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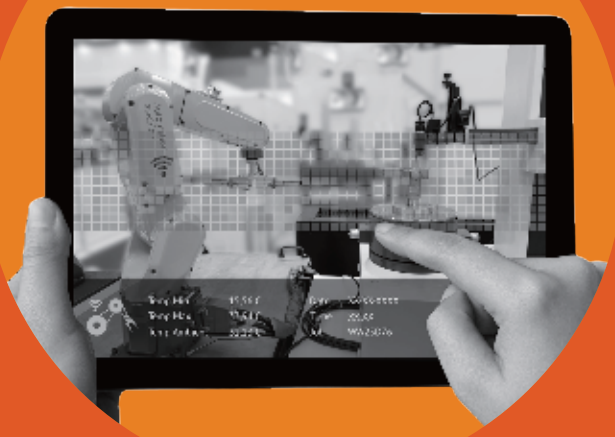

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Front page picture: Hexagon

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Automotive giant Nissan is relying on a small farm of BCN3D printers in its Barcelona factory to fabricate 700 tools, jigs, and fixtures in its car assembly lines so far. Trim & Chassis Manufacturing Kaizen Engineer Enric Ridao and Manager of Maintenance & Engineering Facilities Carlos Rellán gave an insight on their immense savings in time and costs: reducing one week to one day, and costs to 20 times less. The 3D printing design process proved to be easier, and the printers remained reliable over long print jobs.

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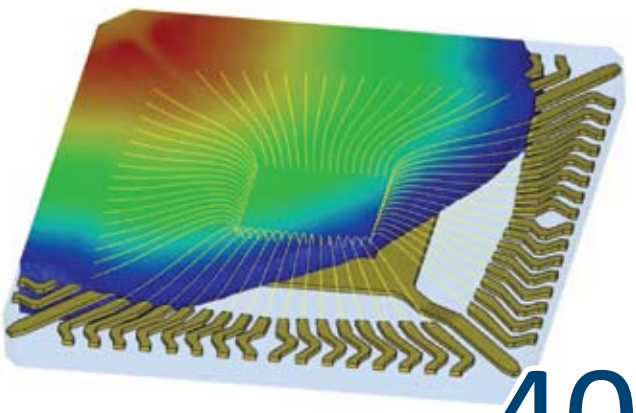
Arburg is launching a new series for production-efficient multicomponent injection moulding. The Allrounder More with its particularly flexible configuration can now be perfectly adapted to specific customer and market requirements. It offers more space due to larger mould dimensions and ejector strokes, and greater distances between tie-bars, more modularity with flexible injection positions for injection units, and more ease of use with plug-in media couplings and optimised material feed. The new series will be on show live for the first time at Fakuma this October.

At the world's leading trade fair for the dental industry, IDS in Cologne, Germany, high-tech company TRUMPF will soon be showcasing solutions for series production in 3D printing. With the improved "Multiplate" solution, manufacturers can produce up to 400 teeth in one piece. The 3D printer works automatically overnight without the need for employees to be present. The highly competitive solution helps dental labs avoid bottlenecks during peak orders and works approximately ten times faster than milling.

Following a year of “Fakuma break”, WITTMANN Group is going to present its product highlights again live on site in Friedrichshafen. This year’s presentation includes the new SmartPlus servo-hydraulic machine, an all-electric EcoPower 55/350, AIRMOULD® internal gas pressure technology and more. In addition to the exhibits on display at the booth, the company will offer its visitors the opportunity to receive information about further selected developments using its new media technology WITTMANN Interactive.



CoreTech System Co., Ltd. (Moldex3D) has released Moldex3D 2021 – the latest version of its molding analysis software series. In response to a faster changing market in the Industry 4.0 era, Moldex3D 2021 helps businesses realize seamless design and manufacturing integration, producing world-class products within stricter time limits. More powerful analysis modules were incorporated in the system to meet different customer needs across industries. Moldex3D 2021 has also optimized the efficiency of data processing on Linux HPC.

ENGEL is expanding its range of smart assistance systems for Fakuma 2021. The new iQ motion control enables ENGEL viper series linear robots to make a safe early start combined with fully automatically optimised track planning. The prerequisite for parallel motion is that the injection moulding machine and robot share a database. This means double benefits for users, through time savings in the teach-in and shorter production cycles. The efficiency gains are particularly clear in applicationswith large mould opening strokes.

Milestone in Marl: world's largest polyamide 12 complex

July 8 Evonik was celebrating a milestone in its history. Construction work on the new polyamide 12 complex at Marl Chemical Park was virtually complete and it will be taken into operation this year. Evonik has invested around half a billion euros in this future-oriented project. That is the largest investment in the company's history in Germany.

Armin Laschet, Minister President of the federal state of North Rhine-Westphalia, applauded the project: "This complex stands for the future viability of our state. Investing in this state-of-the-art complex creates new, highly skilled jobs. Policy-makers need to do everything they can in the future to ensure that such investments are made here in Germany and not in other countries."

The high-performance polymer polyamide 12 is used in attractive growth markets such as 3D printing, medical technology, automotive engineering, and as substitute for steel. Evonik's sites in Asia also offered attractive conditions for the construction of the world's most modern PA 12 complex.

Minister President Armin Laschet: "Evonik's decision to build its new polyamide 12 complex here is further strong evidence of the attractiveness of our federal state. Politicians have to make sure that economic policy provides the right conditions. If we, as the state government, had not started to dismantle unnecessary and restrictive regulations and free up the economy as soon as we took office, this facility might now be in Asia. To make Germany climate-neutral yet ensure it remains an industrial hub, we need a decade of modernization in which we reduce bureaucracy and speed up our planning and permitting processes."

Christian Kullmann, chairman of Evonik's executive board, praised the fact that the new complex can start operating this year despite the pandemic-related restrictions as a "masterstroke by our team." He added: "Three years ago, we decided to produce this leading high-tech German product for the world market here in the Ruhr region. We have kept our word and completion of the demanding construction phase is almost on schedule. That creates growth, value, and jobs."

Construction of the new complex has been virtually completed in just under two years. The individual process units will now be taken into regular operation step-by-step. Full start-up is scheduled for the fourth quarter. The complex creates 120 new highly skilled jobs. At the same time, it increases Evonik's production capacity for this high-performance polymer by more than 50 percent and gives it the world's largest PA 12 production complex in Marl (Germany).

Bernd Tönjes, chairman of Evonik's supervisory board, stressed the enormous importance of the interaction between the company, politicians, and representatives of the workforce. "If we want to continue the successful model that has made German industry strong and driven its global success, we need to do it together." The chemical industry needs to find answers to the pressing issues of the future such as climate change. "The chemical industry is not the problem; it is part of the solution," said Tönjes.

Evonik has been developing customized high-performance polymers for demanding applications for more than 50 years and is a global leader in the production of PA 12. VESTAMID® compounds benefit from high demand in attractive markets, while the PA 12 powder VESTOSINT® is used, for example, to coat metals for consumer goods, dishwasher baskets, and parts used in the automotive industry. For many years, Evonik has also developed special polymer powders that enable industrial production of high-tech components using 3D printing.

Evonik
www.evonik.com

Acquisition of INglass S.p.A. successfully closed

This summer Oerlikon successfully closed the acquisition of the Italian company INglass S.p.A. and its innovative hot runner systems technology operating under its market-leading HRSflow business.

The acquisition accelerates Oerlikon's strategy in diversifying its manmade fibers business to expand into the high-growth polymer processing solutions market. INglass S.p.A. is an internationally operating successful company established in 1987. Its product portfolio includes hot runners as well as engineering and consultancy services for the advanced development of polymer processing products. The hot runner systems are now being offered under the Oerlikon HRSflow brand. Those are applied in multiple industries from automotive, consumer goods and household appliances to packaging, waste management, construction and transportation.

Oerlikon HRSflow is currently integrated into the Oerlikon Flow Control Solutions Business Unit, which is part of the Oerlikon Polymer Processing Solutions Division.

After receiving all the required merger control approvals, Oerlikon and INglass S.p.A. successfully closed the acquisition on June 9, 2021.

About Oerlikon

Oerlikon is a global innovation powerhouse for surface engineering, polymer processing and additive manufacturing. Its solutions and comprehensive services, together with its advanced materials, improve and maximize performance, function, design and sustainability of its customers' products and manufacturing processes in key industries. Headquartered in Pfäffikon, Switzerland, the Group operates its business in two divisions – Surface Solutions and Polymer Processing Solutions. It has a global footprint of more than 10 600 employees at 179 locations in 37 countries and generated sales of CHF 2.3 billion in 2020.

Oerlikon HRSflow
www.hrsflow.com

"High performance automation united" – Hekuma joins the teamtechnik group

On 1 July, the Dürr Group, to which teamtechnik has belonged since February, acquired 100% of the German machine manufacturer Hekuma. The firm is one of the leading suppliers of automatic systems for the large-scale production of disposable plastic products.

Hekuma systems are used in injection moulding machine environments. They remove freshly moulded plastic parts, for example, trays, vials, housing parts and sleeves, and add further plastic parts in an automated assembly process to form products or preliminary products. This is often followed by subsequent assembly and testing steps, at which point Teamtechnik takes over with its systems. This means that Dürr can cover a large part of the automated value creation thanks to the combined expertise of Teamtechnik and Hekuma. The acquisition is also good news for the customer base, given the minimal overlap between the Hekuma and Teamtechnik customers.

In addition to the medical technology sector, which

accounts for a good 50 % of turnover, Hekuma also supplies the automotive industry (25 % share of turnover). For example, it produces ABS and sensor housings, connectors or parts for transmission electronics on Hekuma equipment. Plastic elements for personal care products are also produced with the help of Hekuma technology, such as parts for razors or electric toothbrushes.

Under the umbrella of the Dürr Group, Hekuma stands to benefit from synergies, namely in purchasing, sales and service, which promises to tangibly improve Hekuma's customer access on the large Chinese and North American markets. By joining forces, Hekuma and Teamtechnik can also offer a broader and more attractive product range.

teamtechnik
www.teamtechnik.com

KraussMaffei High Performance becomes NETSTAL again

The KraussMaffei Group will transfer all activities of the former KraussMaffei High Performance AG into an independent unit effective October 1, 2021. This will operate under the traditional name NETSTAL.

The new subgroup will manage the NETSTAL New Machines and Service business worldwide from its subsidiaries. KraussMaffei CEO Dr. Michael Ruf: "With this step, we are taking into account the wishes of our customers and reuniting the NETSTAL brand and the NETSTAL organization under a common name. We are convinced that in the future NETSTAL will be able to respond to customers and their applications with even greater focus than before and offer them the added value for which the NETSTAL brand has stood for many decades."

NETSTAL PET-line

The markets served by NETSTAL have proven to be crisis-proof even during the pandemic. KraussMaffei therefore anticipates strong growth in these areas - particularly in the medical as well as the PET segments. Here, NETSTAL offers a machine series with the new PET Line that provides unique added value.

The injection unit of the NETSTAL PET-LINE is a unique in-house-development. The extremely high throughputs of a preform system are only made possible in the first place thanks to the unique design.

Renzo Davatz will head NETSTAL as CEO and in this function will report directly to the KraussMaffei Group's CEO, Michael Ruf.

KraussMaffei
www.kraussmaffei.com

The WITTMANN Group opens a new sales and service center in Dongguan, China

The Chinese plastics industry has undergone substantial further development over the last few years. Today, China is by far the largest processing market worldwide for all kinds of plastic materials. Most recently, the dynamism of its business activities has accelerated even more, so that they promise further growth for the coming years as well.

With its plant in Kunshan, the WITTMANN Group has already been operating a highly developed production site in China for many years, where numerous products from its entire portfolio are manufactured for the local market – in particular robots, temperature controllers, materials handling equipment, compact dryers and granulators.

Within China, rapid growth is manifesting itself especially in the country's southern regions. With the foundation of WITTMANN BATTENFELD (Dongguan) Co. Ltd., its third facility in China so far, the WITTMANN Group is planning to strengthen the existing sales and service activities in Southern China even further. In addition to numerous local sales offices scattered all over China, the WITTMANN Group has already had a central office for the southern part of China in Shenzhen (Guangdong Province). This will now be replaced by a new 4-storey building located in a high-tech industrial park in Dongguan. The new premises will have more than 824 m² of office space, plus facilities for training programs and an exhibition hall for demonstrating injection molding machines and various other products manufactured in-house. The construction of the subsidiary's new facility is progressing fast and expected to be completed by the end of this year. Especially in times of pandemic with restrictions on travel, the importance of a strong local presence has been underscored in an impressive way.

WITTMANN BATTENFELD
www.wittmann-group.com

YIZUMI Intelligent Factory: construction started

Project site

On June 29th, the second phase of the YIZUMI China Factory 3 - the intelligent factory construction project officially started. It is expected to be completed in the second half of 2022.

YIZUMI China Factory 3 is located in Daliang Wusha Industrial Park and has a land area of 178,666 m2. Currently the first phase of the project has been completed, and the second phase of the project, which has just been started, covers an area of about 69,000 m2. The overall construction area is 120,000 m².

The second phase of the YIZUMI China Factory 3 is positioned as an intelligent factory, based on the advanced modern lean concept. It will adopt the full assembly line production operation mode, traditionally associated with the automotive industry, to produce intelligent equipment machinery. In the future, the factory will introduce a large number of intelligent production lines, smart devices and modern industrial digital technology throughout the whole machine production chain with such stages as order, product design, configuration, production, logistics, final assembly, and delivery.

It is expected that in 3-5 years YIZUMI Intelligent Factory will become a truly transparent and data management plant to achieve the goal of using less manpower.

YIZUMI China Factory 3 will work with other factories in the region to build a high-end intelligent equipment industry cluster with the company's headquarters, production base, industrial Internet, overall injection molding solution, and incubation platform. It is expected to have a capacity of more than 5 billion Chinese Yuan after completion.

YIZUMI
www.yizumi.com

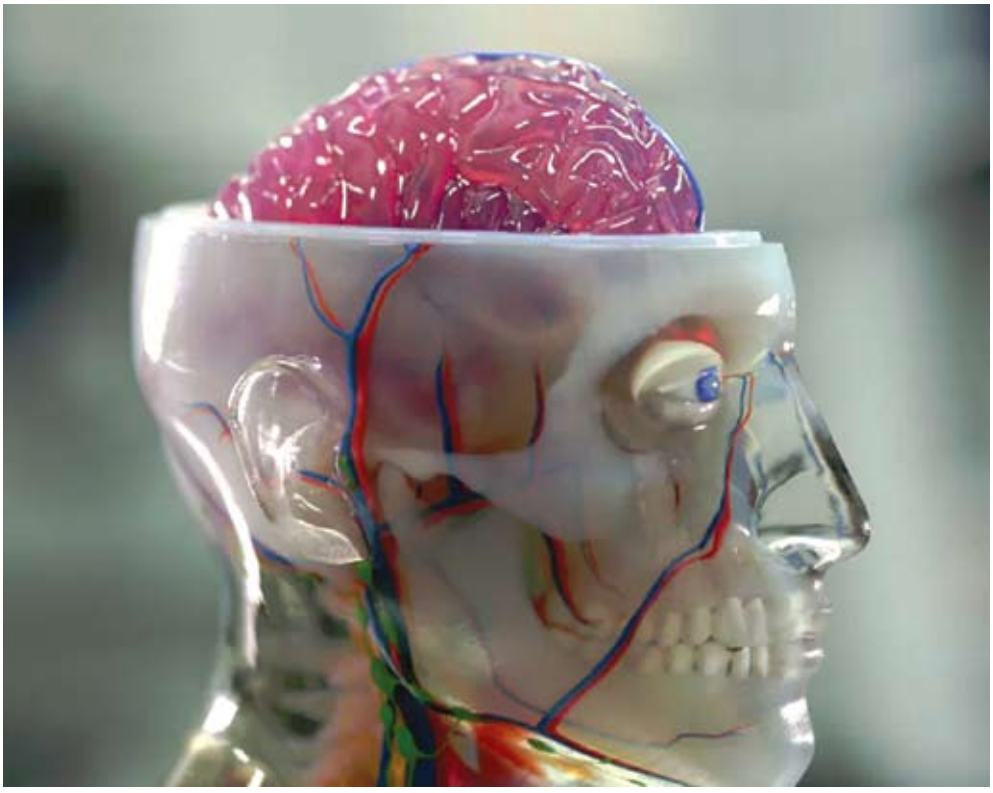
Stratasys introduces all-in-one J5 MediJet medical 3D printer

Stratasys Ltd. (NASDAQ: SSYS) has recently introduced a medical 3D printer that sets a new standard for healthcare providers and medical device companies by combining multiple applications in one system. With multiple materials and multi-color capabilities, the Stratasys J5 MediJet™ 3D printer enables users to create highly detailed 3D anatomical models and drilling and cutting guides with approved third-party 510k-cleared segmentation software. Guides and models are certified as sterilizable and biocompatible, and the printer is economical and compact enough for small lab spaces.

