smart_molding international

1/2023

smart-molding.com

The 35th International Exhibition on Plastics and Rubber Industries

ufi Approved Event

Chinaplas® 国际橡塑展 2023

Chinaplas
国际橡塑展

A Brighter and Shared Future, Powered by Innovation.

Shenzhen World
Exhibition & Convention Center

2023

4·17 / 4·20

Hong Kong (852) 2811 8897 | Singapore (65) 6631 8955 | (852) 6217 0885

Chinaplas.PR@adsale.com.hk | www.adsale.com.hk

CHINAPLAS www.ChinaplasOnline.com

Pre-Register Now!

Organizer: 1978-2023 | ADSALE 雅式 | ufi Member

Co-organizer: Messe Düsseldorf China

Sponsor: EUROMAP European Plastics and Rubber Machinery

Official Online Media: 雅式橡塑网 Adsale Plastics Network

smart-molding international 1/2023

VM Verlag GmbH: Krummer Büchel 12,
50676 Cologne, Germany

EDITORS
Konstantin Faticzev (Editor-in-Chief)
editor@smart-molding.com

ADVERTISING SALES
Martina Lerner
Tel. +49 6226 971515
lerner-media@t-online.de
Bella Eidlin
Tel. +49 152 29907895
b.eidlin@vm-verlag.com
Maria Tarasova
Tel. +37 25 7788024
mtarasova@smart-molding.com

ADMINISTRATION
Alla Kravets
Tel. +49 2233 949 8793
a.kravets@vm-verlag.com

Front page picture:
ENGEL

Index of companies in this issue

CONTENTS

17

Chinaplas in Shenzen opens its doors again to national and international trade fair visitors from 17th till 20th April after a two-year break. BOY will exhibit two of its injection moulding machines. The BOY representation Trillion Machinery Holdings demonstrates live the production of plastic parts on a BOY 22 A and on the very compact BOY XS at the BOY booth.
With a footprint of only 1.85 m², the BOY 22 A injection moulding machine has a clamping force of 220 kN and is suitable in many areas of application.

36

A compact and flexible robotic cell handles the end-of-line inspection, labelling and palletizing of 36,000 syringes per hour. Three Stäubli robots designed for hygienic production are responsible for handling the trays in which the syringes are transported. The manufacturer's specifications included the following key details: The syringes arrive in trays containing 100 units at a rate of six trays per minute. They must be inspected, labelled and palletized. The chief concern here is to eliminate the risk of damaged or missing syringes or anti-tamper seals.

30

With its newly expanded lineup, ‘the ONE*-E’ is a high-speed/ultra-precision electric injection molding machine that achieved a dry cycle time of 1.49 s for the first time in Korea. Before the line up expansion, premium electric products lacked a wide range of options, which limited selection for customers. The series expanded to include 50/80/130/400 models in addition to the already existing 110/170/220/280/350 models, and ‘the ONE*-E’ series has received praise for both exceptional products and diverse product lineup.

32

The 8500-ton ultra-large high precision injection molding machine has been hailed as one of the noticeable breakthroughs of YIZUMI. It is not only the largest-tonnage machine installed in China, but also could meet the customer requirements in molding process relying on its advanced technologies, such as precision control technology or thick-wall injection molding technology for large transparent parts.

42

ELIX Polymers, a global leader in thermoplastics manufacturing, has collaborated with Repsol and Leitat on a sociotechnological project with Ayúdame3D, a Spanish social startup that promotes the social value of technology through awareness-raising programmes to help people with disabilities. It has become a leading social entity in social technology. It creates and delivers 3D printed prosthetics called Trésdesis, free of charge to people throughout the world. It obtains financing through programmes with education centres and through CSR actions with companies.

48

SABIC, a global leader in the chemical industry, introduced at MD&M West 2023 two new LNP™ CRX polycarbonate (PC) copolymer resins offering a distinct combination of robust chemical and impact resistance, thin-wall transparency, dimensional stability and processability. In device applications such as clear covers, screens and display lenses, the new materials can overcome key drawbacks of incumbent PC resins and co-polyester resins when exposed to disinfectants or aggressive chemicals.

The WITTMANN Group looks into the future with optimism

New WITTMANN facility in Dilovası, Turkey (photo: WITTMANN Group)

For the WITTMANN Group, the fiscal year 2022 was characterized on the one hand by a high order intake, which was well above average especially during the first half of the year. On the other hand, the tight situation regarding the supply of purchased parts, in particular electronic components, prevented the realization of an increase in sales over the previous year. The sales figure of 376 million € for 2022 was roughly on a par with the previous year's level.

However, considerable progress was achieved with the WITTMANN Group's numerous investment and building projects. Apart from new investments in ultra-modern machining centers at three production plants of the WITTMANN Group, the extensions to the buildings of WITTMANN BATTENFELD in Kottingbrunn/A and WITTMANN Robottechnikai Kft. in Mosonmagyarovar/HU were completed in 2022. The additional areas of production floor space now available will primarily serve to increase the production capacity for injection molding machines. The extension of the Hungarian facility has also enabled an increase in the production of Tempro temperature controllers and robots of the new series equipped with R9 control systems.

> *"With our energy-efficient and powerful machines and products, we are in a strong position and can look into the future with optimism".*
> *Michael Wittmann, President WITTMANN Technology GmbH*

The additions to the main building of WITTMANN USA Inc. in Torrington, CT/USA will be completed on schedule within the next two months, to offer additional space for automation solutions and complete injection molding cells in future.

Another ongoing project is the new building of the Hungarian sales and service organization WITTMANN BATTENFELD Kft. in Törökbálint, near Budapest. Its competition is planned for the end of the second quarter of 2023.

Last year, the total number of the WITTMANN Group's production plants was increased by adding a facility in Dilovası, Turkey. The main focus of this plant's operations will lie on sheet metal and metal processing, and will also include complete products for the WITTMANN Group's range of auxiliaries. After 1 ½ years of preparation, it was possible to start series production of the first auxiliaries on January 1, 2023. In the first stage, an area of 3,600 m² production floor space is available. The activities will be steadily increased over the coming months and years, to support the operations of the WITTMANN production plants in Austria and France. The advantage of the new Turkish location is the presence of a growing labor market, which will not be subject to demographic change in the next few years, but instead continue to provide a reservoir of skilled industrial workers. This constitutes an optimal solution for the WITTMANN Group to meet its needs for future growth.

For the current fiscal year, Michael Wittmann, President of the WITTMANN Group, expects once again an increase in sales, from today's perspective to the order of about 10%. This estimate is based on the fact that the company started into the year 2023 not only with a high order backlog, but also with the market beginning to show signs of improvement in the supply situation.

WITTMANN Group
www.wittmann-group.com

Sumitomo (SHI) Demag doubling machine production capacity in China

Groundbreaking ceremony at Ningbo site (photo: Sumitomo (SHI) Demag

Sumitomo (SHI) Demag China has hosted a groundbreaking ceremony in the presence of local political figures at its Ningbo site, welcoming the start of construction for its new 4,000 square metre production hall. Attended by the mayor and city councillors from the Beilun district, CEO Pietro Scattarreggia marked the occasion announcing that the bigger facility sets the path for future growth, creating 50 new jobs and doubling production capacity.

Granted permission to commence construction towards the end of 2022, Scattarreggia reports that the new facility is set to open in autumn 2023 to coincide with the Group's 25th production anniversary in China. Putting into context the enormous market potential, the CEO affirmed that the Asian market in general, particularly automotive and electromobility in China, is booming. "Having experienced the strongest performance in the company's history in 2021 and subsequent economic slowdown last year as a result of coronavirus policy restrictions, the future outlook remains very positive," Scattarreggia confirms.

The expansion of the Ningbo production hall not only gives the team more space to manufacture more machines, but also expand production to include the larger tonnage Systec Servo machines. "Until now, our production has been limited to machines with clamp forces up to 1,000 tons. Given the demand for larger precision components, being able to extend our product portfolio up to 1,500 tons means we can drastically reduce delivery times for customers in China and Asia," reports Scattarreggia. He cites this above all else as the strategic rationale for the expansion.

With its hybrid drive concept, the Systec Servo series, characterised by its absolute precision, excellent stability and durability, offers manufacturers of automotive, white goods and consumer components a powerful and energy efficient system. With full process integration for flexible and versatile production of larger components.

The Systec series is ideally suited to these processing requirements, reports Scattarreggia. To support the manufacturing of these larger and heavier machines, the Ningbo production hall is installing stronger cranes.

Additionally, Sumitomo (SHI) Demag China remains committed to reducing its production carbon footprint. An installation of a new solar system measuring 7,000 square metres last September means that the facility can operate virtually independent of the local energy supply, claims the CEO.

In recent years, many production sites in China have felt the impact of power rationing. With a solar source, the Ningbo facility will no longer be affected by future rations. "This is of great significance for production stability," ends Scattarreggia.

Sumitomo (SHI) Demag
www.sumitomo-shi-demag.eu

REP Italiana: 50 years of existence and a new director!

A half-century of existence (photo: REP)

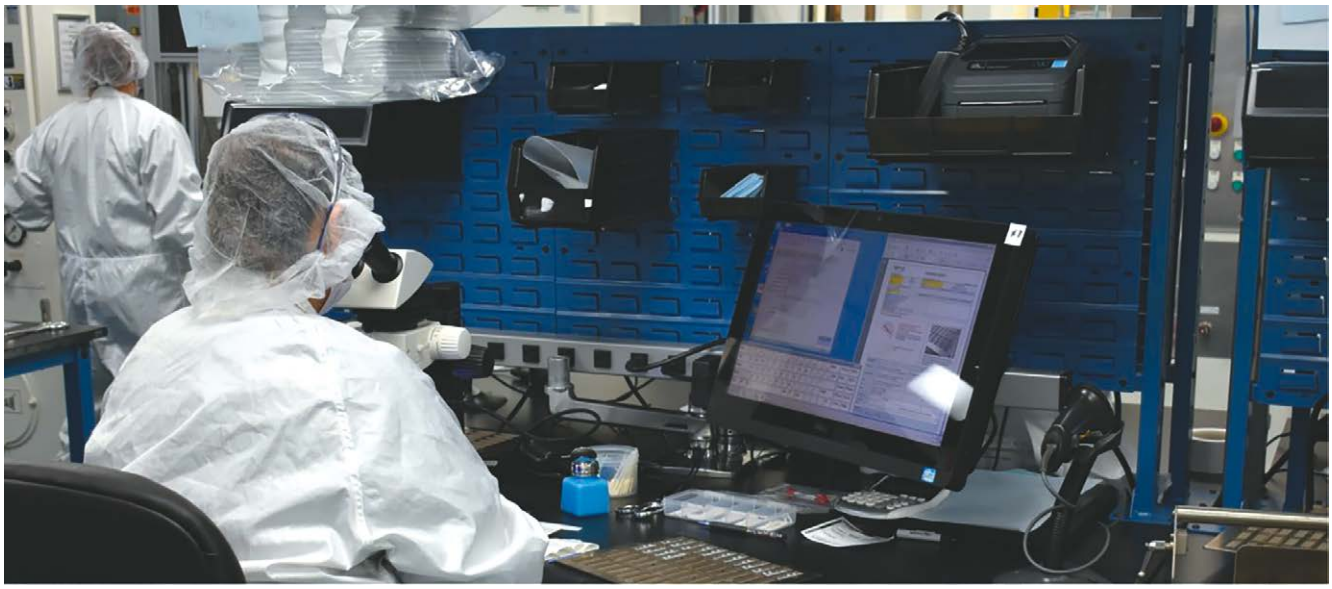
50 years ago, REP began building its international network with the creation of a subsidiary in Italy: REP Italiana. This entity is now one of the major pillars of the REP group. The subsidiary provides sales and after-sales service in Italy, Greece and Switzerland (italian speaking) in connection with another subsidiary RPM.

Mr. Benjamin Paganelli holds the position of Director of Operations and Commercial Director since the beginning of 2023. In order to ensure a team dynamic and ever-greater responsiveness, Mr. Gianpiero Roscio remains in charge of the subsidiary's After-Sales Service Department.

With the arrival of RPM in the group (specialist of the electrical horizontal presses) the Italian market represents more than ever an important sector with a strong potential.

REP
www.repinjection.com

What to expect with the MedTech supply chain in 2023



Picture source: Flexan

Throughout 2023, the MedTech supply chain is likely to experience dramatic changes. Companies are moving away from traditional methods of inventory management, and shifting to more advanced, automated solutions.

What are some of the supply chain trends we are likely to see in 2023? Here are a few:

Cloud-Based Supply Chain Solutions for MedTech

One of the changes that will be most welcomed by MedTech companies will be the use of cloud-based supply chain solutions. With cloud-based technology, MedTech companies can obtain greater visibility into customer needs and better manage stock levels, reducing their costs. Additionally, cloud-based solutions are more secure and offer a greater range of features than traditional alternatives, allowing healthcare companies to better serve their customers.

More Automation

The advancements in the cloud will allow healthcare businesses to move away from manual processes and focus more on automation. Automation streamlines procurement processes, reduces manual errors, and makes inventory management procedures more efficient.

Additionally, automated systems are capable of collecting, processing, and analyzing information in real time, eliminating the need for labor-intensive record-keeping.

AI and New MedTech Technologies

To ensure the MedTech supply chain is prepared for the changes in the future, companies must consider investing in new technology. This includes AI-enabled technologies such as predictive analytics, which can provide insights into supply and demand. Predictive analytics can assist companies in better managing their inventory and staying ahead of customer trends.

AI-enabled technologies such as machine learning, natural language processing, and computer vision can help companies automate processes and accelerate decision making related to supply chain operations.

MedTech Data Management

Finally, as companies embrace MedTech solutions, they must be able to manage the data they produce. This means companies need to be able to store, process, and analyze data to make better decisions. Furthermore, more stringent regulations are likely to be enforced to guarantee patient safety and privacy. As a result, organizations will need to ensure their systems are compliant with these new standards. Big-data tools such as Hadoop can help companies process the vast amounts of data they generate, enabling them to make data-driven decisions.

The continued improvements in the MedTech supply chain over the next few years means companies must invest in new technology and focus on automation, cybersecurity, and data management solutions to properly prepare for the changes. This will enable them to access greater insights, save money, and increase the efficiency of their operations. With these investments, the MedTech supply chain is expected to evolve significantly in the coming years.

Flexan is an established leader in the MedTech field, providing trusted manufacturing solutions for custom components and devices. Its commitment to the supply chain ensures that its global customer base can create innovative products that can revolutionize the markets they are in, while being confident in the reliability of their supply.

Flexan
www.flexan.com

A positive outlook on the global plastic injection moulding market from Jonas Persson, Rosti Group CEO

Despite the challenging economic conditions around the world, from high energy costs, a possible recession and rising inflation, I am proud that our solid foundation, combined with cutting-edge technologies and plastic injection moulding capabilities, provide a safe and reliable pair of hands for everyone.

Our commitment to our customers, our team and our plan, ensures we maintain a forward-thinking approach to investment, enabling us to continuously evolve, whilst also demonstrating the strength of our business.

2023 has plenty on the horizon for us here at Rosti Group, with plans for a new clean room in Europe and investment into an additional Innovation Centre in America.

This will benefit our current customers by allowing us to enhance our collaboration and partnerships with them, whilst supporting new customers with their injection moulding and production challenges.

Successful integration of Rosti North America

It is just over a year since our acquisition in North America and I am pleased to say, Rosti North America has successfully amalgamated into the group.

Our customers in America are already realising the benefits of partnering with Rosti Group, from engineering expertise locally and across the globe. Plus, the Innovation Centre investment will see new rapid prototyping being introduced, cutting lead times from 4-5 weeks to just 1-2 weeks.

We are now truly a global company, providing a host of benefits to both current and potential customers across all continents. It has enhanced how we service customers wanting to move production to the US as well as US customers considering European and Asian markets.

Aside from the global perspective, I feel that the locations of the plastic injection moulding facilities within North America provide us with strength in the local markets to easily serve customers across all states.

Supply chain diversification

We are seeing a growing trend in customers wanting to diversify their supply chains, which Rosti is able to support, through our global footprint.

A range of factors are contributing to the relocation of production, from political uncertainty, tariffs, and supply chain disruption, as well as sustainability goals.

Localising production near markets and customers mitigates risk to supply, whilst providing cost savings and environmental efficiencies.

Forging ahead with our Investment Strategy

We are accelerating our sustainability strategy and initiatives in all sites to ensure our plastic injection moulding operations are as environmentally friendly as possible.

All pictures: Rosti Group

Measures to reduce energy consumption are a key priority, as injection moulding is electricity-intensive. This will help to reduce costs at times of high prices.

I am proud to share that we have developed over 20 green materials during 2022, which are now being offered to our customers. Replacing materials with green alternatives is a significant shift, which will allow businesses to transform their sustainability credentials towards achieving a circular economy.

