

06/2017

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EXTRUSION

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DIGITAL



Conical twin screws:
powerful & flexible

battenfeld-cincinnati 

The NEW generation of cutters for profiles



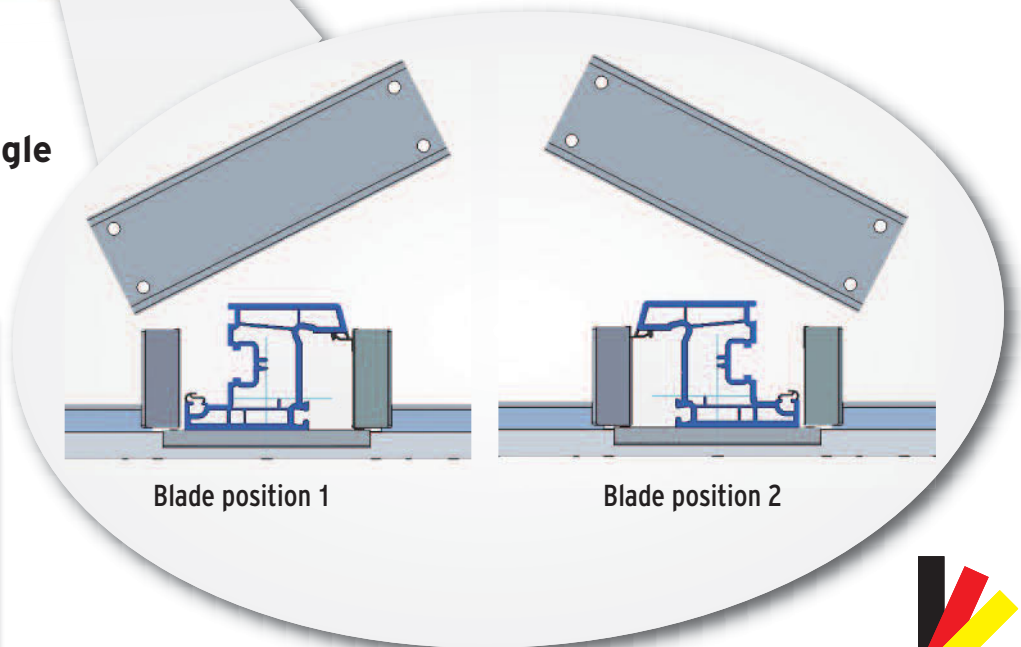
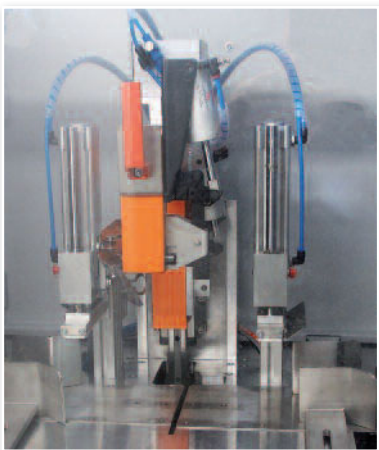
- Mirrored changing of the cutter angle during running production
- For optimised cutting of the respective profile
- Changing within 10 to 15 seconds, between two cuts
- Without loosening screws, by hand, with pneumatic clamping device using two retaining cylinders
- Sensational price thanks to increasing demand and manufacturing in large quantities

The cutter was manufactured for the first time in 1998 and in constant use throughout the world. They offer the absolute best cutting quality for glass strips, small profiles, main profiles and technical profiles.

Additional devices such as automatic film wrapping, measurement wheels for precise length determination or lettering with inkjet or laser printers can be attached.

PTW-200
changeable cutting angle

Cutting Unit



Blade position 1

Blade position 2



Made in
Germany

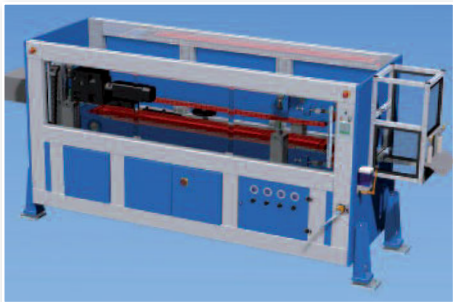
EQUIPMENT FOR EXTRUSION



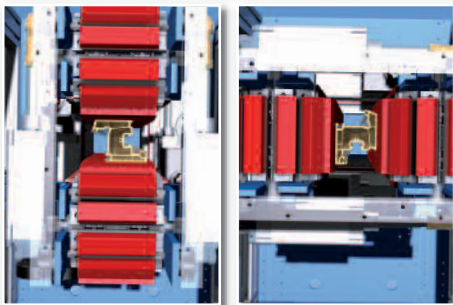
FOR PROFILE EXTRUSION LINES



Calibration table KTS 01,
rear



Caterpillar
Haul off

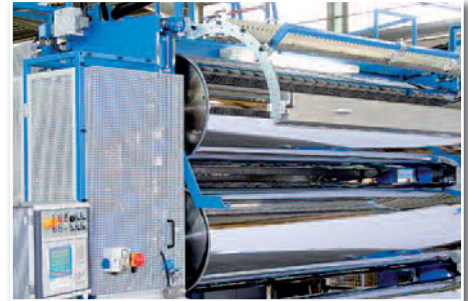


Haul off
rotating 90°

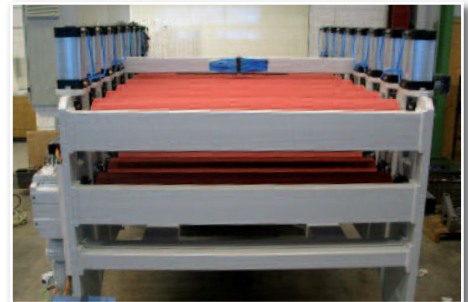


PRO 63
automatic stacker

FOR SHEET EXTRUSION LINES



Calender



Roller withdrawal AZ 8,
outlet side



Slitting RB 2 with four
sawing stations



Transverse separating
cutter QSS, inlet

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New dosing system for bulk materials



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- High quality of the batch processes
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- Easy and quick discharge of any material thanks to the container with a rubber cone
- Loss-in-weight technology

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Coverstory

Driven by innovation



battenfeld-cincinnati is a pioneer in developing twin screw extruders.

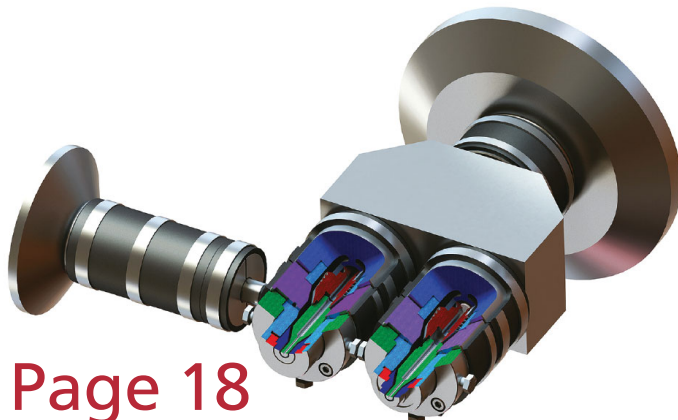
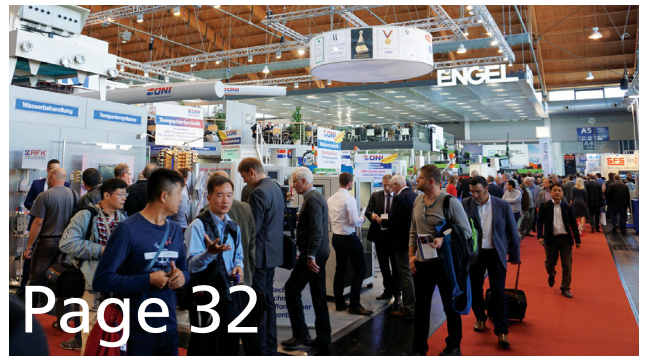
The conical twin screw extruder series conEX NG comes with newly designed and optimized screw geometries for high outputs, energy savings of up to 20% thanks to balanced processing and a broad processing range. A variety of formulations as well as recycled materials can be processed with one screw configuration.

The conEX NG series consists of three models for the production of PVC pipe, profile and sheet. Several co-extrusion versions in piggyback and pedestal executions are available as well. conEX NG extruders are equipped with the new BCtouch UX control that supports Industry 4.0 applications.

battenfeld-cincinnati Austria, Vienna – Austria,
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www.battenfeld-cincinnati.com

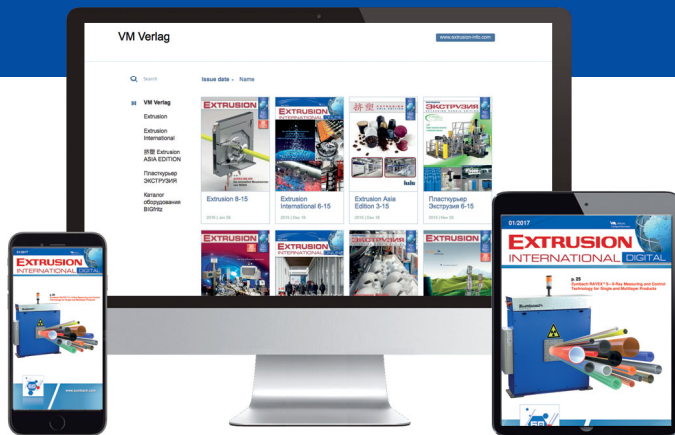


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23.-26.01, Moscow, Russia
www.interplastica.de/

PLASTINDIA 2018

International Plastics Exhibition

07. - 12.02.2018, Gandhinagar-
 Ahmedabad, Gujarat, India,
www.plastindia2018.plastindia.org

JEC World 2018

International Composites Show

06. - 08.03.2018, Paris, France
www.jeccomposites.com/events/jec-world-2018

Plastics & Rubber Vietnam 2016

International Plastics & Rubber Technologies and Materials Exhibition

20. - 22.03.2018, Ho Chi Minh City,
 Vietnam
www.plasticsvietnam.com/the-exhibition

CHINAPLAS 2018

International Exhibition on Plastics and Rubber Industries

24.-27.04.2018, Shanghai,
 PR China
www.chinaplasonline.com

NPE 2018

The Plastics Show

7.-11.05.2018, Orlando FL, USA
www.npe.org/

PLAST 2018

International exhibition for plastics and rubber industries

29.05 - 01.06, Milano, Italy
www.plastonline.org

Cost-effective wall thickness and eccentricity measurement

■ Cost-effective solutions and easy operation are now more than ever in demand. Thanks to the new WALLSTARTER solution from Zumbach Electronics, significant cost savings can now quickly and very easily be realized.

With the proven non-contact ultrasonic measurement technology, wall thicknesses can simultaneously be measured and displayed on 4, 6 or 8 points. Thanks to the continuous quality control, material savings can thus be achieved during the entire production process.

WALLSTARTER Processor and display kit with typical display



A WALLSTARTER package includes the well-known and proven UMAC CI measured value processor and a USYS WALLSTARTER processor display unit, available as a tabletop or 19" rack mountable model.

If the customer wants to integrate after a certain time complex optimizations or even automatic control loops, a simple upgrade to a WALLMASTER system is possible at any time with minor costs.

