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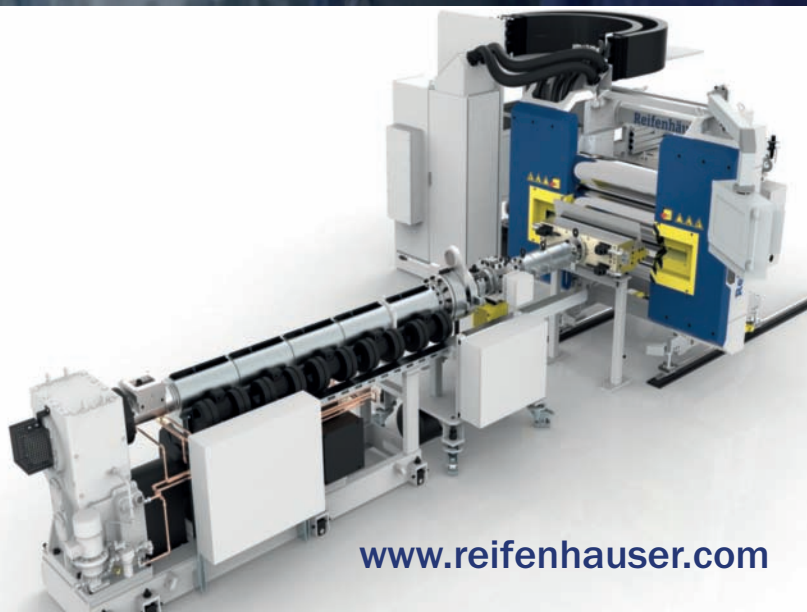
VERLAG
Cologne /Germany

EXTRUSION INTERNATIONAL

2016 Special Issue

p.41
Setting The New Standards



STEIN BLUE-LINE
for a sustainable future

EXPERTS IN DOWNSTREAM

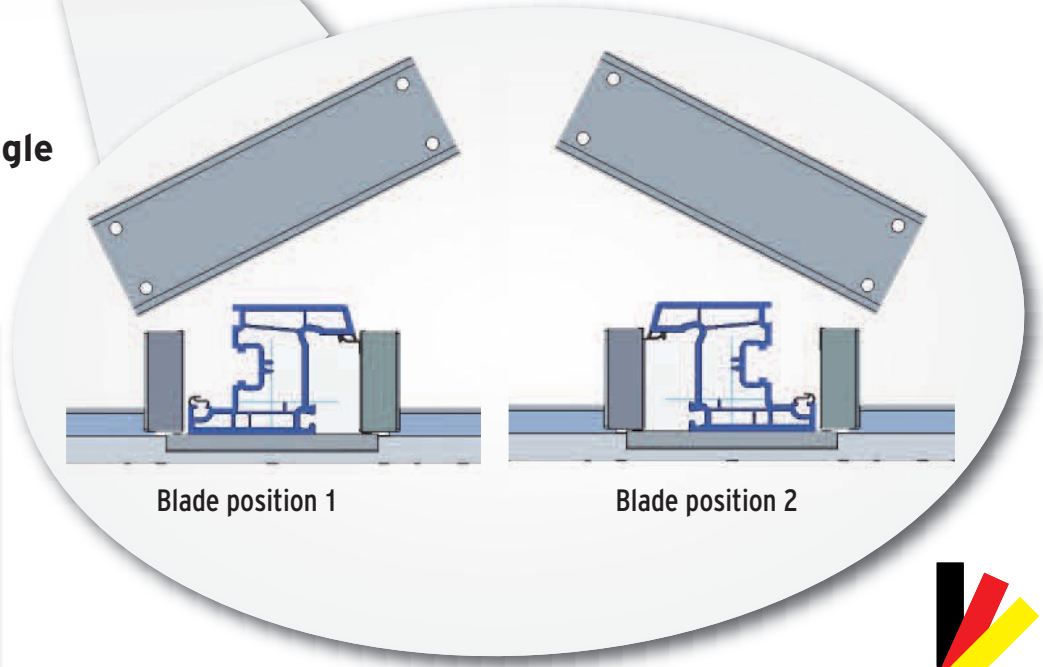
The NEW generation of cutters for profiles

- **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.

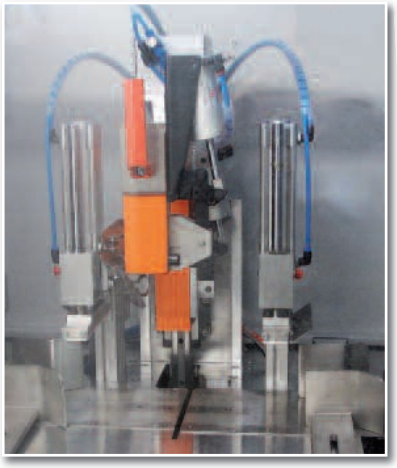
PTW-200
changeable cutting angle



Blade position 1

Blade position 2

Cutting Unit



2016

Hall 16
Stand F06

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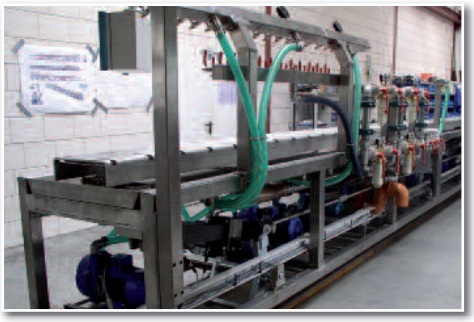
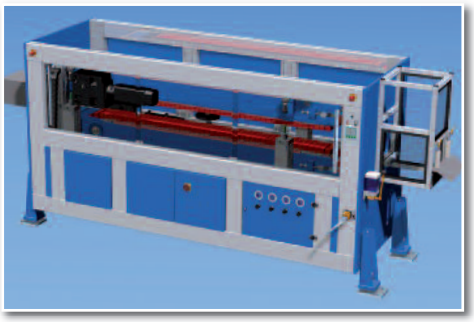
EQUIPMENT FOR EXTRUSION

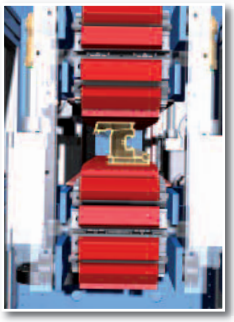
FOR PROFILE EXTRUSION LINES



Calibration table KTS 01, rear



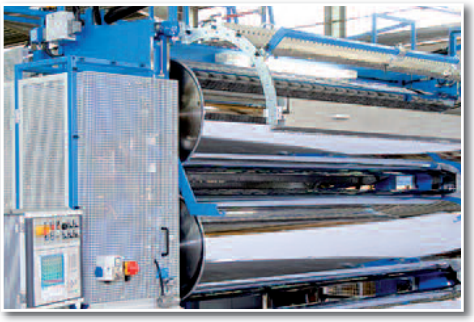
Caterpillar Haul off



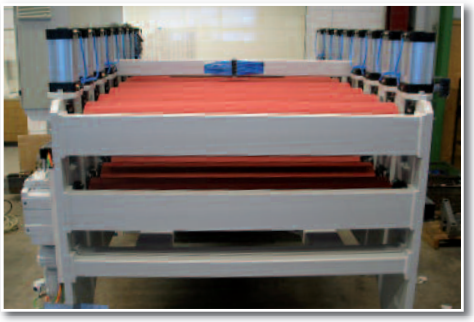
Haul off rotating 90°

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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stands for sustainable and energy-efficient equipment.

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K 2016 - looking at the future

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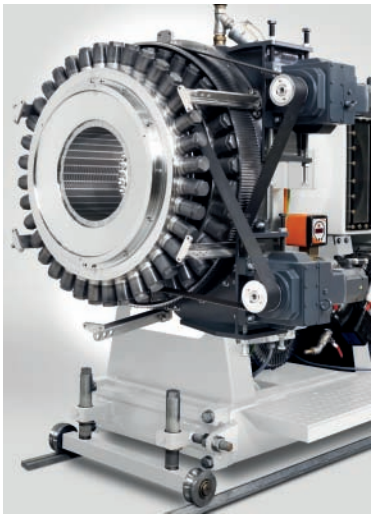

KraussMaffei Berstorff is presenting the maximum version of its technologically advanced QuickSwitch technology for efficiently changing dimensions for the 280 - 500 mm diameter range.

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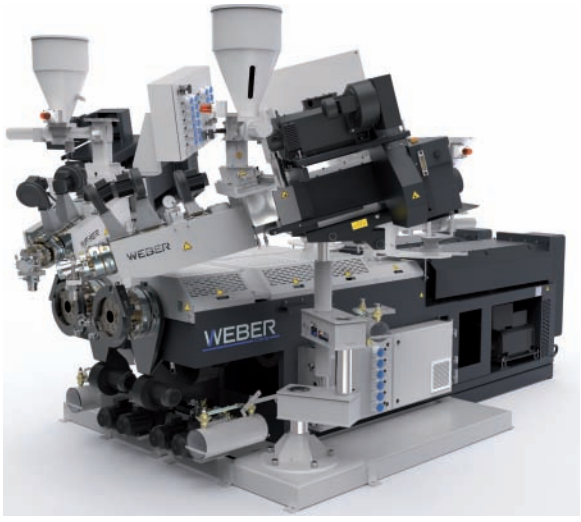

Curtain up for a double world first: the extruder manufacturer WEBER will introduce two new products at the "K" plastics trade fair in Düsseldorf from 19 to 26 October.

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Noris Plastic started manufacturing pipes, plates and profiles by means of extrusion, before subsequently developing its own machines.

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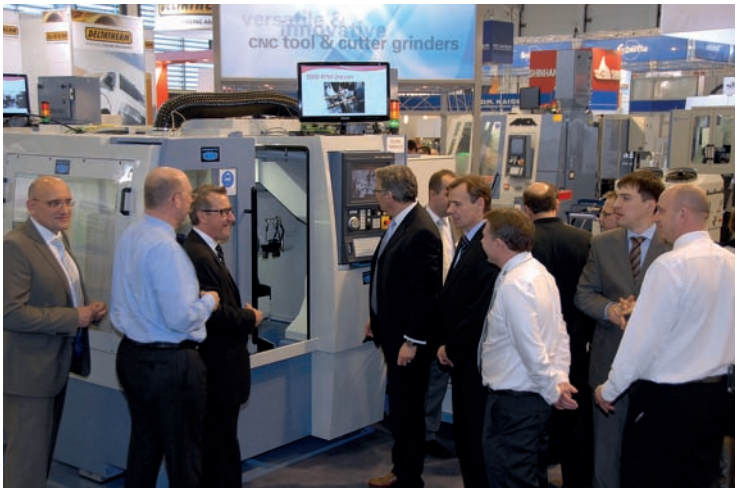
ReTEC 2017 starts in Augsburg



From 25 to 27 April 2017 the world of used machinery and systems will meet in Augsburg. Numerous associations, exhibitors and visitors have meanwhile registered for the ReTEC 2017 and the technical focuses have also already been established.

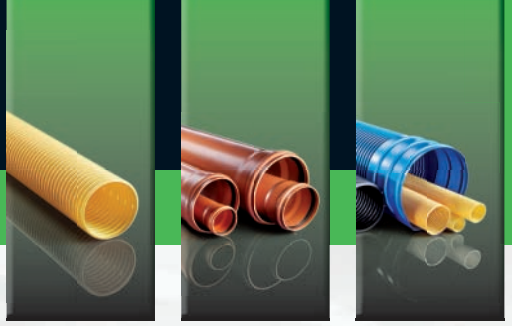
Most of the demand for used machinery is in newly industrializing and developing countries since this type of machinery is available at a lower cost and often has the advantage of being more robust. In the countries concerned, the availability of reliable machinery is often more important than operating high-end technology equipment. But also the European industry often utilizes used machinery, including lease returns, on many occasions, e. g. to supplement the existing production systems, or as support during peak times. Also in industrialized countries new machinery is only profitable when used in multi-shift operations and the delivery times for new equipment are often long. Used machines have the advantage of being available immediately.

The ReTEC, as the international platform for used machines and systems of all industries, is presently repositioning itself and starts in April 2017 in Augsburg. The FDM (Trade Association for Machine Tools + Tooling – Fachverband des Maschinen- und Werkzeug-Großhandels e. V.) and EAMTM (European Association of Machine Tool Merchants) are cooperating as far as the technology is concerned and their members are also actively participating which leads to a wide range of offered products. In addition, the focus is on construction site equipment, industrial trucks and agricultural machinery, as well as metal working machines and machine tools. Joint participations from Great Britain, Italy and China are also planned and will ensure the exceptional internationality of the event. Apart from used machinery, the ReTEC presents different service providers specialised in retrofitting, disassembly and assembly, as well as special ways of transport for various types of machinery. This way the ReTEC is able to offer a comprehensive product range of used machinery and systems.

Starting 2017, the ReTEC will either take place in Augsburg or Essen. The venue will alternate every year. The fair will always be held in April, at the same time as the Hanover Trade Fair.

www.retec-fair.com

Pipe extrusion



The new DS 32 D series: Maximum performance for PVC pipe extrusion

WEBER High Performance DS 32 D Series

Once again WEBER set new standards in extrusion technology. The new extruder series DS 32 D, equipped with powerful drive technology and innovative screw technology, provides new impetus for PVC pipe manufacturing.

WEBER
Made in GERMANY

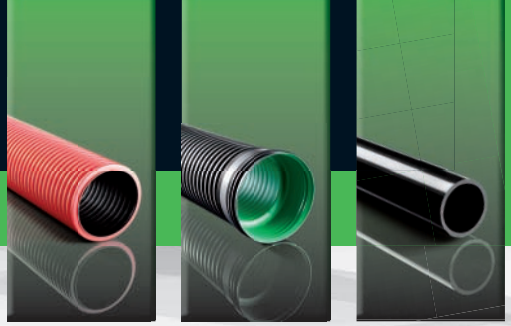
Advantages of the *High Performance* DS 32 D series

- Compact, robust gearbox technology in WEBER quality
- High outputs even with smaller L/D ratio's
- More flexible applications through larger range of output
- Easy processing of high content PVC plastics
- Improved product quality even when using recycling materials
- Processing of cold mixtures

WEBER

www.hansweber.de

Pipe extrusion



NE 7.40

The NE 40 D series:
Maximum performance for polyolefin pipe extrusion

WEBER High Performance 40 D Series

WEBER have been building grooved bush extruders for more than five decades. A unique *High Performance* range was developed especially for extrusion of HDPE and PP pipes.

Advantages of *High Performance* NE extruders

- Long effective life of grooved bush and processing unit through lower grooved bush pressure
- Constant output across the entire speed range
- Lower melt temperature compared to older machine concepts
- Output increase by up to 40 %
- Reduction of energy consumption
- Reduced water cooling of the grooved feed bush and new drive concept
- Torque motor optional

2016

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WEBER

SOLIDS Basel 2016 – National trade fair for industrial users

«The right technologies for every process»: That is the motto of this years' SOLIDS Basel.The 5th trade show for granules, powder and bulk solids technologies will present the whole range of mechanical process engineering on 16th and 17th November 2016. The main industry event for decision makers and users from various industries will provide an efficient mix of exhibition and knowledge transfer at the Innovation Center stage. Key players of the industry will attend SOLIDS Basel 2016 again such as ALPIQ Prozessautomation AG, Brabender Technologie GmbH & Co. KG, Emde Industrie-Technik GmbH, Endress+Hauser

(Switzerland) AG, IEP Technologies GmbH, KREISEL GmbH & Co. KG, REMA TIP TOP Vulc-Material AG, REMBE GmbH Safety + Control, Schrage Rohrkettensystem GmbH, Siemens Schweiz AG, Swissfilter AG, TEAG Textil- Emballagen AG and VEGA Messtechnik AG. For the first time companies such as Erwin Telle GmbH, NORO Gesellschaft für Rohrsysteme mbH, Recyclix and Rubitec AG will be at the fair. The trade show focuses on diverse processing and process steps - from crushing and grinding of coarse and fine-grained materials to filtering and separating, mixing, agglomerating and shaping. On display are machinery and procedures for incoming materials, handling and processing, internal processes as well as storing and internal & external transport. The topics of great importance to powder, bulk solids and production experts are safety and sanitariness, energy and resource-efficient production as well as measurement and automation. To this end, visitors will find a wide variety of products, solutions and services. Competent interlocutors also provide information on current trends like the new 3D printing production processes or specific solutions for the food, pharmaceutical, plastics and chemical industries as well as for the metal, logistics, agriculture, construction and mining industries.

www.solids-basel.com

Russia: Good Long-Term Prospects make for Stable Demand despite Difficult Times

Despite the difficult economic and political situation Russia is currently in, the activities in the plastics and rubber industries are far from coming to a standstill. There is continued substantial demand for investment especially in the production of consumer goods, technical equipment and packaging. Manufacturing processes and product quality at Russian sites are being optimised in order to substitute imports; and western technologies continue to be appreciated. The Russian government supports these corporate initiatives and strives for new economic growth – the newly established Council for Strategic Development is expected to chart the right course in trade and industry. The International Monetary Fund (IMF) also believes the Russian economy is on track for slow economic recovery. Also relying on this positive outlook are the exhibitors at Interplastica Moscow, the 20th International Trade Fair Plastics and Rubber, the leading meeting point for the sector in the region. From 24 to 27 January 2017 the trade fair will again provide a representative overview of the machinery and equipment ranges for the plastics and rubber industries, raw materials and auxiliary materials, plastic and rubber products as well as services. Messe Düsseldorf and its subsidiary OOO Messe Düsseldorf Moscow as the organisers post stable demand on the part of Russian and international exhibitors and expect more than 600 exhibitors to take part. Strong participation can be expec-

ted from the host country, and especially from Germany, Italy and Austria. Turkey and Iran will also be represented with numerous vendors. They will occupy Hall 1, 2, and 8 of the Moscow exhibition centre Krasnaya Presnya. This new hall configuration ensures optimum conditions for both exhibitors and visitors because everything is within easy reach, while safeguarding growth potential for future events.Exhibitors' ranges are supplemented by supporting expert events. One of the highlights will be the debut of the special show 3D fab+print Russia, which focuses on the fast-growing areas of additive manufacturing and 3D printing. Russian and international experts will discuss developments in and the opportunities and challenges of this young technology while exhibitors will present their innovative solutions. In contrast to this, the "Meeting Point Raw Materials" at the Polymer Plaza in hall 1 has already stood the test of time. Here lectures and roundtable discussions will pick up on new trends in the production and reclamation of raw materials and in applications for these. Held concurrently once again will be Upakovka – processing and packaging. Russia's leading trade fair will focus on packaging machines and equipment, packaging materials, packaging media and auxiliaries, confectionary and pastry machinery and equipment, as well as complementary technologies and logi-

stics. In 2017 they will be housed in the Forum Hall in the immediate vicinity of Interplastica, thereby offering exhibitors and visitors interesting synergies. January 2016 saw 20,900 trade visitors attend Interplastica and Upakovka. The exhibitors of both trade fairs reported in-depth conversations with business people with a keen interest, some of whom were also prepared to place orders.

➠www.interplastica.de

Maag Integrates Presence in Americas

Maag Automatik, Inc., Gala Industries and Reduction Engineering Scheer have recently joined forces in the Americas' region to provide breakthrough innovative products and superior customer service in North and South America. This newly formed entity of Maag, headquartered in Zurich, Switzerland, offers customers in the polymer industry unmatched benefits and value, including:

• Local sales and service support through a consolidated network
• Broadened product portfolio including:
o Underwater pelletizers
o Polymer, Extrusion and Industrial Pumps
o Screen Changers
o Strand Pelletizers
o Pulverizers
o Dryers and Water Systems
• Expanded, integrated production and customer process testing capabilities
o Sites in Roanoke VA, Kent OH, and Eagle Rock VA
o Sales and Engineering offices in North Carolina, Ohio, Virginia in the US and Sao Paulo in Brazil
• System solution capabilities including core competency in controls integration
• World renowned American, German and Swiss product and process quality

The newly aligned division of Maag Americas has recently com*pleted a critical integration phase (following their parent com*pany's (Dover Corporation) best practice processes) designed to align key core competencies, leverage best-in-class operations and form newly internal and external relationships all centered around driving even greater levels of customer value. Maag China and Maag Europe work in collaboration sharing a common vision and are each dedicated to exceeding the needs of their regional customers.

➠www.maag.com

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K 2016

October 19 – 26, 2016
Düsseldorf, Germany
Hall 17, Booth A57

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PASSION FOR INNOVATION

Extension of the product portfolio with machines from KraussMaffei Berstorff

■ Oxxo, the new subsidiary of the Cevital Group (head office: Kouba, Algeria), recently started using 23 twin-screw extruders to produce window profiles on 19 lines in Bordj Bou Arreridj near Algiers. The scope of supply also includes four co-extrusion combinations which manufacture window profiles with inexpensive core material. Window profile extrusion is enabling Cevital to establish an additional foothold alongside the already established product flat glass which is produced by the subsidiary Mediterranean Float Glas (M F G). The KraussMaffei Berstorff twin-screw extruders in the proven 32D Series and the conical models now well-established on the market are being used at the new production plant near Algiers both for window profiles and the production of roller shutter slats. During an extensive training program, the machine operators were thoroughly acquainted with the functions and technology of the machines. "We would like to thank KraussMaffei Berstorff and its team of experts for their strong local commitment," said Hocine Medjahad, Director Supply Chain at Oxxo and in this function responsible for the installation and start of the entire plant. "Our employees obtained excellent basic knowledge with which they can now properly operate the machines according to production engineering criteria. As a newcomer, we also attach great importance to the communication of systems competence which KraussMaffei Berstorff ideally provides in cooperation with Greiner Extrusion".

Profile extrusion lines in production

Newcomer with expansion plans

The Cevital Group has been operating on the Algerian market in different industrial sectors since 1971. For example, the subsidiary Mediterranean Float Glass (M F G) - established in 2007 - produces many different types of flat glass for the construction industry and has a daily capacity of 1,400 tonnes. The products have been sold on both the domestic market and in Europe since 2008. Due to market strategy reasons, the company decided to include window production in its product portfolio. The windows are manufactured and marketed by the newly established subsidiary Oxxo.The annual production capacity will initially be around 720,000 windows. Other expansion stages will be gradually implemented.

➠ www.kraussmaffeiberstorff.com

AZO'S sister company AZO EURL in new premises

■ With an investment of around 2 million euros, AZO is laying the foundations for further expansion of its market position in neighbouring France and on the European market as a whole. With the French sister company's premises bursting at the seams, it was decided to invest in a new building in Vallet, in the heart of the Muscadet wine-growing area. Apart from offices and storerooms, the prestigious building provides two meeting rooms, showrooms, test labs and 1000 sqm warehouse space. The pleasant atmosphere is ideally suited for collaborating with customers to find solutions to meet their specific requirements and the building overall emphasises and showcases AZO's expertise in raw materials handling. The official opening ceremony was held on 17 June after record construction time. The invited guests included the architect who designed the building, the mayor, the management at AZO France and other representatives from the AZO Group. The French sales subsidiary and the construction project it-

self were presented by manager Frederic Loiseau. As representatives of the AZO Group, managing director Robert Zimmermann and his wife Edith offered their congratulations on the impressive building. Following the official ceremony, AZO's staff enjoyed a trip to a historic theme park. All over the globe, AZO's automatic materials handling systems ensure reliable handling of bulk materials and liquids in industrial manufacturing processes. The French sister company AZO EURL was founded in Paris on 01/04/1998. The current manager Frederic Loiseau then took it over in Nantes in 2004. There are currently 20 permanent employees at AZO EURL; in 2015 sales of around 6.8 million euros were achieved there.

www.azo.com

New functionalities in the program "tomcalculation.com"

Molecor©, company in the development and commercialization of TOM® PVC Oriented (PVC-O) pipes for pressure water, is committed to the development and continuous implementation of technical tools to support its collaborators, this innovative application has improved new functionalities in the TOM® Mechanical Calculation Program "tomcalculation.com".
The user disposes a personalized platform to create his own projects and associated calculations. The tool becomes a functional, simple and interactive application to the user.
The application gives as results the different forces that TOM® Pipes will withstand, as well as their breaking and compression safety coefficients, based on the reference standards: ATV-DVWK-A 127E:2000 "Static Calculation of Drains and Sewers" and UNE 53331:1997 "Tuberías de poli(cloruro de vinilo) no plastificado y polietileno (PE) de alta y media densidad. Criterio para la comprobación de los tubos a utilizar en conducciones con y sin presión sometidos a cargas externas".
It is important to perform the mechanical calculation of buried pipelines in order to assess the mechanical stress transmitted to the pipe by the action of the different external loads so the mechanical calculations of the TOM® Pipes should be done before projecting the installation.
The introduction of values in the application is intuitive, obtaining a full report with the results of all the calculations, validating in this way the most suitable pipe for the specific conditions of each installation.
The installation has no concentrated traffic loads and the safety coefficients are not satisfied.
The TOM® Mechanical Calculation Program is accessible through the web application:

➠www.tomcalculation.com

Ideal materials for healthcare

INEOS Styrolution's Styrolux® SBC is, due to its properties like outstanding transparency, good toughness and stiffness balance the material of choice for many healthcare producers. Moreover, the material is regulatory compliant. Styrolux* applications in the healthcare sector range from IV bags to drip chambers, lab-ware and drainage containers.
Styrolux® materials are extremely resistant to gamma or electron beam irradiation sterilization methods that often cause side effects to products such as significant temporary color change and physical-mechanical property loss.
Sterilization of medical tools and devices is an absolutely essential process that is required for many medical procedures to prevent infections and contamination. Medical parts made from Medical drip chamber made with Styrolux® development grade selected styrenics can be applied to common sterilization methods, like gamma-radiation, Ebeam, NO2, or EtO sterilization. INEOS Styrolution currently achieved to highly enhance the chemical resistance of Novodur® ABS against hospital cleaners used in a medical environment. Thus the environmental stress cracking resistance (ESCR) could be improved when exhibited to isopropanol or state of the art cleaners and disinfectants (Melsept SF and Hexaquart Forte). Styrenics are particularly attractive to healthcare solution providers for their unsurpassed ratio of high performance and cost-effectiveness. They offer a wide range of applications including infusion sets, dry powder inhalers (DPI), or injection pens and meet the highest quality standards. They can be opaque (e.g. ABS, natural or pre-colored) or highly transparent materials

Medical drip chamber made with Styrolux® development grade

(e.g. MABS, SMMA, SBC), and offer strength and resistance, as well as easy processability. INEOS Styrolution's SBC is proving to be a beneficial resin for the healthcare industry due to its outstanding properties like excellent transparency, high-impact strength and good flowability.
Looking to the future, INEOS Styrolution is developing technical advantages like improved bonding performance while maintaining excellent processability and mechanical property profile. Other research focuses on antimicrobial surface solutions that minimize the risk of potential nucleation.
Based on a deep understanding of the medical industry, its applications, value chains and regulatory requirements, INEOS Styrolution has a proven track record developing innovative uses and applications tailored to customers' unique requirements. From product development to technical innovation to meeting worldwide regulatory requirements, these packages help customers develop customized solutions for medical and pharmaceutical applications.

➠www.ineos-styrolution.com

motan innovation award 2016: four top ideas nominated

The present jury (from left to right): Dr.-Ing. Peter Faatz, Prof. Dr.-Ing. Carsten Manz, Prof. Dr. Martin Bastian, Karl Miller (Photo: motan)

"The future is derived from ideas. motan honours the best of them". With this slogan, motan holding announced the motan innovation award for the first time in 2015. The prize award ceremony takes place on 21 October 2016 during the K fair in Düsseldorf. Among the numerous submissions, the jury has filtered out the four particularly innovative and original ideas and nominated them for the prize award.

Dry doser – multiple use of energy for drying and dosing
For many applications, hygroscopic plastics have to be dried before processing. The idea aims at using energy a number of times in both dosing and drying areas and to thereby significantly reduce overall energy consumption. Work can also be made more ergonomic this way.

Matrix coupler – automatic material distribution station for small conveyor lines
Conventional material distribution stations require manual reconnection of hoses leading to the conveying equipment when changing material. The matrix coupler automates ma-

terial distribution by means of a new multiple separator design. This is how contamination in neighbouring lines is prevented. This is a practical, cost-effective and novel approach.

Octa-Flow-Bag – emptying of residual material in Octabins benefits the environment

Octabins are widely used as packaging to deliver plastic granulates. They are mostly emptied during production by means of an automatic conveyor line. Residual material often remains however in the corners and has to be manually removed by vacuuming. A new development involves automatically taking these residual amounts of material to the centre of the Octabin, from where they can be easily removed.