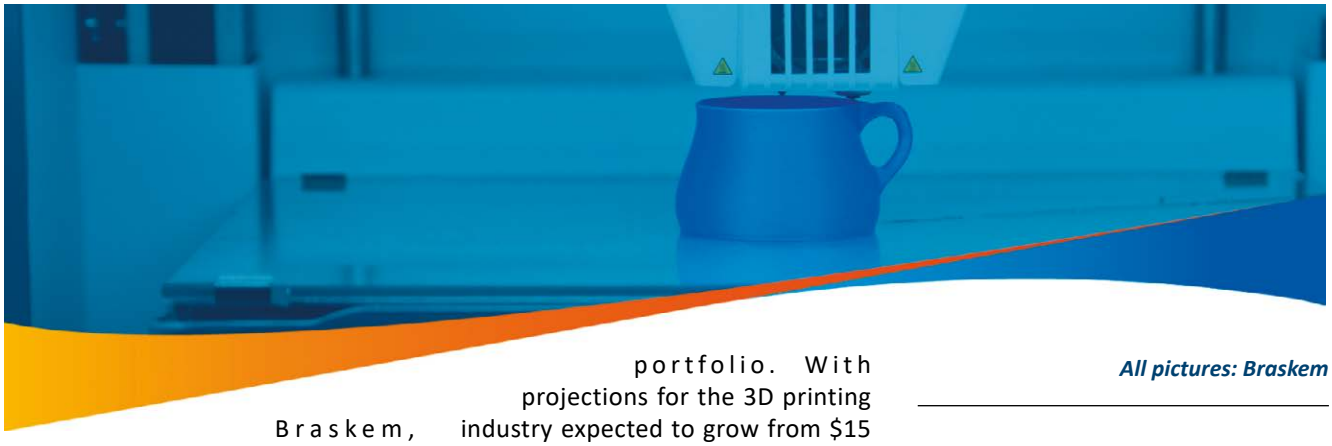
Despite challenging market conditions around the world, Rosti Group still continues to invest in both our people and capabilities, future-proofing our business, developing a cost-efficient and stronger team, to serve our existing and potential customers.

From cutting-edge technologies, to developing the best talent, Rosti Group is ideally placed, to continue leading in the injection moulding market.

Jonas Persson, Rosti Group CEO

Rosti Group
www.rosti.com

Braskem acquires taulman3D expanding its portfolio of materials for additive manufacturing applications



All pictures: Braskem

Braskem, the largest polyolefins producer in the Americas, as well as a market leader and pioneer producer of biopolymers on an industrial scale, has recently announced the acquisition of taulman3D, a leading 3D filament supplier of nylon, recycled PETG, and PET filaments to aerospace, automotive, healthcare, industrial, government and higher education professionals worldwide. The acquisition of taulman3D is a perfect complement to Braskem's existing portfolio of next-generation filaments (Polyethylene (PE), Polypropylene (PP), Carbon Fiber, Glass Fiber & Recycled Polymers), pellets, and powders designed specifically for 3D printing applications.

Founded in 2012, taulman3D is trusted by thousands of professionals around the world and offers a wide portfolio of filaments and polymers designed to address specific and varying customer applications. taulman3D products are available worldwide, through a variety of exceptional distributors on 6 continents. taulman3D's headquarters, research, and development as well as production and distribution facilities are in Linton, Indiana.

Jason Vagnozzi, Global Commercial Director of Additive Manufacturing, Braskem commented, "Braskem's acquisition of taulman3D brings a high-quality 3D filament producer with a globally diversified client list and a highly complementary product portfolio. With projections for the 3D printing industry expected to grow from $15 billion today to $78 billion by 2030 - growing at an estimated 20% CAGR - we see enhanced opportunities to serve this rapidly growing demand. Today's acquisition doubles Braskem's market share in the additive manufacturing market and further accelerates our growth strategy."

Zach Lichaa, taulman3D President stated, "We're extremely proud to have built one of the leading 3d printing businesses in the world over the last decade, with private and public sector clients in dozens of countries. Braskem's significant research and development resources and their world-class production teams will enable us to serve our clients with even greater focus and product innovation as additive manufacturing becomes increasingly engrained in global supply chains."

taulman3D filament and polymer offerings include:

- Carbon Fiber Alloy Nylon 3D Printer Filament
- Glass Fiber Alloy Nylon 3D Printer Filament
- Alloy 910 3D Printer Filament
- Alloy 910 High Heat 3D Printer Filament
- PCTPE 3D Printer Filament
- TECH-G 3D Printer Filament
- T-Glase 3D Printer Filament
- Bridge Nylon, Nylon 230, Nylon 645 & Nylon 680 (FDA Material)
- PA Cast Plate Nylon 3D Printer Filament
- SAC1060 - Support Material for Nylon
- Guideline 3D Printer Filament (Medical Grade)

With its shared commitment to offering customers more sustainable materials, taulman3D offers a 100% recycled solution - Enviro PETG 3D Printer Filament

As one of the world's largest producers of polyolefins, Braskem offers solutions across 3D printing filaments and technologies including Fused Filament Fabrication (FFF), Selective Laser Sintering (SLS), and High-speed Pellet Extrusion. Through Braskem's decades of expertise in materials science and product development, its state-of-the-art 3D printing labs, as well as its strategic partnerships with industry leaders, Braskem is committed to delivering new and innovative products to the market. Braskem's product development professionals collaborate across start-ups, universities, equipment manufacturers, converters, compounders, and brand owners, on leading-edge 3D printing solutions.

Braskem
www.braskem3d.com

BTC Europe and Sudarshan Chemical Industries sign agreement on distribution of pigments in Europe

BTC Europe, BASF'S European distribution organization, and Sudarshan Chemical Industries, a manufacturer of high-quality pigments based in Pune, India, have signed an agreement on the distribution of organic and inorganic pigments as well as effect pigments in Europe. Both companies seek to leverage their expertise and industrial know-how to offer customers access to a wide portfolio of high-quality pigments for various industries.

"We are pleased to have found such a strong partner in Sudarshan who will be able to supply us with high performance pigments that cover the full color circle", said Jose Corral Montilla, Managing Director of BTC Europe. "Our customers will benefit from access to a broad range of high-quality pigments for different applications and industries. Moreover, the collaboration between our two companies will enable us to extend our third-party product portfolio and thereby strengthen our competitive advantage in the pigments market."

"By combining the advantages of our solutions with BTC Europe's strong position in the chemical distribution market in Europe, we can together seize new market potentials for high-quality pigments," said Milan Krumbe, General Manager Sudarshan Europe. "I am very much looking forward to our cooperation and to opening up new channels for our products that serve a wide range of industries and applications.

Milan Krumbe, General Manager Sudarshan Europe (left) and Jose Corral Montilla, Managing Director BTC Europe (photo source: BASF)

BASF
www.basf.com

Evonik moved North America headquarters to Piscataway, N.J.

Evonik, one of the world's leading specialty chemicals companies, has moved its North America headquarters from Parsippany, N.J., to Piscataway, N.J. The Parsippany location will be closed with the end of its lease later this year.

The relocation is part of Evonik's larger site rationalization plan to ensure efficient operations and future growth in North America. Evonik has embraced a hybrid work model in the region to consolidate office space, enhance employee engagement, and increase employer attractiveness.

"For Evonik, moving towards a hybrid workplace is a strategic opportunity to attract and retain diverse talent and to enable an efficient real estate footprint," says Bonnie Tully, president North America region. "We want to foster conditions for growth, creativity, and innovation."

Photo: Evonik

The new Piscataway headquarters, located approximately 35 miles southwest of New York City, consists of administrative offices, laboratories for Research & Development, and the largest Collaboration Hub in the North America region – designed to support a hybrid and creative work environment for more than 160 employees. Evonik has recently opened similar hubs at its sites in Richmond, Va., and Mobile, Ala., and will eventually feature them at six locations in North America.

The uniquely designed spaces offer open areas and meeting rooms for employees to work onsite without needing individual offices. Employees have access to collaboration technology like digital whiteboards and tools for video conferencing. "The Collaboration Hubs promote interactions across our business lines and functions", says Tully. "It will shape the future of work at Evonik and contribute to our culture of innovation."

Evonik
https://corporate.evonik.com

Victrex invests in new medical device product development centre and manufacturing expansion

Victrex, an innovative world leader in high performance polymer solutions, which enables environmental & societal benefits through its sustainable products, has announced priority investment to support expanding its medical division, Invibio Biomaterial Solutions, including the opening of a new product development facility in Leeds, UK, this month.

As part of Victrex's plans to accelerate future applications in its medical business, it will add medical device R&D and manufacturing capability, building on Victrex's existing talent base at its Hillhouse headquarter manufacturing site in Lancashire. The first phase in early 2023 includes the launch of a new facility at the University of Leeds, followed by the potential for further expansion plans. The new facility is expected to initially create around 20 new highly skilled jobs and further establish strong relationships with academia and medical businesses in the UK.

This is a significant commitment towards Victrex's aim of increasing the proportion of revenues from its Invibio business. This will be supported by commercialisation of new applications for Trauma and Knee, as well as other growing segments including Cardio, CMF and Drug Delivery. In the next ten years,

PEEK implant for total knee replacements

Substantial investment made to expand Invibio's medical R&D and manufacturing capabilities including a new facility in Leeds, UK (all pictures source: Victrex)

Victrex aims to have over one-third of revenues coming from Invibio, from less than 20% today.

The expansion plans reflect good progress in several medical programmes, including the development of a PEEK implant for total knee replacements. Progress on the PEEK Knee continues to build on a clinical study where 33 patients have now successfully been implanted, including 10 who have passed the primary end point (15 months) for the clinical trial, with no remedial intervention required. Victrex will also be working with top 5 Knee company Aesculap in a development collaboration, as well as existing partner Maxx Orthopaedics.

The pipeline in Trauma is also accelerating, following the launch of US-based In2Bones carbon fibre PEEK composite plating system, combined with new Trauma customers in Asia.

Jakob Sigurdsson, Victrex CEO says: This investment is a key milestone in our global medical strategy, with our aim of treating a patient using Invibio solutions every 15 seconds by 2027. Our medical business has the potential to contribute around 1/3rd of Victrex's revenues in 10 years' time and our Leeds facility will enable us to provide a wide range of integrated technical, research & development and marketing solutions to help us further grow and diversify.

"Over recent years we have successfully diversified our medical business, with around half of our revenues now coming from non-Spinal applications. With good progress in a number of emerging segments, we need to ensure we have additional capability, to support how we commercialise and scale up these opportunities. The Leeds NPD facility will be a key part of that, building on our innovation and manufacturing hub at Hillhouse, in the UK."

Victrex
www.victrex.com

Eastman board elected new director

The Board of Directors of Eastman Chemical Company on February 3, 2023 elected Ms. Linnie M. Haynesworth as a director. Haynesworth was most recently the sector vice president and general manager of the Cyber and Intelligence Mission Solutions Division for Northrop Grumman Corporation's (NGC) Mission Systems Sector, where she was responsible for multiple $1 billion-plus divisions.

Haynesworth has more than 30 years of industry experience in technology, including aerospace, intelligence and cybersecurity systems. She served as NGC's division vice president for Aerospace Products and led large space program efforts. Haynesworth also held various senior-level roles at NGC within the areas of program management, supply chain, subcontract technical management and engineering, and served as the executive co-chair of the NGC's Women in Leadership program.

"We are pleased to welcome Linnie to Eastman's Board of Directors," said Mark Costa, Board Chair and CEO. "Linnie is a proven executive business leader who has demonstrated expertise in cyber security governance, enterprise strategy, large complex system development, and disruptive technology. We look forward to benefiting from her unique skills and extensive experience."

In addition to her position on Eastman's board of directors, Haynesworth currently serves on the boards of Micron Technology, Inc., Truist Financial Corporation, and Automatic Data Processing, Inc.

Haynesworth received a Bachelor of Science degree in Electrical Engineering from the University of Southern California.

Linnie M. Haynesworth (photo: Eastman)

Eastman
www.eastman.com

Klöckner Pentaplast Group announcement – executive leadership changes

Klöckner Pentaplast, a global leader in recycled content products and high barrier protective packaging, today announces that going into Scott Tracey's fifth year with the company, the time has come for him to repatriate to the USA, and as such he is stepping down from his role as CEO. Scott will continue to partner with SVP and will remain a resource to the Board at the company.

The company would like to thank Scott for his significant contribution to Klöckner Pentaplast during his tenure, where he has led the business through challenging times with continued strong performance.

The Board initiated a thorough succession plan over the last four months and is delighted to announce the appointment of Roberto Villaquiran as its new CEO, effective 3rd April. Scott will work closely with Roberto to ensure a successful handover of the business over the coming months.

Roberto will join Klöckner Pentaplast from Canpack Group, where he served as CEO for the last four years. Prior to Canpack, Roberto also served as CEO of Logoplaste, following an over thirty-year tenure with Smurfit Kappa, a global market leader in the packaging industry. Roberto brings with him a wealth of experience and knowledge of the industry and a solid track record of business growth and transformation.

Scott Tracey (photo: Klöckner Pentaplast)

Scott Tracey, Chief Executive Officer of Klöckner Pentaplast, commented: "I am proud of the team accomplishments over my tenure and pleased to continue to partner with SVP as a Board level resource. I am excited to welcome our new CEO to Klöckner Pentaplast, knowing that he is an ideal fit for the company to further drive growth and value. I am very confident of the future for the company."

Roberto Villaquiran, incoming CEO, commented: "I am excited to be joining Klöckner Pentaplast and very much look forward to working with the team, as well as partnering with customers and suppliers as we continue to develop and grow the business together."

Klöckner Pentaplast
www.kpfilms.com

Carbon announces labor-saving solutions for dental labs at Lab Day Chicago

Dental lab employee (picture source: Carbon)

Carbon, the leading 3D printing technology company that is revolutionizing digital dentistry, is expanding its offerings to equip dental labs with time saving and cost reduction solutions. At Lab Day Chicago, that was taking place February 23rd-25th in Chicago, IL, Carbon introduced automated print preparation for dental models, new validated post-processing options with Form Wash, and highlighted real world benefits from customers using the M3 Max printing solution. These solutions may enable dental labs to address the staffing shortages that are impacting the growth of businesses, while helping to lower production costs and increase efficiencies.

"The evolution of our platform is a direct result of us listening to our customers and developing features and solutions that help them bring products to market efficiently," said Phil DeSimone, co-founder and member of the Office of the CEO at Carbon. "We're excited to offer solutions that may save labs time and money while providing our customers with the tools they need to combat the labor shortages plaguing the industry, no matter who their resin or hardware provider is. Carbon's platform continues to evolve to meet the needs of dental laboratories."

Automation to Address Labor Shortages

To enable end-to-end automated workflows for key applications, Carbon has introduced automated print preparation for model production. This new automation feature, available only on Carbon printers, eliminates the majority of lab technicians' manual preparation time, offering the ability to save up to 15 minutes of active labor per print project. With these automated preparation tools, print technicians can focus on higher value tasks throughout the lab.

New Labor-Saving Post-Processing Options

Carbon is helping dental labs address chronic labor shortages by validating Formlabs trusted Form Wash post-processing systems. The Form Wash process has an automated washing cycle which provides technicians more time to focus on higher value tasks. This sustainable, automated washing solution saves post-processing steps and helps labs to use isopropyl alcohol more efficiently. Both the Form Wash and Form Wash L solutions have been validated for use in production with the Carbon platform.

Increased Efficiency for High Volume Production

The M3 and the M3 Max printing solutions, provide a wide range of high-performance materials and software solutions tailored for applications across dental and lab needs. The M3 Max, which is currently shipping to customers, features a build area 2.2x the size of the M3 with a native 4k light engine that yields the same pixel size and resolution. The M3 Max is ideal for high volume production of dental models, nightguards, dentures and other indications.

"The print accuracy and the repeatability is definitely some of the best I've ever seen, and the data proves it too. The M3 Max is the next level of evolution, it has the speed of the M3 but can print 2.5x the amount of models, it's an impressive amount of models," said Sam Wainwright, Head of R&D at Dandy. "It's clearly much, much more productive due to the build platform size. We're getting double the productivity, at least, out of the same footprint in the lab. With that speed gain and build platform size, there seems to be no loss of accuracy and repeatability. As a lab, that's what you want."

Broader Denture Offerings Coming in 2023

As demand for 3D printed dentures continues to grow, Carbon is working with new ecosystem partners and planning to expand its denture teeth, base, and implant-supported denture offerings to meet customers' needs. Carbon plans to introduce these new options during the second half of 2023 and they will be available on all M-series Carbon printers including the M3 and M3 Max.

Carbon
www.carbon3d.com

A mono-material toothbrush by ZAHORANSKY and Evonik

Every year, billions of used toothbrushes end up in landfills worldwide. A mono-material toothbrush developed by ZAHORANSKY together with Evonik in just five months breaks this cycle. It can be directly reintroduced into the recycling process because instead of using different materials for the handle, headpiece, and bristles, only one is used here. The polyamide 12 (PA 12) material used is based on long-chain polyamides (LCPA), which Evonik markets under the name VESTAMID. PA 12 was easy to process both in the ZAHORANSKY injection mold for handle production and in the tufting machine. As a result, it was possible to meet the tight time window from the initial idea in June to the start of the K trade show in October.Due to the time pressure, the "fair toothbrush" still had to be conventionally tufted using anchor technology, as machines were only available for this type of anchoring. However, the goal is to produce a version without metal anchors. ZAHORANSKY plans to take further development steps in 2023 to produce a purely bio-based toothbrush. After use, this can be recycled as a mono-material toothbrush.