The J5 MediJet 3D printer is the newest addition to the Stratasys J5 Series™ of printers, along with the J5 DentaJet™ and J55™. In operation, it features a patented rotating build platform with a fixed print head. This is designed to maximize reliability and simplify maintenance. The system also delivers more output from a small footprint. Compared to other 3D printers, the MediJet 3D printer is up to 30 percent faster, along with a simple workflow that includes automatic build tray arrangement, corrections and support for the latest 3MF file format for simplifying connectivity to third-party segmentation and design software.

The new printer supports DraftWhite™ material for affordable single-material applications, along with a full array of new flexible, rigid color, and transparent materials. The multi-materials capabilities support a broad range of medical modeling applications in one office-friendly platform, which reduces outsourcing costs or the need for multiple printers.

"For small to midsized hospitals, we're enabling access to models and guides with a medical-specific 3D printer that is office-friendly and affordable, while ensuring sterilization is easy so you can bring models right into the operating room with you," said Stratasys' Healthcare Vice President Osnat Philipp. "We also believe the J5 MediJet printer can help medical device companies bring new innovations to market faster by providing models for benchmark testing of medical devices and for product demonstrations with models showing the actual pathologies the devices are meant to treat."



All on a certified system

The J5 MediJet printer is certified with leading 510K-cleared DICOM segmentation software packages for clinical diagnostic use. Additionally, it can print biocompatible materials that are certified for limited contact to tissue and bone, and permanent contact to intact skin (ISO 10993) and for breathing gas pathways in healthcare applications (ISO 18562). MediJet models can also be sterilized using Steam, Gamma and EtO methods specific to the print material.

The J5 MediJet material and hardware manufacturing sites have received ISO 13485 certification for the design and manufacture of medical devices.

Stratasys is leading the global shift to additive manufacturing with innovative 3D printing solutions for industries such as aerospace, automotive, consumer products and healthcare. Through smart and connected 3D printers, polymer materials, a software ecosystem, and parts on demand, Stratasys solutions deliver competitive advantages at every stage in the product value chain. The world's leading organizations turn to Stratasys to transform product design, bring agility to manufacturing and supply chains, and improve patient care.

Stratasys
www.stratasys.com

Nexa3D unlocks key to 3D printing productivity at RAPID + TCT 2021

Nexa3D, the maker of ultrafast polymer 3D printers, decided to showcase its end to end 3D printing validated workflow for the first time at RAPID + TCT 2021. At the event, from September 13 to 15 at McCormick Place, Chicago, IL, attendees can experience first-hand the speed, innovation, and productivity that Nexa3D's equipment can bring. Visitors to the booth will be the first to find out about the latest product launches and collaborations enabling Nexa3D to bring sustainable, ultrafast equipment and services to the industry.

The booth will feature Nexa3D's end to end validated workflow for the first time, following the recent release of the xWASH automated washer. Visitors can learn the benefits of applying the full range of equipment that makes up Nexa3D's end-to-end solution for industrial as well as for dental and health applications. The booth will feature the ultrafast NXE400 photoplastic 3D printer that offers 20X productivity and the NXD200 dental 3D printer, alongside post processing equipment such as the xCURE, xCLEAN. The company also plans to feature its ultrafast thermoplastic production system the QLS350. This new powder bed production system is based on the company's proprietary multi-laser-printing and autonomous print chamber that together enable users to have lights-out 24/7 operations at Industry 4.0 capabilities. Designed for higher operating temperatures and broader powder processing windows, the QLS350 can readily process a wide range of supply-chain approved polyamide powders including PA12, and PA6-6 taking Selective Laser Sintering from prototyping parts to economically serialize production performance and volumes.

Nexa3D plans to showcase the combined impact and power of its partnerships with leading material suppliers and software partners and show how these collaborations serve as a force multiplier to deliver end to end production systems for the benefit of manufacturing companies around the globe. The company will showcase its rapidly expanding library of functional materials as well as selected customer production applications, such as its lightweighted Fun Utility Vehicle (FUV) vehicle project with Arcimoto.

"Collaboration is key to bringing 3D printing onto the production floor on a wide scale. So, as well as our equipment, our booth at RAPID + TCT will feature some of our valued partners and customers," explained Avi Reichental, co-founder and CEO of Nexa3D. "One exciting premiere will be the result of a recent partnership with French medical device company WeMed — a revolutionary telemedicine device that fully leverages the power and speed of our ultrafast production systems. We continue to believe that together everyone wins and in line with that plan to announce several new collaborations and partnerships during the show".

RAPID + TCT is a vital meeting place for both 3D printing professionals and the wider manufacturing industry, where attendees are empowered and inspired by an industry that continues to conceive, test, improve and innovate. Known worldwide as North America's most important and largest additive manufacturing event, RAPID + TCT provides everything attendees need to know about the latest 3D technologies, all under one roof. It is where you will witness groundbreaking product announcements, experience 200+ hands-on exhibits, learn real-world additive manufacturing solutions from the industry's most respected experts and network with thousands of industry peers.

Nexa3D
www.nexa3d.com

High-clarity medical polypropylene for syringes used in COVID-19 vaccinations

Chemical, a major Korean chemical company, has produced the polypropylene (PP) required for medical applications using BASF's Irgastab®, a non-discoloring processing stabilizer. With the rollout of COVID-19 vaccinations worldwide, the need for syringes made from PP has increased exponentially.

LOTTE Chemical's medical PP has been applied to the LDS (low dead space) syringes developed by a medical syringe manufacturer in South Korea. These specialized products are designed to minimize the amount of a drug left in the device after injection which leads to reduced vaccine wastage. As a result, LDS syringes are in huge demand globally as it is estimated to enable 20% more people to get the dose with the same amount of vaccine.

Plastics used for medical applications require sterilization. This causes degradation and discoloration of the polymer. "Irgastab serves to ensure that medical PP remains safe and suitable for use," said Hermann Althoff, Senior Vice President, Performance Chemicals Asia Pacific, BASF. "It provides processing stability without discoloration to polypropylene during compounding and injection molding, which is vital for LDS syringes as the materials need to be certified for high-clarity."

As the need for syringes is expected to explode for the vaccination against COVID-19, LOTTE Chemical is expanding the development of special polypropylene materials to ensure strict production quality control of medical materials, including high-clarity PP, and to accommodate the growing needs related to healthcare and safety.

BASF
www.basf.com

Arkema opens a center of excellence for photocuring technology

Following the acquisition of Lambson – a global player specializing in the development and supply of photoinitiators – Arkema opens a Center of Excellence in Wetherby (UK) and provides its customers and partners with expertise and comprehensive, high-performance solutions for UV technology. Integrated into the photocurable specialties business of Sartomer – a pioneer in this market – this center is a key component of the growth and development strategy for photocuring, a solvent-free sustainable technology of the future.

To serve its customers, Arkema is opening a Center of Excellence in Wetherby, UK. Equipped with first-rate equipment and led by an experienced team with unique expertise in photoinitiator synthesis and formulation, this center will provide an exceptional collaborative space for developing and fine-tuning solutions that are tailored to the challenges of our customers and partners, particularly in the electronics, 3D printing, inks, adhesives, and high-performance coatings markets.

Laurent Peyronneau, CEO of Sartomer and VP of Arkema's Coating Solutions: "The center supports both experienced formulators and those new to energy curing technology who are seeking state-of-the-art UV resin and photoinitiator systems expertise. It also brings together technologies and know-how to address energy curing challenges and develop innovative solutions to unlock new opportunities."

This cutting-edge laboratory will complement the existing network of research and application centers dedicated to Arkema's Coating Solutions so that to Arkema's performance additives. These additives enhance the Group's expertise in many areas and play an essential role in the design and development of innovative products, and new applications in the fields of Coatings, Adhesives, and Advanced Materials.

Arkema
www.arkema.com

The LANXESS Urethane Systems business unit is one of the world's leading suppliers of polyurethane systems.

New low free prepolymer technologies

The Urethane Systems business unit of specialty chemicals company LANXESS presented innovative material developments at this year's Polyurethane Manufacturers Association (PMA) annual meeting. They presented two new prepolymers of the Adiprene range that are produced using low free (LF) technology so they contain very low diisocyanate content. The PMA took place August 7-9 in Salt Lake City, Utah, USA.

Meeting highest requirements

One of the most challenging applications for polyurethane casting systems is high-temperature applications. As polyurethane chemistries have advanced over the years, casting systems are being used more frequently in this high-performance segment. Ian Laskowitz, Applications Development Manager for Urethane Systems at LANXESS, highlighted at the PMA Meeting the novel Adiprene LF TR400 high-temperature prepolymer, which is based on polycarbonate.

This low free TDI prepolymer is cured with MCDEA (4,4'-methylenebis(3-chloro-2,6-diethyl-aniline). It is much easier to process than comparable prepolymer systems for high-temperature applications. For example, it offers a manageable processing/pour life. The resulting cast elastomers demonstrate have improved high-performance properties that comparable established polyurethane high-temperature system and have excellent high-temperature property retention. Thus, the tear strength is hardly reduced at elevated temperatures. A further strength is high resistance to heat aging at 150 °C.

Laskowitz's presentation expanded on the use of physical property testing at high temperature, comparing this new prepolymer to standard cast urethane materials, as well as high temperature physical property retention after heat aging at high application temperatures. The processing needs of the materials were also discussed.

Easy processing and enhanced performance

LANXESS developed a unique 1K blocked prepolymer, Adiprene K LFM E820, based on caprolactam (CAP) blocked prepolymer and diamine curatives. This was the focus of the presentation given by Senior Chemist George Brereton at the PMA annual meeting.

Less viscous blocked prepolymer systems, which are based on LF technology, allow for chemistries with non-traditional raw materials, including more viscous polycarbonate polyols and unique amine types. These stable 1K systems provide processors with numerous advantages, including increased control of the curing process and increased product consistency from batch to batch. Without restriction on pot life, these systems allow for the processing of large parts, complex contour designs, and roto-molding of hollow parts. These systems can offer enhanced thermos-mechanical performance, processing ease, and enhanced industrial hygiene.

The variety of possible applications of blocked LF prepolymers ranges from small thicknesses of 1-2 mm to really large parts up to several tons. For example, these systems are used as abrasive pad binders or coatings of industrial rollers, as well as in the impregnation of industrial belts. Another advantage for the processor is the elimination of the need for a mixing and metering system, which pays off in terms of component costs. Potential applications include dynamic bend stiffeners for thick cables such as submarine cables, industrial rolls, components for wind turbine rotor blades or large composite structures.

LANXESS
www.lanxess.com

Compact valve gate solution for small injection moulding machines

The EWIKON L2X-Mikro high-performance hot runner system for small injection moulding machines is now available as a compact 4-drop version with valve gate technology for shot weights around 0.01 gram per nozzle.

The system uses synchronous plate technology to enable simultaneous actuation of all valve pins. Due to the very compact design of the drive technology, in which all components are incorporated in the smallest possible installation space, it can be easily integrated into all common mould sizes for small injection moulding machines.

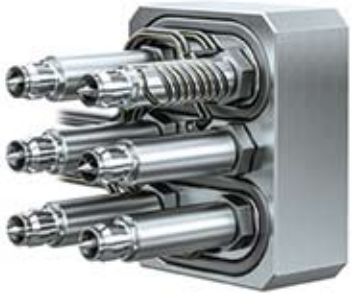
The high-performance hot runner system has the following main features:

-Tip inserts with powerful direct heating and separate temperature control for reliable processing of technical resins.

-Problem-free processing of thermally sensitive materials

-Designed for use on BOY®-, WITTMANN BATTENFELD- or Babyplast® machines

-Leakproof screw connection between nozzles and manifold



-L2X connecting technology for precise positioning of the connection cables

-Valve gate version with compact synchronous plate technology

-Available in different versions for open gating or as 4-drop hot half for valve gating

Use in standard mould designs

In order to realize multi-cavity systems with standard moulds, several of the L2X-Mikro manifold modules can be combined with a bridge manifold. In valve gate systems all valve pins are actuated by one common synchronous plate.

EWIKON
www.ewikon.com

Primezone H1281 now available with 40 and 48 control zones

HASCO hot runner has extended its hot runner product portfolio with additions to its range of Primezone H1281/... control units. With immediate effect, the new hot runner controller H1281 is also available with 40 and 48 control zones. HASCO has thus closed the previous gap and has completed the range up to 96 control zones.

Compact tabletop versions

Both models are available in the newly developed compact tabletop housing with outside dimensions of only 456 x 556 x 409 mm. On the one hand, this saves space in the frequently tight working environment of the mould shop, and, on the other, it gives you the flexibility to place the control unit near the injection moulding machine, on a trolley or small table.

Intuitive operation with touch screen display similar to a smartphone

The generously sized 10" touch screen display offers an outstanding overview of all functions and allows easy operation of the controller.

Innovative operating functions support the user during input at all navigation levels. The intuitive and multi-lingual user interface is similar to modern smartphones, whereby the most important settings can be activated very quickly and easily without the need for any operating instructions.

The new units with 40 and 48 control zones can be ordered immediately

The new devices are available as standard in the customary HASCO and custom wiring specifications. The two additions to the range can be ordered from HASCO for delivery from July 2021.

HASCO
www.hasco.com

Celebrating 30 year anniversary

Mastip is a pioneer of the global plastics hot runner industry which today has an estimated worth of $2.6 billion dollars annually. Mastip's thermally optimised hot runners and components enable the customers worldwide to deliver to their clients the highest quality plastic components and products to consumers for the lowest cost in segments ranging from medical, electrical and appliances through to electronics and automotive.

Founded in 1991, the first manufacturing facility supported local customers in Auckland, New Zealand before growing into a multinational company that today delivers and supports hot runner solutions into over 40 countries globally.

Today Mastip supplies a wide range of hot runner solutions from simple manifolds to complex systems such as high cavitation, multi-material and stack moulds.

Mastip's solutions are tailored to support your specific market requirements, while the technical expertise and experience gained over the last 30 years with engineering polymers, has enabled team specialists to design and manufacture reliable and incredibly durable systems for challenging applications.

With recent growth in new subsidiaries, new distributors and additional manufacturing facilities, Mastip continues to develop its service and support network and all the team looks towards the future with further expansions planned.

Mastip
www.mastip.com

Optimal gate temperature control made easy

Ante-chamber bushes are used in hot runner nozzles for providing the required nozzle shape in the cavity plate. They help to quickly restore the gate point quality in applications with abrasive plastics. The ante-chamber bush ensures optimum cooling in the gate point.

Meusburger customers can customise the cooled ante-chamber bush EC according to their requirements and have it delivered in no time at all. If the appropriate installation space is available in the mould, Meusburger's ante-chamber bush can provide both temperature regulation close to the gate point and along the entire circumference as well as exact installation dimensions for the smartFILL hot runner nozzle series. This allows for maximum flexibility regarding the gate diameter, the length of the ante-chamber bushes as well as the connection to the temperature control channels in the mould. Uniform gate temperatures and easy cleaning ensure lasting high quality for both the gate and the component for the injection moulded part.

Advantages of the ante-chamber bush

The cooled ante-chamber bush features cooling close to the gate point along the entire circumference and optimal control of the gate temperature. Further advantages are the wear-protected and corrosion-resistant design and fast integration into the mould concept along with the customisable gate diameters. In addition, the lengths can be matched exactly to the mould design. Installation and removal are just as easy as cleaning the of ante-chamber bush.

Meusburger
www.meusburger.com

PART Engineering named Altair channel partner

Altair (Nasdaq: ALTR), a global technology company providing solutions in simulation, high-performance computing (HPC), and artificial intelligence (AI), announced that PART Engineering, an industry-renowned computer-aided engineering (CAE) simulation services and software company, has become an Altair channel partner for the DACH region. PART Engineering has been part of the Altair Partner Alliance (APA) since 2012 and will now also sell and support Altair's entire structural and injection molding simulation portfolio.

Founded in 1999, the company specializes in structural finite element analysis (FEA). Based on many years of experience utilizing Altair's simulation tools and cultivating industry expertise through its work with customers across industries, PART Engineering is well-positioned to fully represent Altair and its solutions in the DACH region.

"We are pleased to welcome PART Engineering, an experienced company with an excellent reputation in the automotive and engineering industries, to the Altair channel partner program," said Ulrich Bruder, Altair managing director in Germany. "With more than two decades of experience in the simulation of plastic products, PART Engineering understands the requirements of the industry and offers a comprehensive range of solutions. Adding Altair to its solutions offerings will empower customers to access the industry's most advanced, high-fidelity, and specialized technologies, from manufacturing simulation and optimization to the analysis of fiber composite structures and the convergence of CAE with artificial intelligence."