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remain movable in life, nothing can bring you down. Not only in sports and in your job,

How to get it right: If you always

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which did not previously exist in this form.

flexible. Our development department has designed an extruder series

You think this is brilliant? So do we!

flexible extruder concept ever which adapts to your output. While the basis of the system remains the same, the processing unit

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[extrudertechnologie.de/en/
windowprofile](http://extrudertechnologie.de/en/windowprofile)

Advantages

- // Modular machine concept offers maximum **flexibility**
- // Interchangeable processing units
- // Can be optimised to suit the required output in each case
- // Processing of different recipes using an adjustable feed diameter
- // Choice of optimum and **efficient** processing units for individual requirements
- // Low **investment costs** for subsequent upgrades
- // Can be combined with the WEBER co-extrusion technology for co-extruders

29th International Colloquium Plastics Technology

■ The Institute of Plastics Processing (IKV) in Industry and the Skilled Crafts at RWTH Aachen University will stage its 29th International Colloquium Plastics Technology in Aachen on 28 February and 1 March 2018. The Institute again expects around 800 experts from the global plastics industry to attend the event, which takes place every two years. In 2016, the delegates came from more than 300 companies and 15 nations. All the papers will be translated simultaneously into English. Research at IKV is currently oriented to four main topics: Additive Manufacturing, Plastics Industry 4.0, Lightweight Construction and Integrative Plastics Technology. IKV's scientific assistants will give 36 presentations about the latest research at the Institute on these topics, and well-known experts from industry will give keynote speeches that lead into the Colloquium's 18 sessions. They will also present their positions and will comment on the research results. The program will be rounded off by five plenary lectures from industry and research on trends and future developments.

The industry trade show in the foyer of the Eurogress Aachen is an integral part of the IKV Colloquium. It offers exhibitors an opportunity to present solutions for the plastics industry and to discuss relevant topics with industry partners. IKV expects exhibitors from along the whole value chain, namely raw material producers, machine manufacturers, converters, processors, suppliers of peripheral equipment and service providers. At "IKV 360°" on the afternoon of the first day, IKV will open its doors to Colloquium delegates and will present its research live in the IKV laboratories and pilot plants. The Institute's research staff will be on hand to talk to the visitors while the machines are up and running. The papers and presentations on the second day of the Colloquium are intended to deepen the practical impressions gained from the demonstrations.

"Recruiting. Networking. Innovating" is the motto of the IKV Colloquium. Young upcoming scientists will present their in-



novative subjects, and it is this presentation of research and innovation throughout the entire field of plastics processing technology that sets the IKV Colloquium apart from other event formats. The keynote and plenary lectures from wellknown speakers will enrich the program with their connection to the practical side of the subject and their proximity to industrial application, while the discussions among delegates, speakers, exhibitors and IKV staff will significantly strengthen the Institute's network. Another item on the agenda is the award of the Georg Menges prize, donated by the VDMA, PlasticsEurope and the IKV Sponsors' Association. It will be presented in 2018 for the eleventh time. The award is made to a person who has rendered outstanding service to cooperation between the sciences and economics in the field of plastics processing.

www.ikv-colloquium.com
www.ikv-aachen.de

Maag Introduces New Facilities In Shanghai And Guangzhou

■ Maag, a manufacturer of gear pumps, pelletizing systems, filtration systems and pulverizers for use in the plastics, chemical, pharmaceutical and food industries, is pleased and proud to announce the opening of two new facilities that will serve the Chinese market.

The first is a new 4,000 m² facility in the Jiading District of Shanghai. This larger, more spacious facility will help Maag better showcase its portfolio of pelletizer, gear pump and pulverizer products to its customers in this

market, as well as highlight the capabilities of its Gala and RE Scheer brands. The facility will include production for Maag's pumps and pelletizers as well as offices for its sales, service and after sales support. The new facility currently houses 80 employees and features the largest rotor-regrinding center in China, with the ability to process up to 2,000 rotors per year. This will all enable Maag to offer better, more complete service and solutions to its customers.

To unveil the new facility, an Open House was held for its customers and the local business community on Nov. 1. Among those attending were Ueli Thuerig, President of Maag and Paul Merich, Vice President and General Manager of Maag in Greater China.

The second facility is a brand-new rotor-regrinding center in the city of Guangzhou, which will introduce Maag's high-quality rotor-regrinding services to its large client base in the south of China. The rotor-regrinding center will offer the same high level of quality and service as that found in the Shanghai facility and Maag's other grinding centers around the world. In addition, an applications/technical lab is being set up at the facility, which will allow hands-on demonstrations of all Maag products, including those from Maag, Gala and RE Scheer. Finally, the facility will be home to a new sales office for the region.

"I would like to take the opportunity to thank the members of our staff here in China who have worked extremely hard over the past months to make these new facilities in Shanghai and Guangzhou possible," concluded Merich.



Opening Ceremony at Maag Shanghai, China

www.maag.com

Reifenhäuser Holding reconfigures its Management Board

■ Dr. Bernd Kunze and Mr. Karsten Kratz have been appointed to the Management Board of Reifenhäuser Holding with effect from July 1, 2017. As Chief Technology Officer (CTO), Dr. Kunze will take charge of all technological issues

Ulrich Reifenhäuser, Karsten Kratz, Bernd Reifenhäuser (CEO), Dr. Bernd Kunze (from left to right)



within the Group, and in this role, will share responsibility for the digital transformation of the business. As Chief Financial Officer (CFO), Mr Kratz will be responsible for the IT and Compliance divisions, in addition to the Group's financial operations and strategy. Both new members of the Board have already spent many years managing business units and performing commercial management roles within the Reifenhäuser Group.

Bernd Reifenhäuser, Chair of the Management Board, commented: "As partners, we are delighted that we can consolidate the Management Board of the Reifenhäuser Group with two managers from our own ranks, who have many years' experience of the Group and in whom we have full confidence. I am personally looking forward to working even more closely with my colleagues to ensure the Group's continued success in the future."

After more than 30 years in the family-owned business, Klaus Reifenhäuser is retiring and therefore stepping down from the Management Board. He will continue to oversee the fortunes of the business in his role as partner. The Management Board is now made up as follows: Bernd Reifenhäuser (CEO), Ulrich Reifenhäuser (Sales), Dr. Bernd Kunze (Technology and Strategy) and Karsten Kratz (Finance).

www.reifenhauser.com

New Managing Director and new CTO at battenfeld-cincinnati Austria

■ Effective 1 October 2017, Mr. Johannes Schwarz MBA, graduate engineer, has become the new Managing Director of battenfeld-cincinnati Austria in Vienna, Austria. The company's new CTO, Dr. André Wieczorek, has been in office since 1 September 2017. "Vienna is the battenfeld-cincinnati competence center for PVC processing with its main focus on pipe, profile and board extrusion lines as well as WPC/NFC processing equipment. For the general and technical management of the facility, we have found two managers with excellent references from the plastics indus-

try to drive the further development of our products and of the facility", explains Gerold Schley, CEO of BC Extrusion Holding.

Johannes Schwarz MBA, graduate engineer, was born in Lower Austria. Following his graduation in Electrical Engineering from TU Vienna, he joined a leading plastics blow molding machine manufacturer, first as Project Leader for Automation Technology, then as Manager of Electrical Engineering and CTO. From 2009 to 2017, he was the Managing Director responsible for Technology and Sales of Machinery and Equipment there. Schwarz completed his further studies while in employment with an MBA from WU Vienna in 2005.

Dr. André Wieczorek has been responsible for Product Development, Product Management and the technical lab in Vienna since September 2017. Following his studies of Plastics Technology at Montanuniversität Leoben he worked at the local Plastics Processing Institute as a university assistant and research associate. He was subsequently employed at leading Austrian industrial companies, first in Process Technology, then as Manager of R&D, Process Technology, in Project Management and finally as CTO..

Johannes Schwarz MBA, graduate engineer and new Managing Director



Dr. André Wieczorek, new CTO



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KAMPF slitters producing successfully at I PAK

■ A KAMPF primary slitter type Universal 89/12 BOPP and an Unislit II 630 slitter especially for metallized film are already running successfully at Packaging Films Pvt. Ltd. (I PAK), in Lahore, Northern Pakistan.

The innovative manufacturing company I PAK faced the growing demand for packaging material in the northern region of Pakistan and decided to enlarge its product



Pleased with the good cooperation

portfolio. Therefore I PAK invested recently in a new 8.7 m wide BOPP Line. The slitting equipment for the new production site was ordered again from KAMPF: Two high capacity roll slitting and winding machines. Both are characterized by high performance parameters.

Amir Rezai, Senior Sales Manager KAMPF: "Both machines meet the demanding requirements of I PAK and guarantee best quality and flexibility."

Kafil Shaikh, CEO Kgroup Agency in Pakistan "It is a first BOPP line in Lahore and it helps the local convertor to get the material of high quality just in time, as I PAK is managed by experienced professional people".

Taimoor Iqbal, Chairman I PAK and Naveed Godil, CEO I PAK agreed. The excellent cooperation and expert advice from KAMPF in exchange with the IPAK specialists was the key to the successful realisation of the project.

► www.kampf.de

Alpha Packaging acquires Dutch plant from Graham Packaging Company

■ Alpha Packaging Inc. announced today that it has acquired a plant in Etten-Leur, the Netherlands, from Graham Packaging Company. The transaction – for which terms were not disclosed – was completed on November 2nd.

Alpha is a leading blow molder of bottles and jars for rapidly growing consumer markets, including the nutrition, pharmaceutical, personal care and niche food and beverage categories. Headquartered in St. Louis, Missouri in the United States, Alpha now operates ten manufacturing facilities, including eight in North America. The acquired plant is Alpha's second in Europe, and is just a few kilometers from its existing facility in Roosendaal, the Netherlands, which Alpha launched as a greenfield site in 2010. Alpha is owned by Irving Place Capital, a middle-market private equity firm.

Jeffrey Kellar, Alpha's President and Chief Executive Officer, said "The acquisition more than doubles our production capacity on the continent making Alpha one of the largest single stage blow molding operations in Europe. The addition of the operation in Etten-Leur significantly expands our capabilities in this geography and supports future European growth."

Alpha is already a meaningful packaging supplier to the vitamins, minerals & supplements and personal care markets in Europe. The acquisition provides Alpha with a strong foothold in the European food packaging sector. The Etten-Leur

facility has earned a grade "AA" certification for the BRC-IoP Global Standard for Packaging and Packaging Materials, which is the highest possible rating for the quality management system for food packaging suppliers.

Alpha Packaging acquires Dutch plant from Graham Packaging Company, targets European expansion (Photo: Alpha Packaging)



► www.alphap.com

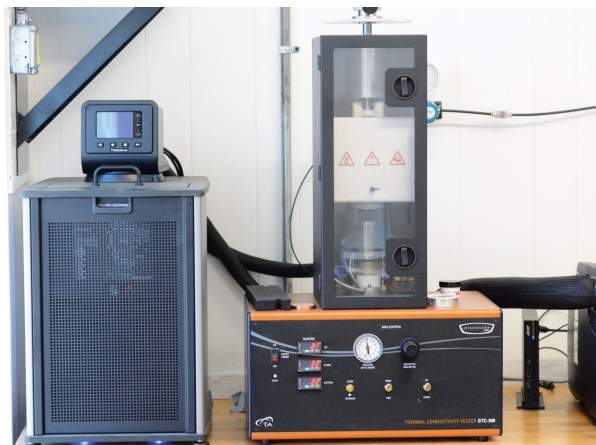
Guill Tool Launches In-House Rheology Lab

Guill Tool, manufacturers of extrusion tooling for the global market, has opened an in-house rheology laboratory, making it the only extrusion tooling manufacturer in the industry with such a capability. Seeking to obtain better results and minimize the time it takes between testing and production, Guill built its own rheology lab in their facility in West Warwick, Rhode Island, USA. The lab features several key machines that ensure optimum results, when testing materials, especially new compounds to be extruded. The testing equipment includes a Hybrid Rotational Rheometer, a Differential Scanning Calorimeter, and a Thermal Conductivity Meter. Third-party testing facilities are typically not experienced in extrusion processes. Guill, however, can not only gather data the same way third-party testers can, but can also interpret



TA Instruments Discovery HR-2 Hybrid Rotational Rheometer

TA Instruments DSC-25 Differential Scanning Calorimeter



that data as it applies specifically to extrusion. Likewise, third-parties simply supply data, not recommendations. Guill is now equipped to both test its customer’s materials and work with them to create extrusion tooling that will give them a competitive edge. Accurate simulation and interpretation by extrusion experts greatly reduces the number of physical reworks needed, as the tooling has a greater chance of producing a good product at the outset. In-house testing also speeds up the turnaround on test results, reducing delays during the tool design process and offering better control over the processes and test parameters.

