05/2025

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Cologne /Germany

EXTRUSION INTERNATIONAL

Regular RECYCLING Section ..... p. 69

STEIN BLUE-LINE
for a sustainable future

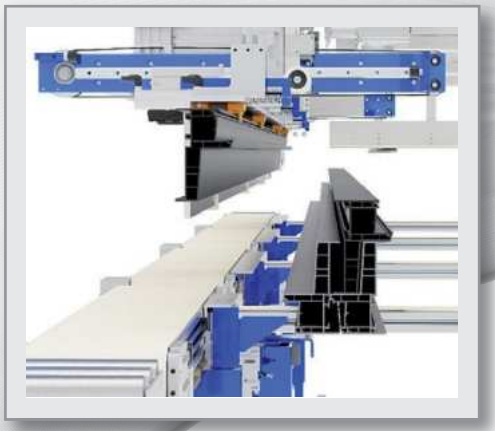
EXPERTS IN DOWNSTREAM

Stein Profile Stacker

Profile length measurement during extrusion

Measuring sensors are used to determine the length of individual profiles before a profile layer is formed.

The measured length can be used to check and correct the cutting device of the extrusion line or for documentation (quality assurance) of the produced profile lengths.



Stacking of special profiles

Stein Maschinenbau offers technical solutions for stacking of heavy and large monoblock profiles.

Based on decades of experience, we can unusual profile geometries or special layer can be evaluated for their automated stacking.

Cassette spreader

With the help of a cassette spreader it is possible to realise the same packing density of the manual packaging.

Made in Germany

STEIN BLUE-LINE
for a sustainable future

EQUIPMENT FOR EXTRUSION

Hall 16,
Booth F15

Stein Profile Stacker

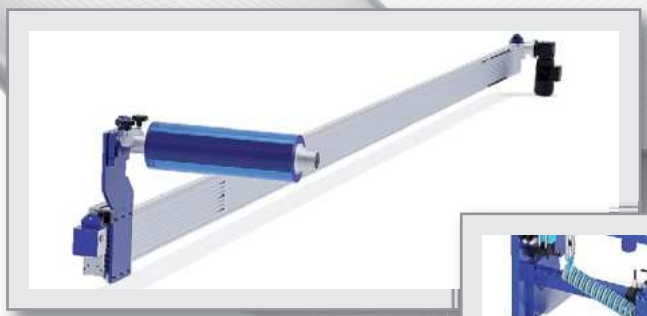
Weight determination during extrusion

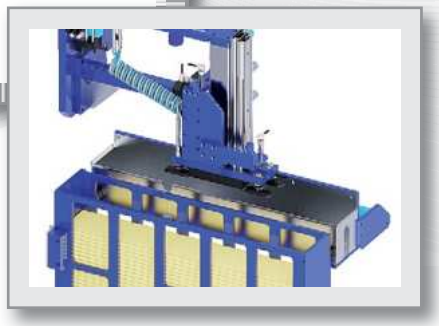
With the help of special weighing units, individual profiles can be weighed before a profile layer is formed.
The determined weight can be used to optimise the extrusion.

As a specialist in the field of special machine construction, we always find a solution!

Cassette handling

The handling system allows empty cassettes to be fed into the automatic stacker and the filled cassettes to be pushed out.





Profile interlayer

Endlessly laid as a foil between the profile layers or with individual strips laid on the layer.

STEIN

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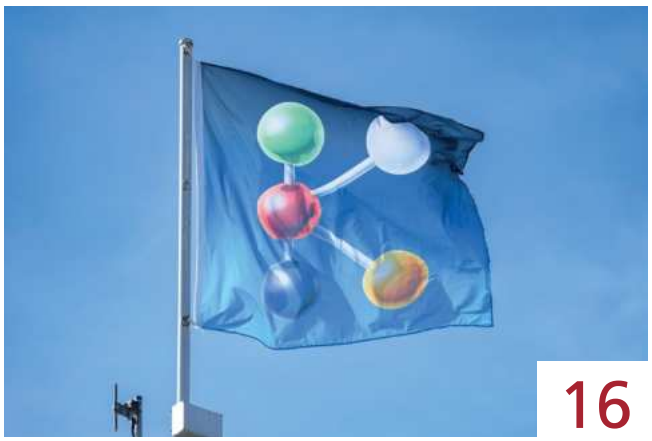

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From 8 to 15 October 2025 K in Düsseldorf/Germany will again become the main stage for the international plastics and rubber industry – making an unmistakable statement with its motto “The Power of Plastics! Green – Smart – Responsible”. This motto reflects theindustry’s current values and targets, and underlines that plastics form an indispensable component of numerous sectors of industry

52

Since 1957, Swiss-based manufacturer of industrial, non-contact measuring and control solutions, Zumbach Electronic, has worked tirelessly at providing exceptional customer service with their industry leading products and solutions. The Zumbach belief is that customers are more than just clients; they are part of their extended family

57

Since the mid-1980s, Kündig Control Systems (KCS) has been supplying width and thickness measuring devices to the blown film industry. KCS provides high speed online thickness measurements from the tube portion of the film bubble. This is the cornerstone of achieving optimum thickness tolerances – also contributing to saving valuable raw materials and reducing waste

59

The University of Utrecht has chosen a Coperion STS 25 Mc11 twin screw extruder for a chemical plastics recycling research project. A research group will undertake comprehensive investigations of the mechanicalchemical conversion of mixed plastic waste using catalysts

When investing in an extrusion line, flexibility in the manufacture of different products, maximum energy efficiency, minimal personnel requirements, and minimal raw material consumption are of crucial importance. One way to increase the productivity of the extrusion line is through double-strand extrusion

66

A traditional company is partly responsible for the previous peak in the seventies, as well as for the modern boom: Record Industry. To ensure that not a single gram of the precious PVC plastic is wasted, Record Industry recycles production waste directly on site using shredding technology from WEIMA and Wanner

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Index of Advertisers, companies and fairs referred in this issue

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K 2025
08 - 15 October 2025
Düsseldorf / Germany
www.k-online.de

SWOP 2025
25 – 27 November 2025
Shanghai / P. R. China
www.swop-online.com/en

Plast Eurasia Istanbul 2025
3 – 6 December 2025
Istanbul / Turkey
www.plasteurasia.com

Vinyl Week 2025
10 - 12 December 2025
New Orleans, LA / USA
https://e.plasticsindustry.org/

Swiss Plastics Expo
20 - 22 January 2026
Luzern / Switzerland
www.swissplastics-expo.ch

SOLIDS & RECYCLING-TECHNIK
Dortmund 2026
18 - 19 March 2026
Dortmund / Germany
www.solids-recycling-technik.de

RePlast Eurasia
26 – 28 March 2026
Istanbul / Turkey
www.replasteurasia.com

World of Cables
13 - 17 April 2026
Düsseldorf / Germany
www.wire.de/weltderkabel

interpack 2026
07 - 13 May 2026
Düsseldorf / Germany
www.interpack.de

Interplas 2026
02 - 04 June 2026
Birmingham / United Kingdom
www.interplasuk.com

SOLIDS & RECYCLING TECHNOLOGY Dortmund 2026

SOLIDS Dortmund 2026 will celebrate its 20th anniversary on 18 and 19 March 2026. The 9th edition of RECYCLING-TECHNIK Dortmund will take place at the same time. More than 300 exhibitors have already confirmed their participation. These include long-standing partners, as well as new companies from Germany and abroad.

A significant innovation in 2026 is the introduction of the Special Area 'Process Automation' in Hall 4. Here, leading companies such as Human-Machine Interfaces (HMI), Manufacturing Execution Systems (MES), sensor technology and control systems will present ways to make processes more efficient, sustainable and secure.

Also in Hall 4: the Polish Pavilion, which offers Polish companies bundled visibility and further strengthens the international networking of the trade fair.

To mark the anniversary, a start-up award will be presented for the first time. From 1 September 2025, young companies can apply with their innovations and win a free exhibition stand in the Start-up Area as well as additional benefits.

(© Pictures, Source: Easyfairs)

The trade fair thus offers founders from the bulk solids and recycling industry not only exhibition space, but also greater visibility and access to decision-makers, industry partners and investors. In addition, start-ups can present their products and solutions on the InnovationCenter stage in Hall 4.

The BULK-TALK podcast marks the launch of a new industry channel for knowledge transfer and dialogue. Expert interviews, background stories and trends ensure year-round coverage of topics ranging from predictive maintenance and plastics and building material recycling to AI in production processes. Overarching aspects such as skills shortages, diversity and networking will also be highlighted.

The podcast is available on all popular streaming platforms since the end of August 2025.

www.solids-recycling-technik.de

Plastics Recycling Show Asia Announces New Shanghai Location for 2026

In response to exhibitor and visitor feedback - and to further expand the event's regional reach - the organisers of the Plastics Recycling Show Asia (PRS Asia) are delighted to announce that the 2026 edition will take place at the Shanghai World Expo Exhibition and Convention Centre, Shanghai, China from 3–5 November 2026.

PRS Asia 2026 marks an exciting new chapter for the show, which has already established itself as the region's leading exhibition and confer-

ence dedicated exclusively to plastics recycling. The move to Shanghai, one of Asia's most dynamic industrial and innovation hubs, will enable even broader participation from key players in the plastics recycling sector across China and South East Asia.

"We've received an overwhelmingly positive response to PRS Asia since its launch, and feedback from exhibitors and stakeholders made it clear there is a strong appetite to bring the event to China for 2026," said Matt Barber, Global Events Director at Crain Communications. "By bringing PRS Asia to Shanghai, we aim to build on the success of our Singapore edition and continue to grow the event's reach and impact."

Winnie Song, Exhibition Director at Min Metals adds "Asia, particularly China, represents a growing market for the plastic recycling industry. With the Chinese government's increasing focus on the circular economy, the sector holds significant growth potential. The exhibition aims to facilitate global enterprises' entry into the Chinese market."

Organised by Crain Communications and Min Metals and supported by Plastics Recyclers Europe (PRE) and the China Polyurethane Industry Association (CPUIA), PRS Asia brings together professionals from every part of the plastics recycling value chain – from machinery and equipment suppliers to recyclers, raw material suppliers, brand owners, government representatives and NGOs. The free-to-attend exhibition and conference provide a platform to showcase innovation, share best practice, connect with industry leaders and explore new business opportunities in plastics recycling. PRS events are held around the globe in Europe (Amsterdam), Middle East & Africa (Dubai) and India (Mumbai).

https://prseventasia.com

Expansion of Partnership

For its plastic film stretching lines Brückner Maschinenbau relies on Coperion ZSK extruders, which melt the raw material (Image: Brückner Maschinenbau)

Brückner Maschinenbau has once again awarded Coperion a volume contract for ZSK twin screw extruders of the ZSK Mc18 series. This order is based on the long-standing, intensive cooperation between Brückner and Coperion, which began back in 2008.

Brückner initially used Coperion ZSK extruders for BOPP film lines. This was followed by numerous projects that the two companies successfully implemented together. In the meantime, the range of applications for film stretching lines has expanded significantly: Brückner also implements lines for BOPET, BSF, and BOPA films with ZSK extruders, among others.

The current volume contract underscores Brückner's confidence in Coperion's proven technology. The ZSK extruders melt the compounds that feed the film stretching lines. Thanks to their high torque, the ZSK Mc18 extruders achieve very high throughputs while maintaining low product temperatures, resulting in first-class product quality.

"We greatly appreciate the close, constructive cooperation with Brückner Maschinenbau," says Cornelia Koch, Business Segment Manager Direct Extrusion at Coperion. "Together, we have already successfully completed numerous projects. With the comprehensive expertise of our two companies, we have been able to develop many innovative solutions over the years that have increased the throughput rates of Brückner film stretching lines, boosted their efficiency, and improved film quality."

Coperion GmbH
www.coperion.com

EU–USA Tariff Agreement: AMAPLAST Expresses Deep Concern over the Impact on the Plastics and Rubber Machinery Sector

Amaplast expresses deep concern over the trade agreement recently signed in Scotland between US President Donald Trump and the President of the European Commission Ursula von der Leyen.

The compromise reached, which introduces a flat 15% tariff on a wide range of European products, constitutes – according to the association – a serious obstacle for the Italian and European manu-facturing industry. Particularly alarming is the lack of clarity regarding possible exemptions and the failure to lift the current 50% tariff on European steel.

In addition to tariffs, the agreement includes substantial financial commitments for the European Union: 750 billion dollars in energy purchases from the United States over the next three years, 600 billion dollars in investments to be made in the US within two years, and unspecified military sup-plies. All these elements place a disproportionate burden on European industry without offering ad-equate compensation.

"This is not an agreement, it's more like a surrender," commented Amaplast President Massimo Margaglione. "In a global context already affected by a weakened dollar and sluggish demand, a blanket 15% tariff is a devastating blow for our companies, which have always driven Italian exports through quality, technology and reliability."

The sector represented by Amaplast exports around 10% of its total turnover to the United States. The new conditions imposed by the agreement could significantly hinder access to one of the most important markets for the sector, which is already suffering from currency fluctuations and an un-certain global outlook.

Amaplast therefore urges the Italian Government and the European Commission to adopt a more assertive strategy in defending European industry and calls for urgent clarification on which goods will benefit from tariff exemptions. The association hopes that, in view of the globally recognised value of Made in Italy and the strong export orientation of Italian companies (over 70% of all ma-chinery produced is sold abroad), plastics and rubber processing machinery will be included among the products exempted from the new tariff measures.

"Today more than ever," concludes Margaglione, "Europe needs industrial and monetary policies capable of meeting the global challenge. We cannot allow entrepreneurs to face such unstable in-ternational scenarios alone. Without a shared strategic vision, we risk not only competitiveness, but Europe's very social cohesion."

AMAPLAST
www.amaplast.org

Transparency and Control – *REMOTEaccess for Modern Production Processes*

motan introduces REMOTEaccess – a new cloud-based remote maintenance solution designed to meet the highest standards of security, maximise ease of use, and provide full control for the customer. Seamlessly integrated into all CONTROLnet control systems, REMOTEaccess helps companies manage their maintenance processes more efficiently and securely.

Thanks to digital access, service tasks can be handled much more quickly, as no on-site visit is required – reducing both response times and costs. At the same time, production downtime can be significantly minimised, as issues are identified and resolved faster. The overall availability of service is also improved, ensuring more reliable maintenance support and increased operational stability.

Access is only granted by authorised service employees. Every process is automatically documented and seamlessly logged. This ensures full transparency and forms a reliable basis for invoicing services rendered.

Particularly important: remote maintenance is authorised by the customer themselves. A physical key ensures that the system can only be accessed if this is explicitly requested.

"We wanted to create a solution that fulfils the highest security requirements and at the same time gives our customers full control", says Carl Litherland (CMO motan Group).

REMOTEaccess combines exactly that, with minimal effort for IT and production.

REMOTEaccess is now available can be easily integrated into any existing motan systems.

motan holding gmbh
www.motan-group.com

REMOTEaccess – Simple and secure solution for remote maintenance (motan group)

Further Training

The SKZ offers practical qualifications to counteract the shortage of skilled workers in the plastics industry. SKZ qualifications enable both career changers and skilled workers to advance their careers and make a valuable contribution to the future of the plastics industry.

The shortage of skilled workers is also affecting the plastics industry. The SKZ Plastics Centre is tackling this problem with practical, future-oriented training courses that offer more than just a certificate: SKZ qualifications enable both career changers and experienced professionals to develop their careers, thereby actively contributing to securing skilled workers in the industry.

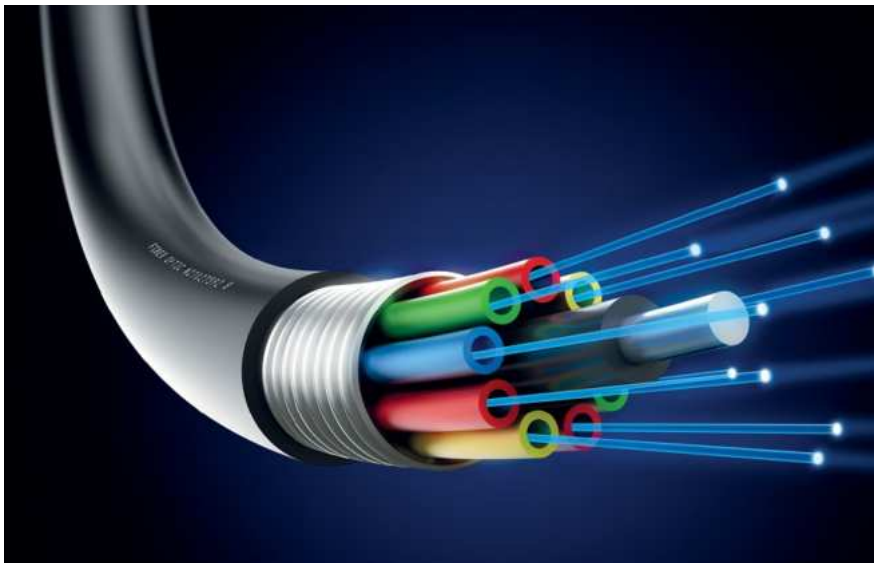
In addition, SKZ offers numerous specialised qualifications, for example in extrusion, compounding, thermoforming and other processing methods. For those who want to delve deeper into materials and their properties, the qualification as a 'Plastics Material Expert' is the ideal choice – especially for specialists in materials development or testing.

Overview of all SKZ qualifications and further information on registration:

The SKZ Plastics Centre
Marco Rabensteiner
m.rabensteiner@skz.de
www.skz.de/en/training/degrees

Anne David and Christopher Stark (right) are among the successful graduates of the SKZ advanced training course 'Plastics Processing Specialist' (Photo: SKZ)

Single-Point Concentricity Extrusion Tooling



Guill Tool & Engineering introduces a new single-point concentricity extrusion crosshead that uses micro-fine adjustment screws for precise concentricity adjustment. The precision of concentricity reaches 0.008" or finer per revolution. This single point concentricity adjustment is a unique Guill innovation for the extrusion of thin-walled jacketing and precision ID/OD tubing. One adjustment bolt controls 360° of adjustment.

Features of the single-point crosshead include a patented cam-lock deflector for quick changeovers, with a residence time of one minute at .5 lb/hr material flow, optimized usage with extruders measuring ½" and ¾", and a max die ID of .250."

Additionally, the Guill single-point crosshead offers great flexibility to its users. It not only accepts both vacuum and micro-air accessories, but is also ideal for pressure and sleeving applications. Fluoropolymer designs are available upon request.

For more information:

Guill Tool & Engineering
Tom Baldock, Sales Manager
www.guill.com

Market Study: Plastic Films

Are sophisticated specialty products the future of European industry? Demand is increasing for films and plastic packaging with special properties. In many European countries, however, the production of plastic films is becoming less and less competitive compared to other regions of the world, and the consumption of plastic carrier bags is continuing to decline. Ceresana has now analyzed the entire European market for plastic films for the third time. The company's market researchers forecast that plastic film demand in Europe will grow to around 13.8 million tonnes by 2033.

The study in brief

Chapter 1 analyzes the total European demand for and production of plastic films (in 1,000 tonnes) as well as revenues generated with plastic films (in billion US-dollars and billion euros). In addition, the production and demand volumes of plastic films are broken down for the various types of plastic. The film consumption of the various application areas is also examined.

Chapter 2 presents a detailed analysis of the plastic films market size and growth in 21 European countries: Demand, revenues, and production are each considered individually.

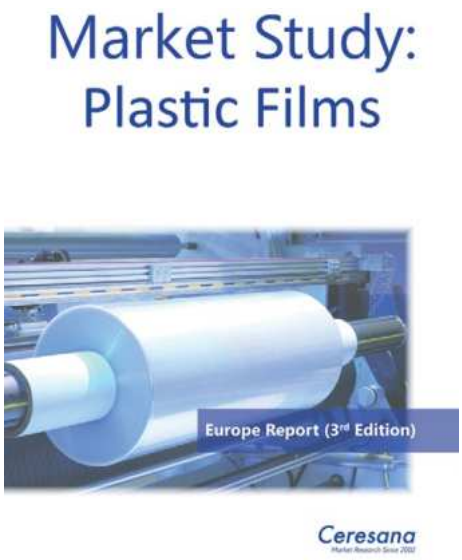
In addition, plastic film demand (in tonnes) is divided into 5 application areas: Packaging films; Bags and sacks; Shrink and stretch films; Agricultural films; Other films.

Production and demand are also broken down for 5 types of plastic: PE (LDPE, LLDPE, HDPE); PP; PET; PVC; Other plastics.

Chapter 3 provides company profiles of the most important plastic film manufacturers – clearly arranged according to contact details, revenues, net income, product range, production sites, and profile summary. Detailed profiles of 81 manufacturers are provided.

Further information:

https://ceresana.com/en/produkt/market-study-plastic-film-europe



Accelerated Prediction of the Media Stress Crack Resistance of Plastics

A pioneering research project has been successfully completed at the SKZ Plastics Center. The aim of the project was to develop a time-lapse testing method that, for the first time, enables the quantitative evaluation of stress crack failure in plastic components under the influence of media. Unlike established, standardized test methods – such as the ISO 22088 series of standard – which generally only allow material ranking, the new test concept enables a well-founded prediction of service life. This represents a significant advance for quality assurance and product development in the plastics processing industry.

Stress crack failure, which occurs under the simultaneous influence of mechanical stress and chemical media, is one of the most common causes of damage to plastic components.

The methods standardized to date, such as ISO 22088, generally only allow for qualitative material ranking. Until now, it has been virtually impossible to reliably predict service life.

As part of a research project funded by the German Federal Ministry for Economic Affairs and Climate Action (BMWK), the SKZ plastics center has now succeeded in developing and validating a new testing and evaluation concept. This enables, for the first time, a quantitative assessment of stress crack behavior under realistic conditions. The method allows statements to be made about when a plastic will fail under defined test conditions, such as medium (e.g., disinfectants, oils), load level, and temperature. The basis is a specially developed, heatable measuring setup that can be adapted to common universal testing machines. The test can be accelerated considerably by raising the temperature in a targeted manner (time-temperature superposition principle).

The measurement setup with continuous force and strain measurement offers a particular advantage: in addition to failure times, the influence of stress duration and medium on stiffness can also be investigated – for example, through the effect of plasticizers. Processing-related factors such as residual stresses or molecular orientations can also be evaluated.

The project was funded by the Federal Ministry for Economic Affairs and Climate Protection (BMWK) under the Industrial Collective Research (IGF) program and supported by a committee of interested companies.

Newly developed testing facility (consisting of six independent measuring stations) for determining the influence of media on the stress crack resistance of plastics (Photo: Luca Hoffmannbeck/SKZ)

In a supplementary R&D cooperation project with IPT Institut für Prüftechnik Gerätebau GmbH & Co. KG – funded by the Central Innovation Program for SMEs (ZIM) – a corresponding test device with several measuring stations was developed. In its current version, the new test device has six autonomous measuring stations. This allows parallel tests with different media, plastics, or test conditions (temperature, test type, test parameters).

It is now available at SKZ for industrial applications to perform (time-lapse) tests for the quantitative assessment of the media stress crack resistance (failure times and creep deformation) of plastics.

With this development, SKZ is making an important contribution to damage prevention in plastic components.

The SKZ Plastics Center
Dr.-Ing. Kurt Engelsing,
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Partnership Expanded

Songwon Industrial announced that it has expanded its longstanding partnership with Biesterfeld Spezialchemie GmbH.