Inductive heating - energy transfer by radiation

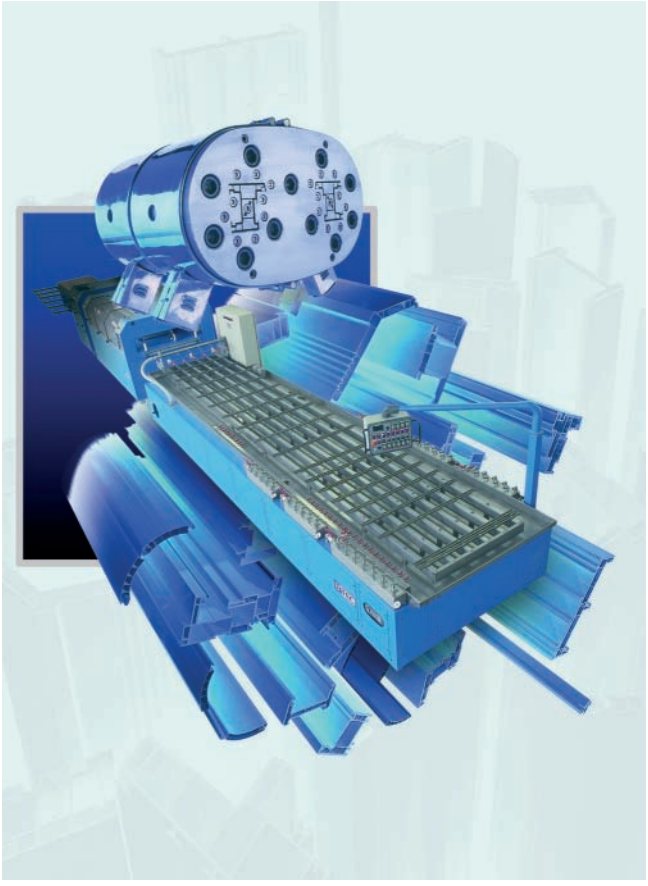
Pre-heated air flowing through plastic granulates removes humidity from the material. A novel means of automatic drying is based on inductive transfer of energy by radiation. This is highly efficient and can be precisely controlled - these are the advantages resulting from an idea that was born while seeking a dew point sensor solution.

Hall 9, Booth C64

www.motan-colortronic.com

At the cutting edge of extrusion

■ B-TEC srl (Italy) is one of the leaders in innovation and trend-setting in PVC profile extrusion. Based on the experiences of more than 40 years in the production of extrusion tools for all types of PVC profiles, B-TEC is present throughout the world, with its products and services, mostly specializing in the production of window and roller shutter profiles, window sills, cable ducts, rain gutters, siding and many others.



Since the very beginning B-TEC collaborated closely with the customers, following their requests and needs, being able to respond to challenges of modern trends in the technology, often contributing significantly by introducing global innovations. The co-extrusion, tri-extrusion, post-co-extrusion, the use of the reinforcements of glass fiber wire, the extrusion of foamed PVC, are some of the latest achievements.

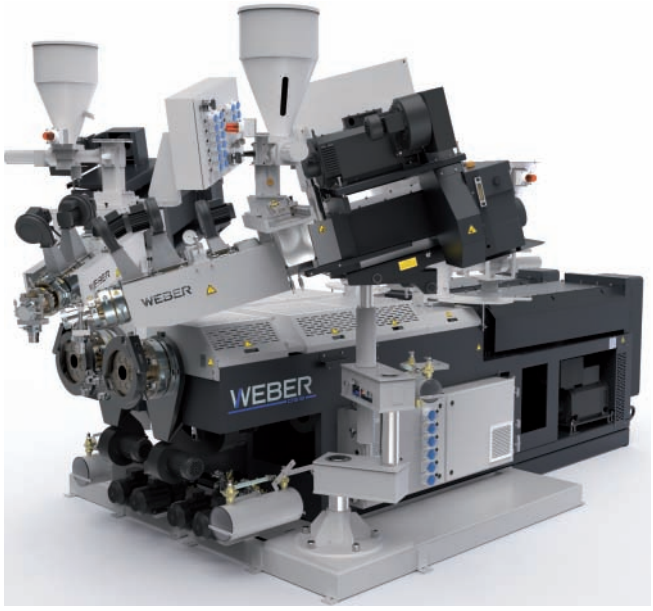
The exclusive use of materials of highest quality, the sovereignty on the whole production process, entirely made in B-TEC's own primacies in Italy, the care for each customer, from the order to the natural end of the tools (the tools for window profile are designed to perform more than 5 - 6 million meters before first revision), are the guarantee, that customers stay loyal to the brand. Take a look at our web page: www.btecsrl.com

Tecno System srl (Italy) is a company producing extrusion lines for profiles and tubes, made of thermoplastic materials, as well as industrial automatisation and turnkey systems. Tecno System also produce under the historically renowned brand "TPV" (present since 1957). All extrusion lines excel with their energy saving components, such as energy efficient extruders, electronic vacuum management on calibration units, innovative cutting units with radial hot blade (patented), etc.

Hall 15, Booth C62

www.tecnosystemfe.it

WEBER celebrates world firsts at “K 2016”



Curtain up for a double world first: the extruder manufacturer WEBER will introduce two new products at the “K” plastics trade fair in Düsseldorf from 19 to 26 October. In addition to the revolutionary IF screw technology, the mechanical engineering company from Upper Franconia will be presenting the further development of the WPS4 extruder control to trade visitors. Furthermore, everything at the WEBER stand will focus on the topics of line competence and industry 4.0.

Duo-Co-Extrusion Line

The IF screw is a product from the in-house development department. Thanks to its new geometry, it provides optimised plasticisation and therefore improved results for the extrusion process. The patent pending screw improves the output and its unique characteristics permit the use of new production technologies such as laser armouring. “It has always been our objective to offer our customers reliable and powerful extruders as well as an advantage through innovation,” Managing Director Michael Weber explains. “This claim is once again underlined by the IF screw technology.”

On the way to industry 4.0

WEBER proved at the “K 2013” that its technology centre in Kronach is not only dedicated to the actual extruder technology, but especially also to the extruder control. WEBER presented the WPS3 there – a completely new extruder cockpit. Three years later, the curtain now rises for the WPS4. The further development offers an improved touch screen and a new voice control. The optimised display facilitates operation of the extruder while the WEBER Service Tool supports speedy rectification of faults. “With WEBER and WPS4, companies have a strong partner at their side on the way to industry 4.0,” Michael Weber says. Visitors at the “K 2016” can test the new extruder control live via a touch screen.

“Powerful and efficient overall solutions”

The managing director places a particular focus on the topic “line competence”. This comprises all products and services from the idea through the complete production line to the finished product. Michael Weber: “Extrusion with its varied possibilities is becoming ever more complex. That is why industrial companies need a reliable consultant, project manager and manufacturer. We fulfil all those roles which allows us to offer an all inclusive package that is precisely tailored to the individual requirements of the customer.” The products and services provided by WEBER range from precise simulations and cooling path calculations through professional system project planning to energy optimisation and energy monitoring. “We involve customers closely in the projects. This results in powerful and efficient overall solutions,” Michael Weber states.

Hall 16, Booth F06

www.hansweber.de

Advanced solutions for pipe manufactures aiming AT energy

Pipe manufacturers have started to think in terms of operation cost efficiency, but without compromising the performance of the pipe extrusion lines. Tecnomatic, which will celebrate its 45 years of experience in the plastic sector, will present at the next K-show innovative solutions in pipe extrusion, to assist customers not only by supplying extruders and die-heads but as well providing complete production systems for a business which is getting increasingly demanding.

ZEPHYR 45.40 – 500 Kg/h

At K-show 16', Tecnomatic will introduce a further developed version of its extrusion series ZEPHYR in L/D 40, both in a gearless and a traditional version (with gearbox).
ZEPHYR is the most performing extruder of Tecnomatic's product range, it boasts an array of advanced technical solutions which makes them unique models designed for pipe producers looking for even more focused energy saving machines, offering extreme output performance at lower melt temperatures. The innovation spans the entire extruder and includes new spiral grooved bush, screw and motors.
Pipe extrusion is highly dependent on electricity and most of the energy usage is in operating the extruder. The Zephyr series has made this the utmost priority offering extruders with increased screw length and smaller torque and AC water cooled motors, to assure same output of bigger size extruders but with a better energy efficiency.
The new feed bush ensures minor friction, commonly generated by raw material transport, with subsequent increasing of the specific and total throughput. The further development in screw design, with optimization and enhancement of torque and shearing elements, have improved the output but have also led to process the material at lower melt temperatures.
To meet the requirements for production efficiency the ma-

* *Zeus 60.37 at 500 kg/h, Zephyr 60.40 at 800 kg/h*

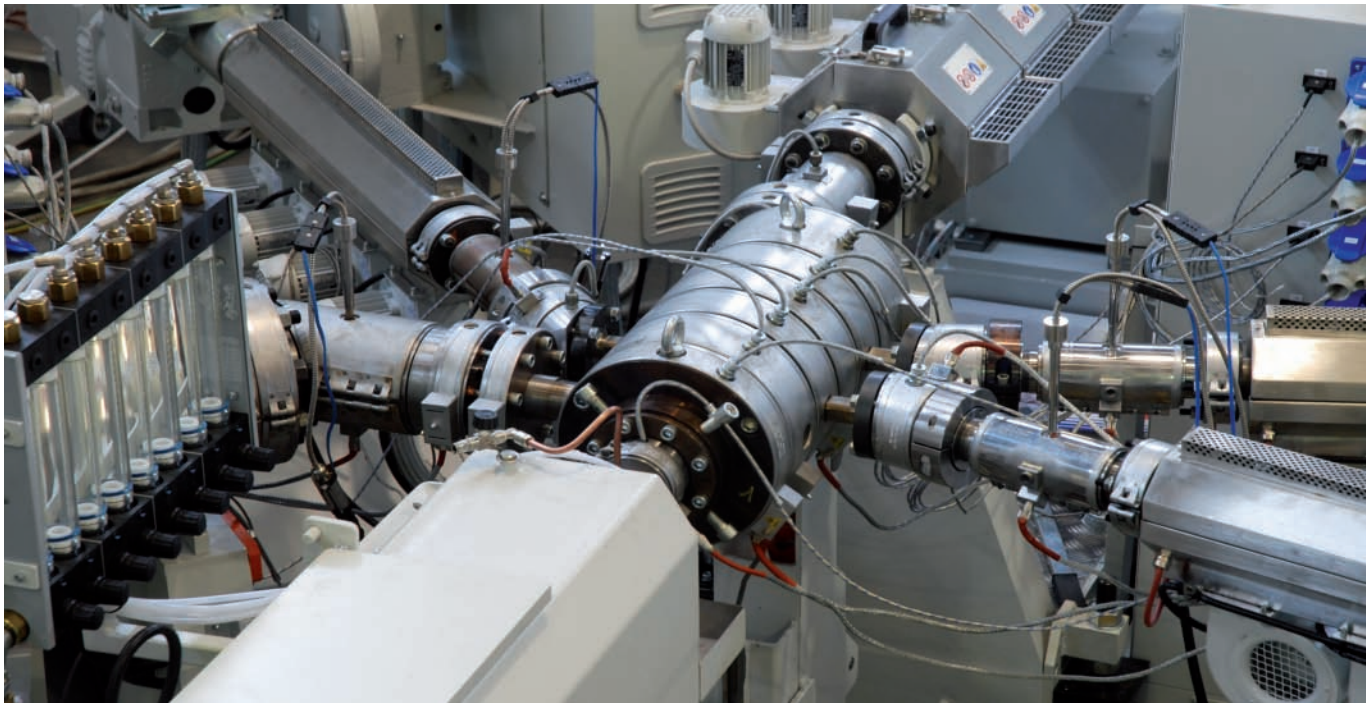
** *Below 140 KW/h/Kg for extruder Zephyr 60.40 at 500 kg/h*

EXTRUDER COMPARISON in % (ZEPHYR 60.40 vs. ZEUS 60.37)	
Max. screw speed (RPM)	0 %
Max. Output*	+ 42 %
Installed power (Kw)	+ 24 %
Energy consumption** at 550 kg/h (KW/h)	- 13 %

chines are equipped with torque or water-cooled motors (in this case with one or two steps gearboxes) and compact water-cooled inverters. These solutions combined with the mechanical features ensure outstanding power consumption levels, low noise operation (< 74 Db), reduction of workload for maintenance, higher efficiency within wide speed and load ranges, and faster dynamic response. A comparison between a gearless extruder in size 60.37 and new Zephyr 60.40 is clearly showing the advantages in the adoption of this last solution. ZEPHYR extruders are offered in four screws diameter with maximum output at 1.700 kg/h.

Further to the extruders Tecnomatic will also display multi-layer die-heads of the VENUS and ATHENA series. The VENUS MULTI 25O QUATTRO for the production of PE pipes up to 250 mm in 4 layers, with PAC system (Pipe Air Cooling), and ATHENA 5-4O; an innovation to grant higher performance to the market of Pe-x and Pe-rt pipe.

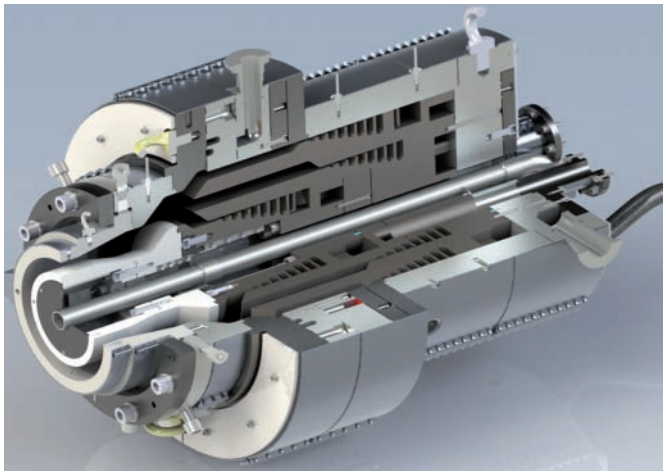
ATHENA heads are made with the addition of radial modules as the number of layers to be produced. The radial distributors do not have any dead zones or edges where material could stop and grant an easy cleaning and rapid assembling/disassembling operation. Radial spirals allow low-pres-



ATHENA MULTI 5-40, for PE-X AND PE-RT

sure losses and high flexibility in terms of layers structure (thick or thin layers) and number of layers, while their short flow path leads to reduced residence time and rapid material and color changes. In a market, which is always more and more looking for highly innovative development, with respect to the growing improvement of material properties, single-layer pipes are not always able to fulfil the necessary requirements. Tecnomatic has well interpreted these customer needs and has developed, on the basis of the VENUS concept, a full range of die-heads for the production of 2, 3 or 4 layers polyolefin pipes even in big size. A project in 1.200 mm three layers, carried out in 2013, is the milestone of the multilayer production made by Tecnomatic.

VENUS MULTI 250 QUATTRO – 4 LAYERS



The heart of the VENUS MULTI consists of innovative flow channels geometry, which has been calculated in consideration of the current raw material PE 100 CR and PP. This geometry assures the same behaviour for pressure and distribution of the melt in all the pipe heads also at very high output rate.

The new feeding system of the spiral channels ,as well as for the matching ranges and the small die sets contributes to reduce pressure. This influences remarkably energy consumption during extrusion considering that approximately 5 to 10% of the extruder power is necessary for the pumping capacity. Lower pressure also results in a lower increase of the melt temperature and with lower residence times assuring improved pipe's characteristics with regard to OIT (oxidation resistance) values, extra weight and thermal and sheer stresses reduction.

VENUS MULTI die-heads can be endowed with two innovative option units:

- the Pipe Air Cooling (PAC), - an efficient system to reduce cooling length and improve pipe quality.
- the Venus Coex-Unit, - a radial spiral technology for additional (external) layer application.

Hall 16, Booth D05

www.tecnomaticsrl.net

Tecno System s.r.l.

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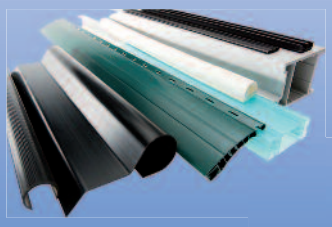

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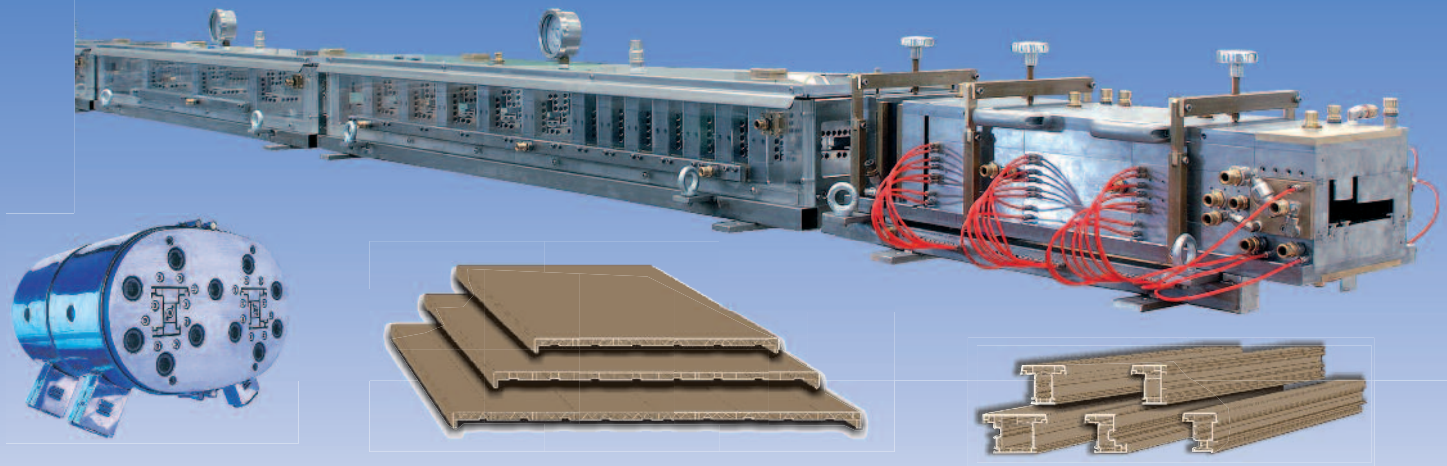

2016 19 – 26 October 2016 Düsseldorf, Germany
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Mastering and the world of plastics

Hellmut Tenner looks back in time

Hellmut Tenner is the senior partner of the Noris Plastic GmbH & Co. KG. He founded the company in 1969 – and he is yet one of these engineers who started his professional life with a practical apprenticeship. Noris Plastic started manufacturing pipes, plates and profiles by means of extrusion, before subsequently developing its own machines. Today the company is run by his sons Axel and Ralf Tenner. We at the EXTRUSION Team believe that Hellmut Tenner's career will give our readers an excellent and interesting insight into an entire era of plastics technology.

Hellmut Tenner

Mr. Tenner, you celebrate your 84th birthday this year – and you can look back on an exciting life in the world of plastics. How did you get into this business?

Hellmut Tenner: My professional career began with a toolmaker apprenticeship (nowadays the title is "industrial mechanic") at the Loewe Opta Company in my hometown of Kronach in Upper Franconia. My personal professional experience started in February 1947, even before the currency reform of 1948. That was a time marked by the events of the postwar period. I had learned my trade for two years at Loewe, which had more or less been destroyed during the war, so I couldn't say no when they asked me to help rebuild it. I finished my apprenticeship in 1950.

To earn money for my later studies, I stayed at Loewe Opta for four years after which I started my mechanical engineering studies in Friedberg in Hesse, graduating successfully in 1959.

Getting to know extraordinary people is also a part of my career that shouldn't go unmentioned. I met the world famous singer Elvis Presley, for example. He was doing his military service in the Armored Division in Friedberg. We met in nearby Bad Nauheim where my colleagues and I taught Elvis how to play cards and we spent many evenings together there.

After finishing my studies and my time at Loewe Opta, I was hired as a consulting engineer with Mobil Oil Germany. In

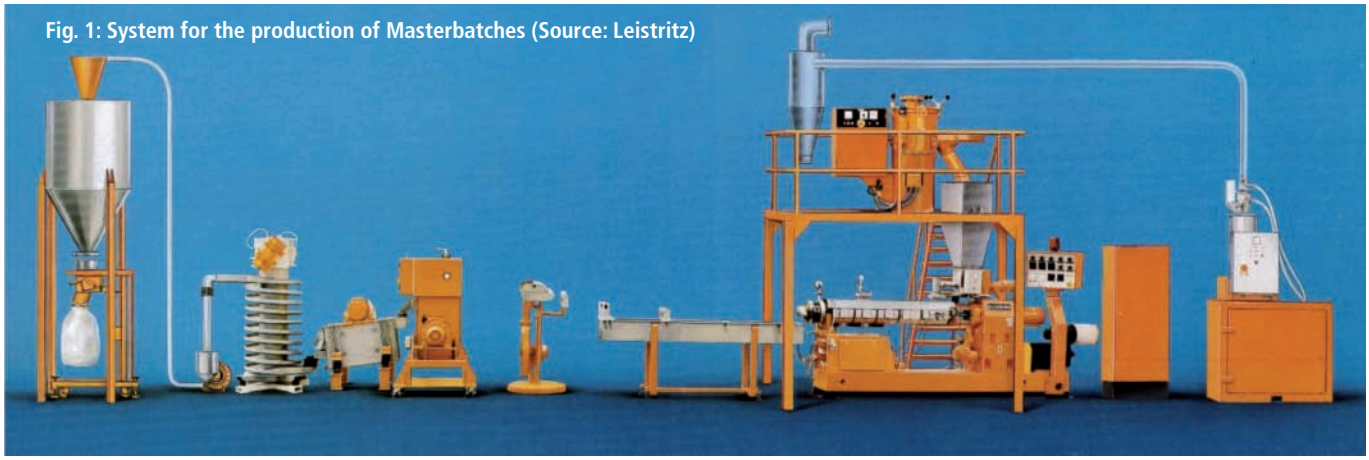


Fig. 1: System for the production of Masterbatches (Source: Leistritz)

1964 I moved to the Paul Leistritz engineering works in Nuremberg and began setting up a new product field called extrusion technology – starting from scratch with the development, production and sales of single and twin-screw extruders.

So you learned compounding technology at Leistritz – a technology with which you have been associated for almost all of your life.

TENNER: When I joined Leistritz, I started learning all about "plastics and plastic processing" – a new and difficult dimension for me and at the same time I started learning about masterbatch. We discovered masterbatch when we were looking for suitable uses for the twin-screw extruder developed and manufactured at Leistritz. We needed machines that could enable a high dispersion quality and exceptional mixing quality to produce high-quality masterbatches. Only counter-rotating twin-screw extruders were available at that

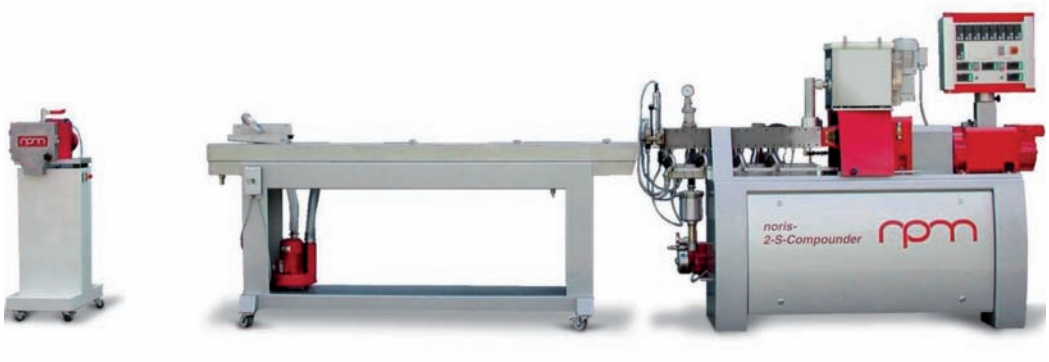


Fig. 2: LAB strand granulation plant (Source: Noris Plastic)

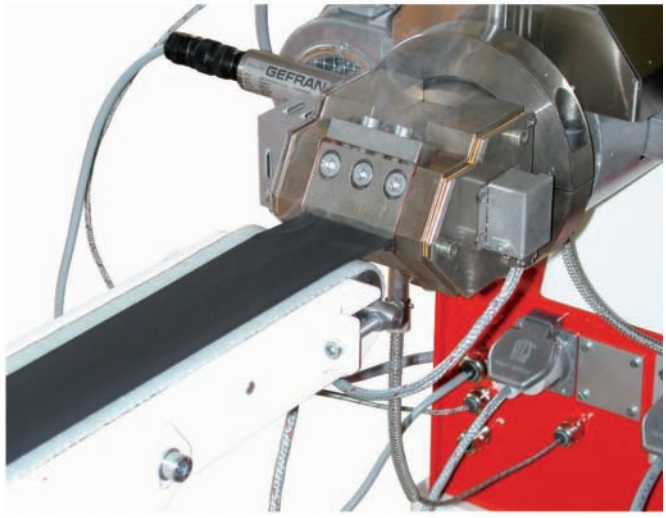


Fig. 3: Discharge conveyor belt (Source: Noris Plastic)

time, because the synchronized extruders that were more suitable for this task were still protected by patents.

We succeeded in successfully using counter-rotating twin-screw extruders for this task, thanks to suitable screw configurations and the development of mixing and homogenizing elements. The complete system shown in Figure 1 consisted of a pre-mixer, the extruder with metering and a screen changer for the separation of coarse particles that were present either as foreign bodies, or were created by the use of powdered pigments.

The granulate nozzle head is followed by the strand cooling bath, the granulator, classification and the intermediate silo. Systems like these have been used to produce performance ranges of between 30 and 300 kilograms per hour.

If no fine grist is available for the polymer, part of the total polymer content, 50% for example, must be crushed to a grain size of about 50 microns by a pulverizer. Together with the non-crushed polymer, this mixture can be very successfully used as a starting material.

In the initial phase of masterbatch production, simple production colors like black, white, green, etc. were preferred – but the plastics world became increasingly more colorful and the number of required color settings increased rapidly. Systems like the one shown in Figure 2 are often used to manufacture these concentrates, which are very often required in smaller batch sizes.

The advantage of this machine is its universal application, since screw configurations, cylinder structure and other parameters can be adjusted to match the task at hand. Apart from the low investment costs of a machine like this, another advantage gained by using this type of modular screw and cylinder is that you can change your processing parameters and materials very quickly. This is why the laboratory twin-screw extruder – or compounder as it's called nowadays – has an extraordinary wide range of uses.

Besides the manufacturing of color masterbatches, a system like this can also be designed to manufacture additive masterbatches of all kinds such as stabilizerbatch, lubricantbatch, anticorrosivebatch, etc. Batches of any kind with such plants can be produced with systems like these during the course of development.

Colorimetric tests are relatively expensive, so a check using test strips is often used as an alternative. These test strips, either extruded by single-screw test extruders or by the test foils method enable a simple, uncomplicated comparison between the color quality actually achieved and the desired quality. Figure 3 shows a system like this. It consists of a single-screw test extruder, a strip extrusion tool and a discharge conveyor belt.

A particularly high dispersion quality is required for a masterbatch used in the field of foil production. The quality can be tested by a laboratory film blowing system as shown in Figure 4.

In 1966 and 1967, we delivered the first machines for testing masterbatch quality and manufacturing masterbatches to customers in Germany, such as the Schleeberger Company in Wuppertal and the masterbatch manufacturer Zvesda in the former Yugoslavia. These and many other companies subsequently became manufacturers of high-quality masterbatches. The variety of colors and masterbatch quality constantly increased. One of the largest masterbatch consumers is still foil industry, mainly in the LTPE, HDPE and polystyrene fields – and this meant that the masterbatches had to be produced from the base polymer with these materials. The cable industry with basic materials of soft PVC and polyolefin also provided interesting applications.

During the 1970s, the production trend moved towards synchronized extruders – counter-rotating extruders were hardly used any more at that time. The different systems' manner of working is compared in Figures 5.1 and 5.3. In the synchronized system, the synchronized intermeshing principle and the higher screw revolution speed creates a higher shear effect in the polymer and pigment products. I should mention at this point that these developments didn't simply happen in large bursts, it was a continuous process.
Due to the advancement in the field of extrusion, for example, through special elements for the screw with very high shear and dispersing effects, masterbatch color selection became more and more versatile and increasingly higher in terms of pigment concentration.