The new Guill rheology lab processes standard materials, custom formulae and it is equipped to mix materials. These materials include plastics, thermoplastic elastomers, all types of rubber and silicone. Information from the lab is transmitted directly to the Guill engineering department via computer link for review by the design team.

The lab will be offered for use by extruders and chemical formulators, among others in the industry.

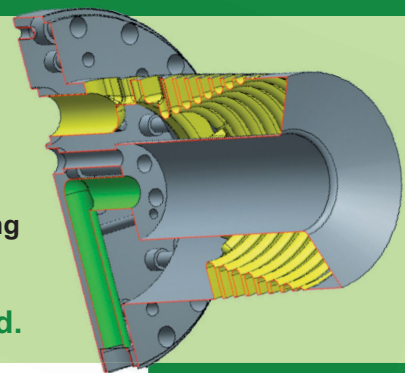
www.guill.com

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Klöckner Pentaplast introduces the kp i.center in Spain

■ Klöckner Pentaplast Group, a global supplier in the rigid, thermoform and flexible film market, introduced the company's newest kp i.center in Spain. The kp i.center provides a collaborative space to help global food and consumer products (FCP) customers bring products to market more quickly and economically. It is located in Sant Cugat, 30 km with direct highways from Barcelona – one of the Spanish food industry's most vibrant destinations. The kp i.center combines a dedicated area resourced with marketing, sales and R&D experts together with laboratory, prototyping facilities, a supermarket and an FCP market research center. Klöckner Pentaplast has integrated industrial and technical capabilities to deliver a full experience from concept to production of a packing solution. kp i.center enables us to offer them a totally comprehensive range of resources and expertise. The center is aimed at supporting commercial, technical and operational leaders to immerse themselves in idea sharing leading to the discovery of innovative packaging solutions. The kp i.center hosts a customer inspiration area, a supermarket and a kitchen. "This will be a live space that will be constantly evolving. It's somewhere that we can showcase different category and product innovations to inspire new product develop-

ments", said Helene Roberts. "The idea is to demonstrate how packaging looks on a shelf or counter in store, emulating real consumer experiences for our customers."

The high tech laboratory includes several instruments for analyzing and creating different packaging solutions. Customers can make use of the form, fill, seal machine and thermosealers in the trial area. Working together with the kp team, customers will be able to test and assess designs in real-time. A MULTIVAC MAP (Modified Atmosphere Package) and an Erca Dairy Line are already available – more equipment will follow.



► www.kpfilms.com

AMUT GROUP @ Ecomondo

■ AMUT GROUP confirms its presence at the upcoming Ecomondo, the European hub completely dedicated to the Green Economy, held in Rimini - Italy, in November. AMUT GROUP Recycling Division will present its state-of-the-art range of washing plants for the treatment of PET, HDPE and PP plastics and urban and industrial waste sorting equipment. The complex of the plants will be well represented by two typical machines. TURBO WASHER - TW 800 model: This machine performs an intensive washing action and purifies the plastic material from inorganic and fine pollutants using centrifugal force. During the centrifugal process, dirty water, sand, paper fibers and soil flow



Ballistic Separator - MPC Model

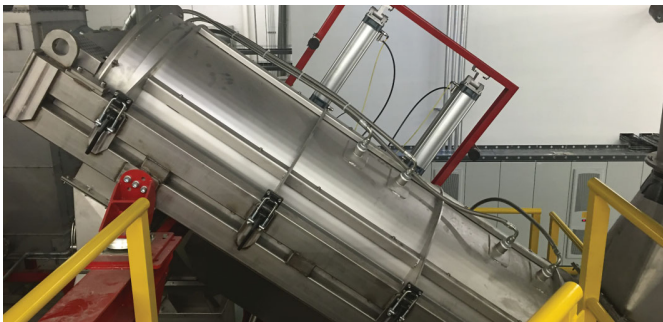
through the basket holes, whereas flakes are retained. Available in different models, TW800 is the biggest one suitable to process up to 6000 kg/h of PET, 4000 kg/h of HDPE and 1500 kg/h of LDPE. BALLISTIC SEPARATOR - MPC MODEL: The MPC is a ballistic separator properly designed and developed to sort paper and cardboard. The inlet flow is divided into two different material streams, not only through the wave motion of paddles, but also through the holes with variable section, placed on their surface. Fractions of output material are the following:

- Cardboard and material sized > A4
- De-inked paper sized < A4

The paper material < A4 passes through the holes of the ballistic separator paddles, while the flat cardboard > A4 is pushed forward.

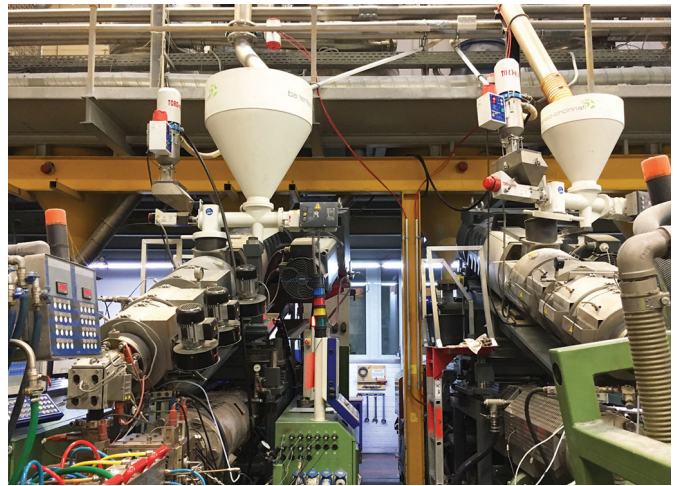
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Turbo Washer



Inoutic, based in Bogen / Bavaria, a German subsidiary of the Belgian Deceuninck group, has just ordered a coextrusion solution from its long-standing machine supplier battenfeld-cincinnati. Within only one year, the profile manufacturer has decided for the third time to upgrade and extend an existing mono extrusion line and to transform it into a coextrusion line, for optimal response to current market demand.

The co-extrusion lines with the new co-extruders in piggyback configuration at the Inoutic plant in Bogen (Photo: © Inoutic)



Upgrade opens up new markets

Profile manufacturer Inoutic invests in coextrusion technology from battenfeld-cincinnati

Inoutic ranks among the leading European manufacturers of energy-efficient profile systems for windows, doors and roller blinds. Its product portfolio also includes terrace systems as well as facade and roof claddings made of Twinson wood-plastic composite and PVC. Since sustainable management of existing resources is a top priority for the company, the profiles it produces are not only recyclable, but also to an increasing extent made of recycled PVC in the first place. Coextruded profiles offer the ideal option to combine a modern, impeccable surface with a core made of regrind, thus creating a sustainable product.

For several years now, the Bogen based company has been relying on profile extrusion lines from the German-Austrian machine manufacturer battenfeld-cincinnati. These are mono extrusion lines equipped with sturdy parallel twin screw extruders. To include co-extruded products to the portfolio, three of the existing extrusion

lines have now each been extended by adding a 63 mm coextruder from the conEX series. The geometries of the screws inside the existing mono extrusion lines were also optimized for coextrusion by adjusting them to the required lower output rates.

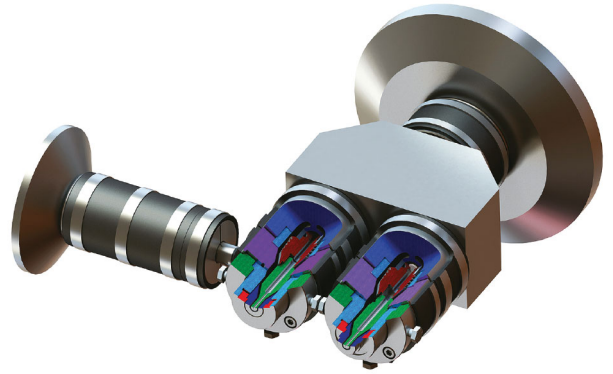
After the first extension was already installed at the beginning, and the second in the middle of this year, delivery of the third, identical model is planned for the end of the year. Norbert Prokopec, Manager Operations Central Europe, is very satisfied with the upgrade: "Only by a joint effort can unconventional ideas lead to positive results." This is his way of expressing special praise for the successful open cooperation with the machine manufacturer, with whose help it was possible to achieve optimal utilization of the existing machinery and spatial capacities.

To take account of the limited space available, the coextruders were placed in piggyback configuration on the main extruders. The coextruders are fastened to the floor with linear guides so that they can be moved easily forwards and backwards. This gives the processor maximum flexibility and facilitates cleaning and maintenance work on the main extruder. All screws, both the new ones for the main extruders and those for the conical coextruders, not only come with molybdenum coating on the screw flights, which has been tried and tested for many years, but with additional BC coating, which provides a unique level of anti-wear protection. Especially in processing PVC regrind or abrasive materials such as wood-plastic composites, this ensures high uptime rates and consequently cost-efficient profile extrusion.



Window profile model Prestige with Ecopowercore from Inoutic, manufactured on the upgraded coextrusion lines from battenfeld-cincinnati (Photo: © Inoutic)

Fig. 1: Double and triple-layer extrusion heads by nature have more sealing and centering surfaces



Getting the Most from Your Extrusion Tooling

By utilizing state-of-the-art production equipment and processes, machining tolerances are held extremely close on today's multi-lumen and multi-layer medical tubing. It is important to note that any misalignment of the tools may be exaggerated in the final product output

Clean parts, especially with sealing and locating surfaces, are key to product performance and successful end products. These surfaces receive the most care and attention during manufacturing and are the control surfaces that ensure uniformity throughout the tubing. Remember, precision-machined alignments are affected by even a speck of dirt measuring only a few thousandths of an inch. A human hair is about 0.003" (0.08 mm), and since there are many such surfaces in a quality tool, cleanliness is critical. Checking of the tools for any deformities is also important. Burrs, scratches and scrapes are usually a result of careless handling and/or storage of equipment. Double and triple-layer extrusion heads pose an even greater challenge for maintenance. The number of sealing and centering surfaces multiplies and can magnify the results of dirty tools. During changeovers, the head may be disassembled in order to change compounds and/or tips and dies. Foreign matter is usually introduced at this point and residual materials must be thoroughly removed. Physical tool damage often occurs during this phase, due to mishandling and poor storage techniques. These are highly precise parts, but can also be heavy and bulky to remove by hand. Use of a dedicated work cart exclusively reserved and equipped for extruder head maintenance is recommended. This cart along with a supply of spare components and hardware is easily justified, especially when examining the potential cost savings that result from well-maintained tools. The following should be considered:

- Maintain a clean, organized work area with soft and clean renewable work surfaces
- Use a vise with soft jaws, such as copper
- Use special equipment, such as tip removal tools, etc.
- Standard tools include wrenches, soft-faced hammers, etc.
- Maintain a supply of soft, clean rags
- Use cleaning solutions in spray bottle
- Use spare parts as suggested by your tooling supplier, properly organized and stored
- Keep handy your equipment's repair/maintenance manual
- Have a small surface plate to provide a true flat surface
- Use a set of appropriate gauge and tip pins for initial tool location adjustment
- Make sure you have all the proper lifting aids available, including overhead hoists, hydraulic lifts, etc. In most situations, the head and tooling will still be at elevated temperatures, therefore lined gloves are needed when handling. Today, tubing manufacturers compete with companies all over the world. To be a successful and profitable company, quality and efficiency are essential. This is especially true in extrusion, where material costs are usually much higher than labor costs. Like a racing car stuck in the pit, many extruders sit idle because of poor or damaged tooling, plus excess maintenance time. Overhead costs add up and losing money is the result. Some start up quickly and make scrap, whereas others start up and run a product oversized to hold minimum tolerance. They waste 10% to 20% of the material, which can run from 50% to 90% of the product cost. The tooling supplier goes to great lengths so that tips and dies are machined to a determined specification, ensuring perfect concen-

tricity and alignment. The material is then distributed in the proper location as part of the finished product.