Since July 1st, 2025, Biesterfeld Spezialchemie is the exclusive distributor for SONGWON's full range of polymer stabilizers in the strategically important markets of Romania, Bulgaria, Croatia, Montenegro, Bosnia & Herzegovina, Kosovo and North Macedonia. The expanded cooperation will not only broaden SONGWON's footprint but also improve product availability and customer service across the region.

"Biesterfeld has been a strong partner to SONGWON for many years. Expanding our collaboration to include these seven Southeastern European countries is a significant step toward growing SONGWON's market position and reach with products that not only meet, but exceed the expectations of our customers in the region," said Albert Dantuma, Leader Sales Polymer Stabilizers at SONGWON.

"Leveraging our technical expertise and strong local presence, we are ideally positioned to provide customers across Europe with reliable access to SONGWON's high-performance products and the comprehensive, high-quality service they require," adds Jürgen Rietschle, Head of Sales - Polymer Additives at Biesterfeld Spezialchemie.

Songwon Industrial Co., Ltd.
www.songwon.com

Residual Gas Analysis

Pfeiffer Vacuum+Fab Solutions presents the HiCube Neo RGA, a compact and versatile solution for residual gas analysis (RGA). The HiCube Neo RGA integrates a HiCube Neo vacuum pump unit and a PrismaPro mass spectrometer into a compact system designed for residual gas analysis. The turbomolecular vacuum pump within the unit generates the vacuum levels required for mass spectrometry, allowing the PrismaPro to detect and analyze specific mass ranges of gas molecules, thereby providing data for process monitoring or quality control.

The new HiCube Neo RGA for residual gas analysis operates across a broad pressure range, from atmospheric pressure to high vacuum. Source: Pfeiffer Vacuum+Fab Solutions

This system ensures precise identification and examination of residual gases. The HiCube Neo RGA operates across a broad pressure range, from atmospheric pressure to high vacuum. It can be used in various applications such as coating as well as a wide array of analytical tasks.

To ensure stable operation and protect system components, the HiCube Neo RGA includes several built-in safety mechanisms. The system also features a vacuum gauge that continuously monitors total pressure. If the pressure exceeds a pre-defined safety threshold, the system automatically shuts down the filament inside the mass spectrometer. This prevents filament damage caused by exposure to high pressure, which can extend service life and reduce the frequency of replacements. The system can also be equipped with an integrated shut-off valve.

The HiCube Neo RGA offers multiple connectivity options for integrating external sensors and monitoring equipment. It supports both digital and analog inputs and outputs, allowing data from additional sensors – such as further vacuum gauges – to be incorporated into the analysis. The built-in touch screen provides direct access to measured values and displays signals from connected components. The PV MassSpec software further enables quick and easy access to the measurements.

The system can also be customized to suit various applications, from leak detection to vacuum furnaces. One such option is an integrated recipient heater, which helps release adsorbed gases. By evaporating these gases and removing them from the system, the heater reduces contamination and minimizes background signals that could interfere with measurement accuracy.

Designed for plug&pump operation, the HiCube Neo RGA can be quickly set up. For applications that require gas analysis at multiple locations, the system can be mounted on a trolley for easy transport. This allows it to be moved between different workstations without the need for disassembly.

Pfeiffer Vacuum+Fab Solutions
www.pfeiffer-vacuum.com
www.buschgroup.com

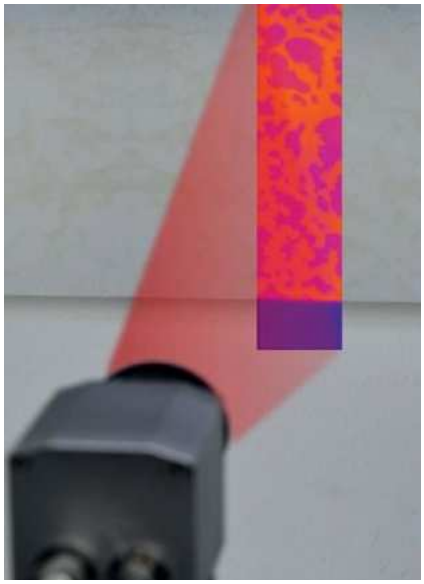
Large-Area Inline Fault Detection with Thermography

The SKZ Plastics Center offers developments in the field of quality control for continuous production processes, especially for thin-walled plastic products. The introduction of a modern thermography solution supports production monitoring.

The challenge in manufacturing high-quality plastic products often lies in the low tolerances for surface quality and internal defects. To meet the highest quality standards and avoid potential product complaints, comprehensive quality control integrated directly into the ongoing process is becoming increasingly important.

SKZ presents a thermography measurement system based on a proven method. Either the manufacturing-related heating and cooling of the plastic products is used passively, or active heating is induced to make defects in the product visible thermographically. The system allows inline monitoring and achieves up to 100% control depending on the product.

Compared to conventional optical camera systems, the thermographic



measurement system offers a robust solution that works independently of environmental conditions such as inhomogeneous illumination. The viewing angle plays a minor role, and even internal defects away from the surface are reliably detected.

Technically speaking, the system uses infrared thermography to perform precise temperature measurements on the surface. By analyzing the temperature distribution, not only surface defects such as streaks or dents can be detected, but also internal defects such as pores or foreign material inclusions. The high resolution and accuracy of thermography ensure reliable detection of even the smallest defects.

The SKZ has many years of extensive experience in thermography and offers companies support in implementing customized solutions. The institute accompanies the entire development process, from feasibility studies and integration into the production chain to training, maintenance, and support.

As an active member of the Zuse community, SKZ is committed to continuous innovation and networking in order to strengthen the performance and competitiveness of industry, especially small and medium-sized enterprises. The new thermography solution marks a significant advance in quality control and paves the way for efficient and precise production monitoring.

The SKZ Plastics Center
Daniel Hoffmann
d.hoffmann@skz.de

K 2025 – *The Power of Plastics! Green – Smart – Responsible*

From 8 to 15 October 2025 K in Düsseldorf will again become the main stage for the international plastics and rubber industry – making an unmistakable statement with its motto "The Power of Plastics! Green – Smart – Responsible". This motto reflects the industry's current values and targets, and underlines that plastics form an indispensable component of numerous sectors of industry that make a major contribution to innovation and progress. At the same time, the motto of the forthcoming K stands for the industry's commitment to act sustainably, smartly and responsibly in producing and handling the material that is plastic.

(Pictures © Messe Düsseldorf GmbH)

Especially in today's challenging times K in Düsseldorf underscores its role as the world's No. 1 trade fair. It is the place where the complete value chain is presented at the highest level. Nowhere else are innovations on show in such high concentration, nowhere else can so many product launches be seen as at K in Düsseldorf. On the one hand, it is the global showcase of an active, innovative and responsible sector, on the other hand, it is also the platform where the future is shaped – be it by trail-blazing technologies, in-depth discussions of global challenges or as a point of departure for joint ventures across borders.

K impresses not only with its sheer dimensions but also with the variety of nations represented. It has been completely booked up since May 2024. Over 177,000 sqm net exhibition space in the 18 exhibition halls and on the outdoor premises provide room for the entire spectrum of the plastics and rubber industry.

The international appeal of K is unparalleled: the last event in 2022 was attended by 3,020 exhibitors from 59 nations and visitors from 167 countries. Particularly well represented were the exhibitors from Europe, Asia and the USA and a total of 71% of trade visitors hailed from abroad.

In 2025, exhibitors from Europe in particular will once again be strongly represented, especially from Germany, Italy, Turkey, Austria, the Netherlands, Switzerland and Spain. At the same time, K clearly shows the changes in the global market: the number and exhibition space of companies from Asia have remained at a consistently high level for years. The presence of companies from China, India and Taiwan will be particularly impressive. In addition, the USA will once again be represented by a larger group of exhibitors.

K 2025 has set itself the task of tackling the key challenges of our time and presenting concrete solutions. This is also reflected in the three guiding topics:

- Shaping the circular economy
- Embracing digitalisation
- Caring about people

Messe Düsseldorf GmbH
www.k-online.de

Together for the First Time – *Collaborative Strengths at K 2025*

For the first time ever, all Davis-Standard Corporation brands will exhibit under one umbrella at one booth during the upcoming K Show. The corporation comprises its flagship product brands, including Davis-Standard, Maillefer, battenfeld-cincinnati, Exelliq, and Davis-Standard Global Services, as well as specialty brands such as Brampton Engineering, Deacro, ER-WE-PA, Gamma, Simplas, and TSL. Davis-Standard Corporation's collective brand portfolio represents a global installed base of $15 billion worldwide.

"This is our first time exhibiting as one company in the same booth, encompassing the most trusted brands in the polymer processing and converting industry. This is a time of new beginnings, new energy, and new possibilities, and we're excited to showcase that at K," said Steve Andrews, Chairman and CEO of Davis-Standard Corporation. "We're focused on finding the best solutions for our customers, regardless of brand. Achieving operational excellence through the integration of our global equipment platform is essential. The focus here is always on providing our customers with equipment that works as efficiently as possible and gives the operator maximum support. Our R&D teams, engineers, and service experts are committed to customizable solutions that meet market demand and customer objectives, no matter their location or product."

Davis-Standard Corporation's end-to-end processing solutions support some of the most critical and dynamic global markets, including medical tubing and hygienic films, food packaging, infrastructure, automotive, and agricultural technology. With the addition of other key industry leaders, Davis-Standard Corporation's flagship and specialty brands have a shared commitment to innovation, performance, and partnership. Helping customers turn complex challenges into competitive advantages that drive efficiency, quality, and long-term success is the goal across industries and borders.

The booth will feature a robust offering of equipment from each brand, highlighting capabilities and new innovations. Expertise across packaging, pipe and profile, film, fiber, and medical sectors will be shown.

Davis-Standard Corporation
www.davis-standard.com

K 2025: Hall 16, Booth: B19

Think Green, Act Smart, Extrude Responsibly

As a leading international manufacturer of extrusion lines, battenfeld-cincinnati will be demonstrating at this year's premiere trade show how environmental management, digitalization, and sustainable practices can be implemented in practical solutions.

The increasing demands for material efficiency, circular economy, process automation, and energy savings are already determining the investment decisions of plastics processors worldwide. battenfeld-cincinnati is meeting these challenges with a well-thought-out portfolio of innovative machines, control solutions, and modular system components. Whether films, sheets, pipes, or profiles – at K, the company impressively demonstrates that ecological and economic thinking are not contradictory. Rather, it shows how intelligent technology, flexible material processing, and resource-saving processes come together to form a holistic and responsible production approach.

One example is the recently developed BC 120-40 DVT single-screw extruder, which is equipped with the so-called Dual Vent Technology. This concept, implemented for the first time in this type of machine, allows for targeted, two-stage degassing of the melt, enabling the processing of complex recycled materials. The advantages: lower energy consumption, less material waste, and consistently high product quality. The concept was developed as a result of a group-wide collaboration, highlighting the strength of the recently created synergies within the group.

For pipe manufacturing, battenfeld-cincinnati presents IOA (Intelligent Operating Adjustment), a system for automated pipe centering that not only significantly reduces operating effort but also optimizes material usage. The ball joint-based technology enables sensitive adjustments without interrupting the flow or requiring manual intervention. In combination with digitally stored process parameters, smart measuring systems, and reproducible processes, IOA is an essential step toward intelligent and responsible production - smart and responsible in the spirit of the K show motto.

In the field of PVC processing, the machine manufacturer is showcasing another highlight: the flexible coextrusion solution in a piggyback arrangement, which scores with its low space requirements and high material diversity. The combination of twinEX 78 and the conEX NG 65 mounted on top allows the simultaneous processing of virgin PVC, recyclates, and compounds with consistently high quality. The new generation of NG single-screw extruders impresses with its energy-efficient screw design and precise temperature control, supported by modern cooling technologies.

Furthermore, a tool for PVC pipe production will be shown. Thanks to the modular design of the Spider NG series, material processing in production becomes flexible and future-proof. Green stands for reduced raw material consumption and maximum recyclability.

In film and sheet extrusion, battenfeld-cincinnati presents the multiTOUCH-X roll stack, a further development

battenfeld-cincinnati, sustainable solutions worldwide (©battenfeld-cincinnati)

that enables extremely precise calibration even with very thin films thanks to Axis-Crossing technology. The inclined position of the first roll compensates for roll deflection, ensuring a constant gap – ideal for PP films below 200 µm or PET films below 150 µm. At the same time, the line speed remains consistently high without the need for energy-intensive additional elements such as vacuum boxes. The low material consumption combined with maximum quality underlines the company's commitment to resource-efficient and technologically advanced production.

Another new addition is the solEX NG 105, which complements the solEX series extruder portfolio. With an output of up to 2,100 kg/h at low melt temperatures, it not only enables increased energy efficiency but also extends the service life of components. Emphasized should be the internal water supply, which is being applied for the first time: a closed cooling circuit that operates independently of the operating system, provides corrosion protection, and differentiates temperatures.

The new pullStream B63-1000 WS belt haul-off is ergonomic and user-friendly, fitting seamlessly into the multi-award-winning World Solution Design concept. A cover that opens completely makes maintenance and process adjustment easy—a significant advantage for everyday operator use. The integrated cross adjustment of the upper belt ensures consistent pipe quality, even at high speeds of up to 300 m/min. The system is complemented by an intuitive 10”- touch display that integrates seamlessly into the existing control architecture.

With all these innovations, battenfeld-cincinnati is emphasizing its position as a technology leader in the extrusion industry. “We are demonstrating that green, smart, and responsible are specific development guidelines for us. The combination of economic efficiency, high flexibility, and active sustainability makes battenfeld-cincinnati a reliable partner for future challenges,” says Dr. Henning Stieglitz, CEO of the battenfeld-cincinnati Group.

battenfeld-cincinnati
www.battenfeld-cincinnati.com

K 2025: Hall 16, Stand: B19

Green Line & Digital Standard Data Interface – *Key Innovations for Film Stretching Lines*

Greenline for saving energy and raw materials –
The Greenline concept for BO systems aims to maximize efficiency. The core elements are:

• Solutions for PCR use: After years of R&D projects, with the aim of significantly increasing the proportion of recycled polypropylene in the production process for BOPP films, a milestone has been reached in close cooperation with the entire value chain to further close the loop for BOPP films.

• Direct fluff dosing: Higher production/material efficiency with an advanced solution to increase direct fluff dosing. New software solutions now allow the maximum possible amount of production waste to be fed inline into the BO process at any given time. This also reduces energy consumption as this waste does not have to be re-granulat

• Heat recovery unit 2.0: This solution maximizes energy efficiency and significantly reduces operating costs by capturing and reusing waste heat more effectively than ever before. The energy-rich exhaust air is fed into the heat recovery unit, where thermal energy is transferred to the fresh air drawn in via a special heat transfer medium.

Battery separator film production line_ Brückner Maschinenbau

• Exhaust air purification system integrated into the BO process from a single source and ideally coordinated. In the first stage, the exhaust air is cleaned using a scrubber; in the second stage, gaseous hydrocarbons are separated from the exhaust air using an electrostatic precipitator.

• High-temperature heat pump to improve waste heat recovery. This patented solution uses waste heat after passive heat recovery at a low energy level and raises it to a usable energy level. This reduces operating costs and significantly improves the CO2 balance.

• 12m line concept: Increased productivity and efficiency for the lowest specific energy consumption.

Digitalization: Standard Data Interface (SDI) –
Plug-and-play connection of Brückner stretching lines to the customer's own IT systems. The benefits:

• Seamless integration of plant data into customer systems such as dashboards, production planning or ERP using a simple and efficient connection.
• Reduced complexity thanks to simplified IT architecture with just a single interface to all relevant data from a Brückner film stretching line.
• Fast implementation of data and protocols by using the OPC UA standard.
• High reliability: Elimination of potential sources of error by standardizing the protocol and the data read out.
• Availability for every stretching line generation: Simple upgrade for older lines by Brückner Servtec.
• The standard also allows the connection of lines from other manufacturers.

Film stretching line_Brückner Maschinenbau

New solutions for the production of technical films

• Lines for battery separator films with 8.7 m usable film width: the widest separator film lines in the world with an annual output of up to 500 million m² and with consistent film quality
• Sequential and simultaneous lines for capacitor films and current collector films with a line width of up to 8.4 m for EV applications or films with high energy density for renewable energy applications in the energy industry
• Extremely thin films down to 2 microns

Brückner Maschinenbau
www.brueckner-maschinenbau.com/en

K 2025: Hall 3, Stand: D90

Innovation at its Best for rPET, Fiber & more

With 70 years of experience and a clear perspective on the future, Kiefel is positioning itself at the K trade fair 2025 as a driver of innovation in industrial manufacturing. In Hall 3 / D90, the specialist for thermoforming and joining technologies will impress with a broad portfolio for the packaging, medical & pharmaceutical, appliance and service sectors – and will add special focal points with two technology solutions.

Highlight 1: New SPEEDFORMER KTR 6.2 Speed sets standards in thermoforming

Kiefel is presenting the SPEEDFORMER KTR 6.2 Speed tilting machine at K live, a new generation of thermoforming, which optimizes both material consumption and line performance. The machine produces high-quality cups, from a range of materials including recycled PET. Various rPET materials were tested in advance in close collaboration with film partner Coexpan. At the Kiefel booth, visitors will gain exclusive insights into test results – and see how recyclability and high-quality design can be ideally united in cup production.

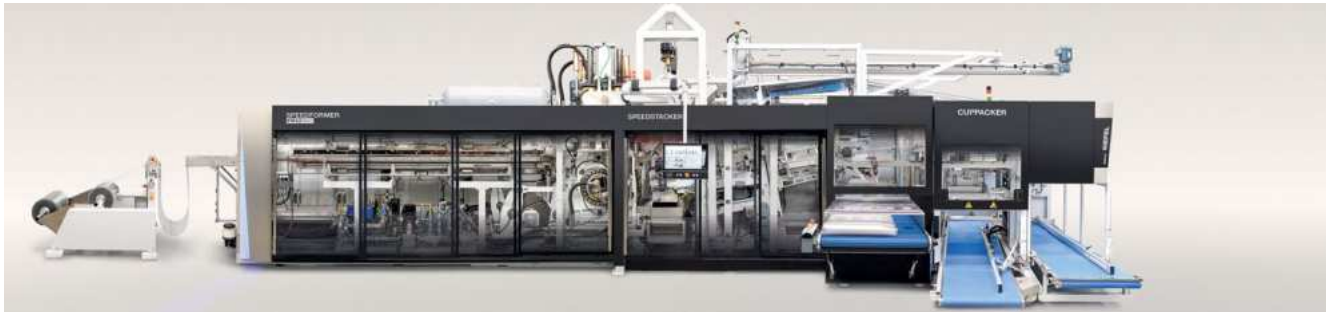
Technologically, the machine excels with several newly developed features with patents pend-ing. These include the intelligent SpeedGuard™ film guide and the high-performance ProSpacing™ system, which ensures higher output even when handling varying product geometries. In short: These solutions offer a unique combination of automation, efficiency and flexibility for customers, in keeping with the company slogan – Driving your performance.

In addition, visitors can experience the digital twin of the machine live at the Siemens booth (Hall 3, Stand D16) and see for themselves the practical advantages of holistic project support.


Sven Engelmann, Vice President - Technology: "The K trade fair 2025 is a strong signal for us: 70 years of Kiefel stand for experience, and, especially for constant change. Our solutions combine efficiency, sustainability, and digitalization and offer customers worldwide real added value in a dynamic market environment."
(All pictures: © Kiefel)

Highlight 2: Fiber Packaging taken to the next level – with two technologies

Kiefel is once again demonstrating its pioneering spirit in the natural fiber sector: Visitors can watch live as the NATUREFORMER KFT Lab produces highly functional margarine shells



New-KTR 6.2 Speed with-automation

from pulp using the new Double-Dip Process in the wet fiber process. The food-compliant packaging thus gains superior barrier properties for oils and fats through mono-material layers – whilst being suitable for recycling in the circular economy.

Kiefel is presenting a further example of innovation, its new dry-fiber technology: market-ready applications such as trays, beverage lids and technical packaging are produced directly from paper off the roll – an efficient solution with an impressive annual output of up to 70 million pieces for the most common requirements. Combined with the wet-fiber process, this shows that sustainability is not a rigid concept, but requires intelligent, complementary technologies, tailored to each application.

Kiefel is a holistic systems provider, supporting its customers from the initial idea to series production. In order to make this co-creation even more intensive in the future, the company is expanding its Customer Innovation Centers worldwide. At the trade fair, visitors will gain initial insights into the expanded possibilities – from material testing to design and process development to the market-oriented implementation of individual product ideas.

Aside from the highlights already mentioned, Kiefel will also be providing information about solutions for medical technology, digital services such as the optimized digital Kiefel Portal and individual projects in the field of refrigerator and large-scale thermoforming systems – a holistic systems approach that ensures competitive advantages for customers worldwide. Kiefel is an active member of the VDMA, and will be presenting another product made from recycled plastic material in the VDMA pavilion.

Kiefel Technologies
www.kiefel.com

K 2025: Hall 3, Stand D90

Modular Upgrade Concepts & New Performance Services

Modular upgrades for line transformation and production increase – Targeted retrofit solutions for tomorrow's state-of-the-art BO film stretching lines:

• Inline coating upgrade (ILC): With layer thicknesses in the nanometer range, new formulas improve printability and take the barrier properties of BOPP films to a new level. In recent years, Brückner Maschinenbau and Servtec have sold more than 25 ILC systems that support the production of recyclable mono-material packaging – as required by EU Regulation 2025/40 on packaging and packaging waste (PPWR).

• BOPE upgrade: The enhanced concept supplements existing BOPP lines with the option of producing LLD-PE and HD-PE – an important element for mono-material solutions for simplified recycling. It is an integral part of the portfolio and enables nearly 100% PE output compared to the original production, for example by means of targeted extruder modifications.

• Productivity upgrade: An efficient solution to increase the line output – using mechanical, electrical, or software-based measures, depending on requirements. Here is one example: Optimization of the highly complex TDO (transversal direction orienter) chain system component, for instance by replacing FOK 4.4.6 with FOK 8.8. In combination with double nips in the MDO (machine direction orienter) stretching frame, additional TDO frequency converters, or updating the IMC software, production speed can be increased by up to 20%.

New performance services – Fast on-site support for film manufacturers thanks to new service products.

• Line inspection (1 day): Analysis of the line processes to reveal hidden efficiency potential – including immediately implementable optimization measures such as process parameter adjustments

Fast On-Site Support for Film Manufacturers due to New Performance Services

Digital Services for increased efficiency, safety, and flexibility in plant operation

• KPI check (3 days): Industry comparison based on real operating data to assess key performance indicators (energy consumption, maintenance quality, productivity) and derived conversion and service suggestions

• Performance boost (5 days): Profound process optimization with a focus on increased production output, improved energy efficiency, and knowledge transfer. In addition: targeted approaches to quality improvements and the development of future-oriented film types. In comparable applications, the line yield was increased by up to 40%.

Brückner ONE: the next step in digital services – The current generation of Brückner ONE provides advancements for increased efficiency, safety, and flexibility in digital line operation.

• Condition monitoring 2.0: Shorter reporting intervals, in-depth analyses, and specific recommendations for action allow for an even more targeted condition monitoring of key line components (main extruder gearbox, TDO chain, parts of the extraction system) as well as early planning of maintenance measures. Further line components will be integrated successively.

• Support: For the first time converted to web technology and decoupled from the line network, it combines a ticket system with remote support and a communication solution. A central overview of all lines and flexible access

independent of locations and devices increase the user friendliness and deepen the internal know-how.

• Cybersecurity service: The level of security is strengthened further and expanded in accordance with legal requirements. Continuous monitoring detects dynamic security gaps and digital cyber threats at an early stage, allowing for specific response measures to be initiated by the customer to secure their production environment.

