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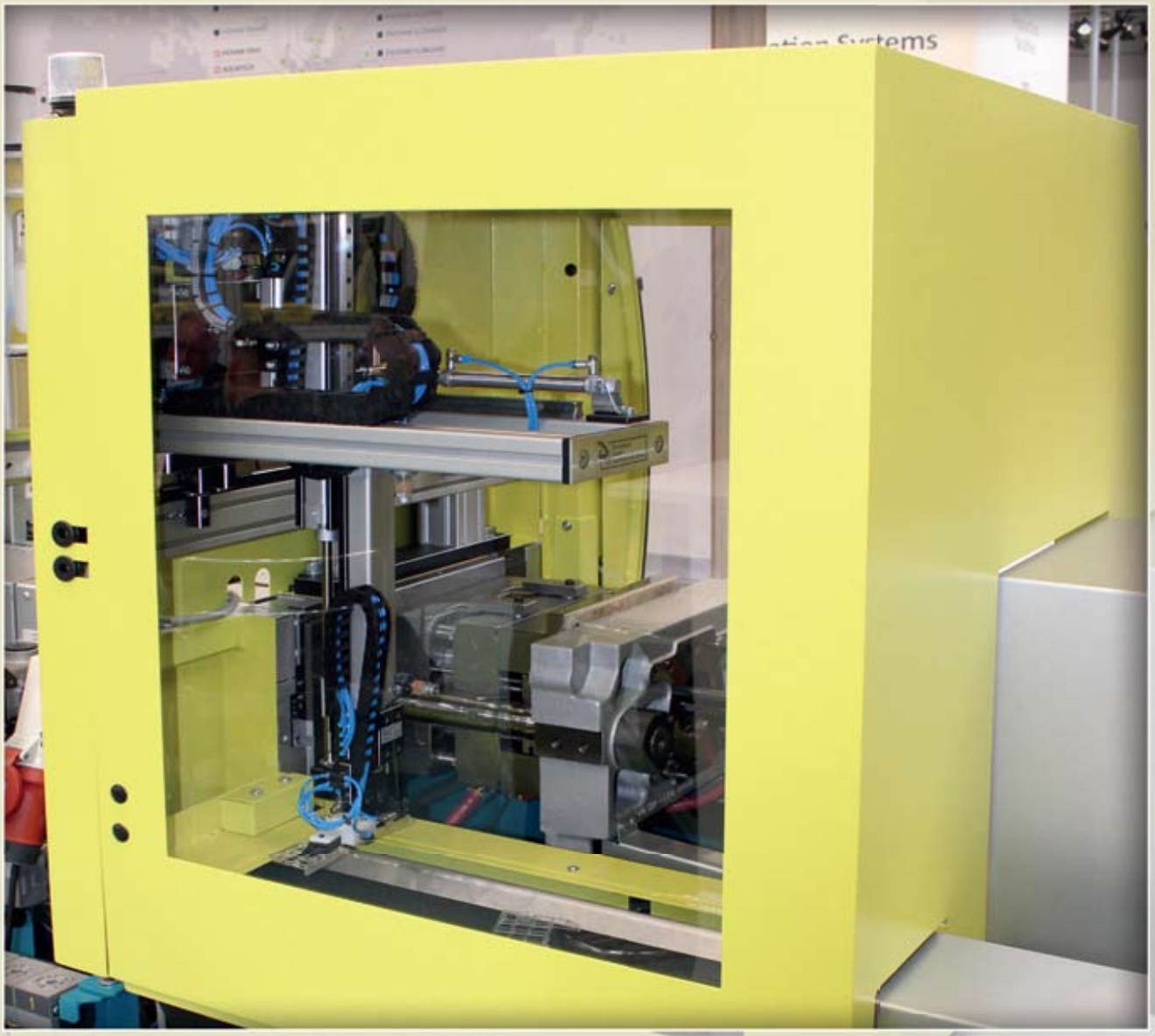

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Front page picture: Dr. Boy GmbH & Co. KG

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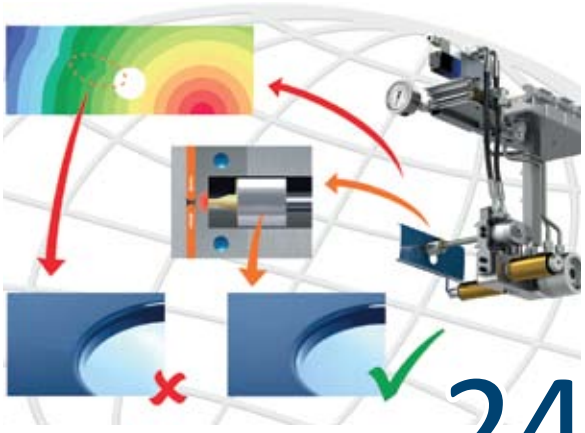
A high-tech-friendly country like China hosting one of the largest international plastics trade fairs: Chinaplas 2022 in Shanghai is set to be particularly interesting. Naturally, Arburg's appearance there has been planned accordingly. Particularly interesting target groups will be attending from the automotive industry, the highly dynamic medical technology sector, and the electronics industry. Machine technology and processes will match these, with LSR processing, high-speed medical applications, and lightweight construction with FDC.


36

When you have to deal with long production lines featured by vertical excursions, made of different workstations, in turn crossed by semi-finished products, or a challenging space-constraining layout, the Cartesian system is undoubtedly your best option, as it guarantees maximum results and performance where the application requires a linear movement over an extended working area. Such a condition is typical of many application fields, such as food & beverage packaging, automotive and painting.





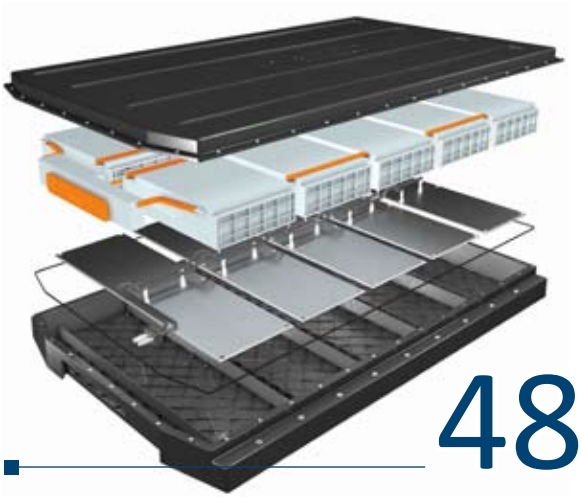
The idea of assembling "Heat-Inject" on hot runner systems has its origins in the concept of pre-assembled modules. The idea here is to offer customers components for their injection molds that are already assembled into ready-to-use and ready-to-plug-in modules, thus saving effort and time during tuning and installation. Of course, the tempering stamp needs to be spotted in order to create a suitable contact surface for optimum heat transfer.



For many years, liquid silicone (LSR) had a reputation as being a difficult material that was only for specialists and incompatible with conventional thermoplastic processing. Despite this, more and more companies are discovering this interesting material. SKZ (The Plastics Center, Würzburg, Germany) and Toolcraft (Georgensgmünd, near Nuremberg), an innovative expert in the field of precision components, are collaborating to explore the possibilities and limits. KraussMaffei is playing a large part in this endeavor as a machine partner.




Under its vision to unlock manufacturing autonomy, where companies should have the tools to design and manufacture their own products and full control over the Additive Manufacturing (AM) fabrication life-cycle, comes BCN3D's new VLM technology. It is the first 3D printing technology to simultaneously encompass superb part performance, high production capacity, and accessible and frictionless operation.





Speciality chemicals company LANXESS and Kautex Textron GmbH & Co. KG have been collaborating for several years to research whether battery housings for electric vehicles can be designed and manufactured from technical thermoplastics. Together, they have developed a near-series technology demonstrator in a feasibility study. The goal of the project was to demonstrate the advantages of thermoplastics over metals in terms of weight and cost reduction, functional integration and electrical insulation behavior.

# Heubach and SK Capital closed acquisition of Global Colorants Business of Clariant

The Heubach Group ("Heubach"), a leading global producer of pigments and SK Capital Partners ("SK Capital"), a private investment firm focused on the specialty materials, chemicals and pharmaceuticals sectors, completed the acquisition of Clariant's Global Colorants Business ("Clariant Pigments") this January. The combined business will operate under the Heubach brand, creating a global pigment technology and industry leader.

The newly combined Heubach Group is a leading global provider of comprehensive color solutions, supplying a broad portfolio of organic, inorganic, and anti-corrosive pigments, pigment preparations, dyes, colorants and specialty materials. The Company is a technological and quality leader and operates its global business from 19 manufacturing facilities across Europe, the Americas, Asia and Africa, employing approximately 3,000 people. The headquarters of the Heubach Group will be established in Vienna, Austria.

Johann Heubach of the Heubach Group, stated "The new Heubach is a world-class organization with great talent, technology and assets. For us, product excellence and sustainability are core. We are well-positioned to create significant value for our customers and business partners across the many industries we serve."

Aaron Davenport, a Managing Director of SK Capital, noted "The combination of Heubach and Clariant Pigments creates an industry leader committed to the highest standards in manufacturing, quality and service. We look forward to supporting management in the growth and improvement of the Company by investing into talent, innovation and market expansion."

The Heubach Group is excited to announce the appointment of Stefan Doboczky as Chief Executive Officer of the Heubach Group, effective January 10, 2022. Mr. Doboczky joins the Heubach Group having most recently served as CEO of Lenzing AG, a global leader of cellulosic fibers and biochemicals. Prior to Lenzing, Mr. Doboczky was member of the Managing Board of Royal DSM, the Dutch Life Science and Material Science Group, where he spent almost two decades in various general management roles. Mr. Doboczky holds a PhD in Natural Science from the Technical University of Vienna (A), as well as an MBA from IMD in Lausanne (CH). Stefan Doboczky noted "I am very excited to join the new Heubach Group. I am convinced that by combining these successful businesses we will create a powerful offering for our customers in the pigment and colorant space."

The Valence Group of Piper Sandler & Co., BofA Securities and Citigroup served as financial advisors to Heubach and SK Capital. Committed financing for the transaction was provided by BofA Securities, Citigroup, HSBC, KeyBanc, Citizens, ING and MUFG. Lenz & Staehelin AG and Kirkland & Ellis LLP acted as legal counsel to Heubach and SK Capital. Milbank LLP acted as legal counsel to Heubach. Homburger AG acted as legal counsel to Clariant and Deutsche Bank AG served as Clariant's financial advisor.

### About SK Capital

SK Capital is a private investment firm with a disciplined focus on the specialty materials, chemicals and pharmaceuticals sectors. The firm seeks to build strong and growing businesses that create substantial long-term value. SK Capital aims to utilize its industry, operating and investment experience to identify opportunities to transform businesses into higher performing organizations with improved strategic positioning, growth and profitability as well as lower operating risk. SK Capital's portfolio of businesses employs more than 20,000 people globally and operates 191 plants in 32 countries.

### About Clariant

Clariant is a focused and innovative specialty chemical company based in Muttenz, near Basel/Switzerland. On 31 December 2020, the company employed a total workforce of 13,235. The company reports in three business areas: Care Chemicals, Catalysis and Natural Resources. Clariant's corporate strategy is based on five pillars: focus on innovation and R&D, add value with sustainability, reposition portfolio, intensify growth, and increase profitability.

**Heubach**
*www.heubachcolor.com*

# Coming to America! Rosti Group proud to acquire PCI, US based injection moulding company


Significantly strengthening Rosti Group's market position across the United States, the acquisition with PCI makes the Group a truly global partner to customers

Rosti Group AB ("Rosti" or the "Group") has acquired Plastic Components, Inc. ("PCI"), a US-based injection moulding company from MPE partners. The acquisition significantly strengthens Rosti's market position across the United States, making the Group a truly global partner for its customers.

Founded over 75 years ago, Rosti is a global plastic injection moulding company and contract manufacturer serving some of the world's leading manufacturers in the packaging, consumer appliances, business machines, medical and automotive sectors. Headquartered in Sweden, Rosti has state-of-the art production facilities strategically located across Europe and Asia. Through the acquisition of PCI, Rosti is establishing a global production footprint to better serve both existing and new customers.

"M&A is an important part of Rosti's growth strategy and we continue to look for high-quality companies that can strategically enhance our business and create meaningful opportunities for our customers and employees. PCI

***Rosti Group, headquartered in Sweden***

has extensive know-how in engineering and process technology and is a well-managed company that does just that, they are a great partner for Rosti" Jonas Persson, CEO of Rosti.

Founded in 1989, PCI delivers engineered thermoplastic components for a variety of market applications, including flow control, consumer, pool & aquatics, automotive technology, small engine, and medical. Headquartered in Germantown, WI, with additional locations in Cary, NC and Clearfield, UT, PCI boasts a unique nationwide presence and has critical scale with longstanding, strategic relationships throughout a diverse customer base. Derrill Rice, President and CEO of PCI, will continue to lead PCI's strong existing management team.

"As the President and CEO of PCI, an industrial injection moulder, I am thrilled to partner with Rosti who for over 75 years have also been injection moulding. Owned by Nordstjernan, an ethical company with financial strength, this acquisition is part of their long-term investment strategy. The cultural fit and vision that both companies share will help us to better serve our customers. Combining our two highly skilled workforces will help us expand our capabilities on a global scale." Derrill Rice, President and CEO PCI.

"This acquisition combines two strong, technology-led manufacturing teams, allied in their pursuit of excellence to deliver world class manufacturing and moulding, enhancing our relationships with existing customers while creating additional opportunities for growth and expansion. PCI aligns well with Rosti strategically and culturally, and together we are excited to offer customers a superior technical service." Jonas Persson, CEO of Rosti.

**Rosti**
*www.rosti.com*

***PCI, headquartered in Germantown, WI***


# Piovan acquired 100% of the American IPEG

The Italian Piovan Group acquires the American IPEG, creating the global leader, with a turn-over of almost half a billion euro, in the field of industrial automation for the processing of virgin and recycled polymers and bioresins. Closing expected within the first quarter of 2022.

In accordance with the agreement signed on December 13th 2021, Piovan S.p.A. ("Piovan" or "Piovan Group") and IPEG, Inc. ("IPEG") has recently announced that Piovan has completed its acquisition of IPEG by virtue of the merger by incorporation of Sewickley Capital, Inc. ("Sewickley Capital"), the owner of 100% of IPEG into a newly formed Delaware corporation wholly owned by Piovan.

IPEG is a U.S. industrial group comprised of the four brands Conair, Thermalcare, Pelletron and Republic Machine. The combined group will have a workforce of more than 1,800 employees and will operate 14 facilities worldwide, and would have generated pro-forma sales of over €450 million (on the basis of the results for the twelve months ended 30 September 2021).

"We are particularly pleased and proud to combine our skills with those of the IPEG Group, creating the global leader in industrial automation in the plastics sector. Two years ahead of schedule, we have doubled our size since the year of the IPO and we are confidently prepared to meet future challenges and to take advantage of any further aggregation opportunities that may arise." - said Nicola Piovan, Executive Chairman of the Piovan Group.

"The acquisition of such an important American player and the merger of two of the largest companies in the world in the field of industrial automation for the processing of virgin and recycled polymers and bioresins will allow us to achieve important growth opportunities on a global scale." - stated Filippo Zuppichin, CEO Piovan Group - "It will also allow Piovan Group to access a formidable customer base in North America, with the possibility - thanks to the international set up of Piovan Group - to follow the investments of the main American multinational corporations in the world. Moreover, it will allow a faster rollout to the American market of the Group's proprietary technologies particularly in the circular economy. We are convinced that this transaction will create great value for our shareholders".

The new size will enable further growth in the area of the circular economy and investments in digitisation 4.0. The Group will continue to pursue its strategy of putting its Customers, its People and a constant approach to Innovation first.

**Piovan Group**
*www.piovangroup.com*

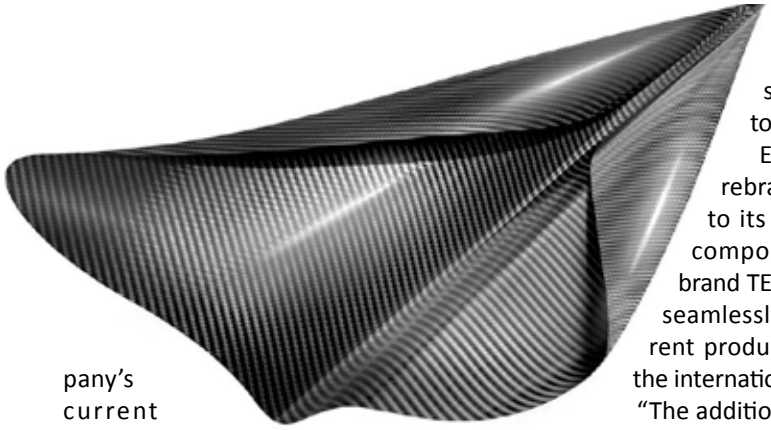

# Ensinger acquires the StyLight® thermoplastic composite business from INEOS Styrolution

Ensinger and INEOS Styrolution have recently announced the joint agreement that Ensinger is acquiring the StyLight® thermoplastic composite materials business of INEOS Styrolution.