Understanding Maintenance Procedures

It is important to get organized before you even start. Here are some examples:

- Example 1 – In this example, with an improperly centered tool, a calculated out-of-tolerance area of 0.059 in². (38 mm²) was derived. When the two surface areas were compared, the calculated material waste was 11.8 percent of the finished product.
- Example 2 – Alternatively, if the percentage wall can be increased from 80 to 95 percent, a savings of about 12 percent of total cost can result. Savings will vary depending on the designs, of course.

Get help for heavy parts and awkward situations. Surfaces and edges are hard and therefore somewhat brittle, so dropping a part or striking parts together can result in damage. Store your tools properly in a dry, clean area—a dedicated spot for each tool is best. These areas should have soft surfaces and each instrument should be covered after cleaning. Also, tools should be segregated so that they do not come into contact with each other. And tools and all instruments should be cleaned thoroughly before storage. For disassembly of tools, it is imperative to use purpose-built tooling to facilitate disassembly. These should be available from your supplier. If they are not, consult with a reputable tooling house for replacements. The cost of these tools is easily offset by potential damages, frequently caused by improper equipment such as hammers and drifts. Follow the guidelines outlined in your operator’s manual. Individual tools may have specific recommendations, so contact your supplier if anything is unclear. Your supplier understands that optimum performance relies on proper care and maintenance. Here are some useful tips:

- Clean your equipment while it is still hot as the residue is easier to remove. It helps to remove and clean one piece of tooling at a time in order to maintain elevated temperatures.
- When cleaning a dual compound crosshead, (plastic and rubber) clean the plastic tooling first; the rubber second.
- Never use steel tools such as scrapers or screwdrivers because these can scratch and mar the tooling.
- Do not use open flames because this generates excessive heat especially in thin sections, which can affect hardness, concentricity and tolerances of components.

Recommended cleaning tools and materials include:

- Brass pliers to grip material and aid in pulling
- Brass scrapers available in different widths for cleaning flat exposed surfaces
- Brass bristle tube brushes that are available in diameters from 1/16” to 1” in 1/16” increments (ideal for cleaning holes and recesses)
- Brass rods—different diameter rods are good for pushing material out of flow holes



Fig. 2: Extrusion tools require a disassembly/reassembly cart as shown here. This allows precise realignment and prevents costly collisions that damage the die sections and product integrity

- Copper gauze for cleaning and polishing exposed round or conical surfaces
- Copper knives for removing residue from recesses and other hard-to-reach areas. Also, polishing compound restores polished surfaces
- Compressed air, which is more effective for releasing plastic, but also aids in rubber removal. Be careful not to force debris into recesses with compressed air
- Cleaning solutions may be useful, so remember to use fresh, clean rags (used rags often have metal chips embedded in them, which may scratch polished surfaces)

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- Cleaning oven—for plastic only. Follow manufacturer's recommendations. If no temperatures are specified, do not exceed 850 degrees F(454 degrees C). Don't quench tooling to cool, as this could affect tooling hardness, concentricity and tolerances.
- Purging compounds—several are offered to purge the extruder screw/barrel of residual polymer and rubber compounds

Removing Excess Material for Optimum Machining Efficiency

Clean parts are critical to extrusion tooling performance and quality manufacturing. This is especially true for the sealing and locating surfaces—that control uniformity of the production process. For general maintenance of the tools, before storage or tooling changeover, a thorough cleaning and removal of the excess material assures the precision machining alignments required to produce end products to the precise tolerances. Equipment should be cleaned while it is still hot, since residual polymer and rubber will be easier to remove. Be sure to follow all MSDS recommendations when heating the tooling. Thermal gloves are used to protect the hands from the heated tooling surfaces. A brass scraper, as well as a brass or copper wool cleaning cloth are recommended because they are soft enough not to scratch the surface.

Make Tool Cleaning Easier

The quickest way to remove the die is to employ the pressure of the extruder to push it out. Clean the body by using an air compressor and brass pliers so that the material cools down which increases the melt strength, making it into one-lump versus an elastic, gummy-like substance that is harder to remove. Cleaning the body feed port using compressed air and brass pliers to simultaneously cool and remove the excess residue from the feed ports. This procedure is followed by brushing with a round brass brush that polishes the surface. The flow area of the 2" (51 mm) flange adapter should be cleaned by carefully using a brass brush. Examine all surfaces for any irregularities such as burrs and scratches since these must be repaired before the head is reassembled. Most manufacturers recommend using a hand polishing stone to remove the offending burr. Follow stoning with a light application of 600-grit emery cloth if necessary, but avoid rounding edges that are intended to be sharp. Flat seal-

ing surfaces can also be cleaned using a stone, followed by a 600-grit emery cloth. Place the cloth on a clean, flat surface, preferably a surface plate, then apply friction in a circular hand motion until the area is clean and even. The parts in question should all be hardened steel alloys and will not be adversely affected using these methods. Inconel, monel and Hastalloy® are typically not heat-treated, requiring special care and handling to avoid any damage.

Don't Overlook Repairs

Tooling maintenance helps ensure a quality extruded product—one that meets dimensional specifications, maintains the specified minimum tolerance and is economically produced. Dirty, neglected and improperly adjusted tools contribute to excessive compound applications, which in turn complicate maintenance of minimum thickness tolerance. Excess material results in unnecessary costs and these directly affect the profitability of your company and the relationships with your customers.

The Important Final Step – Reassembly

Working from your dedicated tool cart, follow the manufacturer's instructions for reassembly. Give each component a final wipe down with a clean rag before installing. Even the smallest amount of grit, dirt and residual material must always be removed. Use mechanical or manual assistance for heavy and awkward components to avoid unnecessary mishaps. Reapply anti-seize compound to all fasteners if required. Tighten fasteners to manufacturer's recommended specifications as well as in the recommended sequence. This fastening sequence should be specified in the manual and is generally in a star pattern. Tighten gradually until the proper torque is achieved to prevent distortion of the tooling. One of a die manufacturer's main goals is to form a concentric cone as quickly and accurately as possible in the primary section of the die—when the extrudate first emerges from the die's distribution capillaries. A properly designed and manufactured die has even distribution close to the extrudate entrance point, but this effort is negated once the die is adjusted, shifting the extrudate off to one side. An eccentric cone is formed in the primary area, and a concentric cone exists at only one point in the process, rather than a smooth, continuous flow path with decreasing volume. A properly manufactured and aligned extruded head, along with well-maintained tooling should require little or no adjustment. Another adverse affect of unnecessary die adjustment is the stress introduced to the extrudate caused by unbalanced flow. The net effect is the final product retains memory of this imbalance and unpredictable die swell occurs.

Autor: Glen Guillemette, president of Guill Tool & Engineering Co., West Warwick, RI

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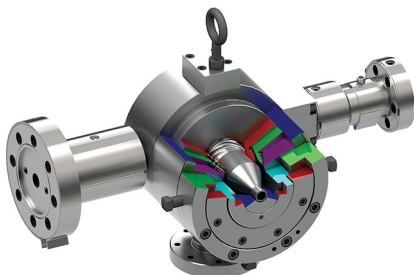


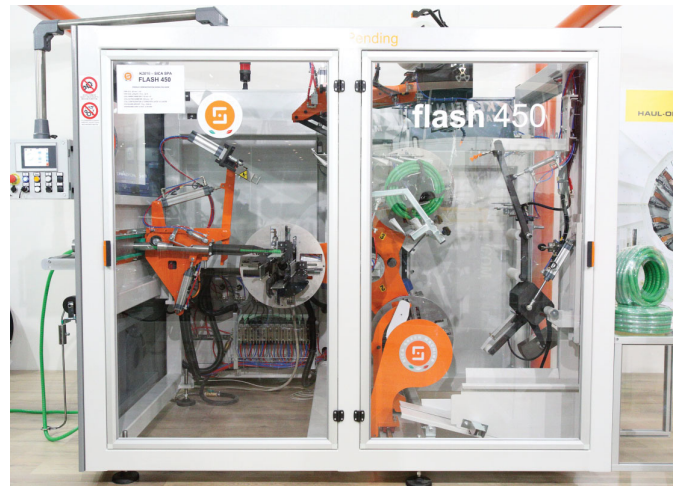
Fig. 3: It is important to form a concentric cone as quickly and accurately as possible in the primary section of the die — when the extrudate first emerges from the die's distribution capillaries

Within the sector of automatic systems for pipe coil packaging, also Sica, a company known for its automatic downstream equipment for pipe extrusion lines, produces coilers sold worldwide.

In this sector, Sica proposes two main types:

- Packaging with polypropylene strapping;
- Packaging with stretch film.

The use of stretch film, especially suitable for packaging corrugated pipe, has many positive aspects that often are preferred to the use of polypropylene strapping, especially because of the greater maintenance to which traditional strapping systems are intrinsically subject.



Pipe coils wrapped with stretch film

Furthermore, from the productive point of view, the economic advantages deriving from the use of stretch film are immediately evident and SICA provides leading solutions to this: in fact, where it is usually necessary to have more than one machine in the production line (winder with strapping machine, shrink film wrapping machine and oven), SICA offers a single compact, flexible, reliable and secure machine, that alone allows you to switch from the tube to the packaging.

In this regard, the technologies developed by SICA are used in the machines of the Flash family which includes Flash 700 and the latest Flash 450.

Both machines are characterized by the use of exclusive and innovative coil packaging techniques, covered by patents:

- Flash 700 wraps the product with film in diametrical manner fully protecting the coil and, if necessary, also the core (Patent EP19990830514, EP1999830450);
- Flash 450 wraps the product with film in a circumferential manner, by means of an innovative mutual handling system between the film and the coil; with this system, you can fully cover also the sides of the coils, contrary to similar conventional systems (Patent PCTIB2016052545). Compared to the traditional circumferential

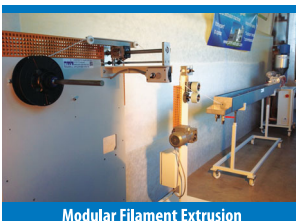
packaging techniques, with equal coil size, this method allows a considerable saving of film (up to 30%).

Another relevant feature, much appreciated by users-installers, and common to the machines of the Flash family is that you can use the pipe up to the last turn without the packaging coming apart. This means that the pipe is protected and neat up at the end.

Specifically, with regard to the FLASH 700 model, it can wrap corrugated pipes from 16mm diameter up to 63mm diameter and it can make coils with a minimum length of 25m. Productivity is 72 coils per hour. In the most advanced version, the diameter and the winding width adjustments are automatic.

As regards instead the FLASH 450 model, it can wrap corrugated pipes from 16mm diameter up to 32mm diameter, while the maximum outer diameter of the coils is 450 mm. The machine can make coils with a minimum length of 10m with a productivity of 120 coils per hour. The basic winding settings are automatic. Based on the success of these models and their versions, and of the strapping winders, SICA has sold hundreds of machines and has become an important reference point in the flexible pipes winding field.

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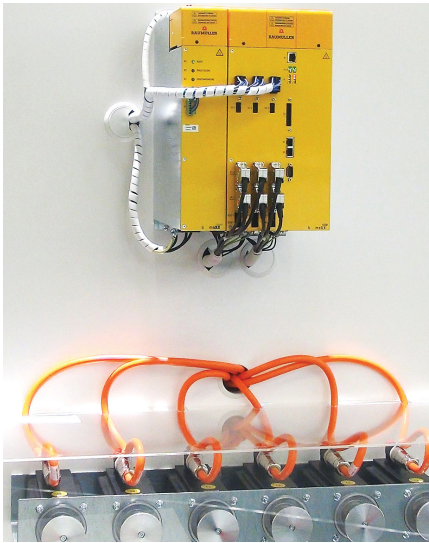


Fig. 1: Six-axis robot in action (left): The robot is driven by DSH1 high-precision servo motors (bottom right image). The multi-axis controller b maXX 5800 (top right image) controls the six axes. From special technology modules to the box PC to control technology and drives for robotics, Baumüller provides complete solutions for material handling and robotics applications



Perfect Motion for Perfect Welding

At SCHWEISSEN & SCHNEIDEN 2017 the Nuremberg-based drive and automatization specialist Baumüller was presented its systems, components and services for the specialized world of joining, cutting and surfacing.