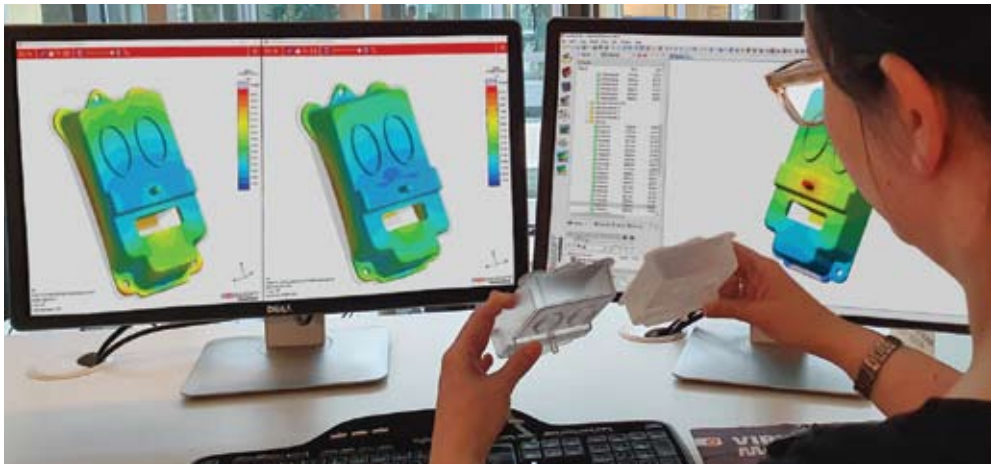
By reselling Altair's software, PART Engineering will offer solutions for the entire CAE process chain. This is especially relevant for its focus area, plastic products, as the final characteristics of molded parts are heavily influenced by the applied manufacturing process. As part of the APA, the company's own specialized solutions, Converse and S-Life, are fully integrated into and interact with Altair's software solutions. Thanks to the breadth and depth of Altair's solutions set, including more than 100 APA applications, PART Engineering will now offer solutions for other specialty requirements.

"Being a successful partner in the APA for more than nine years combined with our industry expertise made the expansion to sell Altair solutions a natural and logical next step to strengthen our market reach and offering," said Wolfgang Korte, managing director, PART Engineering. "We are confident that the collaborative efforts between PART Engineering and Altair combined with our application and industry expertise in the plastics segment will propel both organizations to gain considerable market share in the DACH region."

PART Engineering will continue to be an important member of the APA and, in addition to the close cooperation with Altair, will maintain and expand the interfaces of its own software to other CAE software providers.

Altair
www.altair.com

Altair is a global technology company that provides software and cloud solutions in the areas of simulation, high-performance computing (HPC), and artificial intelligence (AI). Altair enables organizations across broad industry segments to compete more effectively in a connected world while creating a more sustainable future.



Enhanced options in simulation at Fakuma 2021

At Fakuma (12-16 October 2021) in Friedrichshafen, Germany, SIGMA Engineering GmbH will present advancement of SIGMASOFT ®. The new and bigger exhibition space will allow visitors to collect all details of the new Version 5.3.1 beside new application example and simulation approaches. “We look forward to finally meeting our network of partners and customers in person again. The bigger space is a great support to showcase the benefits of our SIGMASOFT ® Virtual Molding Technology and Autonomous Optimization. And we are happy to present the updates of the newest version in detail”, says SIGMA CTO Timo Gebauer. The update not only contains the new possibility to simulate compression molding processes of elastomers; it also offers many enhancements and improvements in the area of thermoplastics.

The prediction of warpage was again improved. “Since shrinkage and distortion are essential for the correct design of plastic parts, we continuously strive to compute them even more precisely”, Gebauer explains, “for example we are working with DUFNER.MDT GmbH since 3 years, to further improve our material datasets especially for warpage prediction.” Besides the improved material data SIGMASOFT ® v5.3.1 also contains new criteria, to make the evaluation more precise and user-friendly.

Another important update is introduced for the calculation of multicomponent projects. It is now possible to run virtual Design of Experiments (DoE) and optimizations for all components at the same time in order to adjust them precisely to each other. The process of developing multicomponent parts with the help of Virtual Molding and virtual DoE will also be demonstrated at the SIGMA booth. The showcased example is the cell-phone-holder “Butterfly” by Elmet, shown in full production on K show 2019.

SIGMA
www.sigmasoft.de

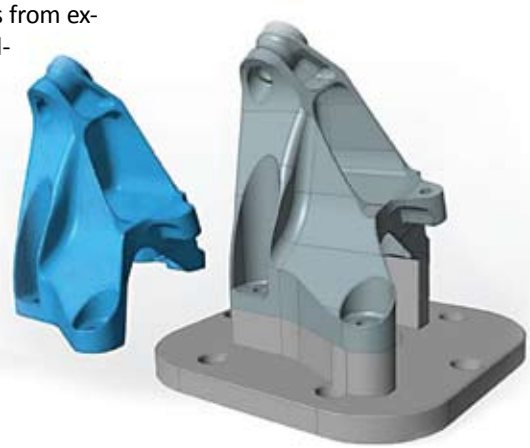
Hexagon’s REcreate takes center stage at RAPID + TCT 2021

Hexagon’s Manufacturing Intelligence division decided to make a debut of REcreate, a new reverse engineering software solution at RAPID + TCT 2021 (Sept. 13-15, Chicago).

“We are excited to debut REcreate at RAPID + TCT this year. With decades of expertise in 3D scanning and data capture, our goal was to build a new reverse engineering software application focused on ease of use to handle dense point clouds from scanning devices, along with the ability to verify and design models in a single, robust CAD environment,” states Ken Woodbine, Senior Portfolio Manager – Metrology Software. “Interoperability was also at the top of our list. REcreate works with a wide range of third-party systems and data capture devices. The software program can be used as an end-to-end reverse engineering solution, or as a complement to existing technology. It is the modern answer to the ever evolving need to design and manufacture parts quickly and accurately.”

REcreate was built from the ground up to remove the complexity involved in building airtight models for additive or subtractive manufacturing. Original equipment manufacturers and design engineers can reconstruct legacy parts and develop new innovative products from existing parts or hand-built prototypes. REcreate is also a critical tool for ensuring a precision fit in a design envelope for new or aftermarket components. In essence, the software can import scan data to create CAD models for parts that had no affiliated CAD model. REcreate users can also easily update CAD models to reflect changes that occurred in the manufacturing or prototyping process.

Hexagon
www.hexagonmi.com



Dynamic implementation of 3D printed tools, jigs and fixtures in assembly lines

Automotive giant Nissan is relying on a small farm of BCN3D printers in its Barcelona factory to fabricate 700 tools, jigs, and fixtures in its car assembly lines so far. Trim & Chassis Manufacturing Kaizen Engineer Enric Ridao and Manager of Maintenance & Engineering Facilities Carlos Rellán gave an insight on their immense savings in time and costs: reducing one week to one day, and costs to 20 times less.

Everyone everywhere has heard of Nissan. There's no denying that Nissan has made a name for itself as a giant in the automotive industry – together with Alliance Partners Renault and Mitsubishi, they sell 1 in 10 cars worldwide!

Since its creation in 1933, the company has always put an emphasis on innovation, and this constant incorporation of new technologies has led it to 3D printing.

The team in the Barcelona factory has chosen to use a small farm of BCN3D printers to create various tools, jigs, and fixtures.

The constant evolution of the Nissan factory in Barcelona constantly keeps the workers on their toes. The team is often challenged to manufacture new parts, and subsequently come up with innovative and versatile techniques to account for it.

"Every year we're printing a total amount of approximately 100 jigs and tools with a specific use in our processes." – Carlos Rellán Martínez, Manager of Maintenance & Engineering Facilities at Nissan Motor Ibérica Zona Franca, Barcelona.

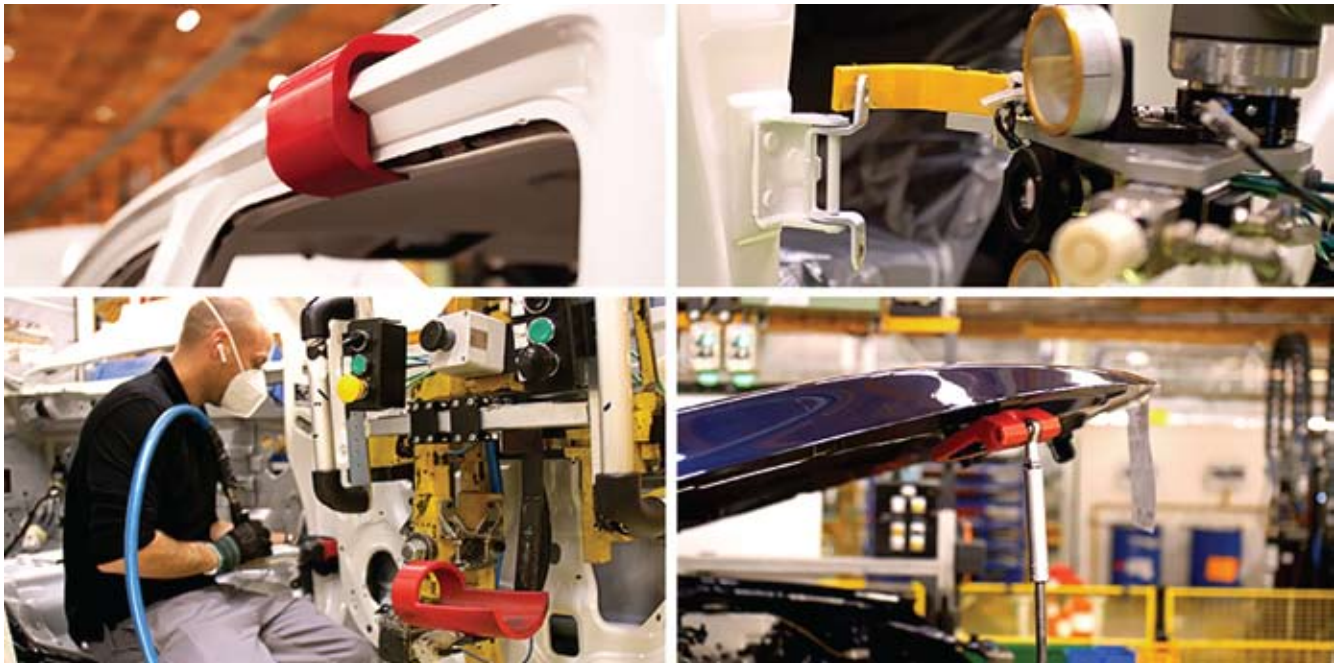
Prior to printing

Before 3D printing changed the game, Nissan outsourced all of its prototypes and specific jigs for minor change trials to mechanical suppliers using traditional manufacturing methods.

This meant that two vital aspects of running a production line were being lost: time and money. Moreover, in their outsourcing they experienced issues of unreliability, and a strict schedule meant that they were limited in terms of flexibility.

To put it plainly, the entire process from designing, refining to printing would take a week with an external supplier; with the use of in-house 3D printing, the team found the lead time could be reduced to just one day.

In terms of costs, the price of using methods such as CNC and drilling



Dynamic implementation of 3D printed tools, jigs and fixtures in assembly lines (Pictures: BCN3D, Nissan)

was around 20 times higher than 3D printing.

"To increase the added value: generating low costs, and without generating high delivery times. We paid off the investment very quickly." – Enric Ridao, Trim & Chassis Manufacturing Kaizen Engineer at Nissan Motor Ibérica Zona Franca, Barcelona. "When we started in 2014, for the first simple tool we wanted to print we were offered costs of around 400€ for machining. Instead, we did it here on our factory premises and with 3 tools we had already amortized the machine."

Taking matters into their own hands

Nissan's centre around innovation led the team to create 3D printing program Observers 4.0 across all Nissan shops in Barcelona. In 2014, the team took it upon themselves to gain a deeper understanding of 3D printing technology, by firstly participating in a RepRapBCN workshop, the origins of which would later become BCN3D.

"With the objective not only to introduce this technology in Nissan Motor Ibèrica, but to empower our staff in this technology." – Carlos Rellán Martínez.

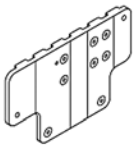
After the team demonstrated the worth of the BCN3D machines, Nissan followed up with a Sigmax printer and later a small farm. The 3D printing design process proved to be easier, the Independent Dual Extrusion System (IDEX) allowed the team to work twice as fast, doubling their productivity, and the printers remained reliable over long print jobs.

"The performance achieved in terms of reliability has been excellent." – Carlos Rellán Martínez.

The Nissan team at the factory in Barcelona differs from other car manufacturers through their dynamism and capability of assembling many different car models in one facility. They took their time to gather in-depth knowledge on the 3D printing process, and have been able to use the innovative technology to their advantage as a result. Skilled at customizing tools for their specific needs, not only to save time and cut costs, but to improve the ergonomy of the work stations and the health of the workers as well, proves Nissan's trailblazing work and the maturity of the 3D printing process. To be trusted by the Nissan team as their way of doing so, and be held to such a high standard, gives BCN3D printers a serious amount of brownie points. Saving time and money with 3D printing really is something that any manufacturer can achieve by putting its mind to it! ***smi***

BCN3D
www.bcn3d.com

Just three examples of 3D printed tools, jigs and fixtures applications in Nissan assembly lines

Windshield centring gauge fixture	Lower drill positioning tool	Car logo positioning template jig
		
TPU	**ABS**	**ABS**
Maintains the correct distance between pillar A and the windshield	Indicates the correct location for the drill to the operator	Allows operator to position the vehicle's nomenclature sticker in the correct place

Stratasys J35™ Pro and Stratasys J55™ Prime

Two new printers for multi-material printing and in-office capabilities and two new software solutions for packaging and research help designers and engineers translate imagination into reality.

Stratasys Ltd., a leader in polymer 3D printing solutions, this summer announced two new PolyJet™ 3D printers, the Stratasys J35™ Pro and the Stratasys J55™ Prime, along with new software solutions for research and packaging prototyping.

Stratasys has accelerated its pace of innovation using PolyJet technology as designers and engineers work to bring new and better products to market faster and more efficiently. The J35 Pro represents the first multi-material 3D printer for the desktop from Stratasys, while the J55 Prime extends the value of the J55 3D printer to include a new set of versatile materials providing tactile, textual, and sensory capabilities in addition to full color.

"We're in the business of helping designers and engineers translate whatever they can imagine into reality," said Shamir Shoham, vice president of design for Stratasys. "Through the versatility of multi-material PolyJet 3D printing, our customers can create models and packaging prototypes not only quickly and efficiently, but with remarkable realism that stands out against other 3D printing technology."

J35 Pro Brings Multi-Material PolyJet Printing to the Desktop at Affordable Prices

The new versatile J35 Pro 3D printer accommodates everything from concept modeling to high-fidelity, realistic, fully functioning models. This new all-in-one, multi-material desktop 3D printer is ideal for the engineering and design office setting. With the J35 Pro, users have the option to combine a variety of materials, including Vero™ UltraClear, that can be printed simultaneously giving engineers and designers the versatility to produce parts that match their exact needs. The printer can incorporate up to three materials that can be printed as single material parts or combined on the same model part, on the same tray. Applications include over-molding, filling simulation and printing in full grey scale

"We find that we spend a great deal of time creating and testing models. If a customer had changes or if it doesn't work as expected, we would have to go through the process over again. By bringing the J35 Pro into our office, we can now create the models and prototypes in-house, in a day – giving us the ability to iterate, correct errors and more efficiently verify designs with our customers," said Yaniv Adir, project manager for Taga Innovations, Ltd, a manufacturing engineering company in Tel Aviv, Israel. "This printer has allowed us to revolutionize the way in which we do business."

The multi-material capabilities of the printer allow designers and engineers to incorporate the widest variety of grayscale colors and materials into a single print, while achieving complex shapes, intricate details, and delicate features. Engineers and designers can not only see what the product will look like, but also test the functionality of it in the pre-production stage. The J35 Pro also offers a simple design-to-print workflow powered by GrabCAD Print™, allowing users to import their designs using native CAD files or 3MF file formats.

Packaging Visual Prototypes You Won't Believe Are 3D Printed

The new packaging solution from Stratasys enables designers to easily produce complex, high-transparency, full-color, high-fidelity packaging prototypes that accurately simulate final packaging including realistic color combinations, textures, transparency, and flexibility. This includes the ability to print simulated glass bottles and add "labels" with sharp text and images that meet 2D graphics labeling standards. Furthermore, designers can incorporate simulated products or fillings, like cosmetics, makeup or liquids, for the ultimate in realistic rapid prototyping. Designers can now create packaging prototypes so real-looking, it's hard to believe they're not the real thing.