We know that you are very experienced in working with companies around the globe, especially with firms in Russia and Eastern European countries. What can you tell us about this from personal experience?

TENNER: Over the years, the export situation changed in that an increasing number of machines were exported for masterbatch production. Three countries are particularly noteworthy here: the USA, Russia and Romania.
In the 1970s, we established a subsidiary in New Jersey (USA) for Leistritz – and it is still very successful in the market to this day.
In the former Soviet Union, we supplied machines to Akademograd, which lies about 20 km from the center of Novosibirsk. Basic research in 20 elementary scientific fields was carried out here.
Another Eastern Bloc country to which we delivered a large number of machines was Romania. Color masterbatches and processing batches for various applications were manufactured there. Our partner in Romania was Elena Ceau escu, the president's wife. Their great desire was to make plastics processing popular in the country. Among other things, they also wanted to create many new jobs.
Looking to the future, it can be said with great certainty that there are still many interesting possibilities in the raw materials modification field, i.e. Masterbatch/Compounding. These include the replacement of metal and wood through plastics and many other related applications.

Fig. 4: LAB film blowing system (Source: Noris Plastic)

Mr. Tenner, thank you very much for your interesting story. We wish you all the best!

Fig. 5.1): Counter-rotating & intermeshing system

Fig. 5.3): Synchronized system (Source for both images: Leistritz AG)

www.norisplastic.de

This is not a new version of the historic Winfactory, which Piovan launched in 2008 as the first remote factory monitoring and control instrument. This new application is already ready for Industrie 4.0, the group of protocols and technologies, being implemented, that constitutes the core of the fourth industrial revolution: the digital manufacturing.

Winfactory 4.0

Piovan supervision software for the Smart Factory

Industrie 4.0: control and optimisation of production processes

Industrie 4.0 has been created from a strategic German government project for the technological evolution and optimisation of industrial processes, aimed at implementing a detailed system that allows for maximum production efficiency, the best use of energy and the highest possible goods customisation even in a mass production context thanks to the adoption of four basic principles that are implemented in the Smart Factory:

• Cyber-Physical Systems (CPS): guaranteed interoperability thanks to a global network created by businesses that include machinery, logistics, structures and operators that are interconnected and continuously dialogue through the Internet of Things (IoT) and the Internet of People (IoP).

• Integration of data to the context: using information systems able to aggregate the raw data received directly from the machines during the production process in the full context, ever more timely needs can be fulfilled.

• Digital Interconnection during the entire process: from the end user to the manufacturer and vice versa, the process engineering allows for the customisation of the product through the system that independently collects the information needed to perform the required task.

• Decentralisation of decisions: thanks to the integration of their components and their connection, the CPS are able to perform their tasks autonomously notwithstanding exceptions, interferences or continent needs.

Winfactory 4.0: the fourth industrial revolution according to Piovan

The integration between the production, distribution and information structures of the manufacturing industry is the key Smart Factory concept. Piovan has implemented this with the evolution of its process control and management software based on the Industrie 4.0 guidelines, creating communication networks with an exchange capacity well ahead of schedule (2020) to allow for connections between the various parts of the technological ecosystem.

Ready to communicate

Winfactory 4.0 uses OPC - UA (Open Platform Communication - Unified Architecture), the protocol selected by Industrie 4.0 before issuing the Smart Factory specifications: developed by the OPC Foundation in 2015, it defines the communication rules and data exchange between the various entities that make up the system.

Thanks to the use of this protocol, Winfactory 4.0 makes it possible to supervise and ensure dialogue between Piovan machines and machines of other manufacturers (OEM). There is no longer the need for an interface that "translates" the data provided by each device into a common format: the information exchange becomes immediate and the various systems can interact independently. A similar communication platform allows access and use of the software on tablets and smartphones, despite the complexity of the technological challenge that Piovan under-

took, Winfactory 4.0 allows the utmost flexibility in managing equipment and processes.

Advanced management of energy use

In parallel with the development of Winfactory 4.0, Piovan created a group of integrated functions that allow for the control of very accurate operative parameters to be used to manage factory energy sources: knowing how and why they are used for each individual process based on the production volumes, the efficiency level of their use is determined. The data volumes necessary to identify the KPI and best practices to adopt to optimise energy consumption, just one of the factors that greatly influences production costs, can be collected quickly from various factories that are far from one another. This is the Big Data collection and analysis concept, made sector-specific to meet the needs of Piovan's clients.

A bit of history

The supervision software owned by Piovan was launched as Winfactory in 2008, even though the company began operations in 1996 to develop and produce remote management software for its equipment. Winfactory was the first application of this type dedicated exclusively to the plastic processing industry: it has all the internal functions that are used for transformative companies. The number of installations that Piovan has implemented has gone from 35 in 2008 to nearly 200 a year since 2012. With the new product, the typical Winfactory supervision functions are accompanied by many others, which can be added to the basic installation to make up a customised application set. Available in 11 languages (with the option to add others) with a new customisable graphic interface, barcode reader, touchscreen support, email notification function in case of alarms and log reporting, Winfactory 4.0 is an extremely evolved instrument for the careful and efficient management of the entire production process.

Winfactory 4.0: configurations

Based on the type of industrial processing, Winfactory 4.0 can be configured in several ways. Piovan developed different modules to manage each situation, from the production of PET to flexible film preforms or preforms for specific sectors like the medical and automotive industries with a completely customisable setup for each aspect based on the particular type of process. The Energy configuration is not specific for the plastic sector but is focused on monitoring the use of energy based on the type of industry and can be integrated in all superior configurations. The possibilities of Winfactory are further extended by a series of optional and on-demand functions and services like, for example, tracking, OPC-UA Server, remote assistance, line power, formula, production and necessary material reordering management. The system itself automatically manages the use of the lines based on what and how much must be produced, for example, by selecting to maintain the lowest possible critical level. For example, producing a lot with a certain formula is more convenient if it can be done at a factory that was already used for the same type of mix since the there are fewer interventions necessary to clean the machines. With the installation of the OPC-UA protocol, both the basic and additional Winfactory 4.0 features can be made available on the machines, systems and automation devices not produced by Piovan and can interface directly with the management system at the individual plant as well as the company network. In this way, information can be shared between the various systems and data can be collected to optimise the processes, creating the Smart Factory of the fourth industrial revolution.

Thanks to the evolution of the production systems for Industrie 4.0, an instrument like Piovan's new Winfactory 4.0 will allow for the optimisation of all processes, the qualitative improvement of production and evolution towards more efficient manufacturing in the use of global energy resources.

www.piovan.com

Millimeter wave technology

At the K-show 2016 in Düsseldorf SIKORA presents for the first time the CENTERWAVE 6000, an innovative system based on millimeter wave technology for measuring the diameter, ovality, wall thickness and sagging of large plastic tubes from 120mm.

SIKORA, in cooperation with the Fraunhofer Research Institute for High-frequency Physics and Radar Technology (FHR) and the South German Institute for Plastics (SKZ), has developed a new technology based on millimeter wave technique. This technology measures online, on a non-contact basis and precisely the inner and outer diameter of large plastic tubes with a diameter from 120 mm and determines ovality, wall thicknesses and the sagging ("sagging" of the melt during solidification at a too high viscosity). Also the wall thicknesses of multi-layer tubes are precisely determined by the system, independently of material type and temperature of the measuring object. The measuring system adapts itself to the characteristics of the extruded plastics and does not require any calibration by the operator. This increases product quality and ensures significant material and cost savings during extrusion.

The new system CENTERWAVE 6000 for measuring the diameter, ovality, wall thicknesses and sagging based on millimeter wave technology

Function

Several static or one or two continuously rotating transceiver, arranged around the circumference of a tube, continuously send and receive frequency modulated millimeter waves. A static system measures selectively the wall thickness and the outer/inner diameter of the tube. If there is a complete recording of the wall thickness around the entire circumference of the tube required, a rotating gauge head is used. This design concept also allows to precisely measure and represent the sagging. The measurement is based on the runtime difference of the reflected signals that are reflected by the boundary layers, as for example each front and back side of a plastic. The signals that are detected and demodulated by the receiver of each transceiver contain information regarding the distance between boundary layers of different materials. Measurements are taken from a wall thickness of 4 mm with an accuracy of a few micrometers and with a measuring rate of 250 single measuring values per second.
After an algorithmic processing of the received signals of each sensor, the requested measuring results are ready for visualization and control of the diverse tube dimensions in real time. A connected processor system provides in addition to a numerical display and graphical presentation of the measu-

ring values a comprehensive trending and statistical information. If we assume that a line, where tubes are produced with an outer diameter of 400 mm and a wall thickness of 22.7 mm, runs at a line speed of 0.66 m/min, the machine operator receives accurate measuring results already after ca. 15 min, if there is at first a cooling trough to pass of ca. 10 m length for stabilization of the extruded tube.

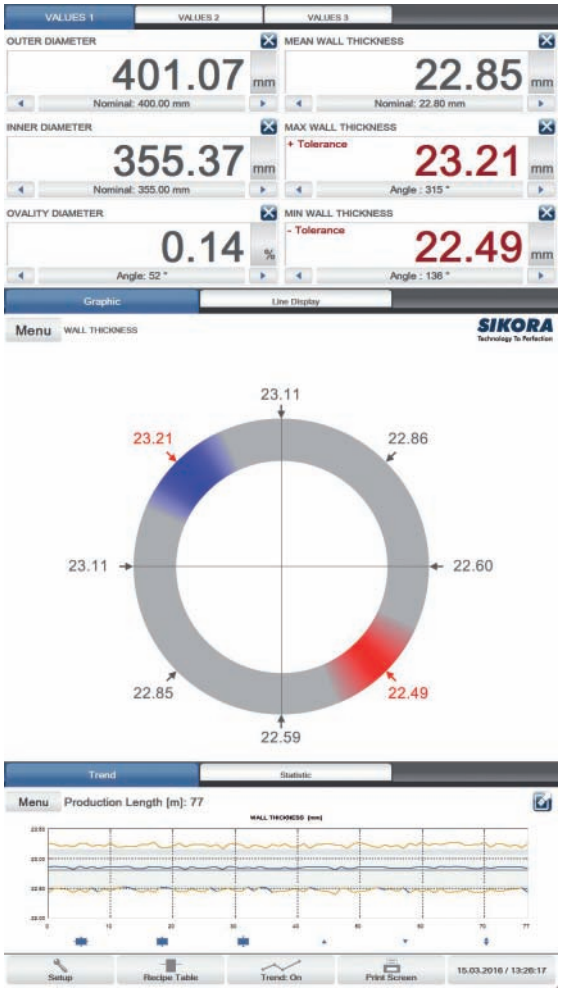
Installation in the extrusion line

As temperatures have no influence on the measuring result when using millimeter wave technology, the system can be installed for hot measurement as well as at the cold end of the line for final quality control. Immediately after the first cooling, the system provides precise information. In addition, the technology covers the entire range of plastics such as PE, HDPE, PP, PA6 and PVC.

Applications

The millimeter wave technology is suitable for the measurement of any kinds of plastic tubes with a diameter from 120mm to 2,500mm and larger that are for example used for conducting water, gas, chemicals and oil. Particularly interesting is the use of the system for the extrusion of PVC, which is one of the most widely used materials for tubes in the construction and transport area. Also for PVC tubes with thick walls the system provides precise measuring values.
Another area of application is the measurement of multi-layer tubes and curved surfaces. During production, there is the risk that the melt that leaves the tube tool flows down as a result of gravity and thus negatively influences the tube wall thickness distribution. This "sagging" is identified by the measuring method. Via a display and control device the machine operator immediately receives information on the production process to take actions if necessary.

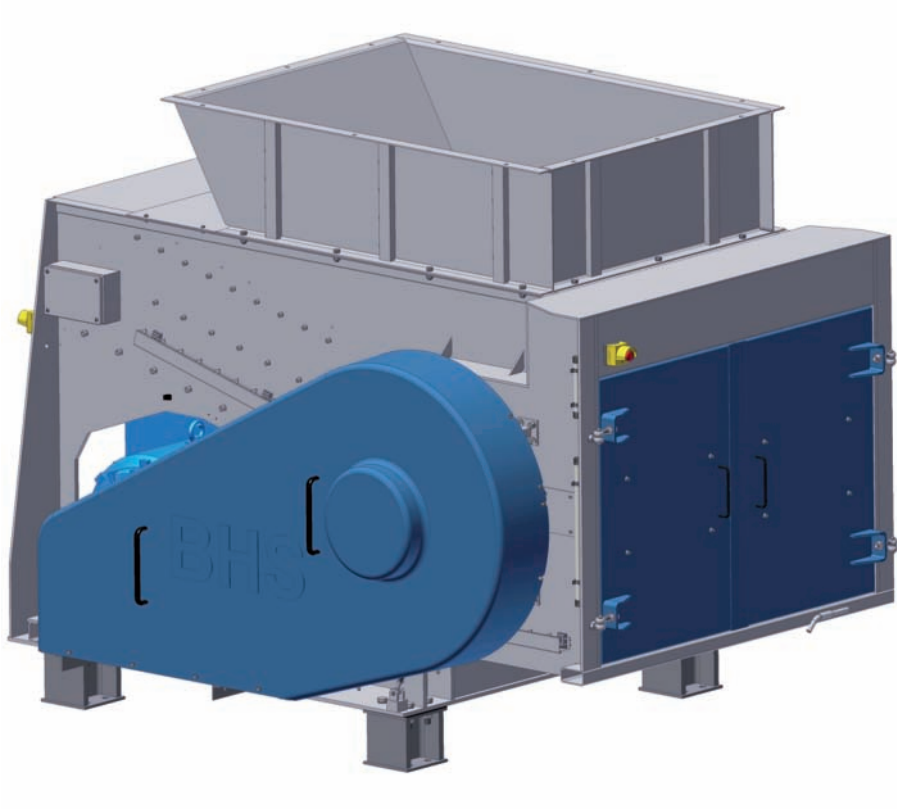
www.sikora.net



The measuring values of the CENTERWAVE 6000 are numerically and graphically displayed at the processor system ECOCONTROL

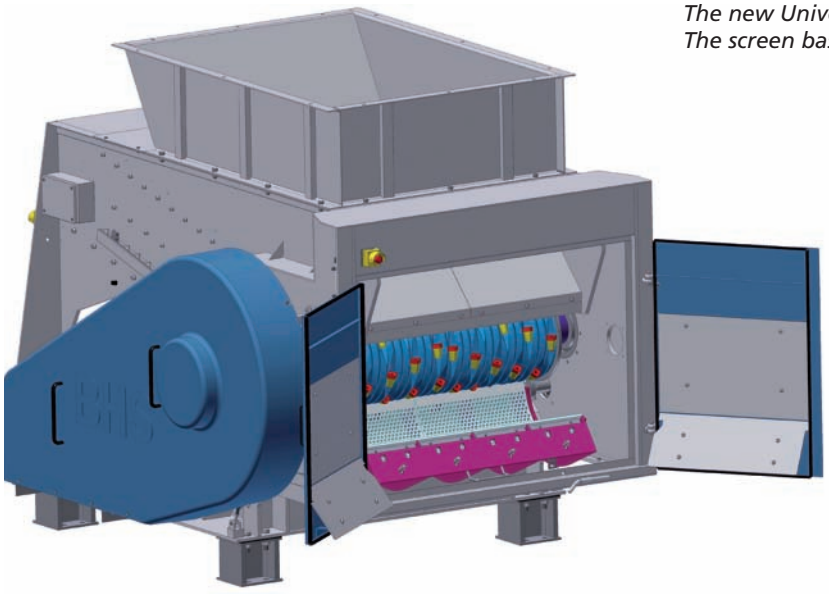
New Universal Shredder – completely redesigned

BHS-Sonthofen unveiled the new Universal Shredder of type NGU at IFAT 2016. This new product extends the company's range of single-shaft shredders by a machine designed for conventional recycling facilities and use in the manufacturing industry. It is generally suitable for all materials that can be cut and is characterized by a sturdy design, easy operation and high availability. The new Universal Shredder is available in several versions – for example with a screen perforation of 30 mm – for a throughput of 6.5 t/h and more.



The new Universal Shredder of type NGU is designed for shredding almost all materials that can be cut, such as paper, files, data media, wood, plastics or packaging

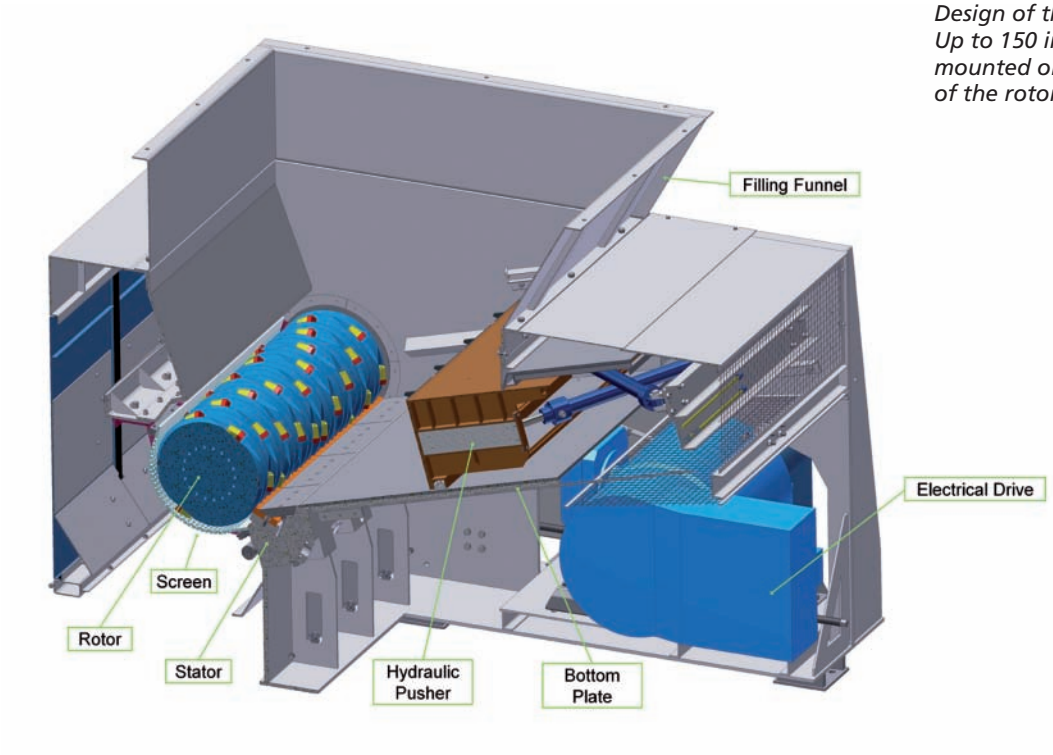
The new Universal Shredder of type NGU shreds the loaded material to a size between 20 and 100 mm. It can be used at conventional recyclers for shredding various materials, for example, for cutting paper and paper rolls, for destroying files and data media, as well as for almost all plastic
parts, leather and textiles, residual wood, cables or parts made from PET.
It is also suitable for production companies that generate large volumes of waste. In this field of application, it size reduces the material so it can be processed further at the same facility or to facilitate transportation to the treatment company. A typical application involves plastic barrels, which are collected centrally at one location in a company and then shred in order to reduce the transport costs for further processing.
Dennis Kemmann, Managing Director of BHS-Sonthofen GmbH, has completely redesigned the machine with his team: "Our aim is for our customers to achieve the lowest possible processing costs per ton. Before getting down to the design, we asked many users what



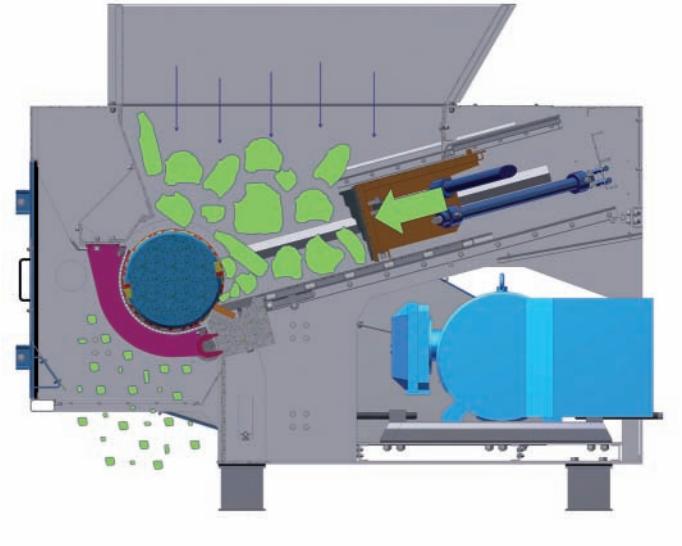
The new Universal Shredder of type NGU 0513: The screen basket (purple) can be lowered downwards

their main shredding requirements were. Their answers and the long-standing experience of our engineers were incorporated into the design.
The result: A completely newly developed machine that economically shreds everything you can possibly cut."
BHS added many technology advances insuring excellent machine uptime. This begins with the sturdy design and long service life of the individual components and extends from the simple removal of contaminants through to short maintenance times and the rapid availability of spare parts.

The technology:
The loose feed material is loaded into the feed hopper, which BHS-Sonthofen individually adapts to the material and type of feeding.
A hydraulically driven slide pushes the material along the base plate and toward the cutting system where granulation takes place. The rotor is equipped with replaceable blades, and the stator has an adjustable counter-blade with a material specific profile. BHS configures the style, quality and number of blades to the specific application at hand.
Once the cut material reaches a defined partical size, it falls through a screen basket downwards and out of the machine.
The size of the discharge material is defined by the hole size of the screen, it can be between 20 and 100 mm. The screens are individually replaceable and can be rotated lowered downwards. In this way, BHS avoids the need for overhead work when inspecting the machine or replacing the screen.
As contaminants can never be fully prevented from falling into the feed material, the base plate is mobile and can be lowered from the cutting gap, if required. This allows for fast removal of contaminants. The screen basket can also be folded away for inspections.
The throughput depends to a large extent on the density and toughness of the material as well as the method of feeding. Interested parties can request that the company perform tests in their technology center at the Sonthofen plant, to determine the ideal machine configuration.
This gives customers the certainty that their material will be processed efficiently.
BHS-Sonthofen supplies the machine in two versions: The Universal Shredder of type NGU 0513 with a rotor length of 1300 mm for a throughput of up to 5 t/h as well as type NGU 0517 with a 1700 mm rotor for up to 6.5 t/h – each based on a hole diameter of 30 mm. The motor drives are available up to 132 kW. The drives are frequency controlled, and the speed of the rotor is adjustable between 80 and 240 rpm. As a result, the ma-



Design of the Universal Shredder (NGU): Up to 150 individual blades (yellow) are mounted on the circumference of the rotor shaft



Operating principle of the Universal Shredder (NGU): The hydraulically driven slide presses the feed material against the rotor, where it is cut and shred at the stator. After attaining the desired size, it falls through the screen basket downwards out of the machine

chine can be configured to account for the properties of different feed materials. For easy to shred materials, for instance foils, high speeds are preferable in order to attain a high throughput. Solid semi-finished plastic products, full plastics as well as thick or heat-sensitive materials are shred at lower speeds.

The blades of the rotor shaft can be utilized on both sides and are rotated with minimum manual effort. The counter-blade can be adjusted. This ensures that the cutting gap is always optimally calibrated. It can also be used on two sides and replaced within the shortest time.

The design engineers have also attached considerable importance to high availability in the context of adapting the machine to various requirements: The screen basket can be changed within a few minutes. This is advantageous when destroying files, for example, if different protection classes are applicable in successive batches.

Recycling machines from BHS-Sonthofen:

When taking over AMNI Maschinenbau GmbH in 2013, BHS-Sonthofen extended its product portfolio of recycling machines by adding shredders and granulators with cutting technology. Today, the company offers a wide range of shredders, granulators and crushers with impact and shear crushing alongside cutting technology.

www.bhs-sonthofen.de

It's the "internal value" that matters!

Right on time for the "K 2016", the Krefelder company, known for developing high-precision rollers for the plastic industry presents its newest innovation: ED1 – the 1st in a series of electronic measuring tools for checking the temperature, pressure and flow rate. Developed in cooperation with the Zürich University of Applied Sciences ZHAW.

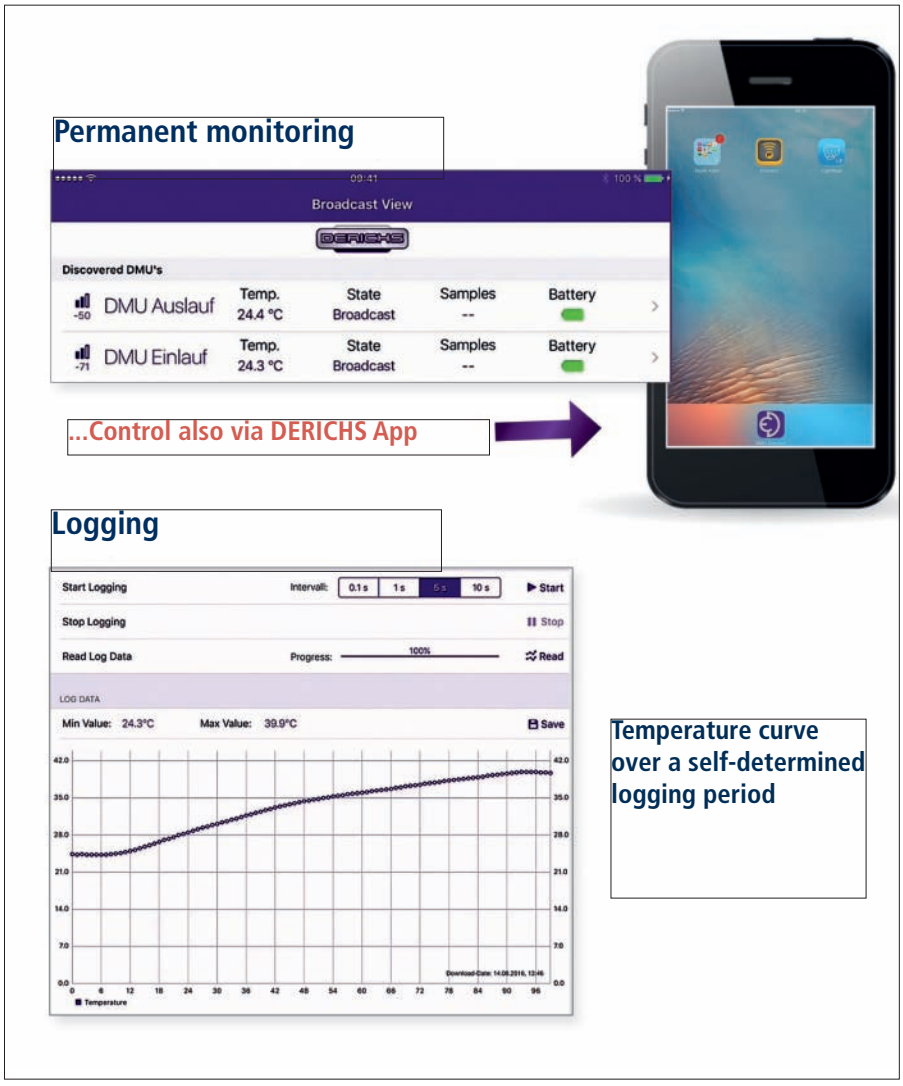
Motivation

In order to influence the technical extrusion process in the most detailed way possible and make it reproducible at any time, the process technician requires as much precise detail as possible. Centrally recording, visualizing and controlling all nominal and actual values as partially prepared process data is the standard today. Every bit of information helps monitor, influence and control the extrusion process. However, to date, important information about temperatures and pressures in the roller is not even recorded. Only the heating and cooling aggregate, which is sometimes set up in a separate space, delivers process data that can be used to calibrate and control the process. In addition, individual users install complicated measuring devices before or after the sealing head in order to get closer to the data in the roller. Though there is certainly a correlation between the data from the heating-/cooling unit and the actual data in the roller, without question, a direct measurement in the roller would be far more precise.

The two managers, Stephanie Holzmann and Maria Barthels

Industry 4.0, Internet of Things (IoT)

IoT is the basis for the fourth industrial revolution. Communication between things like sensors and controllers, sensors and process monitoring systems will lead to intelligent factories. The benefit to the user lies in the efficient use of resources and an improved decision-making basis. Physical objects can communicate with each other wirelessly via autonomous, integrated systems and via the Internet. These systems are an integral component of products, devices or



The new innovation from Derichs: the 1st electronic measuring tool for monitoring the temperature, pressure and flow rate in the roller

machines and makes them fit for use. They determine and interpret data from their physical environment via sensors. They are capable of gathering, digitalizing and wirelessly (at least over a short distance) transferring data to a central process computer and thus easily to the Internet. With the help of so-called actors, they can influence physical processes in their environment, prevent production down-times, minimize material and energy consumption and help the operating personnel with intervention and prevention. With this multimodal human-machine interfaces, production requires fewer resources and is more energy efficient.