Increased productivity due to the intelligent overall solution

The example of the QIROX QRH-280 six-axis welding robot from Cloos will be used to show the advantages of the Baumüller automatization systems. This means complete automatization from a single source, from the operating software to the servo drive, as well as a high level of security for the future and investments thanks to the platform-independent and scalable control solution. The modular solutions can be flexibly integrated into existing and new production systems due to the open interfaces.



Fig. 2: BAUDIS IoT is an IoT-capable diagnostic and communication system that allows for a simple networking of machines and systems via the Internet and the intelligent analysis of data. Smart data analysis is used to avoid production errors and to increase productivity, all automatically through a self-regulating machine learning process

The robot is completely automated by Baumüller and is driven by six DSH1 high-precision servo motors. The DSH1 motors were developed specifically for applications with the highest standards for quality and smooth operation. Typical application fields are welding robots, for example. The multiaxis controller b maXX 5800 controls the axes. The compact controller for up to six drive axes can be configured individually and fully flexibly. This means that users can freely combine axis powers in the controller. They can also integrate the exactly right axis power for every single axis. The result is a device that meets the requirements of their applications perfectly.

Service 4.0: Digitization Increases Availability

An innovation in the field of service is BAUDIS IoT, a system for the process optimization and for the predictive maintenance system of existing and new machines. BAUDIS IoT is the consistent enhancement of the BAUDIS diagnostic system developed by Baumüller. BAUDIS increases the process reliability and availability of production and is successfully used worldwide in machines and plants. BAUDIS IoT, the latest version, is an IoT-capable diagnostic and communication system that allows for a simple

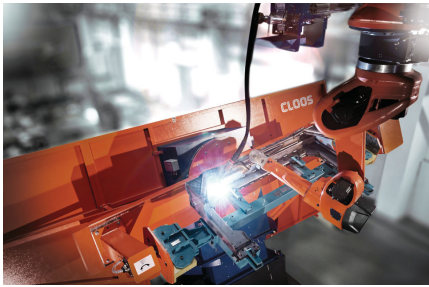


Fig. 3: With their excellent control properties, the servo motors of the new DSH1 series (image at left) achieve the high quality and precision that are required e.g. for specific welding seams. Image right: Carl Cloos Schweißtechnik GmbH



networking of machines and systems via the Internet and the intelligent analysis of data. The networked version benefits from the long-standing expertise of a successful system. The system can be used independently of the manufacturer of the automation components and the sensors and therefore can easily be retrofitted and upgraded. It is therefore equally suitable for greenfield and brownfield plants, i.e. for the digitization of new and existing production facilities. BAUDIS IoT allows for the continuous monitoring of automation components and machine states, data recording and analysis and the generation and output of a recommendation for action. The evaluation always occurs with the latest available algorithms. The system is thus continuously made more intelligent and uses algorithms to develop independent solutions (machine learning). By avoiding production errors, productivity increases and does so automatically through a selfregulating process.

Product Highlights

With the new generation of box PCs b maXX PCC04, Baumüller is providing a new scalable and versatile control platform to users. The industry PC offers a large amount of interfaces, is expandable and thus enables a flexible machine construction.

The networking of man, machine or sensors is increasing in the industrial sector. To protect industrial security, Baumüller offers a secure solution for the remote maintenance of machines and systems with Ubiquity. The state

of machines can thus be monitored worldwide and quickly responded to in a targeted manner if necessary. This capability of quick and accurate diagnostics and troubleshooting saves time and money. Ubiquity thus increases the productivity and efficiency of machines. The Ubiquity runtime environment is pre-installed in all Windows-based HMIs from Baumüller and can be used without separate hardware.

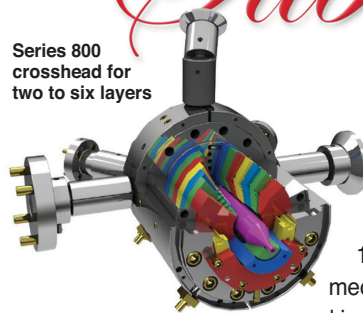
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Fig. 4: The Ubiquity runtime environment is pre-installed in all Windows-based HMIs from Baumüller and can be used without separate hardware



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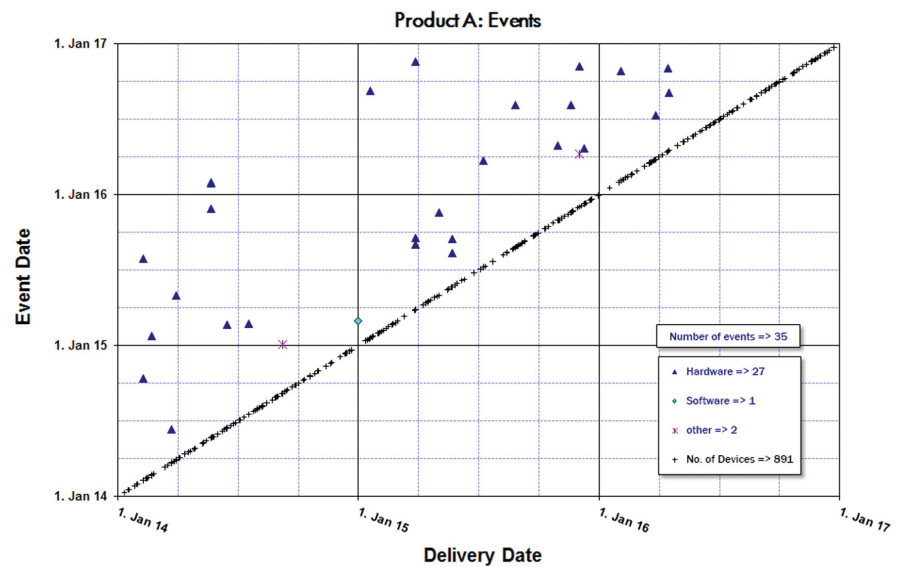
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Perfection in quality management as basis for highest reliability

Visualization of availability by event diagrams



ISO 9001 is an international renowned standard in quality management. "The monitoring of the achieved product quality is the prerequisite to meet our customers' requirements regarding a product or service", says Arne Heel, Quality Manager at SIKORA AG. In conjunction with the management and employees, he analyzes and records business processes within the company, identifies responsibilities and potential weaknesses. For the visualization of the availability as a key figure of the product quality, SIKORA creates event diagrams to present the device performance and to draw conclusions on the process quality.

Since 1993, SIKORA has been certified according to ISO 9001 and thereby, proves that the quality of the measuring, control, inspection, sorting and analysis technology is ensured by an efficient quality management system (QMS) and is continuously improving. SIKORA's QMS comprises defined performance indicators in order to monitor and control processes. The availability, for instance, is a figure of a technical system. It is the time value in which the machines and technical measuring devices can be in use without downtime or maintenance. Generally, the intention is to ensure high availability values of a system.

For calculation of the availability, two factors are being considered: Mean Time Between Failures (MTBF) and Mean Time To Repair (MTTR). The first factor, Mean Time Between Failures (MTBF), describes the mean time in which a device can be in use without the need of a repair or downtime for maintenance. With the help of MTBF, the quality progress can be evaluated and it can be monitored how long devices operate without failure. MTBF is calculated by using the information from SIKORA CRM (Customer Relationship Management): This is where all devices are registered and their events are recorded.

CRM also serves as data source for the creation of event diagrams for the different types of devices. The event diagram is a graphical illustration for quick and clear visualization of events and their chronological order. Furthermore, the event diagram provides details concerning the type of individual events for a certain device type.

An event diagram has a horizontal (x) and a vertical (y) timeline. The x-timeline shows the delivery date and the y-timeline shows the event date. The diagram indicates all known downtimes of one device type up until time of creation as shown in the example picture 1 'Product A'. Events are being counted, which directly led to a downtime of a device.

Deliveries of all devices are displayed as crosses (1) on the diagonal line of the diagram. On the vertical line above each delivered device its life span can be seen. In event of failure, a certain symbol is noted on the vertical above the device, which gives information about the reason of the failure. In order to display device downtimes, symbols are used for hardware events (Δ), software events (◇) and others (x) (e.g. production errors, faulty deliveries, etc.).

The event diagram as shown in picture 1 primarily serves to find out, which event types had occurred. It also shows if events of one device occurred immediately after delivery or at a later date. When certain events accumulate to a cluster above a certain delivery date, meaning events, which had not occurred before to this extent, this can indicate that the production process was not controlled well at that time, or else, sourced materials had caused a higher failure rate.

Furthermore, event diagrams for certain failure types are created and differentiated according to the different components to collect further details of the device events. This includes, for example, diagrams which are only referring to device events where hardware compo-

nents contributed to a failure rate. All other failure types (mechanical failures, software failures, etc.) are shown in a separate diagram. In this way, detailed information is given about which component relates to the documented events.

The second factor, which is incorporated into the calculation of the availability, is the Mean Time To Repair (MTTR). This is calculated from the time that is needed to put the device and the system back into operation in the event of failure. Thanks to the quality management and the technical innovations, which render maintenance of SIKORA devices almost unnecessary, very high availability values of up to 99.98 % are reached.

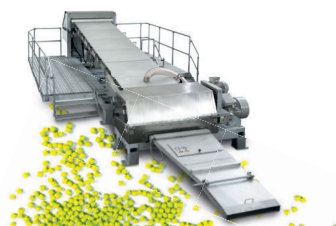
For a continuous quality improvement, internal and external employee training is carried out at SIKORA. Furthermore, cooperations with machine manufacturers as well as customers are established in order to respond to global benchmarks in the trade and to further optimize processes. "A sustainable quality management requires clear, transparent processes and a good communication", explains Heel. "Feedback from employees and customers in particular are crucial for a successful quality management system", the Quality Manager explains further. "With the improvement of our operation processes according to the requirements of our QMS, we do not only meet legal standards but also achieve a high process reliability and, simultaneously, the highest customer satisfaction", says Heel.

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battenfeld-cincinnati USA celebrates its 40th anniversary at its facility in McPherson, Kansas. "battenfeld-cincinnati has a long history in extrusion, dating back to the 1940s. This year, we are celebrating 40 years of activity in the USA. We are committed to this market and to our customers with our products and solutions," Gerold Schley, CEO of BC Extrusion Holding GmbH, is pleased to announce.

The extrusion specialist was established by a group of European investors and Austrian engineers in McPherson as American Maplan Corporation (AMC) in 1977 and developed to become the North American market leader in extrusion lines and twin screw geometries for pipe, profile and siding by 1995. Its product range included single and twin screw extruders, parallel and conical twin screw extruders, and special extruders for WPC processing. Extrusion dies and automation systems were also part of the portfolio. In 1995, the former Battenfeld Extrusionstechnik GmbH in Bad Oeynhausen, Germany, took over the American extrusion system manufacturer from F. Theysohn GmbH, Salzgitter, Germany. In the 1990s,

the industry spoke of the "ABC in extrusion", referring to the three companies American Maplan, Battenfeld Extrusionstechnik and Cincinnati Extrusion. Since the merger of the two extruder manufacturers Battenfeld Extrusionstechnik and Cincinnati Extrusion GmbH, Vienna, in 2010, the American Maplan company has been a member of battenfeld-cincinnati. In North America, the McPherson facility has since been extended to concentrate all activities in North, Central and South America at this location. "We are thoroughly familiar with the needs of our customers in the pipe, profile and sheet/board industry and constantly develop jointly with them efficient, flexible line components and complete solutions", says Paul Godwin, who joined the company in Kansas in 2000 and was named President & CEO of battenfeld-cincinnati USA in the beginning of 2017. battenfeld-cincinnati USA serves the North American, Central American, South American and Oceanian markets. The markets in South America, Central America and Oceania are handled jointly by American and German or Austrian entities. The core competencies of battenfeld-cincinnati USA are extruders for pipe and profile manufacturers. In addition to its development, engineering and service departments, the Kansas facility is equipped with its own modern production

Production floor of battenfeld-cincinnati USA





Paul Godwin, President & CEO of battenfeld-cincinnati USA since the beginning of 2017



Gerold Schley, CEO of BC Extrusion Holding GmbH

machines. Here, screws for counter-rotating twin screw extruders are designed and manufactured, as well as pipe tooling. Added to this is complete engineering of extrusion lines for PO and PVC pipe and profile production. battenfeld-cincinnati USA offers the complete, extensive product portfolio of battenfeld-cincinnati, which, apart from pipe, profile and sheet/board extrusion lines, also includes thermoforming sheet extrusion lines for the packaging industry and pelletizing lines. With its store of some 75 years of experience in the extrusion industry, the company's engineers bring ground-breaking innovations to market. The latest innovations include the soLEX NG extruder with a length of 40 D, which offers special process attributes in PO pipe production, the new conEX NG conical twin screw extruder series, the fully automatic dimensional change system FDC (fast dimension change) for pipe production and the XXL Multi-Touch roll stack, which produces sheet with extremely low stress at high speeds and with high outputs.