"Ultra-realistic models make the idea real for our clients, enabling an accelerated decision-making process. We are a long way from the bland all-white models we produced prior to 3D printing – today the possibilities are endless," said Jeremy Garrard, director of market development, design and R&D for Quadpack, a global packaging provider headquartered in Barcelona, Spain. "Along with the work we do for our QLine range and our customers, the models we produce helps towards influencing and inspiring the industry. As an example, we printed over 500 pieces for #QPPackfuture, our annual trend report, in which the team presents its vision for the future of cosmetics packaging, complete with samples."

The Packaging software solution will soon be available through GrabCAD Print and is compatible with Stratasys J8™ Prime, Stratasys J7 Series™ and Stratasys J55™ Prime 3D printers.

J55 Prime Extends Prototyping Possibilities

The J55 Prime builds on the technology of the Stratasys J55™ 3D printer introduced in 2020. This new system goes beyond full-color printing with new materials that enable tactile, textual, and sensory capabilities. In addition to the existing highly realistic visual models, the printer utilizes multiple materials that cater to design, functional and biocompatible prototyping, such as:

- Elastico™ Clear and Elastico™ Black for flexible, soft-touch printing that accurately simulates the look, feel and function of rubber-like products.
- Digital ABS™ Ivory for high impact designs such as molds, jigs, fixtures and functional prototypes.
- Vero™ ContactClear, a translucent material designed for prolonged skin or bodily contact such as medical devices, sport wear, or wearables.
- Ultra-opaque colors, enabled by the VeroUltra™ family of materials, introduces 2D level graphics and text, vibrant and accurate colors with better plastic simulation, raising the bar in 3D printed multi-material models.

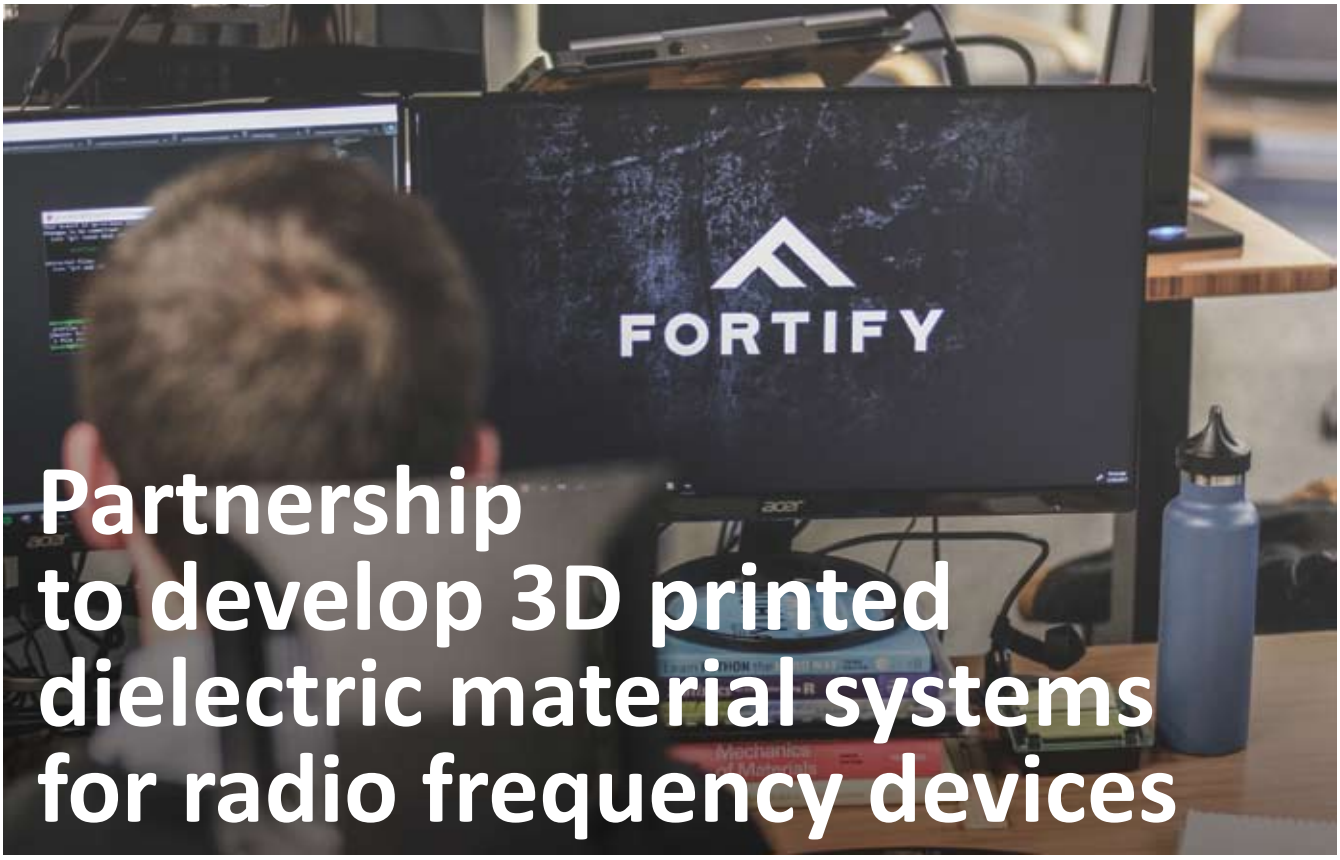
The J55 Prime is office-friendly, with a compact design, odor-free and quiet operation.

Researchers Accelerate Innovation with the Power of PolyJet

The research package provides users with increased flexibility over the print process, allowing them to explore and experiment with additive manufacturing and accelerate innovation in the lab. Innovators can now use the materials to print with air voids and liquid or embed an object into a print. Truly pushing the boundaries of what is possible, researchers can also use this extended set of materials and capabilities to experiment with 4D printing – the process by which a 3D printed object undergoes a transformation due to the influence of another material or outside element. Combined with GrabCAD Voxel Print™, software users can define the data volumetrically for each 3D voxel throughout the entire model. This allows for an advanced level of control at a microscopic scale, enabling higher resolutions, fine-tuned color placement and shore value transitions within one part. *smi*

Stratasys
www.stratasys.com

Stratasys J55™ Prime 3D printer (All photos: Stratasys)



Partnership to develop 3D printed dielectric material systems for radio frequency devices

Fortify, a Boston-based 3D printing startup, and Rogers Corporation, the global leader in engineered materials for advanced connectivity and power electronics, announced in May their partnership to enable additive manufacturing of low-loss dielectric materials for radio frequency (RF) devices and electronics.

The partnership allows both companies to leverage their areas of expertise to unlock scalable manufacturing of high-value RF components. Rogers Corporation's market dominance in low-loss, high frequency materials combined with Fortify's advanced composite processing capabilities enables customers to efficiently design and print precision substrates, Luneberg-like Gradient Refractive Index lenses, and end-use components. Fortify's Continuous Kinetic Mixing (CKM™) powered DLP platform enables high-throughput production of fine-featured parts out of heavily loaded materials that are otherwise difficult to process.

"As our world becomes increasingly connected, so does the need for faster and higher capacity wireless connections," Trevor Polidore, New Product Development Group Leader at Rogers Corporation said. "Partnering with Fortify will allow Rogers to deliver a complete solution for the manufacturing of 3D-printed dielectric components, enabling our customers to create the next generation of wireless systems."

Wireless communications and SATCOM systems have led the expansion of active antenna systems (AAS) use into mainstream consumer applications. By taking advantage of AAS's ability to generate highly directive signals that can be electronically steered and form various beam patterns, the latest applications such as 5G and high-throughput satellites (HTS) can deliver services previously inaccessible with conventional antennas.

However, many AAS technologies are expensive and complex to manufacture with multitudes of performance tradeoffs that often require new technologies and high cost devices to yield competitive solutions. It is possible to address some of these challenges with intricate 3D dielectric materials, but complex 3D dielectrics have historically been difficult or impossible to manufacture with the necessary cost, quality, and repeatability to meet practical manufacturing requirements.

"The photopolymers available today are an order of magnitude more lossy than thermoplastics, yet 3D printing complex parts at scale out of thermoplastics is time consuming." Phil Lambert, Sr. Applications Engineer at Fortify said. "With the right low-loss material systems from Rogers combined with Fortify's printers, we can offer a solution that provides excellent

feature resolution, great RF properties, and high throughput capabilities for end-use parts.

While traditional DLP platforms struggle to print highly viscous materials, CKM technology employed on all Fortify Flux Series printers allow for the processing of advanced materials, such as Rogers' low loss materials, while maintaining material quality and consistency throughout the manufacturing process.

"With Rogers, we are positioned to commercialize the first scalable, low-loss 3D printed RF dielectric materials," Josh Martin, CEO and Cofounder of Fortify said. "This partnership is a great example of how innovative materials and technology companies can come together and provide a differentiated value proposition to a rapidly growing market. Fortify has a scalable way of manufacturing continuously varying dielectric material, which is a game changer for the scanning beam antenna market (5G, surveillance, remote sensing, and security)."

Applications of this new technology include passive lens devices that augment gain and directivity for single or multi feed systems found in RF sensing and SATCOM On-The-Move commlinks, and 5G AAS systems to widen field of view and reduce sidelobe levels.

The advantages of Fortify's 3D printers for printed RF dielectric technology include: lower weight, wide bandwidth, scalable manufacturing, structure design freedom, quick turnaround parts, and more. The two companies continue to collaborate to optimize printing processing parameters to realize all these benefits and more.

RF and MW Applications

Fortify is developing a palette of dielectric materials for printing components used in high-bandwidth, high frequency communication systems. Specifically tailored for wide-band mm-wave applications, the Fortify platform grants users the capability to manufacture low roughness, high-resolution features necessary for high frequency applications.

All picutres: Fortify

Fortify's patented DCM (Digital Composite Manufacturing) platform enables repeatable and reliable printing of particle filled photopolymers. For RF applications, a unique low-loss polymer is blended with specialty dielectric ceramic additives to create dielectric materials.

CKM™ - Continuous Kinetic Mixing

In Digital Composite Manufacturing, functional additives must be uniformly distributed to achieve consistent material properties. Continuous Kinetic Mixing addresses this issue by blending resin and additives. Material is recirculated (and heated as required) throughout the printing process.

Fortify partners with the world's leading chemical companies to expand material properties and solve printability challenges. ***smi***

Fortify
www.3dfortify.com

TRUMPF prints dental prostheses automatically in multi-shift operation

With the improved "Multiplate" solution, manufacturers can print up to 400 teeth in one piece. The 3D printer works overnight without the need for employees to be present. The solution helps dental labs avoid bottlenecks during peak orders and works approximately ten times faster than milling.

At the world's leading trade fair for the dental industry, IDS in Cologne, Germany, high-tech company TRUMPF will be showcasing solutions for series production in 3D printing. These include a new improved version of the "Multiplate" function for the TruPrint 1000 3D printer. This technology enables the 3D printer to automatically change the substrate plates on which the system prints the dental prosthesis. "With our solution, companies can automatically produce dental restorations in multiple layers. In contrast to conventional milling, this makes them around ten times faster. As a result, TRUMPF is making a significant contribution to increasing productivity in the dental industry with additive manufacturing, says Reinhard Sroka, dental industry manager at TRUMPF Additive Manufacturing. The TruPrint 1000's coater tool pushes the substrate plate into the overflow container at the end of the process. The 3D printer then independently processes a new substrate plate. The system can seamlessly start the next print job without a machine operator having to open it and insert a new plate. A spring fork ensures that the overflow container lowers the substrate plates to the correct position. The TruPrint 1000 with the multiplate function is suitable for all manufacturers in the dental industry, especially smaller dental laboratories.

The TruPrint 1000 from TRUMPF with the Multilaser principle is ideal for the dental industry and can be easily retrofitted with the Multiplate function (all pictures: TRUMPF)

TruPrint 1000 prints up to 400 teeth in one piece

With the new Multiplate version, the TruPrint 1000 can automatically print dental restorations onto four substrate plates in succession. For this purpose, TRUMPF experts have developed special support structures that the 3D printer builds up additively on the substrate plate during the process together with the dental prosthesis. With these structures, the substrate plates can be stacked on top of each other in the overflow cylinder without damaging the printed dental prosthesis. The TruPrint 1000 features the Multilaser principle, in which two lasers work simultaneously in the powder bed. With the Multiplate function and the Multilaser principle, the system can print up to 400 dental products such as bridges or crowns at a time. The TruPrint 1000 with the Multiplate function is suitable for all manufacturers in the dental industry, especially small dental laboratories. This is because employees in the industry often restart the 3D printer at night to meet delivery deadlines. Smaller dental labs usually don't have the capacity for this and must turn down orders. The improved multiplate function helps them avoid bottlenecks and remain competitive. ***smi***

TRUMPF
www.trumpf.com

Nexa3D and Henkel are launching xFLEX 475 - new photoelastic material

The new soft rubber material xFLEX 475 is designed to deliver higher resilience, greater snapback and stronger tear resistance for additively manufactured industrial and consumer products.

Nexa3D, the maker of ultrafast polymer 3D printers, has recently announced in partnership with Henkel the commercial availability of xFLEX 475, a category leading soft rubber material that is ideal for the production of additively manufactured industrial and consumer products. Within the high growth elastomers market, customers can now access this industrial strength material for applications that require resilience, snap back and tear resistance, such as pipes and manifolds, handles, and grips, seals, and gaskets or sportswear and footwear midsoles. This material also boasts an impressive up to 150 percent elongation at failure and an excellent energy return of up to 50 percent. The new xFLEX 475 material comes in two colors; black, and white and is immediately available through Nexa3D's growing network of resellers.

Nexa3D's expanding collaboration with Henkel combines the proven capabilities of both companies to fast-track additive manufacturing towards mass production of functional parts across multiple industries, leveraging the productivity advantage of its ultrafast NXE 400 3D printer. No other manufacturing process offers as many possibilities for greater design agility and supply chain resiliency and ultrafast implementation at every phase of the product lifecycle. Combining Nexa3D's productivity with Henkel's rapidly expanding suite of functional polymers, makes it possible for customers to manufacture a wider range of parts such as protective gear, and grips, hoses, and pipes, gaskets, and seals footwear components and tooling for greater performance and functionality.

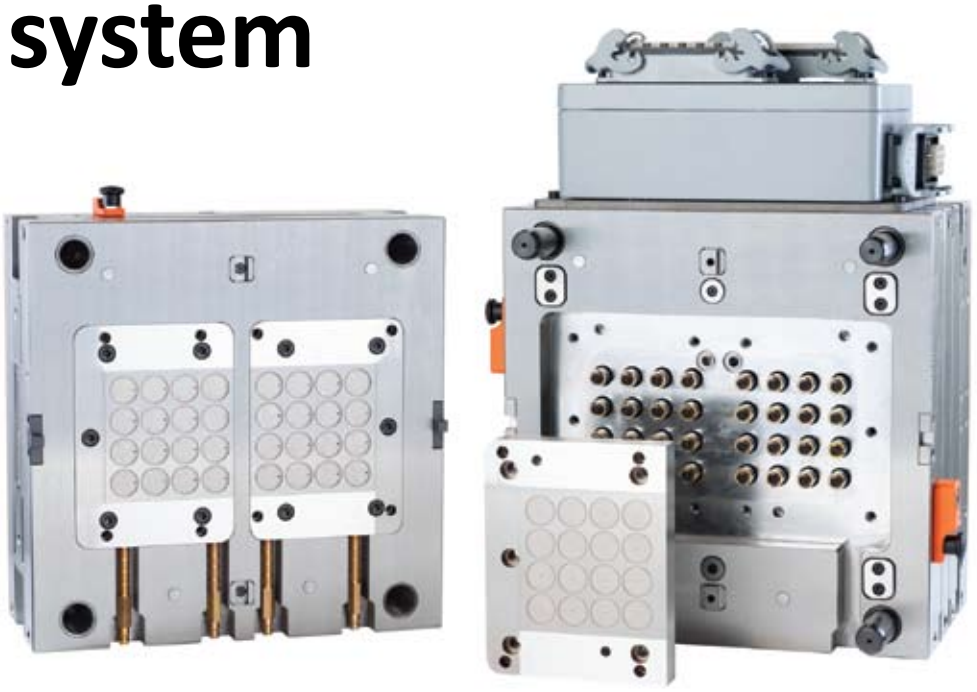
"Productivity and performance for volume production applications can only be maximized when manufacturers have access to both ultrafast 3D printer technology and advanced polymers," explained Kevin McAlea, Chief Operating Officer at Nexa3D. "Historically, during prototyping, manufacturers could 3D print aesthetically pleasing models, but they were not durable. Or they could create functional parts that did not match the aesthetic requirements of production parts. We don't believe manufacturers should have to compromise any longer. Our close partnership with Henkel allows us to expand our suite of functional photoplastic and photoelastic materials, so customers can produce functional prototypes and volume production parts that have both an attractive surface finish and the durability they require."

