made from KIMYA ABS-S filaments in September 2020.

The KIMYA ABS-S 3D Filament

CAMBOX was in search of a 3D material that offered a matte black finish and a surface quality true to thermoplastic. The specifications also called for heat resistance, due to the camera’s use. The optimal solution to meet CAMBOX’s needs was the KIMYA ABS-S filament: a standard filament that withstands high temperatures (up to 90°C) and has a refined surface state. It also has the characteristic of being impact resistant, a necessary feature for an onboard camera. Moreover, KIMYA combined a trio of benefits that reinforced CAMBOX’s choice of this partner:

“With 2.2 kg spools – compared to 750 g previously – our maintenance operations are reduced by three, allowing us to make significant labor savings. This type of packaging produces three times less waste – empty spools and ABS plastic scraps -, which are moreover collected by KIMYA. The savings in transportation costs are also significant, thanks to our geographical proximity.” Pierre-Antoine Pluvinage, Associate CEO at CAMBOX.

A Sustainable Partnership

More recently, in addition to the KIMYA ABS-S filament, CAMBOX has introduced another 3D filament into its production process, the KIMYA Tough PLA-HI. This filament is particularly notable for its significant mechanical strength, four times higher than a standard PLA filament.

“The rigidity, flexibility, and resistance of the KIMYA Tough PLA-HI filament are ideal for making the frames of our V3+ onboard cameras. In summary, it’s fast, it’s solid, and it’s flexible!”, concludes Pierre-Antoine Pluvinage. ***smi***

KIMYA
www.kimya.fr

Hylo™ & Basis™, AON3D's new high temp 3D printer & software platform

Together, the two solutions simplify and expedite the process of printing open market materials, carbon fiber composites, and high performance polymers.

November 2023, AON3D, a North American manufacturer of industrial 3D printers and software, revealed Hylo™, a new 'smart' high temperature 3D printer, and Basis™, an additive manufacturing software equipped with process simulation, machine learning-driven thermal optimization, and part qualification tools. Together, the two solutions simplify and expedite the process of printing open market materials, carbon fiber composites, and high performance polymers: materials with greater specific strength than many metals, continuous use temperatures up to 260°C, extreme chemical resistance, and lots more.

Hylo™ Prints PEEK, ULTEM™, and More – Larger, Faster, and Easier Than Ever

With an expansive 25.6 x 17.7 x 17.7 in. build area, a 250°C chamber, and over 8x throughput, Hylo™ boasts print speeds of up to 500 mm/s and IDEX-enabled duplication/support modes. Beyond its impressive specifications, it's the industry's first 'Smart' 3D printer, featuring advanced process control and monitoring, accompanied by thermal optimization software. Equipped with over 25 integrated sensors, Hylo™ manufactures reliable, accurate, and exceptionally strong parts in open-market materials by continually monitoring, controlling, and compensating for process variability.

Why High Performance Polymers Have Been Historically Hard to Print

Currently, many high temperature 3D printers and accompanying software struggle to print high performance polymers, like PEEK and ULTEM™. This is primarily attributed to antiquated, open loop hardware/software architectures. Slicers lack material-specific thermal awareness, 3D printers lack adequate process control/monitoring, and there are no feedback loops between the two.

Current material extrusion printers rely on workaround solutions, like reducing variability by locking down materials and process settings or using "one size fits all" process parameters e.g., print speeds and thermals. When combined with a printed part's unique features, these limitations lead to visible/hidden defects, print failures, variable part performance, and the perception that high performance polymers are hard to print.

AON3D Hylo™ and Basis™ solve these limits by leveraging process simulation and automation to integrate material awareness into the slicing process.

Picture: AON3D

Basis™ – Optimize Part Properties with Automation and Reduce Downstream Quality Management Burdens

Basis™ is the foundation of the AON3D's new product ecosystem. Smart hardware is combined with intelligent-slicing and in-process monitoring, turning process variability into part confidence with just a few clicks. While complete details are not yet released, AON3D Basis™ adds material-specific thermal awareness to the slicing process, dynamically tuning process parameters to optimize properties such as layer weld strength, dimensional accuracy, surface finish, and more.