All of battenfeld-cincinnati's leading extrusion equipment is equipped with the latest BCtouch UX control system, which meets the Industry 4.0 standard. With an intuitive menu it supports efficient production planning and preventive maintenance, and fulfills future requirements for

Extrusion machinery from the year 1999: TS-88 extruder for profile extrusion



connectivity with servers and mobile appliances. In this way, it also provides the prerequisites for comprehensive process data acquisition and evaluation, and for vertical integration according to the Industry 4.0 concept. "We are always looking to the future by staffing with key personnel to meet the needs of our customers today and tomorrow", says Paul Godwin and adds in anticipation of a successful trade fair presence next year: "NPE 2018 will be a leading technology display of our three product divisions – Infrastructure, Construction and Packaging".

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»Our decision for two hydrocyclone separation steps from **Herbold Meckesheim** really has paid off. Separation tanks are a thing of the past. The result: longer time periods before the screens of the extruder have to be changed and a considerably better quality of film flakes. Cleanliness and sorting accuracy in regard to wood, paper and foreign plastics are really convincing, without ifs or buts.«

*Jörg Schneeberger,
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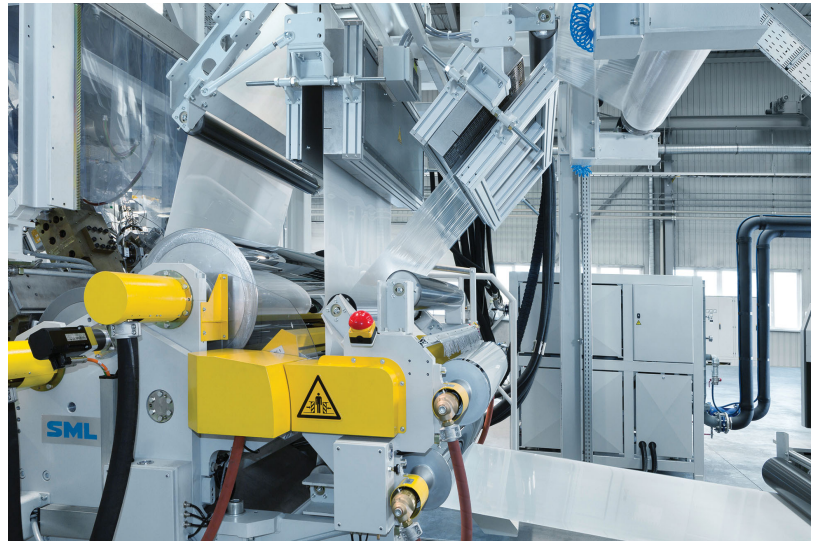


INTERPLASTICA

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Hall 02
Booth 2.2/25

The importance of PET as a raw material for countless thermoforming applications is clearly on the rise. Moreover, the market is not only demanding more environmentally acceptable raw materials, which should offer a high degree of recyclability (as PET does), but also thicker PET sheets. These are to be characterised by high transparency and stiffness, and thereby serve the trend towards even larger clear cups and trays for (take-away) food packaging.



Available now!

SML recently unveiled an innovative demonstration line for the production of PET sheet in a thickness range of up to 2mm

Producing thick PET sheet with excellent optical properties is a very demanding process. Special attention needs to be paid to the quality of the raw material itself, raw material drying and melt treatment. Accordingly, the design of the entire line and the selected process parameters can improve the properties of thick PET sheet significantly.

Main technical data:

- Two extruders for 3-layer A/B/A structures
- Thickness range: 0,2 – 2mm
- Max. output: up to 1,300 kg/h
- Max. sheet width: up to 1,100 – 1,200mm

The slanted, up stack roll stack mounted on the demonstration line is perfectly suited to thick PET sheet produc-

tion requirements. Furthermore, on the basis of its vast experience, SML is able to offer advice on optimum process parameters for individual production needs.

Reductions in packaging material weight represent another market trend. Therefore, the PET sheet demonstration line is also equipped with a CO₂ gas injection system to produce physically foamed PET sheet as an alternative and thereby widen the product portfolio of companies in the thermoforming business.

Furthermore, the demonstration line features an IR-lamination system for the production of PET/PE laminates.

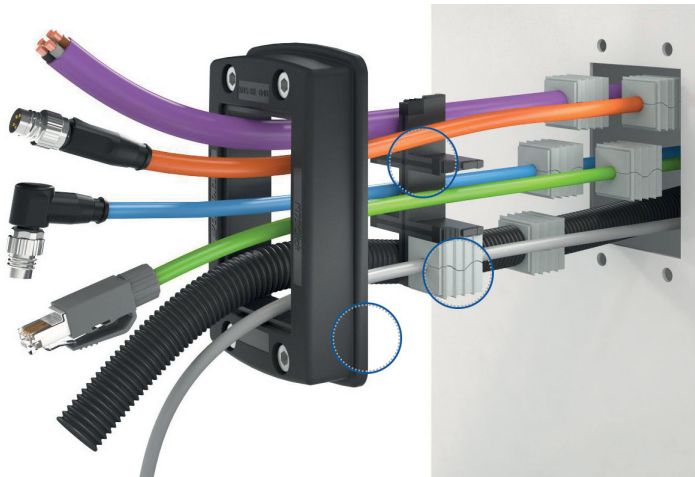
A choice of possible processes:

All in all, the utmost process flexibility for different applications is guaranteed and production switches between thick, foamed, or laminated PET/PE sheet can be completed within minimum change-over times.

Ready for trials

The new state-of-the-art sheet line has been installed at SML's headquarters in Lenzing, Austria and is now available to customers for inspection and trials.

A choice of possible processes:	Your advantages:
Rigid PET sheet	<ul style="list-style-type: none"> ▪ Large-sized, clear cups and trays ▪ Resource efficiency through reduced weight and raw material consumption ▪ Recyclable
<ul style="list-style-type: none"> ▪ PET sheet in thicknesses of up to 2mm ▪ With or without a foamed centre layer ▪ Laminated with PE film 	
Rigid PP, PS sheet	
With or without a foamed centre layer	



Easy assembly and fast installation: the modular cable entry system KDSClick from CONTA-CLIP with inlays and seal elements of Thermoplastic Elastomers from KRAIBURG TPE offer maximum configuration flexibility (Photo: © CONTA-CLIP)

Custom-Engineered TPE and more

With KDSClick, the connection technology manufacturer CONTA-CLIP Verbindungstechnik has created an extremely flexible cable entry system that comprises inlays and various seal elements manufactured using Thermoplastic Elastomers from KRAIBURG TPE. The TPE specialist developed for example halogen-free flame retardant materials in accordance with UL94 and are rated as Category V0.

The halogen-free system offers users in the electric and electronic industry a very flexible and efficient solution for new installations and retrofitting of cables and hoses, as well as pneumatic and hydraulic lines in enclosures and control cabinets. The systems make use of no fewer than five different Thermoplastic Elastomers (TPE) from KRAIBURG TPE: a PA adhesion-optimised THERMOLAST® K compound for the system inlay seal, in addition to flame retardant and custom-engineered TPE materials for sealing elements.

"The KDSClick cable entry system was our first TPE project, so that we needed a competent partner who would provide us with optimal support, from the choice of a suitable material for the application, mould design, colour matching all the way to series production," says Jörg Nowastowski-Stock, Head of Product Management at CONTA-CLIP. "The specialists at KRAIBURG TPE were committed to fulfilling our requirements from the very beginning and were instrumental in the fast implementation of the project."

One of the challenges of the system was to ensure an absolutely reliable seal of the frame mounted on the control cabinet in accordance with IP 66 protection, as required in process and industrial automation. The frame consists of glass-fibre reinforced PA 6.6 and a TPE compound. It was necessary to find a TPE material that enables excellent adhesion to polyamides and is soft enough to adapt to different surfaces in order to seal the system. CONTA-CLIP decided to use an adhesion-optimised TPE compound from KRAIBURG

TPE that is processed with the polyamide of the inlay in a two-component injection moulding process. The THERMOLAST® K material features excellent adhesion and ensures a reliable seal even on painted or rough surfaces.

The system also includes seal elements of different sizes, which enclose the cables, hoses and lines. In close cooperation, CONTA-CLIP and KRAIBURG TPE optimised the design of the seal elements to achieve IP 66 protection. The slotted elements are designed for easy installation and exact enclosure of the cables without deformation.

The flame retardant THERMOLAST® K materials used for the KDSClick system are self-extinguishing in accordance with UL94 and are rated as non-dripping (Category V0). In addition, the TPE compounds developed for the electric and electronic market are halogen-free in accordance with IEC 61249-2-21.

"The modular cable entry system from CONTA-CLIP is an outstanding example of the innovative commitment of our advanced Thermoplastic Elastomers," says Dr. Thomas Wagner, Product Management EMEA at KRAIBURG TPE. "This project also emphasises our extensive development competence and our consistent customer orientation in support of high-end applications."



IPF Japan 2017 Opening ceremony

IPF Japan 2017: Focus on Industry 4.0, Automation and Composite Materials

From 24 to 28 October 2017, Makuhari Messe in Chiba hosted IPF Japan 2017, International Plastic Fair. Held every 3 years, it was the 9th issue of the event organized by the International Plastic Fair Association. In 2017 it gathered 778 companies and attracted more than 40,000 visitors.



Mr. Minoru Shibata,
Secretary General
of the International
Plastic Fair
Association

We discussed the challenges of plastics industry and the goals pursued by the fair with Mr. Minoru Shibata, the Secretary General of the International Plastic Fair Association.

In 2017 IPF reached its ninth edition. How has the event progressed since 1994?

As usual, we occupy the same venue, Makuhari Messe. And traditionally most exhibitors are from Japan. But the difference lies in the nationality of foreign participants. Previously many overseas exhibitors come from Europe: Italy, Germany, Austria. Nowadays less European companies arrive to showcase here. Some of them have come to exhibit through their Japanese agents. At the same time there are more companies from China, Korea and Taiwan. Especially Taiwanese are active in the Japanese market. Besides, we witness more overseas visitors for the recent years.

Has the Japanese plastics industry sector changed through all these years? And what are the big challenges that the polymer industry has to deal with at the moment?

Japan is a small country, but the home market is big. It is hard for European companies to enter the local market, because Japanese prefer to buy domestic products. That is why some Japanese companies still feel comfortable staying here and not going out to the international market. But the competition grows stronger worldwide. While assessing the market and evaluating the machine range, large-scale manufacturers may buy equipment outside Japan if they want a cheaper machine or a special one. It is an international competition. That is true not just for plastics industry. One might call it a global effect. That is why many Japanese companies have to start sales outside Japan. So one might name the localization of Japanese manufacture and the international competition among the major challenges for the Japanese plastics industry.

Which are the most prospective markets now?