The acquisition adds an exclusive SAN based product range to Ensinger's comprehensive thermoplastic composite portfolio. SAN based products bring many new thermoplastic composite possibilities to the market such as carbon, glass and natural (flax) based fibre products for aesthetic materials, semi structural, and over moulding applications to name a few.

INEOS Styrolution developed and successfully launched the innovative StyLight product line at the K Show in 2016. Since then, the new solution has triggered a lot of interest and business with many customers across a range of industries.

"The business continues in Ensinger's experienced hands, serving the existing customer base and seeking future growth potential to enhance the Com-



pany's current position in the international thermoplastic composites market", says Daniel Grauer, International Business Development Manager, Ensinger Composites, who will be the primary contact for all sales and customer enquiries.

Ensinger has rebranded StyLight to its thermoplastic composite materials brand TECATEC, to align seamlessly with its current product offerings to the international market.

"The addition of the INEOS Styrolution StyLight business is the next strategic building block in Ensinger's journey to becoming one of the only manufacturers able to offer the complete value chain of thermoplastic composite products", says Ralph Pernizsak, Managing Director, Ensinger Group.

"We are pleased to come to this agreement. We are convinced that these innovative composites have a bright future ahead and we are certain that Ensinger is the ideal new home for this product line. We encourage our customers to continue working with Ensinger on their projects as they have previously with us", adds Pierre Juan, Director Technical Product Management Specialties EMEA, previously leading the StyLight business at INEOS Styrolution.

**INEOS Styrolution**
*www.ineos-styrolution.com*

# Comar expands internationally with acquisition of Automatic Plastics Ltd.

Comar, a premier supplier of custom medical devices & assemblies and specialty packaging solutions, announced today it has acquired Automatic Plastics Ltd., a contract manufacturer of injection molded products primarily for the medical device and pharmaceutical sectors. The company is headquartered in Wicklow, Ireland just south of Dublin. The financial terms of the transaction were not disclosed. The deal is backed by Morgan Stanley Capital Partners.

Automatic Plastics Ltd. (APL), in operation for 50 years and led by owner and managing director Al Lawless and commercial director Andrea Cawley, specializes in custom design, development, molding, and assembly of medical devices and rigid pharmaceutical packaging. APL operates out of an ISO 13485 certified production facility that houses 30 injection molding machines ranging from 25 to 485 tons with expertise in design and development, overmolding, two-shot molding, automation, desiccant handling and packaging, and custom printing.

The combination of APL and Comar enhances Comar's medical device and pharmaceutical packaging manufacturing expertise and represents the first step in its global expansion. With Ireland being one of the world's major medtech and pharmaceutical industry hubs, the acquisition provides an exceptional foundation for Comar to supply its multinational customers and grow in European healthcare markets. The combined company will have 11 manufacturing facilities and over 1200 employees worldwide.

"We have proudly served our customers for the last five decades and cannot wait to provide more for them in the future as a part of Comar," said Al Lawless, Managing Director of APL. "From the beginning, we have trusted in Comar, their capabilities, and most importantly, their culture. They know how to partner with companies, mentor teams, and empower them to drive growth. We truly believe Comar will bring the focus and resources necessary to elevate APL to the next level of performance."

Mike Ruggieri, CEO of Comar added, "We are so excited to welcome the APL team to the Comar family. As part of our global vision, we believe it is critical to have a presence in Europe to better serve our medical and pharmaceutical customers many of whom have a global reach. APL has superb quality, best-in-class manufacturing, and a spectacular management team that can carry our strategic initiatives forward. We look forward to a successful partnership and continuing our growth journey together."

**Comar**
*www.comar.com*


*Nolan Strall, new President of KraussMaffei Corporation in Florence, Kentucky, (USA)*

# Nolan Strall new President of KraussMaffei Corporation in the US

KraussMaffei has appointed Nolan Strall as the new President of KraussMaffei Corporation North America (KMC), effective January 1, 2022. He will report directly to Volker Nilles, Executive Vice President New Machines.

Previously, Nolan Strall served as Vice President of Operations and Digital & Service Solutions (DSS) for KMC. In this role, he was responsible for aligning the New Machines & DSS teams and processes to ensure maximum efficiency and profitability for the organization. In his new role, he will remain a member of the Digital & Service Solutions global management team.

Nolan Strall holds a bachelor's degree in Industrial Technology Engineering with a focus on Manufacturing Information Systems Technology and a Minor in Business Administration from Ohio University. Prior to joining KMC, he held positions in the aerospace and general industrial machine tool market. Prior to that, he spent eight years with Siemens Industry in a variety of leading positions at multiple locations.

"I look forward to contributing to KraussMaffei's positive development, especially in terms of growth in new markets and technology diversification." - Nolan Strall, President of KraussMaffei Corporation North America (KMC)

"KraussMaffei looks back on more than 180 years of innovation and technology history, which led me to join the U.S. team at KraussMaffei Corporation in January 2020. In what has been a very difficult year for the industry and one of the largest organizational changes in the company's history, I found at KraussMaffei Corporation an amazing group of dedicated employees that we have now galvanized as one strong team for the future", says Strall.

"The team we are building here in Florence, Kentucky, has a deep knowledge of our core technologies. We also have added key leaders and started initiatives in complementary technologies that will provide new solutions for our customers and enable us to enter new markets. I am honored to provide strategic and operational support and leadership to the team in North America as President. I look forward to contributing to KraussMaffei's positive development, especially in terms of growth in new markets and technology diversification", says Nolan Strall.

Volker Nilles, Executive Vice President New Machines, states, "As part of his role as President, Nolan will continue our journey to further strengthen our organization in North America, drive localization of industrial automation solutions in line with our global strategy, and ultimately expand KraussMaffei's solutions portfolio to support our core and new markets."

Nadine Despineux, Executive Vice President Digital & Service Solutions, adds: "With his experience and leadership style, Nolan has been instrumental in building our Digital & Service Solutions organization within KMC, and I am confident we will see the same remarkable results in his new role as President."

**KraussMaffei**
*www.kraussmaffei.com*

# Changes in the ENGEL Group board

ENGEL Group board was reshuffled on 1 February 2022. Dr. Gerhard Dimmler, previously Vice President Research and Development, is being appointed to the board as CTO. He is taking over the Development division from CEO Dr. Stefan Engleder and will also be responsible for digitalisation on top of this.

"Gerhard Dimmler has played a decisive role in shaping ENGEL's research and development in recent years and has made a significant contribution to ENGEL being perceived as a technology leader in global markets," as Stefan Engleder emphasises. "Bringing Mr Dimmler into the management team is an important step for the sustainable implementation of our corporate strategy."

There is a further change in the commercial division. CFO Markus Richter is leaving the company on his own request at the end of March, the end of the current fiscal year. His successor is Simon Zeilberger who is joining the ENGEL Group as Commercial Director on 1 April. Zeilberger gained extensive management experience, primarily in the metal and steel industry. Most recently, he was responsible for the commercial division of a large family foundation as a member of the executive board and management and had overall responsibility for the industrial branch of the group of companies. "We are delighted to have gained a very experienced successor in the person of Simon Zeilberger, who is already rooted in the metal industry. He will carefully shape the commercial agendas of the ENGEL Group," says Stefan Engleder. "We thank Mr Richter for his great commitment and our excellent and very successful cooperation during the past five years."

The Production Division will continue to be managed by Joachim Metzmacher as CPO.

***The ENGEL Group has appointed Dr. Gerhard Dimmler to the Board. As CTO he is responsible for the Research and Digitalisation Divisions***

***Simon Zeilberger is joining the ENGEL Group as CFO on 1 April. He is taking over from Markus Richter as the head of the Commercial Division***

As an international family business, ENGEL stands for a long-term corporate orientation. Stability as an employer combined with a high level of innovation as a solution provider for the international injection moulding industry characterises the group of companies. The current board changes do justice to this orientation.

**ENGEL**
*www.engelglobal.com*

# INCOE USA announces new leadership

INCOE USA announced that Brodie Delemeester had become General Manager North America beginning January 3, 2022. Mr. Delemeester's promotion follows the previous General Manager, Kurt Curtis, who retired at the end of 2021.

Joining INCOE in 2004, Mr. Delemeester was previously INCOE USA's Applications Engineering and Technical Service Manager. For the last six months of 2021, he worked closely with Mr. Curtis as the Assistant General Manager. Mr. Delemeester said, "Having the chance to be mentored by Kurt last year was a great opportunity to learn from the best. I look forward to the opportunities and challenges this new position will bring, and I'm very optimistic about this coming year."

**INCOE**
*www.incoe.com*

***Brodie Delemeester and Kurt Curtis***

# ZAHORANSKY repositions sales and marketing

ZAHORANSKY is repositioning itself in sales and marketing and is merging the sales divisions "Oral Care/Broom & Brush Mechanical Engineering" and "Automation & Molds/Medical Technology", which up until now have operated independently. This opens up synergies in development, sales and production. This development enables the strength of the global sales and production network across all ZAHORANSKY locations to be used even more consistently. The person responsible for this restructuring is Robert Dous, who has held a new position in relation to this since January: As the Managing Director of ZAHORANSKY Automation & Molds GmbH and the Chief Sales Officer of the ZAHORANSKY GROUP, he is now responsible for the global sales, marketing and service activities of all ZAHORANSKY products and locations. He is also responsible for managing the branches in the USA, Mexico, Brazil, India, Japan and China.

## Two-pronged sales approach

In future, ZAHORANSKY will pursue a two-pronged sales approach. There will be divisions specifically for standard manual or automated brush production machines, packaging machines, automation modules as well as injection molds. These teams are controlled locally and are characterized by their special customer proximity and flexibility on account of their regional presence. An agile interdisciplinary organization approach is used for the project business in the division of tailor-made production solutions with a high degree of interlinking and automation in the areas of personal care, medical technology and industrial automation. Upgrading and expanding the key account management enables ZAHORANSKY to even better meet the requirements of global market leaders.

The system-spanning solutions of ZAHORANSKY cover the entire process chain: from the integration of packaging technology to handling up to programming and robotics in the manufacturing of fully automated production and assembly lines. The ZAHORANSKY technologies and services are in high demand in the following industries: household and industrial brushes, oral care, medical technology, cosmetics, consumer goods, and packaging.

## Expansion of the medical technology division

Medical technology is also a high priority in the future product strategy. This business division is being further expanded with production solutions for the manufacture of in-vitro diagnostics, drug delivery and primary packaging. Specifically, this involves dialyzers, vaccine containers, prefilled plastic syringes, pipette tips, blood collection tubes, inhalers and many other medical technology products.

## Carefree all-in-one service

When it comes to customer care, ZAHORANSKY consistently relies on the perks of digitization using the global sales organization with Sales & Service branches. A 360-degree carefree service approach, based on remote monitoring & alerting of production processes, as well as preventive maintenance, increases the production output of the machines and minimizes scheduled downtimes.

## Robert Dous vita

Robert Dous has been with ZAHORANSKY for almost 14 years and was previously responsible for sales, marketing and service as well as product management for machines and systems concerning the production of brushes, including toothbrushes, interdental brushes, household brushes, technical brushes and cosmetic brushes such as those used for mascara. As of January 2022, as the Managing Director of ZAHORANSKY Automation & Molds GmbH and the Chief Sales Officer of the ZAHORANSKY GROUP, he is now responsible for global sales, marketing and service activities of all ZAHORANSKY products and locations. He is also responsible for managing the branches in the USA, Mexico, Brazil, India, Japan and China.

*Robert Dous, Managing Director ZAHORANSKY Automation & Molds and Chief Sales Officer ZAHORANSKY GROUP*

## About ZAHORANSKY

ZAHORANSKY has been synonymous with reliability, precision, and sophisticated technology since 1902. Anton Zahoransky laid the foundation with his small workshop in Todtnau, in which he manufactured the first devices and machines for the automation of brush production.

Using the experiences and skills gained since the company founding, ZAHORANSKY now operates as a full-service provider and technology partner for companies in the brush industry, medical technology, and other industries. With injection molds, machine engineering, and automation technology, as well as packaging lines, ZAHORANSKY covers the whole range of customer requirements. This is what around 900 employees – of which 70 are trainees – work hard for each and every day at ten locations in Germany, Spain, China, India, Japan, Brazil, and the US.

**ZAHORANSKY**
*www.zahoransky.com*


*LTR Stefan Sonnhalter – Sales Manager Northern Germany, Armin Distler – Senior Sales Director, Thomas Dirnberger – Sales Manager Southern Germany*

# Armin Distler named new Senior Sales Director

Sumitomo (SHI) Demag further optimises the company's sales and strategy organisation with the appointment of Armin Distler, who succeeds Siegfried Köhler following his departure at the turn of the year. Effective February 1, 2022, Distler assumed responsibility for global sales as Senior Sales Director. Reporting to Distler are the respective industry-focused Business Development teams, comprising Automotive, Consumer, Medical and Packaging.

Part of his remit as Senior Sales Director sees Distler taking on the responsibility for digital sales and the operational sales management of the subsidiaries. Consequently, the overarching sales structure now incorporates Paolo Zirondoli, Managing Director of the company's Italian subsidiary, who oversees the Group's sales agencies and the international support office functions. As a member of the Management and Group Board, Distler will undertake additional strategic duties.

For several years Distler has worked in various management positions within the German sales organisation. He is widely regarded as a great advocate for combining application development with service support. Having joined the company in 1999, Distler has a deep understanding of evolving customer requirements.

Previously responsible for sales throughout the German market, Distler confidently passes these duties to his incumbent colleagues Thomas Dirnberger (Southern Germany) and Stefan Sonnhalter (Northern Germany). Both will jointly share the strategic management of the territory.

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

# New CEO Gert Boers

February 1, 2022, Stork IMM welcomed Gert Boers as its new CEO. Gert took over from Martin Essink, who fulfilled the role of CEO of Stork IMM during 2021. Martin had been involved with the company for several years as previous owner, Wadinko, investment manager. As a result of the transfer of shares to Stibbe Participaties, he stepped down as CEO on 31 January 2022.

Martin looks back on his role as CEO at Stork IMM with a good feeling: "As Stork IMM we have had turbulent years in which we have succeeded in taking the right steps forward. It would take too long to review them all again, but what remains most important to me is the drive and the positive Stork feeling among the employees. They have been able to bring Stork IMM closer to the customers again and make improvements in their way of working. This puts the company in a healthy starting position and we notice that every day. New challenges are emerging, such as issues in the supply chain and an even sharper focus on the markets in which we are distinctive. We talk about the product and the customer on a daily basis again and I experience the inspiration of the people who work in Hengelo and that is a great feeling to take away with you."

*Stork IMM welcomed Gert Boers as its new CEO*

Gert Boers has been closely involved with Stork IMM for several weeks in preparation for his new role as CEO of Stork IMM.

Gert has worked for various international companies in the region, including Power-Packer and TenCate Grass. He therefore has a lot of experience as a CEO of international companies involved in the manufacturing industry. Before starting at Stork IMM, Gert worked for Howden Hengelo, which, like Stork IMM, is a former Stork company.

Gert is very much looking forward to the challenge presented by Stork IMM. "We are looking to the future and want to work with our employees, customers, and suppliers on further growth of this great company with healthy results."

**Stork IMM**
*www.storkimm.com*

# Nexa3D and Nowak Dental Supplies partner to provide advanced dental AM solutions

Nexa3D, maker of ultrafast resin 3D printers, today announced that it has entered into a reseller partnership with Nowak Dental Supplies, Inc., a family-owned and -operated provider of dental devices and equipment. Nowak Dental Supplies will offer Nexa3D's entire dental portfolio, including the NXD 200 dental 3D printer; NexaX software; the post-processing xWASH and xCURE systems; and the full range of Keystone validated dental 3D printing materials.

The NXD 200, utilizing Nexa3D's patented LSPc printing technology, features an expansive 8.5L build volume, allowing for the printing of multiple parts simultaneously, as well as the ultrafast speed for which Nexa3D printers are known.

"We at Nowak Dental are extremely excited about bringing this new printer to the market," said Shawn Nowak, President of Nowak Dental Supplies. "With how quickly technology is changing, we are staying at the forefront of products to offer our customers. The Nexa3D brand of printers allows customers to stay competitive and bring the speed that is needed in today's landscape."

Nowak Dental Supplies is a major supplier to the dental industry, with a small-business model that emphasizes personalized customer service and dedicated technical support.

"The confidence that Nowak's customers have in its team is critical to us," said Jim Zarzour, Head of Dental Solutions at Nexa3D. "That, in turn, gives us confidence, knowing that our products and joint customers will be fully supported. To have someone of Nowak Dental Supplies' caliber as a reseller for the NXD 200 is something we're very excited about."

Nexa3D and Nowak Dental Supplies share, as a core value, a focus on creating a customer experience that allows users to feel comfortable and confident. The NXD 200, with its completely modular design, enables easy repairs, part replacements, and technology upgrades, and is designed for use with the intelligent and intuitive NexaX software. NexaX requires no advanced 3D design or printing knowledge to utilize, making it ideal for experienced and novice users alike.