In addition, AON3D Basis™ users can quickly verify printed part quality by viewing Hylo's process monitoring data in three dimensions. While many high temperature 3D printer manufacturers offer rudimentary thermal maps, AON3D's quality control tool also captures warping/cracking, over/under extrusion, filament diameter variances, hidden defects, dross/debris inclusion, and more. ***smi***

AON3D
www.aon3d.com

Apec® 2045 high-heat copolycarbonate is designed for medical devices with molded-in seals and healthcare applications requiring hot air sterilization at up to 180 °C

New Covestro medical polycarbonate pushes the boundaries of heat resistance

- *Combines biocompatibility, heat-resistance, transparency and durability*
- *Boosts productivity in silicone overmolding applications*
- *Can contribute to customer sustainability goals*

Overmolding polycarbonate with liquid silicone rubber (LSR) is commonly used to produce respiratory masks and other medical devices requiring molded-in seals. Now, Covestro, a leading producer of advanced polymers and high-performance plastics has developed Apec® 2045 – a copolycarbonate with the highest heat resistance – enabling molders and medical OEMs to significantly slash production time and cost, without sacrificing quality, performance or appearance.

"We work closely with our healthcare customers and recognized that we could offer a polycarbonate made for highest curing temperatures in silicone overmolding, helping them more than double production volumes in the same amount of time due to shorter cycle times," said Pierre Moulinie, Global Healthcare Technology Lead, Covestro LLC. "Our experts provide support every step of the way," he continued, "helping our customers calculate possible savings when switching to this new high-heat Apec® copolycarbonate grade – for example, simulating material performance in specific applications and calculating cost benefits with our LSR calculator tool."

In addition to offering high heat resistance and high productivity, Apec® 2045 copolycarbonate offers other important benefits for this market. These include:

- Durability: Tough engineering plastic with the highest heat resistance in the medical polycarbonate portfolio
- Transparency: Produces transparent parts with high optical clarity
- Biocompatible: Biocompatibility testing according to ISO 10993-1 and USP Class VI for contact of 30 days or less
- Sterilizable: Supports sterilization methods most prevalent in the healthcare industry, including irradiation, autoclave and hot air
- Processability: Consistent and efficient processing

Furthermore, using this new material may contribute to customer sustainability goals, as it can enable circular business models by supporting close- and open-loop recycling, as well as the possibility of attributed bio-circular content.

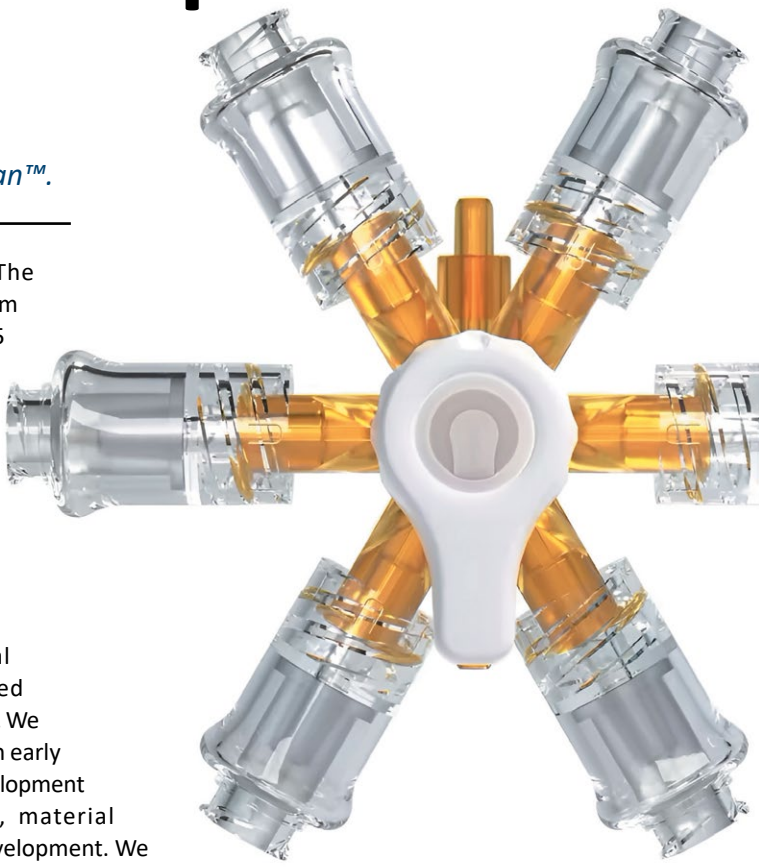
Polycarbonates from Covestro are found in some of modern technology's most essential medical devices and play a major role in developing next-generation, life-saving technology. Used in applications where strength, clarity and toughness are necessary, polycarbonates from Covestro exemplify the innovation, safety and biocompatibility that healthcare and life sciences designers and manufacturers across the world have come to know and trust. To learn more about how your company can use Covestro's material expertise to enhance your medical and healthcare manufacturing, visit Covestro Solution Center. **smi**

The heat-resistant polycarbonate also boosts productivity in silicone overmolding applications (all pictures: Covestro)

Covestro
www.covestro.com

Medical component made with Tritan™ prevents drug mixing

CYTO365's RondelO™ is a new turn valve for safer multi-drug administration made with Eastman's Tritan™.