Brückner Academy: state-of-the-art training with a digital line twin – Sustainable training courses for improved operating skills.

• Central platforfor all existing and new programs

• Expanded portfolio: operator training (essential & advanced), electrical/mechanical maintenance (essential & advanced), and customized training

• Training on the digital line twin: simulations of line operation, optimization, and realistic emergency & malfunction scenarios; without affecting the ongoing film production

• Flexible implementation by experts: hands-on at the customer's site, in Brückner training centers worldwide, or in Siegsdorf.

Future. Made by Brückner Group

As part of a world-leading group of companies, Brückner Servtec builds on a strong foundation of shared expertise and innovation. United by a common vision, the Brückner Group aims to shape global markets and the future of plastic and material processing with sustainable solutions – flexible, fast and customer-focused. To make this shared purpose tangible, the Group and its business units will be represented together at a joint stand for the first time. This presence offers customers and stakeholders the opportunity to experience the combined strength of leading global companies in the fields of plastics and alternatives, packaging and technical applications, machinery and production plants, as well as holistic solution providing.

Each business unit contributes cutting-edge technologies for future-oriented markets that embody the Brückner Group's collective commitment to sustainability, digitalization, and technological leadership. From more efficient production technologies and smart automation to new packaging approaches and digital interfaces – these developments reflect the shared drive to lead with purpose.

Brückner Servtec
www.brueckner.com

K 2025: Hall 3, Stand: D90

Revolutionising Extrusion Efficiency – *Unlocking New Potential in Existing Processes with Melt Filtration and Extrusion Technology*

In an era of global uncertainty, extrusion processors face mounting pressure to reduce costs while maintaining quality and output. Gneuss offers a powerful solution in the form of advanced melt filtration and extrusion equipment that can be integrated into existing lines to achieve significant efficiency improvements. These gains translate into measurable cost savings and a stronger competitive position. With reliable, flexible systems designed for minimal downtime, Gneuss helps processors unlock hidden potential within their current operations.

Gneuss Filtration Technology

Gneuss' flagship model, the RSFgenius ensures a rock-steady melt pressure even when processing recycled material, thanks to its highly-efficient, automatic, integrated self-cleaning system. This makes it predestined for a wide range of demanding applications. The filter elements can be automatically cleaned in situ up to 400 times and filter elements as fine as 10 µm (1.200 mesh) can be applied.

Patented Rotary Filtration System RSFgenius 330

The RSFgenius 330L which will be displayed at the K show is one of the best-selling (and at the same time one of the largest) RSFgenius models. The unit on display has an active filtration area of 2.150 cm² and is for LDPE/ LLDPE film recycling with a filtration fineness of 75 µm.

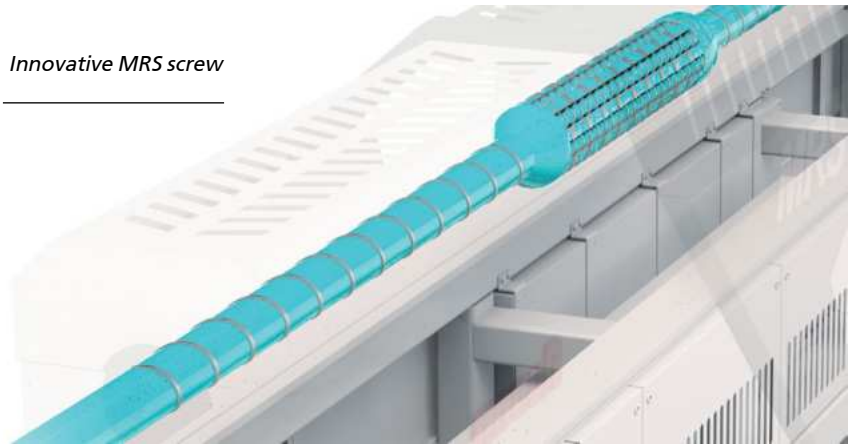
Retrofitting a fully-automatic RSF*genius* to an existing extrusion line, whether in a pelletizing, sheet, fiber or pipe application, permits the use of more contaminated material and/or the use of finer screens without disrupting the process or reducing production yield. Every retrofit is tailor-made and usually without the need to move any existing equipment.

Three further Gneuss screen changer ranges will be represented at the K show, the SFX*magnus*, SF*neos* and KSF screen changers. The SFX*magnus* is a process-constant screen changer for a wide range of applications, the SFneos is a specialised screen changer which offers an extremely high level of process and pressure-stability, equivalent to that offered by the RSF*genius*. This way, Gneuss can cover a huge range of applications, where self-cleaning is not necessarily required. Whether fibre extrusion, cast film, blown film with its high pressures, sheet extrusion of all kinds and even PVC recycling. Last but not least, the KSF range of screen changers is process-constant and designed with extremely sensitive polymers in mind. It is mostly used in compounding where its uniquely customisable design for unbeatably fast material and grade changes is a major advantage. All three ranges of Gneuss screen changers have in common that they operate pressure and time-controlled, process-constant and that screen changes are made without disturbing the process.

Multiple screw extruder MRS

The MRS extruder is based on conventional single screw technology but is equipped with a multiple screw section for devolatilization. It enables very efficient and gentle decontamination of the polymer melt. The MRS extruder permits the processing of R-PET directly into high quality end products such as packaging sheet, strapping tape or filaments without pre-drying by using a simple and rugged vacuum system. All this is achieved by means of its unique and patented processing section. The Multi Rotation Section is a drum containing multiple satellite single screws, driven by a ring gear and pinion transmission.

The satellite screws rotate in the opposite direction to the main screw. This disproportionately increases the surface exchange of the polymer melt. A large opening for venting, exposing the full length of the satellite screws, is under vacuum. This provides excellent and unrestricted access to the polymer melt, the surface of which is constantly replaced at a very high rate by the counter-rotation of the satellite screws in the multiple screw section. The surface area – and the surface area exchange rate – available for devolatilization are far greater than in other extrusion systems. As the thermal and mechanical stress on the polymer melt is minimized, reclaim processed on the MRS extruder



Innovative MRS screw

has excellent optical and mechanical properties.

In a single, simple extrusion step, harmful contaminants are thoroughly removed, assuring that the end product is safe for use in food contact applications.

OMNI Recycling Machines

Gneuss' MRS Extrusion Technology is known as an alternative for the reprocessing of contaminated materials like polyester (PET), polystyrene (PS), polypropylene (PP) or polyethylene (PE). In combination with Gneuss' highly efficient Rotary Filtration Systems, optimized vacuum technology, an online viscometer VIS and Gneuss Measurement Technology, customizable recycling lines tailor-made for a specific material can be engineered. As an option, light-weight or fluffy materials can be fed into the extruder via a 3C Rotary Feeder.

OMNI recycling lines offer Several Letters of Non-Objection (LNOs) from a North American food safety authority, EFSA conformity and local approvals in Latin America confirm the decontamination efficiency of the technology.

As volatile contamination is removed very efficiently in the MRS extruder under vacuum and solid contamination is removed by fine filtration in the rotary filtration system, OMNI recycling lines offer high quality and food compliant recycling in one simple, compact and sustainable extrusion step.

Typical applications for OMNI Recycling machines include the processing of PET reclaim, such as bottle, sheet regrind or fiber waste, into high quality end products, such as thermoformed sheet (suitable for food contact), staple fiber, POY, FDY, BCF or strapping tapes. In addition, a wide range of input materials such as PS, PP, PE, or PLA can be recycled. The OMNI series can also be used in the decontamination of post-consumer waste to produce direct food contact products such as HDPE bottle caps or milk bottles, coffee caps and for odor reduction and degassing of PA, SAN or other polymers.

OMNI 110 Recycling Machine for post-consumer PET reclaim

At the K show, Gneuss will present the core of an OMNI Recycling Machine – a Multi Rotation System MRS 110 extruder. After the show, the complete line – including, among other components, a water ring vacuum system and the fully automatic RSF*genius* 90 melt filtration system – will be delivered to Cotnyl, a leading Argentinian manufacturer specializing in thermoformed plastic packaging. Designed to process 600 kg/h of undried and uncrystallized PET or 400 kg/h of PP, the system will produce high-quality thermoforming sheet for food packaging applications. The technology has already been approved for food contact by Argentina's food safety authority Senasa.

In addition to its compact design, which requires very little space and

can therefore be easily integrated into existing premises, the OMNI scores highly in terms of flexibility. The fully automated control of vacuum, extruder, dosing, degassing dwell time and filter exchange ensures a consistently high quality of the end product while allowing the use of lower cost input materials. With the tight and varying materials market, it is becoming increasingly important to have maximum flexibility in regard to the input material, especially in the case of varying and uncertain input qualities in the future.

The compact design also results in very low energy consumption, significantly reducing the CO_2 footprint of the recycling process.

Open House at Gneuss

Gneuss' headquarters are located just about 200 kilometers from Düsseldorf. During the K trade fair, an Open House event will take place at the Gneuss Technical Center.

On Friday, October 10, several systems will be running at the facility in Bad Oeynhausen. Various applications will be demonstrated, focusing on key topics such as odor reduction and the recycling of plastics for food contact applications.

Measurement Technology

Reliable Sensor Solutions from Gneuss: Gneuss offers robust and adaptable sensor technology for pressure and temperature measurement in extrusion processes. Designed to meet the harshest industrial demands, Gneuss sensors withstand abrasion, corrosion, and extreme temperatures.

Thanks to flexible in-house production, Gneuss delivers both standard and custom-made sensors with short lead times.

Safety and Quality in Focus: The increasing demands placed on safety and quality make the continuous monitoring of measuring equipment essential. This is particularly true of pressure sensors with a safety function. The reliable Gneuss CCS 1000 pressure sensor testing device is now available with a heated sensor holder, enabling testing under real operating conditions.

Thanks to its modular design, the CCS1000 can also be retrofitted with a temperature-controlled pressure port. Additionally, the newly developed clamping device for the sensor holder reduces wear on the sealing surfaces, preventing leaks during testing.

OMNI recycling machine with RSFgenius 90 and vacuum system to be shown at K show before delivery to Argentina for food-grade R-PET and PP sheet production

Gneuss can provide a customised solution for your testing needs based on the CCS1000. Pressure ports are available for various thread types, including ½" and M18. Display units can be integrated for the sensor types you use on request.

Gneuss sensors are future-proof thanks to digital IO-Link communication and optional identification using RFID chips.

Gneuß Kunststofftechnik GmbH
www.gneuss.de
K 2025: Hall 9, Stand A22

Cutting-Edge Recycling Solutions

Herbold Meckesheim, a brand of Coperion, will showcase its latest advancements in plastics recycling technology at K 2025. Building on its long-standing expertise in modular system solutions for size reduction, washing, separation, drying, and agglomeration of plastics waste, Herbold Meckesheim offers tailored, highly automated plants for numerous industrial recycling applications. The company will present a range of integrated systems and solutions designed for mechanical processing, including the new high-capacity Mechanical Dryer T150-300 and the latest SMS granulator model. Visitors can explore these innovations firsthand at Hall 9, Booth 9B34. In addition, a Hydrocyclone Separation Stage will be showcased in the Coperion and Herbold Meckesheim Recycling Pavilion in the Open Area FG/CE07, where the companies will demonstrate their comprehensive interlocking recycling solutions. This participation highlights Herbold Meckesheim's and Coperion's ongoing commitment to delivering cutting-edge machinery and process solutions that drive the shift toward a more circular plastics economy.

New Dryer

Herbold's latest innovation, the Mechanical Dryer T 150-300, debuts in a new size at K 2025 in Hall 9. This

high-capacity model sets new standards in large-scale drying applications, reaching throughputs of up to 2.5 tons of film per hour or >10t/h of PET or rigid flakes. The dryer features a fully redesigned construction, including a rotating sieve basket with integrated water spray nozzles for full-coverage cleaning and a centrifugal drying chamber for rapid moisture removal.

Designed for maintenance simplicity, it is equipped with hydraulically hinged housing for quick access and advanced monitoring systems supporting predictive maintenance. This innovative dryer is perfectly suited for demanding industrial workflows, particularly for film processing, ensuring consistent surface cleanliness and superior drying efficiency.

The new Mechanical Dryer T 150-300 sets standards in large-scale drying, featuring a rotating sieve basket with integrated water spray nozzles for comprehensive cleaning and rapid moisture removal (Pictures: Herbold Meckesheim, Germany)

The Hydrocyclone Separation Stage uses centrifugal forces and turbowasher technology to accurately separate and purify plastic materials, enhancing recycling efficiency and material quality

Granulator

The next size of Herbold's SMS Granulators, renowned for its durability and precision, will also be showcased at Hall 9. The SMS 80-200 Granulator is built for demanding applications. It integrates energy-efficient double cross-cutting action and pre-adjustable rotor and bed knives to produce a high-quality regrind with minimal fines and consistent particle size distribution. Its design emphasizes ease of maintenance, featuring a hinged housing and quick knife change system, ultimately reducing downtime and operational costs.

As the largest model in the series, the SMS 80-200 Granulator's robust construction and forced feeding sys-

tem – via three horizontally mounted screws – enables a high throughput of PET and rigid plastics, making it ideal for large-scale recycling operations.

The SMS series is optimized for a wide range of materials and ideal for the size reduction of standard applications in the recycling industry, as well as special processing needs – for example, heavy lumps, tough fibers, thin films, or substantial amounts of material.

At the Recycling Pavilion: Hydrocyclone Stage – Integrating Precision Separation

At Coperion and Herbold's Recycling Pavilion in the Open Area a Herbold Hydrocyclone Separation Stage, a key component designed to deliver precise material separation through centrifugal forces, can be seen together with a Coperion ZSK FilCo filtration compounder. Herbold's hydrocyclone stage enhances the purification of plastics during recycling, extending equipment lifespan and improving product quality.

The Hydrocyclone system, featuring a robust density separation, accommodates various application needs, providing additional washing and efficient impurity removal. The system includes capabilities for separating residual contaminants such as sand, glass, or metals using heavy medium cyclone technology and high-turbulence washing. The system includes also a friction washer which is capable to remove paper and other fiber contaminants.

System Solution for PET Recycling

Together, the Hydrocyclone Stage and the ZSK FilCo filtration compounder are exemplary exhibits that demonstrate how integrated Herbold and Coperion process modules produce high-quality recyclates. The ZSK FilCo recycling extruder system allows filtration and compounding in a single production step, and works in tandem with the Hydrocyclone Stage to deliver a complete, streamlined system for post-consumer recyclate (PCR) or any highly contaminated polymer reprocessing. This combination ensures the highest levels of purity and efficiency, meeting the stringent end product quality standards.

Additionally, visitors can find Coperion's comprehensive compounding solutions in Hall 14, Booth B19.

The SMS 80-200 Granulator, designed for demanding recycling processes, delivers high throughput with precise size reduction, minimal fines, and a quick knife change system for maximum operational efficiency

Herbold Meckesheim GmbH
www.herbold.com

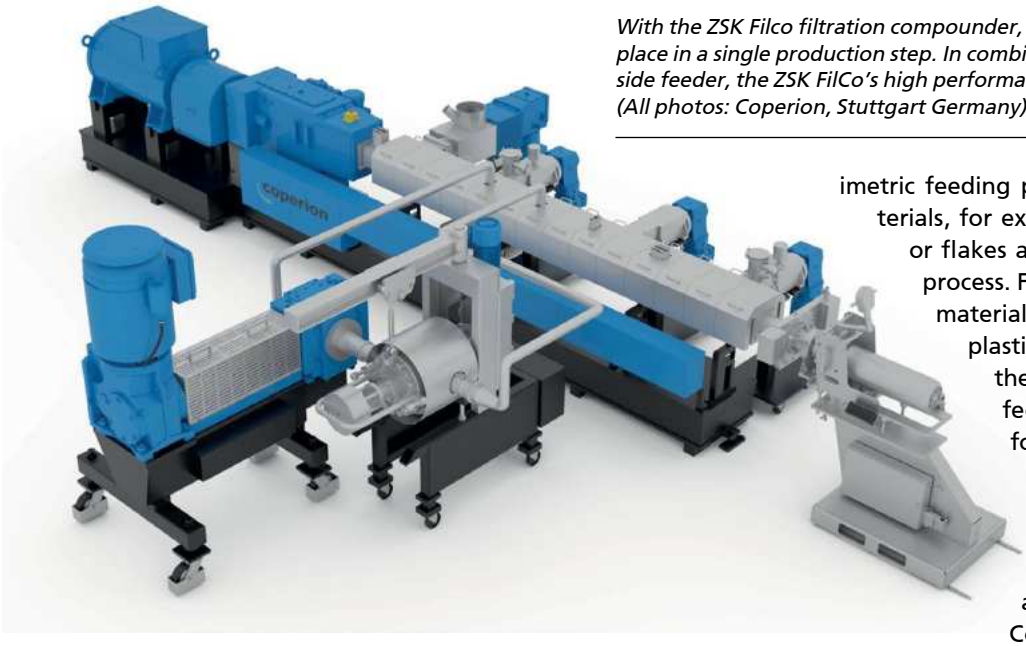
K 2025: Hall 9, Stand B34, FG/CE07, Open Area "The Power Of Plastics Forum", Hall 14, Stand B19

Innovative Interplay of Plastics Recycling Technologies

Coperion, together with Herbold Meckesheim, will present their expertise in various plastics recycling applications at this year's K show. At Booth 9B34 in Hall 9, the focus will be on Herbold Meckesheim's technologies for mechanical processing of plastics waste. On display will be the new T 150-300 Mechanical Dryer and the SMS 80-200 Granulator. In the Open Area, Pavilion FG/CE07, visitors can witness the seamless interplay of all Coperion recycling technologies. On view will be a Herbold Meckesheim Hydrocyclone Stage, the ZSK FilCo filtration compounder, the ZS-B MEGAfeed side feeder, a Coperion K-Tron K3-V200 vibratory feeder, an S60 single screw feeder and the MechaTron® flat bottom feeder. Also on display will be a mobile deodorization unit for reliably removing unpleasant odors from recyclates. In addition to plastics recycling, Coperion specializes in plastic compounding technologies. These core competencies will be on display at Booth 14B19 in Hall 14.

High performance using ZSK FilCo with ZS-B MEGAfeed

In the Open Area, Pavilion FG/CE07, Coperion will exhibit its new ZSK FilCo filtration compounder which enables recyclate filtering and subsequent compounding in one step. In comparison to two-step production lines, the ZSK FilCo handles the product very gently and provides higher quality at significantly reduced energy consumption when recycling post-consumer waste and other highly contaminated polymers. Waste plastics in the form of regrind, fiber pel-



With the ZSK Filco filtration compounder, filtration and compounding take place in a single production step. In combination with the ZS-B MEGAfeed side feeder, the ZSK FilCo's high performance is fully exploited (All photos: Coperion, Stuttgart Germany)

lets, film flakes or agglomerate with no pre-treatment are introduced into a ZSK twin screw extruder where they are melted, homogenized and devolatilized. The melt is then fed through a filter, removing any contaminants. In the subsequent compounding process additives are introduced into the melt prior to pelletizing the compound.

To fully exploit the ZSK FilCo's high performance, raw materials must be supplied at a constant rate with no intake limits. While this can be accomplished either by pelletizing the waste plastic or regrind, or by using a compacting process, these are very energy-intensive processes and increase both capital and operating costs. In contrast, the ZS-B MEGAfeed side feeder, on display in Pavilion FG/CE07, reliably feeds recycled materials with a bulk density as low as 20 kg/m³ into the ZSK FilCo and other ZSK extruders. This allows for recycling and compounding of lightweight, high-volume fibers and flakes at high throughputs.

Coperion K-Tron K3 vibratory feeders are equipped with a unique drive system and are suitable for high-accuracy feeding of recycling materials

Seamless connection of bulk material handling and feeding technology

Coperion is an expert in numerous feeding technologies that stand out with their high-accuracy and easy handling. Representative of this expertise, in Pavilion FG/CE07 Coperion will display a Coperion K-Tron K3-V200 vibratory feeder that excels in providing high-accuracy gravimetric feeding particularly for challenging materials, for example where smaller recyclates or flakes are being fed into the extrusion process. For light and fluffy, hard-to-feed materials such as polypropylene or PET plastic film, Coperion will showcase the MechaTron FB (flat bottom) feeder, a gravimetric feeder ideal for high-capacity recycling operations. Also on display is the Coperion K-Tron S60 single screw feeder, another feeder the provides very high reliability.

Coperion developed its ZRD rotary valve especially for plastics recycling processes. Together with the new drive technology, the new design of the gap between the rotor and housing ensures reliable discharge of flakes.

Entire lines from a single supplier

At K 2025, Coperion will demonstrate how its various technologies work together through an all-encompassing 3D simulation. Visitors will gain insights into the operation of a complete system as well as the function of each individual component. All of Coperion's components and technologies are characterized by high throughput, excellent end-product quality, and exceptional efficiency. For example, Coperion recently successfully commissioned chemical plastics recycling lines at two customer facilities, both capable of processing up to 6,000 kg/h.

Even when recycling PET, processors profit from Coperion's expertise in engineering complete systems, achieving very good end product quality, and providing high throughputs. Pre-drying the PET flakes is not necessary thanks to the effective degassing in the Coperion process. A few weeks ago, Coperion and Herbold Meckesheim installed the first stage of a bottle-to-bottle recycling plant at Magpet Polymer Pvt Ltd in India. The successful startup of the granulators and washing line marks an important step toward launching the full plant, which is designed to process up to 5,500 kg/h.

Likewise, the benefit of such end-to-end line expertise is evident in the effective removal of unwanted odors. All along the entire recycling process, Coperion offers various solutions for reliably deodorizing post-consumer plastics. Odor removal in mechanical processing, devolatilization in the twin screw extruder, and Coperion's EcoFresh Silo devolatilization solutions are available to observe. The interplay of these technologies reliably ensures the desired product quality. Coperion recently installed the EcoFresh silo devolatilization at its Recycling Innovation Center. There, customers can thoroughly test various odor removal technologies using actual products under near-production conditions before making an investment. This allows them to ensure that the final process meets all quality requirements.

With the EcoFresh silo devolatilization solution recently installed in the Recycling Innovation Center, Coperion offers the ability to test devolatilization performance on actual customer products under near-production conditions before investing

Coperion
www.coperion.com

Hall 14 Booth 14B19 ,
Hall 9 Booth 9B34,
FG/CE07, Open Area
"The Power Of Plastics Forum"

Advanced Automation Solutions for Plastics Processing

The future of plastics processing is connected and automated. As the global leader in extrusion lines and tooling, Exelliq will present its latest innovations in production automation, co-extrusion and digital process control at K 2025. The spotlight will be on efficiency and process intelligence for the holistic optimisation of modern extrusion technologies.

Exelliq is advancing intelligent automation with flexible unloading and loading systems based on its iQ.STACK platform - designed to enable fully automated profile handling. For example, when unloading a full rack to feed profile bars into a lamination unit, iQ.STACK separates, aligns and reliably transports the bars. After lamination, the system works in reverse, stacking finished profiles into an empty rack layer by layer according to a specified pattern. In addition to ensuring process stability, iQ.STACK features large reserves capacities to accommodate high production speeds and large output volumes. Its compact design allows easy integration into existing production lines and can be tailored to individual customer requirements.

Exelliq will also highlight an advanced co-extrusion tooling that enables the production of profiles made from multiple materials. Precisely engineered flow channels within the die ensure accurate merging of materials and set new standards in uniform layer distribution. This technology facilitates the maximum use of recycled materials in alignment with circular economy principles and allows for versatile color combinations – ideal for applications in the window industry. Multi-layer solutions are also possible with this tooling system.