"Henkel's portfolio of photoplastic and photoelastic materials are tailored to the high throughput of the NXE 400 ultrafast 3D printer, allowing design and manufacturing engineers to achieve the best results with both rapid prototyping and mass production," explained Simon Mawson, Senior Vice President and Global Head of 3D Printing at Henkel. "We plan to further strengthen our collaboration with the Nexa3D team and quickly expand our materials portfolio to help make rapid prototyping and mass production of functional parts more accessible." smi

Henkel
www.henkel.com

The combination of Nexa3Ds and Henkel's expertise enables the manufacturing of 3D printed parts such as protective gear, and grips, hoses, and pipes, gaskets, and seals footwear components and tooling for greater performance and functionality (picture: Henkel)

HASCO mould with additively manufactured hot runner system



Picture: HASCO

For the further development of the Streamrunner and also for customer demonstration purposes, HASCO Hot Runner has developed a new and innovative 32 cavity injection mould tool. The mould, that will produce shopping trolley tokens, will be trialled in the in-house injection moulding technical centre.

The special feature of the mould is the innovative 32-cavity HASCO Streamrunner. The additively manufactured hot runner manifold offers mouldmakers and injection moulders unprecedented freedom in design and opens the door to new design possibilities in mouldmaking. The 100% leak-free manifold offers particularly gentle passage of the melt and makes for considerably lower shear in the material, resulting in better quality mouldings. The flow-optimised design speeds up colour changes and material too. Through the use of the additive manufacturing process, very compact designs can be produced with a nozzle pitch down to 18 mm and minimum manifold height of 26 mm.

With the new test mould, the hot runner specialists at HASCO Hot Runner now have additional possibilities to obtain further knowledge in the application of additively manufactured hot runner manifolds, especially in the high-cavity segment. The first series of tests have confirmed all the advantages in the balancing of the Streamrunner. A filling study showed from the very beginning a very uniform opening behaviour of all 32 nozzles and synchronous filling of the individual cavities. In the coming months, further trials will be carried out with a wide variety of different thermoplastics. Furthermore, special tests are also planned in the field of colour change as well as individual maximum load tests.

In addition to the Streamrunner, numerous standard quality mould components are used in the token mould. Heat sensors additionally integrated in the system show a highly uniform temperature profile and confirm the previously carried out thermal simulations.

The new tool locks Z730/... secure the mould from unintended opening, whereby the smaller variation of the lock secures the ejector plate. The cycle counter A57300/... integrated from left counts every shot. The overall moulding tool is coordinated precisely through corresponding pressure plates. Numerous DLC-coated components ensure accurate and low-wear guiding and centring.

Apart from the above-mentioned tests, other innovative product ideas for the extended use of the Streamrunner will be tested very soon with the new injection moulding tool. These product ideas are already at the preparation stage. ***smi***

HASCO
www.hasco.com

HASCO Hot Runner is a business unit of HASCO which specialises in the production of innovative hot runner technology. The unit's 70 competent employees develop customised product solutions that are specially tailored to individual customer applications and produce them with very short processing times.

AMT launches new fully automated 2-in-1 system for maximum throughput

PostProDP MAX is a fully automated depowdering and shot blasting system designed for large component runs and/or use in large batches.

Additive Manufacturing Technologies Ltd. (AMT), a global leader in safe and sustainable automated post-processing systems for 3D printed parts, removes a major bottleneck in AM production throughput with the now available PostProDP MAX. Co-developed with Leering Heneglo, an internationally recognized producer of blasting equipment for metal and plastics processing industry.

Powered by continuous tumble belt technology for maximum throughput and process and part-size flexibility, PostProDP MAX is a fully automated depowdering and shot blasting system designed for large component runs and/or use in large batches.

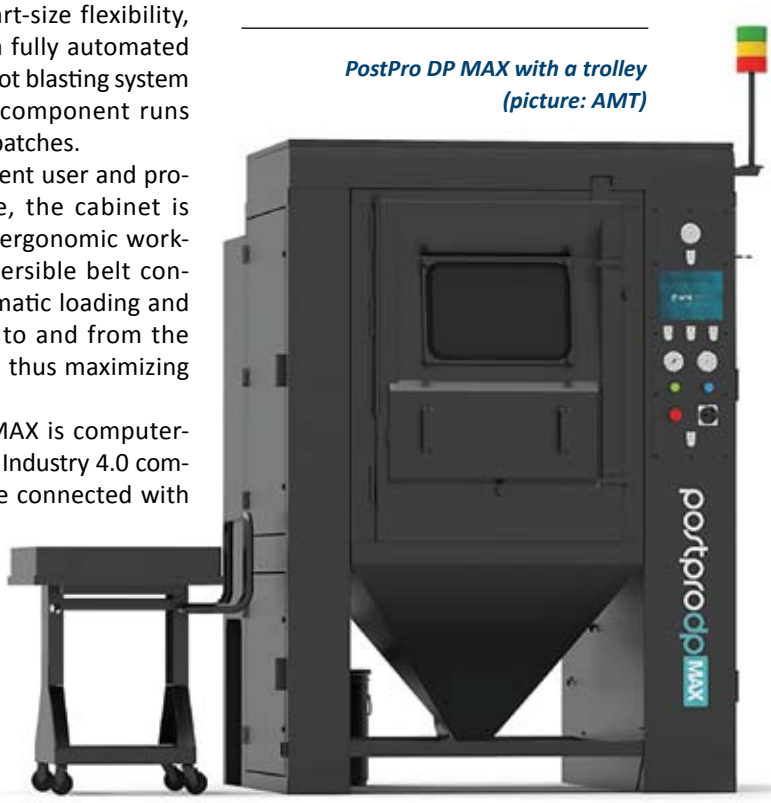
Providing an efficient user and production experience, the cabinet is front-loading at an ergonomic working height with reversible belt controls enabling automatic loading and unloading of parts to and from the transport container, thus maximizing throughput.

The PostPro DP MAX is computer-controlled to enable Industry 4.0 compatibility and can be connected with and integrated with other Manufacturing Execution Systems (MES) in a production workflow. Users are able to program and store recipes and processing parameters making cleaning 3D printed parts more efficient than ever.

Key differentiating features include a large processing space equipped with ionizing nozzles that leave the parts completely powder-free after blasting. The system is 3D printer material agnostic and works with all powder-based printer platforms including HP Multi Jet Fusion, Stratasys, EOS, Farsoon, and 3D Systems, as well as a range of thermoplastic polymers such as polyamides and elastomeric materials. The PostProDP MAX is suitable for all common abrasives and surface finishing media such as glass beads, polybeads, corundum, ceramics, nutshells, plastics, and fine sizes of stainless steel and steel.

PostProDP MAX is CE and ATEX certified and is constructed as one compact unit to minimize the machine footprint and maintenance cost. The system has been tested with customers across Europe and is available now to order from AMT.

PostPro DP MAX with a trolley (picture: AMT)



PostPro DP MAX:

PostPro DP MAX is a fully automated 2-in-1 depowdering and shot blasting system designed for maximum throughput.

Continuous Tumble Belt

Powered by continuous tumble belt technology for maximum throughput and process flexibility, the PostPro DP Max has a 63 liter processing volume and has been designed for use in large component and/or large batch production runs.

Efficient User Experience

The system is front loading at an ergonomic working height with reversible belt controls enabling automatic loading and unloading of parts to and from the transport container.

Digitally connected

Equipped with a Siemens S7-1200 PLC, the PostProDP Max can be connected with external Manufacturing Execution Systems and is able to communicate and integrate with other EMS in a production workflow. *smi*

AMT
www.amtechnologies.com

WITTMANN BATTENFELD live at the Fakuma 2021

All pictures: WITTMANN Group

WITTMANN Group is going to present its product highlights again live on site in Friedrichshafen. In addition to the exhibits on display at the booth, the company will offer its visitors the opportunity to receive information about further selected developments using its new media technology WITTMANN Interactive.

Following a year of "Fakuma break", the WITTMANN Group is now looking forward to presenting itself again live on site in Friedrichshafen and showing its product highlights at its booth. But this time, "live" is more than just being there on site. In addition to the exhibits to be viewed physically, WITTMANN will also offer the opportunity of live connection with its various facilities via its new media technology WITTMANN Interactive to obtain information about additional exhibits.

Highlight SmartPlus

The highlight of this year's presentation by WITTMANN BATTENFELD is the new SmartPlus. The SmartPlus is a servo-hydraulic machine which stands out by its high level of cost and energy efficiency, as well as repeatability. Thanks to the use of proven technologies and carefully selected options, short delivery times and an excellent price-performance ratio have been made possible for this machine.

A special feature of the SmartPlus is the new B8X control system with system components developed in-house. These enable a higher frequency, shorter response times and a higher repeatability rate for parts, with the same operating comfort as before and the familiar visualization concept. Of course, the SmartPlus also offers the KERS energy recovery technology originally developed for the EcoPower.

The SmartPlus is currently undergoing practical tests at selected customers. From the 4th quarter of 2021 onwards, the machine is expected to be available in a first series with clamping forces ranging from 60 to 180 t.

The advantages of the new SmartPlus will be demonstrated on a SmartPlus 180/750. This machine is equipped with the HiQ Flow® application software, the new CMS-Light condition monitoring system to monitor an ex-

tended range of service-relevant machine parameters and a GRAVIMAX G14 gravimetric blender. The automation system, using a PRIMUS 26T robot from WITTMANN, is implemented via an Easy Cell developed and manufactured by WITTMANN BATTENFELD Deutschland in Nuremberg. The Easy Cell mounted on castors requires no safety gate and thus takes up only a minimal amount of space beside the injection molding machine. In spite of its compact design, customers receive the complete range of CE-compliant safety features.

On the SmartPlus 180/750 a hubcap for lawn mowers will be manufactured from PP, using a mold supplied by Uralan, Germany. In the interest of sustainable manufacturing, the part will be produced from a mixture of virgin material with regrind. The HiQ Flow® software will be used to ensure adequate parts quality. This is a material viscosity-related injection control system to compensate the effects of temperature and batch fluctuations on the viscosity of the material.

Medical application on EcoPower 55 production cell

With the production of a hose clamp for medical technology in an 8-cavity mold supplied by WILAmed, Germany, WITTMANN BATTENFELD will demonstrate its digitization expertise. The machine to be used is an all-electric EcoPower 55/350, equipped with the software packages HiQ Flow® for compensating viscosity fluctuations, HiQ Melt for material quality monitoring and HiQ Metering for active closing of the check valve.

Equipment integrated in the machine's UNILOG B8 control system via WITTMANN 4.0 will include a WITTMANN W918 robot, an ATON plus H30 segmented wheel dryer and three temperature controllers from the TEMPRO plus D series, as well as the TEMI+ MES system. The electronic mold data sheet will also be used by UNILOG B8. It enables the production cell, integrated via a WITTMANN 4.0 router, to check whether the connected auxiliaries are sufficient for the selected product data set, or whether additional equipment is needed. In this application, too, the automation will be installed by way of an Easy Cell from WITTMANN BATTENFELD Germany.

LSR application on MicroPower 15/10H/10H COMBIMOULD

WITTMANN BATTENFELD will show its expertise in the area of LSR processing as well as injection molding of micro parts at the Fakuma by manufacturing a support ring with a silicone membrane made of PC and LSR on a MicroPower 15/10H/10H COMBIMOULD.

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.

SmartPlus 60

This multi-component version of the MicroPower comes equipped with two injection units in horizontal configuration and a rotary disc. The machine is laid out for clean-room injection molding. The rotary disc is completely encapsulated. All connections for heating aggregates, temperature sensors, water tempering, core pull pneumatics and sensors, as well as the blow-off valve, are mounted on the rotary disc. The connections to the mold have thus been kept short to enhance the machine's user friendliness. As in the standard machine, the injection units of the multi-component MicroPower also take the form of two-step screw-and-plunger aggregates with a shot volume of 4 cm^3, which enable processing of thermally homogeneous melt with minimal flow paths to achieve excellent parts quality.

The materials used to make the support ring presented are polycarbonate (Macrolon) from Covestro and a self-adhesive LSR (Silopren) supplied by Momentive. The mold has been constructed in cooperation with Nexus. The LSR dosing unit comes from Nexus and is equipped with a new Servomix dosing system including an OPC-UA interface (Euromap 82.3).

Hub cap for lawn mowers, produced on the new SmartPlus 180

IMAGOxt to minimize energy consumption

All machines exhibited at the WITTMANN booth will be equipped with the IMAGOxt software, an additional module for the MES TEMI+. IMAGOxt makes it possible to visualize and monitor the energy consumption, or energy flow.

IMAGOxt supports the preparation of a detailed energy cost analysis for the machines connected to it. This enables subsequent creation of user-defined KPIs, generation of personalized alarm signals and monitoring of the company's energetic performance.

AIRMOULD® Center

The latest developments in the area of AIRMOULD® internal gas pressure technology will be presented in a separate AIRMOULD® center at the booth. Here, interested visitors can gather detailed information about the opportunities this technology has to offer in terms of sustainable parts manufacturing, as well as the advantages of the new pressure control module and the AIRMOULD® Next manual operating device of the next generation.

WITTMANN Interactive – streaming from the fair to the technical labs

In addition to the exhibits on display at the booth, the WITTMANN Group will offer its visitors the opportunity to log in on site with the technical labs in Kottingbrunn, Meinerzhagen and Nuremberg, using the new media technology WITTMANN Interactive, in order to receive information about further selected exhibits.

Via WITTMANN Interactive, WITTMANN BATTENFELD will present existing technologies such the CELLMOULD® light-weight technology on a MacroPower 1100/12800. With this machine, a seat carrier for a German sports car model will be manufactured from PP using a single-cavity mold supplied by Frimo, Germany.

Moreover, inline recycling with a SmartPower 60 Ingrinder will be demonstrated at the Meinerzhagen facility. On this machine, a can with a lid made of PS will be produced using a double 2-cavity mold.

At the facilities, several new applications will also be shown in addition familiar technologies:

Injection compression molding for thinner wall thicknesses

In injection compression molding (ICM), the melt is injected into a mold which is not completely closed. The actual forming process takes place by way of pressing the melt into the cavity after the mold has been closed. In this way, the mold can be filled under lower

From the left: pressure control module and manual operating device for AIRMOULD® Next

pressure, which results in reducing the warpage inside the part.

WITTMANN BATTENFELD will present this technology in Kottingbrunn using a high-speed EcoPower Xpress 160/1100+. The machine is equipped with a WITTMANN robot for fast parts removal. Using a 4-cavity mold supplied by GLAROFORM, Switzerland, a thin-walled cup will be produced within a short cycle time. The highly dynamic drive technology of the high-speed EcoPower Xpress makes it possible in particular to work with the short injection times required for the ICM process.

Saving resources with AIRMOULD® Next internal gas pressure

With AIRMOULD® Next internal gas pressure technology, nitrogen is injected into the mold cavity, which is either partly or completely filled with melt, thus forming an internal cavity structure. In this way, light-weight parts can be produced within a short cycle time and simultaneously with good surfaces.

All necessary system components were developed by WITTMANN BATTENFELD. The pressure control module and the manual operating device required for use on machines of other brands have been thoroughly revised, with a special emphasis primarily on compact design of the new units, as well as improvement of user-friendliness and quality monitoring.

The new AIRMOULD® Next internal gas pressure technology will be demonstrated in Meinerzhagen with a SmartPower 120/525. On this machine, a towel holder made of polystyrene will be produced.

Decorated and functionalized surfaces

In a joint project with LEONHARD KURZ, a maker of functional foils and foil feeding equipment, and Syntech Plastics, an IMD technology supplier, WITTMANN BATTENFELD is continuing to drive the interesting and promising theme of decorated and functionalized surfaces for the automotive industry as well as white goods and other sectors, by supplying appropriate injection molding technology. To this end, the company is working on a machine concept which incorporates all essential elements for four different decoration processes and will be adjustable to specific applications. The equipment is to be laid out flexibly for IMD with a foil feeding unit, IMD with foil pre-heating, IMD Vario with pre-heating and thermoforming insert molding. The machine is equipped with the EXPERT-Coining package, which permits parallel mold movements during the injection process.

Via WITTMANN Interactive, the partners will present the production of an interior covering for the automotive industry with a functional surface at the WITTMANN BATTENFELD facility in Nuremberg on a SmartPower 300 production cell with automation and WITTMANN 4.0 integration. The finished interior part will be shown on demonstrators at both the WITTMANN booth and the booth of LEONHARD KURZ. *smi*

EcoPower 55

EcoPower Xpress 400

WITTMANN BATTENFELD
www.wittmann-group.com

Simply more: Allrounder More!

More space: larger mould dimensions and ejector strokes, and greater distances between tie-bars, more modularity: flexible injection positions for injection units, and more ease of use: plug-in media couplings and optimised material feed — with multi-component injection moulding. The Allrounder More series will be on show live for the first time at Fakuma this October.