**Nexa3D**
*www.nexa3d.com*

# Westminster Tool partners with Sumitomo (SHI) Demag to expand mold qualification capabilities

Westminster Tool is proud to announce that it has recently introduced a new Sumitomo (SHI) Demag 354T SE-EV-A-HD injection molding machine to our mold qualification technology arsenal. The new addition will complement its current Technology Center with two injection molding presses (110T and 150T).

To expand its mold qualification capabilities, Westminster Tool recently partnered with Sumitomo (SHI) Demag in hopes of better serving customers needs. Westminster Tool president, Ray Coombs, says the machine's application will specifically accommo-

date upcoming medical manufacturing projects that require larger parts and higher cavitation. “Partnering with Sumitomo (SHI) Demag was a natural fit considering the timing, and it’s a perfect alignment of each company’s needs.”

Sumitomo (SHI) Demag, producer of precision plastic injection molding machines, was specifically looking for partners that could help them market the machine to a critical region in New England. Sumitomo (SHI) Demag North America Business Development Manager, Bob Brady, says, “With Westminster Tool’s reputation in the plastics industry and its reputation in the community here in Connecticut, our machines are getting the exact kind of exposure we need.”

In addition to mold validation and internal research and development, the machine’s new home at the Sterling facility will also serve as a centralized showcase for potential training, especially with prospective customers. “Training is a major focal point for Westminster Tool, and that’s why this relationship is such a great fit,” Brady says. Several of the company's key medical customers are proud Sumitomo (SHI) Demag owners, which makes for a smoother transition from the mold build to qualification. And since the medical industry is all about consistency, this partnership lets us rely on Sumitomo (SHI) Demag’s trusted reputation.

For Westminster Tool, the new machines represent the latest commitment to merging people and technology. “We spent years establishing our company culture to support our skilled talent,” Coombs says. “Now we need exposure to the technology that is going to give us the tools we need to step up our game.”

**Westminster Tool**
*www.westminstertool.com*

## Muller Technology partnered with VistaTek

VistaTek LLC, a leading custom injection molder based in Stillwater, Minn., has developed a plant-based garden pot that is one of the first plantable and compostable pots for the garden market, thus offering major sustainability benefits. Leading automation specialist Muller Technology partnered with VistaTek, providing the latest in-mold labeling (IML) technology to facilitate efficient manufacturing and high-volume production.

The unique garden product is one of the first to contain plant nutrients which are compounded into the plastic resin formulation. VistaTek’s garden pot, which is based on polylactic acid (PLA), is being used by Proven Winners, one of the largest national growers in North America and a supplier to Big Box retailers and regional nurseries. The four-inch round pot, launched under the PW EcoPlus Grande line, will be commercially available to growers and retailers in the spring of 2022.

“To compete in the global market, you need world-class partners and we were fortunate to collaborate with Muller, whose manufacturing know-how and automation expertise gave us a major leg up,” said Danny Mishek, president of VistaTek. “They saw our vision and complemented and supported our project, bringing us to the finish line.”

The VistaTek garden pot is an environmentally-friendly alternative to traditional plastics, fiber, and rice hull pots, delivering major sustainability advantages to the garden industry. Garden enthusiasts can plant the pot in the ground and it will compost without having to be removed from the ground. The nutrients which are compounded into the plastic break down and feed the plant, thus enhancing the overall growth potential. Mishek added that the plant-based pot meets the needs of commercial growers who require a less brittle construction, pleasing aesthetics, and consumer functionality.

“This is a significant development in the garden industry and we’re thrilled about our partnership and the ability of our innovative IML technology to help VistaTek meet their high-productivity needs,” said Taras Konowal, director of sales and marketing for Muller Technology.

**Muller Technology**
*www.muller-technology.com*

# Meusburger is ready for the future


The internationally active company Meusburger, a leading manufacturer of high-quality products for mould, die, and jigs and fixtures construction, is optimistic about the future after a successful 2021. At centre stage is Meusburger's large warehouse for both standard parts and primary materials, the variety of materials and the 100% in-house production of plates. In combination with the high degree of standardisation, it enables high availability and therefore short lead times for their now 24,000 customers in 81 countries worldwide.

### Well-established full-range supplier

The standard parts manufacturer's priority is to constantly optimise their service in terms of quality and lead times. Meusburger's aim is to be there for every customer from designer to injection moulder along the entire value chain. In order to ensure this, Meusburger took further steps towards digitalisation last year with a focus not only on product selection, but also a transparent ordering process and easy handling. The fact that in 2021 more than half of the enquiries and orders were generated via the Meusburger shops goes to show how customers benefit from the digital service. Meusburger is equipped and ready for new ways of doing business in the future.

### Positive outlook for 2022

In 2021 Meusburger had a turnover of around 302 million euros and thus an increase of 16% compared to the previous year. 'Despite the still tense economic situation and the challenges in 2021, we were able to continue to support our customers as a reliable supplier and as a result achieve our turnover goal of 302 million euros. We are optimistic that we will also achieve significant double-digit growth this year' says Guntram Meusburger. To meet these demands, Meusburger uses the WIVO software as a practice-oriented complete solution for active knowledge management in the company. As a full-range supplier in the industry, the standard parts manufacturer can offer all the products and digital services that customers need to realise their projects. In addition to the well-established product range of plates, special machining, components, hot runner and control systems and workshop equipment, a software & consulting division was launched in 2021. Also, around 340 field sales staff provide the best possible on-site support to customers. This guarantees ideal all-round service, which means reliability and project security for Meusburger's customers.

### Investments for the future

So customers can implement their projects quickly any time, Meusburger built new warehouses in the subsidiary companies in India and Mexico in 2021 and expanded the warehouse in China. Another office building was also constructed in Vorarlberg, to be prepared for further growth. With the 6.5 hectare property in Hohenems, a total of approx. 20 hectares of land is now available to the standard parts manufacturer, which still offers possibilities for expansion. In spring, 200 employees will already be moving into the new office building.

**Meusburger**
*www.meusburger.com*

# Change of brand strategy for the WITTMANN Group

The WITTMANN Group has decided to change its previous brand strategy, transforming it from a two-brand strategy into a one-brand strategy, with the aim of communicating its advantage of being able to offer complete system solutions from a single source via the brand as well.

With the integration of Battenfeld machines into the extended product portfolio of the WITTMANN Group, the company has so far consistently pursued a two-brand strategy in its external appearance: WITTMANN for all products around injection molding machines and WITTMANN BATTENFELD for injection molding machines and injection molding processes. To highlight the significance of the injection molding machine for the future development of the company, the brand name WITTMANN BATTENFELD was originally chosen, preferred and used deliberately in communication.

In recent years, though, the Group's competitive edge of being able to offer "complete solutions from a single source" has gained substantially in significance. In due consideration of this development, the "One-Stop-Shop" advantage is now to be given special emphasis by a uniform brand designation and color scheme for the entire product range.

This is why the WITTMANN Group has decided to use the WITTMANN logo for all of its advertising activities and product lines in future.

The change of its external appearance is to start on 1 January 2022 and to be completed by the K trade fair in October 2022.

There will be no changes in the organization of the companies within the WITTMANN Group. All company names will be left unaltered by the brand strategy change.

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

The companies of the group jointly operate eight production plants in five countries, and the additional sales companies at their 34 different locations are present in all major industrial markets around the world.

**WITTMANN**
*www.wittmann-group.com*

# Moretto among the 100 ITALIAN EXCELLENCES 2021

Referenced by the Observatory of Italian Excellence for the merits recognized contributing to the social-economic development of our country, Moretto received the recognition "EXCELLENCE STORIES | 100 ITALIAN EXCELLENCES".

The award ceremony took place on December, 16th in Campidoglio in Rome. The event involved high-profile personalities who give prestige not only to our country image, but also promote and enhance a distinctive brand recognized all over the world.

"Our company has always aimed at excellence and being the best partner for our customers by providing solutions that contribute to their success. Products and services with high technological content that contribute to the progress and mankind well-being in a sustainable way and respecting the environment. Being mentioned among the 100 Italian excellences is a very important recognition for us, a further demonstration of how our work is essential in enhancing and making a brand - that of "Made in Italy" - known throughout the world which has always been synonymous with quality and reliability" says Renato Moretto, President of the company.

**Moretto**
*www.moretto.com*

*Injection-moulded frame part for side filter of the respiratory mask illustrated (all photos: BOY)*

# BOY starts its international trade fair presence at Chinaplas 2022

*For the German injection moulding machine manufacturer BOY the trade fair year 2022 starts full of expectations with its participation in the Chinaplas in Shanghai from 25th to 28th April, 2022. At the major event in Shanghai, BOY will present two compact injection moulding machines from its comprehensive product programme on its booth 2.1G75.*

On a BOY 25 E the two lateral frame parts of the filter elements for a medical respiratory mask will be prefabricated. In a subsequent work step, an elastomer sealing lip is attached to the pre-moulded frame part. The frame parts injected from a Polycarbonate (Makrolon 2207) are removed from the 2-cavity mould by a gripper. Subsequently the sprue is separated and then the parts are placed on a conveyor belt. The pneumatically operated handling and the conveyor belt are positioned in a space-saving manner under the safety gate of the BOY 25 E. The long-standing success model with 250 kN clamping force and a footprint of only 1.8 m² has a cantilevered two-platen clamping unit for easy accessibility and individual automation equipment.

With seven different screw diameters, the BOY 25 E offers plasticising volumes of up to 76.5 cm³. The energy-efficient servo-motor pump drive ensures a dynamic operation at very smooth running.

The German manufacturer is also presenting its BOY XS machine model with a medical technology application. The machine produces a small Osteosynthesis plate made of PP, which is used in surgery to fix bone fractures. The injection moulding machine, which is mainly used for micro injection moulding and for very small parts, has a clamping force of 100 kN. In its smallest injection moulding machine, BOY also relies on the proven reciprocating plasticizing screw, which works according to the "first in - first out" principle. With screw diameters between 8 and 18 mm, plasticising volumes of 0.06 to 15.3 cm³ are possible in continuous industrial operation.

Christian Storz, Head of Export at BOY, expects a signal effect from the participation in Chinaplas: "We are convinced that we are the ideal partner for users in the Chinese plastics market with our ultra-compact injection moulding machines and high-precision

solutions "Made in Germany". Together with our long-standing representative Andeli Co., Ltd., we want to confirm our traditional, successful presence at the trade fair this year again and we are looking forward to the visits and discussions with numerous customers and new interested parties."

### Company profile

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

**BOY**
*www.dr-boy.de*

*The compact BOY 25 E with integrated removal-automation*


*FDC production cell*
*(all photos: ARBURG)*

# ARBURG at Chinaplas 2022: High-end wherever you look

*A high-tech-friendly country like China hosting one of the largest international plastics trade fairs: Chinaplas 2022 in Shanghai is set to be particularly interesting. Naturally, Arburg's appearance there has been planned accordingly. Particularly interesting target groups will be attending from the automotive industry, the highly dynamic medical technology sector, and the electronics industry. Machine technology and processes will match these, with LSR processing, high-speed medical applications, and lightweight construction with fibre direct compounding (FDC).*

A total of four Allrounder exhibits – from the electric Allrounder 470 A to the large Allrounder 820 S – and two freeformers – a freeformer 200-3X and a freeformer 300-3X – will be on show. All machines will be connected 'live' to the Arburg host computer system ALS for demonstration purposes and to the arburgXworld customer portal, another focus of the trade fair display. Detailed information on the arburgGREENworld environmental and recycling program will round off Arburg's involvement in Chinaplas.

Zhao Tong, Director of Arburg's organisations in China, notes the importance of the event: "Chinaplas is the most important trade fair for us in the entire region. It is important that we showcase cutting-edge technology here, because the high-end market in China is also constantly growing and gaining in importance. Arburg has chosen the focal points of its trade fair activities accordingly. With our injection moulding machines and automation systems, we offer optimal solutions for individual series production, and with the freeformers, further solutions for the production of prototypes and small series. Then there are tools like arburgXworld and the ALS host computer system for supporting service and production management, and the arburgGREENworld environmental and recycling program for greater resource conservation and production efficiency."

### Highlight: Electric Allrounder 470 A

Zhao Tong sees the electric Allrounder 470 A with 1,000 kN clamping force, size 290 injection unit and Gestica control system as an important highlight. A Multilift Select with a load capacity of six kilograms completes the configuration. The powerful injection unit with 35 millimetre three-zone screw can produce even complex parts in multiple moulds quickly and to a high standard without any problems. As a sample for the trade fair, the electronic 'connector' part will be produced on this machine in a 16-cavity mould. Each part weighs 0.59 grams, and the 16 connectors will be produced in a cycle time of around six seconds. The machine's energy requirement is very low, which increases economy and efficiency. This means that the Allrounder also fits in very well with the company's efforts as part of the arburgGREENworld program.

### Fast: Medical technology on hybrid Allrounder 470 H

On a hybrid Allrounder 470 H with a clamping force of 1,000 kN, size 400 injection unit with 35 millimetre standard screw and Gestica control system, pipette tips will be produced from PP in a 64-cavity mould. The cycle time for this high-speed product is only seven seconds, which is partly due to the machine being equipped with powerful memory technology and the aXw Control ScrewPilot for reproducible injection and high moulded part quality. The shot weight is 64 grams. The complex automation comes from regional Chinese manufacturer Ningbo Welllih Robot Technology Co, LTD. In addition to a Luxor80 granule feed from Motan, a hot runner system from Husky and two HB-Therm temperature control devices are also used.

### Safe: Face mask on Allrounder 570 E Golden Electric

A face mask will be injection moulded in a 4-cavity mould from Polarform Werkzeugbau GmbH. The sample part will run on a 570 E Golden Electric Allrounder during Chinaplas. The high-end system with this machine for LSR processing is a novelty in Asia. The Allrounder 570 E Golden Electric is defined here as an entry-level machine with maximum precision for the special application of LSR injection moulding. It has a clamping force of 2,000 kN and a size 800 injection unit with a 45-millimetre LSR screw and no mixing or compression zone. A special non-return valve is also used for low-viscosity material. A Wacker Chemie AG LSR optimised for medical technology is processed. The moulded part weight is around 42 grams and the cycle time some 60 seconds. The extreme undercut of the mask and different wall thicknesses with the very thin lip make the injection moulding of these parts highly complex. The gripper on the Multilift Select robotic system with a 15-kilogram load capacity in transverse design ensures precise, smooth removal. It comes from Barth Mechanik GmbH, and the dosing system from Chinese manufacturer Mucomac in Shenzhen. The system is completed by a CoolShot cold runner system from Ewikon with electrically needle-type shut-off system and a cooling unit from Shini in Taipei. For medical technology, which is also one of the most important industries in this region, clean production with maximum process control is indispensable. Arburg can fully guarantee this with this configuration.

### Large: Allrounder 820 S with equipment for FDC processing

The largest Arburg machine at Chinaplas will be a hydraulic Allrounder 820 S optimised for fibre direct compounding (FDC). The machine has a clamping force of 4,000 kN and a size 3200 injection unit equipped with a 70-millimetre special screw for long glass fibre processing. The aXw Control ScrewPilot, which allows reproducible mould filling via the control of injection pressure and speed is also included as necessary basic equipment. The single-cavity mould has a hot runner with needle-type shut-off nozzles. The moulded part weight is 700 grams and the cycle time some 80 seconds.

FDC moulded parts are used in all innovative sectors of plastics processing, such as automotive construction or the aerospace industry.

The moulded parts are removed from the single mould via a Multilift Select robotic system with a load capacity of 15 kilograms. Downstream, the items are weighed inline via a scale automation system for quality assurance, entered into the process documentation, and then deposited on a conveyor belt.

### Business potential in China and Asia remains high

According to Zhao Tong, the exhibits at Chinaplas 2022 are a perfect match for the current market requirements in China: "The automotive industry is becoming increasingly energised by developments and applications in the field of e-mobility. In medical technology, Arburg can make an important contribution to more stable supply chains thanks to its central production, its on-time delivery, and the high reliability of its Allrounders. More and more companies are also looking to IT solutions such as the arburgXworld customer portal and the ALS host computer system to increase their production efficiency. With our products and technologies that are 'Made in Germany', we are in the right place at the right time. Because – and this is also demonstrated by our involvement in Chinaplas – we can offer our customers regionalised services to fully support them in increasing quality, efficiency and resource conservation in their companies." *smi*

**ARBURG**
*www.arburg.com*

*Hybrid Allrounder 470 H: pipette tips will be produced from PP in a 64-cavity mould*

*A highlight at Chinaplas 2022: an electric Allrounder 470 A with Gestica control system*

# ENGEL: Fakuma 2021 inspires injection moulding industry

All photos: ENGEL

*Fakuma 2021 was a great success for ENGEL. "The positive trade fair experience underlines the economic upward trend and is driving investment in new technologies," as Dr. Christoph Steger, CSO of the ENGEL Group, emphasises at the conclusion of the industry event in Friedrichshafen. "Our customers grasped the opportunity to finally exchange ideas in person again and experience innovations in real and live terms."*

The industry's first major live event after the automotive crisis and Corona pandemic took place at exactly the right time. "The automotive industry has come back with a bang, and the investment backlog has cleared," says Steger. "Even if the Corona pandemic is still preventing some travel, ENGEL's stand was well attended. We had some excellent talks, concluded numerous projects and got new ones underway." Visitors came from all industries. Besides the automotive industry, the medical technologies, packaging and technical moulding sectors were strongly represented.