Picture source: Eastman

Swedish medical technology company CYTO365 and Eastman worked together to create a new medical component for infusion therapy that lowers patient risk.

CYTO365's founder and CEO Micael Törnblom noticed that, with current infusion treatment, medical professionals could unintentionally mix incompatible drugs during infusion therapy. To help prevent that, the company has developed RondelO™, a turn valve with multiple inlets that stops unintentional mixing. It can connect six drugs, which are given one at a time with flushing fluids in between.

This turn valve is considered revolutionary because it supports back-to-back drug infusion through the same device. But the CYTO365 team knew it would need durable, safe material that supports accurate molding and is crystal clear.

The CYTO365 team met Eastman business development manager Theo Wuebbels in 2019 at a medical technology trade fair. Having liked what they saw and heard, CYTO365 leaders turned to him and Eastman for help. Eastman's technical support team incorporated Eastman Tritan™ copolyester, which helped create an accurate mold without cracks.

"We want to support medical professionals through safe and reliable medical equipment," Törnblom said. "But to help them, the material must be lipid-resistant and crack-free to oncology drugs, so we needed a copolyester and innovation partner we could trust. That's why we chose Eastman."

Eastman performed simulation testing for material degradation and mold filling with Tritan. The technical support team worked with CYTO365 to identify a mold-drying process.

"One of Eastman's greatest strengths is our hands-on, collaborative approach to personalized solutions," Wuebbels said. "Our technical support team worked directly with CYTO365. We were involved from an early phase of product development to align on design, material selection and tool development. We evaluated their exact needs and even shortened their time to market with a device that was safe and durable."

RondelO became commercially available to IV manufacturers in 2023. The design includes a visual and haptic "click" position for each drug for easy identification. It is available in two-, four- and six-port options.

"Tritan really lives up to both our expectations and our customers' expectations," Törnblom said. "RondelO can be the physical barrier we intended for infusion therapy, and Tritan has helped us make it a trusted device for medical professionals. The precision this copolyester brings to our device is truly innovative and revolutionary."

About Eastman

Founded in 1920, Eastman is a global specialty materials company that produces a broad range of products found in items people use every day. With the purpose of enhancing the quality of life in a material way, Eastman works with customers to deliver innovative products and solutions while maintaining a commitment to safety and sustainability. The company's innovation-driven growth model takes advantage of world-class technology platforms, deep customer engagement, and differentiated application development to grow its leading positions in attractive end markets such as transportation, building and construction, and consumables. As a globally inclusive and diverse company, Eastman employs approximately 14,000 people around the world and serves customers in more than 100 countries. The company had 2023 revenue of approximately $9.2 billion and is headquartered in Kingsport, Tennessee, USA. smi

Eastman
www.eastman.com

LyondellBasell introduces new plastics made from recycled marine maritime gear

With the introduction of CirculenRecover PPC TRC 2179N, recycled maritime plastic can now be used for the first time in injection molding.

LyondellBasell, a global leader in innovation, is proud to announce its involvement in a groundbreaking value chain collaboration aimed at transforming end-of-life industry from the maritime waste into innovative plastics. This collaboration includes a renowned German OEM and a specialized recycling company with expertise in mechanically recycling plastic waste.

Traditionally, the automotive industry has only utilized recycled maritime plastic in the form of fibers for new vehicle components. However, with the introduction of *Circulen*Recover PPC TRC 2179N, this recyclate can now be used for the first time in injection molding. This breakthrough opens up new possibilities for the application of recycled plastics. As part of this collaboration, end-of-life fishing nets are collected and meticulously sorted by type. They are then processed to create a high-quality plastic recyclate. LyondellBasell takes this recyclate and expertly compounds it with virgin compounds to produce the grade *Circulen*Recover PPC TRC 2179N.