A mono-material toothbrush by ZAHORANSKY and Evonik (picture source: ZAHORANSKY)

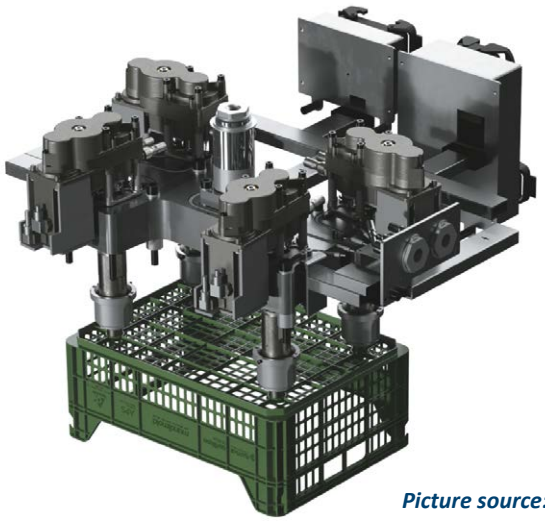
Johannes-Florian Krampe, Manager Filaments & New Business Development | High Performance Polymers at Evonik, is pleased with the successful project: "Since this toothbrush is made from a single material, it would be completely recyclable. Because that should be our social goal: Recyclable products from which a circular economy can be built." According to Krampe, the PA 12 material "offers the potential for further products made from biobased materials. In these cases, fossil raw materials no longer necessarily have to be used, which conserves global resources and reduces waste mountains in the future."

ZAHORANSKY
www.zahoransky.com

Optimized hot runner systems for PCR compounds

Oerlikon HRSflow has developed special hot runner solutions for PCR compounds. Their application possibilities are demonstrated by two examples realized in practice – a fruit crate and a garbage can for composting organic household waste. With these environmentally friendly projects, which were implemented together with various partners, the company underlines its commitment to the circular economy.

For the production of the fruit crates, Mundimold processes an optimized PE compound from APS, Valencia/Spain, which is obtained from the recycling of Tetra Pak® card-board packaging. In the production of this demanding part, which was demonstrated at K 2022 on a servo-hydraulic Haitian Jupiter with two-platen technology and 4,500 kN clamping force, a servo-controlled FLEXflow valve gate hot runner system with four drops contributes to the high repeatability of the process. Optimum gate quality is ensured by the new, patent pending TTC cooling bushing from Oerlikon HRSflow, which prevents needle sticking even with short cycle times. The low energy consumption of the FLEXflow system supports energy-efficient production. Project partners were Haitian, Mundimold, Tetra Pak, APS and Oerlikon HRSflow.



Picture source: Oerlikon HRSflow

Another example is the Bokashi Organko Essential, an airtight sealable bucket for home composting, manufactured by PLASTIKA SKAZA. The 775 g part with 2.5 mm wall thickness is produced of PCR polymers using an Oerlikon HRSflow two-drops hot runner system. It is optimized for frequent color changes and designed so that remaining contaminations in the recyclate do not cause damage, streaks or flow marks that could affect the aesthetic and functional result.

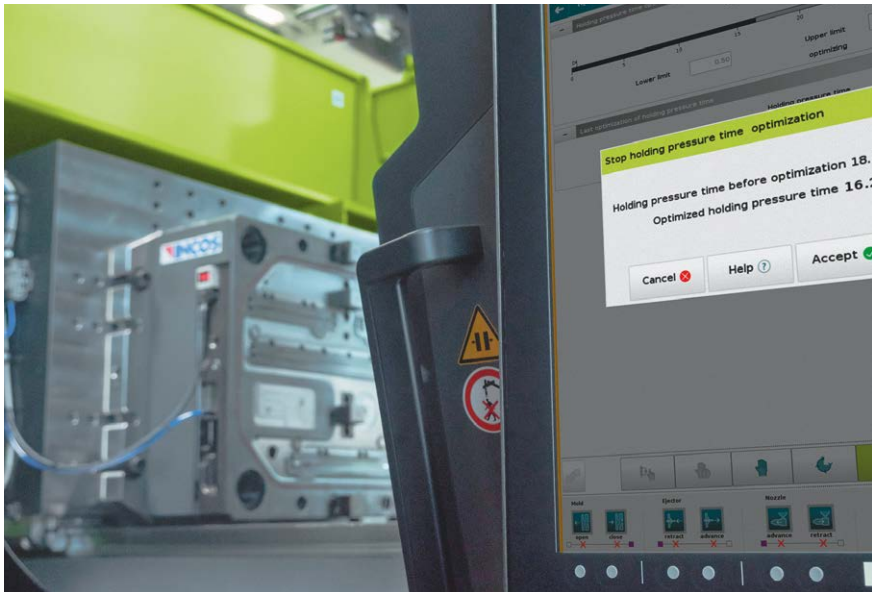
Oerlikon HRSflow
www.hrsflow.com

ENGEL to exhibit at Chinaplas 2023 with four machines and more

As the demands on productivity and energy efficiency continue to rise, integrated system solutions to support cost-effective injection moulding are rapidly gaining in importance. At Chinaplas 2023, which takes place from 17 to 20 April in the Chinese city of Shenzhen, ENGEL, the injection moulding machine manufacturer and system solution provider, will set up challenging applications to demonstrate how combining the ideal machine with smart digitalisation can maximise overall efficiency. Also at the Chinaplas event, the new iQ hold control assistance system will be making its Asian première.

"All of us are very much looking forward finally to re-establishing personal contact with our customers, partners and the sector as a whole in Asia," says Gero Willmeroth, President Asia and Oceania at ENGEL in the run-up to Chinaplas. The event opens its doors in Shenzhen on 17 April following the Covid-enforced break. "Now that travel restrictions have eased, we are expecting more visitors from across Asia to attend the trade show. We are now in the post-Covid era and perceive a spirit of optimism that will also blow through Chinaplas." ENGEL will welcome visits to its stand, featuring four machine exhibits alongside Expert Corners devoted to trending themes.

ENGEL will be presenting an automated production cell manufacturing mirrors for head-up displays of polycarbonate using a servohydraulic duo 2460/500 injection moulding machine. An ENGEL viper robot will remove the parts from the mould and place them on the conveyor belt. For this exhibit, ENGEL teamed up with a local mould producing partner: Skymold, based in Ningbo City, China. Working with local partners ensures a high degree of cost efficiency even in the case of sophisticated and innovative technologies while shortening delivery times for the system as a whole. The ENGEL duo machines are also produced locally for the Asian markets. The large-scale machine plant is located in Shanghai.



The new iQ hold control assistance system determines optimum holding pressure times, thereby enhancing efficiency in both setup and production operations (picture: ENGEL)

In Shenzhen, ENGEL will present two applications on all-electric ENGEL e-mac injection moulding machines to demonstrate how productivity gains can be achieved in a highly cost-effective manner. In both examples, the space and energy requirements of the production cell remain low as the mould cavities are scaled up.

An e-mac 465/180 with a 128-cavity mould will be used to produce the kind of connector seals needed in automotive electronics. The series mould, manufactured by Austrian firm Nexus Elastomer Systems, is used by the automotive supplier Waexim based in Xiamen, China. The special design of e-mac machines, which feature enlarged tie-bar spacing, makes it possible to install this large mould on the relatively small 1800 kN machine.

The second ENGEL e-mac in Shenzhen will showcase a medical application: in the medical sector too, there is a distinct trend towards raising productivity through higher cavity numbers. An e-mac 1340/280 injection moulding machine will be used to produce blood collection tubes of PET from a 64-cavity mould supplied by NCM of Suzhou, China.

The issue of surface area productivity will also set the tone for the teletronics exhibit on the ENGEL stand. Battery housings will be produced from fibreglass-reinforced PC-ABS on an insert 500V/100 rotary vertical machine, with metal rings inserted into the mould and overmoulded. For this purpose, the insert machine will be fitted with a large rotary table and a compact integrated ENGEL easix articulated robot.

To underline the strong potential of digitalisation in terms of enhanced product quality and production efficiency, the injection moulding machines on the ENGEL stand will operate with smart assistance. In similar fashion to the driving assistants used in cars, ENGEL's iQ systems serve to ensure stable injection moulding processes. Among other things, they automatically detect fluctuations in raw materials, ambient conditions and mould temperature control and compensate for such fluctuations in the same cycle; iQ systems can also determine the ideal set values for specific applications.

ENGEL
www.engelglobal.com

BOY presence in the Far East at Chinaplas 2023

Chinaplas in Shenzen opens its doors again to national and international trade fair visitors from 17th – 20th April after a two-year break. BOY will exhibit two of its injection moulding machines. The BOY representation Trillion Machinery Holdings demonstrates live the production of plastic parts on a BOY 22 A and on the very compact BOY XS at the BOY booth.

With a footprint of only 1.85 m², the BOY 22 A injection moulding machine has a clamping force of 220 kN and is suitable in many areas of application. Three sizes of injection units as well as different screw diameters from 12 - 32 mm offer a versatile range of applications. In addition to thermoplastics, elastomers, silicones and thermosets can also be easily processed with this tried-and-tested multi-talent. Since its foundation in 1968, BOY has produced more than 25,000 machines in this clamping force class and sold them worldwide.

BOY 22 A

BOY XS
(all pictures: BOY)

The BOY XS was specially developed for micro and sprueless single-cavity injection moulding. Instead of the conventional piston plasticising for this machine size, BOY uses screw plasticising from 8 to 18 mm according to the "first in first out" principle. Especially for small moulded parts, a plasticising unit with a screw diameter of 8 mm ensures shortest dwell times - a major advantage for gentle processing of temperature-sensitive materials. The highly sophisticated production process with the 8 mm screw requires attention to / compliance with process-relevant injection moulding parameters. This process must always be considered in detail from application to application. With 100 kN clamping force, the BOY XS offers users maximum performance on the smallest footprint (0.78 m²).

BOY
www.dr-boy.de

Bole Intelligent Machinery invites visitors to Chinaplas 2023

During 17th-20th of Apr, Bole Intelligent Machinery invites guests to visit China Rubber & Plastic Machinery Exhibition in Shenzhen, China.

Bole will show different innovative solutions, such as multi-color car lamp injection molding solution, fiber reinforced composite molding solution, EKS energy-saving hybrid system, and all-electric medical molding solution. On the site, the professional team of Bole will introduce the products and technology in detail and answer questions and needs of visitors and customers.

Picture: Bole

As a service provider of intelligent molding equipment, Bole is committed to provide high-quality and customized injection molding solutions.

Bole
www.bolemachinery.com

Molding novelties at K 2022

Picture: VM Verlag

Many companies, focussing on developing and manufacturing of machines, automation, auxiliary systems and tooling for benefit of the injection molding sector, presented their state-of-the-art novelties at the latest edition of the world's leading plastics and rubber trade fair, that was held in Düsseldorf, Germany, 19 to 26 October 2022.

HASCO Innovations live at K 2022 in Düsseldorf

As the leading manufacturer of high-quality modular, standardised components, as well as individually planned hot runner systems, HASCO offers designers, mouldmakers and injection moulders innovative and cost-efficient solutions. During K 2022, HASCO focussed on a large number of new and further developments.

A comprehensive temperature control program offers a large number of constructive solutions. It has been recently extended by many new products in stainless steel, plus a new flow meter. The new US standard temperature control system allows a reliable link between different connections and systems, beyond national borders.

In the field of demoulding, new ejector pins for ventilating the cavities and ejector pins of HSS quality steel now supplement the portfolio. Over 700 further ejector sizes spread over all product variants will, in future, offer even greater flexibility.

Sometimes injection moulding tools are used at different locations. The Loc Check A5900 makes it possible to easily and quickly locate the position of an injection moulding tool – worldwide, wherever there is a GSM network.

HASCO offers designers, mouldmakers and injection moulders innovative and cost-efficient solutions (picture: HASCO)

At the focus of the hot runner technology is the innovative Streamrunner®, the world's first additively manufactured hot runner system on the market. As a needle valve version, it offers completely new and space-saving possibilities. Colour changes can be carried out faster through the flow-optimised design of the polished runners with large deflection radii.

New nozzles with variable gating areas and contact surfaces enable application-specific temperature management with maximum wear resistance.

With the Co-Cart, the transport trolley for hot runner control units, HASCO hot runner allows perfect and safe positioning of the control units directly next to the mould and thus ensures maximum ease of operation.

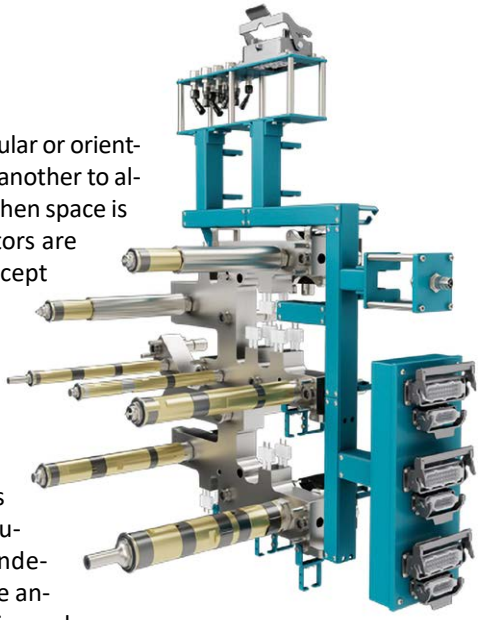
New fusion series G3 hot runner system

At K 2022 in Düsseldorf Mold-Masters presented the new Fusion Series G3 hot runner system. Fusion systems are shipped completely pre-assembled, pre-wired, plumbed and tested for fast, one-step installation. Mold-Masters FusionG3 system incorporates several major enhancements (over the previous FusionG2 system) that helps optimize mold design and simplify/speed up installation. These enhancements include:

1. Reduced nozzle bore cut-outs
2. Protective nozzle sleeves (optional)
3. More compact actuators (PN and HY)
4. Quick change valve pins
5. Room temperature installation

Fusion Series G3 nozzles feature more compact nozzle bore cut-outs to help minimize tooling requirements and are available in customizable lengths up to 1,000mm. Fusion nozzles incorporate field replaceable heater bands and gate seals to ensure molders can respond and fix issues quickly on-site to minimize downtime. Most gate seals are interchangeable between G2 and G3 so customers are able to convert to the new system in many cases without any special retooling. New optional protective nozzle sleeves help prevent damage to the nozzle heater and thermocouple wiring during installation. Protective nozzle sleeves do not impact cut-out dimensions.

The new compact actuators minimize stack heights with cut-outs that are the same or smaller than G2. Anti-rotation and valve pin disconnect are now standard features. Compact actuators are available as either hydraulic or pneumatic. The position of air/hydraulic lines and cooling lines can be rotated to be set perpendicular or oriented different to one another to allow easier access when space is limited. FG3 actuators are also designed to accept Mold-Masters new Quick Change Valve Pins. Quick change valve pins feature an innovative new design that allows users to remove the actuator or valve pin independently from one another which simplifies and speeds up maintenance. Quick change valve pins can also be re-worked in the field (steel safe).



Mold-Masters new fusion series G3 hot runner system (picture: Mold-Masters)

FusionG3 also has the advantage that it is engineered to be installed and uninstalled at room temperature. It can be pulled directly from the shipping box and placed into the mold. This helps to significantly reduce installation time, eliminate extra equipment such as a temperature controller and improve safety conditions during installation, assembly and removal.

Mold-Masters Fusion Series G3 hot runner systems are covered with an available industry-leading 5-year warranty.

StackTeck was ready to talk innovation at K Show 2022

Static displays in StackTeck booth featured the latest technologies with plastic parts and steel components. Some of these included PET Preform molds highlighting cooling and post mold cooling technologies, servo driven technology for different applications, co-injection, multi-material, specialty coatings, KoolTrack™, TRIM™ (Thin Recess Injection Molding), IML and closure technologies. Show attendees were able to learn more about StackTeck latest design of a 5 piece collapsing core technology which was used recently to produce the very first injection molded plastic can in the industry.

Jordan Robertson, VP Business Development and Marketing stated: “We are very pleased to have the opportunity to be back at the K Show and continue a dialogue with our customers about our latest developments. We are constantly pushing the envelope to add more to our portfolio of mold technologies, which are driven by our desire to offer more sustainable options and real advantages to our customers.”

StackTeck’s new developments, demonstrated at the show (picture: StackTeck)

Here are several developments, demonstrated at the show:

For preforms, PiCOOL™ is one of StackTeck’s patented technologies that has been engineered to enhance the productivity of PET preform molding, offering a significantly reduced preform exit temperature, and shorter cooling time to StackTeck customers looking to improve preform molding operations.

For packaging applications, StackTeck’s newest and improved 5-piece collapsing core is a technology offered to customers looking for plastic part design freedom. In certain applications large undercuts are required that can be enabled using the collapsing core approach while maintaining fast cycle times.

Light weighting continues to be one of the top priorities at StackTeck and its TRIM™ technology has been evolving since its creation. It has now expanded to larger applications like industrial pails, focusing on how much thinner parts can be made, and how much more weight can be saved. These are tangible advantages that are passed on to customers looking for sustainable solutions in the industry, with substantial carbon footprint benefits.

Saving resources and reducing weight with alternative materials and ultra-modern technologies

At the K 2022, WITTMANN BATTENFELD presented an application which makes a substantial contribution to climate protection especially due to its light weight, achieved by material savings on the one hand, and on the other hand by using alternative materials.

With a MacroPower1100/12800 fitted with an energy-saving, speed-controlled servo motor and a constant displacement pump, WITTMANN BATTENFELD demonstrated production of an indoor panel which stands out by its light weight, using a single-cavity mold supplied by FRIMO, Germany.

The panel consists of an extremely light natural fiber material onto which a map pocket made of Borcycle TM EE1300SY supplied by Borealis is over-molded, which is a mineral-reinforced PP for car interior applications with 30% PCR (post-consumer recyclate) content. Borcycle TM EE1300SY meets the most stringent requirements in terms of odor neutrality and emissions for vehicle interiors set by various OEM's and is also available in light colors.