DERICHS ED1 – Temperature, pressure and flow rate control:
With the DERICHS ED1, Derichs is taking a huge step in exactly this direction. This tool provides every roller with a digital memory. It can be retrofitted on any double-shell roller and can data such as inlet and outlet temperature and input and output pressure and the resulting profiles of each individual roller can be displayed. Transferred wirelessly via wireless radio to an app developed for Android or Apple systems, the DERICH ED1 allows for direct and extremely precise monitoring of the actual values. This results in new, additional options for the process technicians to monitor and influence the extrusion process. What is also interesting for the machine manufacturers is the possibility of directly integrating the interface into the system electronics. By means of regular, autonomous screenings, the roller itself can provide feedback if a significant change in the internal conditions occurs. It is therefore possible to intervene in the overall process earlier and faster. In addition to optimizing the film, focus is placed on the maintenance and resource conservation of the operating medium and the roller. With respect to further development, it is possible that recommendations originating from the roller regarding interventions in the ongoing process may be used in a variety of ways for optimization. We can't even currently conceive the potential diversity of options.

The development:
After initial feasibility studies by Professor Peter Gruber from the University of Basel, the DERICHS ED1 was developed by the team surrounding Professor Roland Keung in cooperation with the Zürich University of Applied Sciences (ZHAW – Zürcher Hochschule für angewandte Wissenschaft, School of Engineering, ZSN) and has already been successfully tested on a roller in a laboratory. Professor Roland Kueng from the University of Zürch is very convinced of the benefits for the customers: "With this new Derichs development, the temperature, for instance, can be precisely monitored during production. First, because the measurement is taken directly in the roller coolant and second, because the value is digitally available to the heating controller as an actual value. If the water temperature in the roller is reduced by 1%, this saves 6% energy. If, for instance, there are greater deviations, an alarm can be triggered and the system can protect itself from being damaged."

The facts:
The fact that the measurement values are digitalized directly at the sensor by a measuring electronics system and a microprocessor offers the benefit that they are very precise and

cannot be distorted during transmission. The temperature sensors delivery digital values with a precision of ± 0.5 degrees C, (upon request, als up to ± 0,1 degree C) across a range of 100 degrees C. "Derichs consciously selected a wireless, digital date transmission method" explains Professor Kueng "because the sensors are on the rotating roller and cables in the vicinity of moving machine parts are obstructive. It was important that the data transmission be secure and, upon request, encrypted and that the radio protocol is standardized. The radio protocol meets the Bluetooth 4.0 standard. Every module has its own address so different sensors can clearly be assigned to the measurement point and machine. Every five seconds, each module is queried and these values can also be tracked in live view mode on an iPad tablet (Android in planning) or on a PC using a wireless dongle." The module can also log values autonomously. The time interval can be selected. The history log files can be targetedly collected, saved on the system side and evaluated, either manually or automatically.. "It is a very valuable tool for process engineers," says Professor Keung. "The module works in an industrial temperature range of -40 to +85 degrees C. If thermally insulated, the sensors can also be used in rollers at up to 400 degrees C. "If the process computer is connected to the Intranet or Internet, this data can be queried from anywhere. "Thus Derichs has taken the first big step toward the IoT: less waste, less energy consumption, fewer down-times."

Passion for precision:
The name Derichs is known worldwide for high-precision rollers in the plastics industry and have always stood for innovation and development. With the Derichs ED1, the new company management under a female leadership (Maria Barthels and Stephanie Holzmann) also proves that it stands for quality and competence. Curious about the requirements of the future, solution-oriented and innovative with respect to development, the DERICHS ED1 is another milestone in the history of the plastics industry.

Right on time for the "K":
This new development (including the shuttle) will be introduced for the K 2016 at an exclusive in-house presentation on October 20th, at Derichs in Krefeld. Guest speakers, including speakers from the ZHAW (Zürcher Hochschule für Angewandte Wissenschaft, School of Engineering, ZSN) will also be present.

➠ **www.derichs-gmbh.de**

Plastic Processors Met in Saint-Petersburg

The established conference brought together more participants than ever

Stanislav Chernenko, CEO of FPR Event, the co-organizer, welcomes forum participants

For the fourth consecutive year already, the German publisher VM Verlag, known for its trade magazines Extrusion, Extrusion International, Extrusion Russia and Extrusion Asia, in cooperation with FPR Event (Ukraine/Russia) invited plastics processors and manufacturers of equipment, tooling, polymer materials and additives to IPTF 2016, the International Polymer Technology Forum. The event took place during the famous "white nights" of St. Petersburg sung by the Russian poet Alexander Pushkin. This year, the forum gathered a record number of participants, 140, becoming the Russia's largest industry event for plastics processing.

Over two days, experts representing 82 companies from Russia, Ukraine, Germany, Italy, and Austria heard numerous presentations grouped in five sections. The main topic, Resource- and Energy-Saving Solutions for Plastic Converting, gathered gwk, KraussMaffei Berstorff, AMUT, Stäubli, Geiss Russ, and ENTEX. As always, the presentations of the second section entitled Plastics Recycling Technologies, given this year by EREMA, Herbold Meckesheim, and other companies, sparked a lot of interest and a lively discussion. SIBUR, the leading petrochemical company in Russia and Eastern Europe, set the tone in the discussion of the Russian Market of Polymer Packaging. No less active were the participants of the fourth session, Additives for Polymers, with presentations by Brabender, 3M, and BARS-2. Domestic Polymers Market session ended the conference program, with, as custom has it, a big presentation by NizhnekamskNeftekhim, a Russian and European flagship petrochemical group. A bus tour in St. Petersburg that wrapped up the program was a pleasant surprise for the guests that allowed them not only enjoying the city at night, but also returning to the discussion of issues brought up at the conference.

Kaloyan Iliev (in the middle) of our Austrian sponsor EREMA at a booth of the trade show that accompanied the conference

Left: Vitaly Spiridonov speaks on Brabender solutions for plastic converters

Below: Konrad Ege representing gwk, one of our sponsors, talks to a customer

Roberto Donatelli (left) of AMUT (Italy) talks to a visitor of the booth

The forum has not only kept Russian specialists familiar with advanced solutions in the field of equipment, technologies, and new materials, but also provided a unique opportunity for the representatives of European companies to get a feel of the current situation on the Russian market, to establish useful contacts, and to focus their foreign trade with more precision.

The next, fifth, issue of the conference will be held on June 13 and 14, 2017 in St. Petersburg. Once again, the organizers invite all those interested in the Russian market, including, for sure, many of our readers. For complete information on the upcoming and the past events, please go to http://iptf.ru/en, call us in Germany: +49 06226 971515 (Martina Lerner), Ukraine: +38 044 221 4560 (Stanislav Chernenko) or Russia: +7 499 346 6847.

www.iptf.ru

Below on the left: Many presentations aroused great interest and lively discussion among the participants

K 2016 - looking at the future

From 19 to 26 October, the international plastics and rubber industry will be meeting at K 2016 in Duesseldorf and presenting its solutions. The global flagship fair for the sector and industrial applications, K unites central industry trends and future trends at a single venue. It has become established as the innovation and business platform not only for raw materials producers, manufacturers of plastics and rubber machinery, and processors, but also for stakeholders from the key user industries. Again, the strongest contingent of exhibitors comes from Europe, especially from Germany, Italy, Austria, Switzerland, France and Turkey, but there is also an impressive number of participants from the USA. At the same time, K is a clear indicator of changes in the global market: over the past years, the number of Asian companies and the exhibition space booked by them has been rising steadily, and this year, particularly China, Taiwan, India, Japan and South Korea will be impressing visitors with their strong presence. Since K welcomes highly diverse companies from all over the world, the spotlight is not only on the industry's major talking points – such as energy, resource and materials efficiency – but also on niche segments.

This year, international machine and equipment manufacturers, K's largest group of exhibitors, will be presenting an abundance of world premieres. Occupying about two thirds of the exhibition grounds, exhibitors from this particular group will be showing their products in halls 1 to 4 and halls 9 to 17. Engineers and machine manufacturers from all over the world are already working flat out so they can present live demonstrations of new complex production units in October. K 2016 provides a unique opportunity for drawing global attention to innovations, as no other event anywhere in the world attracts such an international and expert audience.

Raw materials and auxiliaries specialists will be presenting the leading edge in polymer science: materials with superior resource efficiency that help to achieve a better balance between economic and ecological performance. In addition to the optimisation of standard polymers, this year's major topics will centre on additives and fillers, biopolymers and functional polymers as well as on self-reinforcing polymers.

K has always had its finger on the pulse of technological development. This is borne out not only by the presentations at exhibitor stands, but also by the supporting programme, which provides real added value for visitors. The special show, the Science Campus, Bioplastics Business Breakfasts, the Design Chain Conference, 3D fab+print and the plastics training initiative focus on specific aspects and industry-related issues: the perfect opportunity to gather strategic information.

www.k-online.com

Reifenhäuser: Setting The New Standards

Realizing intelligent production thanks to industry 4.0. At K 2016 in Düsseldorf, Reifenhäuser, the world's largest manufacturer of extrusion equipment, will demonstrate what the company means by "Setting The New Standards". For eight days (19 - 26 October 2016), customers have an opportunity to visit Reifenhäuser (hall 17, stand C 22) and experience how they can further increase productivity and efficiency with Industry 4.0.

Intelligent and more economical production:
Empowered by Industry 4.0

Even if the term Industry 4.0 has been around for a while, many companies still consider it to be a dream of the future. There are vastly different interpretations of how Industry 4.0 can be implemented on a practical level today and how companies can profit from it here and now. No one could any longer afford to ignore Industry 4.0, explained CEO Bernd Reifenhäuser during the K 2016 preview in Düsseldorf: "Intelligent networking and digitalization of the processes and of production, especially in the plastics industry, poses a great challenge to our customers - as it does to us. At the same time, however, it offers unbelievable opportunities."

Ultimately it is about continuing what has been a central topic for Reifenhäuser as a company for more than 35 years: Automation. Industry 4.0 facilitates significant increases in productivity and efficiency, and thus in economic viability. "As the largest manufacturer of extrusion systems, we are well aware of our responsibility and have therefore prepped our team to make the digital future of extrusion a reality for our customers", said Bernd Reifenhäuser. "We think within the business model of our customers and optimize their operational performance."

As an approach to implementing an innovative Industry 4.0 production environment, Reifenhäuser Group has established its Reifenhäuser Digital Business Platform. To this end, Reifenhäuser not only consolidated the entire company group's know-how, but has for some time been employing experts in the field of digitalization and is building up new competencies in fields like data analytics. Because big data not only means large amounts of data, but most of all one thing: The opportunity to draw the right conclusions from this data. In this way, the processes within production can be distinctly optimized in many places.

Data turns into valuable information

Reifenhäuser will continue to place people in the center: With its new operation center, Reifenhäuser offers a sustainable interface between the employee and the production line. The intuitive and context-sensitive design makes operation of the lines easier. The result: Quicker operation and fewer mistakes. The markedly increased user-friendliness leads to an increase in productivity.

In addition, the Reifenhäuser Performance Cockpit converts countless numbers and data into valuable information on the processes within the line. This enables optimal analysis of a line's performance. From the relevant key performance indicators for shift supervisors up to the clear presentation of the line performance for the management. You don't even have to be on site for real-time analysis as the evaluations can be accessed in the office, at home or while away on a business trip.

Combined with modern algorithms, the line's sensor technology delivers even more: The diagnostic center can, for example, inform on parts that are due for replacement soon. This makes production downtimes due to late replacement of wear parts a thing of the past. System faults can also be identified as quickly as possible in this way.

The examples illustrate how Industry 4.0 enables intelligent production. Even if it is still a long way to go before lines automatically download the relevant data for retooling and production optimization for a product change from the cloud. Up to a point where only the desired product and the required raw material needs to be entered. All of the rest - including all production parameters and settings - is done by the line itself.

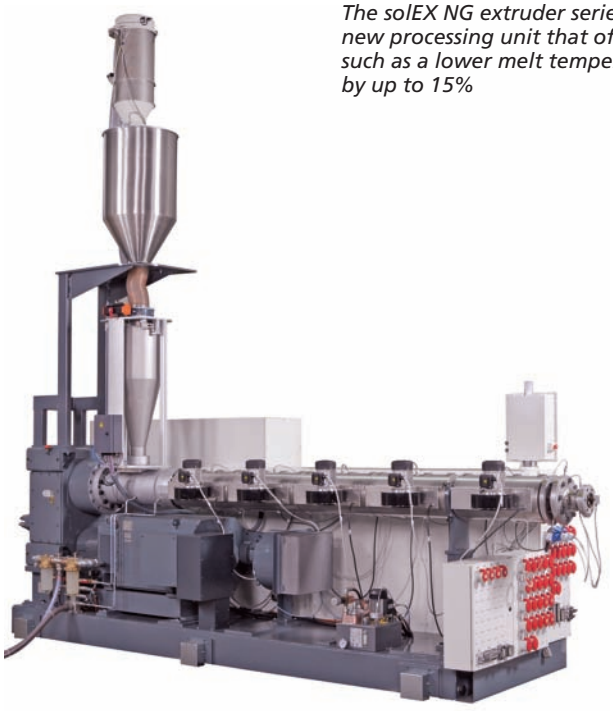
With the Reifenhäuser new applications, customers will already benefit now from the advantages of Industry 4.0. That means maximum machine performance, less scrap and optimized quality. "Industry 4.0 empowers our customers to make their business even more profitable. For this reason, we are continually reinventing ourselves," explained Bernd Reifenhäuser at the K 2016 preview in Düsseldorf.

With its Reifenhäuser Digital Business Platform, Reifenhäuser claims all the relevant topics for implementing intelligent production and enables customers to realize the potential of Industry 4.0. A range of products and the Reifenhäuser vision of intelligent production is going on display at K 2016. Setting The New Standard in this digital age.

Hall 17, Booth C22

www.reifenhauser.com

battenfeld-cincinnati: “Driven by innovation”



The solEX NG extruder series features a completely new processing unit that offers a multitude of advantages, such as a lower melt temperature and energy costs reduced by up to 15%

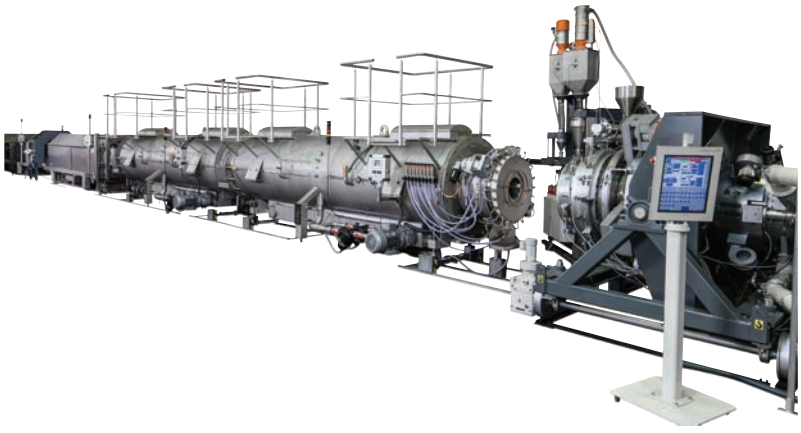
The new single screw extruder solEX NG 75 for the production of PO pipe will definitely be a highlight at the booth. Based on solEX series, which is already established in the market, the NG series offers a completely re-designed barrel-screw combination. With this, battenfeld-cincinnati sets new benchmarks in the market in terms of output and energy consumption. The advantages of the “Next Generation” are lower melt temperatures, optimized, con-stant pressure build-up and reduced maintenance costs with sig-nificantly higher outputs compared to the previous models. Thanks to the lower drive energy and reduced energy losses, energy costs can be decreased by up to 15%. “With the design of the new NG series we again prove our innovativeness. We have succeeded in developing an extremely powerful and energy-efficient processing unit that has not yet been seen on the market in this form,” em-phasizes Grant Flaharty, battenfeld-cincinnati’s Chief Sales and Marketing Officer.

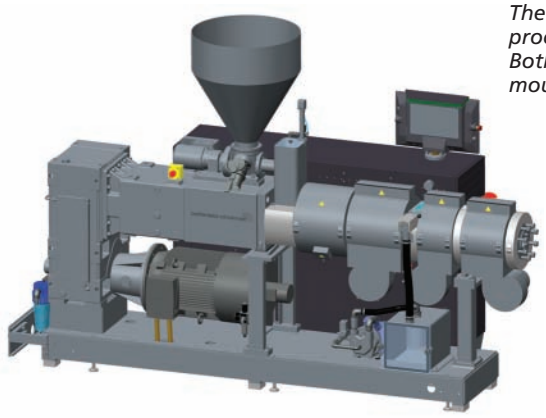
In combination with the new PO extruder, the machinery manufacturer will show another innovation: the Fast Dimension Change (FDC) system. At the booth, three components will be shown – the pipe head, the calibration sleeve and the vacuum tank. With the FDC pipe head, die changes are largely unnecessary, thanks to an adjustable melt gap. Therefore, it can be used uni-versally for a wide pipe diameter range. For the first time, an adapter for the outer layer has been integrated in the adjustable die, offering the shortest purging times currently available, for example during a color change. Instead of a rigid calibration cylin-der, the FDC calibration sleeve consists of movable elements that can be adjusted to almost every diameter, but do not leave any markings on the final product. Finally, the 1.5 m long FDC vacuum tank has scissors lift tables that allow the adjustment to every height with servomotors. A unique flexible and above all easily adjustable sealing technology ensures a secure sealing of the vac-uum tank.

Multi-Touch roll stack reaps success worldwide

“We have proven in the past years that we are optimally prepared for the growth market packaging sheet with our high-speed ex-truders and the Multi-Touch roll stack which is unique in the indus-try. Customers all over the world have decided in favor of this technology and we have installed numerous systems worldwide,” Dr. Henning Stieglitz, Chief Technology Officer, is pleased to report about the market success of thermoforming sheet extrusion equipment. This is why the machinery manufacturer will show a Multi-Touch roll stack at its booth – this time in a XXL-version. Multi-Touch roll stacks work with a combination of a roll stack with two rolls for pre-calibration and three, give or seven rolls in post-calibration. So they produce stress-free sheet with thickness toler-ances of ≤ 1% at high speeds. The newly developed XXL roll stack shows exceptionally high performance. Outputs of more than 3 t/h can be realized depending on the width and thickness of the sheet while at the same time there are no compromises in sheet quality.

The FDC (fast dimension change) system enables pipe dimension changes during production. Three components of the system will be shown at battenfeld-cincinnati’s booth: pipe head, calibration sleeve and vacuum tank





The conEX NG series features a newly developed processing unit and is extremely flexible and energy-efficient. Both a stand-alone execution and a co-extrusion execution mounted on a pedestal will be exhibited

Of course, a complete extrusion line also requires a matching con-trol technology. Here, too, flexibility is key. A new control with a modern 21.5" full-HD multitouch display in landscape format will be presented at the booth. Not only does it offer a novel operating and visualization concept, but also additional features that are a perfect tool for processors in the realization of industry 4.0 agen-das.

Flexibility is paramount for twin screw extruders

The machine portfolio at the booth is completed by several twin screw extruder exhibits for pipe and profile production. The high-light are two models from the completely newly developed conical twin screw extruder series that offers an exceptionally wide appli-cation range thanks to a newly designed processing unit. Apart from the processing technology, the complete machine was rede-signed and optimized based on experiences in the field. "With this series we take into account, among other considerations, the in-creasing requirements of window profile producers. The machines offer a wide throughput range, as well as the possibility of pro-cessing diverse formulations," emphasizes Dr. Stieglitz in speaking of the new series' advantages. In addition to their flexibility, the extruders convince with gentle melt processing and easy handling.

At K 2016, two extruders from the new series will be shown: a conEX NG 65 in stand-alone execution and a conEX NG 54 in a co-extrusion set-up. The latter is mounted on a pedestal and com-bined with a twinEX 93EP as main extruder. This new pedestal solution is suitable for a variety of set-up options and can be ad-justed individually to the location's requirements thanks to its modular system. The set-up on display offers processors highest flexibility and an optimal price-performance ratio. In addition, the conEX NG 54 will feature an energy-saving kit.

This includes a synchronous motor and a variety of additional features that signifi-cantly reduce the extruder's energy consumption.

Grant Flaharty feels certain: "With the different exhibits from our wide product portfolio for the extrusion industry, we are present-ing modern, energy-efficient solutions that will meet the future requirements of the industry as well."

An XXL version of the successful Multi-Touch roll stack will be shown at the booth

Hall 16, Booth B19

www.battenfeld-cincinnati.com

EREMA: Recycling 4.0

With CAREFORMANCE the global market leader is all set to herald the age of Recycling 4.0 as the first in the plastics recycling industry to present an extensive Smart Factory package for both recyclers and producers.
EREMA will be building on the success of the INTAREMA® technology presented in 2013, this time with its trade fair theme of "CAREFORMANCE – We care about your performance" to grow its pioneering role this year with Industry 4.0 applications. "Building on the high degree of automation of the INTAREMA® systems we have developed a Smart Factory package which enables us to give our customers a clear competitive edge and make them fit for the future," reveals EREMA CEO Manfred Hackl. Visitors to the trade fair will not only experience CAREFORMANCE in theory, they will also see it live in action at the CAREFORMANCE Recycling Centre covering 480m2 in the outdoor area. This is where you will find an INTAREMA TVEplus 1108 with integrated Laserfilter which will be recycling some of the plastic waste from the K show live on site. Besides the premiere of the live recycling, visitors will be able to judge how convincing progress in the development of plastics packaging recycling is. The closed product loop from production to reuse will likewise be presented in live demonstrations. And last but not least the Recycling Centre will feature an extensive exhibition of products made with recyclate, showing how many branches of industry are committed to recyclate. The Recycling Centre will be opened at 11am on 19 October in the outdoor area (FG 09.1).

QualityOn package
CAREFORMANCE consists of 4 components, with the INTAREMA® system forming the basis for the further Smart Factory applications. In addition to the previous machine data, specially integrated sensors – the QualityOn package – can be used in future to record and evaluate MVR (Melt Volume Flow Rate) and colour. The QualityOn package enables recyclers and producers to make their recyclates with consistent quality in accordance with the special requirements of their customers and document them transparently using online data acquisition and analysis. Recipes recorded electronically can be compared with each other and modified.

re360
In order to make use of the vast amount of machine, quality and process data in a worthwhile and user-friendly way, EREMA has developed a sophisticated MES (Manufacturing Execution System). With re360 you can keep track of the productivity of an entire range of machinery in five modules. "A key benefit of re360 is that it works independently of the plant manufacturer," emphasises Manfred Hackl. "Customers can integrate not only different systems but also their global production locations." re360 gives you an overview of the capacities/stoppage times of the systems for management, documents key quality data of the recyclates for the location manager and informs the operator about upcoming maintenance jobs.

CAREFORMANCE – the smart factory package for the plastics recycling industry

Spare Parts Online
The extent to which re360 was developed with customer requirements in mind becomes clear with the link to Spare Parts Online, EREMA's online webshop. Any upcoming maintenance work and the replacement of individual parts is displayed in good time by re360. Spare parts can be ordered directly via the online webshop to keep downtime as low as possible: interconnection in the sense of maximum productivity. The customers' respective EREMA systems and previous orders are stored at Spare Parts Online.

More than 450 INTAREMA® systems already sold worldwide
At the last K 2013 EREMA launched a system with new core technology and additional innovations: INTAREMA®. The primary innovation is based on Counter Current technology. INTAREMA® achieves unrivalled process stability while maintaining flexibility with extremely easy operation and considerably less energy consumption. This stability enables automation processes such as Smart Start or the Recipe Management System, which in turn form the basis for modern Industry 4.0 applications. Since the technology was launched in autumn 2013 more than 450 INTAREMA® systems have already been sold worldwide.

Hall 9, Booth C05

www.erema.at

KAMPF: „Beyond slitting and winding“

At the K 2016 KAMPF presents a comprehensive range of services around the slitting and winding technology for web-shaped materials and displays an expanded portfolio which exceeds the core competence “slitting and winding”. Using the slogan “Beyond Slitting and Winding” KAMPF as the leading manufacturer of slitting and winding machinery introduces new products and developments for future production to meet the increasing market demands. These include topics like: industry 4.0, networking and automation, complete and new detailed solutions to improve operation and productivity to name only a few. The narrow width slitting machine type Microslit will be presented beside further exhibits.

Hall 3, Booth A92

www.kampf.de

FEDDEM: delivering complete systems excellence

Using a true-to-scale model, the FEDDEM team will present its ICX® (Innovative Compounding and Extrusion) technology concept for supplying complete compounding lines, developed in partnership with sister company AKRO-PLASTIC. The machine builder will focus on the benefits for its customers: high-quality compounds and flexibility at a competitive price, with short response times. FEDDEM supplies the same system technology worldwide regardless of the production site, ensuring identical product quality at all locations. The company will also be exhibiting its FED 26 MTS pilot plant station extruder with enhanced wear protection. The extruder is customisable and can thus be used for a broad range of applications and a variety of compounding jobs. This will be demonstrated with an extension unit, side feeder and side vacuum degassing unit.
Thanks to its modular design, the extruder can be extended in just a few steps from 32 D to 42 D, 52 D or more. The entire electrical system is integrated into the frame and the machine stands on castors, making it mobile and easy to move. Depending on the area of application, the FED 26 MTS achieves production rates between 10 and 150 kg/h. For every compounding job, the manufacturer has just the right machine in its product range. In addition to MTS installation sizes between 26 and 82 mm and a product-dependent operational capacity between 40 kg and 4 t/h, extruders with a larger Do/Di and a screw diameter up to more than 135 mm are currently available for the manufacture of high-fill plastics compounds.

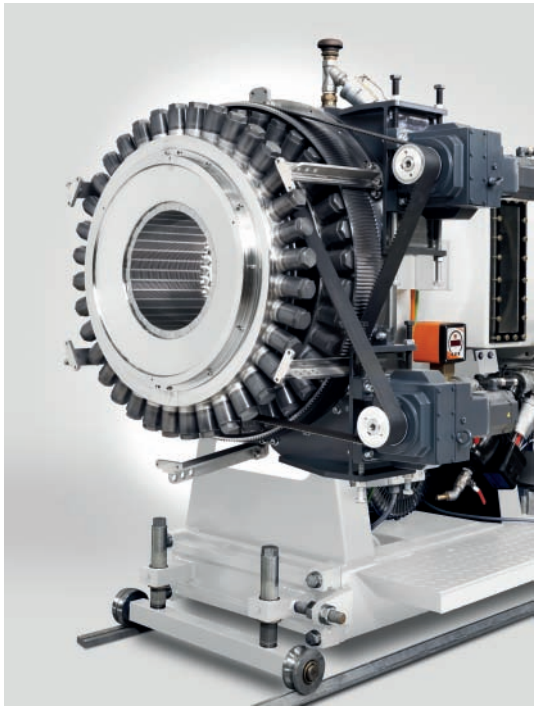
The team from FEDDEM GmbH & Co. KG uses a model to explain how a complete system is designed

The FEDDEM specialists will also report on recent projects, including the development of new machines and equipment used to manufacture of high-fill polyolefins.
The machine builder’s range of services is made complete with replacement parts supply, used machine reconditioning and on-site customer service.

Hall 15, Booth A42

www.feddem.com

KraussMaffei Berstorff: QuickSwitch dimension change technology now in sizes up to 500 mm



The QuickSwitch calibration basket, the core component of the KraussMaffei Berstorff system for automatic dimension change

KraussMaffei Berstorff is presenting the maximum version of its technologically advanced QuickSwitch technology for efficiently changing dimensions for the 280 - 500 mm diameter range. The system, which has proven its value in everyday production for many years, is the company's flagship product for applications requiring high overall equipment efficiency (OEE), particularly with regard to the availability of a production system. In this respect, with OEE Plus KraussMaffei Berstorff supplies its customers with premium quality solutions.