The EXTRUSION.EXPERT software solution captures and structures the knowledge of experienced personnel, making it accessible and preserving institutional know-how. With the saved extrusion knowledge, EXTRUSION.EXPERT also supports the targeted training of new specialists. As a centralized knowledge hub, it serves as a powerful troubleshooting tool that delivers solutions at the push of a button - enhancing efficiency and process stability across operations.

DIGI.MASTER is the digital control center of the extrusion line. Acting as the system "brain," it centrally manages the line, continuously records production data, optimises processes and reduces resource waste. Modular add-ons enable intelligent data analysis across the entire plastics processing chain and support integration into existing ERP systems. Tailored specifically for profile extrusion, DIGI.MASTER represents Exelliq's forward-thinking approach to machine learning and artificial intelligence.

Exelliq
www.exelliq.com

K 2025: Hall 16, Stand B19

New TwinPro System for Low Bulk Density Film at Full Throughput

At K 2025, EREMA expands its portfolio to include high-performance twin-screw extruder technology. With the new TwinPro, the Austrian provider of plastics recycling solutions combines the advantages of a twin-screw extruder with the proven strengths of its Preconditioning Unit (PCU) to be used for specific recycling applications.

EREMA spent two years intensively researching, testing, and further developing the twin-screw extruder concept presented at K 2022. Working together closely with customers, they have developed a series production solution that is particularly adept at recycling production waste consisting of demanding multi-layer films. The technology also opens up new perspectives for thin-walled post-consumer regrind material.

"The TwinPro sees us bring a new product to market, and couple our unique PCU featuring Counter Current® technology directly to a twin-screw extruder for the first time," says Markus Huber-Lindinger, Managing Director at EREMA. "As a result, this system sets new standards for specific recycling tasks. During development, we focused especially on combining our strengths in material processing with the advantages of a twin-screw extruder."

Efficient homogenisation of low bulk density film for maximum recycled pellet quality in a single work step

Producing high-quality recycled pellets using complex input materials such as multilayer film consisting of PE-PA or PE-EVOH is a major challenge for the recycling process. This is where the new TwinPro comes in, with its key feature of highly efficient homogenisation.

The first stage of homogenisation takes place in the preconditioning unit (PCU), which shreds, heats, dries, compacts and buffers the input material. Optimised material preparation right at the start of the recycling process lays the foundation for consistently high-quality end products. Thanks to patented Counter Current® technology, the extruder, which is directly coupled at a tangent to the PCU, is continuously filled with heated and pre-compacted material. Even with low bulk density material like film waste, the PCU is able to deliver full throughput. The PCU covers an exceptionally wide bandwidth of input materials, with bulk densities of 30 to 800 grams per litre reliably processed in a single work step, without the need for separate agglomeration, weighing or a stuffing unit.

This is followed by intensive homogenisation in the twin-screw extruder, which is essential for multilayer films so that the different polymer types are mixed in the best possible way. This produces recycled pellets with the improved mechanical properties needed for reuse in multi-layer films.

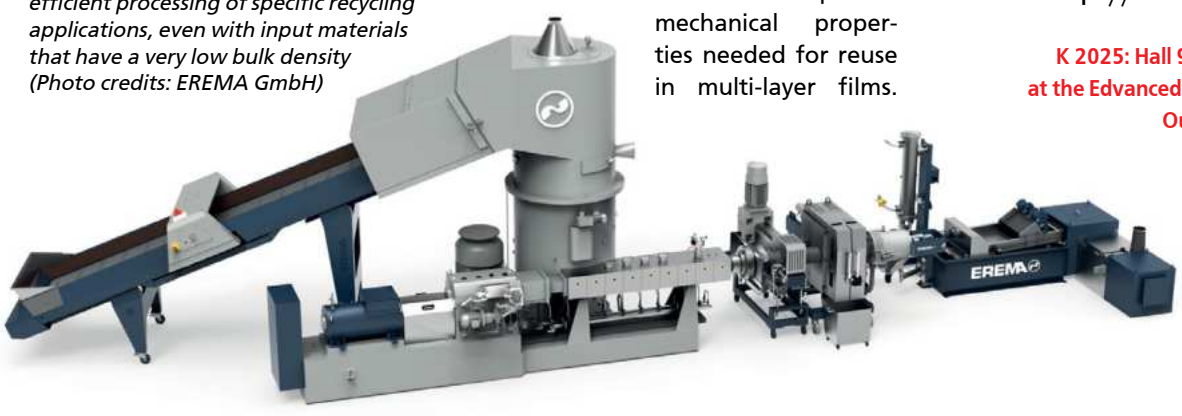
"Our TwinPro demonstrates once again that EREMA is not only a leader in single-screw extruders, but that we also offer high-performance twin-screw solutions that clearly stand out on the market thanks to our proven preconditioning unit," says Markus Huber-Lindinger.

Reliable feeding of very thin-walled post consumer regrind material

Originally developed for complex film waste, the TwinPro now opens up new capabilities for using twin-screw extruders in the recycling of 3D packaging. The trend towards thinner wall thickness for plastic packaging increases the demands on extrusion technology. One particular application is PP flakes that have been sorted and hot-washed from very thin-walled packaging such as yoghurt tubs. This is also a challenging application due to very low bulk density and possible moisture fluctuations of the input material. However, the TwinPro can easily process this type of thin-walled packaging that often causes problems in the material feed on conventional twin-screw systems because of its low weight and high volume. What is more, the PCU reliably removes residual moisture from the washing process and also deodorises the material.

EREMA
www.erema.com
https://edvanced.erema.com/

K 2025: Hall 9, Booth: C09 and at the Edvanced Recycling Centre: Outdoor area, CE03



The new TwinPro from EREMA couples the proven Preconditioning Unit (PCU) directly to a twin-screw extruder, which, as a result, enables the efficient processing of specific recycling applications, even with input materials that have a very low bulk density (Photo credits: EREMA GmbH)

High Quality Extrusion Tooling and Solutions

Guill Tool & Engineering will exhibit at the K Show, Hall 1, Booth C90.

The Guill booth will feature several tools, tips and dies, as well as new developments. These include Cam-Lock, rotary die design, Single-Point Concentricity and the NEW Guill Labs enhancements.

Originally developed for the popular Guill Bullet tool, a unique Guill extrusion head that eliminates fastening hardware with a fixed center design, multi-port spiral flow and gum space adjustment, Cam-Lock is now available on many of the company's existing extrusion heads. The design allows quick and easy assembly and disassembly of the crosshead and eliminates the need for socket head caps screws. By removing and replacing the internals, a different profile can be extruded in minutes rather than hours. Since the Cam-Lock resets the internals in the right configuration every time, there is far less chance of error, compared to the assembly and misalignment issues with torqued socket set screws. It only takes half a turn to remove and install the deflector tip and no fastening hardware is required. Additional features include fast tool changes (threaded retaining ring for the die and threaded tip retainer), dies remove from the front and tips from the back, tooling retainers for gum space adjustment, vacuum connections, simplified cleaning and reduced downtime and operating costs. For a busy shop with multiple products produced or a shop processing challenging materials that require frequent cleaning, this Cam-Lock feature on Guill heads offers significant time, labor and cost savings.

Guill Cam-Lock design

Guill Rotary Die design

By rotating the tooling in relation to the material flow, the new rotary head design increases the wall strength of an extrusion, thereby allowing a thinner wall with less material. Benefits include only rotating the die, randomizing any gauge bands or thickness variations and, in some cases,

Guill Single Point Concentricity design

improving material properties of the end product. Various sizes of tubing can easily be accommodated with this unique design that radically reduces set-up and changeover times. Typical applications for rotary heads include medical and multi-lumen tubing plus various high-end extrusions with interlocking layers or multiple striping requirements.

Guill's Single Point Concentricity extrusion crosshead uses micro-fine adjustment screws for precise concentricity adjustment, reaching 0.008" or finer per revolution. This single point concentricity adjustment is a unique Guill innovation for the extrusion of thin-walled jacketing and precision ID/OD tubing. One adjustment bolt controls 360° of adjustment. Features include the patented Cam-Lock deflector for quick changeovers, with a residence time of one minute at .5 lb/hr material flow, optimized usage with extruders measuring ½" and ¾" and a max die ID of .250." Additionally, the Guill single-point crosshead not only accepts both vacuum and micro-air accessories but is also ideal for pressure and sleeving applications. Fluoropolymer designs are available upon request.

Guill Labs combines the company's state-of-the-art rheology lab services for materials testing with a new facility focused on test extrusion processes. Measuring the flow characteristics of plastics and rubber allows users of the rheology lab to predict how the material will behave, virtually optimize tool geometry and see their project in 3D CAD. The extrusion lab offers single and co-extrusion capabilities with validated Guill designs. Access to exotic extrusion processes such as rotary die extrusion of filament and tubular end-products is also available. Services include extrusion tooling, die cleaning, sample inspection and end-product testing. Users can actually calculate their extrusion run time in the Guill test lab.

Jacob Mancure and Peter Leary from the factory in America will represent Guill during the show, assisted by the team from Guill Tool Europe. Guill markets its products worldwide through a network of sales representatives and in tandem with leading extruder builders.

Guill Tool & Engineering
Tom Baldock, Sales Manager, Extrusion
tbaldock@guill.com
www.guill.com

K 2025: Hall 1, Booth C90

Guill Labs for rheology and test extrusion

System Solutions for the Plastics Industry

At this year's K-Show, the MAAG Group will unveil a host of innovative technologies for the plastics industry, all centered around integrated system solutions in pelletizing, extrusion, filtration, recycling as well as measurement and controls. Visitors can expect a wide range of new products and technological developments.

"Our systems stand for innovation, quality, and efficiency. At K-2025, we will show how technical excellence and smart design are transforming the future of plastics processing," says Ueli Thuerig, President of MAAG Group.

Debut of the PEARLO CS : The new PEARLO CS marks a milestone in compact pelletizing systems. Drawing on the proven PEARLO series, it features the familiar tangential cutting chamber and optimized cutter design. Offered in two sizes, it targets production scales where flexibility and efficiency are essential. "We developed the PEARLO CS specifically for manufacturers who need top-tier performance in a streamlined footprint," explains Product Manager Rico Sandmann.

NG-USG Redefined: With an enlarged rotor diameter and improved water flow, the next generation NG-USG underwater strand pelletizing system enables greater throughput and superior pellet quality. Additional sensors boost process stability. These design enhancements help to achieve consistent quality with increased performance.

Compact Pelletizing System PEARLO CS

EBG – Dust-Reducing Dry Cut Strand Pelletizing System: This semi-automated system offers flexible process control with reduced strand breaks, low moisture content, and minimized dust formation – a reliable solution for demanding applications.

Global Innovation: extrex^6 EC – Gear Pump for Rigid PVC Processing: MAAG unveils a world first: the extrex^6 EC gear pump, designed for conveying rigid PVC. It delivers unprecedented levels of process safety, product quality, and resource efficiency. "With the extrex^6 EC, a new chapter in PVC extrusion technology is opened," says Jonathan Hummer, Head of Product Management Pumps.

BRF & ERF – Double-Stage Melt Filtration for Sustainable Recycling: MAAG introduces double-stage filtration for advanced polymer recycling. As the BRF coarse melt filter enhances downstream equipment protection and ensures stable operation, the ERF fine filter guarantees exceptional pellet quality with minimal material loss.

New NG-USG Strandpelletizer

These filters offer a powerful combination for efficient, low-cost recycling solutions.

CSC-R-DV – Streamlined Screen Changer for Increased Output: The new curved, continuous screen changer CSC-R-DV with integrated start-up position offers up to 50% higher throughput and energy savings, while significantly shortening the production line. Its compact design reduces investment costs and fits perfectly into temperature-sensitive extrusion processes.

PEARLO 350 & CIS System: MAAG introduces the largest underwater pelletizing system for PET production with the PEARLO 350 pelletizer equipped with EAC technology and

New extrex^6 EC for conveying rigid PVC

MAAG Recycling line for advanced polymer recycling

New continuous screen changer CSC-R-DV

new die plate design, ensuring long tool life, precise cutting and reduced fines for premium granulate. For high throughputs, the Central Injection System (CIS) die plate introduces water centrally through the die plate to reduce agglomerates and improve pellet cooling for high-MI polymers.

New Centrifugal Dryer Lab in the US: MAAG has commissioned the new centrifugal dryer lab as a key part of the Centrifugal Dryer Center of Excellence in Eagle Rock, VA. The lab will enable MAAG to further optimize and innovate centrifugal dryers for virgin polymer, recycling, and compounding systems. Focus for the lab include improved energy efficiency, drying performance, noise reduction and to build application specific knowledge for future innovation. For customers, the Centrifugal Dryer Lab can be utilized for drying tests up to 72,000 kg/hr.

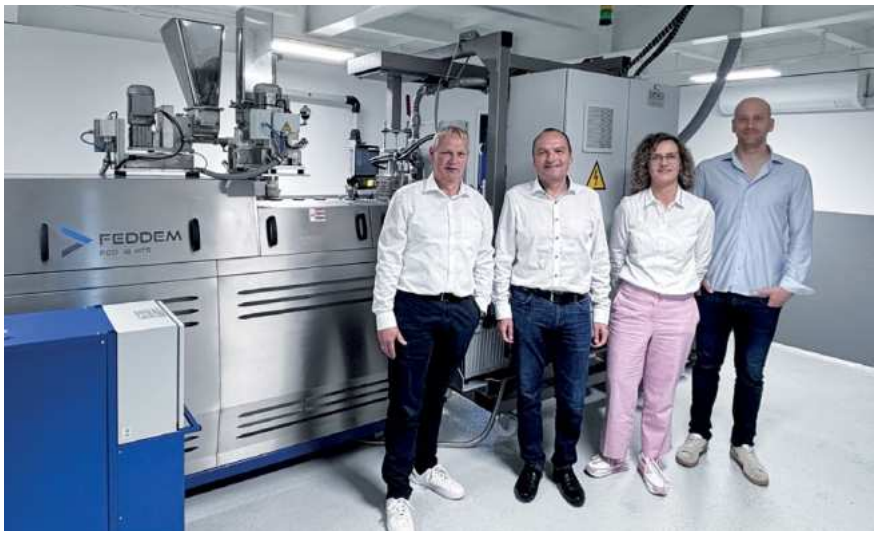
Welcome to the MAAG Group Family: Since June 2025, Sikora GmbH has joined the MAAG Group. Sikora will present their innovative measurement, control, inspection, and sorting technologies for quality control in the plastics industry at K-Show in Hall 10, Booth F14.

MAAG Group
www.maag.com

K 2025: Hall 9, Stand A02

Compact Twin-Screw Extruder for Laboratory Modernisation

The Sinzig-based machine manufacturer FEDDEM has delivered the first model of the newly developed FED 18 MTS laboratory extruder to Polyram – MCT Germany GmbH. The machine concept is specifically designed to meet the requirements of modern formulation and product development. Polyram – MCT is making this investment as part of the comprehensive modernisation of its laboratory at its Bad Oeynhausen site. The extruder is used in particular for the development and quality assurance of thermoplastic elastomers (TPE) and talc-reinforced and glass fibre-reinforced polypropylene (PP-TV and PP-GF) – under realistic conditions with parameters that are almost identical to those used in series production.



From left: Thorsten Burstedt (Polyram – MCT Germany GmbH), Dieter Gross (FEDDEM GmbH & Co. KG), Michaela Kohls (Polyram – MCT Germany GmbH), David Constroffer (FEDDEM GmbH & Co. KG) (© FEDDEM GmbH & Co. KG)

"With the FED 18 MTS, we are expanding our extruder portfolio with a new, compact size," explains Dieter Gross, Managing Director at FEDDEM. "The extruder offers maximum flexibility and precision – ideal for use in laboratory environments, technological development centres and as a pilot plant for the production of sample quantities and small batches."

According to the manufacturer, the modular design of the FED 18 MTS allows flexible adjustment of the process length from 32 L/D to up to 52 L/D without changes to the frame, cooling system or control system. All supply lines are pluggable. Dosing devices can be integrated directly to save space and can be folded away to the side for maintenance, cleaning and conversion. This means that the extruder can be converted particularly quickly and flexibly – a clear advantage for development and scale-up processes. Optional components such as the FSB side feed or the FSV side vacuum degassing create practical conditions for the exact transfer of laboratory data to production lines. The robust design of the FED 18 MTS guarantees high process stability and reproducibility.

FED 18 MTS
(© FEDDEM GmbH)

With its investment in the FED 18 MTS, Polyram – MCT is pursuing its goal of further expanding its own innovative strength. The company's laboratory has been extensively modernised over the past twelve months. In addition to the new extruder, numerous analysis methods are available, including thermal analyses such as dynamic differential calorimetry (DSC) or Fourier transform infrared spectrometry (FTIR), mechanical tests (tensile, impact, hardness), colour and density measurements, and long-term ageing and stability tests. The laboratory supports research and development as well as production support and covers testing requirements from the concept phase to the finished compound.

FEDDEM will present the new FED 18 MTS laboratory extruder for the first time at K 2025. Visitors will have the opportunity to see the innovative technology for themselves and find out about its wide range of applications in development and production.

FEDDEM GmbH & Co. KG
www.feddem.com
K 2025: Hall 15, Stand A42

Xtender Technology Revolutionizes rPET Film & Sheet Production

At the K 2025, MEAF Machines will launch its new Xtender technology. This polymer melt co-processing technology, with exceptional mixing and degassing properties, was developed by MEAF in collaboration with an Italian partner and increases the intrinsic viscosity (IV) value of rPET using an innovative, patented process. The Xtender technology can be (retro)fitted on both single-screw and twin screw extruders, and revolutionizes the production of rPET film and sheet.

The Xtender technology allows the IV to be increased in the liquid state of the polymer by means of polycondensation, also known as LSP. Located directly downstream of the extruder, the melt is transported axially through a disc processor consisting of several wedge-shaped discs, where contaminants and unwanted gases are extracted from the polymer by means of a vacuum. The temperature of the melt is regulated by heating elements and a core cooling element, while the setup includes two inline viscometers to detect and control the IV, as well as an adjustable feed for additives to accelerate the condensation reaction.

An important distinguishing feature of the Xtender technology is that the design allows a specific flow rate, due to repeated passages of the melt over the wedge-shaped discs. The melt surface area achieved with the discs is more than 72 times larger than twin-screw extruders, resulting in highly controlled conditions for the polycondensation reaction.

At the K 2025 MEAF Machines will launch its new Xtender technology, a polymer melt co-processing technology with exceptional mixing and degassing properties (Source: MEAF)

"There is great emphasis in the EU to increase the proportions of recycled rigid packaging material in new products. This new technology allows PET processors to convert low IV Post Consumer Recycled (PCR) and Post Industrial Recycled (PIR) material - from both in-house and external sources - into a high quality sheet," says Ardjan Houtekamer, Technical Director at MEAF Machines. "The next step in the development of the Xtender technology is to obtain FDA and EFSA approval for food grade PET production using 100% recycled material, without the necessity for barrier layers of virgin material."

The Xtender technology was developed with MEAF's core manufacturing values in mind, providing a cost-effective solution that can be modularly integrated into (existing) extrusion lines for both recycling as well as film and sheet production. The Xtender technology will be available to customers globally, starting in Q4 2025 and the first unit will be on display at the K-show in Düsseldorf.

MEAF
www.meaf.com

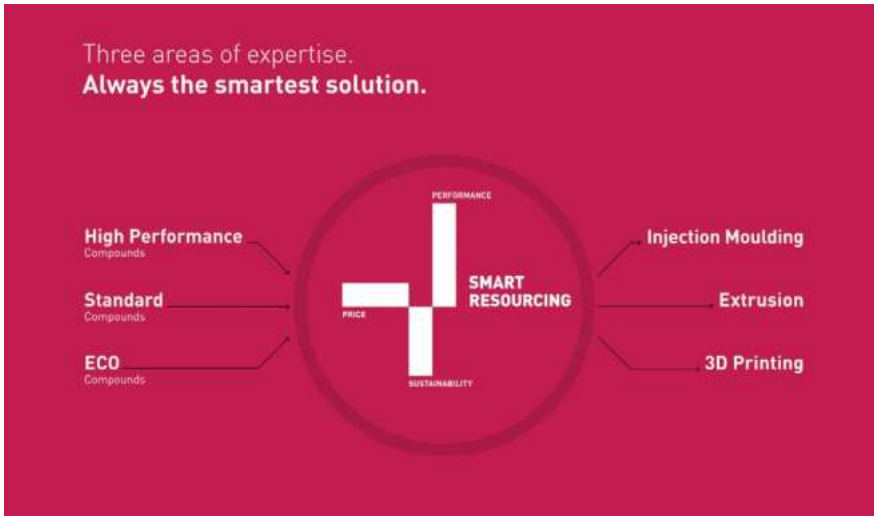
K 2025: Hall 17, Stand A22

Business Strategy with Recycled-Based Metal Replacement Materials Expanded

On the occasion of the K2025 plastics trade fair, LEHVOSS is presenting its expanded business strategy under the theme of "Smart Resourcing." The company is supplementing its established portfolio of high-performance plastics with intelligent solutions for metal replacement materials based on recycled resources.

With this strategic expansion, LEHVOSS responds to evolving market demands and increasing procurement pressures in the plastics industry. "LEHVOSS stands for high perfor-

Dr. Thomas Oehmichen, Partner and Managing Director of the LEHVOSS Group



mance – that remains unchanged," emphasizes Dr. Thomas Oehmichen, Partner and Managing Director of the LEHVOSS Group. "What's new is that, especially with LUVOTECH eco, we are now also offering demanding metal replacement materials based on recycled raw materials, enabling our customers to achieve economically smart resource management."

"The pressure on our customer industries has steadily intensified in recent years – cost pressure, time pressure, innovation pressure, and, in some areas, ongoing procurement challenges," explains Oehmichen. "Only through close collaboration and dialogue with our customers can we successfully overcome these challenges and thrive in the global market."

The Smart Resourcing concept enables customers to achieve the optimal balance between performance, cost-efficiency, and sustainability for their specific needs. This flexible system is precisely tailored to each project's requirements, offering suitable solutions at attractive prices.

The expanded business strategy delivers unique value for clients in three key areas:

Secure Sourcing: By expanding its portfolio, LEHVOSS allows customers to diversify their supplier base, discover innovative procurement solutions, and significantly increase sourcing security.

Attractive Pricing: Eco-based metal replacement materials are offered at highly competitive prices and are tailored exactly to the required performance specifications – without over- or under-engineering.

Consistent Quality: Reliable delivery and consistently high-quality standards provide planning reliability, enabling customers to optimize their production cycles.

At K2025, LEHVOSS will present its expanded portfolio and invites customers and partners to engage in dialogue about tailored Smart Resourcing solutions.

Lehmann&Voss&Co. KG
www.lehvoss.com

K 2025: Hall 8a, Stand G33

45 Years of Experience and Innovation Looking in the Future

Moretto has grown through continuous product innovation, a strong focus on customer needs and a strategic vision capable of understanding the challenges of the market.

Founded in 1980, Moretto leads the evolution of technology in the field of auxiliaries with innovations that raise quality standards of products and optimize energy savings in plants. A technological leadership that not only innovates, but also puts operators at the center, creating automations that support and enhance their daily work. The company has become over the years an international benchmark with 5 production sites, 9 sales branches and a widespread presence in more than 70 countries.