## Leveraging the full potential of the machines

In particular, innovative solutions for more sustainability in injection moulding and further digitalisation of production processes met with great interest. The two topics are closely linked. "Digitalisation is an important precursor to the circular economy", said Steger. "Smart assistance systems and interconnected systems help us to leverage the full potential of injection moulding machines, for more efficient production while reducing the CO2 footprint." ENGEL's trade fair stand made this vividly clear. Compared to the last Fakuma, ENGEL's stand has become larger. The additional space was used to present digital products and solutions.

The machine exhibits also demonstrated the new opportunities for the circular economy. ENGEL presented a closed process chain for polypropylene involving the production of mono-material food packaging using IML thin-wall technology and the production of protective covers from label offcuts. At the same time, the ENGEL e-speed 420 injection moulding machine celebrated its world premiere. "Hybrid and all-electric injection moulding machines are seeing deployment in an increasing number of applications," says Steger, emphasising another trend that was reflected at ENGEL's stand. Demanding precision applications gave insights into the performance of the various hybrid and all-electric machine series by ENGEL during the five days of the trade fair.

## Machine exhibits still in the virtual showroom

Personal contacts and face-to-face events always have been and will continue to be important, as Fakuma 2021 once again confirmed. Even though the pandemic has shown that digital formats work very well, and even offer advantages in certain areas. "The future will be hybrid," as Christoph Steger announces. Two machine exhibits that ENGEL presented on site in Friedrichshafen – the production of pipette tips on an all-electric e-mac and the manufacture of microcomponents from LSR on an all-electric and tie-bar-less e-motion TL – will also be available in ENGEL's virtual showroom after Fakuma. The virtual platform offers more than 20 machine exhibits in total, as well as technical presentations, business talks and plant tours – unaffected by travel restrictions and time zones. *smi*

**ENGEL**
*www.engelglobal.com*


*Photo: NETSTAL*

# NETSTAL receives award as best company for medical injection molding applications

*NETSTAL receives the title of "Best medical injection molding packaging company" at the Global Excellence Awards 2021 from Global Health and Pharma. For the second time after 2019, the company is being honored for its innovative strength in the field of medical technology injection molding machines and applications. NETSTAL is a company of the KraussMaffei Group.*

### Global leader in high-performance medical injection molding

NETSTAL has been named the world's best company for medical injection molding packaging applications in the Global Excellence Awards 2021 by the publication Global Health and Pharma (GHP). This specifically targets primary packaging and drug delivery systems that are used for safe storage and the reliable and uncomplicated delivery of medications. These include inhalers, insulin pens, infusion distributors and pre-filled syringes, which are manufactured worldwide on machines from NETSTAL. For the production of such mass-produced single-use items, the requirements in terms of precision, shot-to-shot consistency and cleanliness are particularly high. The same applies to the production of disposables for in-vitro diagnostics such as pipette tips, microtiter plates, blood collection tubes and petri dishes.

NETSTAL was selected after thorough internal research, stakeholder interviews and final evaluation by the award panel. The GHP panel is composed of international representatives from industry, research and journalism.

### Highest precision and availability in medical production environments convinces renowned manufacturers

"It fills us with pride that we have received this recognition in this particularly important business field for the second time after 2019. With the all-electric machines from the ELION series, our application technology system expertise and comprehensive global services, we offer our customers the best overall package for the successful injection molding production of primary medical packaging, drug delivery systems and disposables for diagnostics," says Renzo Davatz CEO at NETSTAL.

Around the world, renowned manufacturers in medical technology and pharmaceuticals rely on injection molding solutions from NETSTAL. With Smart Operation, a unique operating concept is available, with which the overall system effectiveness can be additionally increased. The option for the aXos control system enables a guided and safe sequence of individual operating steps in the production environment. Handling specifications, such as Good Manufacturing Practice (GMP), are anchored in the control system and reliably adhered to. Smart Operation was introduced in 2018. Today, more than half of all machines are already ordered with the 4-button control.

### ISO 17025 accredited calibration of injection molding machines.

In the coming year, NETSTAL will offer a new service with ISO 17025 accredited calibration of injection molding machines. With risk-based calibration by trained calibration personnel, NETSTAL guarantees proven measurement accuracy of the relevant sensor signals within a defined measurement uncertainty range. The company has successfully met the certification criteria as an accredited laboratory according to ISO 17025.

"Our expertise in the field of high-performance medical injection molding is recognized worldwide. In the coming years, we will continue to expand our technology leadership in this segment with further innovations," Davatz concludes. ***smi***

**NETSTAL**
*www.netstal.com/de*


*All pictures: INCOE*

# Part and process optimization with targeted heat pulses in the cavity

*INCOE International Europe has recently presented Direct-Flo™ hot runner systems with Heat-Inject, allowing for local "heat injections".*

Among the innovations that INCOE presented at Fakuma last year, the new "Heat-Inject" product stood out in that it uses the hot runner system as a carrier platform, but instead of melt, it brings heat into the cavity. The question following this concept "But why additional heat directly into the cavity?" is answered by Christian Striegel, Head of Development and Technical General Manager at INCOE International Europe: "This is not an additional heater, but a movable tempering stamp, whose heated tip introduces a heat pulse there by briefly pressing against the rear wall of the cavity." This short local impulse can contribute in many ways to optimizing the quality of the molded part and the process, he says: weld lines and flow lines are still there, but no longer visibly appear on the surface, matt points no longer appear in the area of the gate, areas with low wall thickness the cavity, such as in film hinges or thin-wall injection molding, can be flowed through more easily, and delicate geometries and microstructures are easier to manufacture.

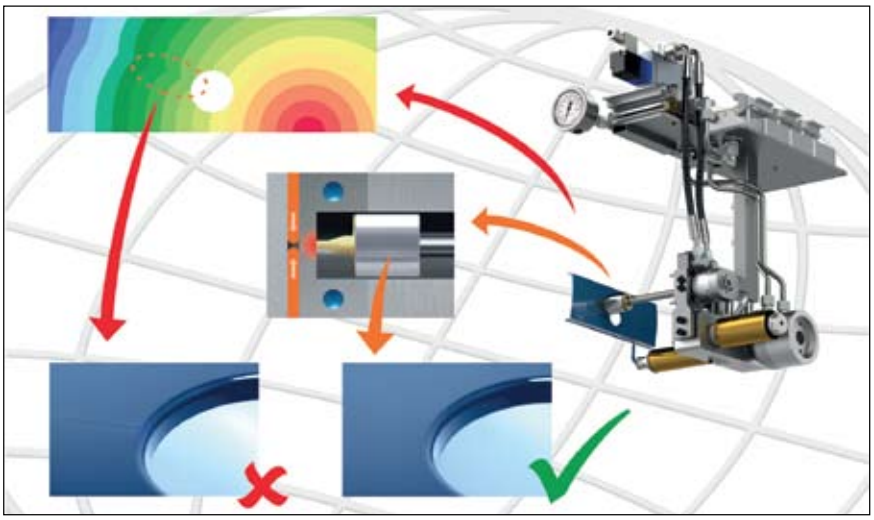
"This innovative temperature control technology, based on the patent-pending Z-system from our partner Hotset, works extremely quickly with very low energy consumption. In doing so, it offers a technically relatively simple and robust solution for molded parts with visually demanding surfaces, such as panels for household appliances, consumer electronics, or instrument panels in vehicles," adds Frank Daniel, Commercial General Manager at INCOE International Europe.

The idea of assembling "Heat-Inject" on hot runner systems has its origins in the concept of pre-assembled modules. The idea here is to offer customers components for their injection molds that are already assembled into ready-to-use and ready-to-plug-in modules, thus saving effort and time during tuning and installation.

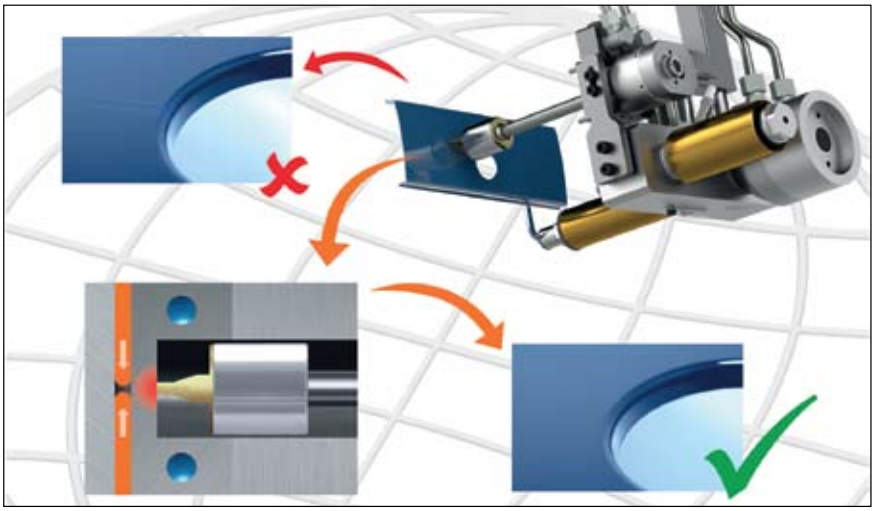
"Of course, the tempering stamp needs to be spotted in order to create a suitable contact surface for optimum heat transfer," explains general manager Frank Daniel. "But the fact

**INCOE: INjection COntrol Engineering**

Since 1958, this privately owned company has been a pioneer in the field of hot runner technology. We currently develop and produce hot runner systems on a worldwide basis for all areas of plastic injection molding. Our European subsidiary was founded in 1975. Our production plants in the USA, Brazil, Germany, Singapore, and China provide support for your business at a local level. Our service network covers more than 45 countries. It is made up of and managed by employees who feel at home with hot runner and injection molding technology. Injection molding markets around the world benefit from the wide variety of applications covered by our hot runner range. This variety facilitates technical solutions that meet the requirements of the various markets: automotive, transport, electronics, technical components, packaging, medicine, cosmetics, and household appliances.



*The mode of action of Heat-Inject shown by an example: A heat pulse at the confluence of two melt flows behind a hole makes the weld line invisible.*



*Where otherwise a weld line may become visible due to molding geometry and gating, the heat pulse from Heat-Inject ensures good surface quality.*

*"Plug and Produce" or "Unplug and Service": The hot runner system as a carrier platform for innovative temperature control technology to optimize molding and process quality for products with demanding surfaces.*

that all Heat-Inject connections are combined on the central connection plate of the hot runner system, for example, eliminates the need for time-consuming installing and connecting of individual cables or hoses in the mold - everything is already mounted in a module and can be inserted in the sense of "plug and produce" after all adjustment actions have taken place." An essential part of using Heat-Inject, continues Frank Daniel, is clarifying in advance whether and how Heat-Inject can be used. INCOE offers a multi-stage process for this, consisting of a feasibility study, a quotation, and support with coordination, installation and sampling. "A big advantage for us with this new product is that we can build on Hotset's many years of experience and thus offer our customers additional benefits that have already proven themselves in practice." Christian Striegel adds. ***smi***

**INCOE**
*www.incoe.com*

All photos: KraussMaffei

# SKZ and Toolcraft join KraussMaffei in LSR technology

*For many years, liquid silicone (LSR) had a reputation as being a difficult material that was only for specialists and incompatible with conventional thermoplastic processing. Despite this, more and more companies are discovering this interesting material. SKZ (The Plastics Center, Würzburg, Germany) and Toolcraft (Georgensgmünd, near Nuremberg), an innovative expert in the field of precision components, are collaborating to explore the possibilities and limits. KraussMaffei is playing a large part in this endeavor as a machine partner.*

"If you can think of it, you can do it", is the slogan of Bernd Krebs, founder of Toolcraft. Since 1989, widely disparate areas have developed in which the company is active. Among them are metal cutting, additive manufacturing, and robotics as well as injection molding and moldmaking. The team uses the wide variety of available methods to present solutions – occasionally unusual ones – to customers. Toolcraft has often adopted new technologies from scratch, so introducing silicone certainly does not faze them.

SKZ, in turn, is number one in education, research, testing and certification in the plastics field. In addition to SKZ's many other industry-relevant events, the renowned industry conference on silicone elastomers takes place every two years. To date, however, SKZ had not had an LSR processing machine on its own premises. The topic was increasingly under discussion as a result of increasing electromobility with its high underhood temperatures and the increasing importance of elastomers in medical technology.

## Win-win situation for all three partners

When KraussMaffei received the inquiries from Toolcraft and SKZ for LSR machines at around the same time, it soon became clear that a "triple-win" situation was within reach. All those involved sat down to confer: SKZ Institute head Prof. Martin Bastian and Georg Schwalme, Head of the Injection Molding area at SKZ, Thomas Lender (Head of Injection Molding) and Markus Scheuerlein (Moldmaking Project Manager) of Toolcraft as well as Frank Burkhardt (Local Sales) and Cordula Wieland, Expert Sales TEC and Silicone Processing Expert at KraussMaffei.

Valuable support was also provided by Nexus, a company that brought its

experience in metering technology to the table. Because all parties involved are based in Bavaria, it is even possible to obtain state-specific subsidies for research projects.

As a result, SKZ can help its fellow network member, Toolcraft, with targeted analyses when implementing the new technology – while at the same time acquiring the expertise to provide customers with well-founded advice to spearhead innovative developments. The launch took place at a two-day training session held by the Plastics Technology department at the University of Kassel. "Our colleagues there are outstanding and being able to interact with them is extremely valuable to us," says Bastian. Schwalme adds, "Once we have mastered the process itself, we will be able to collaborate with others – just as we did with thermoplastics. This collaboration will include everything from basic research to practical aspects on the shop floor."

*Top team for venturing into the world of LSR (from left): Prof. Martin Bastian (Head of the SKZ Institute), Frank Burkhardt (Local Sales KraussMaffei), Georg Schwalme (Head of Injection Molding Area at SKZ), Markus Scheuerlein (Moldmaking Project Manager at Toolcraft), Thomas Lender (Head of Injection Molding at Toolcraft), Cordula Wieland (Expert Sales TEC at KraussMaffei) and Christian Rössler (Head of Sales - South at KraussMaffei)*

### One all-electric PX for SKZ and one for Toolcraft

The two all-electric KraussMaffei machines have now reached their destination: a PX 50-180 SilcoSet at SKZ and a PX 121-180 SilcoSet at Toolcraft. This is where being an owner-managed medium-sized company is a great advantage. The company has the independence to make an investment that might not yield an immediate return.

"Theoretically we are at 100 percent capability with silicone, but we are practically still at zero. We think it will take about two years for us to master the technology, but we are just going to go ahead and take this time to do just that." – Thomas Lender, Head of InjectionMolding at Toolcraft

One of the reasons Toolcraft gave the nod to KraussMaffei as machine partner was the people involved. "From the beginning, you made us feel welcome and that we were being taken seriously. And the expert support from Cordula Wieland is priceless."

*The three key figures (from left): Prof. Martin Bastian (Head of the SKZ Institute), Cordula Wieland (Expert Sales TEC KraussMaffei), Thomas Lender (Head of Injection Molding at Toolcraft)*

### Enclosed PX 121 for cleanroom applications

Toolcraft's thorough approach to the project is evident in the fact that the PX 121 stands enclosed in a hall that will later be upgraded to a Class 7 cleanroom. The machine features a slight increase in clamping force and plasticizing volume as well as broader mold clamping platens for maximum flexibility. In LSR, the residence time in the plasticizing unit is not as critical as it is for thermoplastics. Therefore, a relatively large machine can produce very small products and the enlarged stroke of the clamping unit pays off because the molds have a deeper structure due to the cold runner and the insulating plates.

The APC plus machine function will help to give the products a high weight consistency. It uses the melt

*Lively discussions were the hallmark of the three-way meeting between SKZ, Toolcraft and KraussMaffei held to mark the beginning of LSR processing: Markus Scheuerlein, Cordula Wieland und Georg Schwalme (from left)*

viscosity and stored material parameters to regulate the changeover point freshly from shot to shot. For silicones, this is important insofar as the batch fluctuations are much more dramatic than for conventional thermoplastics.

### First LSR project for medical technology

As the first LSR project, Lender and Scheuerlein selected a plug with a part weight of 0.5 grams that can be used in medical technology. To date, these have been produced from solid silicone (HTV). There are relatively few types of this material that are approved for medical uses, making the switch to LSR an attractive option.

However, the latter has very low viscosity, which makes moldmaking extremely difficult. At a water-like consistency, the molds have to be perfectly sealed. Usually, a vacuum is even applied. The temperature control is the reverse of that used for thermoplastic processing to prevent premature wetting. While the plasticizing unit as well as the cold runner is cooled, the cavity is brought to a temperature of approximately 190 °C.

To date, most mold production for LSR has been in the hands of highly specialized providers centered regionally in Austria. However, because these providers are increasingly manufacturing silicone parts themselves and, furthermore, the prices for molds and cold runners are relatively high, more and more companies are looking for alternatives.