Cost-effective production, particularly for large pipe diameters

"Our automatic quick change system is of particular interest for large pipe diameters, as in this application, the quantity of waste is limited to a tapered piece of approximately three to six meters," explains Peter Roos, President of the Extrusion Technology Segment and of the KraussMaffei Berstorff brand. Because in pipe production, the material costs account for up 70 percent, processors' desire to produce as little scrap as possible is first and foremost. "Our QuickSwitch system, which has been successful for over ten years and is unmatched in its technology, has been expanded by adding the model for the 280 – 500 mm diameter range. This expansion is our response to the requirements of the market," says Roos. A critical role in conserving the raw material is also played by the pipe wall thickness. QuickSwitch technology plays a critical role in this regard. "Every processor wants to produce as little excess pipe weight as possible, because this weight has negative effects on its balance sheet," Roos explains. In addition, all process parameters can be configured with precision and stored using the intelligent all-in-one system control. Any number of data records can be stored and activated using the C6 control system.

Greater flexibility and maximum availability of the production system

"In today's highly competitive market environment, flexibility is the key to success," Roos says. "One of the absolutely outstanding features of our QuickSwitch system is being able to fill small order lots with fast turnaround times. The pipe dimension changes within a few minutes at the touch of a button. QuickSwitch enables the producer to respond at any time and accept orders with small quantities or special tubes with individualized dimensions.

Just-in-time production reduces inventory costs to a minimum. The fast changeover time has an extremely positive effect on availability. Processors have to figure in multiple hours for the changeover of a standard system, depending on the dimension. By contrast, this process takes only about tenmminutes with QuickSwitch. The system is also very low-maintenance, increasing service life while simultaneously reducing personnel costs.

Satisfied customers – in markets defined by high-tech

"Companies who decide in favor of our QuickSwitch solution keep coming back to us," Roos confirms. "This is proven by our regular customers' full order books." Since its market launch, the system has done particularly well in high-tech markets such as Germany, Austria, the Benelux countries and Italy. However, a large number of systems are also up and running in Eastern Europe and the Near and Middle East. The technology enables all commonly used polyolefins such as PE-HD and PE-MD to be processed for these diameter ranges: 25-63 mm; (optional: 63-140 mm); 75-160 mm; 160-250 mm; 250-450 mm; 280-500 mm; (in the wall thickness range of 11-33 SDR class).

Hall 15,
Booth B27/C24/C27/D24

www.kraussmaffeiberstorff.com

maag: flexible Underwater Pelletizing Systems

Maag automated Underwater Pelletizer

At the upcoming K-2016 Show the "new" Maag will unveil its most recent innovation, one that combines the capabilities of Maag and recently acquired companies Gala Industries and Reduction Engineering Scheer (RE Scheer).

Exhibiting in booth A04 (main booth), B65 (innovation booth) and E37 (pulverizer and strand pelletizer booth) in Hall 9, Maag will showcase a new underwater pelletizing system that is a result of the synergies that have been created through the integration of the Gala underwater pelletizing and RE Scheer strand pelletizing and pulverizing system product portfolios with those of Maag Automatik's industry-leading pelletizing systems. The end result is an underwater pelletizing system that successfully combines the know-how of multiple industry leaders in a design that promises to set a new standard for the pellet-processing industry. The system has been designed to be a one-stop solution for its users as all of the components, from the tip of the extruder screw to the finished plastic pellets, are produced by Maag companies. This includes the melt pumps, screen changers, diverter valves, die plates, cutting chambers, water bath, strand dies, cutter systems, interlocking systems, cutter hubs, system controls, cutting tools, support frame, and any other required equipment. This will be possible because all of the Maag brands are focused on delivering exceptional value to their customers through a blend of product leadership and customer service, knowing that they:

- Process exceptional custom engineering skills and expertise,
- Concentrate on understanding unique customer system and process needs and requirements.

In summation, the customer-focused commitment of the Maag companies will drive the performance of this next-generation underwater pelletizing system and deliver many benefits for the compounder. With this machine, Maag will set a new standard in terms of flexibility, reliability and efficiency for underwater pelletizing in the plastics industry, and raise the bar for future iterations.

Hall 9, Booth A04

➠www.maag.com

LANXESS: high-tech microgranules for brilliant colors

At K 2016, LANXESS's Rhein Chemie Additives (ADD) business unit is showcasing its organic Macrolex Gran colorants for the brilliant coloring of amorphous and semicrystalline plastics. Thanks to their microgranule form, the colorants compare extremely favorably with powders and compact granules owing to their excellent dispersion and processing properties and safe handling. Macrolex microgranules consist of hollow spheres that can be very easily crushed, which means they can be quickly, evenly and completely distributed and incorporated into the plastic. The excellent processability of the product is due to the fact that the hollow spheres comprise particularly small primary particles of between around two and ten micrometers depending on the color. The good free-flowing properties of the 0.3-millimeter spheres make precise metering easier and prevent clumping in the mixing process. The four times higher bulk density compared with powder pays dividends in processing, transport and storage alike. In addition, the granules make an important contribution to occupational safety and environmental protection. Containers can be completely emptied, for example. Dust development in the processing of Macrolex Gran is much less than with powders. This means there is a considerably reduced risk of dust explosion, and expenses for protective measures and facility cleaning can be considerably reduced. The design of Macrolex Gran is such that on the one hand its hollow spheres are big enough to hardly form dust and on the other the much smaller particle size compared to powder enables rapid and complete solution dissolving in the plastic. Owing to its good metering and dispersion properties Macrolex Gran is primarily used for processing in the extruder and on the injection molding machine. The colorants are soluble in organic solvents and are highly suitable for coloring amorphous and semicrystalline plastics such as PS, PET, PC, ABS and PMMA. In the final article Macrolex Gran impresses through its high color intensity and brilliance and good thermal stability, weather resistance and lightfastness. Important fields of application for Macrolex Gran include the coloration of food pakkaging such as PET bottles and the coloration of children's toys, since the colorants also meet the stringent purity requirements of these applications.

Hall 6, Booth C76

www.lanxess.com

Covestro: creating value added with plastics

K 2016 in Düsseldorf marks the first time that Covestro, formerly Bayer MaterialScience, is appearing at the show under its new name. The company responds to key trends with its innovative and sustainable material solutions, courageously going beyond existing limits in its efforts to make the world a brighter place. Visitors to this premier gathering for the global plastics industry can find examples on display at Covestro's Stand: Products and technologies for the automotive, building and electronics industries, but also new and unexpected applications in the fields of health, cosmetics, sports and fashion.

"Through our continuous development to deliver more sustainable products and processes, we aim to address many of the Sustainable Development Goals outlined by the United Nations last year," said Covestro CEO Patrick Thomas to journalists. "Our main objective is to drive energy efficiency, improve people's lives and create value, while at the same time reducing our own use of fossil resources. But developments of this kind are impossible without intensive and targeted innovation."

The world has tremendous challenges to master. The agenda of UN's Sustainable Development Goals is wide ranging, going from fighting poverty and hunger, to securing the global energy supply, all the way to preserving the environment and our natural resources. Of central importance in this context is

climate protection and reaching the targets defined at the COP21, the Paris Climate Change Conference.

Hall 6, Booth A75

www.covestro.com

5.INTERNATIONAL POLYMER TECHNOLOGY FORUM

IPTF 2017

June, 13-14, 2017
Holiday Inn Moskovskye Vorota,
St.Petersburg, Russia

IPTF.RU

ORGANIZED BY

FPR Events Company

EXTRUSION

INDUSTRY 4.0 FOR PLASTIC CONVERTERS

KEY TOPICS OF THE FORUM:

Domestic polymers market, innovative plastics, raw materials and additives
Materials handling and management, peripheral equipment, automatization
Resource- and energy-sav ing, plastics recycling
Industry 4.0 in extrusion, compounding, granulation and mixing
Injection moulding

MORE THEN 130 DELEGATES

TOOK PART AT IPTF 2016:

- plastic converters (films, compounds, auto parts and rigid packaging producers) – **52 companies**
- extrusion lines, molding machines, peripheral equipment suppliers – **15 companies**
- polymers, additives, fillers suppliers – **9 companies**

REGISTRATION FEE

before March, 20, 2017 NORMAL PRICE
450 EUR for each delegate

after March, 20, 2017 HIGH PRICE
550 EUR for each delegate

* If registered two or more delegates from same company **25 EUR discount** for each registration fee is provided

** If registration and payment done before December, 31, 2016 - **25 additional EUR discount** for each registration fee is provided

Presentation at forum (30 min.) costs – **550 EUR**
(registration fee should be payed additionally)
Exhibitional booth (4 m2) – **500 EUR**
(registration fee should be payed additionally)
Sponsor package – **3500 EUR**

IN 2013-2016 FORUM WAS SPONSORED BY:

AZO, EREMA PLASTIC RECYCLING SYSTEMS, gwk, BUSS excellence in compounding, Leistritz, ЕВРОПОЛИМЕР ТРЕЙДИНГ, MORETTO, gneuß, Herbold, KREYENBORG BKG, SIBUR, motan colortronic, ProTec Polymer Processing GmbH, global colors, ZHAFIR PLASTICS MACHINERY

IPTF.RU

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KREYENBORG: all for material handling

IRD Infrared Rotary Dryer

KREYENBORG Plant Technology GmbH will be presenting information regarding their wide assortment of efficient bulk material handling in the plastic-, food- and chemical industries.
Particular focus this year will be on the range of topics regarding drying and crystallizing, as well as comprehensive solutions for bulk-material handling processes.

Drying. Continuously. In Minutes Instead of Hours.
The range of applications of the KREYENBORG Infrared Rotary Dryers IRD is nearly unlimited. The IRD is used for crystallizing and drying virgin or regrind materials for a series of plastics, such as ABS, EVA, HDPE, PC, PEEK, PET, PLA, PPS, PTFE, TPE, and TPU. Through the use of the continuously functioning IRD, the need for energy-intensive processing using dry air is completely eliminated, easily resulting in energy savings of an average of 30%. The raw material is heated directly with infrared light that works especially gently, so that the vaporizing moisture is diverted from the core of the material toward the outside. The raw material is conveyed evenly through the machine, and by the rotating of the drum carefully circulated and evenly heated. This eliminates clumping. The low rotation speed prevents breaking, abrasion and raising of dust from the product. Moreover, in a multitude of applications, a retrofitting of the IRD into existing plants significantly increases plant throughput, as well increasing the quality of the product. Through optimal, continuous, and constant pre-drying of the material, the load is taken off of the extruder.

Drying: KREYENBORG PET-BOOSTER
For the first time, KERYENBORG will present their new PET-BOOSTER. This continuously operating system dries PET within 7-10 minutes. Focus here is specifically on applications in extrusion of plastic films and fibers with degassing extruders (twin-screw, planetaryand multi-screw-extruders). Varying levels of input moisture that results in process fluctuations in the extrusion process (as well as fluctuations in end-product quality) can be eliminated with the KREYENBORG PET-BOOSTER. By feeding pre-heated material with a consistent, low input moisture level, a smaller extruder and vacuum degassing system can be used. With existing plants, a quick 30% increase in throughput can be realized with the installation of the PET-BOOSTER. A further positive side-benefit: the toxic liquid precipitate from the vacuum system is reduced by up to 50%. The investment is thereby amortized in a very short period of time.

Coating of Granulates
A specialty application of the IRD lies in the coating of granulates with powders or liquids. The constant recirculation of the materials with simultaneous heat input guarantees a very homogenous moistening and adhesion of the coating medium to the granulate.

New Product! Pneumatic Conveying Systems
At the K, KREYENBORG will present, for the first time, their new pneumatic conveying system.
Owing to many years' experience with the conveying of poorly- flowing bulk materials, as for example bottle flakes or film flakes, that still present a challenge, KREYENBORG has incorporated hopper loaders into the process. The conveyers are distinguished by their container geometries that avoid bridging or even have internal bridge-breakers. The containers come standard with an extremely large outlet. The conveyors have a compact central filter unit with a large filter area, to meet the requirements for dusty regrind materials.
The conveying systems can be combined with additional KREYENBORG components for complete systems and integrated into KREYENBORG PLC-Control. This enlarge KREYENBORG's turn-key solutions excellence for bulk material handling.

Mixing. Blending Bulk Materials. Fast, Precise, and Gentle
KREYENBORG mixing- and feeding systems are distinguished by a very specific focus on the particular bulk material used. The KREYENBORG Universal Quick Mixer features extremely precise mixing and homogenizing of bulk materials with limited flow properties. The KREYENBORG Masterbatch Mixer on the other hand shows its value through fast and gentle mixing and homogenizing of sensitive bulk materials.
The KREYENBORG silos, including its fiber- and flake silos, are used where conventional systems no longer work reliably. Particularly with storage and discharging of very light bulk materials in the plastic and food industries, dependable material handling is essential for the process. Typical bulk density of 0.02 km/dm³ and an edge length of 30 mm are no problem for KREYENBORG silos.

Hall 9, Booth A55

www.kreyenborg.com

Brückner: improving the efficiency of film lines

Intelligent Line Management

Continually increasing speed and output with ever shorter delivery times and growing demand for quality make running a film stretching line a highly complex business. Film producers and their operating personnel stand before increasing challenges when it comes to guaranteeing a stable and efficient production with the highest quality film.

This is where Brückner's "Intelligent Line Management" (ILM) comes in. This is an integrated solution which smooths the way for Brückner's customers' "Smart Production" and "Industry 4.0". The focus lies here on a new way of operating lines, putting the emphasis on the process view as opposed to the usual machine view. This new operating concept is supported by an increasing amount of assistant systems.

Along with the "Energy Monitor" which is already used to monitor energy consumption at all line components, Brückner has developed new tools and assistant systems for inline measurements and to directly influence important film values such as temperature, haze, molecular orienteering angle or also density and porosity. For film production this brings a variety of advantages:

- Simplified line operation with significantly fewer process parameters to adjust and intuitive user guidance
- Transparency and traceability of production data
- Targeted inline control of film properties for a consistently high film quality
- Increased line availability through shorter reaction time in case of malfunctions
- Efficiency, productivity and flexibility through assistant systems such as "fast product change" (key word: Just-in-time-delivery) or "energy monitor"

Film producers will find it easier to produce the highest film quality all over the world, independent of surroundings, time, climate and weather conditions.

BOPET lines with 10.4m working widths

Nowadays the established working width for lines that produce biaxially stretched polyester packaging film (BOPET) is 8.7m. For the K 2016 Brückner Maschinenbau will present a 10.4m concept for the first time ever in the world. This will fulfil the demands for higher productivity in BOPET production: The new lines convince with around 20% more output capacity with the proven speeds of up to 515m/min. Film producers can hereby profit from Brückner Maschinenbau's experience from many successful projects with over 10m working widths, from fewer specific production costs as well as reduced energy consumption and therefore better overall profitability.

Lower operating costs with higher efficiency

Brückner's newly designed sliding system for transversely stretched film means speed increases from over 600m/min. At the same time newly developed materials led to a reduction of the lubrication use by more than 50%. The new design in combination with newly developed lubrication is the basis for lower production costs. Furthermore these newly developed lubrication materials are also available for upgrades on current high-performance lines.

A new winder system caters for higher line efficiency. In the future Brückner lines can take 40% more winder length by increasing the winder diameter from 1.55m to 1.8m. More winder length means fewer roll

changes and therefore less waste, which effects productivity, changeover time and energy consumption for the entire line.

BOPA: Higher yield on simultaneous lines

Brückner has noticed a growing interest in the market for polyamide packaging films and offers a selection of line types. Brückner's LISIM (Linear Motor Simultaneous Stretching) simultaneous stretching process is enjoying an increased demand as BOPA film can be produced in the highest quality and with optimised finishing characteristics. For the K the company presents LISIM BOPA lines with a working width of 6.6 metres, instead of the usual 5.1 metres. This increases output by a good 30% and substantially increases productivity.

Hall 3, Booth C90

www.brueckner.com

Kiefel: exclusive solutions

More and more people want beverages when on the move, and producers of the cups required rely on Kiefel as they react to this growing demand. The latest generation of the Thermorunner convinces right across the range.

Up to 45 production cycles per minute. The very latest in cup-forming machines Kiefel's KTR 6.1 Speed produces more cups than ever. A significant rise in punching force - combined with a greater forming area - increases the number of cavities even more. The newly developed prestretching plug is actuated by a powerful linear motor. Faster pre-stretching has a positive effect on material distribution and processing speed. Our recipe for success can be summed up as higher quality in less time.

Hygienic production

A sophisticated stacking and picking system allows the KTR 6.1 Speed to produce even thin-walled cups in a reliable manner. The KIST vertical stacking system works without the assistance of brushes or rubber elements.

The resulting avoidance of friction ensures smooth, hygienic production.

The benefits of the KTR 6.1 Speed for cup manufacturers include, apart from faster processing and better products, the usual Kiefel reliability across the entire line. This full use of available performance naturally requires topquality machine tools to match. The tool used has been developed and produced by Bosch Sprang, one of the sector's most prestigious suppliers. Domed lids designed to fit these cups are produced on Kiefel's new Speedformer KMD 78 Power machine. Both machines will be on show this October at the Düsseldorf K 2016 event.

Kiefel Thermorunner KTR 6.1 Speed

- The higher performance of our drive systems allows production rates to be increased to up to 45 cycles per minute.
- Increases in the size of the forming area and punching force (leading to a greater number of cavities) likewise help to maximise output
- Pre-stretching plug configured as a linear drive with increased acceleration and stamping force
- Vertical-stacking and picking system: Reliable production even of thin-walled cups; hygienic, low-maintenance operation without brushes or rubber elements

Hall 3, Booth E90

www.kiefel.com

ILLIG: thermoforming Systems with Decoration, Hygiene and Productivity in Focus

ILLIG, the systems provider for thermoforming solutions, will be showcasing its latest developments in thermoforming, packaging and mold technology and demonstrating its prowess as a systems partner for automated processes. In focus will be the performance of in-mold labeling in thermoforming (IML-T), hygienic production and enhanced productivity through technical optimization, as well as the systematic expansion of automation. For the first time in its latest stage of development the IML-T thermoforming line IC-RDM 70K together with the compact IML unit RDML 70b for flexible decoration of nearly any cup geometry will be demonstrated at the K 2016. Also making its debut at the K stand will be a flexible product handling system. Adapted for the ILLIG IC-RDK 54, this combination accelerates production for enhanced productivity. Visitors will also get to see the latest in ILLIG mold-making technology with new molds on display.

Leading IML-T technology

ILLIG is currently the only supplier of IML-T that offers all required modules from a single source that have been optimally designed to interoperate with one another.

IML-T machines are deployed together with so-called cup machines of the RDM-K series and also integrated in form, fill and seal machines that comply with the stringent hygiene standards of the dairy industry. An automatic IC-RDM 70K roll-fed machine with a forming area of 680 mm x 300 mm coupled with the IML unit RDML 70b will be on display at the K stand to demonstrate the IML-T technology.

The 18-cavity mold has an hourly output of approximately 17,280 rectangular polypropylene cups that are simultaneously decorated on all four sides

plus the bottom with a brilliant photo-quality label during the forming process. The RDM-K machines are extremely versatile and can be used for a variety of applications. Equipped with ILLIG-designed coffee-capsule molds, over 30 RDM-K thermoforming systems produce millions of capsules every day around the globe. The machines' reliability also underscore the value of ILLIG's technological know-how.

IML-T for premium-quality decoration and an effective shelf appearance: Brilliantly decorated packaging made of PP and applied simultaneously during the forming process will be demonstrated at the K 2016 on an ILLIG IC-RDML 70 with an 18-cavity mold

Flexible stacking and packaging system

Another new exhibit at the K will be ILLIG's flexible stacking and packaging system. The product handling system PHF can be easily connected to an ILLIG thermoformer in minimal time and is ideal for applications typically realized on RDK-series machines. The integrated unit allows the removal of stacks, quality assurance measures, and packaging. The removed stacks of formed parts can be packed as stacks in bags in conventional box sizes. Guided procedures for altering settings enable quick retooling, which lets you quickly setup the machine for a new product. At the K trade fair the product handling system will be adapted to an RDK 54 thermoformer. Equipped with a 12-cavity cup mold with a shallow forming segment base, so-called delicatessen cups will be formed out of a transparent APET film with an antiblocking additive.

Hall 3, Booth A52

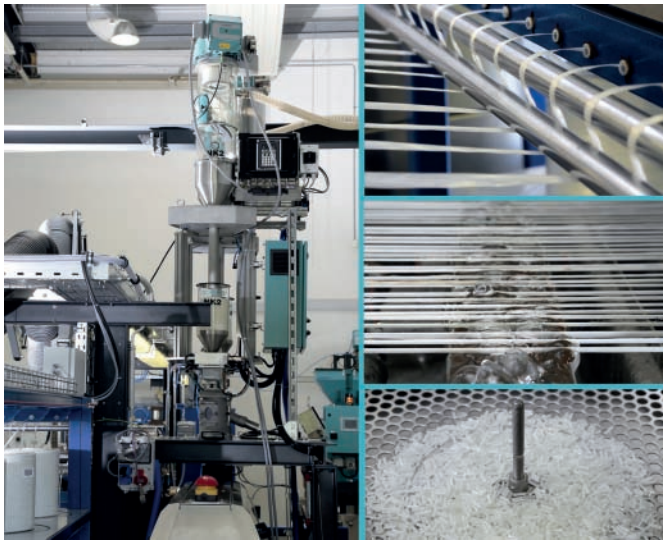
www.illig.de

ProTec Polymer Processing: efficient materials handling of LFT compounds

With the high-performance, energy-efficient plant and systems for pre-processing flowable plastics presented at K 2016, ProTec Polymer Processing now covers the entire process chain from conveying and drying to metering and mixing whether
for injection moulding or for extrusion. A second focus of ProTec's presence is its abilities as a one-stop shop supplier of long-fibre-reinforced thermoplastics (LFT) lines covering the full gamut from planning via construction to commissioning. New developments presented for the first time at K 2016 include the SOMOS® Batchmix XL batch metering unit for throughputs of up to 1,920 kg/h and the stationary SOMOS® RDT-200 dry air dryer for moderate throughputs.
The SOMOS® Batchmix XL metering and mixing system is suitable for feeding multicomponent mixtures to both injection moulding machines and extruders and is designed to handle up to six flowable components. It can be equipped with SOMOS® suction conveyors for automatically filling material storage hoppers. A SOMOS® control/professional touchscreen controller with a graphical user interface ensures user-friendly operation and is also capable of simultaneously controlling extruder throughput. The Batchmix M for throughputs of up to 240 kg/h and the Batchmix L for throughputs of up to 1,100 kg/h of a homogeneous multicomponent mixture complete this range of gravimetric batch dispensing systems. The new SOMOS® Batchmix unit offers high metering accuracy at an attractive price/performance ratio.
The new SOMOS® RDT-200 stationary dry air dryer has an effective dry air throughput of 140 to 300 m³/h, enabling highly economical processing of material volumes in excess of the throughput capacity of the SOMOS® RDM mobile auxiliary dryers (dry air throughput of at most 140 m³/h). The dry air generator and the drying vessel are also of a new design. The drying vessels, which are square on the outside and cylindrical on the inside, can be fitted together to form a compact modular drying system comprising up to at most six vessels in graduated sizes with effective hopper volumes ranging from 50 l to 300 l. Another new feature is the SOMOS® control excellence dryer controller with its user-friendly touchscreen operation which offers numerous drying parameters tailored to the specific material as well as versatile documentation functions. To minimise energy consumption, the dryer is equipped with the tried and trusted energy-saving technology known from SOMOS® dryers: automatic adaptation of drying air volume to material throughput (ALAV) and the SUPER SOMOS control mechanism which adapts desiccant regeneration to the particular moisture loading of the adsorbent. Drying temperatures of 40 °C to 180 °C at a drying air dew point temperature of approx. -35 °C are standard.

The new SOMOS® RDT-200 stationary dry air dryer with its new design can provide a variable dry air throughput of 140 to 300 m³/h for economically processing moderate material throughputs

The new SOMOS® Batchmix XL gravimetric batch metering unit is designed for a maximum of six components and throughputs of up to 1,920 kg/h



ProTec's LFT pultrusion technology is suitable for producing high quality long-fibre-reinforced pellets with many different polymer matrices and variable fibre reinforcement.
Photos: ProTec Polymer Processing

Flexible, versatile LFT technology

ProTec's LFT technology is suitable for producing a wide range of materials with variable fibre reinforcement along the length of the pellets and many different polymer matrices. Even the difficult pairing of carbon fibres with PP can be reliably processed. A high-performance compounding extruder is the keystone of the line, permitting highly flexible production of a broad range of individual polymer matrix formulations directly in the process. Recycled material and additional fillers may likewise be included in the material formulation.

ProTec is capable of designing and supplying turn-key LFT lines tailored to specific requirements from materials development to testing and commissioning on the customer's premises. These lines are capable of handling fibre contents of up to 65 wt.% and throughputs of up to 1,000 kg/h. Any conventional thermoplastics or even biopolymers such as PLA (polylactic acid) can be used as the matrix, while glass, steel, aramid or carbon fibres can be used as the reinforcing fibres.

Hall 9, Booth D60

www.sp-protec.com

TROESTER: ROTOMEX technology

TROESTER GmbH & Co. KG has extended the ROTOMEX technology, also known as ZX series, for straining of rubber compounds.

The new developed ZX 150/120 and ZX 170/130 also meet to the demand for more output and reach up to 4,800 lbs/h depending on construction size. The ZX series, which belongs to the group of gear extruders, reaches henceforth an output of up to 590-4,800 lbs/h with corresponding rubber density and viscosity. The compact construction with proven feed gear shaft technology and the usual simple handling enable the use in mixing room and extrusion line.

To take into account rubber compound properties of tires and technical rubber goods, the drive shafts as well as housing and head are designed to be tempered separately. At a processing pressure of up to 35 MPa and a continuous monitoring of all relevant process parameters it is ensured that the now available ZX 150/120 and ZX 170/130 meet the requirements and there is nothing to prevent from a reliable operation.

Gear Extruder ROTOMEX Type ZX

Hall 16, Booth F40

www.troester.de

Herbold Meckesheim: the five columns of our plastics recycling

The machine and plant manufacturer from Meckesheim/Germany will present their five columns for an efficient and cost-effective recycling of plastic waste, characterised by low operating costs and a higher efficiency.

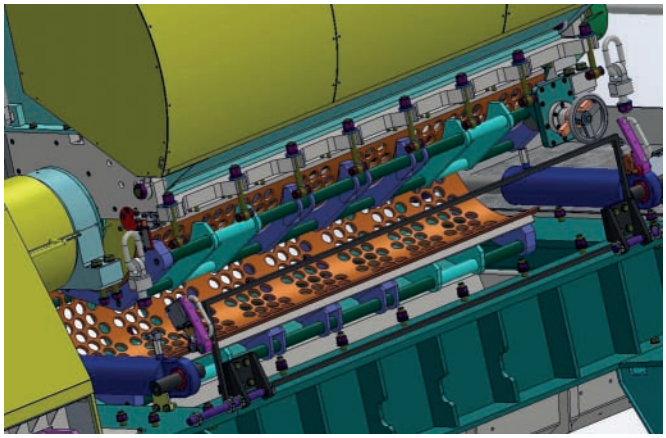
Pre-size-reduction
Pre-size-reduction is an important process step if the feeding material is too bulky for the usual procedure or if the material is in a first step only to be coarsely shredded for a subsequent sorting, classification or inspection. For this purpose, shredders, granulators, guillotines and hammer mills are used as pre-size-reduction machines, e.g.

HOG Shredder HGM series
Designed for size-reducing difficult, especially viscous materials or materials containing foreign bodies where the service lives of standard granulators are too short and where traditional shredders do not yield the desired end product. Available in wet execution for extremely abrasive materials, such as agricultural film, WEEE, etc.

Size-reduction
Herbold size-reduction machines grind all types of plastic waste, it does not really matter whether it comes from injection or blow moulding, thermoforming, rotomoulding, flat film extrusion or blow moulding extrusion, calendaring or waste from the production of pipes, profiles and plates or from the manufacture of other plastic products, e.g.:

Granulator SB with forced feeding (patented)
The patented Herbold granulators with forced feeding of the SB type have been successfully in operation worldwide for many years now. The material is not fed into the grinding chamber by gravity as is the case with traditional granulators but as a continuous and even flow by means of feeding screws. In case of difficult applications, only few suppliers in the market are able to find an appropriate solution.
The problem's solution is the rotor design of the SMS Granulator (Exhibit SMS 80/120 SB 2). The one-piece rotor guarantees stability. Welding seams cannot break since they do not exist. The knives of this rotor cannot shift because they are crewed onto a massive back limit stop. This special design facilitates cleansing for there are no "dead angles" where remnants of grinding material could depos

HGM 60/200 Swivel-type Screen Support

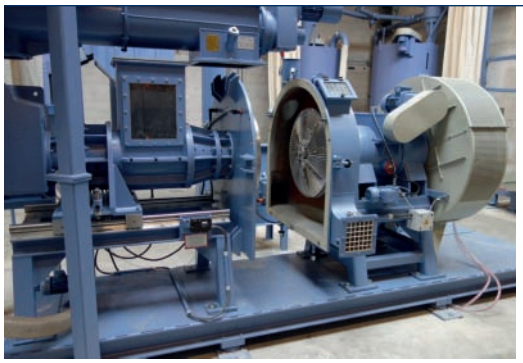


Herbold Wet Shredder HGM 60/200

Fine Grinding
"Fine grinding" in our application is pulverising below 1 mm. For this purpose – depending on the product – we use granulators or impact disc pulverisers, e.g.:

Impact Disc Pulveriser PU Series
Herbold impact disc pulverisers are high-speed fine grinders. They are used with granular and brittle materials, e.g. PE granules or rigid PVC grinding materials.