"Anniversaries are a time for reflection, but they are also a springboard for facing future challenges with the same determination and passion that has characterised us for the past 45 years. We have built our history on the courage to never compromise, always pursuing the highest quality," says Renato Moretto, the company's founder and president.

A challenge to do better, day after day

Moretto's growth has been constant, driven by a pioneering spirit that has enabled it to interpret and anticipate the needs and trends of the industry. The company has implemented continuous updates and new organisational and production models, allowing it to guarantee the exclusivity of the solutions it proposes. Moretto engineers' mission is to aim for constant improvement based on ingenuity and scientific rigor. To offer an increasingly innovative product and properly analyse processes and materials, the company invests more than 6% of its turnover in Research and Development and has a state-of-the-art laboratory equipped with unique and exclusive instruments. "To innovate means to go beyond the limit where others stop, to raise a challenge every day to improve oneself and one's own work and to create value for our customers", this has always been the conviction of Renato Moretto.

K 2025 in name of new technologies

Participation at the K show will not only be the occasion to celebrate the 45th anniversary but also to showcase Moretto's new technologies, including the gravimetric batch blender DGM GRAVIX 50, the dryer X COMB 19, the HYPER CUT grinder, the manual manifold with wireless control and OW6, the innovative centralised system management server.

Two years after the launch of the DGM20, the DGM GRAVIX 50 extends the range of the gravimetric batch blenders specifically designed for the micro-dosing of plastic materials. Thanks to the SMD electronic control, the digital technology increases the performance of the self-adjustment algorithms. Additionally, the weighing system performs high-speed sampling, ensuring that data are processed through self-learning functions.

A unique feature of the system is the double eyelid device, which has an unbeatable reaction time of only 25 ms, which ensures accurate dosing. The Rotopulse technology evolves for micro-dosing by means of a pulse system, down to a tenth of a gram in the dosing of masterbatch. The increased capacity of the mixer completes the configuration ensuring first-class performance. Advanced connectivity and readiness for the MOWIS supervisory system make the DGM GRAVIX blenders highly versatile and perfectly suited to the demands of modern industry.

The range of X COMB mini dryers is also expanding with the new XD19 model, which is suitable for processing techno polymers and productions of up to 60 kg/h. Boasting a completely innovative design, the XD19 enhances the construction, technology and performance of the X COMB series. Distinctive features remain the Honeycomb technology in 100% Zeolite with superior absorbent capacity, the exclusive OTX hopper and the Hyper Flow turbo compressors with variable flow, which guarantee a consistent process and high energy efficiency in a footprint of just 0,56 mq.

Gravimetric batch blender DGM Gravix 50

Moretto revolutionizes the concept of granulation with HYPER CUT, a high productivity grinder (up to 1.200 kg/h), ideal for grinding waste pieces, sprues and blown parts with a versatility that surprises even the most demanding professionals in the injection moulding, extrusion, blow moulding and thermoforming sectors. The flexible rotor design allows the cutting elements to be set to process any type of waste pieces, ensuring high performance in all conditions, with unrivalled results in terms of productivity, regrind quality, reduced noise impact and total absence of dust. The perfect balance of power and precision.

Moretto's plastic granule conveying solutions also feature a variety of innovations. The TLC manual manifold allows for the implementation of wireless control, guiding the operator through the correct coupling of materials and machines and providing immediate feedback on the status of connections. A distinctive element that aims to eliminate the possibility

Hyper Cut grinder

of human error, making the process safer, more precise and traceable. The touch-view control offers a simple and intuitive interface for the operator, enhancing safety in the control of the production process.

Maximum efficiency and self-calibration in conveying systems represent the primary needs of the modern plastics processing industry. These needs are satisfied by ONE WIRE 6, the only intelligent system available on the market that implement the exclusive KRONO technology. ONE WIRE 6 is equipped with artificial intelligence and doesn't need to be programmed as it is adaptive. Identifying the machine to be served, it recognises and applies conveying parameters automatically keeping the highest efficiency. Furthermore, KRUISEKONTROL is integrated as standard, thus completing the conveying system with a dynamic granule speed control tool. A system that identifies the operating parameters and performs gentle conveying.

All Moretto systems can be connected to the MOWIS supervising system, an extraordinary ally in everyday work that simplifies the management of complex system and provides an immediate overview of the plant status.

Moretto S.p.A.
www.moretto.com

K 2025: Hall 11, Stand E678

Sustainable Production, Recyclate Processing and AI Methods in the Plastics Industry

The Institute for Plastics Processing (IKV) will be presenting three forward-looking topics at K 2025: The focus will be on the development of a sustainable, fully recyclable 2K soft-touch application, a roller inspection system for improving quality when processing recycled material in flat film extrusion, and a new initiative that supports companies in recognising, systematically evaluating and specifically utilising the potential of digitalisation and artificial intelligence.

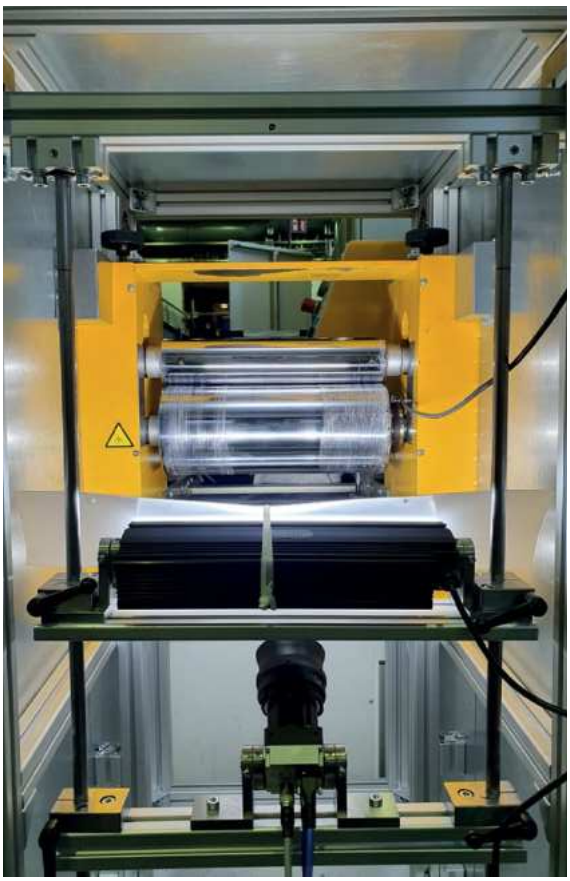
Foam2Cycle

When developing multi-component soft-touch parts, design for recycling and reduction of the product life cycle CO2-footprint are particular challenges. At K 2025, IKV will be presenting a mechanically recyclable lightweight alternative for soft-touch applications that can compete with conventional soft-touch solutions both in terms of optic appearance and haptics. At stand C16 in hall 14, IKV will be producing soft-touch wrist supports for computer keyboards during the trade fair, demonstrating performance, series production potential and economic viability of the new production concept.

Detect before Defect – Inspection system for tracking roll deposit formation during flat film extrusion

To improve quality and productivity in flat film extrusion, IKV has developed an optical inspection system that can be used to track and evaluate the formation of deposits on the calender rolls during the running process. Early detection of deposit formation is crucial because deposits on the roller cause a reduction in film quality, which can lead to interruption of the production process. Especially when processing recyclates, the formation of deposits cannot be predicted due to batch fluctuations. Without monitoring, critical values are only recognised when rejects are already being produced and production has to be interrupted to clean the roller.

The inspection system developed at IKV can be easily and cost-effectively integrated into existing systems. It can also be coupled with an automatic roller cleaning system, which is triggered when a critical amount of deposit is detected. The inspection system is based on the optical detection of gloss changes on the roller surface caused by the deposits. A camera system integrated into the system generates an image of the roller surface for each roller revolution. An image processing algorithm then quantifies the deposit formation based on the grey values of the image so that the deposit formation can be tracked over the extrusion length.



The inspection system is fully integrated into the flat film extrusion line and makes it possible to track and record roll deposit build-up during the running process (Source: IKV)

The inspection system offers small and medium-sized enterprises (SMEs) in particular – which often rely on simple, robust production processes – the opportunity to detect critical roller deposits at an early stage and respond before rejects are produced or unplanned downtime occurs. With this system, IKV now has a test bench that enables the systematic investigation of interactions between plastics and roller surfaces using minimal material quantities. The insights gained serve as a basis for practical recommendations for industrial production.

The IKV booth will feature a simulation of the film extrusion process using a rotating chill roll fitted with the inspection system. The roller is prepared in sections with various deposits to simulate typical build-up effects.

As in the real process, the integrated camera constantly creates new images of the roller surface for live evaluation of the deposits based on the grey scale and for tracking deposit formation.

The development of the inspection system was part of the research project "Increasing productivity and film quality in flat film extrusion by preventing the formation of deposits on chill rolls", which was nominated as a finalist for the IGF Project of the Year 2025.

KI4KI –Artificial Intelligence for the Plastics Industry

Digitalisation and AI methods offer realistic solutions to meet the numerous challenges facing the industry in a future-proof manner. With its expertise in this field, IKV has launched the initiative KI4KI - Artificial Intelligence for the Plastics Industry. It aims to promote the systematic use of AI methods along the entire plastics product life cycle by creating a network of companies from the plastics and digital industries for the practical implementation of digital and AI-supported solutions.

By participating, companies gain the expertise to recognise the potential of digitalisation and artificial intelligence (AI), systematically evaluate it and use it specifically for their product development and production processes in order to gain sustainable competitive advantages.

KI4KI offers workshops and expert talks, practical technology demonstrations, bilateral consulting for AI strategies as well as a digital knowledge platform and community. As a systematic process it comprises four phases:

1. Analyse: Analysing status and potential based on anonymous interviews
2. Understand: Imparting practical basic knowledge about AI in plastics processing
3. Enable: Developing skills to identify and prioritise specific fields of application
4. Apply: Development of individual implementation strategies and transfer of AI applications into operational practice

The KI4KI - Artificial Intelligence for the Plastics Industry initiative addresses all players along the value chain and aims to enable companies to assess the potential of digital and AI-supported solutions for their own applications and implement them in a practical manner (Source: IKV)

KI4KI is aimed at all players along the plastic product life cycle: material manufacturers, mechanical engineers, software developers, product designers, plastics processors, testing laboratories, measurement technology manufacturers, IT and digitalization partners and raw material suppliers. A particular focus is on AI-supported optimisation of the product development process, for example through virtual design, simulation-based methods and data-driven enhancements. Another important topic area is increasing efficiency and improving quality in production, for example through predictive maintenance, automated quality monitoring and data-based process monitoring. IKV will be demonstrating a practical implementation of this in the production of wrist support (Foam2Cycle) at its K 2025 stand. In addition, KI4KI deals with cross-cutting issues such as data management, regulatory requirements, data sovereignty and ethical aspects, thereby also supporting the strategic positioning of the companies involved in the digital transformation process.

IKV will be presenting KI4KI in detail to the general public for the first time at K. At stand C16 in hall 14, interested companies will find ample opportunity for a detailed discussion of AI methods and digitalisation for the plastics industry and participation in KI4KI with IKV's scientific staff.

IKV, the Institute of Plastics Processing at RWTH Aachen University
www.ikv-aachen.de
www.osphim.com

K 2025: Hall 14, Stand: C16

Innovative Solutions for Maximum Efficiency in Plastics Processing

The motan Group will be exhibiting at the K Show with a strong product portfolio for a wide range of applications in plastics processing. Highlights include new offerings from the cost-effective swift product range and intelligent solutions for the automation of extrusion processes.

swift – A powerful response to current market conditions

With its new swift product brand, motan is introducing cost-effective solutions for auxiliary equipment in materials management. The standardized units offer the usual motan quality and are equipped with state-of-the-art control technology. They have been specially developed for companies that do not want to compromise on efficiency, reliability, and ease of use, especially when faced with increasing cost pressure.

The swift series covers the entire product range for materials handling, from dosing and mixing to drying and conveying. Highlights at the booth include:

• sDRY 40/80: A flexible and compact small, dehumidified air dryer range with multiple bin combinations possible, focused on energy efficiency.

• sCOMPACT: A flexible dehumidified air dryer with integrated conveying and optional control of an additive dosing unit via its color touch display.

• sCONVEY HES: A compact single-phase material loader for granulates with intelligent control for demand-based material supply.

sDRY 40/80 – Flexible and compact energy-efficient small dryer

• sCOLOR V Additive dosing and mixing unit: Ideal for masterbatch and regrind dosing applications, offering fast delivery and cost-efficient performance.

"Our swift products prove that affordable solutions do not have to compromise on quality, control, or sustainability. They are our direct response to a market environment that demands both efficiency and affordability," says Carl Litherland, CMO of the motan Group.

For even more convenience, numerous swift products are available in the online shop. They can be ordered 24/7 at https://shop.motan.com/, with transparent prices and short delivery times.

sCOMPACT – Compact dryer with integrated conveying

sCONVEY HES – Single-phase material loaders for granulate

sCOLOR V – Consistent and accurate masterbatch dosing

GRAVICOLOR 110 med – The FDA-compliant solution for dosing & mixing plastic granulate for the medical and pharmaceutical industry

METRO G med – The FDA-compliant solution for the conveying of plastic granulate

Precise applications for the most demanding requirements – medical technology & extrusion

motan provides sophisticated system solutions for areas with particularly high requirements for traceability, precision, and hygiene, such as medical and pharmaceutical technology and extrusion. The GRAVICOLOR 110 med and METRO G med are specially designed for pharmaceutical and medical plastics processing. They comply with FDA standards and guarantee maximum process reliability for sensitive materials.

Consistently high quality and precise process control are crucial for extrusion. motan offers with the new SPECTROFLOW intelligent system solutions that are tailored specifically to the requirements of continuous extrusion processes. These volumetric and gravimetric dosing and mixing systems are intended for both flood-fed and starve-fed extruders. The new GRAVIFLOW loss-in-weight hoppers are designed for gravimetric throughput measurement of free-flowing bulk solids such as granulates and regrinds. They are available in various sizes and cover throughputs from 1 to 1,500 kg/h. The GRAVIFLOW units are characterized by their high flexibility when it comes to integration into control systems.

motan Gruppe
www.motan-group.com

K 2025: Hall 10, Stand D02/04

GRAVIFLOW – Reliable and accurate gravimetric throughput measurement

The Future of Extrusion – *Significant Material Savings and Smart Process Control*

At the K 2025, Promix Solutions will be presenting solutions for mixing, foaming and cooling for the plastics industry. The focus is on raw material savings with the Microcell Technology and real-time monitoring and process control with the Visco-P inline viscometer. The inline viscometer is now available with a closed control loop for connection to a dosing device. This enables fully controlled raw material management depending on the viscosity measured in the production process, such as for example the control of the IV value in PET processing.

In extrusion, material accounts for 80 % of the CO2 footprint. This is where Promix comes in. Microcell Technology creates a microcellular foam structure in the polymer by adding environmentally friendly atmospheric gases. This reduces the product weight by 20 to 50%, resulting in

Dr. Krischan Jeltsch (Photo) joined Promix in April 2024 and takes over the position of CEO from Rolf Heusser, who is gradually withdrawing from the operational business and focusing on the management of the Supervisory Board

The "Visco P" inline viscometer is now available with a complete control loop and, in combination with a dosing device, enables the control of an additive based on the viscosity measured in the production process (Pictures: Promix Solutions AG)

significant material savings. This not only reduces production costs but also protects the environment.

Promix Microcell Technology is mainly used for films, sheets, foam core pipes, profiles and cable sheathing and works for almost all polymers. In addition to saving polymer, new product properties associated with foaming, such as weight reduction, improved noise or heat insulation, better shock/impact absorption, light-diffusing optics or other visual and haptic effects, are often an additional incentive for using Promix Microcell Technology.

At K, Promix will be showcasing relevant key components and providing information on the possibilities within the specific fields of application. One promising new field of application is the foaming of monofilaments. Promix is currently developing foamed monofilaments for artificial grass together with an industrial partner.

Microcell technology is available for both, newly planned extrusion lines and as a retrofit solution for existing lines. To date, more than 350 industrial references are on the market and various machine manufacturers are successfully integrating the technology into their lines.

The gas dosing system, the heart of the physical foaming process, has been equipped with a modernized graphical user interface for even easier operation. In addition, an improved grade of Procell nucleation additives is available, ensuring even finer cell structures. In higher dosages, it also acts as a foaming additive. This can be helpful in extrusion lines with very low throughputs or for preliminary testing, since additive foaming does not require any changes to the extrusion line. The experts at Promix will be happy to advise you.

The increasing use of recyclates and raw materials from different sources makes it more and more difficult to keep extrusion processes under control. The inline viscometer "Visco-P" measures the actual viscosity under processing conditions and in real time directly in the melt stream, without any bypass or loss of material. The maintenance-free measuring module, which is tailored to the application, homogenizes the melt without the risk of clogging, deposits or decomposition. The Visco-P is therefore ideal for recyclates as well as filled and shear-sensitive materials.

At the K trade fair, Promix will be demonstrating how Visco-P can be used to measure and control the IV value during PET extrusion. The system has a closed control loop into which a dosing device can be integrated As soon as the IV value measured in the production process falls below the target value, the software triggers the dosing of an IV enhancer until the quality of the melt has reached the desired level again. The same logic is possible in PP recycling by dosing respective chain extenders.

Trend evaluations and reporting tools enable the measurement results to be recorded with statistical analysis. User-selectable limit values for the viscosity trigger an alarm and show the operator current deviations from the target value. This means that corrective measures can be taken immediately, even without a control loop.

The Visco-P inline viscometer is compatible with all common extruder types and almost all polymers and can be retrofitted to existing systems. All common interfaces are optionally available to flexibly network the new products with Industry 4.0 platforms.

Promix Solutions AG
www.promix-solutions.com

K 2025: Hall 9, Stand E18

Anti-Fouling Additive for the PE and PP Polymerisation Process Introduced

Palsgaard, a leader in plant-based additives for the plastics industry, has introduced a safe, sustainable anti-fouling additive for the polypropylene and polyethylene polymerisation process. Developed from renewable raw materials, the food-grade additive Einar® 987 has been developed to address concerns about the ethoxylated amine (EA) chemistry currently used.

The active compound of Einar® 987 – which is supplied as a clear, viscous liquid – is a polyglycerol ester (PGE) blend of fatty acids from vegetable oils. As a non-toxic and food-contact-approved anti-fouling additive, it offers a drop-in, regulatory-compliant solution to replace the incumbent EAs.

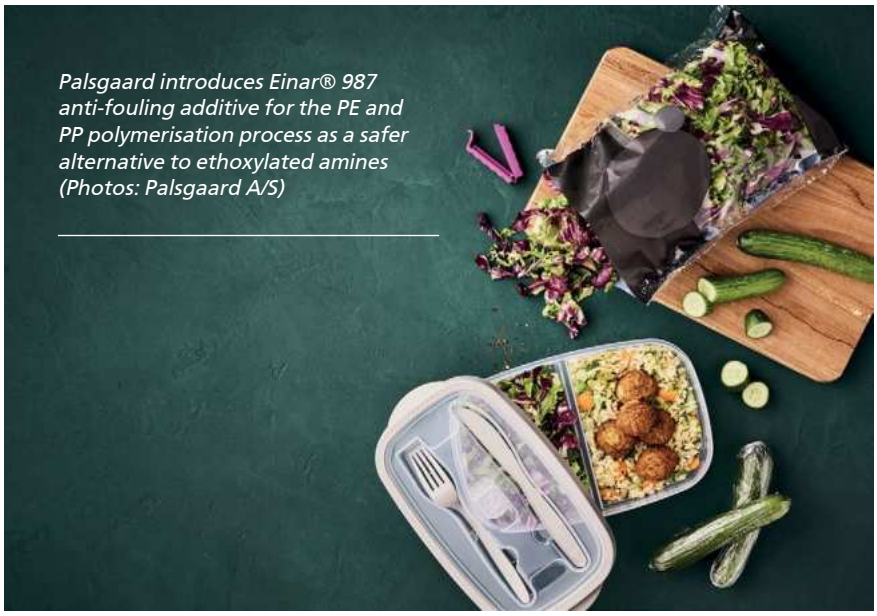
When developing Einar® 987, Palsgaard drew on its extensive knowledge of anti-static and food-safe chemistries. The company considered a number of parameters when developing this new formulation, focusing on creating an additive that would offer at least equal performance while also being both safer and more sustainable than currently available options.

"Polyolefin resin producers stand to benefit directly from this technology, as its anti-static properties help to ensure the polymer powder does not cling to the reactor wall during polymerisation. This serves to stabilise the reaction temperature, sustain a high production performance and enable consistent product quality," said Laura Juhl, Application Manager for Palsgaard's Bio-Speciality Additives.

Safety concerns over amine chemistry have led resin makers to seek alternatives for some time now. Einar® 987 is effective at low dosages of just 100 to 300 ppm and helps to deliver long catalyst mileage without any compromise in performance.

Palsgaard, which has been developing plant-based solutions since 1917, has already conducted several successful trials of Einar® 987 with resin producers. Additional evaluations can be supported by the company's technical team to facilitate smooth adoption of the new, safer chemistry.

Einar® 987 is one of several products that Palsgaard will be showcasing on its booth at the upcoming K 2025 trade show in Dusseldorf, Germany.

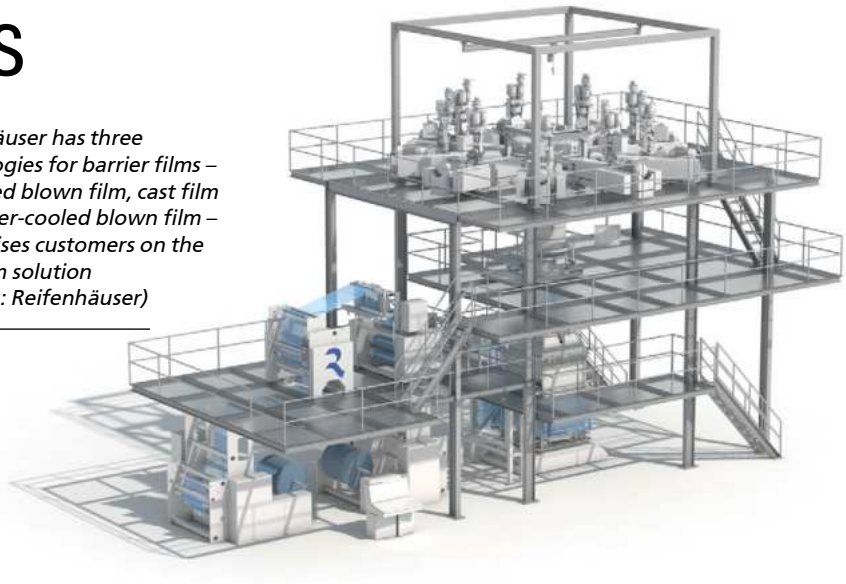


Palsgaard introduces Einar® 987 anti-fouling additive for the PE and PP polymerisation process as a safer alternative to ethoxylated amines (Photos: Palsgaard A/S)

Palsgaard A/S
www.palsgaard.com

K 2025: Hall 7, Level 1, Booth C15

Performance Standards for Barrier Films



Reifenhäuser has three technologies for barrier films – air-cooled blown film, cast film and water-cooled blown film – and advises customers on the optimum solution (Pictures: Reifenhäuser)

Reifenhäuser has three line technologies for barrier films: cast film, air-cooled blown film and water-cooled blown film. At K 2025, the extrusion specialist will be presenting its new developments, which offer higher performance and top quality at lower production costs.