Toolcraft is also going to build its own tooling, drawing on its in-house experience with precision molds. Currently, about 50 percent of what Scheuerlein's team produces is for its own use, with the other half going to customers. Of course, plans call for offering LSR molds to external customers in the future.

### Support to the last detail

SKZ will receive internal and external help in the coming trials. A training manager at the SKZ location in Horb (in the Black Forest region) got his start in the silicone processing industry, an ideal set of circumstances. Despite this, Cordula Wieland, the KraussMaffei expert for thermoset plastics, is able to supply plenty of tips and tricks.

One such "hack" is the recommendation to purchase a chest freezer. Particularly in the experimentation phase – where a few weeks might pass between steps – freezing the unit in the meantime saves a good deal of work.

The top team from SKZ and Toolcraft will pave its way forward with support from KraussMaffei.

### KraussMaffei – Pioneering Plastics

KraussMaffei is among the world's leading manufacturers of machinery and systems for the production and processing of plastics and rubber. The company's brand has been synonymous with cutting-edge technology for over 180 years. The range of services covers all areas of injection molding machinery, extrusion technology and reaction process machinery. *smi*

**KraussMaffei**
*www.kraussmaffei.com*

*During the tour of the SKZ there was much to talk about*


*All pictures: Greiner Packaging*

# Greiner Packaging makes T-IML possible

*New thermoformed cups with IML decoration are just as attractive as their injection-molded counterparts – but have the edge when it comes to sustainability.*

There are many ways to design or optimize packaging so that it is more sustainable – for instance, by making it readily recyclable, using less plastic, or making it from alternative materials. That is why the packaging experts at Greiner Packaging work continuously to review its product portfolio in order to improve sustainability by making changes or introducing innovative solutions. The latest highlight is the thermoformed IML cup.

## T-IML helps to save material

In the past, the in-mold labeling (IML) decoration method was only ever used in combination with injection molding production technology. But now, Greiner Packaging has built on its longstanding core competency in thermoforming to offer thermoformed IML cups. The benefit of the technique is reduced material usage – less plastic is required for thermoformed cups, which saves resources while also making the cups lighter. As a result, they are responsible for fewer CO2 emissions during transportation. Both the cup and the IML label are made of PP, making for a monomaterial solution that is very easy to recycle. Wherever feasible, Greiner Packaging also tries to use recycled material, although the use of mechanically recycled material for food applications remains severely limited due to strict approval criteria, with only r-PET currently meeting the relevant requirements.

## Efficient production for sustainable packaging

But how does T-IML work exactly? During in-mold labeling, a label is inserted into the thermoforming mold in which the product is shaped, thereby forming a solid bond with the finished product. With this decoration method, shaping and decoration are performed efficiently in a single process. Having invested in a test mold, Greiner Packaging is now able to manufacture T-IML cups.

*Light, attractive, monomaterial solution. T-IML cups impress with their many advantages in terms of sustainability and design*

The cups are available with a diameter of 95 millimeters and a capacity of 500 milliliters. Switching from injection molding to thermoforming lowers the cup's weight in this format from 15 to 11.4 grams – a 25% reduction.

## Barrier properties for extended shelf life

Another advantage of the new packaging is that the sheet used in the thermoforming process can be imbued with barrier properties. This extends the shelf life of the packaged food, in turn helping to prevent food waste.

At Greiner Packaging, we are committed to a circular economy and want to take a broad-based approach to making that happen. With our new T-IML cups using less material and being readily recyclable, they encapsulate exactly what we hoped to achieve. – Philipp Maurer, key account manager at Greiner Packaging

## High-quality appearance

In addition, IML is an especially high-quality form of packaging decoration. Matte, rough, glossy, or soft-touch decorative effects can be applied, and the printed content is photo quality and therefore visually outstanding. "IML packaging solutions are extremely effective at attracting consumers' attention at the point of sale. On top of their sustainability attributes, that is naturally a real plus," Maurer adds. ***smi***

**Greiner Packaging**
*www.greiner-gpi.com*

All pictures: SACMI

# SACMI at PTXPO 2022, comprehensive solutions and technologies for Rigid Packaging

*In-person fair to bring together the big plastic processing players. An opportunity for SACMI to promote its complete range, from beverage caps and preforms to proposals for food and pharma containers. Good reasons to go with SACMI include 30 years of experience on this market and technological solutions that offer excellent performance and user-friendliness.*

Across the US market, everyone's eagerly awaiting the opportunity to meet the main plastic processing protagonists face to face. Following the postponement of key events in 2021, the industry is now gearing up for Plastic Technology Expo (PTXPO), the international fair to be held from 29 to 31 March 2022 in Rosemont, Illinois.

For SACMI this is a strategic opportunity to catch up with customers on the increasingly dynamic stars-and-stripes market, which prioritizes the ability to supply comprehensive solutions that offer outstanding efficiency, sustainability, performance and user-friendliness.

## Why SACMI?

Through SACMI USA, the company has played a pivotal role on the American market for over thirty years. Coordinated by RP area manager Stefano Chiozzini with the support of Allan Andersen (caps, containers) and Nadeem Amin (preforms), the SACMI Rigid Packaging team provides constant technical and sales assistance, plus a US-wide spare parts service.

The hallmarks of the SACMI range are the ability to provide complete, integrated solutions, from design-development of caps, preforms and containers to their final manufacture. Needless to say, the focus is on the Beverage world, where SACMI strives to respond effectively to new trends and needs, especially on the dynamic American market where sustainability (lighter cap-bottle systems, tethered caps) and ease of use are crucial.

## Trends & Technologies

SACMI is a worldwide player with thousands of installed machines; in recent years it has invested heavily to boost its recognizability and reputation on the US market. This has proved to be a winning strategy, as the recent acquisition of major clients in cap manufacturing (where hundreds of CCMs are installed) and container/preform production clearly demonstrate.

At PTXPO, SACMI will be showcasing the advantages of compression technology for the manufacture of both caps and containers (CBF range); this last sector, in fact, is enjoying renewed vitality, particularly on the pharma front. Moreover, the IPS range has been expanded further with the launch of the new IPS 300, which incorporates the innovative COOL+ post-cooling system, the FLOW+ hot runner injection system and cutting-edge machine controls. The latter are designed to ensure constant quality control and, consequently, provide valuable process control feedback.

## Beyond the beverage sector

In addition to the already-cited pharma sector, SACMI solutions target the single-serve capsule packaging sector by focusing on the use of sustainable materials and excellent oxygen barrier properties (quality and seal). Here, manufacturers can benefit from CCMM (continuous compression

molding multilayer), an innovative SACMI solution that takes compression to the next level.

With CCMM, versatility is again paramount, as it enables manufacturers to manage layers (resins, barrier materials) dynamically according to the specific product being packaged (generally coffee but also tea and other single-serve products).

### Computer vision software

SACMI develops and produces dedicated vision systems for all its machines /technologies. These feature next-gen hardware/software and make full use of A.I. And they go beyond mere 'vision': they revolutionize production line management by using machine data to optimize the process, opening the way towards zero defects manufacturing.

The advantages of this approach - and SACMI's policy in general - ensure that even technicians and operators without specific training can still get the most out of SACMI machines. For example, the integration of smart packages allows constant monitoring and optimization of KPIs on both individual machines and complete lines.

### Global technology leader in caps production

In the industrial caps production sector, SACMI has a global monopoly in the supply of presses for the production of crown caps (with the development of the first complete proposals since the 1950s), and is the technological leader in the production of plastic caps with CCM (continuous compression moulding), the solution that makes it possible to obtain higher quality caps with a more performing and less energy-intensive process. This technology is particularly suitable for processing highly loaded materials (including cellulose and wood derivatives), opening up extraordinary frontiers in the creation of a new generation of sustainable packaging. *smi*

**SACMI**
*www.sacmi.it*


# An IML decorated packaging worth its salt

*JOZO's salt range is an indispensable companion in many kitchens and at many dinner tables. For its 300 gram salt shakers, the brand recently switched from a multiple component to a mono-material PP packaging. Recyclability: check! Attractive design: check! High quality, sustainable packaging: double check!*

### A new, sustainable shaker for JOZO

JOZO turned to SFA packaging to future-proof its salt shaker range. Alexander Heinsdijk, Business Development Manager at SFA Packaging: "The challenge was two-fold: we were aiming for a packaging that was both sustainable and highly attractive. Switching to a mono-material packaging was the obvious way to go."

The original packaging, a combination of cardboard and aluminum (tube), polyethylene (bottom) and polystyrene (PE/PS cap), was completely redeveloped. With recyclability in mind, both shaker tube and cap became polypropylene packaging. The 'old' paper label was replaced by a PP in mold label that completely fuses with the PP shaker during the injection molding process.

The mono-material PP packaging allows for easy sorting at home. During the recycling stage, the entire packaging can be processed into granulates, which can be reused to make new plastic packaging.

### A refined look

Thanks to the excellent printing quality, IML also effortlessly ticks the appearance requirements box.

"The offset printing technology at MCC Verstraete allowed for a combination of several appealing vibrant artworks with a limited number of used colors. The result is a stunning salt shaker that deserves to be on the kitchen counter rather than in the pantry!" says Stijn Quintyn, Regional Sales Manager at MCC Verstraete.

"The new shaker not only looks and feels better, but we have also managed to significantly improve its impact on the environment by using materials that are 100% recyclable" Nico Basson, Retail Segment Manager at Nouryon adds.

### A well-seasoned partnership

"The key to our successful partnership with MCC Verstraete is that we both carry innovation and collaboration as our main priorities. Proof is in the packaging: this new JOZO shaker is a reference when it comes to recyclability and catches the eye from afar in the condiment shelf!" concludes Alexander Heinsdijk, Business Development Manager at SFA Packaging. ***smi***

**MCC Verstraete**
*www.verstraete.mcclabel.com*


***Pictures source: MCC Verstraete***


# StackTeck first time showcasing IML automation system at a tradeshow

Picture: StackTeck

*StackTeck Systems Ltd., a global manufacturer of multi-cavity, high-volume production molds and complete automation systems, is pleased to share that an IML system designed and manufactured by StackTeck Automation was presented for the first time at an exhibition at the Plastimagen 2022 show in Mexico City this March.*

Christopher Day, StackTeck's General Manger – Mexico and Latin America stated: "We have received very positive customer feedback about StackTeck's IML Automation installations, including some remarkable testimonials about the robustness of the equipment and strong technical support which is now highlighted on the StackTeck website. We look forward to the opportunity to show all our customers how smooth and precise the StackTeck robot is while running at a very fast cycle time."

This "must see" IML Automation system designed and built by the StackTeck Automation team in Canada was running at the Avance Industrial booth in a 420-ton Sumitomo Demag El-Exis SP machine which is part of an ultra-high speed hybrid series of injection molding machines. The system was running a 1×4 cup mold that features the TRIM (Thin Recess Injection Molding) light weighting technology, and In-Mold Labeling (IML). The labels that were used for this cup were provided by MCC Verstraete and featured metallic finishes as well as a digital watermark technology making the entire label fully scannable.

Plastimagen show attendees also were able to see a 1×4 Servo In-Mold Closing (IMC) Flip-Top closure mold at Avance Industrial's booth running in a 130-Ton fully electric Sumitomo Demag IntElect machine. This flip-top servo IMC mold features two interesting closure technologies that StackTeck offers in its repertoire. Firstly, In Mold Closing (IMC) to fold the part over a living hinge and close the flip-top part before releasing it from the mold; enhanced with the addition of a servo actuated IMC mechanism that actuates in 0.75 seconds representing a 50% reduction in closing time compared to conventional IMC molds. The second technology is the use of advanced KoolTrack™ technology to minimize cycle time.

Static displays in StackTeck's booth featured the latest technologies with plastic parts and steel components. Some of these included PET Preform mold parts highlighting cooling and post mold cooling technologies, multi-material, specialty coatings, KoolTrack™, TRIM™ (Thin Recess Injection Molding), IML and closure technologies. A core of a TRIM 19L industrial pail mold also was on display together with TRIM™ pail plastic samples for attendees to see. **smi**

**StackTeck**
*www.stackteck.com*

StackTeck is a Global provider of sophisticated integrated plastic tooling solutions for the injection molding industry. From product and mold design to complete automation systems, StackTeck develops injection molds and systems, which provides the most effective and efficient production solutions in the industry.
Through technical innovation in mold bases, quick product change and multi-level stack molds, StackTeck differentiates itself by delivering higher productivity to the Caps, Closures, PET Preforms, Thin Wall Packaging, Technical and Medical markets.


*Photos source:*
*RAPP ADVERTISING, INC.*

# Five minute blending of compounds going on four decades

*Continuous rotation of mixer drum during discharge prevents stratification of ingredients having disparate sizes, shapes and bulk densities, and empties the batch rapidly in a steady stream.*

Plastics Engineering Company manufactures a wide range of custom-formulated moulding compounds and industrial resins. A big share of its production is dedicated to novolac and resol thermoset moulding compounds — also known as phenolic resins — which it sells under the PLENCO trademark. These resins are highly adaptable and used across many applications. As a result, the company tailors its products to each customer's requirements. That could entail adjusting the molecular weight, moisture content, viscosity, pH, particle size, reactivity and other properties.

Immediately prior to packaging, the resins are blended with reinforcements, minerals, fillers and/or liquid additives, a task performed by two model 700-TSC-180-MS Rotary Batch Mixers which have been in service since 1983.

## Five-minute tumbling prevents degradation

The mixers have no agitators, internal shafts or related bearings or seals. Instead, a horizontally oriented vessel rotates on external trunnion rings located at each end. Ingredients flow into the vessel through a stationary inlet at one end and discharge through a stationary outlet at the other. Within the vessel are mixing flights, also called baffles or lifters, which create a gentle four-way tumble-turn-cut-fold mixing action that produces on-spec blends in 3 to 5 minutes. Randy Block, a mechanical engineer at Plastics Engineering, says, "We get a good, thorough blend without degrading the product."

To fill the vessels, a pneumatic conveyor transports resins from compounding units to a holding hopper, which also separates out dust. When enough material accumulates in the hopper, it is discharged to one of the mixers as it slowly rotates.

After the mixer receives a dose of powdered additives from a loss-of-weight hopper above, a valve stops the flow and the mixer makes a pre-set number of revolutions. When called for, liquid additions are pumped through spray nozzles onto a wide bed of moving material within the mixing vessel. At the end of the batch cycle, the mixer's discharge gate opens while the vessel is still rotating. This allows the mixing baffles to guide the batch toward and through the discharge gate with little or no residual. "They do a good job of moving the material quickly and efficiently," Block says. "If we've got a straight dry material, there isn't much to clean out."

The gentle mixing action is critical, Block says, because it preserves product quality. "We get a good thorough blend but we don't degrade the product. If we used a typical paddle mixer, we would grind the granules against each other and create dust. That doesn't happen here." Continuous rotation of the drum during discharge prevents stratification of ingredients having disparate sizes, shapes and bulk densities, and empties the batch rapidly in a steady stream. "That's important because it minimises wait times at the packing stations," Block says. "Because of that quick discharge, we are more efficient when packing bulk containers."

*Continuous rotation of the drum during discharge prevents stratification of ingredients having disparate sizes, shapes and bulk densities, and empties the batch in a steady stream*

"We've made the same product as a 2,268 kg order and as a113,398 kg order," Block says. "And blending is just as uniform on short runs as it is across larger ones," Block says.


*The hinged access doors at either side of the vessel provide access to all material contact surfaces for cleaning and visual inspection*

The mixing flights also create a dynamic bed of material, ideal for incorporating liquid additions. "We get a good consistent dispersion. The product doesn't get too wet in some parts and less wet in other parts," Block says. "A typical paddle mixer would give us a less even coating."

Since their installation in 1983, the mixers have rarely been idle. Over the last 12 years, one mixer has had 34 hours of downtime and the other just 4.5 hours.

"The longevity of the machines is a testament to my predecessors, who selected them," says Block. "We've been pleased with the lack of downtime and maintenance costs. They're quality pieces of equipment and just plain reliable." **smi**

**Munson Machinery**
*www.munsonmachinery.com*


*All pictures: Campetella*

# Campetella Cartesian robots

*Choosing the right robot for specific production needs: each production process is different; the greater its complexity, the higher the resulting costs. That is why it is so important to find the right automation solution.*

When you have to deal with long production lines featured by vertical excursions, made of different workstations, in turn crossed by semi-finished products, or a challenging space-constraining layout, the Cartesian system is undoubtedly your best option, as it guarantees maximum results and performance where the application requires a linear movement over an extended working area. Such a condition is typical of many application fields, such as food & beverage packaging, automotive and painting.

Cartesian robot also allows to unload the product longitudinally and to install the IMMs in a parallel position in order to drastically reduce the footprint on the ground. Their linear movements are much easier to manage and their features are more suitable for many technologies. For example, when dealing with Pick and Place applications, the linear axes of a Cartesian robot allow faster and more precise movements that significantly reduce the IMM interlock time while maximizing the production efficiency.

Campetella offers a wide range of high-speed Cartesian robots, which combine the benefits typical of a top-entry with the performance of a side-entry.