Picture source: LyondellBasell

CirculenRecover polymers

Recovering plastic waste from the environment (both pre and post-consumer waste), *Circulen*Recover polymers are made from a mechanical recycling process to produce recycled resins. By processing the plastic waste through the shortest recycling loop, a lower carbon footprint can be achieved.

Historically, recycled polymers have been associated with low-end applications and were often noted to be less durable or lower in quality. *Circulen*Recover polymers offer a consistent, high-quality product containing recycled material that can be used in a number of applications, such as consumer rigid packaging and caps and closures.

The injection-molded components made from *Circulen*Recover PPC TRC 2179N are trim parts used in visible areas for the interior of various car models. This development, which will be used in big-scale production, allows for enhanced sustainability and environmental responsibility in the automotive industry. LyondellBasell is proud to be at the forefront of this transformative collaboration, which showcases the Company's commitment to innovation and sustainability.

"Who would have thought that maritime gear can be one of the solutions to create more sustainable cars?" says Michael Büdinger, Business Development Manager at LyondellBasell. "As part of the European Green Deal, the European Commission is currently investigating measures to increase the circularity of vehicles, one of them being the use of up to 25% of post-consumer plastic waste. Maritime gear will support OEMs in reaching this goal."

- The new recyclate is available in a wide range of colors
- *Circulen*Recover is carefully sorted and cleaned to ensure consistent quality feedstock
- LyondellBasell continually invests in recylate quality.

LyondellBasell is committed to meeting the evolving needs of its customers. The company remains focused on developing tailored solutions for its customers, meeting their specific demands and requirements. **smi**

LyondellBasell
www.lyondellbasell.com

BASF has launched Irgastab® PUR 71

This cutting-edge antioxidant improving regulatory compliance and performance for polyols and polyurethane foams was formulated without aromatic amine to promote a better environmental, health and safety profile.

BASF has recently presented Irgastab® PUR 71, an innovative and advanced anti-scorch solution that not only ensures adherence to regulations but also offers exceptional performance. This premium solution has been formulated without aromatic amine, effectively addressing the limitations of conventional anti-scorch additives. With its superior environmental, health, and safety profile, this solution meets the increasing regulatory pressure on substance classification and sustainability in the industry.

"Irgastab PUR 71 reaffirms BASF's commitment to innovation and partnership with the industry: We offer our customers a sustainable alternative to conventional solutions, empowering them to gain a significant advantage in the everchanging global market," said Dr. Bettina Sobotka, Head of Global Marketing and Development, Plastic Additives, BASF. "With a proven track record in additives, backed by our global team of experts dedicated to the development of the automotive and comfort industry, we strive to pioneer cutting-edge technologies and solutions that not only enhance performance, but also promote sustainability."

In the manufacturing of polyurethane foams, the heat generated during the process can cause discoloration, loss of mechanical properties, and even fire hazards if the polyols, the main raw materials, are not properly stabilized. While conventional anti-scorch packages rely on phenolic antioxidants combined with aromatic amine stabilizers, they come with significant drawbacks such as unpleasant odor, toxicity concerns, or high volatility.

The use of anti-scorch additives can greatly minimize degradation caused by exothermic reactions during the processing of PUR foam. Irgastab PUR 71, formulated without aromatic amine, effectively decreases emissions and lowers the potential harm to both humans and aquatic organisms. Consequently, this leads to significantly reduced levels of volatile organic compounds (VOC) and condensable emissions (FOG) released from PUR foams. Due to these properties, air quality within the interior of vehicles can be greatly improved, creating an advantage in the automotive industry.