Barrier films are used in a wide variety of packaging types - especially in the food, medical and hygiene industries. The desired barrier properties are achieved through a precise multilayer structure of the film and the use of special materials. The trick is to achieve a high throughput with stable quality despite complex multi-layer processes and to reduce expensive barrier raw materials, such as EVOH, to a minimum. Thanks to the three system technologies in this application area, Reifenhäuser is one of the few suppliers on the market that can advise producers on all technologies - depending on product requirements or production volumes.

Marcel Perrevort, CSO of the Reifenhäuser Group, says: "With our systems, producers are already achieving the highest throughputs with optimum quality and barrier properties. We will continue to expand this leading competitive position with our developments and introduce clever features that bring our customers measurable added value."

Cast film systems are the ideal technology for high production volumes of barrier films. They also have a technical advantage. In flat film production, encapsulating the barrier layer prevents expensive barrier raw materials from reaching the edges of the film, which are cut off before winding. The edge trim can then be immediately fed back into the production process.

The result: the film edges consist only of the more cost-effective raw material - producers can save up to 150,000 euros per year on average. Reifenhäuser is presenting a particularly elegant solution for this at K 2025, in which the encapsulation of the barrier layer is not carried out at the die, but already in the coextrusion adapter. This eliminates the investment and operating costs for an additional extruder, which is necessary with other solutions. The solution also speeds up the start-up process, as there is no need to set up the encapsulation extruder.

For further efficiency gains, Reifenhäuser cast lines can be automated on request with the proven PAM option (precise, autonomous, mechatronic). The patented system controls the coextrusion adapter and die via mechatronic actuators and carries out product changeovers fully automatically. Reifenhäuser is presenting a new generation of the solution at K, which will significantly increase the level of automation even further thanks to new features. Producers will thus become independent of the shortage of skilled workers and save energy as well as raw materials at the same time.

Due to their principle, blown films are suitable for smaller production volumes and, in addition to lower investment costs, offer specific advantages such as outstanding individual layer distribution. With the new developments, Reifenhäuser is significantly increasing throughput – for both PA and EVOH barrier films – from 800 to up to 1,000 kg/h, for example, with a film width of 2,600 mm. The 25 percent increase, which offers producers an enormous productivity advantage, is due in part to a new generation of cooling systems. Precise sensor technology and temperature regulation ensure bubble stability and the highest film quality at all times.

For barrier applications with special requirements in terms of puncture resistance, transparency or thermoformability, it is important to keep the crystallinity of the film as low as possible. Reifenhäuser offers a special process for this: EVO Aqua Cool blown film lines. The shock-like water cooling cools the plastic melt extremely quickly, which inhibits or even stops crystallization. EVO Aqua Cool is particularly suitable for customers who require a slightly thicker film, but still attach great importance to transpar-

ency, because the thicker the film, the clearer the advantages that result from the rapid cooling of the film. Thermoforming films, lidding films, vacuum skin packaging or vacuum bag packaging are typical products in which EVO Aqua Cool shows its strengths.

"Regardless of the barrier application in which our customers operate, we have a comprehensive technology portfolio that is designed to achieve the optimum balance between maximum performance and quality. At K 2025, we will be demonstrating the specific advantages and advising on the optimum customer solution," says says Marcel Perrevort.

Reifenhäuser
www.reifenhauser.com

K 2025: Hall 17, Booth: C22

To Outline Sustainability Strategy at K 2025

Polyplastics Group will update its set of sustainability commitments at the upcoming K 2025 exhibition. The company will announce new technologies that are aimed at reducing the company's global environmental footprint and accelerating progress towards a cleaner and healthier world.

The drive to a circular economy includes the establishment of two carbon emission reduction goals. By 2030, the Daicel group including Polyplastics plans to reduce greenhouse gas (GHG) emissions by 50% compared to 2018. The company also targets a 30% reduction in its cradle-to-gate product carbon footprint (PCF) compared with 2018.

As part of its sustainability strategy which includes DURACIRCLE® Sustainable Solutions, Polyplastics will unveil unique technologies including the development of POM-to-POM chemical recycling technologies, and PBT-to-PBT solvent-based recycling processes. The company is also focusing development work on bio-based p-hydroxybenzoic acid (PHBA), which is a key monomer for LAPEROS® liquid crystal polymer (LCP) and AI-aided mechanical recycling technology.

"As a leading material supplier, we are creating strong partnerships with the rest of the industry, enabling us to rethink and redesign plastics so that we can deliver strong economic, social, and climate benefits," said Hidekazu Kitayama, managing director of Polyplastics Europe GmbH.

Polyplastics announced the development of POM-to-POM chemical recycling technology which facilitates 100% re-generation to engineering plastics. This unique technology is currently in demonstration phase with a targeted launch in 2028.

Polyplastics is also developing PBT-to-PBT solvent-based recycling technology which can segregate glass-reinforced PC/PBT into its GF, PC, and PBT constituents. This technology will enable the recyclability of waste PBT-based compounds. The company recognizes a responsibility to continue working on recycling technology for plastics products which are now regarded as non-recyclable.

For bio-based PHBA, Polyplastics believes there are multiple approaches to derive green PHBA. The company is considering several methods since a transition to a circular economy will rely on a combination of possible circular-attributed approaches.

The company's sustainability push also targets molecular structured bio-based polymers. A joint development project between Daicel and Polyplastics takes advantage of Daicel's wood chemical technologies, clearing a path to a new polymer base which can only be made from biomass.

Polyplastics Co., Ltd.
https://polycsr.com/en/
https://www.polyplastics-global.com/en/

K 2025: Hall 7A, Stand B02

New Polymer Solutions to Drive Progress in Packaging, Durables and Infrastructure

New Polypropylene and Polyethylene grades deliver enhanced durability, aesthetics and processability – empowering converters with application-specific solutions across packaging, infrastructure, and consumer goods

OQ, Oman's global energy group, has introduced 17 new application-focused polymer grades over the past year – reinforcing its commitment to delivering transformative material solutions tailored to address global megatrends such as food preservation, water security, and energy saving. These grades will be showcased for the first time in Europe at K 2025, the world's leading plastics and rubber trade fair in Düsseldorf.

Representing one of the most significant expansions of OQ's polymer portfolio to date, the grades span polypropylene and polyethylene families – engineered to address evolving global megatrends and meet the future performance, sustainability, and efficiency demands of converters worldwide.

"This expansion reflects OQ's commitment to delivering application-focused solutions that align with what matters most to our customers – durability, speed-to-market, and operational-efficiency," said Abdulrahman Al Tamtami, Vice President, Global Marketing at OQ. "These aren't just new grades – they're new possibilities for our partners across the value chain."

A Broad Portfolio to Help Solve Real-World Challenges

The 17 new grades include:

• 6 PP Impact Copolymers for rigid packaging applications including thin walled packaging, housewares and durables, offering excellent flow and stiffness-impact balance.

- Notable: Luban EP2348T for high-speed thin-walled packaging.

• 4 PP Random Copolymers with enhanced transparency and organoleptic performance, ideal for housewares, closures, and food containers.

- Notable: Luban RP2251T – improved shelf appeal and faster cycle times with energy savings.

• 2 PP Homopolymers tailored for spunbond nonwoven applications, offering superior fiber strength and processing stability.

• 5 Polyethylene grades, including a rotomoulding grade (Luban LL-8446.21), developed for water storage and road safety applications delivering excellent impact, durability and UV resistance.

These grades are engineered to meet a wide range of evolving industry needs, including food packaging that helps reduce food waste and energy consumption; durable water storage solutions that support urban growth and water security; and transparent, reusable rigid packaging that not only enhances aesthetics and functionality, but also offers a sustainable alternative to single-use plastics. In addition, the portfolio supports the development of robust consumer goods designed to improve everyday convenience while meeting the rising demand for long-lasting, resource-efficient products.

OQ Launches 17 New Polymer Solutions to Drive Progress in Packaging, Durables and Infrastructure (Photo: OQ)

Customer Success, Fast-Tracked by Technical Expertise

With a full spectrum of polymer offerings, OQ is a comprehensive solution partner for converters. The new grades are backed by strong technical support, regulatory compliance (including REACH), and a commitment to customer collaboration.

"We developed these grades to meet the needs of our customers and the market—from early trials to commercial success," said Cihan Cabuk, Head of Market Development & Innovation at OQ Marketing. "At OQ, we aren't just focused on launching polymer grades. We are focused on continuous innovation through solutions which enable food & water security, energy savings, and convenience."

To match this growing portfolio, OQ has also invested in supply chain agility, including floating warehouse solutions for customers located in the United Kingdom, Europe, and Turkey that reduce delivery times from 30+ days to as little as four.

With a broad product portfolio, faster delivery times, and hands-on technical advisory, OQ is helping converters tackle today's most pressing demands – while staying ready for what's next. As industries push for higher performance and faster time-to-market, OQ stands ready with proven solutions, trusted service, and the agility to grow alongside its partners.

OQ

www.oq.com

K 2025: Hall 6, Stand A23

Innovative and Sustainable Solutions for the Plastics and Rubber Industry

As a global plant manufacturer and reliable partner for future-proof, networked and sustainable solutions for high-quality bulk and raw materials, Zeppelin Systems will be showcasing its portfolio at K 2025. As part of the trade fair motto "The Power of Plastics! Green – Smart – Responsible." the company presents its diverse solutions to the trade specialist audience.

Plastic is a versatile material that is widely used worldwide due to its functionality, durability and economy. As a plant engineering company, Zeppelin Systems has been supporting the plastics processing industry for decades – not only in the manufacturing process, but also in processing, reprocessing and recycling. The portfolio includes solutions for storing, conveying, mixing, dosing and weighing plastic materials – complemented by comprehensive automation and services.

Sustainability is increasingly in focus – both in the manufacturing process and in the recycling of plastics, which is becoming more and more important as a core element of the circular economy. At K 2025, Zeppelin Systems is therefore focusing on the theme "Rethink plastics for a smarter future" and presenting innovative solutions for future-proof plastics processing to the trade audience. "As a global plant manufacturer and a foundation-owned company, we develop sustainable solutions and processes for our customers. Every project phase is supported by us in partnership and in close coordination with our customers,"

Plastic with a future: Smart, Sustainable, powerful (© Zeppelin Systems GmbH)

explains Hubert Stojanovic, Chief Sales Officer of Zeppelin Systems GmbH, the recipe for success.

TriplePlus: Protect Resources, Simplify Processes, Optimize Results

At K 2025, Zeppelin Systems will be showing how plastics processing can be completely rethought – efficiently, sustainably and digitally. The focus is on three key principles: "Protect Resources – Simplify Processes – Optimize Results".

This triad shapes the entire product and solution portfolio – from development to operation and service. The aim is to protect resources, make processes smarter and measurably improve the results for the customer.

Shaping the Circular Economy – Protect Resources

Zeppelin Systems has been active in the plastics recycling market for years and is making an important contribution to strengthening the circular economy with innovative technologies. The company offers solutions for almost the entire process chain – from storage and conveying to the agglomeration and compaction of fluffy materials to compounding and deodorization.

Especially for light fractions such as films, fleeces or fibers, Fluff-TEC® ensures a homogeneous, good flow mass that can be processed efficiently and at the same time reduces the storage volume.

Another key process step is deodorization: With Fresh-TEC®, Zeppelin Systems uses air flushing to remove volatile organic compounds from the recycled material. This means that high-quality recyclates can be reused even in sensitive applications – certified according to FDA and EFSA.

Embracing Digitalization – Simplify Processes

Digital solutions play a central role on the road to smarter plastics processing. That's why Zeppelin Systems develops scalable plant concepts that are customized to product, raw material, and customer goals. Whether powders, granules or liquids – our in-depth understanding of materials and processes forms the basis for sophisticated, digitally networked systems. From planning and engineering to commissioning, every solution is conceptualized holistically and future-oriented – with tools such as FEED studies, 3D scans and end-to-end process automation. This creates highly transparent, reliable processes with a focus on zero waste and zero emissions – in line with the trade fair's theme.

Caring about People – Optimized Results

High performance starts with responsibility. Zeppelin Systems combines innovative technology, precise components and sustainable process solutions to create plants that are environmentally and economically convincing – while always keeping people in mind. A high degree of automation, low energy consumption and sophisticated operating concepts ensure efficiency, safety and protection of the environment and employees. Whether for new projects, revamping or during ongoing operation – Zeppelin Systems accompanies all life cycles of a plant. The goal: maximum availability, minimum downtime and consistently high productivity. For a smarter and more sustainable plastics industry, the service team is available face-to-face or digitally with customized solutions, first-class support, and worldwide installation and commissioning.

Zeppelin Systems GmbH
zeppelin-systems.com

K 2025: Hall 10, Stand C14

Precision in Every Dimension

ZUMBACH Electronic exhibits at K 2025 showcasing their latest innovations in non-contact measurement and control solutions for extrusion and production lines.

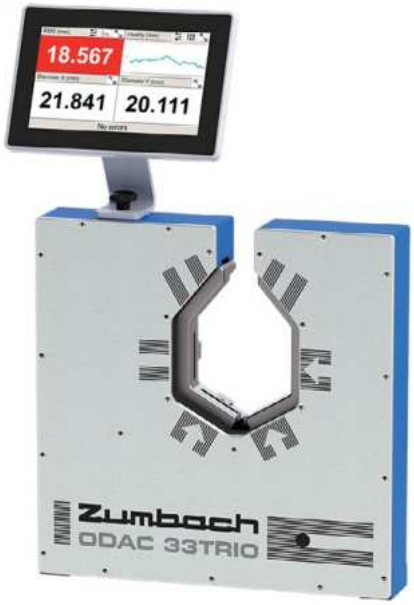
ZUMBACH's cutting-edge technologies are driving efficiency, precision, and quality, as well as saving waste materials and production costs across a wide range of applications.

UMAC® CI ultrasonic wall thickness processor – the success story continuous

Zumbach's 40 years of Ultrasonic measuring experience and expertise has led the company to develop the UMAC® CI –- a compact, high-tech wall thickness data acquisition system that comprises of a processor and associated sensor. Designed specifically for use in extrusion lines for measuring and logging wall thickness, eccentricity and other relevant parameters. It utilizes the newest measuring algorithms which make for easy integration and setup as well as providing visualisation of the measurements via the embedded Webserver.

RAYEX® S x-ray wall thickness measuring system – the new CORE version is available

Zumbach's all-in-one solution for measuring wall thickness, ovality, eccentricity and diameter, the RAYEX® S can measure product sizes between 4 mm and 100 mm, with wall thickness testing from 0.3 mm. It is a calibratable and certifiable solution that provides automatic control of the line speed or



the extruder output capacity, and enables easy product recipe creation.

PROFILEMASTER® PMM laser triangulation geometry form measurement – the new PMM 130 / 160 are available

The PROFILEMASTER® is a non-contact measuring system for real-time monitoring of continuously manufactured products. It generates a complete log for each production run, while significantly reducing start-up times and scrap. Thanks to its unique concept, accurate and reliable measurements can be guaranteed for virtually any profile shape, regardless of the position and/or twist.

SIMAC® surface inspection system – the type family is completed with the SIMAC 120

The SIMAC® surface inspection system provides you with a state-of-the-art solution that utilizes image processing to detect and identify material defects and anomalies in the production of pipes and hoses which would otherwise negatively impact profitability and product reliability.

ODAC® laser diameter and ovality gauges – a success story for its own

Renowned for precision, over 100,000 ODAC® laser measuring heads have been put to use globally in the past 60 years. They provide the highest non-contact measuring accuracy of diameter ovality and position for your plastic tube, pipe and hose manufacturing. Their excellent price-performance ratio optimizes production costs as well as improving overall product quality, eve in the harshest conditions.

Whether you are manufacturing the smallest medical tubes, medium-sized tubes, complex profile extrusion, mono and multi-filaments or even automotive tubes and hoses, Zumbach's range of advanced extrusion measurement solutions ensure precision, quality and efficiency, not only through your production processes, but by reducing waste, start-up times and machine downtime.

ZUMBACH Electronic at K 2025

- Live product demonstrations of their latest technologies and systems showcasing real-time, non-contact measurement for extrusion and profile applications.
- Expert consultations on process optimization.
- To gain insight into Industry 4.0 integration and data connectivity and see how ZUMBACH systems integrate with smart factory environments for next-generation manufacturing.
- To understand the long-term value that ZUMBACH can offer your operations with decades of global expertise and a strong local presence, combining world-class innovation with personalized service and support.

ZUMACH Electronic AG
www.zumbach.com

K 2025: Hall 10, Stand E27

K 2025 – *A Wide Range of Guided Tours*

During K 2025, from 8 to 15 October in Düsseldorf, visitors will have the opportunity on several days to take part in thematically focused guided tours. These tours combine expert knowledge with targeted orientation – ideal for getting an overview of the latest developments in your specific field of interest, presented directly at the booths of relevant exhibitors.

Innovative materials & forward-looking design

The Materials & Design tour with renowned designer and materials expert Chris Lefteri is aimed specifically at creative professionals, product developers and designers. It takes visitors to exhibitors who are setting standards with innovative materials, sustainable concepts and new technologies in the field of materials and industrial design. Chris Lefteri explains which design trends he considers particularly relevant for the future – and how functional, sensory and emotional values can be combined in modern plastic solutions.

Digital solutions, smart processes & sustainable recycling

Greater efficiency, resource conservation and sustainability – digitalisation is fundamentally changing the plastics industry. Various themed tours focus on intelligent production processes, the use of artificial intelligence and innovative recycling solutions. Participants experience first-hand

how companies use digital technologies to achieve greater transparency, process reliability and sustainability. The tours include visits to the VDMA's Power of Plastics Forum and exhibitors showcasing best practices in the circular economy, smart design and data-driven processes.

Young Talents Tour: Young talent shows perspectives

The Young Talents Tour is aimed at vocational school student, trainees and students – and is run by young people from the industry itself. They provide insights into their training, courses and career paths and show how diverse and promising the plastics and rubber industry is. The tour visits the Young Talents Lounge, various exhibitor stands and hands-on activities, among other things. An inspiring tour – not just for young people.

Tours are offered in both German and English. Participation is free of charge – detailed information and registration at:

https://www.k-online.com/en/programme/special_events/guided-tours

"Single-Screw Meets Twin-Screw" – *Forces Joined for the Future of Recycling*

Leistritz Extrusionstechnik and Next Generation Recyclingmaschinen (NGR) announced their close cooperation. The goal of the partnership is to combine their respective strengths in plastics recycling and compounding to develop high-performance, integrated solutions for the ever-increasing demands of the circular economy.

The collaboration comes at exactly the right time: with the new EU Packaging and Packaging Waste Regulation (PPWR) coming into effect in August 2026, quality requirements for plastic packaging will rise significantly. From mandatory recycled content and extended producer responsibility to material restrictions, the entire plastics value chain will be affected. Recycling must become more efficient, precise, and sustainable – this is precisely where the cooperation between NGR and Leistritz comes in.

NGR is a renowned, global supplier of highly efficient and innovative plastics recycling systems for polyolefins, PET, and technical plastics.

Leistritz is one of the world's leading manufacturers of twin-screw extruders and turnkey extrusion lines for the demanding compounding and refinement of plastics.

C:GRAN- Twin:
C:GRAN 085- 130 +
Leistritz ZSE 60

Together, they are developing a process solution that enables recycling and compounding in a single step with only one melting process. The cooperation focuses on:

• Recycling and compounding in one step – Optimization of mechanical properties through the addition of additives, fillers (e.g. talc, calcium carbonate, glass fibers), and stabilizers.

• High-performance degassing – Efficient removal of volatile contaminants, for example for food-grade applications.

• Production of high-quality regranulates – Particularly suitable for PO films that must meet high quality and defect-free requirements.

With this solution, regranulates can be precisely tailored to the specific application while simultaneously reducing production costs and improving the CO_2 footprint.

Material preparation is carried out using NGR's proven C:GRAN technology, consisting of a cutter-compactor and a single-screw extruder. The material is then further processed in a Leistritz twin-screw extruder. This downstream compounding process produces the highest quality recycled material.

The collaboration between Leistritz and NGR is a strong example of how sharing expertise and technology can set new standards in plastics processing: innovative, sustainable, and ready for the regulatory requirements of the future.

Test Plant in Feldkirchen, Austria

A joint recycling and compounding system installed at the NGR Test Center in Feldkirchen an der Donau allows the efficiency of the cooperation to be demonstrated at any time. The system is designed for approximately 300 to 500 kg/h and is available for customer trials.

Leistritz Extrusionstechnik GmbH
www.extruders.leistritz.com
K 2025: Hall 16, Stand F22

NGR Next Generation Recyclingmaschinen GmbH
www.ngr-world.com
K 2025: Hall 9, Stand C21

Sustainability Goals and New Materials at K 2025

Polyplastics Group will announce a new broad-based sustainability strategy at the upcoming K 2025 exhibition. The company is proud to unveil its latest advancements in the DURAFIDE® polyphenylene sulfide (PPS) technology and will also launch new materials in the DURAST® fine powders lineup and deliver the latest update on its new TOPAS® cyclic olefin copolymer (COC) plant in Leuna, Germany.

Polyplastics will update its set of sustainability commitments while announcing new technologies that are aimed at reducing the company's global environmental footprint and accelerating progress towards a cleaner and healthier world. The drive to a circular economy includes the establishment of two carbon emission reduction goals. By 2030, Polyplastics, as part of the Daicel group, plans to reduce greenhouse gas (GHG) emissions by 50% compared to 2018. The company also targets a 30% reduction in its cradle-to-gate product carbon footprint (PCF) compared with 2018.

As part of its sustainability strategy which includes DURACIRCLE® Sustainable Solutions, Polyplastics will unveil unique technologies including the development of bio-based p-hydroxybenzoic acid (PHBA), which is a key monomer for LAPEROS® liquid crystal polymer (LCP). The company is also focusing development work on AI-aided mechanical recycling technology, POM chemical recycling technologies, and PBT solvent-based recycling processes.

In new material developments, Polyplastics is introducing DURAST® fine powders made from its high-performance DURAFIDE® PPS. These powders feature a unique spherical shape and a precisely controlled, narrow particle size distribution, making them ideal for advanced processing needs. The company is also extending the application of DURAFIDE® PPS to lithium-ion battery components, and launching new DURAFIDE® PPS grades specifically engineered for laser-weldable applications – offering enhanced performance and design flexibility for cutting-edge industries.

Polyplastics' strategic manufacturing investments include a new TOPAS® COC plant that is currently under construction in Leuna, Germany. The new 25,000-ton plant will help Polyplastics meet growing worldwide demand. The facility will free up capacity for production of TOPAS® grades used in primary pharmaceutical and general medical packaging at the Oberhausen, Germany plant. The demand for COC is rising in a broad range of applications with increasing use in sustainable packaging solutions.