In order to achieve an extra high reduction of material input and weight, the Cellmould structured foam technology developed and patented by WITTMANN BATTENFELD is used. In this process, nitrogen is added to the plastic melt during metering. This is carried out via a gas injector mounted on the plasticizing barrel. Thanks to the special Cellmould screw geometry, the gas is then dissolved and finely distributed in the plastic material. During injection into the cavity of the mold, the gas then separates itself again from the plastic and forms a fine-celled foam structure inside the molded part.

Further advantages of structured foam technology apart from cost cuts through less material input are a reduction of warpage and sink marks as well as more freedom of design for mold makers. Consequently, using the Cellmould process makes it possible for customers to combine economic with technological benefits. The reduction of material input achieved in this way also benefits the environment in several respects. Firstly, valuable resources are saved, and secondly, the parts are lighter, which reduces the car's fuel consumption and/or extends the battery range in electric vehicles.

WITTMANN BATTENFELD Cellmould technology, developed to save material and reduce weight (picture: WITTMANN GROUP)

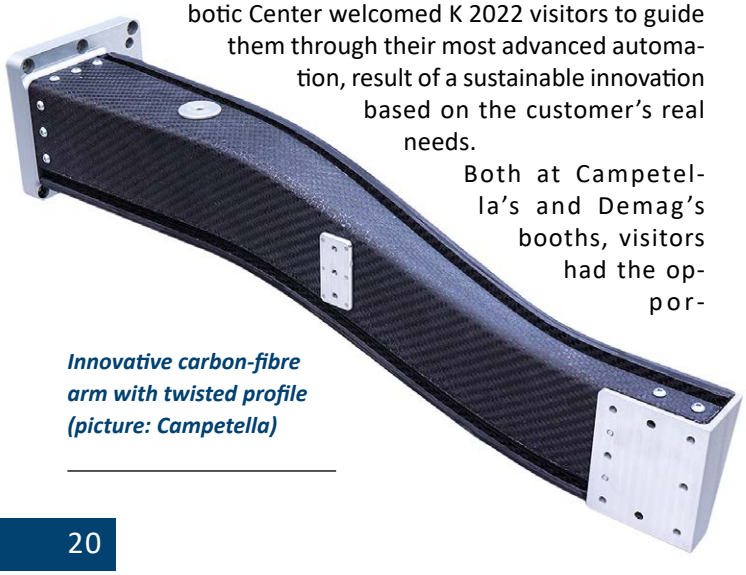
In this application, the pre-cut natural fiber mats are picked up from a buffer stack and inserted into an IR heating station by a WX152 robot from WITTMANN. Next, the heated mats are placed into the mold on the fixed mold half by a combination gripper, formed, cut to size and over-molded. For this application, the mold is fitted with a hot runner system specially equipped with needle shut-off nozzles for compatibility with the Cellmould process. Prior to insertion of the next natural fiber mat, the finished part and the trimmings are removed from the fixed mold half and subsequently transported to the storage position.

Campetella Robotic Center: a new concept of automation

From 19 to 26 October 2022 Campetella Robotic Center welcomed K 2022 visitors to guide them through their most advanced automation, result of a sustainable innovation based on the customer's real needs.

Both at Campetella's and Demag's booths, visitors had the opportunity to check out the new Modula W X-Series, core of a fully automated system managing the IML production of margarine tubs. Born to fit IMMs up to 4.500 kN clamping force, this high-speed side-entry robot boasts a peculiar and innovative "W" structure that allows it to operate on a 2-level stack mold, which is also specifically designed to double productivity. The Campetella product development team has been focusing on the shared ever-growing need to increase the production systems' efficiency in the food-packaging industry.

Minimizing footprint on the ground while maximizing productivity. This is what Campetella was able to achieve by creating this new Modula. Its main transversal axis, located on the upper side of the robot, makes it possible for the discharge conveyor belt to be placed at the bottom, thus ensuring a significant space optimization.



Innovative carbon-fibre arm with twisted profile (picture: Campetella)

Once extracted from a 4 + 4 cavity mold, the tubs are picked by a SPIN and stacked with the opening facing downwards in order to ensure maximum hygiene. The robot is equipped with vertical feeders for 5-sided labels, featured by efficient servomotors and designed to exploit the space in the vertical direction. Its carbon fiber arms reduce vibrations, thus ensuring excellent label positioning, while an integrated vision inspection system safeguards the perfect quality of the stacked tubs.

Tederic CoinSure™ injection compression molding process debut

Circular economy, digitalization, and climate protection were hot topics at the K 2022 and this was also true for Tederic exposition. The company demonstrated its efficient and precise solution for the new energy vehicle sector - the injection molding compression process - and showcased CoinSure™ injection molding technology for the first time.

NEO•Ms, the winner of the Industry Innovation Award, has a compact mechanical structure and boasts excellent performance (picture: Tederic)

The Tederic CoinSure™ injection compression molding process involves the injection molding machine building two clamping pressures into the mold closing process, one at low pressure and the other at the usual high pressure. The injection is completed instantaneously during the ramp-up, solving the problem of sudden pressure changes caused by conventional mold closing methods.

NEO M1120s horizontal electric injection molding machine has integrated three major technological innovations, namely horizontal heavy-duty turntable opposed molding and dynamic balancing technology of the mold plate, multi-directional collaborative multi-layer integral injection and secondary mold closing process and high-precision double-loop control method of the injection molding system.

The process enhances the optical performance of the product and meets all the quality requirements. The integrated molding ensures perfect dimensional accuracy of the product while reducing mold losses and energy consumption of the injection molding machine, reducing customer costs. It is suitable for molding applications that require high precision and quality, such as transparent parts for automobiles, headlights, lenses, and high-precision optical parts for defense, aerospace, and deep-sea exploration.

Innovative injection mold technology from corvaglia at the K trade fair

The innovative “adaptive flex-band” injection mold technology was unveiled alongside the latest closure solutions at corvaglia booth at the K trade fair in Düsseldorf.

The “adaptive flex-band” injection mold technology developed by corvaglia combines different – and in some cases conflicting – requirements of beverage bottlers and consumers. Above all, the technology offers major advantages for the tethered caps, which comply with EU Directive 2019/904.

The key objective for beverage bottlers is finding closure solutions that can be easily applied to the bottles on an industrial scale. This makes it easy to ensure high productivity and reduce scrap at the same time. For this purpose, a flexible tamper-evident band has become established for conventional closures.

Consumers, in turn, prefer a convenient opening and closing experience. Consumer tests have revealed that this requires locking it in the open position with a large opening angle. The locking mechanism requires hinges, which are preferably produced in the injection molding process using slides in the injection molds. Slides can be used to design a wide range of different hinges.

Combining both requirements in a single closure solution is difficult to implement from a technological point of view. Thanks to the new injection mold technology, however, corvaglia is now in a position to combine these two demands.

Adaptive flex-band concept developed by corvaglia (picture: corvaglia)

Roctool presented its Eco-Molding initiative at K 2022 with 2 live demonstrations

Roctool presented two Live molding demonstrations on two stands, showcasing the company's latest initiative "Eco-Molding", combining innovative textures, recycled materials & Roctool state of the art heat and cool technology. Roctool also showcased multiple applications for various sectors including automotive, beauty, consumer goods & electronics. Roctool team was running sessions during the 8-day show, using various materials and inserts with different textures and effects.

Live demonstration of a 2-Cavity mold with inter-changeable inserts:

This live demonstration on Roctool stand featured an injection molding machine CX110-380 from KraussMaffei, Roctool's longstanding show partner, 25kW & 50kW air cooled generators, that are user friendly, compact and lightweight, being ideal for small parts and a micro thermoregulator which were all designed for the Roctool process.

The Roctool technology demonstrated the exceptional mold replication directly onto the part surface making it possible to reach uncharted territories of design and functionality. Every stand visitor had a chance to experience the enhanced surface quality versus conventional molding with fast cycle times. Some of the unique innovative textures were realized by Standex Engraving in collaboration with Roctool using different types of resins.

Roctool's new aircooled technology, lightweight, highly efficient & ultra compact generator (picture: Roctool)

Live demonstration of a high-quality, thin wall housing part made with recycled materials:

Roctool Eco-Molding initiative was highlighted on the ENGEL (Austria) stand, using an e-mac 465/160 injection molding machine. The parts being produced were made from post-consumer recycled plastics from Lavergne (Canada). The unique surface textures were laser engraved by Standex (Italy), Moldetipo (Portugal) built the mold with INCOE (USA) providing the hot runner system. Roctool technology allowed to mold an ultra-thin wall housing without surface defects.

Stable and sustainable: LSR Smart Caps demo highlighted moulding precision

At K 2022, Sumitomo (SHI) Demag highlighted its LSR processing competence, including OPC-UA interface compatibility on mainstream dosing systems, using a fully electric IntElect 180/570-250 injection moulding machine. Live demonstrations focused on the sustainability advantages of using a single tool to produce four variants of durable and reusable silicone Smart Cap covers for beverage and energy drinks, food tins and cans. "With this exhibit we are staying true to the company's Act! Sustainably commitment, supported by constant machine innovation and total processing synergy", noted LSR expert and new Business Development Director of Automotive & Electronics, Rustam Aliyev.

All-electric IntElect injection moulding machine by Sumitomo (SHI) Demag (picture: Sumitomo (SHI) Demag)

In a cycle time of just 35 seconds, the IntElect LSR package produced 12 gram Smart Caps with absolute precision. Due to outstanding process stability, the actual weight of the parts is 0.01 grams accurate.

For the first time, Sumitomo (SHI) Demag exhibited with LSR tool specialist and innovator ELMET. Collaborating with the Austrian firm to design the turnkey production cell capable of producing four different LSR beverage and food can covers, ELMET's all-electric SMARTshot E valve gate cold runner system features servo-driven nozzle needles to boost control and optimise filling behaviour.

Material was dispensed via the Smart-Mix TOP7000 Pro dosing system. Processing precision was closely monitored, with the weighing cell documenting each individual cap weight to instantly identify any moulding deviations. For traceability, the finished Smart Caps were laser marked.

"Combining the high-precision dosing system with the IntElect and the reliable processing control attained by the electric needle valve cold runner, an unprecedented accuracy of the part weight is repeatably replicated," noted Aliyev.

ELMET states that with a footprint of just 45 by 31 inches, its Smart-Mix TOP7000 Pro pump unit is capable of operating at pressures of up to 210 bar (3045 psi), yet is very compact. The result is smaller LSR volumes in the system, therefore increasing process reliability and reducing purging volume.

FANUC presented injection moulding solutions at K 2022

FANUC shined the spotlight on its credentials as a provider of sustainable production solutions for the plastics industry. In Dusseldorf the company showcased four automated production cells.

For instance, a FANUC ROBOSHOT S220iB (220T capacity) injection moulding machine produced polypropylene parts from a 48-cavity mould manufactured by Foboha, with parts handling via a Sepro Success 33 linear robot and Gimatic gripper. Integrated file management allowed easy program transfer between machine and robot. In addition, fully integrated Regloplas water manifolds (via VNC – virtual network computing) ensured easy setting and adjustment using the ROBOSHOT HMI screen.

For the mould, the system featured Priamus cavity pressure sensors with an E63 fill control interface. Fill control balanced the cavity by adjusting the hot-runner nozzle temperature. The latest EUROMAP 82.2/OPC 40082-2 control interface provided communication with a Gammaflux hot-runner temperature control system.

Visitors from the medical sector benefited from taking a look at FANUC's demonstration cell involving a ROBOSHOT S150iB (150T capacity) injection moulding machine with a TIM 8-cavity mould for 20ml polypropylene syringes. A FANUC M20iB/25C industrial 6-axis robot with Gimatic gripper was set to provide the automation. The system featured integrated Regloplas water manifolds via VNC and an integrated FANUC servo unscrewing function for the mould. A plug and play FANUC iRVision visual detection system was checking for the correct demoulding of parts.

Optimised for cleanroom environments, this standard medical package also demonstrates a PETEK laminar flow box for class 8 cleanroom use. Further features includes bush-less tie bars for enhanced cleanliness in the mould area (less lubricant requirement), FDA-approved grease, high-gloss paint for easy cleaning and rust-proof linear guides.

To demonstrate FANUC's compatibility with the latest sustainable and environmentally friendly bioplastic materials, visitors to K 2022 were provided a chance to view a ROBOSHOT S100iB (100T capacity) injection moulding machine producing 8-cavity coffee capsules from a bio-compostable plastic. Fully configured to process this innovative material, the ROBOSHOT machine at the exhibition had an Inmex 26mm barrel with integrated heater featuring insulation and cooling for energy-efficient operation. The latest EUROMAP 82.1/OPC 40082-1 control interface was providing communication with an HB-Therm mould temperature controller.

Full automation was courtesy of a FANUC LR Mate 200iD/7L compact industrial robot, highlighting the benefit of FANUC QSSR (Quick & Simple Start-up of Robotization). QSSR makes it possible to connect the ROBOSHOT machine and robot using a single Ethernet cable. Users have the subsequent option to undertake G-code programming of the robot via the machine tool's control. The robot was also showcasing a Zimmer tool-change system.

The final demonstration cell was focussing on an LSR (liquid silicone rubber) application. Central to the system was a ROBOSHOT S150iB injection moulding machine supported by a FANUC M20iD/25 robot. This FANUC LSR package was producing LSR sealing components from a 64-cavity SEI WOO mould. Notable features included: a FANUC LSR plasticiser; integrated vacuum pump, mould heat circuits and control; standard enhanced software package for LSR moulding functionality; and LSR dosing equipment from ACH Hefner. **smi**

ROBOSHOT S220iB by FANUC (picture: FANUC)

Pharmaceutical primary packaging made of plastic: for a greater degree of safety – from production to usage

The automated ZAHORANSKY production lines cover the entire manufacturing cycle of pharmaceutical primary packaging for laboratory analysis as well as the administration of medication. New ZAHORANSKY microsite provides an overview of the latest medical technology solutions.

On a new microsite, ZAHORANSKY will be presenting the latest technologies and use cases relating to the manufacture and use of pharmaceutical primary packaging consisting of COC/COP-based materials instead of glass. Berthold Schopferer, Head of Project Planning at ZAHORANSKY Automation & Molds GmbH, had this to say on the matter: "The process of administering medications should be as safe as possible – in hospitals as well as medical practices and vaccination centers, or when self-medicating at home, for example in the case of chronic and acute illnesses. The foundation for this is already laid during production with pre-packaged, fillable staked-needle syringe bodies or pre-filled syringes. Not only can products made of plastic instead of glass be manufactured more reliably and in high quality via ZAHORANSKY systems – thanks to their form, which is flexibly tailored to the type of application, they make handling easier for everyone involved and ensure the correct dosage." For example, ZAHORANSKY supplied a PRIMA Z tube for the production of a tube applicator for a rotavirus vaccine for children from the age of six weeks, so that the drug can be administered as easily as possible in the context of self-medication – something that would be unthinkable with a glass tube.

PRIMA Z - 16-way inspiring syringe technique

LIVA Z - Everything seems very easy with us

Compared to glass, plastic offers invaluable advantages in the area of laboratory analysis and when administering medication. Even the production of COC/COP-based containers is much more reliable, because the needle can be positioned more flexibly before overmolding and is not melted or glued in. On top of this, a client benefits from a reduced risk of breakage, meaning less care is required during transport, storage and handling. Last but not least, the shelf life of highly delicate medicines is significantly extended thanks to the pH-neutral surface. Depending on the product, more than ten camera systems are used with ZAHORANSKY installations for the purposes of quality assurance. The final check is then carried out by an integrated 100 percent X-ray system.

The PRIMA Z syringe for staked needle syringes, for example, is the first production line on the market featuring a 16-cavity mold for manufacturing syringes as primary pharmaceutical packaging for liquid medicines. These so-called parenteral syringes are produced through a modern plastic injection molding process with overmolded cannulas. Compared to glass syringes, these do not need to be washed, dried and sterilized before filling.

Drug delivery systems such as micropumps, pen injectors and inhalers are manufactured using the LIVA Z, which always enables safe and reliable dispensing of contents. Both customer-specific requirements in terms of shape and color can be fully taken into account. The high degree of automation can be achieved through production line integration.

With the VITRO Z models, the high global demand for in-vitro diagnostics (IVD) – such as dialyzers, pipette tips, cuvettes, laboratory consumables and blood collection tubes – can be met. Capillary dialyzers can be manufactured particularly quickly using the VITRO Z dialyzer, with a completely assembled and tested dialyzer produced by the system every four seconds. A unique selling point is the drying process of the semi-permeable membrane filter developed and patented by ZAHORANSKY. When it comes to blood collection tubes (blood tubes), the advantages of plastic as a substitute material for glass really come into their own: There is no risk of breakage, handling is easier and storage is less complicated.

Background information

The name ZAHORANSKY has stood for reliability, precision, and sophisticated technology since 1902. The foundation for this was laid by Anton Zahoransky in his small workshop in Todtnau, where he manufactured the first devices and machines for automated brush production.

VITRO Z - In VITRO veritas

Berthold Schopferer, Head of Project Planning at ZAHORANSKY Automation & Molds GmbH (all pictures: ZAHORANSKY)

Thanks to the experience and expertise gained since then, ZAHORANSKY is now a full-range supplier and technology partner for companies in the brush industry, medical technology, and other sectors. With injection molds, mechanical engineering, automation technology, and packaging systems, ZAHORANSKY can provide comprehensive services for individual requirements. Approximately 900 employees, including 70 trainees, work to achieve this every day at ten locations in Germany, Spain, China, India, Japan, Brazil, and the United States.