In this regard, the best-seller GS2 X-Series top-entry robot is definitely worth mentioning. An uncompromising model for ultra-fast take-out applications, designed for the food-packaging world with solutions and materials that are more typical of the motorsport industry rather than classic automation. Thanks to its innovative materials such as carbon fiber and to the most advanced Finite Element Method (FEM) techniques, Campetella specialists has succeeded in obtaining highly optimized structures. Guess what! They have achieved class-leading accelerations for extremely low cycle times, low vibrations and the highest reliability.

Solid ground stands, ultra-light moving parts and powerful servomotors outline the construction philosophy of

mechanics designed for maximum productivity, which are enhanced by the latest generation electronics and internally developed proprietary software aiming at optimizing the cycle while reducing any latency in the interaction between the robot and the IMM.

Campetella's new GS2W and GS3W X-Series models arise precisely from such solid foundations. They belong to the new stack mold robots selection that Campetella is ready to launch on the market, which is specifically designed for stack molding applications in order to satisfy its customers' needs in the most varied application fields, from the medical to the food packaging and disposable cutlery industry. A perfect mix of performance and elegance, unrivaled on the market and all set to compete with much more bulky side entry robots.

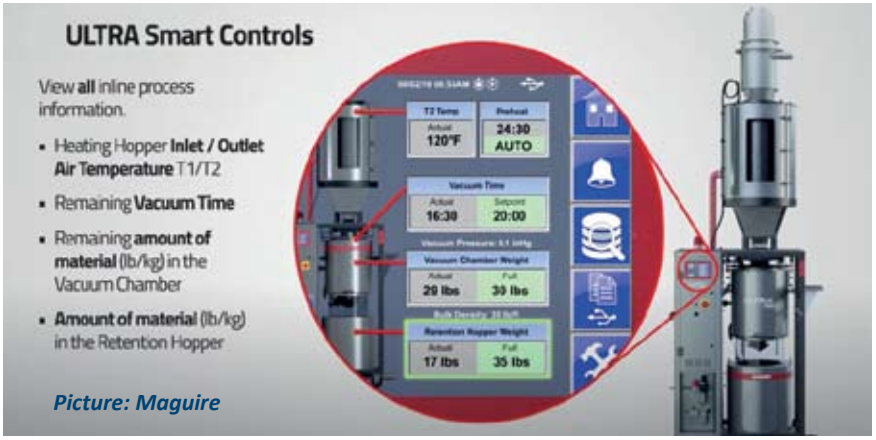
With its servo-driven wrist and seven servo-driven axes total, the GS3W robot is a top-entry premium class robot with a double vertical axis, designed for an extreme performance. The cantilever extraction axis fixed on the opposite side of the hopper prevent any collision problem and allows minimizing the shifting masses while obtaining maximum acceleration. The self-lubricating sliding blocks and roll-by-balls on hardened steel prismatic guides ensure cleanliness and durability over the years without requiring any greasing, while the innovative software prevents, in any condition, the two vertical axes from colliding, thus guaranteeing the utmost safety and reliability.

Less maintenance inevitably translates into reduced downtime and relating productivity losses, which result in significant cost savings. The economic advantage gained by choosing a Cartesian robot is evident also in terms of after-sales assistance, since Campetella technicians need less training, installation and intervention time. *smi*

***GS2 X-Series is the Cartesian vertical entry robot designed for the most extreme performance: ultra-performing engines combined with aerospace materials assure record-breaking acceleration and speed, for operating cycle times up to 2.5 seconds***


**Campetella**
*www.campetella.com*

# Maguire ULTRA Dryer – advancing the drying process in the era of digitalization




*Picture: Maguire*

*Since Maguire first launched the Vacuum Dryer in 2000, several generations have been produced bringing unique benefits to plastics processors. Processers now benefit from faster drying times and the highest level of drying management and control of the entire drying process.*

### CThe Benefits of Vacuum Drying vs Desiccant Dryers

The unique patented vacuum design, (most recent patent #10751918 granted in 2020), allows users to dry materials by use of vacuum and not by dry airas done with desiccant designs. Although both desiccant and vacuum systems use heat to bring the resin up the temperature, the Maguire ULTRA dryer uses a low energy venturi to pull a high vacuum on the heated resin creating a pressure and temperature differential that releases the moisture from the material. This fast, modern and efficient process takes a fraction of the time compared to desiccant dryer designs. A desiccant dryer process, which relies on dry air monitored by dew point, requires constant circulating airflow through a large drying hopper. This process can take 4-6 hours to achieve the same drying results that the ULTRA can do in less than 60 minutes. With this vacuum design, there is also no need to replace desiccant every 12-18 months.

### Making the Drying Process Smarter

Maguire ULTRA dryers provide the operator the ability to monitor and control each step of the drying process allowing for process optimization throughout the entire drying cycle. With the use of load cells and the advanced control, the operator can:

- monitorand reduce heat with ESL Energy Saving Control (within Heating Hopper),
- create high vacuums in minutes with the ability to shutoff and hold-vacuum (within Vacuum Chamber),
- monitor and adjust material usage live and on demand (within Retention Hopper).

By actively monitoring the vacuum process and thematerial weight within the vacuum chamber,the systemwill only dry what's required. The weight of material in retention hopperis also monitored to only release fresh material when it's required by the process.

### How the ULTRA Digitizes the Drying Process

All this process data allows the system to make adjustments that impact the process automatically. With the-start-up safety features the ULTRA software continuously monitors key drying parameters like heating and vacuum, and actively alarms if those are not being adequately met,providing valuable information to the operator.

These smart controls also allow for on-demand drying. The system automatically adapts to dryer demand with features like energy saver mode for heating, not releasing fresh material to the process until it's required, plus smart features to allow for auto stop of the process to end the dryer on empty. All of this saves energy (up to 90% over competitive drying methods), saves time and can be monitored continuously.

By digitalizing the process, every granule within the drying system is actively monitored and controlled. The data can easily be viewed on the touchscreen and details of the exact operating process as it happens are logged, giving the user a clear understanding of how the material has been dried. In addition, all of this data is available for export for integration withany ERP or other process control systems.

### Benefits of Digitalization

By actively controlling the ULTRA drying process the operator is no longer reliant on interacting with the dryer for many drying procedures that would have to be manually checked, monitored or scheduled in the past, freeing up production time and making for a more responsive process. ***smi***

**Maguire**
*www.maguire.com*

# Bulk bag discharger with integral conditioner and bag dump station


*Flexicon BULK-OUT® BFC Bulk Bag Discharger with integral Bulk Bag Conditioner and Bag Dump Station conditions materials prone to solidifying during shipment or storage (picture: Flexicon)*

*BULK-OUT® Bulk Bag Dischargers provide dust-free loading, untying, retying and removal of bulk bags.*

Flexicon's new BULK-OUT® BFCBulk Bag Discharging System promotes the flow of bulk solid materials that have solidified during storage and shipment, automatically dischargesthe material, and allows manual additionsof ingredients from sacks, drums and other containers.

A cantilevered I-beam with electric hoist and trolley lowers a bag lifting frame to floor level for rapid attachment of the bag to patented Z-CLIP™ bag strap holders, and then hoists and rolls the bag into the safety frame, eliminating the need for a forklift.

The integral conditioner consists of two hydraulically-actuated rams with specially contoured conditioning plates that press opposing sides of the bulk bag. A Human-Machine-Interface (HMI) housed in a NEMA 4 (IP 56) enclosure controls the stroke and number of ram actuations. The electric hoist can be used to raise and lower the bag for conditioning at varying heights.

For bulk bag discharging, the bag outlet spout is pulled through an iris valve mounted atopa dust hoodover the hopper. Once the bag outlet is secured and the iris valve is closed, the bag spout drawstrings can be untied, the dust-tight, snap-action access door closed, and the valve released slowly, reducing uncontrolled bursts of material into the hopper and dust into the plant environment.

For manual dumping in conjunction with or independent of bulk bag discharging, the operator raises the hinged door and adds the material from smaller capacity containers through a coarse screen into the hopper. A fold-down support tray serves as a bag rest.

The hopper can be configured to connect to pneumatic or mechanical conveyors, or directly to downstream process equipment.

The discharger can also be configured for weigh batch discharging with the addition of load cells and a programmable controller.

Models are available in carbon steel with durable industrial coating and stainless steel material contact points, or in all stainless steel finished to industrial, food, dairy or pharmaceutical standards.

Flexicon also manufacture other configurations ofbulkbag dischargers,bulk bag conditioners, and bag dump stationsas well as flexible screw conveyors, tubular cable conveyors, pneumatic conveying systems, bulk bag fillers, drum/box/container tippers, drum fillers, weigh batching and blending systems, and engineered plant-wide bulk handling systems with automated controls. **smi**

**Flexicon**
*www.flexicon.co.uk*

# Additive manufacturing makes a mark on medical device production

*WeMed from France partnered with Nexa3D to help produce SKOP™ — the world's first 3D printed stethoscope which was adapted for remote medical diagnosis. The device offers the competitive advantages of high-quality 3D printed parts, high-volume production capacities on very short time scales, and an accessible per part cost for industrial production.*

WeMed, a French startup founded during the Covid-19 pandemic, specializes in designing devices for telemedicine. After discovering the need for remote diagnostic medical devices to relieve pressure in hospitals, WeMed partnered with Nexa3D to help produce the SKOP™ 3D printed stethoscope.

SKOP was conceptualized during the first lockdown in France, in April 2020. During this period, healthcare workers were living the reality of what we saw on television: people with Covid-19 were in intensive care or sent home without any possibility of medical follow-up, due to the risk of infection. To help mitigate this, WeMed wanted to create a stethoscope that allows access to a truly remote medical diagnosis, to help substitute the visit to the doctor's office.

The SKOP is the first cardiopulmonary auscultation medical device intended for both healthcare professionals and the general public. The device's acoustic qualities are made possible by cochlear technology that WeMed has developed, inspired by the human ear using biomimicry design concepts. The goal was to make SKOP universal, in its ease of use, connecting to all tablets or phones, as well as telemedicine and communication platforms such as FaceTime, WhatsApp, and Zoom.

## The challenge

WeMed wanted to create a device that is easy to use, universal, and above all financially accessible. Selling a remote stethoscope between 500 and 1500 euros means that the general public would have minimal access to this technology. To suggest that every family will have a stethoscope in their medical cabinet was, although useful in these troubled times, economically unattractive. This meant that SKOP needed to be produced at a low cost to ensure its universality.

To increase speed of production and relieve pressure on healthcare, WeMed wanted to make the SKOP as quickly as possible, producing at high volumes and speeds, while maintaining quality.

WeMed's partner Third, a contract manufacturer brought on to leverage its expertise in additive manufacturing to the project, faced a dilemma between production volume and maintaining part quality. While medical devices require irreproachable quality and reproducibility, acoustics is a science that relies on precision and a large production volume was key for this project. To help meet these challenges, reseller Hava3D introduced Third to Nexa3D as the solution.

Nexa3D suggested a technology that offered precision, speed, and reproducibility in one — the NXE 400. After realizing these combined advantages, Third brought Nexa3D into the project.

"Nexa3D seemed seduced by the SKOP project and knew how to respond to our expectations, asking its partners to manufacture resins specific to our needs," explained Cyrille Lecroq, CEO of WeMed. "The company's investment

**About Nexa3D**
Nexa3D is passionate about digitizing supply chain sustainably. The company makes ultrafast polymer 3D printers, that deliver 20X productivity advantage, affordable for professionals and businesses of all sizes. The company partners with world-class material suppliers to unlock the full potential of additively manufactured polymers for volume production. The company makes automated software tools that optimize the entire production cycle using process interplay algorithms that ensure part performance and production consistency, while reducing waste, energy and carbon footprints.

of time and energy into the project so that the industrialization of SKOP could be realized made a real difference — collaborating with very young start-ups such as WeMed can be a risk. When we see the quality of our products today, we are very happy that Nexa3D dared to take this risk and that Third made this choice."

## Solution

Other technologies offering the possibility of high-volume 3D printing have a very high cost associated. Nexa3D's technology allowed production on an industrial scale while offering a sufficiently low production cost. The scale-up costs and complexities that could arise with purchasing a large number of printers has been eliminated by WeMed procuring 20 NXE 400 printers for its partner Third to manufacture the SKOP, bringing a greater return on investment.

Nexa3D printers provide a very high print fineness, which is essential for guaranteeing the acoustic quality of the SKOP. The NXE 400 provides high-volume precision and has a 20x productivity advantage that helped WeMed meet its supply demands and maintain its high quality.

"When it comes to high-demand products like medical devices, speed is essential, and our groundbreaking technology is helping to bridge the gap by providing these ultrafast capabilities," explained Avi Reichental, CEO of Nexa3D. "Our access to global suppliers enabled us to customize and tailor materials for SKOP and it was extremely rewarding to see WeMed's revolutionary designs and our technical advantages come together."

*All pictures: Nexa3D*

"Nexa3D's technology is unmatched; it was an obvious choice to bring them onto the project to help meet the high production rates WeMed needed," said Sonia Tadjdet, Communications Director at Hava3D. "Thanks to the success of Nexa3D's technology, Third could work with WeMed on smaller adjustments and set up the scaleup production phase."

## Results

SKOP is now CE certified, has obtained marketing authorization in Canada and is in the process of obtaining authorization from the USA. The SKOP responds to a global medical issue — its reach is international and the production volumes Third provides using the NXE 400 must be able to keep up.

SKOP offers the competitive advantages of high-quality 3D printed parts, high-volume production capacities on very short time scales, and an accessible per part cost for industrial production. Its availability helps people access remote healthcare, ensuring everyone receives the level of care they deserve and increasing patient satisfaction. WeMed is now working on several medical devices with a philosophy similar to SKOP, and plans to continue using Nexa3D's ultrafast technology in the future. *smi*

**Nexa3D**
*www.nexa3d.com*

# Rosti: From concept to reality with Ultimaker


All pictures: Rosti

*For over 75 years, Rosti has been delivering innovative solutions to customers. Rosti provide injection molding and contract manufacturing services to industries as diverse as packaging, consumer and business appliances, automotive, and healthcare and medical. Their long-lasting success is based on forming partnerships with their customers, and helping them reach their goals through leading-edge technology, flexibility, and integrity with a conscious focus on sustainability from concept to reality.*

## Bringing Product Designs to Reality

Smart hands-free hygiene devices, an IoT consumer face care product with APP connectivity, a Covid testing medical diagnostic device and an award-winning UV water purification product.

These are just some of the innovations that Rosti has managed to design, develop, and deliver in recent years for their valued customers. With an extensive portfolio of technologies such as mold decoration, heating and cooling, multi-shot molding, liquid silicone rubber injection molding (LSR LIM) and injection blow molding to boost their global impact to customers through innovation.

With a streamlined 3D printing process and 3D printing equipment that can keep up with their pace of operations and expansion, Rosti has managed to further reduce time to market for their customers.

While these product development successes are commonplace for Rosti today, the company has had to find ways to further accelerate the product development cycle.

## Time, Trials and Tribulations

Three years ago, Rosti faced challenges in manufacturing assembly fixtures in a timely and cost-efficient manner. The prototyping methods it had used were no longer meeting customer time requirements. A potential solution involved outsourcing additive manufacturing to reduce lead time, but this quickly led to bottlenecks with customers, who wanted to get their products to market as soon as possible.

After researching various models of fused filament fabrication (FFF) 3D printers, Rosti began using an Ultimaker 3 Extended 3D printer. It was a hit, in terms of both value for money and cost efficiency – especially when considering the large volumes of prints that needed to be produced.

This volume began increasing, then increasing again. This meant Rosti needed to expand its 3D printing capabilities with the Ultimaker S5 Pro Bundle, which enabled the company to use fiber-reinforced 3D printing filament – a game-changer when it came to print results.

## A Streamlined Design Process Workflow

Since beginning to use the Ultimaker S5 Pro Bundle, Rosti has been able to

create fixtures and assembly parts that are as strong as those created from subtractive methods such as CNC machining. These parts were suitable for testing and could also be used in production environments without breaking or sustaining damage.

"With the Ultimaker S5 Pro Bundle, we are now able to print high-strength and high-temperature materials at a fraction of the cost of previous methods," Scott Dickson, NPD Manager of Rosti Suzhou, said.

The integration of the Ultimaker S5 Pro Bundle into its design process was seamless, as Rosti had been using Ultimaker 3D printers for several years. Rosti's design team was also familiar with the Ultimaker platform, on which it was able to capitalize with Ultimaker Cura – which the team uses to fine-tune project designs – and the new CC print core, which offers high precision and durability, even with fiber-reinforced filament.

All printing is done within Rosti's Innovation Lab, where the design team focuses on increasing the speed at which it can deliver new products to consumer markets – which successfully supplies product samples within 72 hours.

Rosti doesn't just use 3D printing for its customers, however. With an ever-increasing knowledge of FFF, Rosti's production staff are now able to propose new project and design ideas for the company itself, including those that enhance or improve productivity and health and safety.