Washing, Separating and Drying
End of life post-industrial and post-consumer plastic products are used, mixed and contaminated plastics. Before they can be used again, they have to be washed and/or separated. With the successful commissioning of the film washing line at Rodepa Plastics B.V. Herbold Meckesheim proved that a high-quality end product can be obtained by separating undesirable plastics with the hydrocyclone separation step.
Mark Langenhof Managing Director from Rodepa Plastics B.V underlines: "Rodepa has taken a big step forward in recycling contaminated waste that is to newly integrate the production of film. This has only been possible with the best plant engineering. With Herbold Meckesheim we have now found the ideal partner in order to cooperate successfully."



Herbold Plast-compactor HV 70 Series

NEW: Step Dryer of the HV ST-150/150 Series (Exhibit at the Trade Fair)

The vertical step dryer consists of a multiple-stage rotor dewatering the material via a screen basket. The granules/grinding material water mass enter the machine from the bottom and are transported upwards by conveying blades. The diameter of the rotor increases upwards following the single steps. In the lower area (where free water can still be separated easily) only inferior circumferential speeds occur, at the highest step, drying is done with maximum circumferential speed.

Herbold Granulators SB with forced feeding

The step dryer is ideal for drying grinding material or granules of all different types of thermoplasts such as polycarbonate, polyethylene, polyamide, polypropylene and polystyrene. This machine is particularly suitable for drying brittle plastics and guaranteeing at the same time the least possible material loss caused by fines. The step dryer yields a residual humidity in the range between 0.4 and 0.06%/weight. The machine is also available in a gas-proof execution for drying in an inert atmosphere.

Agglomerating / Densifying

With extreme materials such as stretch film or foams, a sufficient mechanical or thermal drying is not possible without high energy consumption. The solution to this problem is the Herbold Plastcompactor, a modern compacting machine. The friction originating between the compacting discs of the compactor heats, dries and compacts the material at the same time. The recycling of PET bottles has a double advantage: the material is being crystallized at the same time. The end product is agglomerated material with excellent flow properties and a high bulk density, ideal for dosing and mixing.

Hall 9, Booth B42

www.herbold.com

BEKUM: new electric blow-moulding machines

New electric EBLOW 37 with a closing force of 370 kN and a mould width of 700 mm

The blow-moulding machine manufacturer BEKUM is extending its electrical series EBLOW. The newest addition is the EBLOW 37 for packaging applications. It premiers at the K 2016 to specialists in the industry. As early as 2007 BEKUM presented the first electric blow-moulding machine at the K Messe (plastics trade fair) in Duesseldorf. The continual development of the machine range was followed by the introduction of the EBLOW 07 series with patented Cframes.
The newest development of the Berlin technology leader is the EBLOW 37, a blow-moulding machine for high-performance production of blow-moulded articles, especially for canisters. With this model BEKUM is looking to win points in the pakkaging sector, particularly from producers who
are interested in an energy-efficient, flexible machine solution tailored for high-performance.

Improved added value with the EBLOW 37
The EBLOW 37 design has its roots in the hydraulic machine range. For the Berlin company however, the future is now also electric. The goal of the new innovation was to take the experience from the manufacture of the EBLOW electric packaging machine series and combine it with the advantages of the proven BA 34.2 hydraulic canister machine. The hydraulic BA 34.2 has been successfully positioned in the market with over 200 machines.
Now BEKUM is transferring this to an electric generation of machines, which offer a technically and economically attractive solution for producing articles between 10 and 35 litres. Typically, this model is targeted toward canister manufacturers all over the world.
According to BEKUM, the high-performance EBLOW 37 provides canister manufacturers with the option of upping their added value through increased output volumes.

Energy-saving system with fast closing pressure build-up
The EBLOW 37 follows the performance of the BA 34.2 without compromises. Here, BEKUM is relying on a new energy-saving system for the movements of the machine: Closing unit and mould closing function are electrically driven, while the closing pressure build-up for effective force transmission is achieved through servo hydraulics and is thus available
quickly as usual. This hybrid principle makes use of the advantages from both types of drive technology.

Up to 15%more output volume with 20 l canisters
With a closing force of 370 kN and a mould width of 700 mm, canister production is the domain of the EBLOW 37. According to BEKUM, the comparison measurements of the single-station machines are very promising. Compared to a conventional hydraulic solution, the EBLOW 37 enables production to be increased by up to 15%. This corresponds to an output volume of 240 pieces per hour based on a 20 l lightweight canister as reference item. These values recommend the EBLOW 37 as a new standard in its class.

High extrusion quality with high-tech spiral distributor
BEKUM provides its machines with spiral distributor blow heads, which feature excellent, uniform wall thickness distribution in the pre-form and the finished article. This results in significant potential for the operator to optimise the parison quality not only for single-layer products, but especially when it comes to products with a multi-layer structure. And there is no need for the customer to compromise on user-friendliness either: the heads can be easily set from the front of the machine. And not only that: the design of the head enables
faster colour changes than standard design principles, which leads to a direct increase in machine productivity. Change material for cleaning is also reduced to a minimum. The compact construction of the spiral distributor heads is also impressive. Their smaller surfaces mean considerably less energy is required to heat them.

Flexible application expands the range of production
BEKUM's many years of manufacturing know-how from the packaging sector has gone into the machine development of the EBLOW 37. The user can thus expect a high degree of flexibility. The setting of blow moulds with different mould thicknesses can be performed quickly and very conveniently thanks to a production-optimising automated calibration run.
In combination with the company's own specially designed and produced extrusion heads with spiral distributor technology, the EBLOW 37 also impresses on the material side. Many

blow-mould materials made from HDPE and PP in single- and multi-layer designs (3-layer and 6-layer), including those with transparent strips and polycarbonate, can be processed with excellent results. The new design allows very fast colour changes for the highest level of flexibility and cost efficiency. Through the use of a characteristic BEKUM top or bottom calibration, the production range can be expanded even further. Many proven and processsafe options of the familiar BA 34.2 will also be available in the new EBLOW 37. The future is electric – including in the packaging.

Hall 14, Booth C03

www.bekum.de

AMUT: ACF 820 series of steel rule cutting machines

The ACF 820 machine combines the characteristics of V and F series, thus creating an innovative model having:
- high level of standardization,
- exceptional repeatability,
- rugged durability,
- flexible production for a wide range of articles,
- increased high-speed performances.

This range of machines is suitable to handle different materials, such as PET, APET, RPET, CPET, OPS, HIPS, PS, EPS, PP, PLA, PVC and to produce many items: trays, lids, fruits and vegetables boxes, flowerpots, clamshells, nursery trays and plates.
The ACF series has a modular concept and can be supplied in different configurations such as:
- forming;
- forming and cutting in the same station;
- forming and cutting in two stations;
- forming, punching and cutting in three stations.

Up or down stackers, three-axis robot as well as customized special solutions are available to stack thermoformed parts with different nesting requirements.
To fulfill all thermoformers requirements and to meet any potential demands, the ACF 820 can be equipped with a wide range of options, including: servo driven plug assist on upper and lower mould platens, high performance mould clamping and cutting force, quick tools change devices, different heat ovens configuration with power saving heaters and many others.
The forming and cutting presses are equipped with counterbalanced platens to increase the machine performances at high speed. This series of machines is completely servo driven and equipped with a new software for cycles control that, along with a HMI friendly use, guides the operator through the settings pages providing full diagnostic analysis.
The ACF machines can be integrated with a T-IML system (In-Mould Labelling for the thermoforming sector), based on a side entry robot to load labels inside the forming mould in order to decorate the articles.
The use of steel rule cutting moulds makes this T-IML even more competitive compared to the existing TIML systems based on punch and die mould and to injection molding technology.

Hall 3, Booth E40

www.amut.it

MAS: new generation of extruder and melt filter series

The Upper Austrian manufacturer of extrusion solutions "MAS Maschinen- und Anlagenbau Schulz GmbH" will present themselves 10 years after the company was founded with an entirely new design at the K-2016. Now, an established supplier of unconventional but proven technology successful in many applications. The conical co-rotating twin-screw extruder holds the central position in the portfolio of MAS. Its gentle plasticization behaviour paired with very large feeding opening makes it perfect for all extrusion applications that require the highest degree of thermal and mechanical polymer protection. This is especially the case for recycling and compounding applications as well as for film extrusion. 110 delivered units in ten years document that the young company's development is on the right track and sets a clear path for the future. The water-less DRD (Double-Rotor-Disc) cleaning and drying system for film flakes and regrind material, which has been offered since 2006, is as innovative as it is new. More than 50 of these machines have been taken into operation so far. The third pillar is the continuous melt filter, which was introduced in 2011. The construction principle allows customers to individually adjust the filtration system according to the contamination that has to be removed, in order to ensure an effective as well as efficient filtration process.

Fig. 1: The lab version of the conical co-rotating twin-screw extruder type MAS 24 is characterised by a plasticising unit that is just 400 mm long

MAS 24: conical, co-rotating twin-screw extruder in lab scale

The MAS 24 lab extruder has been developed specifically for plastics manufacturers and compounders to develop recipes in a practically oriented manner and produce them in very small volumes. The highly compact build with a screw length of just 400 mm and conical screws with a diameter of 48 mm narrowing down to 24 mm are equipped with exchangeable mixing elements, just like the larger types. The very large feeding opening makes it possible to process in particular regrind, flaky and finely cut film material very well. Another essential benefit is that the MAS system allows full control over the shear strength and thus the melt temperature of the material by varying the screw speed at unchanged feed rate (adjustable up to 300 rpm). Accordingly, the possible output is in the range of 10 to 35 kg/h of the laboratory extruder. The MAS 24 lab extruder will be presented in operation at the trade fair stand in combination with an underwater pelletizing unit.

MAS 75 – the new MAS extruder generation

The third generation of the conical co-rotating twin-screw extruders is available in six different sizes, with output ranges from 10 kg/h to more than 2,000 kg/h. The outer characterising feature of the new extruder generation is its new, ergonomically optimised machine design. The most important advanced technical development is the segmented cylinder construction that is made up of several partial sections. It permits the exchange of individual cylinders sections subject to particular stress from abrasion instead of having to replace the entire cylinder, or selective application of individual cylinder sections with a special wear protection. The new series is presented by the example of an MAS 75, which is suitable for an output of up to 1,100 kg/h (Fig. 2).

It should be noted that MAS has held the FDA "No Objection Letter" for food grade recycling of PET since mid-2015, and further meets all EFSA criteria.

CDF – continuous melt filter – the latest generation

The CDF (Continuous Disc Filter) melt filter series developed by MAS is one of the leading continuous filter systems for recycling applications globally available. The system has reached this status in part thanks to its concept that permits previously unachieved filter surface sizes. The smallest size CDF 300 works with a 300 mm disc at 792 cm² filter surface and is suitable for a melt throughput from 300 to 700 kg/h. All other

sizes use a 510 mm filter disc. Specifically, the CDF 500 with one disc offers a filtration area of 1,640 cm² for 700 to 1,600 kg/h. The next-larger filter type, CDF-500-D with two parallel discs, offers twice the filter surface at 3,280 cm² and permits a throughput of 1,300 to 2,000 kg/h. The largest filter unit with the type designation CDF-500-D-P consists of two parallel CDF-500-D units with a total of 4 filter discs and a filter surface of 6,560 cm² with a possible melt throughput of up to 4,000 kg of polyolefins per hour, which makes it currently one of the highest-performing units of its size on the market.

The basic concept of the filter is a circular carrier plate rotating in a melt-conducting housing with an exchangeable filtration disc. The filter disc is made of surface-hardened steel and available in filtration fineness ranging from 90 to 750 µm. The filtration disc in the housing continuously transports the contamination towards the scrapers, which lift the contamination from the screen surface and feeds it to a discharge screw.

One of the latest developments for the CDF filter is the pneumatically actuated scraper system. This latest feature allows dynamic control of the actual pressure exerted on the scrapers clearing the contamination from the filter surface. This unique development allows quick changes in setup for different melt pressures and levels of contamination offering wider process windows adjustable 'on the fly'. In cases of more heavily or varyingly contaminated melts, an adjustable fluctuating scraper pressure can be implemented in order to remove the additional impurities and keep a stable process without causing excessive wear on the filter disc.

Fig. 2: At its 10th anniversary, MAS presents itself with a new corporate design and a new machine design for the extruder and melt filter series

Further features of the latest filter generation include optimised melt channels inside the housing to minimise melt pressure as well as a new heating layout with heating plates and heating bands instead of heating cartridges to improve the heating coefficient. (Fig. 2).

Hall 9, Booth D42

www.mas-austria.com

The Japan Steel Works: TEX25αIII high-performance twin-screw extruder

TEX25αIII, co-rotating twin-screw extruder

The Japan Steel Works, Ltd. JSW, shows its TEX25αIII laboratory extruder with a special side feeder, the compounding range of which extends to super engineering plastics and rubber/elastomer compound. The compact 26.5 mm diameter co-rotating twin-screw extruder (first worldwide debut in 2014), for product development of various compounds and masterbatches in engineering and high performance thermoplastics is the smallest one of eight types in the TEX-αIII series (up to 129.5 mm diameter) available in Europe.

The TEX25αIII compounding range covers all general purpose/engineering plastics recipes and extends to super engineering plastics such as PEEK, PPA, PPS, LCP, PEI, and PI, also rubber/elastomer compound such as TPV. This makes the compounder ideal for research and development with frequent material and process changes, as cartridge heaters and a barrel clamping mechanism enable easy and rapid barrel section block changes., The total screw length/diameter (L/D) ratios can be selected from 42 with 12 blocks, 52.5 with 15 blocks, and 70 with 20 blocks. The machine accommodates

vented or closed barrel sections and side feeding of abrasive reinforcements, heat- or shear-sensitive compound additives and materials into the melt via a downstream barrel section. Wear resistant LSP-2 modified tool steel screws and barrels in N60-S nickel based alloy made by JSW promise long life of barrel and screw (high wear and corrosion resistance) for various kinds of compounds containing abrasive and/or corrosive materials and additives.

TEX25αIII series advantages include a new gearbox design combined with enhanced gears and bearings, screw shafts and barrels as well as individual barrel temperature control. The result is a surprisingly high torque of up to 194 Nm per shaft (or 387 Nm in total) combined with wider processing windows as well as more aggressive kneading and mixing. Its torque density value is 18.2 Td i.e. reduced screw speed without reducing the throughput and keeping the temperature at an optimally reduced level. A standard torque limiting function disengages motor and gearbox to stop the screw rotation and protect the machinery. A low noise water-cooled motor is optional, as is direct drive instead of the standard V-belt drive in Europe.

A TKD Twist Kneading Disc screw element with a twisted tip developed for energy-efficiency of kneading and mixing supports this "tip-clearance technology" by ensuring fast material conveying and relatively low material temperature while retaining appropriate mixing efficiency. "Such features make the TEX25αIII the worldwide highest performance compact twin-screw extruder," says Jun Kakizaki, JSW Europe General Manager since July 2016.

JSW's patented TEX-FAN Flow Analysis Network R&D support tool developed for TEX25αIII analyses polymer melt pressure, temperature, residence time and fill factor with special dedicated software developed by JSW.

The TEX25αIII comes with JSW's EXANET 64-bit RISC high-speed control system. Its 15-inch colour LCD touchscreen provides for easy operation, optimum process control and monitoring, storing thousands of operation conditions and process parameters. It integrates with auxiliary equipment, from JSW's gravimetric feeders, side feeder, through to strand and underwater pelletizer units.

The NIC special kneading barrel developed by JSW is discussed as a possible option. It achieves good mixing/dispersion at repeated high-low shear rate and high viscosity for good compound material properties – without dead zones at the mixing zone through the introduction of several longitudinal grooves of particular geometry on the inside barrel surface for more screw to barrel clearance.

New "TEXenter": "We would also like to announce that we will open our new technical center called "TEXenter" at K2016 in Düsseldorf from January 2017," says Hayato Hobo, Sales Representative at JSW Europe since June 2016. The "TEXenter" will be equipped with all high-end equipment for R&D on extrusion processes, compounding, dewatering, devolatilizing, pelletizing etc.

The TEX44αIII will be installed for high-end compound test and a specialized TEX30α will be available for devolatilizing test. The 700 square meter floor space "TEXenter" is combined with a 200 square meter office section. "We welcome customers and prospects to come to us for TEX-αIII demonstrations," promises Kenji Inagawa, Process Engineer. Apart from hands on equipment, the "TEXenter" has the appropriate facilities for seminars, lectures and training on customer demand.

Hall 13, Booth B45

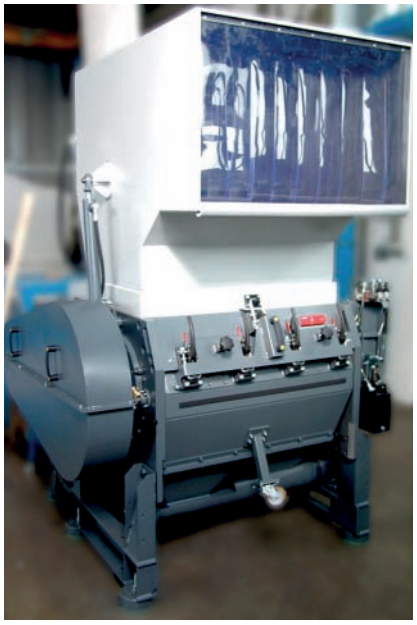
www.jsw.co.jp/en

Getecha: increased efficiency without dancer

At this year's K in Düsseldorf, the plant engineering company Getecha will show numerous innovative solutions for central and decentral granulation technology in plastics processing. This year, the focus of the trade show in hall 9 is above all the latest generation of the large hopper granulators of series RS 45000 as well as a new control for the infeed granulator RS 3004-E. Also part of this are the dustproof clean room granulator GRS 180 and the compact beside-the-press granulator RS 1615. The company from Aschaffenburg in Germany will present the economically priced sprue picker GETpick 700, representing its automation portfolio. How to skilfully combine high efficiency in granulation technology with ergonomics at the industrial workplace will be demonstrated by the plant engineering company Getecha at this year's K in Düsseldorf with the example of its granulator series RS 45000. As representative of this new generation of state-of-the-art hopper granulators for hourly throughput rates between 700 and 1200 kg, an RS 45090 will be presented at the company's booth A21 in hall 9 with a new granulator housing. The special feature here is the highly effective integrated sound insulation, which lowers the operating noise of the central granulator to a minimum. Despite these ergonomic measures, the RS 45090 is very compact due to its drive integrated at the top in the housing, with a relatively small footprint.

A single granulator for three tasks

Furthermore, Getecha will demonstrate at the K how the efficiency and flexibility of this hopper granulator can be significantly increased in practice: With an additional bypass hopper attached on the side for feeding tubing and profiles from ex-



Such a hopper granulator of type RS 45090 will be shown by Getecha at the K in hall 9 with a sound-insulated granulator housing as well as with additional bypass hoppers on the side and at the rear panel for feeding tubing, profiles and plate material

trusion as well as with another bypass hopper at the rear for the plate material feed. In this version, the RS 45090 from Getecha can be fed from three sides (front, side, rear). For the user this means that at best he will only need one granulator instead of three! An important basis for the realisation of these optimisations is, in addition to the high overall stability of the granulator, its powerful 3-blade rotor and the usage of two stator blades in the milling device. Last but not least, the RS 45090 from Getecha will delight maintenance engineers with an electrohydraulic opening mechanism, which simplifies access to the hopper and the screen rocker.

Torque control instead of floating roller control system

Getecha will present another technical highlight at the K in Düsseldorf (19 - 26 October 2016) with its new torque controlled infeed system based on the example of another sound-insulated infeed granulator RS 3004-E. This granulator type is fundamentally designed for usage in film and plate extrusion and has a double infeed system, with which offcuts and edge trims of different thicknesses can be fed at different speeds. A floating roller control system with dancer arm has proven itself for many years for this purpose, synchronising the speed of the edge trim feed with the speed of the film system and controlling the tensile load of the edge trims. However, the edge trim granulators are to be parked more and more frequently very close to the extrusion line, where many machines compete for a footprint. For this reason, Getecha has developed a new, much more compact solution: The maximum torque of the infeed drive is now configured via a parameter of the frequency converter, thus optimising the traction on the edge trim as well as the infeed speed. This saves a lot of space and renders the mechanical floating roller control system with dancer superfluous. How smoothly this works in practice, visitors of the K will be able to see for themselves at the Getecha booth in hall 3.

Getecha will be showing off its dustproof clean room slider granulator GRS 180 in Düsseldorf as granulation solution for production lines of plastics technology with increased demands on hygiene and cleanliness. It works with a scissor-cut rotor and is designed for hourly throughput rates of up to 35 kg. However, the GRS 180 scores particularly high with an automatic lock hopper, an integrated extraction container and numerous measures relevant for sealing. The result: This granulator lets very few dust particles or ground material escape into the environment, and thus corresponds to the clean room demands (particles <1.0 µm) of many plastic processors.

This year's K exhibition program from Getecha also includes the compact RS 1615, which was developed for hourly throughput rates of up to 25 kg

Optimising preparation processes

This year's K exhibition program from Getecha will be rounded off by the compact RS 1615 and the sprue picker GETpick 700. The RS 1615 is a very slim beside-the-press granulator for hourly throughput rates of up to 25 kg. It is a proven solution for decentralised use and has been continuously further developed in past years – most of all with regard to simplified operation and maintenance. The GETpick 700 on the other hand represents an example of the broad Getecha range of sprue pickers and extraction systems with which material cycles and preparation processes can be optimised with regard to handling. The GETpick 700 is regarded as very popular – as it is very reasonably priced – entry-level version. Its elegant linear technical design is intended for sprue weights of up to 250 g, operates in Y-direction with a light carbon fibre tube and has three permanently programmed operating programs. The extraction stroke is 500 or 700 mm and the extraction cycle is less than 1.5 sec.

Whether it is extrusion technology, thermoforming, blow moulding technology or injection moulding technology – at this year's K booth of Getecha in hall 9, plastics processors of all disciplines can not only familiarise themselves with the granulation-related system solutions of the plant construction company, but also with the company's now very comprehensive automation portfolio. It ranges from project planning and development, engineering, programming and assembly to commissioning, maintenance and service.

Hall 9, Booth A21

www.getecha.de

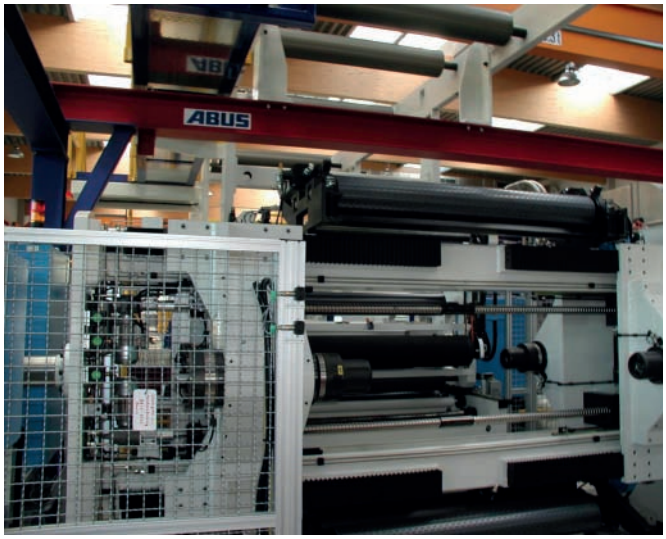
Davis-Standard: Global Advantage™

Davis-Standard LLC will exhibit the depth of its Global Advantage™in extrusion and converting technology during K 2016 in Düsseldorf.
Technology being shown includes examples of extruder, feedscrew, die, unwind, and control system advancements as well as the company's innovative dsX™ technology and extensive aftermarket capabilities. As an added benefit, Davis-Standard's team will host visitors at ER-WE-PA's Erkrath facility for equipment demonstrations. Following are highlights from Davis-Standard's K display:

Extruder with QSE Adapter – This 3.5-inch (90mm) exrtruder has preferred features such as computer designed feedscrews, electrical barrel heating with air-cooling for each zone, and simplified electrical installation. Mounted on the extruder will be a QSE (Quick Screw Exchange) adapter for fast screw changes without disturbing the downstream melt path.

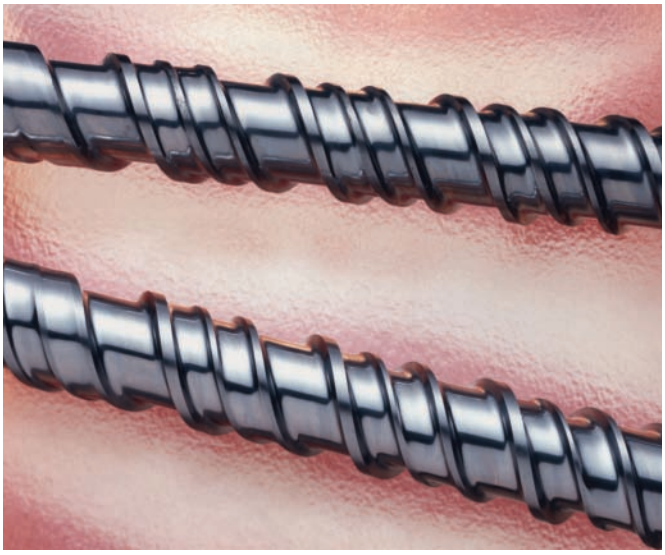
High Speed Film & Foil Unwind – Designed for thin substrates, this two-position turret unwind is designed for an 800 meter-per-minute splice speed for sensitive webs such as aluminum foil at 6 µm. Unique splice unit controls and safety standards create excellent reliabilty for high-speed splicing of complex webs.

Feedscrew and Die Displays – Davis-Standard is a global leader in feedscrews and die designs for improved processing efficiency. Multiple feedscrew designs and finishes will be shown in the booth at the K Show, as well as a seven-layer die stand from Davis-Standard's Gloucester Engineering product line. Also being promoted will be the new die rebuild services offered by Davis-Standard Limited in the United Kingdom.



dsX™ Technology – This popular line of extrusion coating, cast film and blown film equipment offers processors advantages in price, performance and delivery. Each system is engineered for greater up-time, increased productivity and reduced waste, and backed by Davis-Standard's 24/7 global support network.

Aftermarket Capabilities – Davis-Standard's ability to service equipment for nearly every extrusion and converting application, including non Davis-Standard brands, is one of the company's greatest advantages. This includes an extensive spare parts inventory, timely 24/7 customer service, global technical capabilities, rebuild and retrofit services.



For customers interested in visiting Erkrath, Davis-Standard will offer transportation to and from the Düsseldorf Fairgrounds. The transportation schedule will be available at the show. ER-WE-PA will demonstrate new horizontal winding technology and discuss extrusion equipment for a variety of applications. Customers will also learn more about Davis-Standard's regional service team for the European market, which provides customers with a quick response by service technicians and a large stock of available spare parts. Service and support for Davis-Standard's line of control systems enables customers to upgrade PLC, drive and mechanical systems on thousands of existing installations, including non Davis-Standard brands.

Hall 16, Booth A43

www.davis-standard.com

ARLANXEO: leading position NBR powder products

For a long-lasting PVC: The High Performance Baymod N XL 3361 (Photo ARLANXEO, ARPR002)

At K 2016 in Dusseldorf, ARLANXEO, one of the world's largest producers of nitrile-butadiene rubber (NBR), will highlight its leading position in the supply of NBR powder products and demonstrate the benefits for customers and end-users.

Visitors at the ARLANXEO stand 6C78 will be able to explore the company's broad portfolio from linear to highly pre-cross-linked powder NBR products, produced by a grinding or spray drying process for use in various applications. These include gaskets, brake pads and especially PVC modification, where - in contrast to standard plasticizers - NBR powder acts as non-extractable plasticizer and increases an article's shelf life.