ZAHORANSKY's multi-system solutions cover the entire process chain: from integrating packaging technology and handling, to programming and robotics in the manufacture of fully automated production and assembly systems. ZAHORANSKY's technologies and services are widely used in the following industries: household and industrial brushes, oral care, medical technology, cosmetics, consumer goods, and packaging. *smi*

ZAHORANSKY
www.zahoransky.com

ENGEL supplied two 8,000-tonne injection molding machines to North America

Infiltrator Water Technologies' molding campus in Winchester, KY., has seen more than $100 million in expansions in recent years (picture: Infiltrator)

ENGEL has set a new record with two injection molding machines delivered to the USA. With a clamping force of 8,000 tons and two 85,000 cm³ injection units each, they are the largest machines ever built at the St. Valentin plant in Austria. The two ENGEL duo 130000/130000H/8200 combi US machines were placed at Infiltrator Water Technologies in Winchester, Kentucky.

Austrian injection molding machine manufacturer ENGEL has set a new record with two injection molding machines delivered to the USA. With a clamping force of 8,000 tons each, they are the largest machines ever built at the St. Valentin plant in Austria. The two ENGEL duo 130000/130000H/8200 combi US machines were placed at Infiltrator Water Technologies (IWT) in Winchester, Kentucky. The subsidiary of Advanced Drainage Systems (ADS) produces water management products there.

The two duo injection molding machines each have two 85,000 cm³ injection units which allow for injecting a total shot weight of 270 lbs (122 kg). The giant machines have a total length of 96 feet (29.3 meters) and a width of 37 feet (6.4 meters). This can be considered a relatively small footprint compared to the clamping force and shot size. This is where the two-platen design of ENGEL large-scale machines shows its strength.

ENGEL is increasingly receiving requests for custom solutions in the extremely high clamping force range. Clamping forces of 10,000 tons and more are possible. Machines of this size can process individual shot weights of several 100 kilograms of material and achieve material throughputs of two tonnes per hour.

The entire ENGEL team from conception, design, assembly, testing and transport with representatives from Infiltrator at the Factory Acceptance Test for machine number one in St. Valentin, Austria (picture: ENGEL)

The largest machines ever built by ENGEL

Even though the St. Valentin plant is accustomed to building large equipment, working on these two huge machines was special to all team members involved. "I am proud to have been a part of this," says Jim Moran, Business Development Manager at ENGEL North America. "You can imagine the special shipping and ground transportation arrangements needed to move the machine from Austria to the U.S. The platens were transported to and from the St. Valentin manufacturing facility along the Danube River on barges," Moran explains, just one of many challenges that had to be overcome. He continues: “Each machine was fully assembled and tested prior to shipping and then disassembled to be shipped to the U.S.”

Once at the Infiltrator site, the enormous size and scale of these machines, required new manufacturing facilities to house them. David Gedritis, Director of Manufacturing Capital Implementation, describes the logistics coordination necessary to complete the new 59,000 square-foot building expansion at the same time 29 truckloads of machine parts were arriving from Austria. Over the next 2 months the machine was assembled while the building and all the

Special transportation was required for many parts of this huge machine. Pictured is the arrival of the 257,941 pound stationary platen at the Infiltrator facility in Winchester, KY (picture: ENGEL)

One of several large molds that can be installed in ENGEL 8200 ton clamp injection molding machine using a 150-ton crane (picture: ENGEL)

necessary auxiliary equipment and utilities were installed. A 150-ton overhead crane was installed for moving molds in and out of the machine and was also used to help assemble the new press. Dozens of individuals worked on the project completing thousands of hours with a perfect safety record. "The work ethic of the ENGEL team was incredible as they worked long hours, including weekends to finish the machine assembly and turnover to Infiltrator in rapid fashion."

Quick collaboration from design to delivery

It was a hand-in-hand journey imagining, designing, and building these machines. "We chose to work again with ENGEL based on our existing relationship and previous capital projects that were delivered on time and on budget," says Ron Brochu Vice President of Manufacturing for Infiltrator. "Not only does ENGEL work with us to specify the right equipment, once installed the equipment has

A view of the clamp area reveals the sheer size of the overall machine at 96 feet (picture: ENGEL)

A seamless installation of automation for the handling of large parts with shot weights up to 270 pounds (picture: ENGEL)

an excellent track record of operation and production. Reduced downtime and greater throughput are a hallmark of ENGEL equipment."

ENGEL received the purchase order in November 2020. The handover of the first machine was completed in February 2022. Now, a year later, the second machine, a replica of the first, was delivered.

Sustainability, long-term partnership, and investment for the future

ADS and ENGEL share their commitment to sustainability. "We are managing a precious resource, water, through innovative products, using a high content of recycled plastic," says Scott Barbour, President, and CEO of ADS. The company recycles more plastic than any other in North America. As a result, ADS was recognized for its commitment to recycling by receiving the number 1 ranking by Plastics News in 2022.

"We have made significant investments in new equipment, and this will allow us to produce our products more effectively and efficiently," says Bryan Coppes, Vice President of Engineering and R&D at Infiltrator. "It is the new capabilities and opportunities for continued product development that is truly exciting. This new equipment will allow us to continue to bring new and innovative products to market and meet and exceed our customers' needs."

ENGEL has recently been awarded EcoVadis' "gold" sustainability rating. For customers like Infiltrator, this is further confirmation that they have chosen the right partner. EcoVadis is the world's largest provider of sustainability rankings. The rankings include data from more than 90,000 evaluated companies and focus on the global supply chains in each case. In addition, the companies' environmental, social, and ethical performance is evaluated.

ENGEL is proud of long-term partnerships with customers like Infiltrator and ADS. "A project like this one is always a challenge. Along with the size of the machines, the innovation required, and the related investment comes a certain risk. However, our long-standing partnership, mutual trust, and truly just understanding what is essential for the other party helped tremendously," says Vanessa Malena, President of ENGEL North America. She adds: "We are excited to see what we have accomplished together. When developing solutions with our customers, we endeavor to surpass the limits and contribute to their success and growth with forward-thinking design and manufacturing."

About ENGEL AUSTRIA GmbH

ENGEL is one of the global leaders in the manufacture of plastics processing machines. Today, the ENGEL Group offers a full range of technology modules for plastics processing as a single source supplier: injection moulding machines for thermoplastics and elastomers together with automation, with individual components also being competitive and successful in the market. With nine production plants in Europe, North America and Asia (China and Korea), and subsidiaries and representatives in more than 85 countries, ENGEL offers its customers the excellent global support they need to compete and succeed with new technologies and leading-edge production systems. *smi*

ENGEL
www.engelglobal.com

LS Mtron expands its lineup for ‘the ONE*-E’

All pictures: LS Mtron

- 'the ONE-E', the fastest injection molding machine in Korea, is now enhanced with a premium electric model and a comprehensive range of offerings*

- 50/80/130/400 models are introduced in addition to the existing 110/170/220/280/350 models

- Customers will have a wider selection of options

Recently, LS Mtron Co., Ltd. (LS Mtron) has gained attention for expanding its lineup of 'the ONE*-E' Series, offering customers more variety in their purchasing options.

With its newly expanded lineup, 'the ONE*-E' is a high-speed/ultra-precision electric injection molding machine that achieved a dry cycle time of 1.49 s for the first time in Korea. Before the line up expansion, premium electric products lacked a wide range of options, which limited selection for customers.

The series expanded to include 50/80/130/400 models in addition to the already existing 110/170/220/280/350 models, and 'the ONE*-E' series has received praise for both exceptional products and diverse product lineup.

'the ONE*-E' allows high design reproducibility and precise injection for perfect surface treatments

'the ONE*-E’ Series are premium injection machines that are suitable for high-end packaging products, and have been well-received for utilizing high-precision injection molding technology to implement desired home appliance designs for customers.

Furthermore, in the rapidly changing market for home appliances, the ‘ONE*-E’ series provides high-quality value and extends beyond producing simple products. Additionally, it stands out in product specification and control technology compared to the caliber of advanced Japanese manufacturers. The ‘ONE*-E’ series, notable for high design reproducibility and comprehensive surface treatment through precise injection, showcased cup injections at the 27th Korean International Plastic and Rubber Show (KOPLAS 2023).

The toggle mechanism has been optimized to increase the link speed ratio by 30% through improving high-cycle performance and precision in molding, and by reducing impact through low vibration operation by utilizing CI-Curve control.

Adding on, the series has improved acceleration performance, increased plasticity through adaptable screws with increased RPM, a clamp force monitoring function through a tie-bar sensor, automatic clamping force calibration function, and an automatic zero adjustment mode function for spring mold. These features have further improved the convenience of users.

In addition, ‘the ONE*-E’ utilizes a dual center press die structure to minimize mold deformation while boosting, which has been receiving positive feedback in the injection molding industry due to its improved mold face pressure distribution (33% improvement on the fixed plate) and extending the longevity of mold life.

An official from LS Mtron stated, "By expanding the lineup of the 'ONE*-E' series, which has already established a reputation for its excellence both domestically and internationally, we will be able to provide customers with a wider range of options when making purchases.”

Making Injection Molding Smarter With CSI4.0

LS Mtron's 'ONE*-E' series, which was also showcased at KOPLAS 2023, is characterized by the CSI4.0 (Connected and Smart Injection)

solution function that allows customers to flexibly implement smart injections in factories.

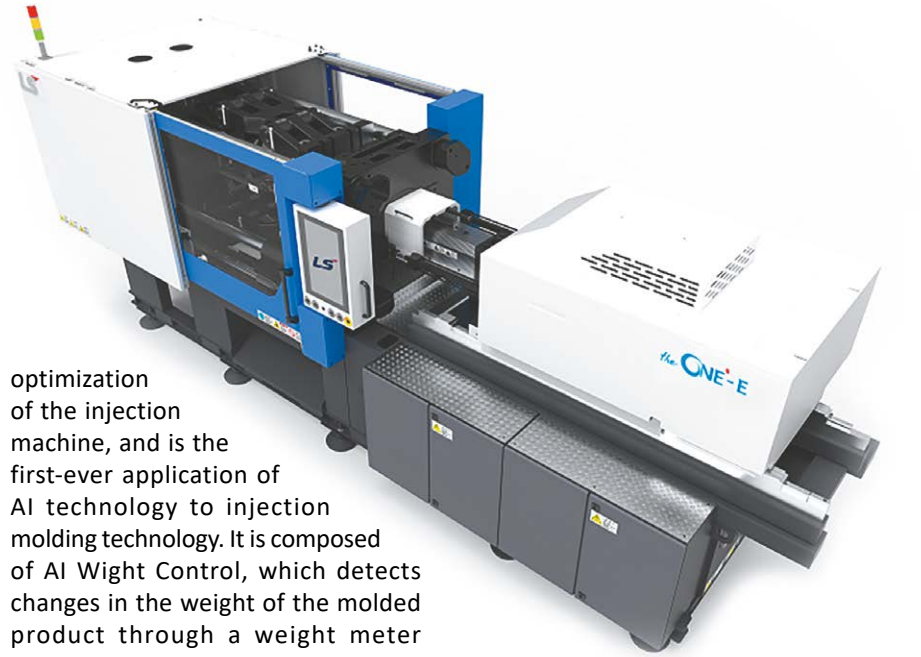
This solution can assist customers to quickly adapt to the changes brought by Fourth Industrial Revolution and Digital Transformation. It has stages such as the primary stage of data collection, data analysis stage where the collected data gathered meaning, and big data processing technology and AI stage that applies the intelligent data from this process.

LS Mtron's CSI4.0 is categorized and operating as smart production, smart machines, artificial intelligence (AI), and smart services.

Smart Production includes features such as smart monitoring through mobile access that allows management anytime and anywhere, real-time process monitoring and control through smart production control, smart mold recognition that allows for the immediate check, and application of production information via the mold's QR code with smart peripheral facility control. This control includes all peripheral devices through the injection machine controller and smart data interface to meet customers' data needs.

Smart Weight Control and Smart Remote Service are provided to customers with the goal of a smart machine and smart service, and automatically adjust process conditions to correct the weight of the molded product. The machine uses software to detect the weight change of the molded product, providing the advantage of reducing offline service time.

Lastly, the AI injection system synthesizes artificial intelligence technology into the process optimization of the injection machine, and is the first-ever application of AI technology to injection molding technology. It is composed of AI Wight Control, which detects changes in the weight of the molded product through a weight meter linked to the injection machine, and AI Molding Assistant, which is an AI conditions derivation system that effectively reduces the time it takes to stabilize the initial process through adjusting the process conditions by learning and emulating highly skilled molding experts.



LS Mtron Creates a New Chapter in Transforming Injection Molding Machines

LS Mtron's injection molding machine was first introduced in 1969 by the machinery division of GoldStar (currently LG Group) and has been expanding its areas of reach both domestically and internationally through consistent technological advancements and innovations in quality over the past 50 years.

Growing alongside major Korean customers during the period of rapid growth known as the Miracle on the Han River, LS Mtron's customers have now become global standards on their own. The core technology development of LS Mtron's injection molding machine has benchmarked the needs of these customers for half a century. LS Mtron's injection molding machine has set the standard for the industry in Korea by launching a two-platen injection machine, starting with the development of the first direct-pressure injection molding machine in the country, and by developing the first electric injection molding machine in Korea.

Additionally, LS Mtron has developed special machines that suit rapidly diversifying manufacturing environments (such as IBM, IML, CPM, Two-color, etc.) such as high-specification, high-speed injection molding machines the ONE* and ONE*-E series, to continuously innovate its product offerings. In line with the digital and industrial 4.0 era, the company has been pioneering a new field of transformation in injection molding machines by developing smart injection machines and smart molding solutions.

LS Mtron's continuous and pioneering transformation was showcased at KOPLAS 2023, held at KINTEX Exhibition in Goyang City in March. Visitors had the opportunity to visit and see LS Mtron's diverse and high-quality products, including 'the ONE*-E' series. *smi*

LS Mtron
www.lsinjection.com

A big step to the new era in plastic industry: 8500-ton ultra-large injection molding machine delivered

The largest injection molding machine in China, designed, developed and produced by YIZUMI, was officially delivered to the customer on March 14th. So, this model is officially operated by customers now.

The 8500-ton ultra-large high precision injection molding machine has been hailed as one of the noticeable breakthroughs of YIZUMI. It is not only the largest-tonnage machine installed in China, but also could meet the customer requirements in molding process relying on its advanced technologies, such as precision control technology, thick-wall injection molding technology for large transparent parts, synchronous plasticization by two injection units, and injection compression molding technology.

The machine was manufactured by the team of two-platen injection molding machine of YIZUMI. The rated clamping force of the machine is 8500T, and the maximum clamping force can reach 9000T, which has achieved a breakthrough in the key technology of China ultra-large two-platen injection molding machine, and also set a new record of injection molding machine industry in China.

All photos: YIZUMI

8500-ton ultra-large injection molding machine, the first injection molding machine with the largest clamping force in China, embodies the wisdom and painstaking efforts of the YIZUMI R&D team, and it is the result of the continuous pursuit of excellence by the experts participating in the research and test in overcoming difficulties.

The project has entered the stage of preliminary technical research and technical demonstration since the middle of 2019. During this period, a large number of technical personnel of YIZUMI have carried out preliminary demonstration, scaling experiment, process test and other work. After that YIZUMI has determined the direction of research and development. Through a large number of project design, data calculation and simulation analysis by the research and development personnel, it has overcome a series of engineering problems such as the manufacturing, assembly and functional testing of ultra-large parts of the machine.

Through continuous testing, the machine passed the client's scheme review, technical review and process review in the first quarter of 2021, and completed the whole machine assembly and test run in December of the same year. In order to ensure that the production process of the customer's products meets the requirements of mass production, three mold tests were conducted in 2022 to fully verify the performance of the machine. It completed the process validation of the customer's products and the production of the customer's first batch of products at the end of November of the same year. It totally took three and a half years from the early technical demonstration to the successful production, during which more than 30 technicians participated in the development of the machine.

The 8500-ton ultra-large high precision injection molding machine is a key product that YIZUMI has built with great effort in recent years. Its

accuracy of mold opening and closing is able to up to ±0.3mm and two injection units with a maximum shot weight of 140 kg. Meanwhile, it can be used in one-step molding of large-sized transparent plastic parts (or with metal inserts) with high requirement in part shape, light transmittance and accuracy, solving the molding difficulties of large-sized transparent plastic part in China.

Besides, the machine incorporates cutting-edge technologies in the industry, including injection compression molding (ICM) technology, SmartClamp technology, internal circulation two-platen clamping unit and closed-loop pump technology special for optical products. The control system integrates smart control technology, information technology and Internet technology independently developed by YIZUMI. And the machine is of high precision, high speed and intelligence, energy saving attained 30% compared with traditional three-platen machine.

In February 2023, China Plastic Machinery Industry Association (CPMIA) recognized that the technology of 8500-ton Injection Molding Machine reached the international advanced level and agreed to pass the appraisal.

With the rapid development of domestic aerospace and automobile industry, the demand for ultra-large injection molding products is gradually increasing. YIZUMI will continually develop new products, new technology and new process, to improve the integrated solution for ultra-large injection parts. One-step molding of large plastic components achieved by integrating different in-mold technologies, replacing the assembling production of small and medium size plastic parts, will gradually become a new technical trend.