*Ultimaker S5 Pro Bundle enabled the company to use fiber-reinforced 3D printing filament*

These ideas are proposed from the many different departments within their factory while their design and development teams are responsible for bringing those ideas to life with the Ultimaker S5 printer.

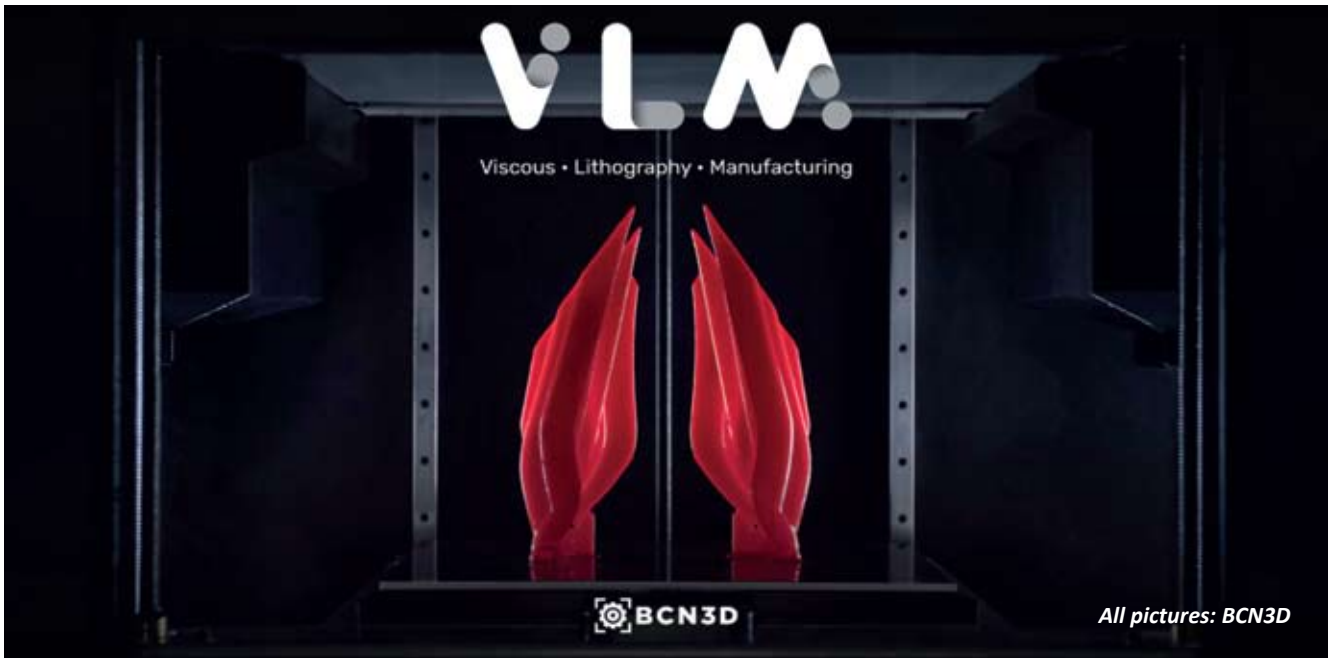
*A custom designed printed circuit board assembly (PCBA) soldering location fixture*

## Heightened State of Performance

Rosti's competitive edge focuses on new technology development to further reduce costs and time to market for its global customers. Here, Ultimaker plays an integral role, empowering Rosti to rapidly produce and iterate on parts and fixtures that are constantly being improved based on feedback and real-life use.

"With our Ultimaker S5 Pro Bundle, we can now remove traditional manufacturing methods from the development of assembly and production fixtures. We can now achieve this in days instead of weeks, with the confidence that the fixtures will hold up in a production environment," Scott Dickson said. ***smi***

**Rosti**
*www.rosti.com*




*All pictures: BCN3D*

# BCN3D unveils Viscous Lithography Manufacturing 3D printing technology

*Under its vision to unlock manufacturing autonomy, where companies should have the tools to design and manufacture their own products and full control over the Additive Manufacturing (AM) fabrication life-cycle, comes BCN3D's new VLM technology. It is the first 3D printing technology to simultaneously encompass superb part performance, high production capacity, and accessible and frictionless operation.*

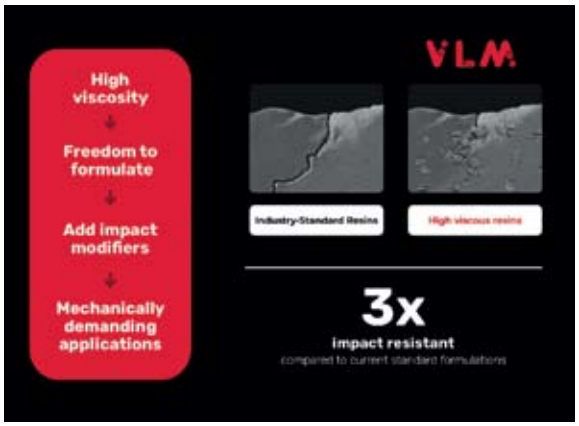
A leading 3D printing solutions manufacturer BCN3D has recently announced a new 3D printing technology to advance alongside its FFF solutions: Viscous Lithography Manufacturing (VLM)™. This never-seen-before technology has been derived to specifically address BCN3D's vision of unlocking manufacturing autonomy, where all manufacturers can experience full control over every stage in their production processes with AM solutions. VLM comes as a breakthrough from 3 years of dedication from BCN3D's R&D team as a game-changing way of surpassing stoppers such as initial investments in money or space, mechanical properties not up to standard, or incapability of large batch production. It is through the fresh perspective of using high viscosity resins for better mechanical properties, in combination with this huge leap forward in productivity and accessibility that ultimately satisfies all demands to unlock manufacturing autonomy.

"If 3D printing is to be the future of manufacturing, and what leads us towards local production, customization, control of supply chains and sustainability, all the players in the industry should be pushing in this direction. At BCN3D, we think that today is the first step in achieving this goal with the new Viscous Lithography Manufacturing (VLM) technology. We want to show 3D printing in a new light so that it becomes the pivotal point of manufacturing" – Xavier M. Faneca, CEO of BCN3D

## High viscosity resins for superb part performance

VLM is a patented lithography-based 3D printing process that laminates thin layers of high viscosity resins onto a transparent transfer film, producing high-performance parts rapidly and affordably. What distinguishes VLM from other resin technologies on the market is its ability to process resins 50x more viscous than the industry standard.

The mechanical system allows the resin to be laminated from both sides of the film, making it possible to implement strategies to speed up printing





times or even to combine different resins to get multi-material parts and easy-to-remove support structures.

Without a strict low viscosity constraint, chemical companies obtain the freedom to formulate, as a whole new set of ingredients and modifiers can be added in the resin to achieve the desired effect on thermal and mechanical properties. VLM processes resins that obtain 3x the amount of impact resistance for rigid materials and a 200% increment in tear strength compared to industry-standard formulations.

Specialty materials company Arkema has been part of the process, through a Joint Development Agreement (JDA) in which the two companies are co-developing new materials capitalizing the singularities of VLM to obtain properties that can't be reached with other resin-based 3D printing processes. As a global key player in the 3D printing industry and a pioneer in designing high-performance photocurable resins, Arkema utilized its experience spanning decades to ensure resins for VLM were of the highest quality.

BCN3D has also partnered with Prodrive, world-renowned motorsport and advanced technology company and one of the first in the world to put VLM technology to the test. They've been assembling end-use parts made with VLM mounted directly on cross-country cars.

## Top-tier productivity and affordability

By using a light source consisting of UV light and an LCD screen, VLM delivers a constant time per layer, regardless of whether we are printing one or 100 parts at once. Furthermore, since it is not limited by the vat dimension, a complex temperature, or tricky components, all that's needed to scale up is a bigger LCD screen. This combination of a quick layer time and a large surface area makes VLM the most productive additive manufacturing solution on the market.

BCN3D's partnership with automotive glass manufacturer Saint Gobain illustrates these benefits perfectly in a use case where 7000 positioning fixtures have been fabricated in 7 days with VLM, for 0.79€ per part and a subsequent annual saving of 70.000€.

## Frictionless operation accessible to all

There's no denying that 3D printing has evolved from a rapid prototyping tool into a clear trend in manufacturing – all that was missing was an affordable solution to reach all corners of manufacturing, from small to medium-sized businesses. Unlocking manufacturing autonomy using 3D printing shouldn't be just for Fortune 500 companies, but for every single business that develops and manufactures concepts or products, in any industry. VLM-based solutions will be under 50.000 euros, with a compact footprint, no dedicated space or critical infrastructure.

This low entry barrier, in combination with its big printing volume and high throughput, puts the fixed cost of the solution ahead of the rest. By implementing the use of VLM, the cost per part is significantly lower than those of powder-based and resin-based technologies.

VLM also uses monocomponent resins formulations at room temperature to avoid pot life limitations and speed up setup times. Thanks to its proprietary lamination system, the absence of a resin vat means that no initial investment of resin is required. What's more, with VLM, zero waste becomes a reality: designed to filter and recirculate resin, every drop of resin eventually becomes a printed part.

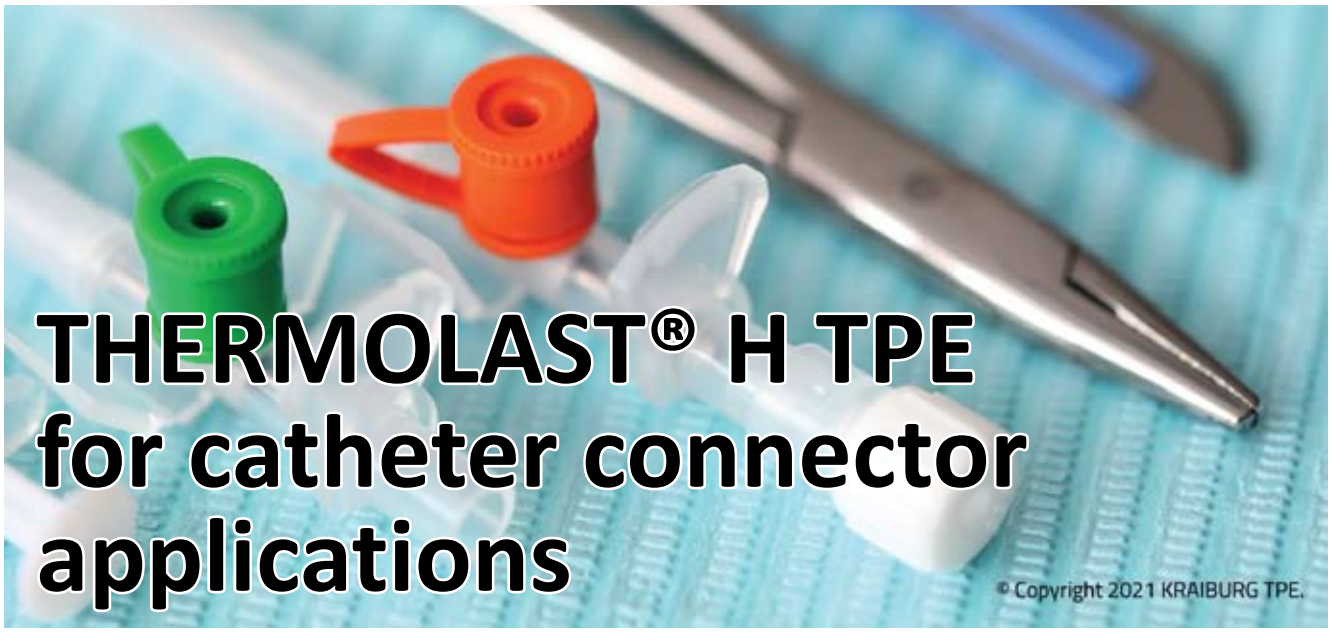
## The VLM Technology Adoption Program

To let the entire industry benefit from this breakthrough, BCN3D has devised the VLM Technology Adoption Program, aimed at businesses of all shapes and sizes. Its new Applications Center will be operated by dedicated AM specialists and host the upcoming VLM-based hardware solutions. Partakers will join Saint Gobain and Prodrive in being the first to discover the new VLM and experiencing its full potential for themselves with real 3D printed parts and individual attention on their exact printing needs.

## The coexistence of FFF and VLM

In 2021, the company passionately committed to investing in its new FFF hardware portfolio as well as its software solutions, which sparked the Astroprint acquisition that took place last July and a new logistic center in the USA. BCN3D plans to continue growing its FFF solutions this year and investing in new developments. Its new business unit for VLM will conduct dedicated resources independent of FFF that will instead coexist alongside. ***smi***

**BCN3D**
*www.bcn3d.com*




# THERMOLAST® H TPE for catheter connector applications

*The HC/AP series is a material solution designed exclusively for the healthcare and medical device market in Asia Pacific. The compounds comply with the ISO 10993-5, GB/T 16886.5 standards, as well as various global food contact and relevant medical standards.*

As the number of emergency hospital visits and surgical procedures has increased, so has the demand for catheter connectors. Furthermore, technological progress has resulted in these connectors being used for a number of applications. Catheter connectors are available in a variety of types, including needleless IV catheter connectors, suction catheter connectors, and more.

## Compounds for functional performance

Catheter connectors are used to provide access to infusion and aspiration. They are important device auxiliary components for intravenous access and drug administration in order to reduce the risk of most serious consequences and improve patient compliance.

Medical devices like catheter connectors benefit from high-performance materials such as thermoplastic elastomers (TPEs), which guarantee user safety and efficiency.

TPEs are ideal material solutions for the medical industry, mainly because TPEs are halogen and latex-free and are easier to process, in comparison to other materials.

KRAIBURG TPE, a global TPE manufacturer of a wide range of thermoplastic elastomer products and custom solutions for multiple industries, has developed a new line of THERMOLAST® H compounds to meet these requirements.

## Bespoke color options and material safety

KRAIBURG TPE's THERMOLAST® H HC/AP series offers a high degree of flexibility and a strong grip, making it ideal for catheter connector applications. Additionally, THERMOLAST® H features wide hardness ranges from 30-90 Shore A and optimizable processability. The TPE compounds are translucent and can be colored in a variety of hues to meet customers' specifications.

The TPE compounds are also biocompatible and free of animal components and other potentially dangerous substances. The materials have also been tested for cytotoxicity in compliance with ISO 10993-5 and GB/T 16886.5, as well as other approvals and standards such as China GB 4806 – 2016, US FDA CFR 21, Regulation (EU) No 10/2011, REACH, and RoHS.

## About KRAIBURG TPE

KRAIBURG TPE is a global manufacturer of thermoplastic elastomers. From its beginning in 2001 as a subsidiary of the historical KRAIBURG Group founded in 1947, KRAIBURG TPE has pioneered in TPE compounds, today being the competence leader in this industry. With production sites in Germany, the U.S., and Malaysia, the company offers a broad range of compounds for applications in the automotive, industrial, consumer, and strictly regulated medical sectors.

The established THERMOLAST®, COPEC®, HIPEX®, and For Tec E® product lines are processed by injection molding or extrusion and provide numerous processing and product design advantages to manufacturers. KRAIBURG TPE features innovative capabilities as well as true global customer orientation, customized product solutions and reliable service. The company is certified to ISO 50001 at its headquarters in Germany and holds ISO 9001 and ISO 14001 certifications at all global sites. In 2019, KRAIBURG TPE, with 645 employees worldwide, generated sales of 190 million euro. *smi*

**KRAIBURG TPE**
*www.kraiburg-tpe.com*

# Henkel low pressure molding materials protect and seal medical electronics

*Low pressure molding materials provide environmental and electrical protection for wearable pulse oximeters. They form an adhesive bond with the entire component being encapsulated, becoming part of the component's three-dimensional form and creating a water-tight, chemically-resistant seal.*

Henkel has introduced three new low pressure molding (LPM) materials designed to seal and protect medical devices from moisture, temperature extremes, chemicals, vibration, impact and other environmental concerns. Using a gentle, low pressure process, Loctite PA 6732, Loctite PA 6682 and Loctite PA 6951 completely encapsulate medical devices including catheters, tube sets, connectors, and surgical tools, as well as sensors and switches used in medical diagnostic and monitoring equipment. All three LPM products are tested to Henkel's protocols based upon ISO 10993 biocompatibility standards including skin sensitization, with certificates available on request.

LPM hot melts completely replace thermoplastic housings and allow manufacturers to produce complex and intricate assemblies by customizing part geometry, surface texture, color and opacity. These materials form an adhesive bond with the entire component being encapsulated, becoming part of the component's three-dimensional form and creating a water-tight, chemically-resistant seal. The cost-effective LPM process involves three steps: placing the bare component into a custom mold set, heating the polyamide material and injecting it at low pressure into the mold, and allowing the material to cool rapidly for 10 to 50 seconds before removing the newly encased and bonded component for immediate use.