Arburg is launching a new series for production-efficient multi-component injection moulding: the Allrounder More, with its particularly flexible configuration, can now be perfectly adapted to specific customer and market requirements. The machines offer increased space for larger moulds, greater modularity during assembly, as well as numerous optimised features for greater ease of use and simple maintenance.

"Multi-component injection moulding is a very significant and very demanding process. As a pioneer in this sector, we have more than 60 years of technical applications-based expertise. Our ultra-modern range of machines has been developed upon this foundation", explains Gerhard Böhm, Managing Director Sales and Service at Arburg. "We very much look forward to the Fakuma trade fair, at which we shall be showcasing the new Allrounder More which covers requirements down to the smallest of details. The first machines will be available to order from October 2021."

The German family-owned company Arburg is one of the world's leading manufacturers of plastic processing machines. The product portfolio encompasses Allrounder injection moulding machines with clamping forces of between 125 and 6,500 kN, the Freeformer for industrial additive manufacturing, plus robotic systems, customer and industry-specific turnkey solutions, and further peripheral equipment.
Arburg has its own organisations at 35 locations in 26 different countries and, together with its trading partners, is present in more than 100 countries. This creates an international sales and service network that allows the company to provide first-class customer support on the ground. Production takes place exclusively at the parent company in Lossburg, Germany.

Electric clamping combined with flexible injection

All Allrounder More machines are equipped as standard with a highly dynamic electric toggle-type clamping unit with energy-efficient liquid-cooled servo motors. At series start, the machines have two electric injection units and a clamping force of either 1,600 or 2,000 kN, as required. In future, it will be possible to select injection positions using modules. At series start, one horizontal and one vertical injection unit (V-position) will be available as standard. Horizontal L-shaped (L-position), parallel vertical or parallel horizontal (P-position), and angular (W-position) injection units will additionally be available as options. This will enable all common two-component applications to be realised.

Plenty of free space for mould and ejector

This is because Allrounder More machines provide significantly more space for moulds, rotary units, media connections and a usable ejector stroke. The tie-bars have been extended by 200 millimetres as standard and the moving mould mounting platen has also been enlarged by 200 millimetres. The distance between tie-bars is 570 x 570 millimetres, and the maximum platen daylight 1,200 millimetres. The sliding guard has also been widened by 400 millimetres. Together, all these features facilitate accessibility to the mould area.

The details make the difference

Special emphasis has been placed on ease of maintenance and use. Among such features are plug-in media couplings for electrics, water and hydraulics. The cylinder module can be changed in a few easy steps. The vertical injection unit can be conveniently positioned on a support frame, placed on the ground and transported separately from the machine if required.

The increased installation space of the Allrounder More offers more room for larger moulds and convenient mould changes

The material is fed outside the mould area so it cannot be contaminated by granules. Hose guides optimise hose routing and prevent possible chafing marks.

With its numerous improvements to details and modular design, the new Allrounder More series meets all the requirements of a modern multi-component machine. It offers customers from a wide range of industries added flexibility for precision configuration and greater efficiency in the production of high-quality plastic parts made from different materials and colours.

With the new Allrounder More, the material feed is positioned outside the mould area. The vertical injection unit can be quickly changed via plug-in media couplings (all photos: ARBURG)

Arburg at Fakuma 2021

"Wir sind da." At Fakuma from 12 to 16 October 2021 in Friedrichshafen Arburg's trade fair presentation will be focusing mainly on "The best of both worlds": "arburgXworld" and "arburgGREENworld".

The Allrounder More series for efficient multi-component injection moulding will be on show live for the first time. Further highlights will be the planetary roller screw drives developed and produced in Lossburg and the trendsetting GESTICA control system. A total of nine machine exhibits will demonstrate innovate applications and processes.

- Thin-walled IML cups for the packaging sector:
- Blood test tubes and 2K fluid housings for medical technology
- LSR face masks
- Hybrid parts
- Additively manufactured components made from original plastic granules and LSR materials. ***smi***

Arburg
www.arburg.com

Milacron expanded all-electric machine portfolio

FANUC Roboshot ALPHA-SiB (Photo: Milacron)

This leading industrial technology company has launched a new FANUC Roboshot ALPHA-SiB series, consisting of 55, 110, 140, 165 and 240-ton models, featuring a higher resolution/performance PANEL iH control and new electrical standards.

This spring Milacron, a leading industrial technology brand serving the global plastics processing industry, announced a new addition to Milacron's all-electric offering via the FANUC Roboshot ALPHA-SiB series available through Milacron to molders across North America.

Milacron is known globally for its injection molding machinery prowess and industry-leading solutions. Included in this portfolio are some of the industry's most innovative injection molding equipment, expertise Milacron has developed since 1968.

Milacron was proud to announce it is now offering the FANUC Roboshot ALPHA-SiB, which is based on the best-selling FANUC Roboshot ALPHA-SiA series and is a continuation of Milacron's partnership with FANUC in the Americas for over 35 years.

Mac Jones, the company's President, explained how Milacron's injection offering differs from Milacron's competitors: "As a company, we are proud to provide world-class solutions, technology, and service for our customers, and we look forward to continuing our valuable partnerships and advancing critical innovations across the plastics industry."

The ALPHA-SiB series, 55, 110, 140, 165 and 240-ton models are now available with variations of injection capacity. Expanding the flexibility of the ROBOSHOT line, smaller injection capacity models are now available in multiple sizes for high precision molding applications. Milacron planned to deliver its first ALPHA S140iB to a custom molder in the Midwest in the second quarter of 2021.

Milacron and FANUC have partnered to adapt the Roboshot Alpha to meet the requirements of a wide variety of applications on both the clamping and injection unit. Special features have been specifically developed for applications such as Medical, LSR, Optics, Electrical Connectors, and Packaging.

As an exciting example of these special features, Milacron's technical experts used 3D modeling to develop new high-flow capacity water systems to prevent operation without water flow.

"Over the last 2 years, these systems have proven to be invaluable for the medical and packaging industries." said Kent Royer, Technical Product Manager-ROBOSHOT. "Since NPE 2018, we also have seen a high demand for the integration of Mold-Masters Hot Runner controllers. Using Modbus and SPI communications, we've developed capabilities that will reduce human error in operation and allowing for the creation of custom shut-down sequences using the ROBOSHOT Customized I/O feature using ADD/OR logic."

The ALPHA-SiB series will include a higher resolution/performance PANEL iH control and new electrical standards. Additionally, Milacron announced that several previous options are now standard with the iB series, adding to the already long list of standard features that make it one of the most flexible platforms. This includes increased mold stack height, 3-stage air eject, expanded I/O for automation/sequencing, Precision clamp force control for consistent venting and reduced mold wear and 200 Operator ID with custom lock-out capability for security control and tracking.

Like all of the FANUC Roboshot injection machines, the ALPHA-SiB Series offers proven power, quality and reliability. This machine offers numerous upgrades for companies looking for a press with the most flexibility with lower overall life cycle costs, increased productivity/precision and overall business success. **smi**

Milacron
www.milacron.com

Performance screw output

Stork IMM offers screws with various geometries and l / d ratios for more output, better coloring or an optimal ratio if required, when both performances are demanded to the maximum.

Stork IMM develops, produces and maintains top quality injection moulding machines for markets where production speeds and reliability are crucial factors in the business model.
Stork IMM distinguishes its self by offering a product line for each application.

Customers choose their machine partly on the basis of information on the manufacturer's machine leaflets. The customer must therefore be able to rely 100% on the correctness of that data.

The screw output indicates how much plastic a screw can melt within a certain time. The manufacturer should indicate the screw output in grams per second (gr / sec) and in kilograms per hour (kg / hr). There is still sometimes a lack of clarity about the relationship between these values. It seems logical that the output in kg / hr is simply the output in gr / sec, multiplied by 3,600 and divided by 1,000. For a screw in an extruder this is true, but the geometry of a screw in an injection molding machine is different.

Screws of most injection molding machines (with the exception of shooting pot) cannot rotate continuously to melt plastic and as such they cannot provide enough heat for that to occur. At some point unmelted material would flow through; the so-called "windows" that you can see in a product if you hold it up to the light. On average, a screw from an injection molding machine for the packaging industry will stand still for about 30-40% of the cycle time.


All pictures: Stork IMM

The output of the screw in grams per second is generally dependent on the geometry, with coloring and output often being each other's enemies. The easier the plastic passes through the screw, the higher the output. On the other hand, more resistance results in better mixing / coloring, which also saves masterbatch. The high-performance screws from Stork IMM offer the best ratio between output and coloration. The output in grams per second is given at a certain screw speed. Up to a certain speed, the output of the screw in gr / sec is directly proportional to the speed.

For the output in kg / hr, the l / d ratio, i.e. the length of the screw in relation to the diameter, also plays a major role. The higher the l / d ratio, the higher the output, as the plastic takes longer and melts better. For a good comparison find out whether the manufacturer measures the length of the screw according to Euromap from the front of the hopper filler opening and not from the first screw turn. As a result, the l / d ratio appears to be greater than that according to Euromap and is incorrect in comparison with other manufacturers.

Stork IMM offers screws with various geometries and l / d ratios for more output, better coloring or an optimal ratio if required, when both performances are demanded to the maximum. Stork IMM also offers screws that give better coloring to regrind. **smi**

Stork IMM
www.storkimm.com

Creating repeatability for the critical color change process

Picture: Husky

Husky & Chem-Trend create a simple and effective color change feature for Altanium® hot runner temperature controllers. Collaboration brings forth an all-new guided process designed to drive competitive advantages for processors.

Husky Injection Molding Systems, Ltd., a leading industrial technology provider to the plastics processing community this summer announced its collaboration with Chem-Trend on a system solution that creates repeatability during the critical color change process to offer a faster, more accurate, and optimized approach for operators. The team devised a new guided procedure made easily accessible to operators within the Husky Altanium® Mold Controller operator interface. The instructions outline a simple, yet highly effective approach to setting up and performing the color change process explicitly for molds with hot runner systems.

The joint approach is based on the process for using Chem-Trend's Ultra Purge™ brand of purge compounds, which is designed specifically to reduce color-change time and carbon formation in hot runner systems.

"Fast and effective color change processes are essential for our customers, and we are continuing to see an upward trend in color change applications," said Mike Ellis, global business manager for Husky® Hot Runners and Controllers division. "Our collaboration with Chem-Trend and the integration with our Altanium® Mold Controllers addresses this critical market requirement and enables our customers to achieve more efficient and effective color change performance."

Together, Chem-Trend and Husky aim to significantly enhance their customers' operational margins by increasing equipment and labor uptime. Trial results showed up to an 85% reduction in scrap and an 80% increase in mold cleaning efficiency when following the recommended process.

"We know a lot is at stake for processors if the right purge compound and process are not used in color changeovers amounting to significant time and cost," said Graziano Pestarino, global account manager for thermoplastics solutions at Chem-Trend. "By combining our years of expertise in the field and our latest advancements in purging technology with that of Husky, one of the leading producers of hot runner systems in the industry, plastics manufacturers stand to reap immense benefits of productivity and control previously unachievable."

A System Approach to Color Change:

– Integrated Ultra Purge™ color change instructions settings. such as Shot Weight, Conversion Ratio, and Ultra Purge™ Quantity, used by the Altanium® Mold Controller throughout the color change process.

– A Purge Booster feature automatically adjusts the hot runner temperatures to ensure the fastest color change time is achieved.

– An automated soak timer is used to enhance the performance of Ultra Purge™ by altering the user of the optimal time to add new production resin to the hot runner system.

– A digital Cycle Count input from the injection molding machine can be configured to further automate the color change process by signaling when the correct amount of Ultra Purge™ compound has been used before moving to the next step.

– All Ultra Purge™ color change process settings are saved to a mold setup file for easy recall on the Altanium® Mold Controller based on the mold and color change process to be performed.

A highly integrated control platform for all hot runner and mold control needs

Altanium® mold controllers offer the industry's most integrated platform for single point access to the highly accurate and straightforward operation of temperature, servo and valve gate control. They also feature best in class diagnostic and fault recovery solutions and are available in various configurations for implementation in any injection molding equipment. ***smi***

Husky
www.husky.co

New MSR: the innovative Mechanical Stroke Regulator

Innovative mechanical stroke regulator for hydraulic driven valve gate systems avoids surface defects.

Oerlikon HRSflow has developed a Mechanical Stroke Regulator (MSR) for hydraulic driven valve gate systems that makes it easy to individually preset the opening positions of the pins in hot runner systems. Via a graduate scale adjusting screw the user specifies the individual oil volume, which the valve gate system then uses to bring the needles into the intended positions. In this way, the pressure drop for each nozzle can be set independently, and the pressure distribution during the packaging phase can be controlled.

Oerlikon HRSflow supplies its new MSR ready-to-install on all of the company's existing hydraulic cylinder series equipped with electrovalves. Installation can be limited to individual nozzles of a system to save costs. It only takes around 10 minutes and can be done without dismantling the mold. Modifications to the existing hot runner cutout are not required. Combined with Oerlikon HRSflow's FLEXspeed system, the speed of the pin can also be adjusted.

First users unanimously confirm the very good suitability of the new MSR for balancing the melt flow in cascade molding and thus avoiding surface defects by simple means. Numerous trials have also demonstrated its successful use in family molds.

Stephan Berz, Vice President Sales at Oerlikon HRSflow, comments: "We have recognized that numerous quality problems on parts that occur during the injection process can be positively affected by the management and correct positioning of the pin. The new MSR is the result of our developments to make the pressure drop proportional to the opening stroke of the pin. It allows for easy pin adjustment even with hydraulic actuation." smi

Oerlikon HRSflow
www.hrsflow.com

Hexagon empowers mould-and-die manufacturers

Hexagon's Manufacturing Intelligence division has provided all mould and die shops using its WORKNC computer-aided manufacturing (CAM) software with immediate access to its powerful model preparation software, integrating production workflows from any computer-aided design (CAD) model format to CAM so they can machine parts more efficiently and avoid costly errors.

The transition from engineering to production can be prolonged without the right tools to efficiently prepare solid models for manufacturing, impacting profitability. By providing WORKNC customers with access to its robust and fully featured CAD application, DESIGNER companion, Hexagon has made it easier to prepare any mould or die for machining while simplifying the challenge of working with a wide range of file types from different CAD tools used in the industry. Because the software provides specialist tools for mould-and-die engineering out of the box, the resulting workflow significantly simplifies the preparation of models that are both feasible and optimised for efficient production.

Introducing universal access to CAD preparation helps users to accelerate the process of healing missing faces, extending surfaces, and capping holes and pockets in preparation for manufacturing. It also provides direct modelling functions that are easier, more intuitive, and less limiting than traditional parametric modelling. Users can also employ a hybrid design approach that combines surface and solid entities through direct-modelling techniques. Once ready, users can send solid models directly from DESIGNER to WORKNC, and the integrated workflow will save them time by ensuring accurate models are automatically assigned as stock and part.

"We are providing every shop with out-of-the-box access to powerful mould and die workflows, so industry professionals have everything they need to ensure that parts are not only manufacturable, but they are also machined to the designer's intent and produced as efficiently as possible," said Market and Product Manager Miguel Johann. "Universal CAD access simplifies the often-arduous process of preparing models for production while introducing a one-click transfer of completed designs directly to CAM software, which makes the entire process even faster."

Once a model is prepared, new advances in WORKNC's programming capabilities reduce the time spent calculating toolpaths and help to generate faster and more efficient code for reduced cycle times. Used with a spiral toolpath option, the software's 3-axis parallel finishing strategy supports compensation for any tool shape, including lens cutters, barrel cutters and

Hexagon is a global leader in sensor, software and autonomous solutions. The company is putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.
Hexagon's Manufacturing Intelligence division provides solutions that utilise data from design and engineering, production and metrology to make manufacturing smarter.
Hexagon has approximately 21,000 employees in 50 countries and net sales of approximately 3.8bn EUR.

WORKNC 3 + 2 Axis Roughing: WORKNC ensures that the angles required for a 3+2 toolpath can be achieved on a specific machine, and without collisions (All pictures: Hexagon)

any other circle-segment tools. On average, Z-level cutting toolpaths using this strategy can now be calculated four times faster than in previous versions of the software.

New strategies for machining with Advanced Toolform technology, which supports programming with any tool shape for greater efficiency, are central to new developments in WORKNC. New 5-axis offset, parallel finishing, and curve-machining strategies can be used to generate fast, reliable toolpaths with barrel cutters, lens cutters, and other user-defined shapes for improved surface finish and reduced cycle times.

Contour re-machining with Advanced Toolform makes rest finishing parts faster and more precise by enabling any tool shape to be selected. This re-machining strategy enables users to automatically machine material remaining after an initial roughing operation using increasingly smaller cutting tools for subsequent roughing and finishing operations. This provides more accurate detection of remaining material even when previous processes used circle-segment tools, smoothing radius parameters, or were applied from a different angle. The calculation of the toolpath is now also three times faster than in the previous version of the software when using the updated 3D stock model as a reference.