At present, the machine which was completed prototype development and commissioning has been delivered to customer. For this achievement, Deputy Managing Director of YIZUMI Group & General Manager of Injection Molding Machine Division, Zhang Tao introduced: “The R&D of the 8500-ton ultra-large high precision injection molding machine has taken a leading role in the development of large-scale injection molding machine for the plastic industry. In terms of tonnage and injection weight, this machine is the largest injection molding machine produced in China at present.”

“This machine is not only large, but also we have adopted new technologies such as injection compression molding process and synchronous plasticization by two injection units.” Zhang Tao emphasized, “The development of the machine has increased more possibilities for our application in large plastic parts. It also means that YIZUMI has achieved the leading position in the industry of ultra-large injection molding machines in global.”

As the first product of injection molding machine with the largest clamping force in China, 8500-ton ultra-large injection molding machine can meet the demand for ultra-large products in aerospace, automotive industry, petrochemical pipeline, transportation facilities and other fields. Meanwhile, it has solved a series of difficulties in the processing, transportation and assembly of ultra-large equipment, and provided customers with more cost-effective ultra-large transparent plastic molding solutions. *smi*

YIZUMI
www.yizumi.com

Stack molding systems offer increased productivity, flexibility and reduced production costs

Stack molding systems are a cost-effective way to achieve your goals of higher productivity, increased flexibility, and reduced costs. One Husky customer recently achieved these objectives with new systems for takeaway food containers and lids.

Project Overview

Husky's customer, a manufacturer of rigid plastic products for food and retail packaging, needed a solution that delivered increased output while reducing costs. The customer wanted a high-quality product with a perfect fit between food containers and lids.

Husky's solution was high output 4+4 cavity stack molding systems, which included Hylectric 4 injection molding machines in packaging configuration, featuring unique Reflex platens, stack mold carrier and high performing clamp and injection unit, together with Ultra Packaging hot runner system.

The solution drove several significant performance improvements resulting in added value for this customer that included:

- 2% part weight reduction to achieve a more than $50,000 of resin savings a year
- 7% cycle time reduction, which yielded an additional 2.5 million part output a year

All pictures: Husky

What Are Stack Molds?

Compared to standard molds that have just one molding surface or parting line, stack molds can have two, three or four parting lines. Opening, closing and the remaining stages of the injection molding cycle take place in parallel for all stack mold faces, resulting in minimal cycle time increases versus conventional single face molds.

Stack Molding Systems Increase Productivity

For this project, two dedicated systems were provided – one for the container and another for the lid – and this greatly increased production capacity. By implementing stack mold technology into their production, the customer experienced an increase in output, without significantly enlarging floor space and investment. This is attributed to the Hylectric 4 machine's capacity to accommodate stack molds with industry-leading clamp opening stroke, maximum allowable mold weight carrying capacity and short dry cycle times.

Stack Molding Systems Offer Greater Flexibility

There are many opportunities for applications using the stack molding process. This technology is beneficial for a wide range of applications, including thinwall and in-mold labelled packaging, specialty closures and medical parts.

Stack Molding Systems Reduce Part Costs

By implementing two parting lines, when compared to the single face approach, the customer was able to double the number of cavities on the same injection molding machine clamp size. This resulted in an almost 100% production output increase in comparison to a conventional system with only four cavities. Such an advantage, in combination with minimal floor space requirements and a fast cycle time, provided significant part cost reduction for both the container and lid.

About Husky

Since 1953, Husky Technologies™ has been pioneering technologies that enable the delivery of essential needs to the global community with industry-leading expertise and service. A global leader, Husky is powered by teams of exceptional people in more than 40 locations with valued customers who operate in over 140 countries. By focusing on sustainably sourced feedstocks, material reuse and the exclusive use of medical-grade polymers, Husky continues to be committed to enabling the circular economy now and into the future. ***smi***

Husky
www.husky.co

HASCO multicoupling system – Extension of product range

In addition to the standard system, the new modifications are now also available as open or closed versions with valve

The innovative HASCO multicoupling system enables the central connection of several cooling circuits in one single step, and offers numerous advantages in process optimisation. Setting-up procedures can be carried out through a reliable and simple connection of the machine and mould side with only one lever movement and without any risk of mixing up the different cooling circuits and hoses.

In addition to the standard system, the new USA (ZI) and French (FRA) systems are now also available as open or closed versions with valve. In addition, HASCO offers the clean-break multicoupling system exclusively also as a HT version with flat sealing front surfaces, which reliably prevents cooling fluid leaking when decoupling. The temperature resistance of the multicouplings can be increased to 180°C with water applications, creating considerable competitive advantage.

HASCO thus offers a wider range of services for customers throughout the world. Overall, the extension to the product range comprises 60 new products, each with three model series. Plates are available for 6, 12 and 20-connections, whereby the couplings can also be replaced without dismantling the hoses. The modular structure allows individual configuration as well as simple integration into all existing systems.

The exceptional diversity of combination possibilities with nipples, couplings and hoses opens the door to future-oriented solutions for all tasks in cooling technology. These include versions with inner or outer thread, Push-Lok or hose nipples, rounding off the comprehensive range.

High-quality products go hand in hand with top-class service. This begins at HASCO with competent and individual consulting. With over 50 years of experience, HASCO is available to its customers around the world as a leading expert and partner in the field of cooling technology. *smi*

HASCO
www.hasco.com

Grippers specifically developed for this application are used for handling the trays

End-of-line testing under hygienic conditions

The reliable inspection, labelling and packaging of 36,000 syringes per hour places high demands on automation. Based on these specifications, Ward Automation designed a cell with three Stäubli robots. They master this task under hygienic conditions.

Inspection and packaging of 36,000 syringes per hour

A compact and flexible robotic cell handles the end-of-line inspection, labelling and palletizing of 36,000 syringes per hour. Three Stäubli robots designed for hygienic production are responsible for handling the trays in which the syringes are transported.

What is the safest and most economical way to test and palletize 36,000 syringes per hour? A multinational manufacturer of pharmaceutical products posed this question to the experts at Ward Automation in Sligo, Ireland. Founded in 1995, the company has specialized in designing and building customized automation solutions for the medical device and pharmaceutical industries.

The manufacturer's specifications included the following key details: The syringes arrive in trays containing 100 units at a rate of six trays per minute. They must be inspected, labelled and palletized. The chief concern here is to eliminate the risk of damaged or missing syringes or anti-tamper seals. Regulations concerning medical device production (21 CFR Part 11) apply here.

CUSTOMER BENEFITS

- Automated inspection of syringes, labels and tamper-evident seals
- Enhanced system flexibility
- Reliable traceability
- Significantly increased productivity

Three robots in one cell

Based on these specifications, Ward Automation designed a cell with three Stäubli robots. In Step 1, a Stäubli TX2-60 robot takes a tray of 100 syringes and conveys it to an image processing system. Two vision systems check the contents of the tray for faulty syringes, missing PRTC caps and the correct number of syringes. Trays that fail inspection are diverted to a reject station, where a human operator replaces the defective contents and returns the tray to the inspection line.

Trays that have been identified as "OK" proceed to a labelling station where inner and outer labels are printed and immediately checked for accuracy. Error-free labels are affixes to the inside and outside of the tray. The first TX2-60 applies the inner label, and at the end of the process the

labels are checked for presence and position.

In the next step, the trays are sealed prior to palletizing and shipping. Ward Automation developed an innovative lid-separating station for this task. It feeds the second robot – also a Stäubli TX2-60 – individual lids. A vision system verifies the position of the lid, and the robot grips it and places it on the tray.

A customer-specific application tool applies a tamper-proof seal to the lid and wraps the label around the outside of the lid as an extra security barrier. The tray is rotated 180 degrees and a second label is applied. The robot then lifts the tray and places it on a buffer conveyor. In the final step, a larger Stäubli RX160L robot stacks the finished trays on a pallet.

High precision – virtual programming

The requisite degree of flexibility is ensured by the robotic cell's modular design and advanced control system, which allows, the cell to be configured with new parameters in a short time. The machine is capable of handling 3- or 4-inch trays containing 100 or 160 syringes respectively, all within a compact space.

A decisive factor in the selection of the Stäubli robots was their hygienic design. The HE (humid environment) versions offer the additional advantage of being able to withstand regular wash-downs with aggressive cleaning agents without sustaining any damage. The cell documents the inspection and packaging process of each individual tray with individual labelling – very important for traceability – and all GMP-critical data.

The system runs trouble-free. The user can now carry out a fully automated 100% inspection of syringes, labels and tamper-evident seals, immediately identifying individual defective syringes, replacing them, and reintegrating them into the process. In addition, the user can select different parameters for syringe sizes, tray sizes and number of syringes, providing even more flexibility.

Another Stäubli robot seals the trays with a lid and applies two labels (all pictures: Stäubli)

A compact cell: Three robots collaborate in inspecting and palletizing trays holding 100 syringes each, processing 36,000 syringes per hour – with maximum precision and reliability

About Stäubli

Stäubli is a global mechatronics solution provider with four dedicated Divisions: Electrical Connectors, Fluid Connectors, Robotics and Textile, serving customers who want to increase their productivity in many industrial sectors. The company currently operates in 29 countries, with agents in 50 countries on four continents. The global workforce of 5700 shares a commitment to partnering with customers in nearly every industry to provide comprehensive solutions with long-term support. Originally founded in 1892 as a small workshop in Horgen/Zurich, today Stäubli is an international group headquartered in Pfäffikon, Switzerland.

Stäubli Robotics is a leading international player in industrial automation, providing engineering and technical support recognized for their efficiency and reliability. From SCARA, 6 axis robots and cobots to mobile robot systems and AGV, these powerful, high-precision solutions allow Stäubli to work with clients in many industries to help them tackle the challenges of Industry 4.0. *smi*

Stäubli
www.staubli.com

FANUC industrial robots (picture: FANUC)

Developing robots with empathy

FANUC supports the Swiss University of Applied Sciences to optimise teamwork between human and machine.

Robot manufacturer FANUC is supporting the development of an empathetic robot for use in industrial tasks. The EU-funded research project "Fluently", led by Roboverse Reply, aims to create a robot platform that enables true social collaboration between humans and machines.

The objective of the three-year project is to develop an advanced AI-based wearable device for operators and robots, as well as a dedicated training centre called 'The Fluently RoboGym', where factory workers and robots will train smooth interaction in industrial processes.

A total of 22 partners from science and industry are involved in the project, which is supported by Horizon Europe, the EU's most important funding programme for research and innovation. The Automation, Robots and Machine Laboratory within the Swiss University of Applied Sciences (SUPSI) is responsible for the technical coordination. In addition to researchers from SUPSI, the project involves scientists from several internationally leading institutions like the Politecnico di Torino in Italy and Waseda University in Japan.

"Workers are often exposed to high cognitive or physical loads," explains Professor Anna Valente, head of SUPSI's Laboratory of Automation, Robotics and Machines and a member of the Swiss Science Council. "When a human works closely with a robot, it is important that the robot recognises the human's feelings and responds accordingly, by adjusting its dynamics, for example."

Good teamwork between humans and machines is especially important in modern smart factories, where production volumes and products are constantly changing, and where mobile transport systems and robots coexist with static workstations.

"Our industrial robots are already equipped with sensors for seeing and feeling, but as yet they cannot recognise human emotions," says Ralf Völlinger, General Manager of the Robot Division at FANUC Europe. "We want to enable even more people to use our industrial robots easily and efficiently."

'Fluently' researchers are concentrating their development work on three value chains that are instrumental for the European economy: the dismantling and recycling of batteries for e-bikes and electric vehicles; inspection and assembly processes in the aerospace industry; and the refurbishment of highly complex industrial parts via laser processing.

"These processes are currently almost completely manual, causing workers to experience mental and physical stress," states Professor Anna Valente. "The origins of this stress come from dismantling batteries that carry the risk of explosion or handling heavy parts in aerospace industry, for example."

Robots could in future relieve workers at least partially from the stress involved in these processes and take over some of the more time-consuming tasks. This outcome would help to preserve the competencies and experience of workers while simultaneously leading to potential upskilling activities.

"We want to train robots to become teammates of humans and support them as best as possible," says Professor Anna Valente. Ralf Völlinger from FANUC Europe adds: "As robot supplier we are proud to support this pioneering development with our robots and technical know-how."

About FANUC

FANUC City is situated at the foot of Mount Fuji, near Lake Yamanaka. Covering 1.7 million square metres, it is home to all FANUC's unique production facilities. It also includes 12 research and development centres, administration buildings, staff accommodation, leisure facilities and even a clinic for FANUC employees and their families. ***smi***

FANUC
www.fanuc.eu

Nordson electrostatic spraying systems for mold release industry

The Nordson team demonstrated how an Iso-Flo® manual electrostatic hand gun system could provide a precision spraying solution that would improve efficiency for the customer.

Northwest Ohio is home to one of the world's leading manufacturers of automotive glass, supplying brand name manufacturers like Kenworth, Peterbilt and DAF. When you supply glass to these renowned names, your finished product must be clearly flawless – like the glass itself. So, when it came time to improve the glass manufacturing process, this glass manufacturer turned to Nordson Corporation, a leader in the production of application equipment for liquid painting.

The Nordson team demonstrated how an Iso-Flo® manual electrostatic hand gun system could provide a precision spraying solution that would improve efficiency for the customer. Nordson conducted initial testing, then left them with a demo system to continue testing in their actual production environment. The Iso-Flo unit is a voltage block system that offers an easier, safer and cost-effective way to spray electrostatically charged waterborne coatings. The system supplies charged coating to the spray devices, while preventing the charge from conducting back through the paint-supply system. For single-gun manual operations, the Iso-Flo system includes a single paint reservoir. The reservoir fills from the grounded paint supply when the gun is triggered off between parts. When the gun is triggered on, the reservoir immediately disconnects from the grounded paint supply and connects to the spray gun. The electrostatic charge is applied within the Iso-Flo HD unit, between the paint reservoir and the spray gun.

All pictures: Nordson

The Nordson Iso-Flo® HD Voltage Block System features an advanced design which eliminates ground loops, eliminates potential for arcing or sparking, and provides higher charge density than traditional systems. It reduces downtime due to grounding problems associated with waterborne coatings, increases productivity by providing reliable performance and consistent high quality finish. Installation is easy with minimal maintenance , making the system an ideal choice for optimizing waterborne paint applications.

- Rugged construction for the most demanding finishing operations
- High-capacity, field-repairable pumps provide long life with minimal maintenance
- Innovative arc-suppression feature that allows continuous coating without delay between cycles
- Includes paint reservoirs sized for productivity and paint savings
- Factory Mutual and CE approved

Nordson's customer realized the benefits of using electrostatic spraying to apply the mold release agent. They now use the Nordson system three shifts per day, accommodating production to meet all its customer demands and providing many additional benefits. "The Nordson electrostatic spraying system is much more lenient and forgiving than the customer's previous non-electrostatic spray system," says Syrowski. "The mold release agent (supplied by Franklynn USA, Glenview, Illinois) is applied very accurately. Our customer has essentially eliminated overspray and material waste. In addition, by minimizing the sticking issues, product reject rate is now very low." As a result, the system resulted in a fast return on investment. "The customer now sees 40 percent less mold release agent than with the old system," explains Syrowski. "Material savings alone would have given a system payback in 12 to 14 months. When adding in the savings from fewer product rejects, the customer saw a system payback in less than six months."smi

Nordson
www.nordson.com

Picture source: KRAIBURG TPE

Bioprinting solution from ViscoTec relies on THERMOLAST® M

In order to convey the medium in a manner adapted to the biotechnological requirements while at the same time taking advantage of the other benefits of the eccentric screw, ViscoTec opted for a THERMOLAST® M solution from KRAIBURG TPE for the stoppers used.

Precision, repeatability, process reliability and intuitive handling are ViscoTec's core competencies. The company, headquartered in Töging am Inn, is a global specialist in pump and dispensing technology. With its young Puredyne brand, ViscoTec also creates simple solutions for extrusion-based bioprinting.

The print heads are optimized so that living cells can be easily printed in additive manufacturing. A proprietary, modular heating and cooling system also ensures the best survival conditions for the cells in the manufacturing process. In order to convey the medium in a manner adapted to the biotechnological requirements while at the same time taking advantage of the other benefits of the eccentric screw, the manufacturer from upper Bavarian opted for a THERMOLAST® M solution from KRAIBURG TPE for the stoppers used.

The manufacturer's goal is to apply biomaterials more precisely with the help of the Puredyne cap b5. The small stopper bears a great deal of responsibility in this regard, as its filigree design and material properties mean that even the difficult requirements for tightness in this particular field of application can be met optimally.

"The traditional solution for such an application is silicone. For the plug used in the Puredyne print head, the choice fell on a thermoplastic elastomer because TPE opens up a new spectrum of possibilities for us," says Raphael Lichtnecker, Business Development Single Use at ViscoTec.

"To take our first steps in the direction of injection molding, we deliberately chose a very experienced partner. The proximity to KRAIBURG TPE has made the joint work a home run from which all parties have benefited."

Processing by injection molding promotes process capability, allowing small, delicate components to be produced cost-effectively and customized. The THERMOLAST® M grade is also frequently used in medical devices, pharmaceutical packaging and diagnostics, as it complies with current regulations and has the necessary approvals, including Regulation (EU) No. 10/2011, US FDA CFR 21 (raw material conformity), VDI 2017 and ISO 10993-5 (cytotoxicity). The applied material adheres to polypropylene and has low surface friction and corresponding abrasion resistance and scratch resistance. In addition, it is sterilizable (autoclave 134°C, ß/y radiation 2x35 kGy, EtO) and is US DMF listed. The suitability of the TPE as a medical device was particularly important for ViscoTec in order to enable the widest possible range of applications and to open up new avenues.