Luc Briquel, Technical Marketing NBR at ARLANXEO explains: "In PVC modification typically plasticizers based on phthalic acid esters like DOP are used to make these polymer blends softer. However, over time these liquid substances tend to migrate to the substrate surface, leading to shrinkage and hardening of the articles." At K 2016, ARLANXEO will focus on its word-class NBR powder product Baymod NXL 3361 which offers improved color stability and extrusion properties compared to standard products.

Luc Briquel: "ARLANXEO is constantly investing in Research & Development in order to identify and develop new areas of application for NBR. With a total annual capacity of 130,000 metric tons of high-performance rubber, we are able to advance product performance to meet the needs of the market and develop tailored solutions for our customers' business requirements."

Hall 6, Booth C78

arlanxeo.de

NGR: S.M.A.R.T. DIALOG and P:REACT enable permanent monitoring

The Austrian provider of recycling-solutions, Next Generation Recyclingmaschinen GmbH, displays the PET Improvement Equipment P:REACT now with S.M.A.R.T. DIALOG to fully control, monitor and data-log the decontamination performance, especially for Food Grade applications.

PET-Improvement with P:REACT exceeds highest safety standards

The liquid phase of the PET in P:REACT with a high surface/volume ratio of the liquid PET, together with applied vacuum, allows harmful contaminants to be easily removed. Scientific third party tests, as well as the FDA approval for 100% food contact prove, that the LSP-Process (Liquid State Polyconden-

sation) exceeds the security-levels required in the food packaging industry. This process design already incorporates high decontamination performance and therefore opens the flexible usage of rPET for any kind of application – food or non-food.

S.M.A.R.T. DIALOG –
Decontamination Performance – Quality Assured.
S.M.A.R.T. DIALOG is a system, which allows the machine self-monitoring, data can be recorded and analyzed – easily accessible on any device. For Food Grade applications, the decontamination performance is automatically monitored and the data is logged. A recipe-management on the equipment allows for PET input material to be classified and also logged together with production-data – traceability included. (S.M.A.R.T. = Self-Monitoring Analysis + Reporting Technology).
The LSP process (Liquid State Polycondensation) has been introduced at the K2013. The according machine series P:REACT is operational at fiber-manufacturers, carpet-producers and food-contact sheets and trays recyclers, in Europe and the USA.

Hall 16, Booth A43

www.ngr.at

Hellweg Maschinenbau: new high performance granulator

Hellweg Maschinenbau GmbH & Co. KG presents at K 2016 its new high performance granulator MDSG 1000/600 BR ("BR" stands for "Brocken", the German word for lumps), which works on the peeling cutting principle and has been constructed for single-stage shredding and granulation of solid start-up blocks and pipes & sheets.
The machine has been designed as a robust welded construction and is fitted with a solid peeling cutting action rotor. It is able to process, in a single stage, heavy start-up lumps as well as pipes and sheets in wall thicknesses of, for example, 500 mm into granulate characterised by its homogeneity and freedom from dust.
The geometry of the blades used enables a cutting principle known as the so-called "peeling cut", combined with limitation of cutting depth, This prevents the rotor blades from cutting too deep into the plastic material to be granulated. Material is simply "peeled off" from lumps, as this prevents rotor blockage and guarantees fast, quiet and energy saving shredding and granulation. With 1,000 mm working width, the 12-bade U-CUT rotor has 600 mm diameter and it can be sharpened a number of times by regrinding. The rotor is produced from a single solid piece of steel and weighs approx. 4,000 kg. The overall weight of the machine amounts to approx. 11,000 kg.
Depending on the material to be granulated, achievable throughput ranges amount to between 800 and 3,000 kg/h, allowing for 5-20 mm diameter sieve perforation and 75-90 kW installed power rating. Complete noise protection cabins as well as feeding equipment for sheets and pipes are available as options.

MDSG 1000/600 BR lump granulator

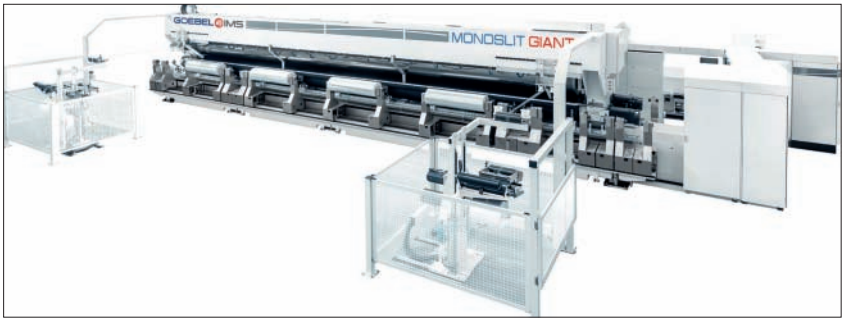
Hall 11, Booth B39

www.schneidmuehlen.de

GOEBEL IMS: past and future of slitting and winding solutions

At the world's number one trade fair for plastics and rubber, GOEBEL IMS will be presenting its newest high performing slitter rewinders: "We are very proud to introduce our latest innovation for film producing and converting businesses. Our engineers have developed another state-of-the-art slitter rewinder that fulfills the industry's latest demands for power and precision.", says Harald Knechtel, Managing Director. The new primary slitter series is suitable for converting special industrial
applications such as capacitor films, battery separator films or thick films for industrial or optical applications. Available either as a basic machine or with advanced technical functions and automation technology, the new primary slitter processes widths between 4,000 mm and 7,500 mm and, thus, offers maximum flexibility while guaranteeing highest quality.

GOEBEL IMS' decades of experience in mechanical engineering will be impressively displayed at booth 3B73. A vintage slitter rewinder that was sold in 1939 and was used to produce films until 2016, will be shown to the public. True to the motto "The House of Slitting and Winding", GOEBEL IMS showcases their long-standing expertise in film industry and special applications and creates a bridge between past and future, where smart production lines help to increase efficiency. With its MONOSLIT series and the XTRASLIT 2, GOEBEL IMS sets standards in film converting.



All slitter rewinders combine high performance and top quality with cutting-edge technology. At K show, GOEBEL IMS presents the newly designed MONOSLIT series, comprising the MONOSLIT with a working width of up to 9,000 mm and the MONOSLIT GIANT with a 12,000 mm working width. Both slitter rewinders are designed for converting a broad spectrum of films, ranging from BOPP materials for the MONOSLIT GIANT to BOPP, BOPET, OPP, CPP, BOPA, BOPS and other special films. Packaging, capacitor, battery separator and optical films with film thicknesses between 0.5 and 500 µm can be converted with the MONOSLIT series at a speed of up to 1,500 m/min, featuring an extremely smooth run at maximum speed while guaranteeing outstanding quality of the end product. The new design allows for an unwinding diameter of up to 1,800 mm and a rewinding diameter of up to 1,550 mm, with winding stations allowing for a maximum finished roll weight of up to 5,000 kg.

Since 2014, GOEBEL IMS' high-end slitter rewinder XTRASLIT 2 sets new benchmarks in the highly productive processing of films and flexible packaging materials. It is designed for a working width of up to 3,600 mm and can convert material thicknesses between 2 and 400 µm. Throughout the process, the system permits speeds of up to 1,200 m/min, depending on the material. The newly developed XTRASLIT 2 is a universal machine and, thanks to its design concept, allows for comprehensive adjustments and extensions for special applications, e.g. polyester films for optical fields. The adaption of technical features – for example the slitting and winding systems – ensure a scratch-free surface to fulfill customer-specific requirements and provide maximum performance and sustainable value.

As one of the preferred suppliers of innovative slitting and winding solutions for manufacturers and converters of film industry, GOEBEL IMS continuously strives to offer maximum efficiency, high production speeds and superior slitting and winding quality to its customers. Discover GOEBEL IMS' newest portfolio of slitting and winding machines and get more information on the advanced slitting and winding solutions for film manufacturing and converting processes at K 2106

Hall 3 Booth B73

➠www.goebel-ims.com

Tosaf: additives deliver the packaging of tomorrow

Tosaf, a producer of packaging additives (Israel), creates the packaging of tomorrow with special additives, designed to improve the freshness of packed food, prolong the shelf life of sensitive products and minimize food waste.
Tosaf's humidity absorbers are pioneering moisture barriers that transform any standard multilayered PE packaging into active packaging with powerful humidity absorption capabilities. Tosaf's MBs address both ambient and headspace humidity, simultaneously boosting the impermeability of the packaging and its internal absorption.
Oxygen, on which all living things depend, is also what makes food turn rancid. Tosaf's innovative oxygen barrier compound enables to obtain high barrier properties even in mere three-layer packaging. Since even high barrier films only reduce permeability (rather than eliminating it), Tosaf's oxygen absorber MB is a game changer. This additive is able to simultaneously boost packaging impermeability and absorb headspace humidity inside the package. Tosaf is committed to reducing food waste worldwide – a primary cause of which is the premature ripening of post-harvest fruits and vegetables due to ethylene release. To maintain produce quality in storage, during shipping, and at the point of sale, Tosaf has engineered an ethylene control MB. This packaging additive regulates ripening, and can be integrated into plastic packaging using conventional extrusion technologies.

Tosaf is a leading producer of packaging additives (© Tosaf)

In Tosaf's vision, a smart self-regulating package will also preserve optimal conditions for the packed items after opening and reclosing. Tosaf's highly effective re-closable compound allows active packaging to be more consumer-friendly. Combining it with Tosaf's other special additives enables the pakkage to retain its internal environment for multiple uses.

Hall 8a, Booth D01

www.tosaf.com

BrüggermannChemical: innovations improve user benefits and cost efficiency

At K 2016, BrüggemannChemical will showcase its latest developments in the field of additives.
They are intended not only to extend the range of applications but also to contribute to greater cost efficiency during plastics conversion. Polyamide compounders will benefit from a new copper complex based heat stabilizer for a wide temperature range, a flow enhancer, a nucleation agent for high processing temperatures, and a "chain-cutter" for recycling. New products in the field of AP-NYLON® (anionically polymerized cast polyamides) include a particularly efficient heat stabilizer, a modifier to increase the impact strength, and a retarding activator. The rubber industry can look forward to a new ZnO activator that will open up possibilities for greater environmental compatibility, while the company's new, fully equipped Technical Center will provide the industry with previously unknown opportunities for innovation.

New developments with additives for PA injection molding and extrusion types

- BRÜGGOLEN® TP-H1606 is a new non-discoloring copper complex based heat stabilizer for polyamides with significantly improved long-term stabilization over a broad temperatu-range. This high performance antioxidant is a non-dusting blend which is easy to handle and process and allows an improved alternative to phenolicbased stabilizer blends as it greatly extends the exposure time especially in the low to medium temperature range, where the phenolic blends have represented the industry standard.
- With the new flow enhancer BRÜGGOLEN® TP-P1507 compounders can improve the processability of glass filled polyamides while maintaining very good mechanical properties. The easy flow properties via BRÜGGOLEN® TP-P1507 enable their customers to attain advantages such as shorter cycle times,

With newly developed additives, BrüggemannChemical is creating opportunities for performance-enhancing innovations with polyamide compounds, cast polyamides and rubber compounds

lower energy consumption, the possibility of more complex design geometries etc.
- The nucleating agent BRÜGGOLEN® TP-P1401, which can be processed at elevated temperatures, enables short cycle times and supports the formation of a morphology with very small, homogeneously distributed spherulites. This improves the mechanical properties and significantly enhances the surface appearance of reinforced polyamides.
- BRÜGGOLEN® TP-M1417 brings about a controlled shortening of molecule chains of high-viscosity polyamide scrap, e.g. from fiber production. While retaining mechanical properties, this additive allows defined and reproducible adjustment of target viscosities and thus the upcycling into material for injection molding applications with flow properties and mechanical performance comparable to that of virgin material.

New developments for AP-NYLON® cast polyamides
- BRÜGGOLEN® TP-C1608 is a new heat stabilizer that raises the long-term service temperature of PA parts to 150 °C as compared to the 120 °C that was previously regarded as the limit.
- BRÜGGOLEN® TP-C 1312 is a new impact modifier for the production of AP-NYLON®
products containing 3 to 20 % of elastomer. In terms of cost and performance, these polymers create the bridge between unmodified cast polyamides and the highly impact-resistant NYRIM® PA6 block copolymers.
- BRÜGGOLEN® C25 is a new retarding activator for AP-NYLON®. It slows down the polymerization process in a much more controlled manner than was previously possible and thus facilitates the production of parts with large dimensions and/or small wall thicknesses as well as the production of high-quality composites. Furthermore, it offers the possibility during product development of filling parts slowly in order to be able to optimize processes.

Rubber: New activators and a fully equipped Technical Center
With a new generation of activators and its own fully equipped Technical Center, the Industrial Chemicals division of BrüggemannChemical presents itself as a highly competent partner for the rubber industry:
- With the active zinc oxide (ZnO) PRO range, which is produced in a wet chemical process, BrüggemannChemical enables the direct substitution of conventional thermal zinc oxide. This product series combines the latest findings in the field of rubber formulation while simultaneously reducing costs and heavy metal content without having to make any compromises in terms of performance. ZnO Pro is suitable for the whole range of application of rubber products, from technical parts and consumer articles to tires.
- With the opening of its new fully equipped Technical Center for determining the processing, vulcanizing and performance properties of elastomers, BrüggemannChemical is underlining its outstanding R&D competence as an additive manufacturer to the rubber industry. A key role here is played by the tailor-made, application-oriented optimization and synthesis of zinc-based activators for the crosslinkage of different rubber types, for in-house developments and on the customer's behalf.

Hall 8a, Booth D10

www.brueggemann.com

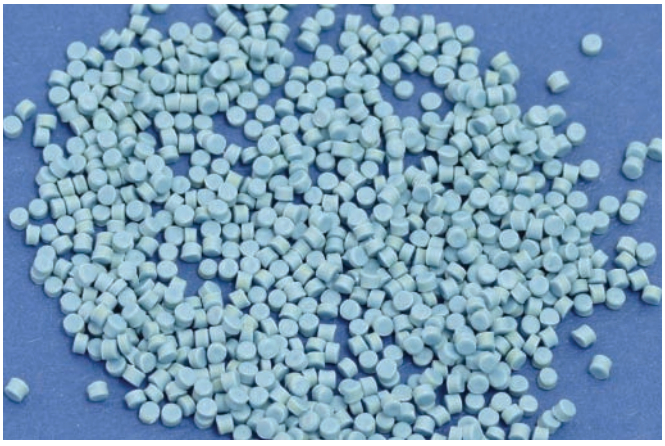
Gamma Meccanica: plastics recycling

The Italian company Gamma Meccanica S.p.A., which has specialized in the manufacturing of plastics recycling lines since 1987, has expanded its business in the Turkish and Japanese markets.

In Turkey Gamma Meccanica completed a contract with a major customer. The line is a GM125 Compac for recycling of production waste: PP, PE. This line comprises: Compac feed with Cutter-compactor, single-screw extruder with degassing, screen changer and pelletizer. integrated and compact solution. The COMPAC cutter compactor is equipped with the ECOTRONIC system for the electronic power control which provides significant energy savings. Water is no longer used to control temperature.

ECOTRONIC offering also the possibility of recycling materials with high moisture. An important feature is the presence of the feeding screw which guarantees a steady controlled flow of material into the extruder. The extruder has a degassing station with two ports to facilitate the escape of gases produced during the melting of the material. New extruder screw designs have been incorporated to increase the production outputs of the machines. The barrel is heated by the optimum heaters for this type of application. The exterior casing has improved insulation with ceramic fiber to prevent heat loss and ensure increased energy efficiency.

The Compac's feeding screw, together other technical features that characterize the high quality of the Gamma Meccanica recycling lines, was fundamental in the customer's choice. Comparing the laboratory tests on the quality of the granules produced and the hourly production of the major Italian and qualified foreign manufacturers of recycling plants, the Gamma Meccanica line ensured the best quality recycled granules and especially a higher hourly production. The line produces about 10% more than the competitors' lines of the same size and in a more constant way.



Granules recycled of PE + PP

In Japan, a GM90 Compac line for stretch film and packaging film recycling has been delivered to one of the largest stretch film recycler.

The screw and barrel of the extruder are designed to process different types of plastic material: LDPE, LLDPE, PP.

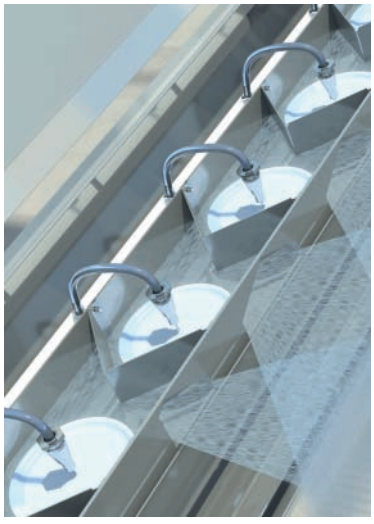
Also in this case, the comparison of the Gamma Meccanica line with competitors has shown a more constant hourly production, it works in a more automated mode and has a very low energy consumption.

Hall 9, Booth C41

www.gamma-meccanica.it

GM90 Compac line

WEKO: functional coatings for plastic films



At the K fair 2016 in Düsseldorf, Weitmann & Konrad GmbH & Co. KG showcases a variety of applications giving films special properties – true to the motto "Don't play – work with precision!". The focus is on adding functional properties to films through non-contact spray application of anti-blocking, anti-fog or anti-static additives. Anti-curling uses and the application of primers supplement varied the application options.

The WEKO motto "Don't play - work with precision!" underscores the fact that the WEKO-Fluid-Application-System is no gadget but a high-precision system applying finishing chemicals exactly metered and clean onto the plastic film web. WEKO – on the market for more than 60 years – has specialised in pre-cise and non-contact applications of minimal liquid or powder quantities on plastic film and other material webs. Many flexible films are finished with special surface-active substances to opti-mise the physical properties. Many of the world's renowned plastic film manu-facturers already rely on the WEKO coating technology and achieve significant cost and quality advantages compared to the use of batch additives.

The extruded film webs are finished with a very thin liquid functional coat im-mediately following the extrusion process. Contrary to batch additives external coating neither affects the behaviour of the melt in the extruder nor the flow characteristics at the extrusion nozzle and not even the barrier effect, and thus the thickness of the different film coats. The function is effective immediately after application and retains its effective-ness continuously even after very long storage periods. Another advantage is that the film retains its transparency, entirely without opaqueness.

Release agent application – the classic

WEKO application systems are most often found in the area of release agent coating of PET film. These thicker single or multilayer films are used for ther-moforming trays. When manufacturing products by thermoforming, silicon emulsions make it easier to release the trays from the moulds and to de-stack the final products. Thanks to the minimal and very exact application of anti-blocking agents uniform and high-quality plastic trays are produced. At the same time, the thermoforming process represents cost benefits by increasing the cycle rates, reducing downtimes and minimising the release agents used.

Polyolefins – the divas

Naturally, in addition to PET films, polyolefin products can also be coated. Be-cause of the surface energy water-based coating of polyolefins usually re-quires corona pre-treatment. From a surface energy of the film of 38-40 mN/m very thin, uniform coats can be produced with dry thicknesses in the nanome-tre range. Common applications in this area are anti-fogging, antistatic and antibacterial coats.

Another use is the reduction of curling effects of co-extruded blown and flat films. Due to different cooling characteristics of the individual film layers, ten-sions – and thus significant rolling

tendency of the film – may occur after ex-trusion. Extremely uniform and controlled application of a minimal amount of moisture compensates the tension and results in considerable quality en-hancement.

Primer – the young and the wild

The application of primers for extrusion coating represents the latest applica-tion area. For example, a bonding agent is required when a PE coat is co-extruded as sealing coat onto PET film. With the WEKO application system this primer can be applied exactly and uniformly onto the carrier film, even at variable speeds. Application of the primer takes place without contact and is merely pulled into a uniform film through a smoothing roller. Compared to the conventional method, using anilox rolls and chamber doctor blade systems, minimal and constant liquid application can be produced with the non-contact WEKO process. Thanks to the minimal application, the cost for the primer and also for the operation of the dryer can be significantly reduced. Lower invest-ment costs and reduction of the process costs make the system particularly attractive for new facilities.

Rotor application systems – maximum precision

WEKO has specialized in applying finest surface films on material webs. Rotors arranged in a row within a rotor carrier and rotating at high speed ensure a non-contact application of liquids. The rotary movements of the rotors and the result-ing centrifugal forces produce a uniform flow of finest micro-droplets. This special technology allows the application of even the smallest amounts of fluid precisely, reproducible and adapted to the speed. In addition to its wide dynamic range, these systems excel through outstanding service-friendliness. WEKO application systems represent both highest industrial requirements and also cost and ecolo-gy-minded production.

WEKO - Weitmann & Konrad GmbH & Co. KG

The WEKO experts offer support worldwide with the choice and integration of WEKO non-contact minimal application systems in the production process. They help customers achieve clear benefits and cost advantages with the ma-terials to be processed and/or in the process itself. Comprehensive services, such as test series at the WEKO technical centre and high WEKO service standards, complete the WEKO offering.
In addition to the main office near Stuttgart WEKO maintains two production locations in Germany and Brazil, own sales and service subsidiaries in Italy, the United Kingdom, the U.S., and Brazil. Furthermore, WEKO collaborates worldwide with agencies marketing the products and offering the proven WEKO service standard in addition.

Hall 4, Booth E25

www.weko.net

ASCONA: sets new standards

The specialist for optical measurement systems for geometry and surfaces on extruded profiles located in Meckenbeuren, Germany comes up with a bundle of new products.
ASCONA has established itself as the world market leader in geometry measurements for extruded profiles and is able to provide optical measurement systems which can be used in the laboratory as well as in the production environment.
The new starter models called PROMEX BASIC/ADVANCED FAST work with a camera and an objective and therefore guarantee measuring results within 2 to 5 s – irrespective of the complexity of the profile.
The PROMEX EXPERT measurement instruments of ASCONA are high-end solutions for geometrical measurements. The PROMEX EXPERT back-light systems relevant for plastic and rubber profiles meet highest requirements of measuring accuracy in a minimum of measuring time. Thus fast corrective actions to avoid scrap can be carried out. Generally, PROMEX EXPERT systems are ideal for the use at the extrusion line because they are not sensitive to vibrations, temperature fluctuations and dust.

Recently ASCONA has also successfully launched a surface measurement system for plastic profiles. The PROMEX CSI system is interesting especially for manufacturers of visible profiles such as window profiles since it reliably detects grooves, scratches, dents, inclusions, specks, marks or color pigment faults. Directly integrated into the extrusion line PROMEX CSI Inline records faults right where they occur. Thus a complete sorting of defective sections of profiles is already guaranteed in the production process.
The product range of surface examination is rounded off with the PROMEX OBJECTIVE measurement system for web collapsing of extruded plastic profiles. From a certain dimension onwards, evenly shaped visible surfaces of plastic profiles need to be supported by webs. However, webs may collapse during the production process. Normally, these web collapses become obvious only when linear contours appear on the surface. However, that is often too late for sorting out unusable profiles. This is exactly where you can rely on PROMEX OBJECTIVE for ensuring safety in your quality control process.
On the occasion of the K 2016 the latest products of ASCONA

– the capstock and coextrusion measurements – are being presented. The capstock measurement serves to measure plastic profiles with extruded caps while the coextrusion measurement analyses profiles consisting of a number of different materials, e.g. a combination of rubber and plastic.
PROMEX measuring systems of ASCONA guarantee objective quality statements and consistent quality control. As a result, scrap is reduced to a minimum, raw material can be saved and faulty deliveries to customers can be avoided. This guarantees high productivity in the plastic extrusion.

Hall 10 Booth D49

www.ascona.de

Instron: testing plastics from static to dynamic

At K2016, Instron, a global manufacturer of material and structural testing systems, will present their comprehensive portfolio of systems for testing polymers from static to dynamic, from R&D to 24/7. Visitors will find a full range of devices for applications from basic research to incoming inspection and routine testing in manufacturing. For static tensile, flexure, compression, bend, peel, shear, tear and cyclic tests, Instron will show a versatile 5969 electromechanical dual column table-top system for mid-range testing, together with pneumatic grips, designed for a nominal load of 10 kN, in combination with an automatically contacting Instron® AutoX extensometer. For automated testing runs, meeting the requirements of all common testing standards, Instron will present their latest development, the TestMaster AT3 for tensile and flexure testing. Once the tray has been loaded and the start button pushed, its automated specimen loading feature improves repeatability and reproducibility of testing and results, minimising human influence, increasing safety by keeping the operator away from the testing area, and improving ergonomics by virtually eliminating repetitive motions associated with high volume manual testing. All test runs will be controlled, documented and stored in a data base using Instron's universal Bluehill® 3 testing software with fully-integrated modular software packages that provide easy, tailored application solutions for today's laboratory managers and test technicians.
For impact testing of polymers, Instron will exhibit two systems: a CEAST 9350 floor standing drop tower designed to deliver 0.59 to 757 J or up to 1,800 J together with an environmental chamber, and a motorised CEAST 9050 impact pendulum. Both systems will be operated using Instron's CEAST VisualIMPACT software, designed to control these devices, record force and absorbed energy data, visualise and help analyse the results and calculate resilience. VisualIMPACT is tailored to using the CEAST high-speed data acquisition system DAS64K. Providing a data acquisition rate of 4 MHz, this system is particularly advantageous when testing brittle materials or performing tests at high speeds or low temperatures, as will be showcased on the stand.
For HDT and Vicat tests, Instron will present its recently introduced Instron® HV Series designed to significantly reduce workload and increase efficiency in the testing lab. Available for visitors will be a HV6X with six testing stations and automatic weights application, using advanced electronics that automatically zero the position of the LVDT measuring sensors before starting a test, reducing test time and human errors. The HV tester will be operated by the company's Bluehill HV test software to run tests, edit methods, analyse results or configure the system with a few mouse clicks, even further minimising effort, and raising both laboratory efficiency and throughput to a high level. For dynamic testing tasks, Instron will showcase at K2016 the ElectroPuls E1000 Electrodynamic Testing System which uses patented, oil-free linear motor technology, together with the recently introduced AVE2 Advanced Video Extensometer. Offering slow-speed static and high-frequency fatigue testing, the versatile ElectroPuls systems are ideal for any lab or office space, designed for up to 10 kN axial load or combined axial-torsion loadings, delivering 10 kN and 100 Nm. The AVE2 is a non-contacting extensometer for dynamic strain control at variable gauge lengths and differing travels, offering speed and flexibility for studying the behaviour of materials without damaging the specimen's surface. A fully-integrated device, it easily adapts to the normal fluctuations in environmental conditions in the lab. Designed to dramatically reduce errors from thermal and lighting variations that are common in most labs, the AVE2 utilises a real-time 490 Hz data rate while achieving a 1 micron accuracy.

Hall 10, Booth J18

www.instron.com

ZUMBACH: extruded pipe and hoses under tight control

Selection of available Zumbach instruments with OPC UA

Material savings thanks to measurement and control of eccentricity and wall thickness

The versatile high-tech ultrasonic system WALLMASTER offers application-specific solutions for measuring and monitoring wall thickness. The measuring data processor with touch-screen display gathers data and QC fully automatically.

In combination with ultrasonic UMAC® scanners and various ODAC® diameter measuring gauges as well as with error detectors, the measuring and monitoring scale can be expanded to outside and inside diameter, statistics, SPC and processor communication.

Using Zumbach's WALLMASTER measurement and control systems, manufacturers can economise their expenditure of raw materials. The ROI is achieved within a few months. The use of these systems also allows reducing considerably the start-up time.

Optimized measurement of monolayer synthetic pipes and hoses

WALLSTARTER – the low-cost processor solution for UMAC® ultrasonic eccentricity and wall thickness measuring is tailored to the requirements of the measuring and monitoring of monolayer synthetic pipes and hoses.

New ultrasonic scanners for flexible diameter adjustment

This novel construction (pat. pend.) is going to be one of the exhibition's highlights: the transducers can be either individually or simultaneously adjusted to the best possible measuring position within seconds. The scanners cover an outside diameter up to 180 mm and represent a smart and simple solution for full non-contact, in-line eccentricity and wall thickness measurement of tubes, hoses and cable jackets.

High-end Non-contact Profile and Shape Measurement, Combining Laser and CCD Technology

In-line cross-section measurement of plastic and rubber profiles of any kind

The PROFILEMASTER systems from Zumbach represent an accurate and economical solution for measuring and monitoring dimensions or even the complete cross-section of profiles and pipes made of plastics or rubber - throughout the manufacturing process.