One of the most perspective sectors for Japanese makers is definitely automobile. Some car producers announced that they are going to decrease production of gasoline vehicles in favor of electric cars. The electric vehicle has to be lighter. Naturally, it is a big chance for polymer industry. We consider it as the most promising market for plastics.

At IPF 2014 everybody was talking about composites. But the market was not yet growing then. Nowadays the price for carbon fiber is still high and composite materials are mostly used in very expensive cars. Use of composites in ordinary vehicles is very few. Still the experts forecast the market will be growing soon.

Can you give us a review of the main focus for IPF 2017?

The first major topic is Industry 4.0. The most of the concept has already existed before. But some manufacturers did not treat it seriously. Now we see it can change the world of plastics processing.



The second focus is automation and robotics. Young people do not want to work at the factory any more. If the companies cannot hire people they start thinking about automation and robotics, even in China. Besides, automation simplifies complex technological processes.

And the third topic is composite materials, of course.

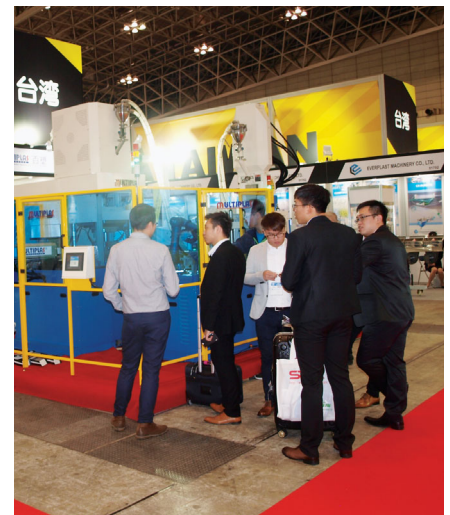
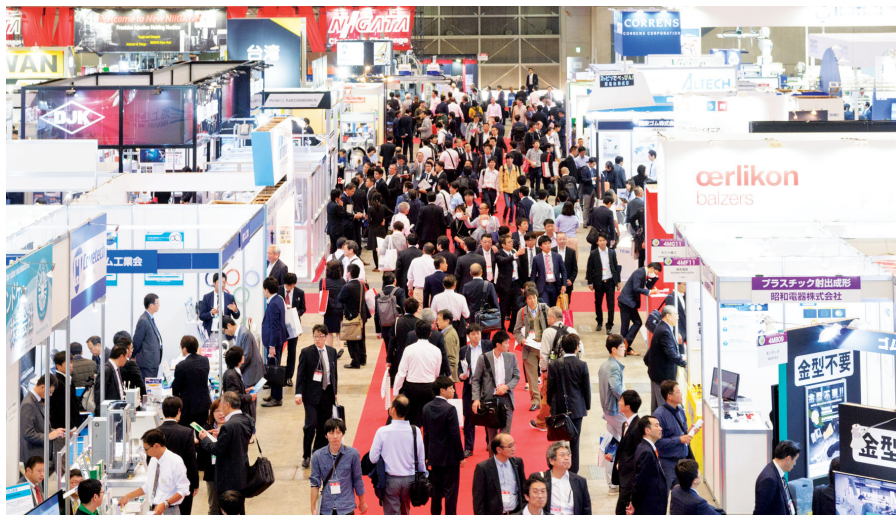
What do you expect from IPF 2017?

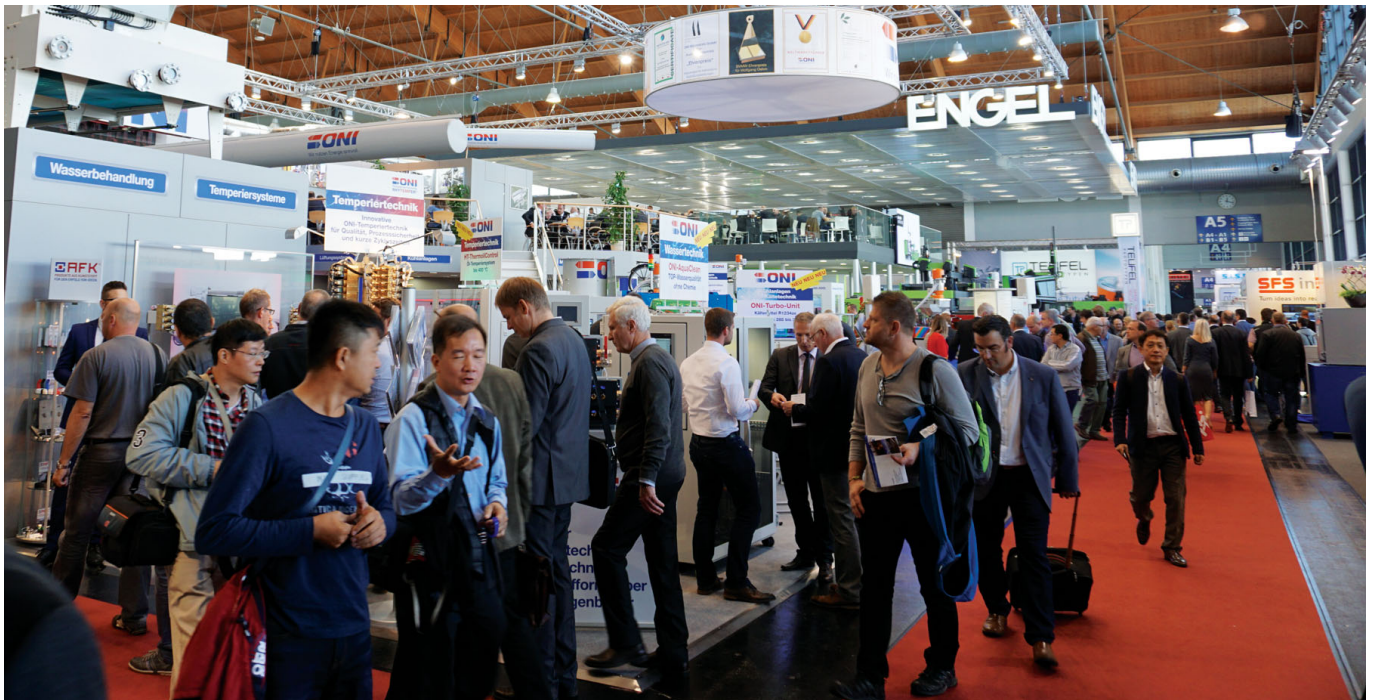
The only thing the organizer would wish is the exhibitors having good business here. Some might say Japanese machines are expensive. We cannot compete with Chinese manufacturers in terms of price. But some companies still need Japanese machines to make specific products. I would like more people buying high-tech equipment even if it is more expensive.

What are your plans for the next IPF?

As for future, it is not only about inviting more exhibitors. What we do now is attracting more visitors, good buyers from overseas who need high-tech machines from Japan.

Next IPF Japan 2020 will be held in October 6 - 10, 2020, at Makuhari Messe. Space reservation will start from November 01, 2019.





Top Marks in All Categories

Fakuma 2017 – Innovation Driver with Practical Touch



More exhibitors, more exhibition floor space, more expert visitors – all involved parties were highly satisfied: the autumn industry meet held in Friedrichshafen on Lake Constance where Germany, Austria and Switzerland meet vibrantly continued to ride its wave of success at the 25th Fakuma international trade fair for plastics processing! Under the banner of the #celebratefakuma hashtag, private trade fair promoters P. E. Schall GmbH & Co. KG, venue operators Messe Friedrichshafen and not least of all the 1889 exhibitors from 38 countries once again celebrated Fakuma as a “plastics marketplace with family atmosphere”, as the spokesperson of the Fakuma exhibitor advisory committee, Sandra Füllsack, expressed it so

affectionately and appropriately during her statement on the occasion of the opening press conference. Like hardly any other trade fair, the 25th Fakuma in 36 years also represents the development of German, European and, in the end, global plastics technology. Launched in 1981 with 60 exhibitors on 43,000 square feet of exhibition floor space, Fakuma now ranks second place throughout the world in the field of industrial plastics processing and the presentation of the necessary process sequences. Impressive numbers such as 1889 exhibitors and well over 915,000 square feet of overall exhibition floor space, as well as 48,375 expert visitors at this year's event substantiate the steady upward trend of plastics technology and Fakuma as an information and business platform at the heart of the market. And the advancement of the internationalisation of plastics business is just as impressive as well: in 1981, seven of the sixty exhibitors came from outside of German, and this year 783 of 1889 came from outside of German. Current worldwide offerings for injection moulding machines, extrusion systems, thermoforming technology, additive manufacturing, tooling systems, materials and plastic parts attracted the interest of 48,375 expert visitors from 128 countries this year, which in turn allows one to draw the conclusion that the technologies, processes, materials and solutions presented at Fakuma function as a sort of innovation motor for the global plastics processing industry. An active focus on users and customers based on concentrated competence and empirical know-how combined with a wealth of information covered by the 38 presentations held by renowned speakers at the exhibitor forum during the four days of the trade fair – this year as well, Fakuma lived up to its reputation as a sales-promoting transfer pool which mediates between supply and demand. Beyond this, Fakuma plays an important driver role with its special offerings covering all aspects of recruiting, training and continuing education which are actively supported by industry institutions as well as market leading companies.



And the same applies to the Fakuma international trade fair for plastics processing where the initial unveiling of technology, process, tooling and product innovations is concerned. Numerous renowned and above all market leading companies select the respective Fakuma sessions in order to premiere their latest worldwide and European innovations, in order to obtain unfiltered feedback in direct contact with a global expert audience. Amongst other firsts, system and standalone solutions in the fields of lightweight design, additive manufacturing and digitalisation, as well as Industry 4.0, were included in this category at Fakuma's anniversary edition in 2017, which are of decisive significance not only for Germany as a plastics technology location, but rather worldwide for all industry players. The 26th Fakuma international trade fair for plastics processing will take place at the Friedrichshafen Exhibition Centre from the 16th through the 20th of October, 2018.





Motan: High-performance solutions

High-performance all-in-one solutions for the reliable handling of all materials used in plastics technology - from complex recycling materials to standard granules to low-flow powders - are the strengths of motan-colortronic. Components for storage, drying, conveying, mixing, dosing and controls as well as comprehensive planning know-how lead to efficient, process-safe solutions. At the Fakuma 2017 devices equipped with new functions as well as revised modules will be shown.

MINIBLEND V with powder dosing

The powerful volumetric working and precise dosing and mixing unit MINIBLEND V can now be expanded with a powder dosing system. The additive dosing unit provides excellent recipe accuracy and reproducibility, which can be tracked at any time. Typical applications are, for example, the injection molding of opaque and translucent parts.

With an optional mixer module, the extremely homogenous incorporation of powdered components into complex compounds is possible. Other possible applications are the homogenization of regrinds in virgin material or masterbatch in virgin material and re-grind. Freely selectable mixing parameters ensure high flexibility.

The mixer module is easy to clean and low on maintenance and wear. This makes retrofitting quick and safe.

Also, the MINIBLEND V can be equipped with a new glass machine hopper with a height-adjustable level probe. The user has a comfortable way to monitor the material level of the main component with alarm evaluation with the VOLUnet MC control.

Material drying — compact, mobile and flexible

For the drying of small material throughputs or for individual applications, motan-colortronic has developed the new, mobile series of dry-air-dryers LUXOR E A and LUXOR EM A. Equipped with a fixed drying bin, the mobile dryers will be offered with 60, 100 or 150-liter drying bin volume. motan-colortronic supplies the dryers completely pre-assembled with all customer-selected options. After a short installation, the dry-air-dryers are immediately ready for use. Only the hopper loaders must be installed after delivery. A plus is the very compact design: With a depth of only 600 millimeters, the dryers can be used flexibly even in very narrow production areas.

The next level in material selection

With the new coupling system METROCONNECT U / C, motan-colortronic provides a high-quality, manual coupling station for vacuum conveying systems. Easy to use, safe and reliable in the process even with difficult materials, it forms a cost-effective entry into the central material supply. The customer can choose from an uncoded version and a coded version with RFID technology.