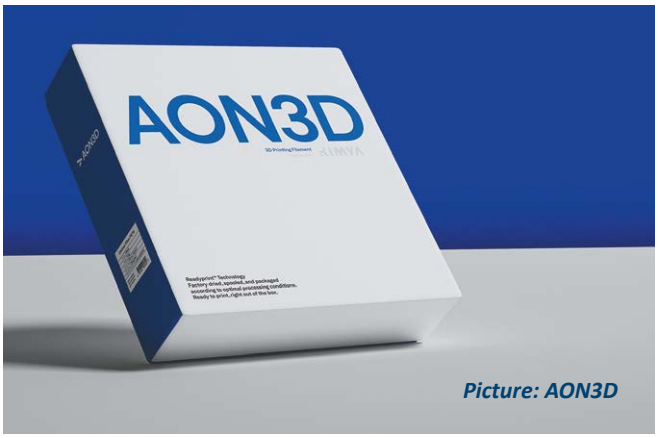
Karin Maier, Head of Sales Industry EMEA at KRAIBURG TPE, sums up the project: "We are pleased that our THERMOLAST® M won the race. This cooperation has introduced us to the topic of metering technology and we see joint potential here for the market of the future."*smi*

KRAIBURG TPE
www.kraiburg-tpe.com

New Readyprint™ high performance filaments reduce complexities of open material printing

The new line of Readyprint™ Filaments will remove inherent complexities of industrial open material printing without locking down configurability or pricey open material license fees.

AON3D, a leader in high temperature additive manufacturing solutions, announced the release of their new line of high-performance materials. "AON3D Readyprint™ Filaments are industrial-grade materials optimized for out-of-the-box printing" said Chief Product Officer and AON3D Co-Founder, Kevin Han, "Our goal is to remove the hassles of sourcing, conditioning, and tuning process parameters to get high-quality results with high performance materials."



Picture: AON3D

The Complexities of Open Material Industrial Systems

Since its inception in 2015, AON3D has been committed to bringing a true open material ethos to industrial 3D printing. Their new line of Readyprint™ Filaments will remove inherent complexities of industrial open material printing without locking down configurability or pricey open material license fees. Normally the process of finding quality suppliers, drying materials on arrival, sometimes a six-hour process that is left to customers to perform, and creating process parameters can culminate to days, if not weeks, of lost productivity.

Readyprint™ Makes Open Industrial a Seamless Experience

Readyprint™ filaments are sourced from high quality vendors with rigorous quality management processes. The materials receive additional factory drying and are packaged so that they are ready to print right out of the box. Lastly, pre-configured process parameters provide a jumping-off point that engineers can further optimize for desired properties such as strength, print quality, print speed, lightweighting, minimizing post-processing, and more. Readyprint™ filament options include:

- ABS, ESD ABS, and Carbon Fiber ABS
- ASA
- HIPS
- PC
- PEI 9085
- Amorphous PEKK
- PPSU
- PETG and Carbon Fiber PETG
- TPU 92A

AON3D X Kimya Collaboration

AON3D's new line of Readyprint™ Filaments are a collaboration project with Kimya, who develops materials with the world's major chemical companies including Arkema, Solvay and Sabic. Benoit Stoeux, CEO at Kimya, states: "We are proud to start this partnership with AON3D to propose this optimized package with engineered filaments for industrial printers. This aims to make more accessible high-performance polymers with the AON3D's platform."

About AON3D

Founded in 2015, AON3D is a venture capital-backed, Montreal-based additive manufacturing hardware, software, and material company. Our solutions drive innovation for hundreds of businesses in 25+ countries worldwide, ranging from small businesses to multinational Fortune 500 corporations.

About KIMYA

A pioneer in additive manufacturing, KIMYA, an ARMOR GROUP company, designs and produces materials for 3D printing to support local production. KIMYA thus offers ranges of ready-to-use filaments (Kimya Materials) and develops high value-added custom 3D printing materials (Kimya Lab). Since 2017, KIMYA has multiplied its strategic partnerships with the main 3D printer manufacturers aiming to homologate Kimya filaments on their machines in order to facilitate the printing process for users. With several dozen employees, KIMYA has a production site of over 2,000 m² in France.**smi**

AON3D
www.aon3d.com

ELIX Polymers and Ayúdame3D join forces to produce solidarity prostheses

ELIX Polymers, a global leader in thermoplastics manufacturing, has collaborated with Repsol and Leitat on a sociotechnological project with Ayúdame3D, a Spanish social startup that promotes the social value of technology through awareness-raising programmes to help people with disabilities thanks to 3D printing.

Photo: Ayúdame3D

Ayúdame3D has become a leading social entity in social technology. It creates and delivers 3D printed prosthetics called *Trésdesis*, free of charge to people throughout the world. It obtains financing through programmes with education centres and through CSR actions with companies: sponsorships, corporate volunteering and the creation of solidarity trophies and merchandising, as well as social impact conferences.

ELIX Polymers is a leading company that has great experience in the ABS industry. And within the framework of its Corporate Social Responsibility (CSR) and in order to contribute positively to the social well-being of people and reduce social inequalities, ELIX has collaborated with the association on a solidarity project that uses recycled ABS as the raw material for 3D printing. The challenge of ELIX Polymers has been to offer a customised solution for the project, for which it has applied the circular economy model through two strategic programmes of the company's portfolio of sustainable solutions: 'Circular Plastics' and 'Responsible Innovation'. In the manufacturing process, ELIX has upcycled by turning waste into a high-value product through cooperation in the entire value chain, in which it has incorporated virtualisation and new 3D technologies.

The project has been possible thanks to the collaboration with two large companies: Repsol that donated 4,000 pieces of ABS boards to the association, coming from computer equipment that would have otherwise been discarded; and Leitat, which is a technology centre of excellence. Leitat has created spools using the raw material recovered by ELIX for the subsequent 3D printing and manufacturing of *Trésdesis*, which are 3D printed arms for the wrist, elbow or shoulder.

Toni Prunera, Head of Business Development and R&D /IP at ELIX, comments: 'This project has given us the opportunity to show and prove the benefits of plastic, specifically through a more efficient ABS recovery circle that has resulted in an orthopaedic application that will allow helping people who are the most vulnerable.' Toni adds that 'ABS is a great ally in medical applications that help to improve the health of people and society'.

As a leading global company in ABS manufacturing, for several years ELIX Polymers has promoted the recovery of plastic waste as a raw material, and specifically in the development of this project, the circularity of ABS has been key. The project has also been a success thanks to the leadership of Ayúdame3D and its commitment, work and efforts to place technology at the service of people. Under the motto, 'Helping is too easy not to', and with the help of donations and collaborative efforts, the social entity is taking innovation and technology to countries where they are needed the most. **smi**

ELIX Polymers
www.elix-polymers.com

Nexa3D increases dental 3D printing throughput by 50% with the release of new dental resins and NexaX Workflow

Nexa3D, the ultrafast polymer 3D printing leader continued to advance its digital dentistry portfolio with the release of two new dental resins and dental workflow at Lab Day 2023 in Chicago, Illinois. The two new resins joined a portfolio of eight validated dental resins bringing the total number to 10, further breaking dental 3D printing productivity barriers by increasing production throughput by as much as 50 percent.

xDENT201

xDENT201 is the fastest printing modeling resin designed for ultrafast production of orthodontic models, yielding up to 10 flat models in just 20 minutes. Showcasing excellent accuracy yield at over 93% at 100 micron deviation, coupled with great dimensional stability, xDENT201 is the clear choice for printing higher volume models for aligner manufacturing or orthodontic modeling needs. This matte gray resin also provides excellent visibility and fine feature details at an economical price, making it a great choice for scaled additive production of dental models.

xDENT341

xDENT341 is a high resolution material designed for 3D printing removable die models with incredible accuracy and dimensional stability.

xDENT341 beige dental modeling resin

A new level of precision with 93% dimensional accuracy at 50 micron deviation places the material well above the standard dental industry accuracy rate of 65%. Proper fit is paramount for removable die models and xDENT341 exhibits precise margins and contacts, delivering highly accurate custom prosthodontic treatments, such as crowns, bridges, and other implants at incredible speed.

Both resins further push the production limits of dental 3D printing by reducing production time by as much as 38% and dramatically increasing the throughput on both the XiP desktop 3D printer as well as the NXD 200Pro platform.

"We think dental 3D printing applications warrant – and quite frankly deserve – a higher level of throughput and more favorable production economics. This is exactly why our material development team, along with our material partners, continue to push the limits of what is possible when it comes to both print speed and dimensional accuracy of 3D printed models," said Avi Reichental, Nexa3D Co-founder and Chief Executive Officer. "We couldn't be more excited to bring these two new dental resins to market because we believe they will have a dramatic impact on the productivity of dental labs as well as deliver better patient outcomes."

xDENT201 gray orthodontic modeling resin (all pictures: Nexa3D)

NexaX Dental Workflow

The NexaX Dental Workflow is Nexa3D's new software module aimed at maximizing productivity for dental laboratories, starting with orthodontic and removable die applications. The new dental workflow enables users to spend less time prepping and more time printing. The new features include streamlined and automated file import, orientation, and toolset selection for file repair, plane cutting, and base extrusion. Additionally, the NexaX Dental Workflow optimizes model nesting across multiple builds, enabling the creation of an entire day's worth of print jobs through an intuitive and easy-to-use platform. *smi*

Nexa3D
www.nexa3d.com

Optimized for superior performance

The refined version of BCN3D Epsilon Series printers received more power through brand-new features. Customers will find new aesthetics, upgraded electronics, XYZ autocalibration, and local network access in the latest printers set for shipping.

BCN3D Technologies' quintessential Epsilon Series has proved itself to be a top contender in the world of 3D printing solutions since it arrived on the market in 2020. Since then, innovators in corners of every industry have been able to get their hands on exceptionally strong functional parts with quality and precision. The defining vision for the Epsilon was accessibility for all; to deliver industrial power on any workbench or factory floor.

Now, the Epsilon Series has been fine-tuned and a new generation has been born into what the developers believe is their best printing solution to date.

A large part of the elevated efficiency can be attributed to new and improved electronics (picture: BCN3D)

What's new?

• New ventilation system: Previously, the ventilation system introduced cold air inside the fans with extraction towards another grid. It turned out that this could potentially cause turbulence in the interior, resulting in occasional inefficiencies. To resolve this, the hot air flow is now extracted from the interior and lowers internal pressure to let the interior absorb air from the outside.

• New motor drivers: The Trinamic TMC2130 motor has been replaced with the TMC2226. Not only are these new drivers very silent, but they also perform with greater efficiency and better engine torque. Whereas their predecessors required heatsinks to cool down, these new ones instead heat up very little.

• New main board: BCN3D has reverted away from commercial components and decided on custom-made components specially designed for its own products. These have been concentrated into one single board, as opposed to being formed of several commercial pieces implemented in various areas of the printer. This significant reduction offers a simpler and in turn more efficient main board.

One feature highly anticipated by the customers, especially those in the corporate world, is local network access: an internal web server allows to access it via its local IP address; send files, monitor, pause and cancel prints jobs remotely. This can also be enjoyed by owners of previous Epsilon versions after a firmware update.

Autocalibration XYZ is another recently added feature and the fastest one on the market at that. At the push of a button, this automatic process can reduce printing set-up time from 40 minutes to just 6 (that's 85%!). Plus, this foolproof technology takes away any dependence on human criteria, reducing room for error and guaranteeing a correct first layer adhesion every time. This calibration process is done by measuring multiple points to automatically adjust the printing surface height and (XY) offset between both nozzles.

The iconic black frame manufactured by Farguell has been remodeled for a sleeker look to elegantly slot into any workshop. Not just for aesthetic purposes, but the chassis is now more robust and improves rigidity which ensures the correct parallelism of the axes.

About BCN3D

BCN3D is one of the world's leading developers and manufacturers of 3D printing solutions, with an installed base in more than 60 countries. Its main clients include Nissan, BMW, NASA, Camper, Louis Vuitton, and the Massachusetts Institute of Technology (MIT). ***smi***

BCN3D
www.bcn3d.com

There's LATI 3D plastic in the lion that watches over Varese

The making of a technological sculpture: from 3D scanning to post-production.

Donating the opportunity to get a closer look at one of the eight guardians watching over the city: that's how the idea of creating by 3D printing and life-size one of the eight granite lion heads placed on the Bernascone bell tower, the tallest in Varese, built in 1617, was born.

So LATI3dlab, LATI's laboratory dedicated to the formulation and development of materials for 3D printing, immediately accepted the proposal that came from the parish and Gasparoli restorers.

The project of a "technological" 3D sculpture saw different realities at work, each with specific skills, engaged in the development of a unique plastic model.

The first activity carried out, by PSFACTORY, was the scanning and three-dimensional modeling of the stone mask, with the goal of defining a geometry that could then be 3D printed.

The next phase saw LATI itself playing a leading role through the selection of raw materials and the production of plastic material granules that were easily workable and resistant over time and under the conditions of use.

Partner Randaplast then took care of extruding LATI granules into the filament needed by the 3D printer to produce the different parts that then went on to form the lion's head.

A 1:1 scale reproduction of the statue was then made using a large-scale 3D printer.

The Bernascone Guardians watch over Varese (picture source: LATI)

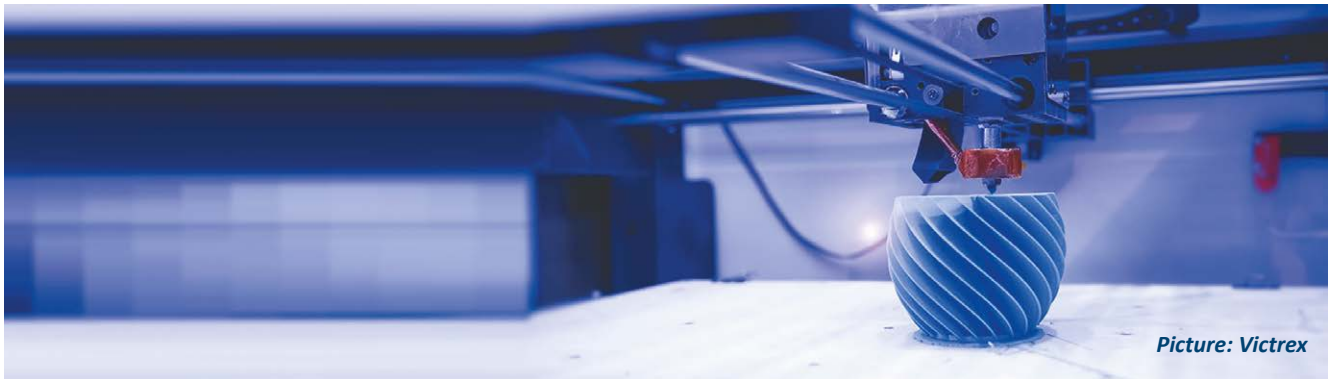
Once the sculpture was obtained, the last step was carried out, namely the decorative intervention in imitation of stone. Using a manual artistic technique, both the color and veining of the original stone were reproduced, resulting in a faithful copy of the granite masterpiece.

So, strolling through the center of Varese, just a few days before Christmas, in the Baptistery Square it will be enough to look up just a little to enjoy, from a unique and close-up perspective, the Ninth Guardian watching over the city. ***smi***

LATI

www.lati.com

Invibio launches implantable PEEK filament for 3D printing



Picture: Victrex

Invibio expands range of implantable-grade PEEK-OPTIMA™ polymer to include a filament that is optimised for fused filament additive manufacturing medical devices.

Invibio Biomaterial Solutions, part of Victrex plc, a pioneer in the development of PEEK biomaterial solutions, today announced the launch of PEEK-OPTIMA™ AM Filament, an implantable PEEK polymer that is optimized for additive manufacturing.

Importantly, the launch of PEEK-OPTIMA™ AM filament by Invibio makes available the trusted implantable-grade PEEK-OPTIMA™ polymer in a form specifically developed for Fused Deposition Modeling (FDM) and Fused Filament Fabrication (FFF) additive manufacturing processes.

The new PEEK-OPTIMA™ AM filament expands Invibio's portfolio of biocompatible polymers, that are already available in forms including powders, granules and rods for processing methods including injection moulding.

Additive manufacturing for medical devices

Additive manufacturing offers a new way to develop parts at speed in a cost-efficient way, and with near-zero wastage. Additive manufacturing methods provide technical advantages, such as the ability to build complex geometries during fabrication and easily integrate several components into one part. In response to the growing trend for 3D-printed medical devices, the FDA has published technical guidance to medical device designers and manufacturers, and Invibio is able to support device OEMs with navigating regulatory pathways for PEEK-OPTIMA™ additive-manufactured devices.

Patient benefits

The additional format of PEEK-OPTIMA™ also enables hospital facilities to custom-make PEEK devices in-house, at the point of care, with FDM/FFF-compatible machines, which brings numerous advantages to patients and healthcare professionals, particularly in specialties such as CMF, which demand design precision and manufacture at speed.

"Invibio's new PEEK-OPTIMA™ AM filament has been launched to support medical device manufacturers as they assess the FFF/FDM route of additive manufacturing to help support the next generation of devices for a variety of demanding medical applications, such as CMF devices, spinal and orthopaedic implants," says Dr John Devine, Medical Business Director at Invibio.