All relevant dimensions such as width, height, angle and radii are added together to form the full cross-sectional picture.

Linear Sensor Technology allows cost effective, synchronous multi-axis Measurement of Diameter and Ovality in Extrusion Processes

Unique measurement technology for products up to 200 mm outside diameter

- A new product line with 2-coloured LED light sources allowing simultaneous scanning in each axis (XY*) and thus trouble-free measurement even with product vibration
- Integrated extraneous light filters prevent occurrence of measurement errors that to date seemed unavoidable
- Perfect performance even with reflective surfaces thanks to the use of different colour lighting for each measurement axis

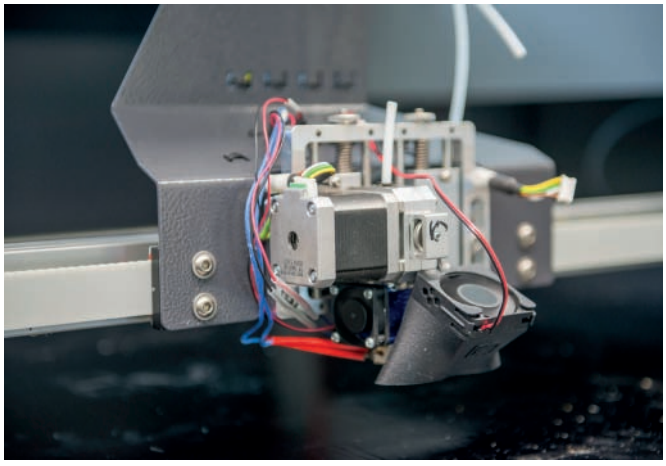
OPC UA: Transparent data management – simple monitoring in real-time

- ZUMBACH equips its powerful instruments with the recognized OPC UA standard. With this key technology, measurement solutions provide easy, scalable and secure information exchange with different systems in the production line – Platform and manufacturer-independent data exchange.

Hall 10, Booth E41

www.zumbach.com

IKV: focus on Industry 4.0 and Additive Manufacturing



Print head of the X1000 3D printer from German RepRap in the IKV pilot plant for additive manufacturing (photo: IKV/Fröls)

Since the beginnings of the "K"trade show in the 1950s, the Institute of Plastics Processing (IKV) in Industry and the Skilled Crafts at RWTH Aachen University has been highlighting selected research topics on this international platform. At K 2016, IKV will be presenting the topics additive manufacturing and integrative production technology in the form of a Cyber Physical Production System (CPPS) – in short: Industry 4.0 – for plastics processing.

In its research projects in the field of additive manufacturing, IKV takes a multi-material approach that covers a range of different products. On the one hand, it performs fundamental analyses to examine the influence of the processing process on the properties of plastics products. On the other, it looks at the potential of using additively manufactured metal mould elements in the various plastics processing processes. Alongside the practical analysis of different additive manufacturing processes, the focus is above all on the physically motivated numerical modelling. This holistic research approach by IKV aims to create a fundamental understanding of the process.

In addition to already established processes such as Arburg Plastic Freeforming (APF) and the Fused Deposition Modelling (FDM) process from German RepRap GmbH, IKV is also building expertise and competence of its own via its own machine developments, and is overcoming existing limitations by linking up various pieces of machinery. The aim is hybrid production for the automated combination of different production processes. In a production cell, the Institute will show not only the automated fine machining of additively manufactured parts, but also various insert operations and the integration of further production steps.

On the subject of Industry 4.0, IKV will, in cooperation with a strong industry consortium, address the subject of the application-specific manufacture of function-integrated lightweight parts. On the IKV stand, the Institute will present, up and running, a fully automated production cell based on an injection moulding machine. The versatility and flexibility of the process will be demonstrated through ergonomic interaction with the visitor.

Hall 14 Booth C16

www.ikv-aachen.de

DESMA: the standards for a new industrial AGE

At the K 2016, the Fridingen-based mechanical engineering company presents itself stronger than ever with around 75% of additional exhibition space compared to the years before: Besides two DESMA injection moulding machines of the S3 series with robot integration and the newly developed e-drive cold runner system, DESMA also showcases its platform for digital solutions, the product range of SmartConnect 4.U which intelligently networks machines, components, applications and systems and thus provides its customer partners with further possibilities of increasing competitiveness.

Focus set on automation. On booth 16F56, DESMA exhibits two injection moulding machines of the S3 series each equipped with a production cell with robot system. The machines can easily be switched over from machine operation to system operation and thus are ready for flexible use. On the one hand it is possible that one individual operates several machines, on

D 968.250 ZO (S3)

Roadshow-Truck

the other hand, article demoulding and subsequent handling can be continued in the outer station while a new article is being vulcanized in the clamping unit. The realization of constant processes is therefore given and completes the 360° solutions by DESMA with all technical and economic aspects in the production chain.

Realizing big possibilities of saving material. It is still the material where the biggest savings can be achieved. For this purpose, DESMA offers the innovative cold runner systems. The new FlowControl E-Drive cold runner with servo-electrically actuated shut-off nozzles enables the filling process of each nozzle to be triggered individually via the mould internal pressure sensor and the cavities to be evaluated during the vulcanizing cycle. The article can be fitted with an individual QR code with assigning all process and setting parameters including the mould, other aids and the compound batch by using the integrated laser station. The further advanced ZeroWaste-ITM pot for runner-free direct injection also is equipped with a mould internal pressure sensor in order to control the transfer process precisely.

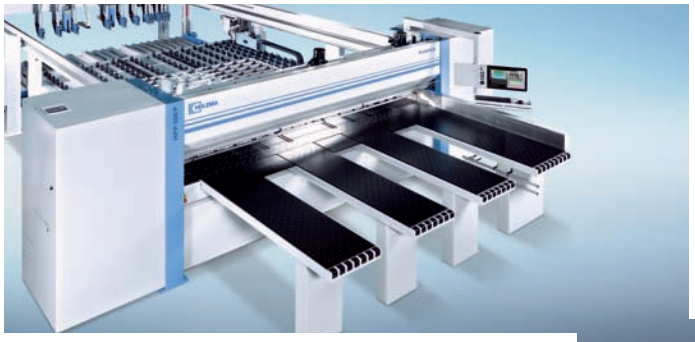
DESMA and Industry 4.0. The development of the innovative product range SmartConnect 4.U allows production processes to be realized in a more flexible, efficient and resource-friendly way by applying intelligent networking. The new systems make a higher plant and machine uptime, a more transparent and improved product quality or piece cost oriented production efficiency possible. A claim which the market leader DESMA of course lives up to – in the light of increasing customer requirements and dynamic market developments.

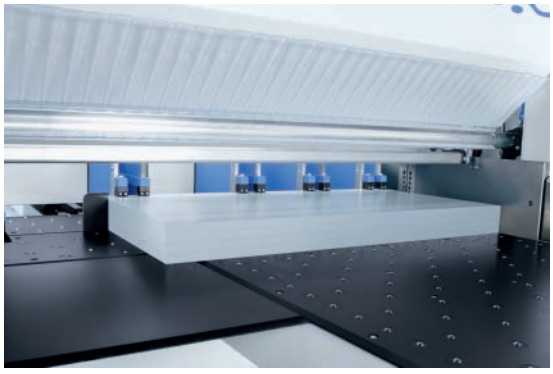
The final spurt of the DESMA Inspiration Tour 2016. On the occasion of the newly developed Industry 4.0 solutions, DESMA started a roadshow across Europe. A 40-ton truck designed by Colani and packed full of presentation technology and new 4.0 compatible products was sent to stop in 16 countries. From April until October it is on its way marked by the motto ‚DESMA Inspiration Tour 2016' and covers more than 16,500 km. The final highlight will be the K 2016 in Düsseldorf where the truck can be visited outside at FG 16.2.

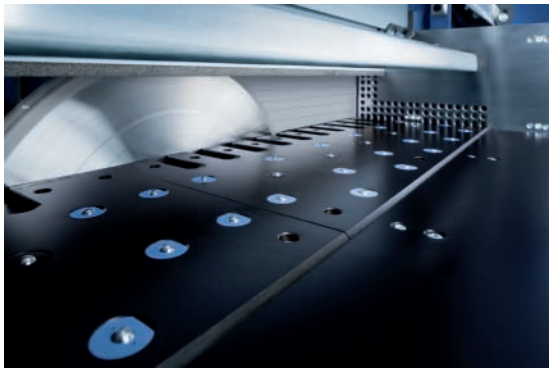
Hall 16, Booth F56

www.desma.biz

HOLZMA: Plastics Expertise







HOLZMA HPP 500 P

With the HPP 500 P, HOLZMA is showcasing a panel saw in XL size

At K 2016, HOLZMA, from Holzbronn in the Black Forest, is going to exhibit its high-tech saw HPP 500 P. This saw is designed to cut panel materials horizontally in multi-shift operation and is one of the most powerful single saws in the plastics sector. It features, for example, innovative technologies developed specifically for cutting plastic panels. Other important factors are the heavy-duty construction of the HPP 500 P and the high processing speed of the saw. Some of the highlights of the HPP 500 P:

- Rugged, low-vibration saw body made of SORB TECH
- Frequency-controlled main saw motor
- Reverse cutting for cutting thin materials, for example PETG
- 170 mm saw blade projection and up to 6500 mm cutting length
- Optimized extraction system for plastic shavings
- Special narrow-finger clamps and much more.

Custom-built to the needs of customer Plastics Plus

Alongside the HPP 500 P, there are of course many other HOLZMA Plastics saws and they can all be extensively equipped on the basis of their modular design. Each customer gets exactly the saw he needs for his production requirements.

The HPP 500 P on show in Düsseldorf has been custom-built to the requirements of HOLZMA customer Plastics Plus. This English plastics specialist manufactures external advertising panels and point-of-sale signs, and has made a name for itself as a supplier when it comes to cutting plastic panels.

This means that Plastics Plus puts high demands on the new HPP 500 P in terms of volume and versatility. High demands that HOLZMA competently meets with a package of specially tailored options and complementary technologies. The HPP 500 P for Plastics Plus boasts, for example, the following features:

- A cutting length of 6500 mm, allowing plastic panels more than six meters long to be cut automatically
- Protective curtain for perfect dust extraction
- Automatic cutting line control for repeatable accuracy
- Add-on module "material-dependent parameters" for the CADmatic PROFESSIONAL machine control
- A tiltable air cushion table and two additional air cushion tables for ergonomic and individually optimized handling.

Hall 3, Booth B17

www.holzma.de

Milliken: „Making Polypropylene Clearer, Better, Faster. Together“

Making Polypropylene Clearer. Together.

Unter dem Motto „Making polypropylene clearer, better, faster. Together“ lädt Milliken die Hersteller, Compoundeure und Verarbeiter von Polypropylenen (PP) auf der K 2016 dazu ein, die Innovation in allen Bereichen der Kunststoffindustrie gemeinsam voranzutreiben.

Auf dem Stand A27 in Halle 6 stellt Milliken die Vorteile seiner technologieführenden Clarifier und Nukleiermittel für PP in den Vordergrund und präsentiert die Bandbreite seiner verfügbarer Lösungen für die Anforderungen spezifischer Anwendungen oder Einsatzbereiche. Die Clarifier und Nukleiermittel von Milliken greifen entscheidende Herausforderungen der heutigen kunststoffverarbeitenden Industrie hinsichtlich Nachhaltigkeit und Leistung auf – so beispielsweise den Trend hin zu Leichtbauanwendungen mit hohen Leistungsmerkmalen, zu Funktionslösungen, erhöhter Energieeffizienz und Prozessoptimierung.

Auf der K 2016 können Besucher sich anhand von Anwendungsbeispielen und Fallstudien von den Vorteilen des Millad® NX™ 8000 Clarifiers und der Hyperform® Nukleiermittel überzeugen, die Milliken unten den Kernthemen „Making PP Clearer“, „Making PP Better“ und „Making PP Faster“ präsentiert. Milliken stellt auf der Messe vor allem die Leistungsfähigkeit von Millad NX 8000 zur hochtransparenten Modifizierung von PP heraus. Daraus ergeben sich Möglichkeiten zur Substitution anderer Materialien in weiten Verfahrensbereichen. Hinzu kommen weitere Vorteile, wie niedrigere Verarbeitungstemperaturen, die zu schnelleren und nachhaltigeren Spritzgießprozessen führen. Desweiteren zeigt Milliken Beispiele dafür, wie die ausgezeichnete Balance der physikalischen Eigenschaften von Hyperform HPN-Nukleiermitteln zur schnelleren und problemloseren Fertigung leistungsfähigerer Endprodukte beitragen kann.

Darüber hinaus entfalten Millad NX 8000 und Hyperform HPN ihre Leistungsfähigkeit auch in besonders leichtfließenden PP-Typen, was den zunehmenden Forderungen der Industrie nach Materialien mit hohem Fließindex (MFI) für kürzere Zykluszeiten entgegenkommt.

„Milliken ist in der Clarifier- und Nukleiermitteltechnologie für Polypropylene führend“, bekräftigt Allen Jacoby, Vizepräsident, Plastics Additives, Milliken, „und wir bieten mit unserer globalen Präsenz auch den erforderlichen technischen Support dafür. Das erschließt Herstellern, Compoundeuren und Verarbeitern reale Möglichkeiten für innovative, zuverlässige PP-Verbesserungen zum Nutzen ihrer Kunden und der diversen Marktsegmente, in denen PP ein echtes Mehrwertpotenzial haben. Gemeinsam können wir den Innovationsfortschritt in allen Bereichen der Kunststoffindustrie vorantreiben.“

Neben der Unterstützung von PP-Innovationen präsentiert Milliken auf der K 2016 außerdem eine Vielzahl von Additiven zur Steigerung der Eigenschaften und Leistungsfähigkeit von Materialien wie PET, PE und PU. Diese Additive greifen einige der zentralen Herausforderungen und Trends in der Kunststoffindustrie auf, darunter neue Lösungen für künftige Sicherheitsstandards gegen elektrostatische Entladung sowie Reaktivfarbstoffe, Antioxidantien und Mikrobiozide, UV-Absorber für PET sowie Nukleiermittel zur Verbesserung der Leistungsfähigkeit und Verarbeitbarkeit von PE für Folien, Spritzgussteile und Extrusionsanwendungen.

Für weitere Informationen über die Schwerpunktthemen von Milliken anlässlich der K 2016 besuchen Sie bitte den Milliken-Stand A27 in Halle 6 vom 19. bis zum 26. Oktober auf der Messe Düsseldorf. Produkte von Milliken sind während der Messe auch im Einsatz bei mehreren Maschinenherstellern zu sehen.

Hall 6, Booth A27

www.milliken.com

Dr.Collin: „future is now“

Innovation, efficiency, economy, reproducibility, upscaling & modularity – under the slogan “future is now”, for Collin, these keywords are taking center stage during this year’s Kexhibition appearance. The company presents: Cast/calendering-MDO line with a length of 12 m, including a wealth of innovative individual components, the new E Entrance series extruder, the Collin multi-inspection, a 5-layer coextrusion line and a Collin Medical Line.
The Collin GmbH intensely deals with subjects and challenges of the plastics industry and incorporates this in its product and line development under „future is now“. “With our know-how, we guarantee that, already today, our customers develop, test or produce their products of tomorrow”, explain DI Dr. Friedrich Kastner, CEO Colllin and Corné Verstraten, CSO Collin.

Highlight Calender-MDO line – 12 meters of innovation
Greatest highlight, in two ways, is a line with a total length of 12 m, which exactly corresponds to the Collin product philosophy of modularity, because it consists of the following, innovative and partly brand new individual components:
· Compounder Type ZK 25 P – with optimized throughput and torque
· High speed Torque Extruder Type E 30 T – one of the Collin innovations 2016

· Extruder Type E 30 P with new features/extras
· 5-layer feedblock with a 500 mm slot die
· 3-roll calender with gap control
· Take-off unit with start-up winder and COFIS film inspection
· MDO with double stretching gap
· Take-off module with various features (e. g. edge cutting, film edge control)
· Collin turret winder, adapted to Collin lines
“So to speak, the complete line consists of Collin innovations and improvements as for example the controls for extruders, calenders, MDOs and winders. The system acquires all parameters and records them for evaluation. For the K-show, the speed of the calender is max. 38 m/min and the MDO has a speed of max. 100 m/min., of course, higher speeds can be realized on demand. Furthermore, the line can be delivered as high-temperature version”, explain Kastner and Verstraten.

Advantages of the Calender-MDO-line – convincing in every meter:
· A higher degree of automation due to motor-driven gap adjustment of MDO and calender as well as the new turret winder.
· Moreover, the motor-driven gap adjustment guarantees higher reproducibility.
· Larger range of throughput because of the Extruder Type E 30 T. Thus, this results in a considerably larger process window.
· Here, modularity is decisive, since, depending on the requirement, the components can be combined according to the modular principle of Collin.
· With the new Collin auxiliary winder, which can wind both, web material and edge cutting material, starting the machine is considerably easier.
· Furthermore, with the turret winder it is possible to keep the line running, also with long testing or production runs. Thus, process stability and reproducibility can be increased. Moreover, it is not insignificant that personnel costs can be reduced.
· Production-related speed allows better upscale possibilities.

Special model Extruder T Torque – the unique high-speed machine

The special model high-speed Extruder Type E 30 T combines the advantages of Type P, however, its output is increased because of a higher speed and torque. "Especially for the development of screw geometry and feeder for this high-speed model, an enormous technical competence was required – for laboratory tasks, the Extruder Type T is unique", happily say Kastner und Verstraten. The T series is also available in other Collin sizes.

Also our P series, driven by an innovative compact gear motor, whose drive electronics and control are directly integrated in the base frame, can be used in a wide range of applications: for R&D or production. Different types of downstream equipment can be connected to the extruder.

Furthermore, depending on the customer requirement, there is a variety of supplementary equipment as well as features.

Innovation Turret Winder – the flexible all-rounder

Especially in laboratory and pilot operation, an optimal quality of the film bobbins is becoming increasingly important. On the one hand, to better predict the characteristics of the films after winding and on the other hand, to guarantee the processing with production lines. "Different from classical production winders, here, versatility and flexibility are required. Different films or compounds with a different thickness have to be wound faultlessly." Latest winding algorithms ensure that different materials with a different thickness, strength and width can be wound faultlessly. In principle, three modes are available: 1. Central winding, 2. Contact winding with adjustable pressure and 3. Gap winding with adjustable gap (0 – 300 mm). Moreover, features of the innovation turret winder are the motor-driven lifting of the bobbin by means of the shaft, the modular design with contact slide and fly cutter as well as the very compact design.

E Entrance series Extruder – the economic entry-level machine

The E Entrance series extruder is the basic version for first steps into extrusion. Designed for laboratory operation and tests in R&D, these compact lines are an alternative to the Collin P Professional series extruder. The E Extruder is mounted on a movable electrical cabinet, which contains the power electrics, connections and the main switch. Therefore, the Collin extruders are very compact and functional. Furthermore, Collin scores with several size versions. According to the modularity principle, the Entrance extruders can be integrated into different Collin lines.

Innovation Multi-Inspection – the comprehensive online- quality control

"The innovation multi-inspection of our product line Polytest Line is used for the analysis of recycled plastics material but also of the processing of virgin materials, compounds or masterbatches. Our aim was to develop and manufacture a compact, robust and cost-efficient online-measuring device. The modular design of the measuring system allows the adaptation of the measuring method to the corresponding requirements of our customers", explains Kastner.

In principle, the Collin multi-inspection system contains three main modules – a rheological melt characterization, an optical film inspection and a mechanical film control:

· Real-time monitoring of the melt viscosity in the form of the MVR, iV-value or the apparent viscosity.
· Statistical error detection (gels, blackspots, …) in the film
· Color monitoring in the film by CIE L*a*b system
· Detection of external polymers by NIR analysis
· Determination of stress-strain values in a film tensile test

Via an upstream melt pump, the multi-inspection system is provided with a constant melt flow and the pressure required for the rheological characterization is built up. The compact design and the options to use the multi-inspection online and directly at the extruder or offline in the laboratory also convince. The modular design of the multi-inspection unit allows an individual configuration of the line, however, for the customer there are still many upgrading possibilities.

Highlight 5-layer Coextrusion Blown Film Line – the compact multi-layer line

At the K, Collin also presents a 5-layer blown film line, which, due to its compact design, finds its place in the smallest spaces. The very low material consumption is accompanied by a high degree of information – from the screening of different materials, testing masterbatches, blow-up ratio, color examination, multi-layer films to further defects in the film.

The advantage of the blown film line is that the cooling ring and the blown film die can easily be dismounted and furthermore, the 5-layer blown film die can easily be cleaned. In a modular way, the Collin line can quickly be retrofitted to a mono or 3-layer line or upgraded to up to 13 layers.

New Medical Line Extruder E 12 – the ideal and small processing machine

With the extruder E 12 x 25 D, Collin also represents a new development in the product category Medical Line. "We present a small line with the new extruder, a strand die 1 x 2 mm, a water bath, a medical belt take-off and a strand pelletizer. The advantage of the Medical Line E Extruder is, that our customers can process smallest batches", say Kastner and Verstraten.

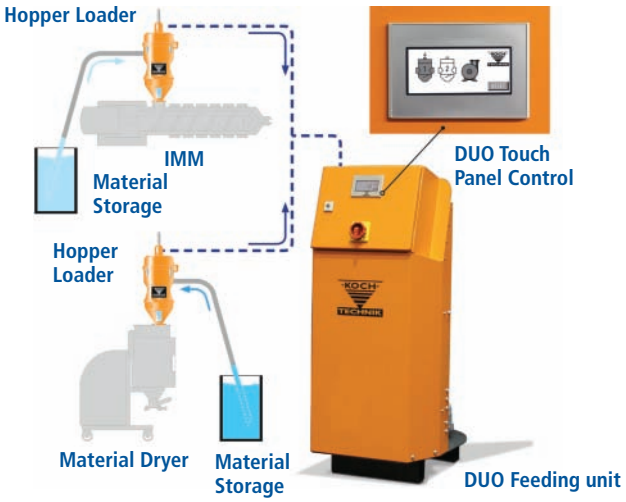
Besides the very good process control, extrusion at very low temperatures is possible – this is mainly essential for certain medical additives. The Collin Medical Line lines are characterized by an extreme accuracy, cGMP/FDA validated production, GAMP5 validation and quick cleaning and are generally custom-made.

Hall 9, Booth C20

www.drcollin.de

KOCH-TECHNIK: DUO conveyor unit that supplies two demand points

At this year's K trade fair, KOCH-TECHNIK will be demonstrating an economical conveyor that is able to deliver material to two plastics processing stations or granulate dryers. The designation Duo conveyor is used for various packages put together consisting of a frame with a vacuum generator and control system as well as two material hopper loaders with hoppers allowing material throughputs of between 120 kg/h and 340 kg/h. In contrast to KOCH-TECHNIK's standalone conveyors, DUO conveyors have only one single three-phase vacuum generator; the output of this vacuum generator is efficiently distributed to two material conveyors on an alternating basis. The benefits for plastics processors are clear to see: In addition to proven quality from Koch-Technik that ensures trouble-free transportation of materials, customers receive a package that provides the same performance at a more favourable price than two standalone conveyors. A uniform configuration of device components from KOCH-TECHNIK's modular system guarantees a "turnkey" solution for material transportation that can be deployed immediately. While the processing material is conveyed safely and reliably without any dust emissions, the maintenance-free vacuum fan is used to optimum capacity. Koch-Technik understands the target group for this product to be those plastics processors who wish to supply two demand points close to each other with medium to large material throughputs.



The KOCH-TECHNIK DUO conveyor unit is able to deliver material to two plastics processing stations or granulate dryers

Simple operation

Operation of these units is intentionally kept as simple as possible: A touch panel is used to configure the parameters for the two hopper loders and the vacuum fan. One of 16 languages can be selected for menu navigation. When the unit is commissioned, the layer control is set up in such a way that parameters such as cleaning and inspection intervals are simply configured for both material conveyors and the entire unit is then password protected via a hierarchical operator level. For conveying operation, it will then only be necessary to activate the device and make any adjustments to the conveying time.

Material feeding as a package

Each package includes two customised intermediate hoppers and material hopper loaders. The A series material conveyors from KOCH-TECHNIK are equipped with rotary blade cleaning. With this type of cleaning, the conveyor air transporting the material is cleaned through a filter in the hopper loader. This filter made of highly efficient polyester fleece retains dust and foreign particles of up to 2µ in size. A rotary blade within the filter cartridge rotates at lightning speed prior to each conveying operation, generating compressed air to clean the filter itself, from the inside to the outside, in less than 0.4 seconds. This cleaning operation – which is highly efficient even when ground material is being conveyed – ensures absolutely dust-free transportation of materials within production and protects the vacuum generator.

In the case of packages 1 to 3, a vacuum generator with an output of 1.5 kW even provides for transportation of a total of between 120 kg and 230 kg of raw material per hour. Package 4 deploys a powerful 2.5 kW vacuum fan to convey up to 340 kg/h. Two suction lances, antistatic PVC hose and a vacuum Y-branch rounds off each complete package.

For more than 40 years, the name of KOCH-TECHNIK has been synonymous with innovation, precision, modular flexibility and cost-effectiveness in the mixing, dosing, conveying, drying and storing of plastic granulates. Use of our equipment and systems in more than 5,000 plastics processing companies around the world is testimony to the acceptance and high efficiency of these systems in everyday production work.

Hall 10, Booth A21

➠www.koch-technik.com

BYK: fresh Look with an innovative Additive

Freshness is a mega trend in the food sector, even with convenience products. Consequently, refrigerated food units take up an increasingly greater part of the supermarket. That's because consumers favor products that contribute to a healthy diet and that ensure their shelf life by refrigerating instead of adding preservatives. Modern packaging must therefore meet the growing demands for freshness and the call for ecological friendliness more and more.

BYK, a leading manufacturer of additives and measuring instruments for the plastics and coatings industry, is joining the packaging industry in this consumer trend for fresh foods and sustainable packaging with its new barrier additive BYKO2BLOCK-1200. This unique barrier additive has been specially developed for use in PLA-based food packaging. Due to the even distribution of the layered silicate platelets in the polymer matrix, a very effective barrier layer is built up, which brings about a significant reduction in gas and water vapor permeability. Hence, the food stays fresh longer in the packaging. Another trade fair highlight will be the extended product portfolio for thermoplastic applications due to the acquisition of Addcomp B.V. Additives with different functionalities such as flame retardancy, thermal and UV stabilization, anti-fogging action, and nucleation will be part of the product range from now on.

Packaging example of PLA-based food packaging involving a BYK barrier additive

Hall 5, Booth E17

www.byk.com

Riverdale Global: liquid Blowing Agents

A new series of liquid blowing agents for use with a wide range of resins provides improved dispersion and more controlled foaming action than pellet masterbatches while being used at lower addition levels, it was announced today by Riverdale Global. The company will introduce the additives at K 2016 (Hall 10, Stand A 26).

The chemical blowing agent (CBA) formulations available in the new +Foam™ series of liquid additives include the standard exothermic azodicarbonamide CBA, an endothermic CBA, and a combination of the two. All are used at 0.5 to 1.5% letdown ratios, which are lower than levels typically required for pellet masterbatch. Among the resins with which they can be used are polyolefins, polystyrene, ABS, PPO, and other polymers.

"Because +Foam liquid blowing agents avoid the heat history required for manufacturing pellet masterbatches and are more gently mixed into the base resin, pre-decomposition of the CBA is less of a concern," said Charles B. Irish, vice president of product development. "For users of +Foam products based on an endothermic CBA, there is the added benefit of shorter cycle times, since the CBA adds less heat to the process."

Because liquid additives can be metered into the process with precision and disperse more uniformly in the melt than masterbatch, processors are better able to achieve the target level of density reduction, noted Mr. Irish. "Use of Riverdale Global's gravimetric metering system provides an additional level of precision, allowing for controlled conditions over the entire production run."

By reducing the density of a molded or extruded product, blowing agents make possible savings on raw material, contribute to light-weighting in transportation applications, and help processors to meet sustainability goals. Added at lower levels, blowing agents can also be used to prevent sink marks and warpage.

The new additives are available in pails or drums, in custom blends with liquid colors, or as one of the GlobalPlus™ range of liquid additives. In the GlobalPlus system, each additive is supplied in a drum with a built-in pump that stay sealed throughout shipping, handling, and processing.

Hall 10, Booth A26

www.riverdaleglobal.com

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