***Loctite low pressure molding materials have been tested to Henkel's protocols based upon ISO-10993 biocompatibility standards, with certificates available on request (All pictures: Henkel)***

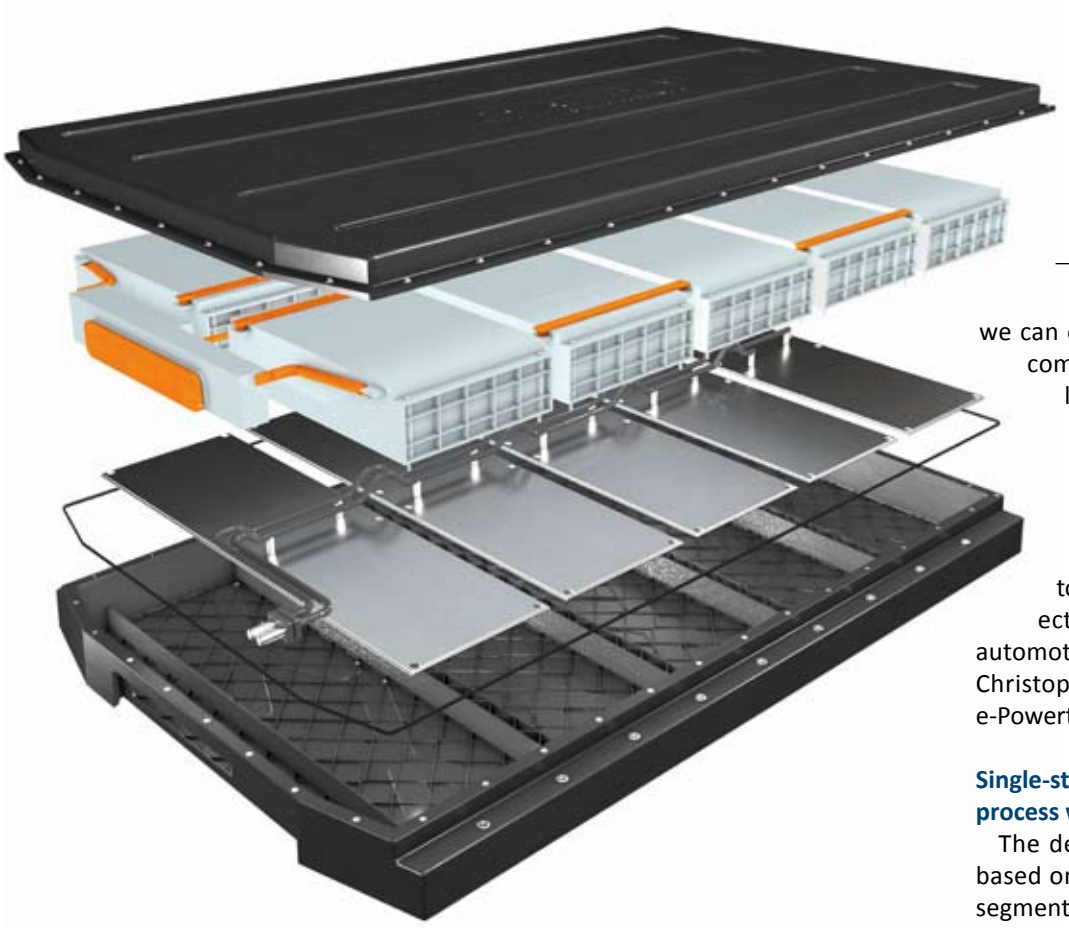
Formulated to allow greater design freedom than traditional medical encapsulants, Loctite PA 6732, Loctite PA 6682 and Loctite PA 6951 are single component, solvent-free polyamides that are solid at room temperature. Derived from natural fatty acid feed stocks obtained from renewable resources such as soy, rapeseed and sunflowers, they are green and sustainable. No harmful fumes are released during the molding process, and all products are RoHS and REACH compliant.

Loctite PA 6732 is an amber material that performs well in temperatures from -40 to 140°C. Clear Loctite PA 6682 is designed for use in temperatures between -25 and 105°C. Loctite PA 6951 is a colorless material that performs well in temperatures from -40 to 100°C.

These new products are part of Henkel's complete portfolio of LPM products used in electronic components, power and industrial automation, HVAC, and lighting applications. ***smi***

**Henkel**
*www.henkel.com*

# Think big – large-format plastic housings for high-voltage batteries of electric vehicles



*The demonstrator was developed based on the battery housing of a C-segment electric vehicle (All pictures: Kautex Textron GmbH & Co. KG)*

- *Research cooperation between Kautex Textron and LANXESS*
- *Substitution of steel and aluminium*
- *Advantages in weight, functional integration and mass production*
- *Technology demonstrator as the basis for series developments*

Speciality chemicals company LANXESS and Kautex Textron GmbH & Co. KG, a Textron Inc. company, have been collaborating for several years to research whether battery housings for electric vehicles can be designed and manufactured from technical thermoplastics. Together, they have developed a near-series technology demonstrator in a feasibility study. With a length and width of around 1,400 millimeters each, the system is a technically sophisticated, large-format all-plastic housing part with a weight in the mid-double-digit kilogram range.

The goal of the project was to demonstrate the advantages of thermoplastics over metals in terms of weight and cost reduction, functional integration and electrical insulation behavior.

"As a first step, we have completely dispensed with the use of metallic reinforcement structures while proving we can commercially produce these complex large components," Felix Haas, Director Product Development at Kautex Textron, explains.

"Going forward, Kautex and LANXESS want to use the results of the cooperation to enter into development projects for series production with automotive manufacturers," adds Dr. Christopher Hoefs, Project Manager e-Powertrain at LANXESS.

## Single-stage manufacturing process with short cycle times

The demonstrator was developed based on the battery housing of a C-segment electric vehicle. It consists of a housing tray with crash structure, a housing cover and an underrun (underbody) protection. The housing components can be produced in a single-stage Direct Long Fiber Thermoplastic (D-LFT) molding process. LANXESS has optimized Durethan B24CMH2.0 as the material for the D-LFT molding compound. Kautex Textron compounds the PA6 for the process with glass fiber rovings. The local reinforcement of the housing structure is carried out using continuous fiber-reinforced thermoplastic composites of the Tepex dynalite brand from LANXESS. "The process enables shorter and thus more economical cycle times than the processes in which steel or aluminium are processed," Haas explains.

### No complex metal forming, fewer production steps

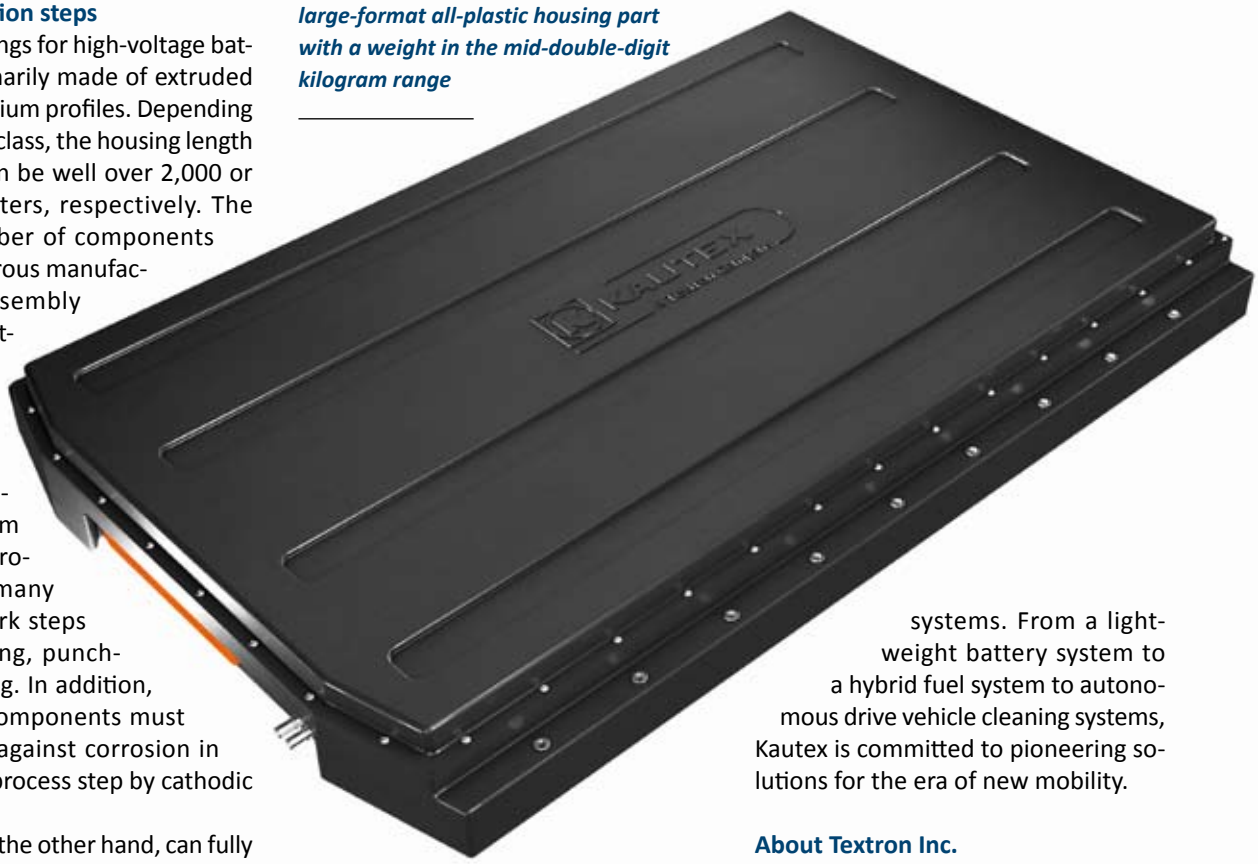
Today, housings for high-voltage batteries are primarily made of extruded steel or aluminium profiles. Depending on the vehicle class, the housing length and widths can be well over 2,000 or 1,500 millimeters, respectively. The size, the number of components and the numerous manufacturing and assembly steps make metal housings very cost-intensive. For example, complex structures made from strand press profiles require many secondary work steps such as welding, punching and riveting. In addition, the metallic components must be protected against corrosion in an additional process step by cathodic dip coating.

"Plastics, on the other hand, can fully exploit their design freedom. By integrating functions such as fasteners and thermal management components, the number of individual components of a battery housing can be greatly reduced. This simplifies assembly and logistical effort, which reduces production costs," says Hoefs. Plastics are also corrosion-resistant and electrically insulating. The latter ensures, for example, that there is a reduced risk of the system short-circuiting. The low density of plastics and their potential for lightweight construction lead to significantly lighter housings, which benefits, among other things, the range of electric vehicles.

### Complex mix of high requirements

High-voltage battery housings must meet a variety of highly demanding technical requirements. For example, they must be stiff and strong and yet be able to absorb a significant amount of energy in the event of a crash. This is tested via mechanical shock- and crush tests. The housings must also be flame-retardant in the event of a vehicle fire or thermal run-away of the electrical cells. Finally, the housings must be integrated into the vehicle structure.

*The system is a technically sophisticated, large-format all-plastic housing part with a weight in the mid-double-digit kilogram range*



"We continue to work together on optimizing the production and structural design of the components. The aim is to carry out the majority of the development work virtually, in order to save costs in prototype design and to shorten the time to market of future series components," Hoefs says.

### About Kautex Textron GmbH & Co. KG:

As a Tier One automotive supplier with more than 30 plants in 14 countries, Kautex designs, develops and manufactures traditional and hybrid fuel systems, advanced cleaning solutions for assisted and autonomous driving, engine camshafts and plastic industrial packaging solutions. A pioneer in the design and manufacture of automotive plastic fuel systems, Kautex is expanding its portfolio to offer smart products and data-driven services to our customers, including smart fuel systems, thermoplastic composite and composite-metal hybrid battery systems. From a lightweight battery system to a hybrid fuel system to autonomous drive vehicle cleaning systems, Kautex is committed to pioneering solutions for the era of new mobility.

### About Textron Inc.

Textron Inc. (NYSE: TXT) is a multi-industry company that leverages its global network of aircraft, defense, industrial and finance businesses to provide customers with innovative solutions and services. Textron is known around the world for its powerful brands such as Bell, Cessna, Beechcraft, Hawker, Jacobsen, Kautex, Lycoming, E-Z-GO, Arctic Cat, and Textron Systems. For more information, visit: www.textron.com.

### About LANXESS

LANXESS is a leading specialty chemicals company with sales of EUR 6.1 billion in 2020. The company currently has about 14,900 employees in 33 countries. The core business of LANXESS is the development, manufacturing and marketing of chemical intermediates, additives, specialty chemicals and plastics. LANXESS is listed in the leading sustainability indices Dow Jones Sustainability Index (DJSI World and Europe) and FTSE4Good. *smi*

**LANXESS**
*www.lanxess.com*

*SABIC Innovation Center in Riyadh, Saudi Arabia*

# Solution to improve both performance and processability

*SABIC collaborates with China's Dongfeng to produce lightweight truck-mounted toolbox with novel plastic composite hybrid solution combining two different materials. It enables manufacturers not only to reduce weight, but also to lower carbon emissions, control costs through production efficiencies, and achieve higher performance.*

SABIC, a global leader in the chemical industry, today shared that it has collaborated with Dongfeng Motors, one of the largest truck manufacturers in China, on the development of a novel plastic composite hybrid solution to produce a strong lightweight truck-mounted toolbox. The application is made with a combination of SABIC's STAMAX™ resin, a long glass fiber polypropylene (PP), and continuous glass fiber composite laminate inserts via a single overmolding process. The finished part is lighter by up to 30 percent compared to a similarly designed part in steel, and use of the solution allows Dongfeng to benefit from resulting production efficiencies.

"This plastic composite solution is a great example of how SABIC helps automotive customers expand design options and simplify production so they can achieve their goals," said Abdullah Al-Otaibi, general manager, ETP & Market Solutions, SABIC. "By combining two different materials, our solution improves both performance and processability. Now that this composite technology is validated and in mass production with Dongfeng, we see many other automotive applications that could benefit, and we are excited to help manufacturers seize those opportunities."

In addition to truck toolboxes, automotive applications for this hybrid solution with STAMAX resin can potentially include tailgates, seating, front-end modules and battery housings for electric vehicles.

Use of this plastic composite solution can enable manufacturers to not only reduce weight, but also lower carbon emissions, control costs through production efficiencies, and achieve higher performance.

## Design and Performance Optimization

SABIC's hybrid solution combines STAMAX resin with thermoformed composite inserts made of unidirectional (UD) glass fiber-reinforced PP tape from China-based Qiyi Tech, a company dedicated to the development and production of continuous fiber reinforced thermoplastic composite materials.

The laminate inserts are pre-heated before being placed in the tool and overmolded with STAMAX resin in a single operation. The inserts add stiffness and strength to critical areas of the part, enabling the use of thin-wall geometries that can reduce weight.

Compared to steel, the conventional material for truck toolbox applications, SABIC's plastic composite hybrid solution expands design options, enables the consolidation of parts, and avoids secondary operations that can add costs and prevent high-volume production.

The plastic composite solution reduces the weight of the toolbox by approximately 30 percent (6 to 4 kg) without sacrificing the stiffness, toughness, or strength required for this utility application.

STAMAX resins feature 10-25 percent lower density than some competitive materials for weight-out. Their properties include high stiffness and impact strength, excellent structural performance, and easy flow for thin walls. **smi**

**SABIC**
*www.sabic.com*

***The plastic composite solution reduces the weight of the toolbox by approximately 30 percent (Photos source: SABIC)***

# exhibitions calendar

### INTERPLAST 2022
05-08 April 2022
Joinville, SC, Brazil
*www.interplast.com.br*

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

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### PLASTEC WEST 2022
12-14 April 2022
Anaheim, CA, USA
*www.plastecwest.com*

PLASTEC West is the largest annual plastics event in North America. It goes above and beyond plastics and polymers. Discover the latest biocompatible polymers and cutting-edge large-scale injection molding solutions, while uncovering technology solutions in medical design & manufacturing, 3D printing, and robotics.

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### Chinaplas
25-28 April 2022
Shanghai, China
*www.chinaplasonline.com*

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

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### Green Plast
03-06 May 2022
Milan, Italy
*www.greenplast.org*

Green Plast is a plastics and rubber industry event dedicated to innovative solutions to boost environmental sustainability, energy efficiency, options for Reducing-Reusing-Recycling, and progress towards a circular economy.

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### PLAST ALGER 2022
16-18 May 2022
Algiers, Algeria
*www.plastalger.com*

PLAST ALGER — International Plastics and Rubber Industry Exhibition for Algeria and North Africa. Algeria is one of Africa's & the Middle East's largest importers of plastics in primary forms and of plastics technology

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### Taipei Plas
27 September - 01 October 2022
Taipei, Taiwan
*www.taipeiplas.com.tw*

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

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### K
19-26 October 2022
Düsseldorf, Germany
*www.k-online.de*

K is the world's largest trade fair for the plastics and rubber industry. It gathers the most important supplier of plastics and rubber machinery, raw and auxiliary materials and semi-finished products, technical parts and reinforced plastic products under one roof. It is an ideal platform to showcase products and innovations and to make business contacts.

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### Plastindia
01-05 February 2023
New Delhi, India
*www.plastindia.org*

Plastindia is an international plastics exhibition and conference where national and international exhibitors present their new products and technologies. It is an ideal meeting place for buyers and sellers, joint ventures etc. and also enhancement business prospects, strategic alliance and technology transfer.

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