WORKNC also offers the latest in curve-profiling technology for wireframe machining by providing robust tool-radius compensation capabilities. The curve-profiling strategy enables the management of tool-radius compensation parameters that can be used to adjust for tool wear at the machine-tool control without the need to return to the CAM department for reprogramming.

For enhanced simulation and verification capability, the latest release of WORKNC also enhances workflow integration with NCSIMUL, Hexagon's machine-simulation software. Numerical control (NC) code and links for toolpaths generated by WORKNC can be easily imported into NCSIMUL to simulate the manufacturing process on a target machine type and validate it for optimal, risk-free production.

Mold Cavity: WORKNC provides specific fluid and progressive toolpaths designed for High Speed Machining

WORKNC with Mold, Die & Tooling

All WORKNC software products were originally developed for the mold, die and tooling industry. Cutting complex shapes quickly in tough materials and interpreting and manipulating large CAD files are common requirements in this sector.

WORKNC has powerful CAD tools for importing data, repairing and analyzing surfaces, creating split lines and modifying geometry ready for manufacture. Machining operations can take many forms, but all are geared towards simple operation, fast and efficient machining, collision avoidance and high quality surface finish. For example, trochoidal machining paths enable rapid machining of hard materials using high speed machine tools, while at the same time contributing to improved surface finish and longer tool life.

Special modules facilitate the programming of wire erosion machines and the extraction, machining, and positioning of electrodes.

WORKPLAN, the ERP manufacturing management solutions are designed for custom manufacturing and are tailored to suit the activities of mold, die and tooling manufacturers. Covering all aspects of the enterprise from quotation through to delivery and after sales service, the software monitors the complete lifecycle of the job, checking performance against the original plan to maximize profitability. ***smi***

Hexagon
www.hexagonmi.com

All pictures: CoreTech System

Moldex3D 2021 unlocks competitive edge for plastic businesses

The new generation of Moldex3D continues to refine simulation capabilities to provide better user experiences. More powerful analysis modules are also incorporated in the system to meet different customer needs across industries.

This spring CoreTech System Co., Ltd. (Moldex3D) announced the release of Moldex3D 2021 – the latest version of its molding analysis software series. In response to a faster changing market in the Industry 4.0 era, Moldex3D 2021 helps businesses realize seamless design and manufacturing integration, producing world-class products within stricter time limits.

The important updates and highlights of Moldex3D 2021 are as follows:

Simulation reports are more accurate and customized

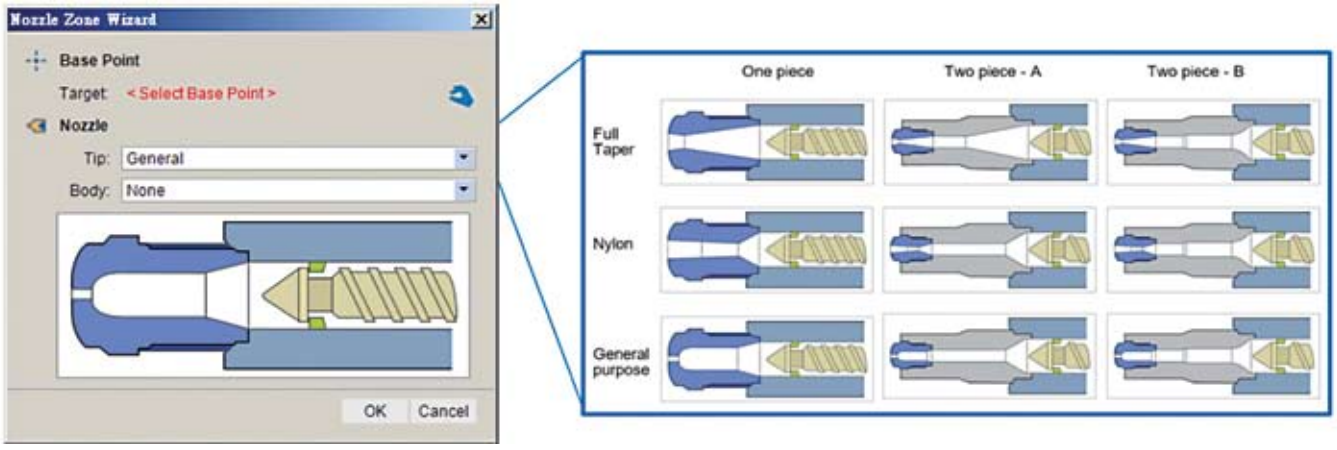
For common shrinkage and warpage prediction of injection molding, Moldex3D 2021 combines the material and stress characteristics of plastic phase changes in the packing stage, highly increasing the prediction accuracy. Furthermore, mechanical property simulation is introduced to optimize the calculation accuracy of short fiber materials, enabling users to receive better results of warpage prediction of fiber-filled materials. The curve construction and editing capabilities are also enhanced to generate higher-quality mesh with greater success rate and efficiency. With the newly added Nozzle Zone Wizard as well as the upgraded Gate, Runner and Cooling Channels Wizards, users are able to optimize designs with parameters and automatic mesh generation, making design validations easy and precise.

Different analysis reports are required based on mold characteristics. Users can use Studio 2021 to customize their report format and choose which items to display.

Seamless integration of virtual and reality. Access every data at your fingertips

Nowadays, enterprises emphasize more on data cloudization and digitalization. However, how to integrate virtual and real data is a challenging task. With Moldex3D iSLM, users can manage, share, and compare mold trial results and molding analysis through a simple click using their laptops or smart phones. Information can be accessed anytime, anywhere.

Moldex3D 2021 has also optimized the efficiency of submission process and parallel processing on Linux HPC



Nozzle Zone Wizard

(High Performance Computing). Engineers can run molding simulation efficiently on the remote Linux HPC cluster, on private or on public cloud, making it possible to analyze and calculate millions of elements in minutes.

Enhanced accuracy in advanced process and composite materials. Meet and surmount demands from rapidly changing industry

The market always pursues progress. Advanced process simulation needs to be more precise. Moldex3D never stops constructing high-end advanced process prediction capabilities, assisting companies to be more competitive in product development and optimization. Moldex3D's non-matching mesh technology reduces the mesh generation time and improve the accuracy for RTM (Resin Transfer Molding) simulation of multi-layer fiber mat draping design. The new physical foaming capabilities provide a new microscopic foaming prediction model, which greatly increases the prediction precision of the existing modules of different foaming processes.

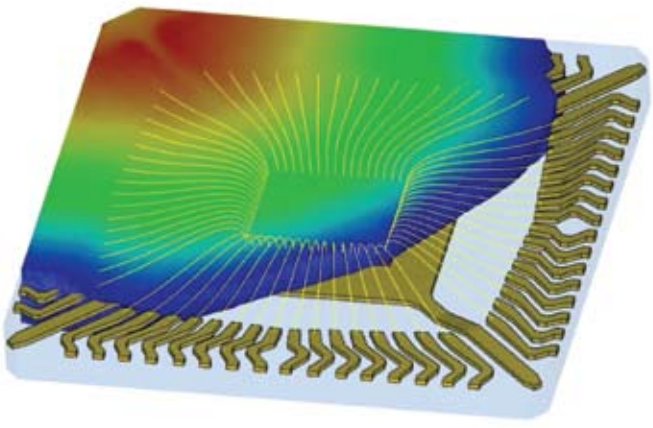
In addition to the above breakthroughs, Moldex3D 2021 also supports Fiber-mat thermoplastic continuous fiberboard composite simulation. By setting the continuous fiber material property values, users can analyze how fiber orientation impacts product quality and mechanical strength to further optimize their product designs.

Complete support for IC Packaging process simulation. Flawlessly respond to every detail

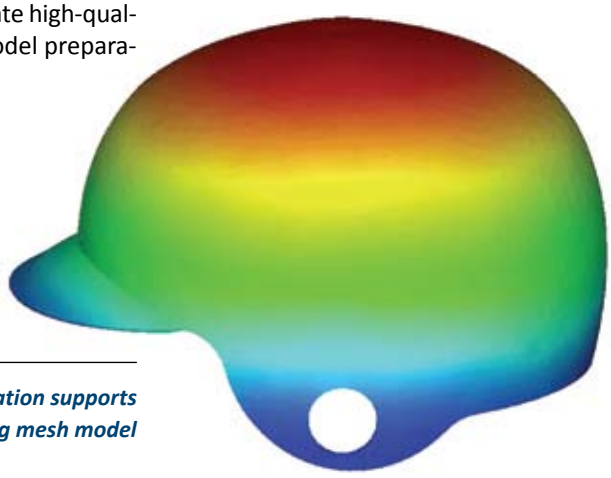
Due to the trend of intellectualization and electric vehicles, global industries have rising demand on reliable IC product performance. Advanced IC packaging technology plays an increasingly critical role in manufacturing process. Moldex3D's new potting simulation capabilities are now available for IC packaging users. The Pre-processing Wizard can quickly generate high-quality mesh, which saves model preparation time and helps users validate IC packaging design, reducing trial and error costs significantly.

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

CoreTech System
www.moldex3d.com



High-speed, detailed and multi-functional IC packaging process simulation



RTM simulation supports non-matching mesh model

Proactive production monitoring anytime and anywhere

KraussMaffei has launched socialProduction, its mobile app and web application for injection molding machines. This innovation combines the advantages of social media with cutting-edge production monitoring technologies. The machines report to the users live in secure chat rooms.

Picture: KraussMaffei

Working autonomously, socialProduction detects deviations in the production process at an earlier stage than ever before and elevates machine monitoring into a new era.

View the machine status anytime, anywhere

socialProduction ensures that all important injection molding machine information is visible in real time. It can be viewed either on a mobile device using the smartphone app or on a computer using the web application.

The machine overview ensures the ability to get a quick view of the machine pool and provides intelligent production metrics that help to monitor each connected machine efficiently. The history of the machine status is displayed in the form of a machine-time profile. The progress of ongoing production orders is made transparent and easily trackable.

Fast problem detection and easy communication

In addition, KraussMaffei is breaking ground in the process support area. The production process of the injection molding machines is monitored continuously by a patented, self-learning process. Relevant anomalies and trends in the process are identified at an early stage based on all detected machine data and communicated proactively by means of user notifications. The process parameters are evaluated completely autonomously and without prior configuration by the process owner.

With socialProduction, each connected machine becomes an active team member. In chat messages, the machines provide information about important events such as parameter changes and alarms. The chat also helps the employees communicate among each other and facilitates collaboration between different production shifts and locations.

Connectivity: the key to digitalization

The data's journey starts right in the machine. Since January 1, the KraussMaffei smartCube has been part of the standard equipment of every new injection molding machine. This future-proof and standardized hardware solution for operation of KraussMaffei digital products is 5G wireless and Smart Factory ready. All data streams are captured, analyzed and stored right at the machine in real time. Regular over-the-air updates ensure the security of the globally distributed devices over the entire lifecycle.

The globally available IIoT cloud infrastructure, which is based on Amazon Web Services (AWS), makes it possible to give users of socialProduction everywhere in the world a uniform live experience on various terminal devices, such as a desktop computer, smartphone or tablet.

Compatible with all machine generations

KraussMaffei also gives its customers the ability to retrofit machines with network capabilities to make them ready for the digital future. The KraussMaffei smartCube features numerous interfaces that give it enough flexibility to be used with almost any existing machine. This ensures that customers with older series machines need not miss out on the one-of-a-kind advantages of socialProduction.

In the near future, these interfaces will also provide a uniform view of the entire production facility, because socialProduction will soon also be available for machines from third-party suppliers. ***smi***

KraussMaffei
www.kraussmaffei.com

Optimised tracking planning for shorter cycle times

ENGEL is expanding its range of smart assistance systems for Fakuma 2021. The new iQ motion control enables ENGEL viper series linear robots to make a safe early start combined with fully automatically optimised track planning. This means double benefits for users, through time savings in the teach-in and shorter production cycles.

Where the injection moulding machine and robot coordinate their movements, this reduces the cycle time in many applications. This is because the robot arm can already move into the mould area while the machine is still moving, i.e., although the mould is not yet completely open. To ensure that the robot moves parallel to the mould mounting platen, individual movement points as well as the speed and acceleration of the entry movement are specified during the teach-in. The trajectory along the individual points is determined manually in legacy applications. But the new iQ motion control reduces this teach-in overhead to a few clicks. The software calculates the optimum motion for the respective part removal process, and this further reduces the overall cycle time of the injection moulding process.

Faster part removal without waits

The prerequisite for parallel motion is that the injection moulding machine and robot share a database, as is the case with integrated system solutions by ENGEL. When it moves into the mould area, the robot does not need to wait for the mould to open completely. Due to the familiar "early start" feature, which is now integrated in iQ motion control, the robot starts moving parallel to the moving mould mounting platen.

A suggestion for the early start position based on the robot and machine setting parameters is displayed on the iQ motion control setting screen. This allows even less experienced machine operators to take full advantage of iQ motion control. The software relies on a two-stage safety system to safely rule out any collision between the robot and the moving mould half despite early entry into the machine area.

iQ motion control works with automatically optimised track planning, reducing both the teach-in overhead and the cycle time (picture: ENGEL)

Large mould opening stroke, large efficiency gain

iQ motion control will be included in the standard scope of delivery of all new linear robots in the ENGEL viper series from October. Independently of the injection moulding machine type and the type of part removal, injection moulders will see benefits even for simple handling tasks. The efficiency gains are particularly clear in applications with large mould opening strokes, such as the production of deep housing components, boxes or containers, which require long mould cores. ***smi***

ENGEL
www.engelglobal.com

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

Evonik and Farsoon partner on materials with higher temperature resistance

The specialty chemicals company Evonik and China's largest SLS 3D printer manufacturer Farsoon are strengthening their collaboration in powder-based 3D printing.

Evonik has successfully tested its high-temperature resistant ready-to-use powder material INFINAM® PA 6005 P (polyamide 613) on Farsoon's ST252P series machines (picture: Farsoon)

The specialty chemicals company Evonik and China's largest SLS 3D printer manufacturer Farsoon are strengthening their collaboration in powder-based 3D printing. Both companies aim to open up market access to new large-scale industrial applications in the higher temperature range. Evonik is contributing its expertise in polymer-based 3D printing materials and Farsoon is bringing its expertise inpowder-based 3D printers to the joint effort. As a part of this, the specialty chemicals company has already successfully tested the ready-to-use polymer powder INFINAM® PA 6005 P (polyamide 613) with higher temperature resistance on Farsoon's ST252P and HT403P series machines. The development of new formulations is underway.

Farsoon Technologies, founded in 2009 in China, is a system supplier of industrial grade plastic laser sintering and metal laser melting systems. Farsoon has developed a team of world-class experts with competencies in electrical/mechanical engineering, laser, scanning and optics, thermal controls, as well as material development and applications engineering.

INFINAM® – Materials for infinite 3D applications

"Close collaboration between material and machine manufacturers is essential to open up new 3D applications. The results of our test series are clear: INFINAM® PA 6005 P with its higher melting point of 215 °C can not only be excellently processed on Farsoon's ST252P and HT403P machines, but also recycled. We used our synergies to develop a market-ready system solution," says Wolfgang Diekmann, Director Research, Development & Innovation Additive Manufacturing at Evonik.

INFINAM® PA 6005 P is a high-performance powder from Evonik's polyamide 6 series. The material has high mechanical strength, high chemical and temperature resistance, and low water absorption - below 3 percent. The latter has a positive effect on processability in the 3D printing process and the dimensional stability of the printed component. The objects printed from the PA 613 powder material impress with high stiffness and mechanical stability, even in thin-walled constructions.

Technology synergies open up new applications

Farsoon's machines offer configuration options that can reach process chamber temperatures of up to 220 °C (HT) or up to 280 °C (ST). Improved thermal controls, temperature-protected components and open parameters provide customers with the ability to process high-performance polymers such as Evonik's PA 613 with excellence. The machines are equipped with high-speed scanners and powerful lasers. The high productivity of component production increasingly enables series applications.

"We are very pleased to be able to offer further opportunities to the additive manufacturing market by proactively supporting new applications in the higher temperature range," says Dr. Dirk Simon, Managing Director of Farsoon Europe GmbH and responsible for polymer material topics in Farsoon's Global Management Team. "The excellent compatibility of our SLS machines with Evonik's polymer powders, as well as the very interesting property profile of PA 613 components, form important foundations for our customers' market success."

Evonik is one of the world leaders in specialty chemicals. The company is active in more than 100 countries around the world and generated sales of €12.2 billion and an operating profit (adjusted EBITDA) of €1.91 billion in 2020. Evonik goes far beyond chemistry to create innovative, profitable and sustainable solutions for customers.