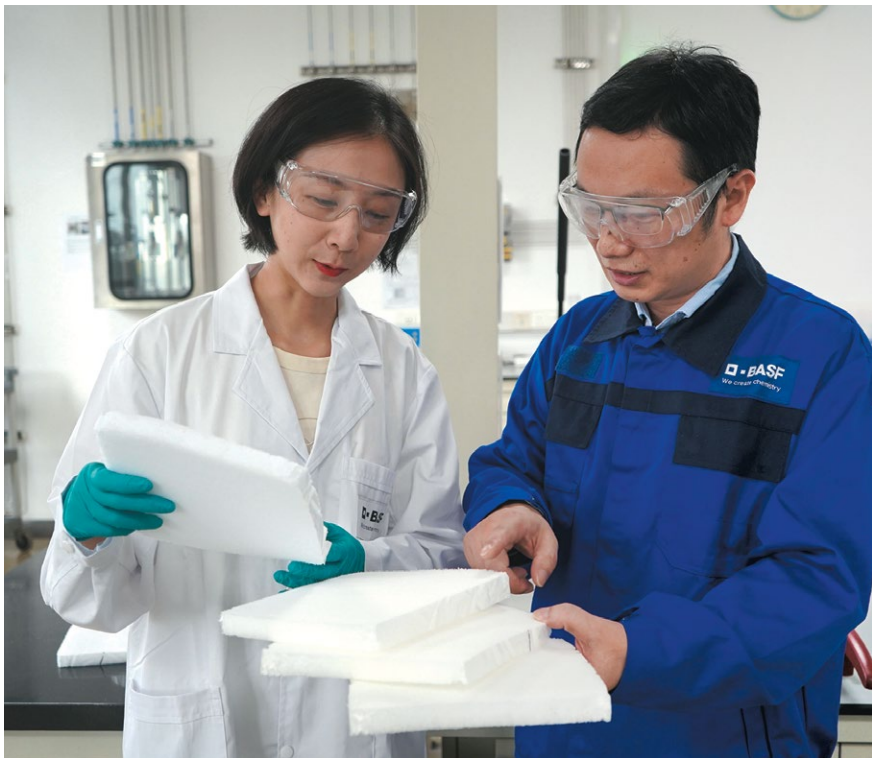


Photo: BASF

Irgastab PUR 71 provides targeted application benefits in various industries. It enables lower emissions in compliance with the most stringent automotive industry specifications and improves the vehicle interior air quality. In the comfort sector, it offers state-of-the-art anti-scorch resistance to polyol as well as foam producers, preventing heat degradation during the foaming process. In addition, it has no Carcinogenic, Mutagenic and Reprotoxic (CMR) classification, allowing polyol producers to comply with environmental voluntary certifications and keep their anti-scorch recipe confidential. For consumer goods, it enhances product quality by providing improved whiteness and resistance to color change caused by gas fading and light-induced discoloration.

Irgastab PUR 71 is part of the VALERAS® portfolio. With VALERAS, BASF is committed to increasing the sustainability of plastics along the entire polymer value chain with innovative solutions and offerings from its plastic additives business. ***smi***

BASF
www.basf.com

Primezone H1281/... with OPC UA interface

With the new software revision for the Primezone control unit, HASCO is now providing hot runner users with an OPC UA interface with EUROMAP82.2 protocol.

HASCO's innovative range of Primezone H1281/... control units stands out with its exceptional control accuracy, its intuitive user interface, and its comprehensive diagnostic functions. The touchscreen display and the very latest software technologies enable simple and intuitive operation. With the three desktop versions, 6 to 48 zones can be precisely and reliably controlled and, with the floor-standing mobile version, 64 to 96 zones.

With the new software revision for the Primezone control unit, HASCO is now providing hot runner users with an OPC UA interface with EUROMAP82.2 protocol.

OPC UA is a service-oriented architecture and specifies the industrial M2M communication independently of both the producer and the platform. The communication is based on standardised Web technologies and is carried out according to the server-client principle. The OPC UA server maps the data and processes by means of nodes and references in the address space. Which data and processes are mapped has been standardised by EUROMAP as the umbrella organisation for the plastics and rubber machinery manufacturers and published under the EUROMAP 82.2 specifications. The customer has three groups of data available: general information on the control unit, status information and process data. The EUROMAP 82.2 for hot runner control units defines the OPC UA based communication with injection moulding machines.

HASCO hot runner is, with the software revision of the Primezone control units, taking the next crucial step in the direction of process automation and M2M communication to meet the demands of Industry 4.0.

Picture: HASCO

Advantages for users:

- Producer-independent communication between injection moulding machine and control unit
- Simple connection set-up
- High safety standards
- Low costs
- Control of the control unit via the machine interface
- Automated reactions by the control unit to disruptions in the process

Alongside the OPC UA interface, the calendar function is provided as a further automation tool. In this function, the start and stop times can be defined for all weekdays, which the control unit works off cyclically. For the customer, this offers the added advantage of being able to avoid waiting times due to heating-up processes at the start of a shift.

HASCO's Primezone range of control units allows an elevated level of production reliability and stands for unique user friendliness, control accuracy and long service life.