Polyplastics Co., Ltd.
www.polyplastics-global.com/en/

K 2025: Hall 7A, Stand B02

First Projects with Record-Breaking Large-Diameter Pipe Lines Successfully Implemented in Egypt

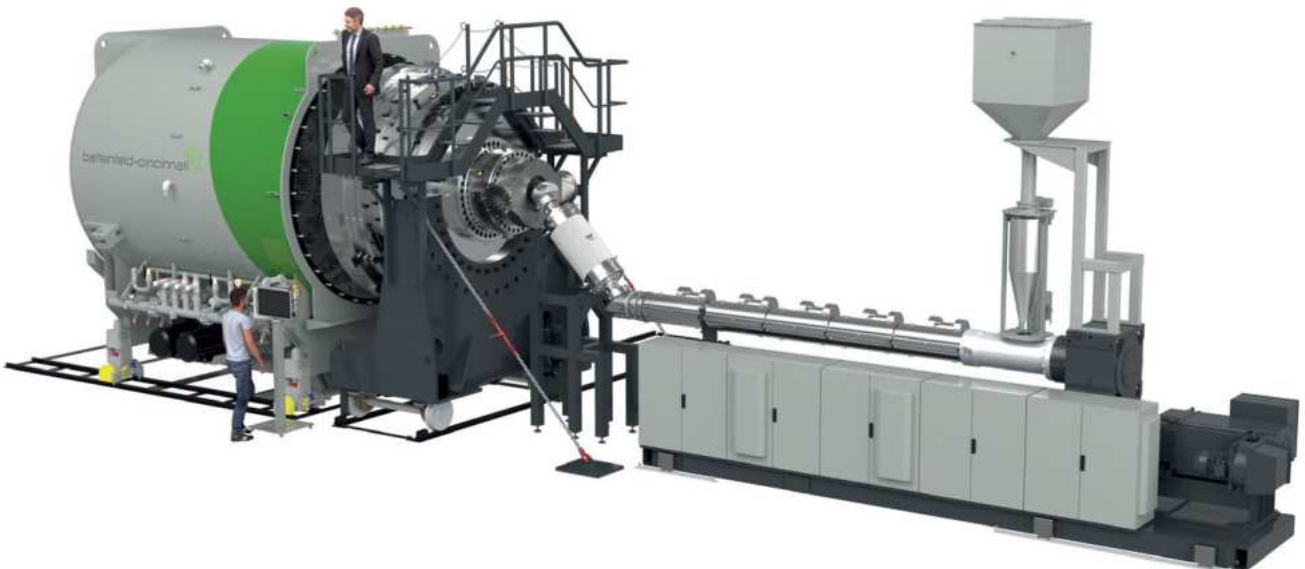
Precision in large-diameter pipes saves up to 1 million euros in material costs

Only 5 mm wall thickness deviation with a pipe diameter of 2.7 m Extrusion technology from battenfeld-cincinnati makes it possible. After all, there is no other machine manufacturer in the world that has so much in the design of complete large-diameter pipe extrusion lines and has installed as many lines internationally as the German-Austrian company. The most recent record-breaking lines for large PE pipes up to 2,7 m in diameter were recently installed at two customers in Egypt and are running to the customer's satisfaction. The first projects have already been implemented.

"The quality and precision of the large-diameter pipes we achieve on the new line from battenfeld-cincinnati is excellent," says Ahmed El Mahalawy, owner of Plastic Pipes & Products Co. (PPP) in Cairo, praising the supplier of the new complete line. The Egyptian pipe manufacturer PPP has just completed a project with large-diameter pipes in Oman: high-quality pipes transport seawater to a desalination plant - an ideal application for plastic pipes, which score points here with their corrosion resistance. It is also an ideal application for large-diameter pipes, as large quantities of water can be transported efficiently in the shortest possible time.

It is usually the material costs that enable the most money to be saved in the production of large-diameter pipes. "The main focus of our technology lies in the reduction of wall thickness tolerances. Thanks to numerous optimizations of the individual components of the system, we can now easily achieve values that correspond to half the DIN standard," explains Andreas Türk, Sales Director at battenfeld-cincinnati. The dimensional accuracy and minimized wall thickness deviations alone mean that one line can save more than 1 million euros in raw material costs per year compared to conventional lines and deviations. "Further advantages of our technology are the high output rates of two tons and more per hour, the lifespan of our systems, which are designed for 20 to 25 years, and their low energy consumption. This means that an investment pays for itself within a very short time," says Andreas Türk.

The benefits described are based on the process engineering design of the overall system, in which all individual components are perfectly coordinated, and a modern and intuitive control system ensures reliable inputs and configurations. The melt temperature plays a major role in the extrusion of large-diameter pipes, as this is the main cause of unwanted sagging. Andreas



Türk explains: "The lower the temperature of the PE melt, the more viscous it is, and the less sagging occurs. The less sagging, the better the pipe quality and wall thickness distribution." In the extruder itself, a solEX NG, the combination of a spiral grooved barrel and matching screw and grooved bushing geometry ensures high specific output rates at low screw speeds and therefore low melt temperatures. Compared to previous extruders, the melt temperature is around 10 °C lower. A further temperature reduction of around 10 °C is achieved with the OptiMelt active melt cooling system. This powerful melt cooler is installed between the extruder and the mold. Furthermore, the two-stage VSI pipe head, a combination of spiral mandrel distributor and screen basket patented by battenfeld-cincinnati, guarantees uniform melt distribution in the pipe and thus ensures uniform cooling and extremely narrow wall thickness distributions. Thanks to the sophisticated concepts of all

individual components, the high-quality large-diameter pipes can be produced in an energy-efficient manner. All downstream units, which are designed for a wide range of pipe not dimensions up to 2.7 m, can manage with low energy and water consumption, contribute to this. In the vacuum and cooling tanks, the pipe can also be cooled individually in sections around the circumference. This option can also further improve the wall thickness distribution and minimize ovality.

battenfeld-cincinnati
www.battenfeld-cincinnati.com

Plastics Pipes & Products Co. (PPP)
www.ppp-eg.com

What Do Film Thickness Gauges Have In Common With Pasta Sauces?

When it comes to picking the correct sensor type used to measure blown film thickness profiles, a comparison can be made to selecting the perfect sauce for a particular type of pasta. In both cases, having only one or two choices significantly reduces the possible range of success.

Since the mid-1980s, Kündig Control Systems (KCS), a specialist division of Hch. Kündig & Cie. AG (HKC), has been supplying width and thickness measuring devices to the blown film industry. KCS provides high speed online thickness measurements from the tube portion of the film bubble. This is the cornerstone of achieving optimum thickness tolerances - also contributing to saving valuable raw materials and reducing waste. As a result, these devices are not only an economic investment, but also an ecological one.

The performance requirements for these thickness measuring devices have risen steadily over the last 40 years. In particular, production rates are much higher in modern blown film lines than it used to be. This leads to more turbulent film bubbles and hotter film temperatures at the measuring point.

Capacitive thickness measurement remains the preferred method for films based on polyolefins and those with low proportions of polyamide, EVOH, and other materials with similar properties. This is due to its mea-

K-500 Rotomat KT 3G

K-XRAY Rotomat KT 3G

surement accuracy, suitability for measuring colored films, and the fact there are no government regulations regarding transportation or industrial use of capacitive measurement technologies.

KCS sells the K-500 and K-300 contact sensors, which are suitable for non or slightly tacky films with insensitive outer layers. The unique selling point of the K-500 is its ceramic sensor surface, which is wear-free. The measuring head of the K-300 can be replaced easily and is available with a chrome or plasma-coated surface.

The KCF-700 and KNC-401 sensor types are suitable for films that are sometimes tacky (e.g., containing EVA or metallocenes) with sensitive outer layers. The largely contactless thickness measurement is based on an air cushion between the sensor surface and the film. The special feature of the KNC-401 is the temperature-controlled air cushion and active film tracking by a linear motor.

KCS exclusively offers an X-ray-based thickness sensor for barrier films with high polyamide, EVOH, and similar material contents. With more precise thickness measurement, regulation free shipping, and simpler operating permits, this sensor technology offers numerous advantages over nuclear based gamma solid-state emitters. Thanks to the temperature-controlled air cushion, these K-XRAY sensor types are also suitable for measuring the thickness of sensitive films.

KCS also has a measuring device with two capacitive thickness sensors that automatically follow the film edges to measure the thickness of barrier films worldwide without approval. Unlike all other measuring systems, the S-100 Twin does not measure the tube portion of the bubble, but rather the flattened film tube after the reversing take-off. This makes the S-100 Twin ideal for profile measurement on lines with double and triple bubbles. Other notable features of this sensor type include non-contact thickness measurement, integrated film torsion compensation, and flat width measurement.

All online thickness gauges, not just those from KCS, determine a relative thickness profile, which is then calibrated using the effective average film thickness. This average thickness value is normally determined from the material throughput, the flat width, the take-off speed, and the weighted density. It is therefore essential that the flat width is measured as accurately and quickly as possible after the film has been pulled off. In the ninth generation of KCS width measurement – FE-9 – the film edges are precisely detected using optical time-of-flight

KNC-401 Rotomat KT 3G

Filmtest 3G

sensors, which ensures even more accurate measurement of the flat width.

To check thickness profiles of film after it has been produced, we offer our Filmtest 3G offline thickness gauge, which measures not only the thickness profile but also the linear weight and area weight of the film. Any deviation between the target and actual thickness values can also be seen at a glance.

The KCS team would be happy to measure film samples brought to their booth at K 2025. The company looks forward to welcoming visitors to their booth and advising them on the best measurement technology for the production of blown film.

The team is also available for further inquiries, such as updating or upgrading older KCS measuring devices.

Kündig Control Systems (KCS), HCH. KÜNDIG & CIE. AG
Joweid Zentrum 11, 8630 Rüti ZH, Switzerland
www.gauge.ch

K 2025: Hall 10, booth C51

Double-Strand Extrusion of Multilayer Pipes is an Efficient Solution

When investing in an extrusion line, flexibility in the manufacture of different products, maximum energy efficiency, minimal personnel requirements, and minimal raw material consumption are of crucial importance.

One way to increase the productivity of the extrusion line is through double-strand extrusion. This solution is well known for single-layer pipes. The dimension range described here extends from 20 mm for pipe materials that are problematic at high line speeds to a high output of up to 2 tons per hour for pipes with a diameter of up to 160 mm made of PVC.

To make such a twin-strand line even more efficient, there is the option of

Conextru specializes in the production of various products. Below, one such system is presented.

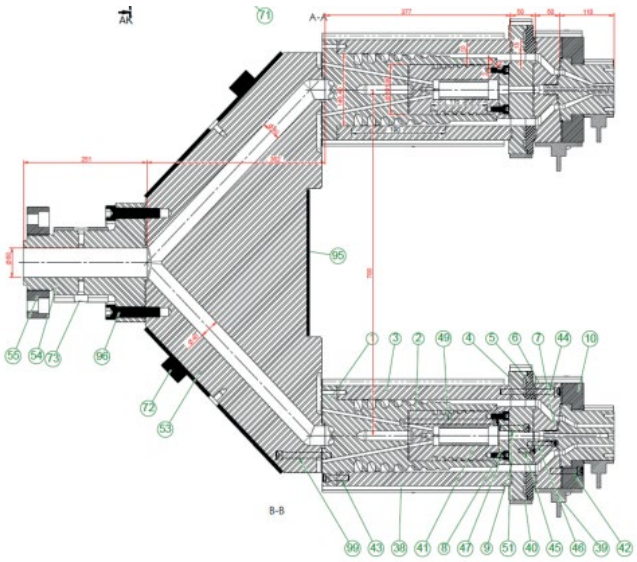
The task was to produce the following products in dimensions 16, 20, 25, and 32 mm SDR 7 from PPR material on a twin-strand line.

The product consists of a pipe with a thin white inner layer and a strong outer layer. It is provided with colored stripes.

Extruder arrangement

The product consists of a pipe with four layers, whereby the inner layer has a low thickness, the middle layer has a high density, and the outer layers have a low thickness.

Products to make



Y-Block with Layer Head

The goal is to work with a minimum number of extruders and as little effort as possible to switch from product A to product B.

Both pipes have a thin inner layer and a further, stronger layer above it.

To accomplish this task, a distribution block was designed that comprises two flow channels: one channel for the inner layer and another channel above it for a thicker layer.

The two extruders supply these channels with the respective layers. Due to its smaller dimensions, the extruder for the inner layer was specifically optimized for higher output.

Two layer die heads were then mounted on the aforementioned distribution block with two melt lines. Both melt streams are distributed by a spiral distributor. A replaceable color stripe unit was mounted in the head, which allows the melt to be fed from above via a melt bridge from an extruder. The first task was thus successfully solved using three extruders.

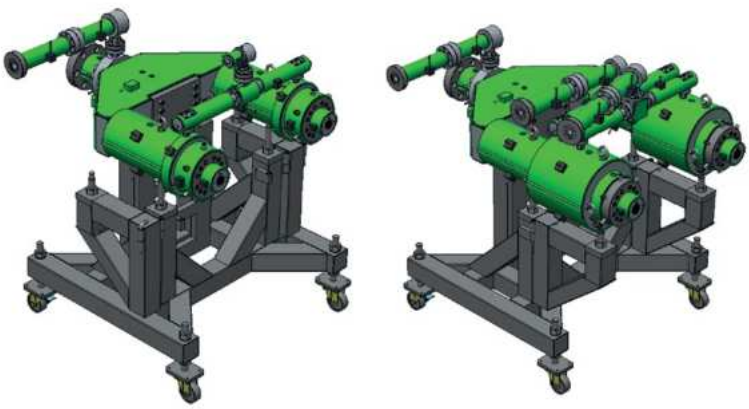
To implement the second solution, it is necessary to dismantle the color stripe unit and install two co-extrusion units instead. In principle, it is possible to work with radial distribution here. However, this design has the disadvantage that it must be built with a larger diameter than spiral distributors. Due to the small center distance of the Y-distributor, small helical distributors optimized for throughput were used.

The thinner layer further inside is fed via the same melt bridge and extruder as the heads. The same melt bridge and extruder were also used for the color stripe.

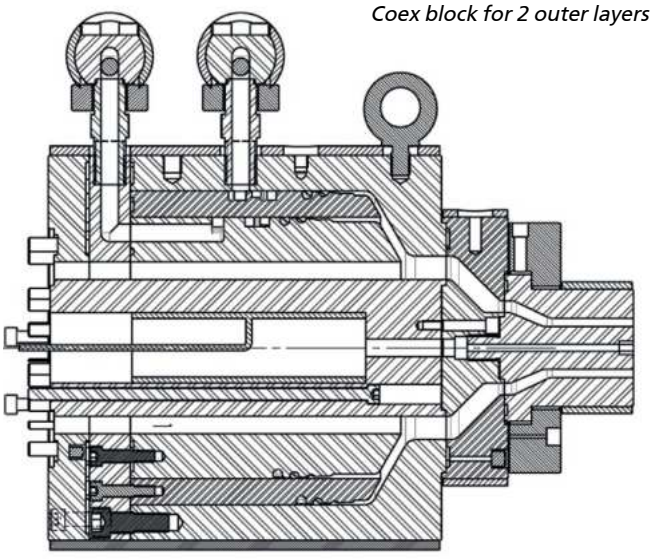
A melt bridge with another extruder was also used for the thin outer layer.

The throughput between the left and right strands is finely adjusted using screws in the melt bridge. Turning these screws reduces the throughput. Practical experience has shown that this is not necessary. It is understandable that both heads have the same flow channel and the same temperature. As a result, the

2-Layer version
4-Layer version



Coex block for 2 outer layers



2 Strand / 2 Chamber Vacuum Tank

Control page for process datas cooling

flow resistance is also identical, which in turn influences the throughput or layer thickness.

The Y-block and the two pipe heads are mounted on a fixed pipe head carriage or frame. Due to the greater overall length of the 4-layer version compared to the 2-layer version, it was necessary to use an additional pipe head support, which is designed for the 4-layer head and can be swiveled in if required.

An essential component of the system is the pipe cooling, which enables high line speeds to be achieved.

Cooling is provided by two separate cooling sections, which are arranged on the left and right. The systems consist of a 9 m long vacuum full bath with two chambers, followed by four baths, each 9 m long, in spray bath design.

Each vacuum bath is equipped with two separate vacuum pumps and two separate spray pumps.

The vacuum is controlled via PLC in the extruder control system of the main extruder. The vacuum is set via the speed of the vacuum pump motor. Either the speed or the pressure in mbar can be specified as the setpoint.

The water temperature in the vacuum bath is also controlled by the extruder control system, and the cooling water temperature can be set as a target value. To ensure a constant water temperature, a fresh water inlet and a controlled cooling water outlet are installed.

The process data can be viewed and modified both in the extruder control system and on the operating terminal on the tank. Of course, the two operating terminals also feature buttons for the "pump on/off" and "vacuum on/off" functions, as well as for operating the motorized longitudinal adjustment.

The decision to use a high line speed is essential to ensure smooth running of the pipe. The special design, which does not require silicone seals, is an essential prerequisite.

In this configuration, line speeds of 40 meters per minute per strand can be achieved, which corresponds to a total speed of up to 80 meters per minute. In this case, twin-screw extrusion is a sensible method.

The two draws can be controlled independently of each other. Relative meter weight control can be implemented very well by means of optical measurement, which keeps the production process constant.

The use of gravimetric dosing to control the output per extruder is standard practice and an absolute necessity.

The advantage of such a system lies in the possibility of producing two different products from the same material at high performance with only four extruders.

The task at hand was solved in a special way, which makes it truly remarkable. However, it is unlikely that this solution can be considered standard in the future. Rather, this example illustrates the technical possibilities of twin-screw extrusion.

CONEXTRU thus demonstrates that it is actively committed to developing special solutions, in contrast to other suppliers of extrusion systems who mainly work with standard solutions. Such special one-off solutions are of secondary importance to these companies due to the uniqueness of the high engineering content and the risk involved.

By J. Dobrowsky

CONEXTRU
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Exceptional Customer Service Goes Hand-In-Hand with Their Industry-Leading Measuring Solutions

Since 1957, Swiss-based manufacturer of industrial, non-contact measuring and control solutions, Zumbach Electronic, has worked tirelessly at providing exceptional customer service with their industry leading products and solutions. The Zumbach belief is that customers are more than just clients; they are part of their extended family. This philosophy drives their commitment to providing the highest possible levels of customer service, ensuring that every interaction is marked by care, attention, and a consultative approach to solving specific process and production issues.

From the moment a customer engages with Zumbach Electronic, they experience the unique Zumbach consultative approach, understanding that every customer has very specific needs and challenges. They take the time to listen and understand these requirements thoroughly, and their team of technical experts work closely with customers to tailor solutions that not only meet but exceed their expectations. This personalized service ensures Zumbach's customers receive the most effective and efficient solutions for their unique applications.

Rainer Zumbach, second generation owner and CEO of Zumbach Electronic stated "When customers choose Zumbach Electronic, they become part of our extended family. This means they can expect attentive ongoing support and a relationship built on trust and mutual respect. We are dedicated to fostering long-term partnerships, and our customers know they can rely on us for continuous support and guidance. Whether it's through regular check-ins, updates on new technologies, or proactive problem-solving, we are always there for our customers."

Zumbach Electronic's commitment to customer service is evident in the care and attention they provide, which includes an offering of comprehensive training programs, both at their headquarters in Orpund, Switzerland and on-site, ensuring customers are fully equipped to use Zumbach systems effectively. Their service technicians are available worldwide, providing support both in person and virtually, handling everything from commissioning and maintenance, to repairs and calibrations, ensuring their customers' operations run smoothly and efficiently.

Training courses at Zumbach's premises or at the customers factory

Boasting a robust and global support network that has been increasingly invested in over the past 60 years, with service centers strategically located around the world, it's clear to see the value Rainer Zumbach and his team see in providing this unique level of attention to their customers. This network allows Zumbach Electronic to provide quick and efficient assistance, minimizing downtime and maximizing productivity for their customers. Their experienced service teams are always ready to help with technical problems, spare part requests, service calls, and installations.

At Zumbach Electronic, customer service is not just a department; it's a core value that permeates every aspect of their business. Their consultative approach, the sense of family they extend to their custom-

ers, and the meticulous care and attention provided, all contribute to their reputation for excellence. They are committed to ensuring that their customers receive the highest levels of service, making their experience with Zumbach Electronic truly exceptional, and when you combine that with the improvements in process efficiency and quality control, cost savings through reducing waste material and machine downtime, it's a proposition that is increasingly hard to beat.

ZUMACH Electronic AG
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Zumbach's service technicians provide the customer with support both in person and virtually

High-Quality Extrusion Tools "Made in the USA"

The editorial team at VM Verlag in an interview with Tom Baldock (Picture), Sales Manager Extrusion, Guill Tool & Engineering

Tom, Guill Tool has been expanding on the European market since the middle of last year. How did you manage to enter the European market?

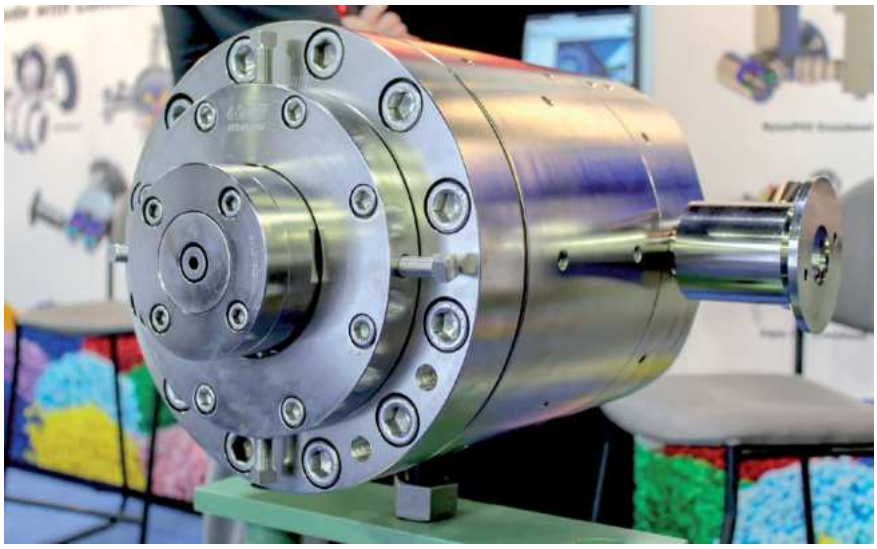
Tom Baldock: Guill management had a meeting to discuss the business potential in Europe. In the past, this area, because of the highly competitive nature of the market, was not aggressively pursued, though Guill was certainly a presence in the market. After extensive research and discussions with potential representatives, Guill partnered with Euro Dev and Guill Tool Europe was formed. This new partner exhibited knowledge of the industry, engineering savvy, a solid technical background and impressed us as very hard workers. They also had several existing customers who were extruders looking for a solid second source of supply.

In recent years, Guill Tool has focused on extrusion tools for medical tubing. How is this product line doing in Europe?

Tom Baldock: Medical tubing represents the ideal product for Guill extrusion dies, as it requires precision, consistent output, very tight tolerances plus challenging materials, dimensions and internal geometry. There were niche companies in the European market working only in this area, but Guill brings broad experience in the design, engineering and application of extrusion dies for all types of end products

and materials, with a specialization in medical tubing, so we knew we would have some distinct advantages. The European countries as well as Turkey had significant potential for Guill.

Is there perhaps already a trend emerging as to which Guill products are best received in the European



market? And are there any differences in this regard compared to the North American market?

Tom Baldock: Wire & Cable, one of our main markets in other parts of the world, was challenging on the price point. Guill supports a substantial talent base at our company, comprising R&D, engineering, advanced machining technology and other aspects most competitors do not. These advantages are particularly helpful in the medical tubing area, but also have benefits in other market segments for us.

In Europe that the industry is suffering from a weakening economy – plastics and rubber machinery manufacturing is currently in crisis. Is this also reflected in Guill's order books?

Tom Baldock: Not at all. The precision markets where we excel, especially medical, actually improved during the Covid crisis and have remained very strong for us. Meanwhile, the presence of Guill Tool Europe "on the ground" in key market segments has already produced substantial business opportunities for our company.

Guill offers training and further education for the extrusion industry. Is this also available in Europe?