He continues: "We are excited to be able to offer the industry a 3D-printable form of PEEK-OPTIMA™ polymer – a material that has already been implanted into more than 15 million patients worldwide. As 3D printing becomes a realistic option for developing medical devices and implants for a growing number of medical device manufacturers and hospitals, the industry must now select high quality, high-performance biomaterials to enable commercialization of the next generation of medical devices."

PEEK-OPTIMA™ LT1 AM filament is a 1.75mm monofilament and is compatible with high-quality FDM/FFF machines, optimized for 3D printing of medical devices, and is available worldwide, directly from Invibio.

8-11 March 2023, the new PEEK-OPTIMA AM Filament was presented at the American Academy of Orthopedic Surgeons (AAOS) in Las Vegas.

About Invibio

Invibio, part of the Victrex plc group of companies, is a global leader in providing high-performance biomaterial solutions to medical device manufacturers. The company provides PEEK-OPTIMA™ polymers, advanced technical research and support and manufacturing of components for spine, trauma and orthopaedic and dental medical segments for the development of long-term implantable medical devices. **smi**

Victrex
www.victrex.com

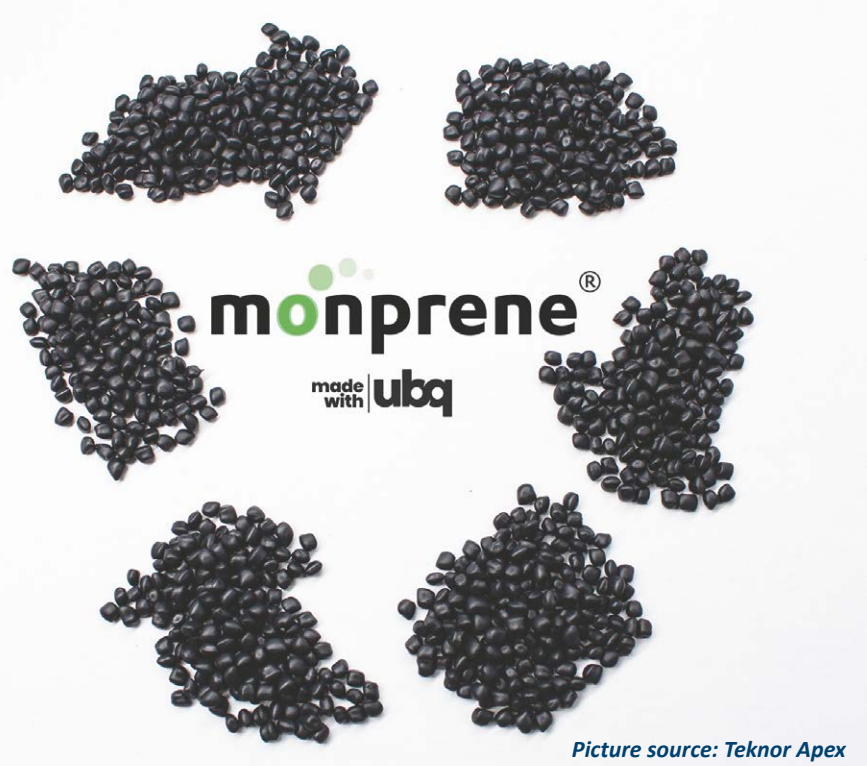
A climate-positive solution towards circular economy

Teknor Apex announced new eco-conscious Monprene® TPE with 35% sustainable content developed in Partnership with UBQ Materials. Combining UBQ™ with Post-Consumer Recycled Material offers major brands a sustainable option with reduced carbon footprint.

Teknor Apex has recently announced the new Monprene® S3 CP-15170 BLK, an eco-conscious thermoplastic elastomer (TPE) made with 35% sustainable content that includes UBQ™ and post-consumer recycled material. UBQ™ is a sustainable plastic substitute converted entirely from organic and unrecyclable waste. Biobased and highly recyclable, UBQ™ offers a climate-positive solution towards a circular economy. By replacing oil-based raw materials with UBQ™ in TPE formulations, Teknor Apex is helping to address the global waste crisis, preserving finite natural resources, and reducing the carbon footprint of end products which utilize its TPE.

This new Monprene TPEis initially available in 70 Shore A and is colored black. It performs and processes comparable to its standard TPE offset. The durometer and amount of sustainable content can be customized based on end use requirements. This high flow TPE is designed specifically for injection molding or overmolding onto PP – ideal for consumer product applications requiring flexibility such as hand and power tools, consumer electronics and appliances that include soft-touch components, for anti-slip, comfort grip, and improved ergonomics. MonpreneTPEs combine the performance of thermoset rubber with the processability of a thermoplastic and can still be recycled.

UBQ™ is a novel worldwide patented material that has already been adopted by leading industry brands and enterprises for manufacturing durable products with reduced environmental footprints. Demand for UBQ™ continues to build globally, as companies work to reach carbon reduction commitments in the production of end-products. Teknor Apex has been an early adopter of UBQ™, paving the way for other materials companies to develop more sustainable products within a circular economy. As a result of increasing demand, UBQ Materials will open a new facility in the Netherlands with an annual production output of 80,000 tons of UBQ™, further bridging the gap between the global ecosystems of waste and materials.



Picture source: Teknor Apex

"We are excited to further develop our partnership to include UBQ™ in our latest line of sustainable thermoplastic elastomers (TPE).This new product enables sustainable product design and reduces dependency on virgin petroleum-based plastic," said Jonathan Plisco, New Business Development Manager of Teknor Apex. "In the race to meet market demand for environmentally conscious materials, we are proud to offer new sustainable options that provide the right balance of performance, manufacturability and economics."

"Teknor Apex's implementation of our bio-based thermoplastic into its product lines strengthens our shared commitment to reshape how things are made and improve the footprint of everyday products," said Derek Schaefer, VP of Business Development, UBQ North America. "We all have a role to play in reducing methane emissions, through this new 'Made with UBQ™' product line, manufacturers have the ability to contribute to a truly circular economy where human consumption lives in harmony with the planet." *smi*

Teknor Apex
www.teknorapex.com

Developing innovative thin-wall transparent materials

At MD&M West 2023, SABIC launched new chemically resistant, thin-wall transparent LNP™ CRX copolymer resins that can help improve medical device durability & sustainability.

All pictures: SABIC

SABIC, a global leader in the chemical industry, introduced at MD&M West 2023 two new LNP™ CRX polycarbonate (PC) copolymer resins offering a distinct combination of robust chemical and impact resistance, thin-wall transparency, dimensional stability and processability. In device applications such as clear covers, screens and display lenses, the new materials can overcome key drawbacks of incumbent PC resins and co-polyester resins when exposed to disinfectants or aggressive chemicals. Customers can choose LNP™ ELCRES™ CRX1314TW copolymer or its bio-based equivalent, LNP™ ELCRIN™ CRX1314BTW copolymer, which offers up to a 42 percent reduction in carbon footprint based on life cycle assessment (LCA). Both grades feature limited biocompatibility according to ISO 10993 and coverage under SABIC's healthcare product policy, which provides stringent management of change processes. Since SABIC's first LNP ELCRES CRX copolymer resins were introduced at MD&M West 2020, the continued market need for chemically resistant materials has driven the development of these innovative thin-wall transparent materials.

"The rigorous healthcare disinfection protocols established during the COVID pandemic are ongoing and SABIC continues to innovate in the area of chemical resistance," said Joshua Chiaw, Director, Business Management, LNP & NORYL, Specialties, SABIC. "Our Specialties business is developing new solutions that not only help device manufacturers avoid degradation from aggressive disinfectants, but also address other requirements. Our newest materials extend the LNP CRX portfolio by combining signature chemical resistance with other desirable properties, including sustainability. These thin-wall transparent copolymers, which complement our opaque LNP CRX grades, can help customers take a holistic approach when creating diagnostic devices and wearables that deliver longer service life, lower system costs and reduce environmental impact."

Distinct Combination of Properties

Like all LNP CRX materials, the new grades feature exceptional resistance to harsh disinfecting chemicals, such as quaternary ammonium compounds, alcohols and peroxides, which can lead to the environmental stress cracking (ESC) of medical device displays and covers. Furthermore, these materials offer transparency

equivalent to that of PC resins at thin-wall geometries of 0.8 mm to 1.0 mm, and offer translucency at higher thicknesses. They also deliver high impact resistance across a wide temperature range (down to -40°C), excellent dimensional stability and good processability. Both grades meet the UL94 HB standard for horizontal burning.

The new LNP ELCRES CRX1314TW copolymer and its bio-based version can help customers avoid the trade-offs associated with incumbent transparent materials. Amorphous resins like PC provide excellent clarity and dimensional stability for tight part tolerancing, but typically have insufficient chemical resistance to harsh disinfectants. Semi-crystalline materials, while offering higher inherent chemical resistance exhibit significant shrinkage and part warpage that can negatively affect part tolerances. Due to high moisture absorption, they may be difficult to process and generate excessive scrap resulting from surface defects. Amorphous co-polyesters may be incompatible with harsh disinfectants and may exhibit processing tradeoffs that may lead to potential production inefficiencies.

Improved Sustainability

The new SABIC materials contribute to sustainability goals by helping customers design and manufacture devices with optimized service life. Improved chemical and impact resistance can help to reduce premature part damage and failures. Greater durability results in a more positive life cycle, as fewer devices need to be replaced and, consequently, fewer are disposed to landfills.

Through expanded thin-wall design freedom, the LNP CRX copolymers enable sustainability to be incorporated in devices up front. They can help designers reduce overall part dimensions, consolidate parts and materials, and enhance manufacturing efficiencies with thin-wall molding, which is becoming increasingly important in the design of smaller and lighter-weight applications such as portable and hand-held medical equipment.

Materials based on certified renewable feedstocks could be a great option to help device manufacturers meet their sustainability objectives. Because medical device applications are subject to strict regulatory requirements, any change in material selection triggers product requalification efforts that are costly for manufacturers. The new LNP ELCRIN CRX grade enhances circularity through the incorporation of renewable feedstock derived from non-fossil, bio-based content from waste materials that do not compete with the food chain. The incorporation of renewable feedstock does not compromise product quality and provides identical performance compared to virgin materials. LNP ELCRIN CRX grade can provide a potential drop-in solution to avoid requalification and meet regulatory requirements.

LNP ELCRIN CRX1314BTW resin can offer reductions in carbon footprint of up to 42 percent when compared to the fossil-based version in accordance with ISO 14040/14044 protocols. SABIC's Specialties business has received International Sustainability and Carbon Certification Plus (ISCC+) designation at its production facilities in Cobourg, Canada, Benoi, Singapore and Pontirolo, Italy, enabling recognition of its new LNP ELCRIN CRX1314BTW grade, and other mass-balance, certified renewable grades.

Streamlined Manufacturing

To streamline the manufacturing process, LNP ELCRES CRX1314TW and LNP ELCRIN CRX1314BTW grades can offer several advantages, including laser welding capability. To meet the healthcare industry's growing need for high-precision, vibration-free assembly technology, these new copolymer resins provide near-infrared (IR) transmission optical properties that are required for laser welding. They enable leakproof, low-stress welds without the need for adhesives.

SABIC's first LNP ELCRES CRX materials that were launched in 2020 are opaque and custom colorable. The introduction of thin-wall transparent LNP CRX copolymers now gives customers a broader selection of high-performance materials for a wide range of applications across multiple industries.

In addition to providing benefits for healthcare devices and wearables, the new LNP CRX products can help protect against the effects of chemicals used in sunscreen, hand creams and insect repellent, which can potentially degrade consumer electronics and industrial applications.

SABIC's new LNP ELCRES CRX1314TW and LNP ELCRIN CRX1314BTW copolymer resins are globally available. ***smi***

SABIC
www.sabic.com

Moldex3D collaborates with Sumitomo Heavy Industries to link machine and simulation

Moldex3D partnered with Sumitomo Heavy Industries on integration between virtual CAE simulation and physical injection molding machine, facilitating digitalization and smart manufacturing.

Picture source: CoreTech System

CoreTech System Co., Ltd. (Moldex3D) has recently announced a strategic collaboration with Sumitomo Heavy Industries, Ltd. (SHI) to strengthen the integration between virtual CAE simulation and physical injection molding machines. This partnership set up a two-way bridge that connects the CAE simulation to a real injection molding machine. It not only reduces the gap between design and manufacturing through digital twin technology but also dramatically accelerates time to mass-production.

This collaboration aims to create a virtual representation – "digital twin model" of an SHI injection molding machine in a virtual CAE space by capturing its physical features and machine dynamics and to achieve a more realistic result from Moldex3D simulation. Moreover, the process conditions optimized by simulation will be directly transferred to injection molding machines as an initial set-up of mold tryout through data exchange between Moldex3D software and SHI's machines. It significantly simplifies the process from mold tooling to mass production.

"Every process engineer knows how time-consuming it is to find optimum process conditions for most of the injection molds. By bidirectional data exchange, our customers can virtually evaluate the most favorable process conditions aimed at their own Sumitomo Heavy Industries, Ltd. injection molding machines before performing the first mold tryout. This cutting-edge technology will significantly speed up time to market." Dr. Masaaki Konno, Director of Sales Engineering Department, Plastics Machinery Division, Sumitomo Heavy Industries, Ltd.

"Under the trend of smart manufacturing, digital transformation is an important issue to be faced. With this collaboration, Moldex3D simulation can consider the unique dynamic characteristics of each SHI machine, taking virtual simulation to the next level. It further enhances CAE simulation capabilities and brings CAE simulation results closer to reality." Dr. Venny Yang, CEO of CoreTech System, Co., Ltd. (Moldex3D).

In addition, JSOL, Moldex3D's value-added channel partner in Japan, plays an important role in communication on this cross-country collaboration.

"JSOL has supported SHI for better implementation of CAE software for many years. It is our honor to join this project and facilitate technical communication. We're excited to promote this new technology to the market." said Mr. Takahiko Miyachi, Director at JSOL Corporation.

In pursuit of Industry 4.0, this integration established by Moldex3D and SHI, and assisted by JSOL will fulfill the requirements of the injection molding industry and will connect the virtual world and physical environment. The data exchange between CAE simulation and injection molding machine will be more straightforward, and the product development workflow from design to production will be faster and smoother.

About CoreTech System (Moldex3D)

CoreTech System Co., Ltd. (Moldex3D) has been providing the professional CAE analysis solution "Moldex" series for the plastic injection molding industry since 1995, and the current product "Moldex3D" is marketed worldwide. Committed to providing advanced technologies and solutions to meet industrial demands, CoreTech System has extended its sales and service network to provide local, immediate, and professional service. CoreTech System presents innovative technology, which helps customers troubleshoot from product design to development, optimize design patterns, shorten time-to-market, and maximize product return on investment (ROI). ***smi***

CoreTech System
www.moldex3d.com

exhibitions calendar

Chinaplas
17-20 April 2023
Shenzhen, 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.

Plastpol
23-26 May 2023
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.

Moulding Expo
13-16 June 2023
Stuttgart, Germany
www.messe-stuttgart.de/moulding-expo

In 2023, Moulding Expo will be the most important European event for tool, pattern and mould making: The top exhibitors of the branch present the best the European tool construction, pattern and mould making industry and suppliers' technologies has to offer – at first hand, with passion, soul and enthusiasm. Look forward to an industry get-together which provides new business opportunities to your company.

PLAST
5-8 September 2023
Milan, Italy
www.plastonline.org/en/

Plast is an international trade exhibition for the plastics and rubber industry, where interested visitors can get a complete overview of the latest developments in the industry from raw materials to finished products, from machinery to services. Plast will coincide with the exhibitions Ipack-Ima, Graf-italia and Converflex that are dedicated to packaging, graphics and converting.

FAKUMA
17-21 October 2023
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
7-10 November 2023
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
22-25 November 2023
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.

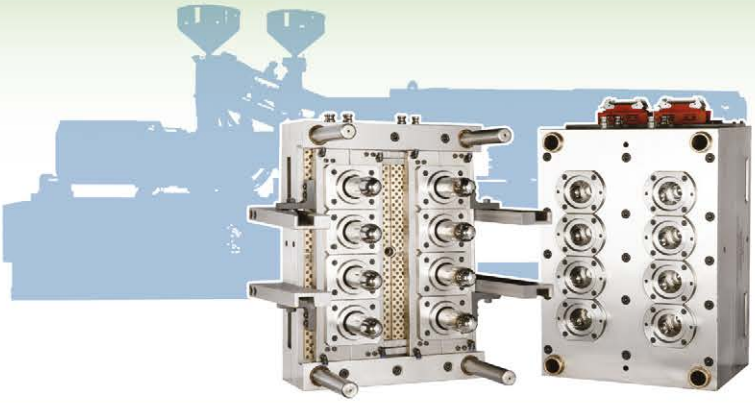
IPF
28 November -
2 December 2023
Tokyo, Japan
www.ipfjapan.jp/english/

The IPF - International Plastic Fair - is Asia's leading trade fair for plastic and synthetic material. International exhibitors, including the world leaders in the industry and demonstrate innovative products and machinery. Visitors will find raw materials, machines, molds and services relating plastic and rubber production.

PROMOTE YOUR SMART SOLUTIONS FOR PLASTICS MOLDERS WORLDWIDE!

• Online
7.600 subscribers

• Focused
on advanced molding technologies



• Available free
on mobile, tablet and PC

• Bonus distribution
at major plastics events

To advertise contact marketing@smart-molding.com

www.smart-molding.com