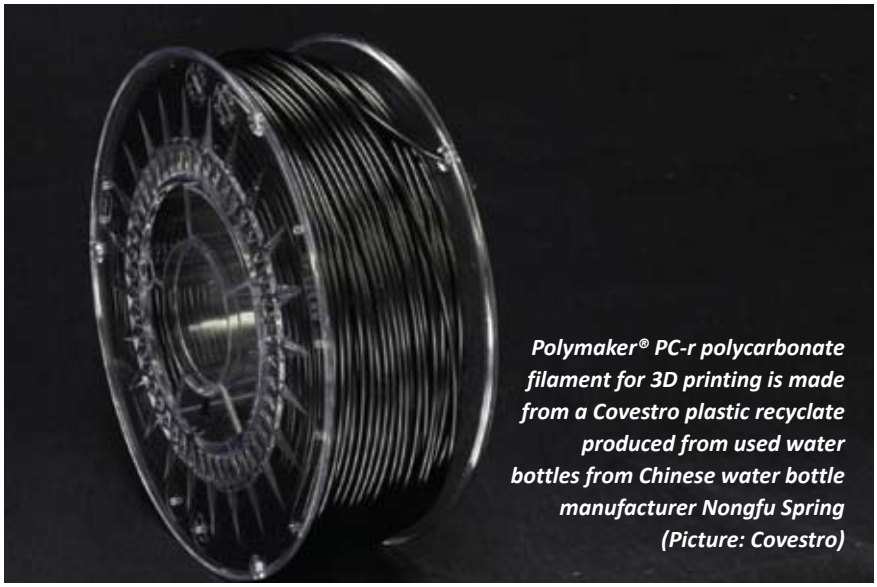
Polymer powders with excellent flow properties

The new polymer powder in Evonik's polyamide 6 series with its nearly round grain shape enables excellent flowability and application properties, making it suitable for all powder-based 3D printing technologies. A proprietary procedure is employed to produce the high-temperature material at the company's Marl site.

Evonik bundles its expertise in 3D printing in the groups' additive manufacturing innovation growth field. The strategic focus is on the development and production of new high-performance materials for all major polymer-based 3D printing technologies. In this context, Evonik has organized its product range under the new INFINAM® brand and is driving forward 3D printing as a large-scale industrial manufacturing technology along the entire value chain. *smi*

Evonik
www.evonik.com

Covestro makes recycled plastic suitable for 3D printing



Polymaker® PC-r polycarbonate filament for 3D printing is made from a Covestro plastic recyclate produced from used water bottles from Chinese water bottle manufacturer Nongfu Spring (Picture: Covestro)

Covestro and Polymaker collaborate on a polycarbonate filament with reduced CO_2 footprint made from recycled plastic bottles from Chinese water supplier Nongfu Spring. The new material was trialed by INTAMSYS. This is another example of how Covestro is helping to build a circular economy in collaboration with multiple partners along the value chains.

Polymaker, a leading manufacturer of 3D printing materials, uses a recycled polycarbonate developed by Covestro, a globally leading materials supplier, to produce Polymaker™ PC-r, the polycarbonate filament for 3D printing made from recycled plastic. The material comes from 19-liter bottles from Chinese water supplier Nongfu Spring, which contain polycarbonate in a fairly pure form. Covestro blends the plastic waste with virgin material to yield a polycarbonate base that can be extruded into filaments for use in electronics automotive and other industries.

The filament is particularly suitable for brands wanting to make their supply chain more sustainable, especially in combination with 3D printing technology for production on an industrial scale. Compared to virgin material, the filament using recycled material has a lower carbon footprint. The product is also more durable and meets industry-specific requirements such as the Blue Angel and EPEAT seal.

The fact that the waste comes from one single source is an advantage. This means that no prior sorting and identification of the plastics is necessary. The plastic waste is quite pure and can be recycled in a cost-effective manner. In addition, it is available in sufficient quantities. In China, large-volume water bottles are widespread in private households and public places. These are collected and refilled again and again before finally discarded and sent for recycling. This is another example of how Covestro is helping to build a circular economy in collaboration with partners along the value chains.

The high temperature post-consumer product has outstanding thermal stability and strength. Because of its properties, a constant temperature chamber is required to print successfully.

Machine manufacturer INTAMSYS (a world-leading high-tech company providing 3D printing and industrial direct additive manufacturing solutions for high-performance materials) conducted print tests with Polymaker™ PC-r on its FUNMAT PRO 410 printer. The printer can achieve a dual jet temperature of up to 500°C and a platform temperature of up to 160°C. The chamber temperature can be up to 90°C, which prevents warping of printed parts and allows larger and more complex models to be printed more successfully.

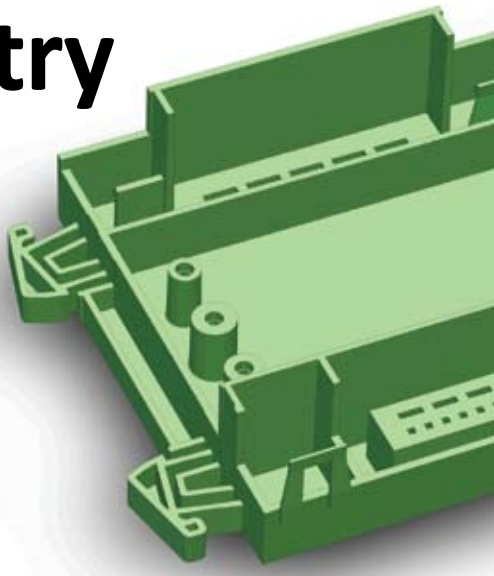
Tests have demonstrated that the Polymaker™ PC-r material is extremely easy to process. The test scores show good values for tensile strength, Young's modulus, flexural strength and flexural modulus, which were slightly higher than standard polycarbonate. *smi*

Covestro
www.covestro.com

Covestro is among the world's leading polymer companies. Business activities are focused on the manufacture of high-tech polymer materials and the development of innovative, sustainable solutions for products used in many areas of daily life. The main industries served are the automotive and transportation industries, construction, furniture and wood processing, as well as electrical, electronics, and household appliances industries. Other sectors include sports and leisure, cosmetics, health and the chemical industry itself.

LANXESS expands customer service for the electrical and electronics industry

The specialty chemicals company is expecting a sharp rise in demand for the flame-retardant variants of these plastics due to increasing electric mobility and digitalization in all areas of life.



Picture: LANXESS

In addition to the automotive industry, the electrical and electronics (E&E) industry is the most important field of application for the LANXESS thermoplastic compounds Durethan (polyamide 6 and 66) and Pocan (polybutylene terephthalate). The specialty chemicals company is expecting a sharp rise in demand for the flame-retardant variants of these plastics due to factors such as increasing electric mobility and digitalization in all areas of life. Processors of these plastics are being supported with an extensive range of technical services such as demolding and flow property analyses. LANXESS has recently expanded its service offering in this area. An experimental injection mold for an application-focused part was developed in the company's own technical lab for polymer processing at the Dormagen plant. The mold reflects the typical challenges encountered during injection-molding of flame-retardant polyamide and polyester compounds.

"We want to use this mold for the realistic analysis of new flame-retardant as well as hydrolysis-stabilized materials. First, our aim is to identify their special processing characteristics ahead of time so that we can adapt the formulations, where required, already during the product development stage," explains Katharina Schütz, a project engineer at the polymer processing lab of the High Performance Materials (HPM) business unit. "Second, we want to give processors of our flame-retardant plastics specific processing recommendations for serial production."

Reproducing and addressing customer challenges in a practice-based manner

Most flame-retardant thermoplastics have a narrower processing window than standard products due to the additives that are used. If the process parameters are not chosen ideally, this can result in deposits on the mold or surface defects on the component. Non-ideal processing can also often impair the mechanical properties of the compounds. Schütz: "This experimental mold allows us to reproduce these challenges in a practice-based manner and find ways for improvement."

The injection mold developed by the HPM plastics experts is a highly functional, housing-like demonstrator part integrating numerous aspects from different areas of application. Its complex geometry exhibits sudden changes in wall thickness, openings, larger planar sections, ribs and rough "imitations" of plug connections. Snap fits with different geometries – similar to those on e.g. terminal blocks – have also been integrated along with screw bosses of varying diameters.

Material analysis tests on the component

"The palm-sized part can also be used for mechanical, electrical and flame-retardant testing to evaluate the performance of a material depending on various process parameters and practical geometry," explains Sarah Luers, an expert in E&E application development at HPM. The tests that HPM performs among others at its part testing center include drop tests, tracking resistance measurements in accordance with UL 746A or glow-wire tests in accordance with IEC 60695-2-11 to -13.

Analysis of stress cracks in overmolded metal parts

HPM is constantly expanding its processing toolbox so that it can continue to provide effective support for its customers in the E&E industry. An experimental mold for plastic-metal hybrid parts will also be brought into operation in the future. "Plastic components featuring overmolded metal inserts can be susceptible to stress cracks when they are exposed to large temperature fluctuations. We want to use the new hybrid mold to investigate and improve the crack resistance of materials that we are specially developing for these applications," says Luers. The business unit is also planning to use the mold to validate a simulation model for predicting stress cracks depending on factors such as the material, component geometry and processing parameters. **smi**

LANXESS
www.lanxess.com

All pictures: DIC

DIC Group finalizes acquisition of BASF's Global Pigments Business

DIC Corporation has closed on the acquisition of BASF's global pigments business, known as BASF Colors & Effects (BCE). The Company will reexamine its consolidated operating results forecasts in the near future and will promptly disclose any revisions.

As announced in a press release published on August 29, 2019, DIC had reached an agreement with BASF regarding the acquisition of the BCE business, which involved related assets, including technologies, patents and goodwill not included in the share purchase, as well as the shares of 18 individual companies. Since then, DIC Group (DIC Corporation and its 100% owned subsidiary Sun Chemical) and BASF have been working closely together to close this transaction. Effective today, all related procedures have been finalized and the acquisition has been completed.

In fiscal year 2019, DIC kicked off a new medium-term management plan, DIC111, which guides the Company's aspirations to become a unique global company that is trusted by society by providing value via the promotion of initiatives in line with two key strategies. The first is "Value Transformation," which focuses on strengthening the Company's corporate structure through qualitative reforms of businesses, while the second is "New Pillar Creation," which emphasizes creating new businesses in response to environment, safety and health (ESH)–related issues, as well as to social changes.

Based in Europe and with sites around the world, BCE, now a member of the DIC Group, has established itself as a prominent global manufacturer of high-performance pigments, effect pigments (for cosmetics) and specialty inorganic pigments. The business portfolios—including the technologies, products, production facilities, supply chains and customer service capabilities—of BCE and DIC Group harmonize well with each other, with little overlap.

The acquisition brings together the complementary portfolio of technologies, products, manufacturing assets, supply chain and customer service of the two companies to serve customers globally.

"We're excited to close our acquisition of BCE and expand our product offering as one of the leading pigment suppliers globally" said Kaoru Ino, President and Chief Executive Officer of DIC. "BASF's pigments portfolio is an important strategic addition in expeditiously meeting the goals we've outlined, which provide a clear growth path for DIC Group with the target to increase our sales to 1 trillion yen (approximately €8 billion) by 2025."

The purchase will broaden DIC Group's portfolio as a global manufacturer of pigments, including those for electronic displays, cosmetics, coatings,

inks, plastics and specialty applications, by creating a world-class pigments supplier that offers customers an even wider range of versatile solutions.

"BCE is a strategic partner who aims for high growth and high added value by expanding functional pigments into niche applications. Due to the complementary regional footprint and product portfolio, the acquisition of BCE is ideal within the DIC pigments business," said Yoshinari Akiyama, DIC Managing Executive Officer and General Manager of the Color Material Products Division. "Closing this deal enables us to combine the technological capabilities of both companies so we continue to create new value and provide it to the market as a leading company in the pigment business."

"We're pleased to welcome the valued and trusted expertise and engagement of BASF's employees in the pigments business," said Myron Petruch, DIC Executive Officer and President and CEO of Sun Chemical, a subsidiary of DIC Corporation. "This deal allows us to compete in the global marketplace more effectively going forward, while strengthening our pigment footprint in Europe. It underscores our commitment to delivering solutions tailored to meet the needs of our customers."

Customers will benefit as the acquisition offers a unique opportunity to combine complementary know-how and best practices to develop groundbreaking innovative solutions for the marketplace. As a company that strives for Color & Comfort, DIC believes that it can contribute to its customers by providing colors to society and life.

With over 30 pigment production facilities worldwide between DIC and BCE, the company's pigment portfolio will be able to offer broader product categories related to effect pigments, inorganic pigments, organic pigments, specialty dyes, and pigment preparations.

"This deal combines the complementary resources and expertise of two recognized leaders in innovation, product stewardship, regulatory leadership, application support and manufacturing," said Mehran Yazdani, President, Performance Pigments and Advanced Materials, Sun Chemical. "We're looking forward to offering our customers the absolute best support and continued innovation in the pigments space."

For Dr. Alexander Haunschild, Senior Vice President and Managing Director at BASF's pigment-focused subsidiary BASF Colors & Effects, the agreement will help continue the growth path started in 2016. "The investments of DIC prove its commitment to innovations and interest in the longer term success of the business. We're excited to see BCE continue down a path of growth and success."

A transition team continues to work to ensure a smooth transition for customers and employees.

White & Case LLP served as legal counsel and Morgan Stanley served as financial advisor to DIC.

DIC is a fine chemicals company with a top share in printing inks, organic pigments and PPS compounds in the global market. Established in 1908 as a manufacturer of printing inks, DIC has capitalized on its capabilities in organic pigments and synthetic resins to build a broad portfolio to markets such as automotive, electronics, foods and housing. DIC operates in more than 60 countries and territories around the world today.

DIC has capitalized on its capabilities in organic pigments and synthetic resins, the principal material for printing inks, to build a broad portfolio. Today, DIC classifies its products in three business groups: Packaging & Graphic, Color & Display, and Functional Products. Through these business groups, the DIC group works to provide products and services that respond to the needs of society and its customers. DIC is also working to create new businesses addressing local and global and social challenges. *smi*

DIC
www.dic-global.com

exhibitions calendar

Equiplast
14-17 September 2021
Barcelona, Spain
www.equiplast.com

Equiplast is a specialized trade fair in the field of plastic manufacturing. It is a meeting ground for manufacturers from Europe and South America. Equiplast shows technical and technological innovations and advancements - the next generation of plastic and rubber solutions.

Plastpol
21-23 September 2021
Kielce, Poland
www.targikielce.pl/en/plastpol

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

Interplas
28-30 September
Birmingham, UK
www.interplasuk.com

Interplas is the UK's largest plastics exhibition and the only UK event to cover all of the manufacturing processes, technologies and services within the plastics industry. Held triennially Interplas showcases hundreds of exhibitors, the event features a wide range of technologies including injection moulding, rotational moulding, extrusion, blow moulding, thermoforming, vacuum forming, film extrusion, recycling, materials and design.

FAKUMA
12-16 October 2021
Friedrichshafen, Germany
www.fakuma-messe.de

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

Arabplast
15-18 November 2021
Dubai, UAE
www.arabplast.info

Arabplast has become one of the biggest events in the plastics and rubber industries in the United Arab Emirates developed. International exhibitors are represented at this exhibition and present their latest innovations, technologies and machinery in the industry.

Formnext
16-19 November 2021
Frankfurt am Main, Germany
www.formnext.com

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

Plast Eurasia
01-04 December 2021
Istanbul, Turkey
www.plasteurasia.com

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

Interplastica
25-28 January 2022
Moscow, Russia
www.interplastica.ru

Interplastica is an international specialized exhibition for plastics and rubber processing and the region's leading industry platform. It provides a representative overview of machinery and equipment for the plastics and rubber industry, as well as processing and recycling machinery, tools and peripheral equipment, measuring, controlling, regulating and verification technology, raw and auxiliary materials, plastics and rubber products, logistics, warehouse technology and services.

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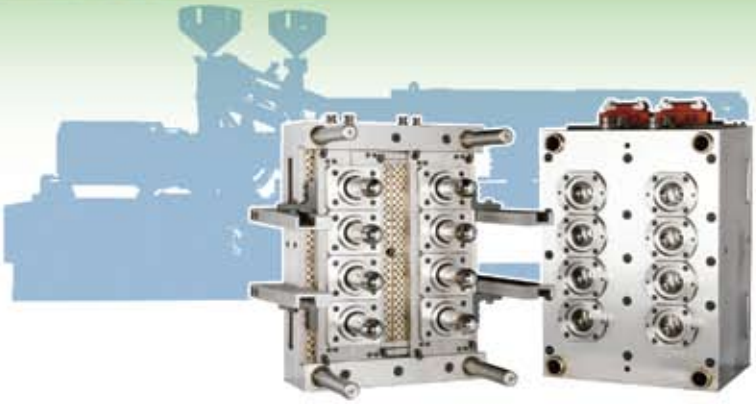

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