Redesign for the most flexible hopper loaders on the market

The highly successful METRO G loader system, which is extremely flexible thanks to its modular design, has been further improved in cooperation with customers. The user-friendliness and ease-of-maintenance are the main advantages of the design changes and unification of components.



Dry-air-dryer of the new LUXOR series: compact, mobile and flexible - can be used with different volumes even in confined spaces (All images: motan)

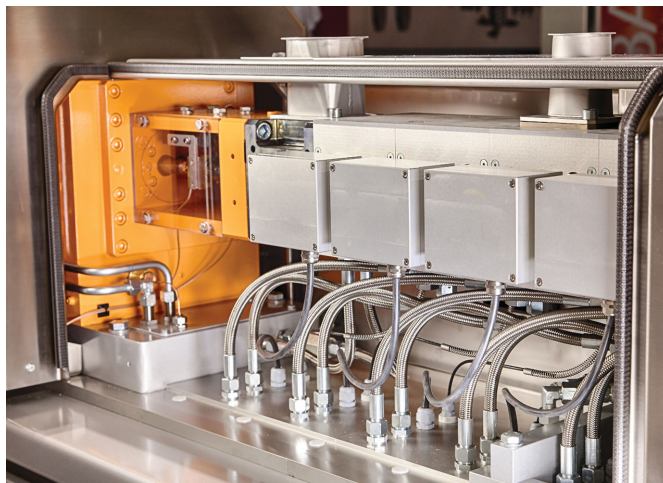
Leistritz: the Masterbatch XXperience

The Leistritz booth at FAKUMA



The Leistritz Extrusion Technology team has been presented its range of products. This time the focus would be set on the ZSE 35 iMAXX, a twin screw extruder that is especially suited for the use in masterbatch production. In this field of application, efficient product changes

ZSE 35 iMAXX



are as important as attaining very good quality and high throughputs. Therefore, the machine was designed to be quite flexible. It has closed, and thus easy-to-clean surfaces. A stainless steel cover protects the entire processing unit and drive unit against accidental contact or contamination. The cooling/heating device is fully integrated in the frame. One central water connection is all that is needed for the entire machine. The temperature control, heating and cooling elements are very well positioned. Since they are easy to access they can easily be exchanged or cleaned.

A further feature is the adaptable frame length. The standard frame length is designed for process lengths of at least 24 L/D up to maximum of 48 L/D. With a change of formulation, the processing unit can thus be extended or shortened. Furthermore, a synchronous drive is used in this extruder. This way, Leistritz contributes to an improved energy efficiency. Also a torque measurement is installed.

The Mink MV 0602 B dry claw vacuum pump is exceptionally well-suited for use in plastics processing



Busch: Economical vacuum solutions for plastics processing

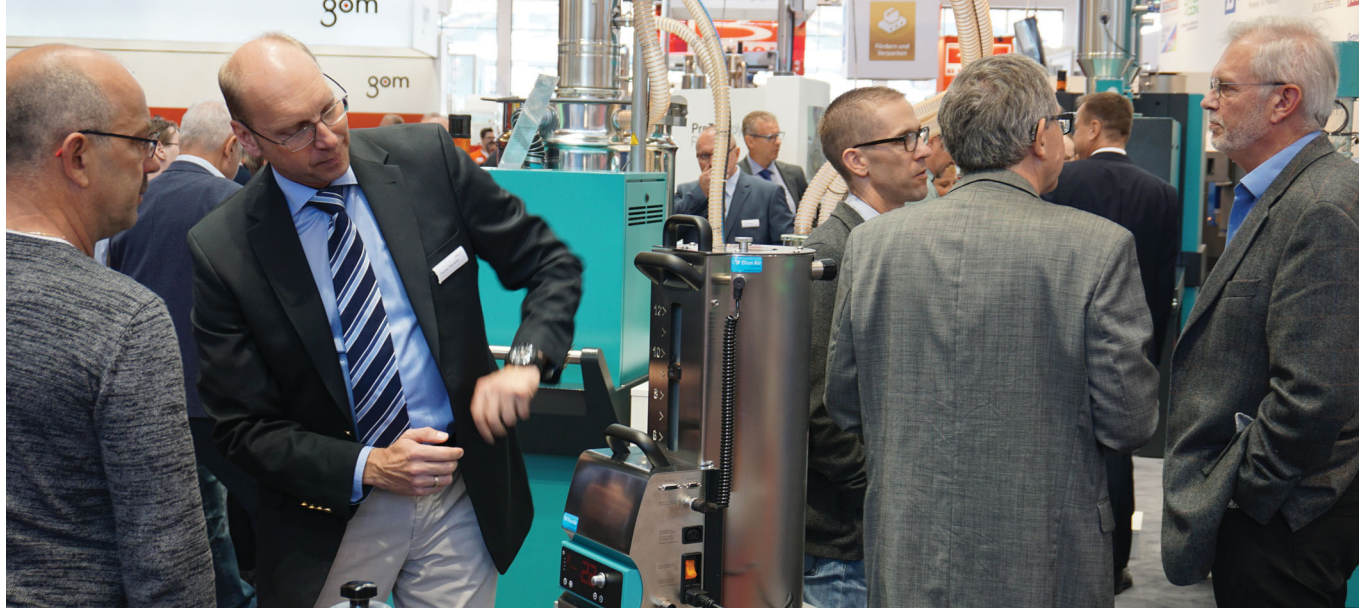
Busch Vacuum Pumps and Systems offers tailored vacuum solutions for all applications in plastics processing and treatment. At Fakuma in Friedrichshafen Busch was presented its latest generation of Mink MV claw vacuum pumps, which are ideally suited for pneumatic conveying and degassing plastics.

Busch specializes in vacuum applications in plastics processing and treatment. With its new Mink MV series, it offers reliable vacuum generators that distinctively stand out due to their high efficiency level. The Mink MV dry claw vacuum pump is a further development of the tried-and-tested Mink MM series, which is seen as the proven standard in many industrial sectors. Busch also offers its Mink claw vacuum pumps in explosion-proof versions in accordance with the ATEX directive, specially developed for use in sensitive processes to ensure the highest possible level of safety.

Mink MV claw vacuum pumps are available in five sizes, with pumping speeds from 300 to 1,200 cubic metres per hour; covering the full range of pumping speeds required in pneumatic suction conveying. In addition, they are also extremely suitable for use as individual vacuum modules in centralized vacuum supplies, to which several conveying systems can be connected. Centralized

vacuum systems of this type enable the efficient supply of vacuum to entire plants.

Due to its sophisticated claw vacuum technology, the Mink MV achieves an extraordinarily high level of efficiency, which has a positive effect on pumping speed and energy consumption. Mink MV claw vacuum pumps work extremely efficiently, enabling potential savings of up to 60% with respect to total operating costs when compared to conventional vacuum generators. Mink MV claw vacuum pumps can also be directly adapted to the power requirement using frequency control. As a result, it is possible to comply precisely with a defined pumping speed, even under changing process conditions, or to constantly guarantee a specific vacuum. This type of demand-driven control enables further energy savings in vacuum generation.



The ProTec booth at FAKUMA 2017

ProTec : batch dosing units and resin dryers

ProTec Polymer Processing's presence at this year's Fakuma will showcase potential Industry 4.0 applications for SOMOS batch dosing units and resin dryers. As a one-stop shop supplier for materials handling, ProTec is presenting the capabilities of its components to communicate and interact in interlinked injection molding, extrusion and blow molding systems.

Full-featured PLC controller

ProTec is demonstrating efficient, Industry 4.0 materials handling with various SOMOS products: Batchmix dosing and mixing systems, the RDT-250 stationary resin dryer and RDM mobile dryers. These product ranges have been progressively introduced with a new, uniform design. This has met with success and ProTec is very pleased with its healthy order book in particular from Germany and other European countries.

All SOMOS dryers and dosing units are fitted with network-compatible PLC controllers. Their 6" color touchscreen with graphical user interface ensures intuitive operation. Once interlinked with injection molding machines, extruders, as well as peripheral components and conveyors using a wide variety of available interfaces, the components can communicate with one another in real time. For instance, a SOMOS dosing unit's PLC controller can control an extruder's throughput.

Drying and dosing with quality control and high process reliability

If the PLC controllers receive error messages from other system components, they adapt their operations accordingly. In the reverse direction, the controllers transmit authorizations or report any faults. Numerous formulations can also be stored in and retrieved from the internal storage devices of the dosing units and dryers. Moreover, the controller can document all manufacturing parameters, so ensuring end-to-end quality control and utter process reliability.

Gravimetric Batchmix units for accurate mixing and dosing

SOMOS Batchmix Industry 4.0 capable gravimetric dosing and mixing systems can handle throughputs of up to 1,920 kg/h. The only batch dosing units developed and manufactured in

Germany, they can supply injection molding machines and extruders with homogeneous mixtures of up to six flowable components. Weighing and mixing bins each fitted with two load cells ensure accurate, reproducible dosing. In addition to the Batchmix M and Batchmix L models, which will be shown at Fakuma, the range is rounded out with a third XL model for large throughputs.

Efficient resin dryers for stationary and mobile use

The new design resin dryers which ProTec is presenting at its booth are also fitted with a PLC controller. Of the SOMOS stationary dry air dryers, it is the RDT-250 for moderate pellet throughputs of up to 200 kg/h which is being shown. Up to a maximum of six multichamber drying modules with capacities of between 50 l and 300 l can be combined to form a drying system. The mobile auxiliary dryer range is represented at Fakuma by the RDM-20/50, RDM-40/100 and RDM-70/200 models. A sixth model has just recently been added to the top of the range, meaning throughputs of between 5 and 150 kg/h can now be handled. The mobile units which comprise a dry air generator and single chamber drying bin are particularly suitable for the versatile pre-processing of frequently changing pellet types.

Energy-saving dryers respond to pellet throughput and water content

All stationary and mobile RDT and RDM models offer drying temperatures of 60°C to 140°C as standard, with high temperature variants for up to 180°C being available as an option, which can also be retrofitted. Smart energy-saving systems make the dryers particularly resource-efficient: drying air volume is matched to throughput and regeneration cycles are controlled on the basis of the actual water content of the pellets. The dryers are also simple to install, clean and maintain. Integrated dry air conveying for automatically charging processing machines is available as an option.



ECON: pelletizing is in our DNA

ECON presented various products at Fakuma 2017. A special highlight is the optimized EUP 10, a highly flexible laboratory equipment. ECON's smallest underwater pelletizer (output from 1 – 30 kg/h) has been further devel-

Underwater Pelletizing System (flexible laboratory equipment) EUP 10



oped and comes up with outstanding improvements like for instance: 1. Better Knife carrier now with elastic rubber coupling for higher flexibility, more stable production and continuous quality of pellets. 2. The polymer diverter valve is controlled by hydraulic unit which guarantees a higher process reliability. 3. Better Control for easy operability 4. Stronger pelletizer drive: now with 5000 rpm (instead of 3000 before) enabling more flexibility in the output, and production of micro pellets is possible. This equipment is especially for research institutes, material development and universities. It offers pelletizers in a small format. New materials can be tested cost-efficiently with lowest outputs at highest flexibility and little space requirements. ECON's laboratory machines offer all advantages of the thermal insulation technology. Therefore, they are often used in preparation for production. There will be a LIVE-Demonstration of ECON's EUP 10 at the Fakuma! Another highlight will be presented: the ECON pyrolysis furnace for environmentally friendly and gentle cleaning of extrusion and filter parts. Thermoplastics and mixed plastics are removed under vacuum without any cleansing agent at a variable working temperature. Sensitive parts are protected due to the precision setting of the temperature.



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KEY TOPICS

- Optimization of each production process (transportation, dozing, mixing, heating-cooling, extrusion or molding, quality contro, etc) – best way to increase profit
- Low self cost not equal high profit?
- Know-how from market leaders (machines and equipment supplier, raw materials and additives producer, converters) – cases and presentations

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