About HASCO

As a leading manufacturer of modular high-quality standard mould units and individually designed hot runner systems, HASCO offers innovative and economical solutions for designers, mouldmakers and injection moulders from a single source. ***smi***

HASCO
www.hasco.com

exhibitions calendar

CHINAPLAS
23-26 April 2024
Shanghai, China
www.chinaplasonline.com

Chinaplas is the largest plastics and rubber trade fair in Asia and widely recognized by the industry as one of the most influential exhibitions in the world. The rapid development of science and technology has dramatically increased the range of applications of plastics and rubber in various manufacturing sectors, including automobile, electronics and electrical appliances, information technology and telecommunication, building and construction and others.

NPE
Orlando, USA
6-10 May 2024
https://npe.org

With more than 55,000 leaders from over 110 countries representing every industry—from automotive to healthcare to consumer products to construction and more, NPE is the largest plastics trade show in the Americas and one of the most innovative business events in the world. Every three years, bold leaders, creative thinkers, and visionaries gather at NPE to advance their business through innovations in plastics.

Plastpol
21-24 May 2024
Kielce, Poland
www.targikielce.pl/en/plastpol

Plastpol is one of the largest exhibitions in Poland and Eastern Europe dedicated to the plastics industry. It features all areas of plastics processing beginning with the first stages of plastic production and finishing with its disposal and recycling. Among the exhibits are plastics processing machines, moulds as well as a wide variety of plastics, recycling technologies and IT solutions.

INTERPLAST
13-16 August 2024
Joinville, SC, Brazil
www.interplast.com.br

Interplast - Fair and Congress of Plastic Technology Integration in Southern Brazil brings the latest innovations in machinery, equipment and supplies for the processing of plastic. Suppliers, manufacturers and buyers from all over Brazil and other countries are in Interplast to know the news for the industry, discuss the latest trends and conduct business.

Taipei Plas
24-28 September 2024
Taipei, Taiwan
www.taipeiplas.com.tw

Taipei Plas is a biennal international exhibition for plastics and rubber technology. You can see every facet of production, meet company representatives and industry professionals from across Asia and check out the vast array of breakthrough processing machinery, parts, finished products and materials.

FAKUMA
15-19 October 2024
Friedrichshafen, Germany
www.fakuma-messe.de

Fakuma is a prominent meeting place for the industry, with international charisma. It holds second place in the overall ranking of international trade fairs for plastics. Fakuma offers a top-class, comprehensive range covering all aspects of injection moulding technology as well as extrusion and thermoforming, in which it holds a leading position. The range of provision at Fakuma is rounded off by forward-looking forums, workshops and special shows.

Formnext
19-22 November 2024
Frankfurt am Main, Germany
www.formnext.com

Formnext is the leading exhibition and conference dedicated to additive manufacturing and all of its upstream and downstream processes. It is where experts from a wide range of industry sectors, such as automotive, aerospace, mechanical engineering, medical technology, electrical engineering, and many more, come together to discover additive manufacturing, industrial 3D printing, and innovative production technologies for themselves.

Plast Eurasia
4-7 December 2024
Istanbul, Turkey
www.plasteurasia.com

The exhibition areas of the Plast Eurasia include plastic, machinery and equipment, mold making, plastic products, raw materials, packaging technology, hydraulics and pneumatics, as well as related industries and trade journals. International exhibitors can present their latest trends, products and developments to an interested audience here.

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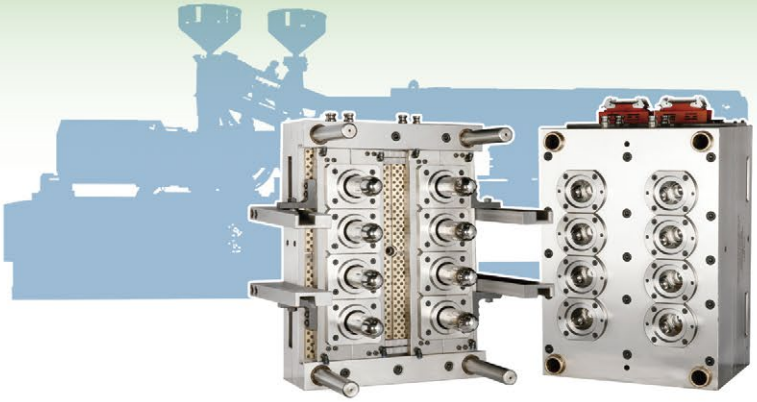

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