Tom Baldock: Yes, we are as committed in Europe as we are elsewhere in the world, working both with customers to increase the skill set of the current workforce as well as educational initiatives to introduce as many of the engineering, manufacturing and extrusion application technologies as possible to the next generation of workers. Europe has the same challenge we face in America, actually, namely, the loss of "tribal knowledge" from an aging workforce. Guill sees education as a key component in our value proposition to the industry overall. This is another differentiator for us. In America, Guill works closely with tech schools, universities and other educational institutions to increase the talent in the market and encourage young people to enter it.

This year is another K year, which means that the leading international plastics trade fair will once again take place in Düsseldorf – eagerly awaited by the plastics industry. Will Guill Tool be present there?

Tom Baldock: Absolutely, Guill will be present at K, presenting our current and newest products to the market. Factory personnel and our partners at Guill Tool Europe will be at the booth and we invite all extruders, materials suppliers and others related to extrusion to visit us. Hall 1, Booth C90.

Thank you for this interview.

Guill Tool & Engineering
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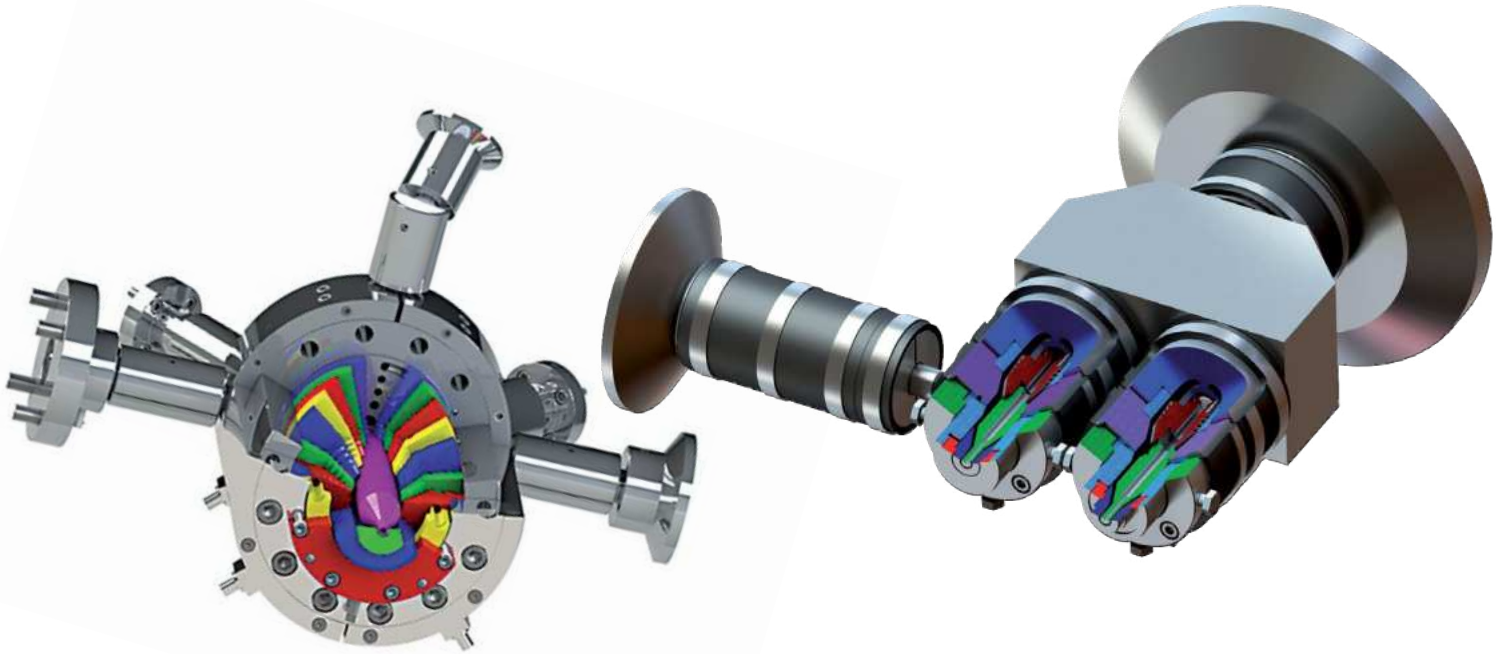
www.guill.com



Inline Spectroscopy Closes a Major Data Gap in Polymer Extrusion

For data-driven process control and optimization, one key ingredient is essential: comprehensive and continuous data. While many process parameters in extrusion are already captured automatically and in real time, a significant gap remains when it comes to product-specific data. These are typically obtained through manual sampling and laboratory analysis, making them discontinuous, time-delayed, and certainly not available 24/7. Labs often use spectrometers, but they analyze off-spec samples – cooled and solidified (e.g., injection-molded) materials – which introduce delays of several hours while production continues at full speed. (Picture 1)

This discontinuity makes real-time process and quality control impossible, creating a barrier to digitalization and AI-based data evaluation. Moreover, it can lead to undetected short-term events in the extruder, unnecessary waste, increased costs, and, in some cases, reputational damage due to product rejects.

The root of this gap lies in the extreme conditions within an extruder, where conventional Quality Control and spectroscopy systems fail. High temperatures and pressures are standard, and traditional fiber-optic probes are not designed to operate under such conditions.

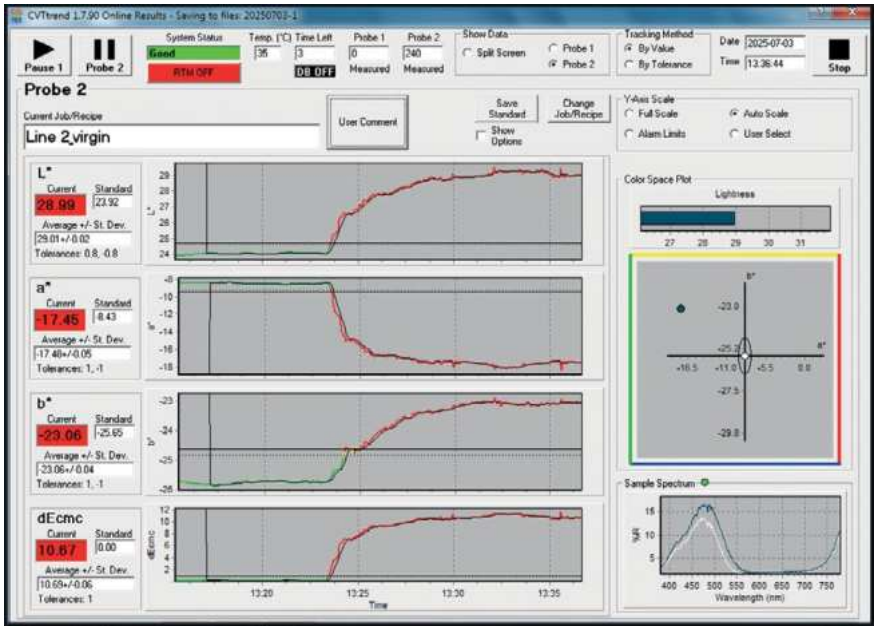
ColVisTec AG, based in Berlin, has taken on the challenge of making the extrusion process transparent from the product/production side by developing a spectroscopy-based inline technology tailored for the extreme extrusion environment. This is enabled by specially engineered fiber-optic probes featuring sapphire windows, designed to withstand the harsh conditions in most extruders – up to 752 °F (400 °C) and 3,625 psi (250 bar). The UV/Vis, NIR, and Raman inline spectrometers from ColVisTec quite literally shine a light into the "black box" of extrusion, revealing what was previously hidden – ensuring 100% transparency and control during production. (Picture 2)

Whether in traditional polymer compounding, mechanical or chemical recycling, reactive extrusion, or hot melt extrusion, inline spectroscopy delivers real-time data and immediate visualization of what's happening in the melt.

Depending on the chosen method, users receive continuous product-related information:

Picture 1: ColVisTec Probe in a Twin Screw Extruder (see marking) – Image Courtesy of KraussMaffei Extrusion GmbH, Germany

Picture 2: ColVisTec CVTtrend Inline Software Showing in Real-Time Variations of Recipe



- UV/Vis: Color, additive levels, yellowing or degradation
- NIR: Residual moisture, detection and quantification of foreign polymers
- Raman: Formulation fingerprint, polymer content, structural properties (e.g., crystalline vs. amorphous)

Two measurement modes can be implemented with fiber-optic probes: reflection for opaque and transmission for transparent media. For in-melt color measurements, UV/Vis spectroscopy provides data in standard CIE color values: L*, a*, b*, C*, h, dE*, as well as Industry Standard indices like Yellowness Index (YI), Whiteness Index (WI), and spectral features related to specific additives. A unique optical configuration allows reliable measurements even in deep black melts, which are typically challenging for spectroscopic techniques.

The system supports both batch and continuous mixing processes and can be used with a wide range of materials – liquid, paste, powdered, or molten – thanks to various available probe configurations.

Beyond real-time process and quality monitoring, inline spectroscopy offers further benefits. Permanent data streams immediately flag variations caused by dosing fluctuations, filter changes, or raw material inconsistencies. This creates a complete 24/7 digital record of both process and product quality. The data collected can be analyzed, reported, and shared with customers - serving as a traceable production log and preemptively eliminating the risk of product complaints.

Real-time feedback from the spectrometer not only allows immediate quality control but also enables process optimization. Critical parameters such as screw speed and throughput can be evaluated and adjusted on the fly. Recipe adjustments and color changes are easily identified. The system includes additional tools like Residence Time Analysis (ReTA) and Residence Time Measurement (RTM) to support advanced analysis. After automated measurement, just three clicks are needed to calculate and visualize the results. This makes it easy to profile and optimize screw configurations and define operating windows for throughput and speed – resulting in a reliably homogeneous and well-dispersed product.

In short, the relationship between action and reaction becomes visible in real time, saving time, materials, and cost.

The ColVisTec inline technology thus closes three critical data gaps:

- Real-time product data
- Insights into process dynamics
- Action-reaction correlations

This paves the way for full digital integration of the extrusion process.

The modular design of the technology allows for easy integration into new and existing extrusion lines (single, twin, multi-screw extruders, compounders, etc.). Only a standard ½"-20UNF port (typ. Dynisco) is needed to mount the probe. Distances of up to 328 ft (100 meters) between the spectrometer and the probe location are possible, enabling dual-point measurements or even parallel monitoring of two extrusion lines with a single UV/Vis spectrometer.

ColVisTec AG
Max-Planck-Str. 3, 12489 Berlin, Germany
www.colvistec.de

K 2025: Hall 16, Stand A42 (ENTEX) and Hall 7, Level 0, Stand C02 (IKK)

Twin Screw Extruder as Key Technology – *Research on Use of Catalyzers in Chemical Plastics Recycling*

The University of Utrecht has chosen a Coperion STS 25 Mc^{11} twin screw extruder for a chemical plastics recycling research project. A research group headed by Assistant Professor Dr. Ina Vollmer will undertake comprehensive investigations of the mechanical-chemical conversion of mixed plastic waste using catalysts. Thanks to its intensive mixing effect and efficient energy intake, the Coperion STS twin screw extruder will assume a central function in this promising and relatively unexplored area.

At the K trade show (8-15 October 2025, Dusseldorf, Germany) Coperion, together with Herbold Meckesheim, will present their entire repertoire of technology for plastics recycling at Booth 9B34 in Hall 9 as well as in the Open Area in pavilion FGCE07.

Efficient conversion of plastic waste using catalysts

The Coperion STS 25 Mc[11] twin screw extruder is part of a research project at the University of Utrecht investigating the mechanical-chemical conversion of mixed plastic waste using catalysts (Photo: Coperion, Stuttgart Germany)

Alongside proven solutions for mechanical plastics recycling, Coperion realizes plants for chemical plastics recycling. This process converts plastic waste back into high-quality raw materials, potentially making unlimited recycling possible. So far, the process is energy intensive and does not always result in high-quality products. Using catalysts could play an important role in the continued improvement of end product quality and process efficiency.

The University of Utrecht's research project is dedicated to precisely this challenge. The STS 25 Mc[11] twin screw extruder, being installed there to carry out the experiments, processes waste plastic, shredded or compacted, with two co-rotating screws in a closed process section. Together, intensive dispersion and high shear introduce a great deal of mechanical energy into the material. The plastic is energy-efficiently melted – an advantage that is particularly important in chemical recycling. Moreover, the extruder achieves a very high mixing effect with its twin screws. The catalysts being implemented in this research project are distributed absolutely homogeneously throughout the plastic melt and can fully develop their intended effect.

In conventional pyrolytic processes, the hot plastic melt is prepared within the twin screw extruder for the next step in chemical processing: pyrolysis. There, in an oxygen-free environment, the plastic is broken down to its chemical building blocks. The temperature of the pyrolysis can be lowered thanks to the efficient use of catalysts, as Vollmer's team has shown in preliminary work.

Said Dr. Ina Vollmer regarding her research assignment: "Using the extruder, we can achieve an efficient use of the catalyst. Still, our vision is to allow pyrolysis to take place even in the extruder. We can achieve this by exploiting the mechanical-chemical reaction that occurs within the twin screw extruder, and specifically convert the polymer at lower temperatures than have previously been necessary for pyrolysis. Mixing with high shear in the extruder has a very positive effect on the use of catalysts. We are convinced that we can direct the chemical recycling process more precisely using lower temperatures, and this will lead to purer products while at the same time having the potential to revolutionize the chemical plastics recycling process sequence and save energy. "

Should the use of catalysts in the chemical recycling process prove its worth, the results of this research will easily be transferable to larger throughput ranges.

"Following Dr. Ina Vollmer's scientific approach, we will glean systematically researched results and draw conclusions for chemical plastics recycling from which we can all profit – recyclers and processors as well as end users," noted Leonid Liber, Sales Engineer at Coperion. "We are proud that our STS twin screw extruder is part of this promising research project, and we wish Dr. Ina Vollmer much success. We look forward to continued collaboration."

Coperion GmbH
Theodorstr. 10, 70469 Stuttgart, Germany
www.coperion.com

K 2025: Hall 14, Stand 14B19
Hall 9, Stand 9B34
FGCE07, Open Area "The Power Of Plastics Forum"

„Let's keep it in the loop" – *Sustainable Plastic Solutions for a Circular Future*

„Plastics care for Future – Let`s keep it in the loop" – Under this motto, FKuR will present its expanded portfolio of bioplastics and recyclates at K 2025. These materials are tailored to meet the requirements of the circular economy and the European Packaging and Packaging Waste Regulation (PPWR).

New to FKuR's product portfolio is Paluren, an LDPE material recovered from the recycling of beverage cartons by Palurec (© Palurec)

Highlights at the booth include the soil-biodegradable Bio-Flex® N grades for agricultural and farming products, which leave no persistent microplastics behind. In addition, FKuR will showcase an expanded portfolio of high-performance post-consumer recyclates (PCR) and in-house developed recyclate compounds. A new addition is the LDPE recyclate "Paluren" from Palurec (Hürth/Germany), derived from recycled beverage cartons.

Visitors will also find numerous product examples made from recyclable, bio-based Terralene® compounds based on bio-PE, as well as from the bio-based I'm green™ biobased PE and EVA grades from Braskem. Bio-based plastics are a key component in the defossilization of the plastics industry and offer sustainable solutions for applications where environmental compatibility is a top priority.

Key features of FKuR's new Bio-Flex® N series include complete biodegradability in soil and certification according to 'OK biodegradable SOIL' by TÜV Austria. Depending on the grade, certification has already been granted or is currently in progress due to the lengthy testing and approval process. The portfolio includes grades for blown film, injection molding, and extrusion, all specifically developed to meet the requirements of agricultural and farming applications. All Bio-Flex® N types degrade in soil without leaving any residue and do not produce persistent microplastics. This makes them especially suitable for products that remain in nature after use or cannot be collected again – such as mulch films, binding twines, and plant clips for vegetables, growth tubes for trees, or drainage pipes in horticulture and agriculture.

- The already OK biodegradable SOIL-certified Bio-Flex® N 25370 is suitable for injection molding and profile extrusion products such as tree guards and growth tubes used in forestry. Despite its high density, N 25370 offers excellent flexibility.
- Key applications of the Bio-Flex® blown film grades N 21310 and N 31310 include mulch films as well as plant and net labels. Thanks to its well-balanced property profile, Bio-Flex® N 21310 is a suitable alternative to the industrially compostable grade Bio-Flex® F 1140 when soil biodegradability is desired. In comparison, Bio-Flex® N 31310 offers higher puncture resistance and toughness.
- Bio-Flex® N 45261 is suitable for injection molding and profile extrusion. Its increased stiffness and strength make it ideal for applications such as clips, plant stakes, and pots.

New to FKuR's distribution program is the plastic recyclate Paluren. This LDPE, available in pellet form, is produced through an innovative recycling process from used beverage cartons (PolyAl) and contains around 4% aluminum flakes. This gives products made from Paluren a unique appearance. The recycling company Palurec employs a mechanical-physical process that uses no organic solvents, with water as the only separation medium. The production of Paluren LDPE meets the requirements of the German VerpackG certification as well as the RecyClass Recycling Process Certificate.

Paluren can be processed similarly to conventional PE and allows the use of hot runner injection molding technology as well as common polyolefin-based color and additive masterbatches. It can also be welded and bonded. The aluminum flake content is intentionally utilized to create attractive aesthetic properties.

Patrick Zimmermann, Managing Director of FKuR, states: "With the forward-looking motto of our presence at K 2025, we emphasize our ongoing commitment to circularity in the plastics industry. We demonstrate that those seeking pioneering new options for material substitution will find highly attractive solutions at FKuR that meet all regulatory requirements. This applies equally to consumer goods, packaging, and industrial applications. In this way, we help OEMs, suppliers, and processors leverage and deliver greater sustainability to their customers – with our biodegradable or bio-based plastics as well as recyclates – regardless of the industry."

FKuR Group
www.fkur.com

K 2025: Hall 6, Booth E48

#5-2025

RECYCLING

Regular Section
in EXTRUSION INTERNATIONAL Magazine

Well Underway Despite Challenging Market

Production of an extruder screw at 3S. The Group's own component manufacturing company increases the proportion of key components manufactured inhouse as a result of strategic investments

In a market environment that faces economic uncertainty, the EREMA Group maintains its position as a leading provider of plastics recycling solutions. The Group's installed systems and components enabled the recycling of around 26 million tonnes of plastic waste worldwide during the financial year 2024/25, which closed at the end of March. Group revenue reached EUR 330 million.

Economic and geopolitical uncertainty around the world continues to present challenges for the plastics recycling industry. Despite a decline in sales of around 13 per cent compared to the previous year, the EREMA Group has maintained stability and set an important strategic course for the future based on its strong market presence.

The technologies and solutions offered by the companies in the EREMA Group mean that it covers the entire value chain of mechanical plastics recycling. "By combining our expertise, together we ensure our customers remain competitive in a dynamic market environment," says Manfred Hackl, CEO of the EREMA Group. This is a success factor that is reflected in the broad range of products, as well as in high system availability and the quality of service provided by the Group. Despite the current challenges, there is still plenty of potential for growth, as Manfred Hackl explains: "More and more high-quality products are made from recycled pellets. The plastics industry has recognised that the proportion of recycled materials used in new products needs to continue to increase in order to achieve our shared goal of circularity."

While the European market has been subdued, the Group experienced positive momentum in North America and Asia. Regulations such as the PPWR (packaging and packaging waste directive), which has come into force in the EU, also give a positive outlook in Europe, provided that competitiveness can increase again. "This would mean launching initiatives that combine ecological and economic interests and strengthen the industrial base, like the Clean Industrial Deal in the EU. Just as important are global developments that create reliable framework conditions, such as the rollout of Extended Producer Responsibility (EPR) and legal requirements for mandatory use of recycled materials in new products," says Manfred Hackl.

Recently, the EREMA Group has noticed a reluctance to invest in the polyolefins post-consumer segment. On the other hand, demand for recycling solutions for production waste and bottle-to-bottle applications has remained stable. There is a clear trend towards implementing larger-scale machines in both the PET and PO sectors. The increasing industrialisation of these sectors requires solutions that are cost-effective and can be easily adapted to meet demand. The EREMA Group supports its customers during this transformation process and continues to set standards in the industry. The joint venture with Lindner Washtech has proven to be an important development in providing efficient overall solutions along the value chain.

The ongoing growth of plastics recycling can be seen not only in the established segments, but also increasingly in newer application segments involving chemical recycling, and fibre & textile recycling. EREMA started

Manfred Hackl, CEO of the EREMA Group (right) and Horst Wolfsgruber, CTO of the EREMA Group (Photos credit: EREMA Group GmbH)

up its first large-scale extruders for chemical recycling during the 2024/25 financial year. The development of fibre-to-fibre recycling also looks very promising. Initial pilot projects have already been carried out, and an EREMA reference system will start operation later this year. The commissioning of a recycling machine for post-consumer textiles by PURE LOOP, one of the Group's subsidiaries, at Salvation Army Trading Company in spring 2024, marks a new milestone. The project won the Plastics Industry Award.

At the end of the 2024/25 financial year, the EREMA Group completed a comprehensive investment programme spanning the last five years with a volume of EUR 145 million. "Part of this programme involved the Group's own component manufacturing company 3S, which has been optimised with an investment of EUR 23 million to significantly increase the in-house production share of key components and strengthen the Group's supply chain over the long term," reports Horst Wolfsgruber, CFO of the EREMA Group. EREMA has also strengthened its international sales structure by appointing Christoph Wöss as Global Sales Director in April. In future, the strategic focus will be aligned even more closely with the specifics of regional demand as well as market and customer requirements.

Despite challenging market conditions, the EREMA Group still focuses on the ongoing development of efficient recycling solutions in all sectors. "We are convinced that the demand for recycling technologies will keep increasing in the coming years," says Manfred Hackl. "The framework conditions remain challenging, but the usage of plastic will continue to increase. The only way to meet this demand responsibly is with reliable recycling."

EREMA Group GmbH
www.erema.com

Process Optimisation as the Key for New Process and Quality Standards in Plastics Recycling

In August 2023, the two Austrian family-run companies, Lindner Holding and the EREMA Group, founded the joint venture BLUE-ONE Solutions. Their objective is to bring the entire technological recycling process closer together –from shredding, sorting, washing and drying to extrusion –and to optimise this process along the value chain. By combining their expertise, the partners have created the basis for a new way of thoroughly optimising the processes, with the aim of setting new standards in plastics recycling. After their first successful quick wins, which were presented at the IFAT and PRS Europe last year, the cooperation partners will present their new developments at K 2025. These redefine the process engineering behind plastics recycling, especially in terms of energy efficiency, throughput, plant design and recycling quality – according to the motto: Innovating the standards in plastics recycling.

Innovating the standards in plastics recycling – this is the declared goal of the cooperation between Lindner Washtech and EREMA. Through targeted process optimisations along the entire value chain, the partners are setting new benchmarks in efficiency and recycling quality. In the photo (from left to right): Marcel Willberg, Sales Director at Lindner Washtech, and Clemens Kitzberger, Business Development Manager Application Post Consumer at EREMA Group (Picture: Copyright © Lindner Recyclingtech)

Integrated plant design for defined throughput

The capacity of individual components plays a minor role when designing recycling plants. The focus is on the precise interplay of the entire process chain – from shredding and sorting to washing and drying to extrusion and post-processing. To reliably produce the desired quantity of recyclate at the required quality, it's

important to consider the entire process chain. In particular, how material losses and rejection quantities during the recycling process impact the final output. A jointly developed model by Lindner Washtech and EREMA makes it possible to precisely design a plant according to the required total throughput, taking into account the specific output and materials from the raw material to the final recyclate.

Intelligent energy efficiency

The efficient use of spent energy is one of many challenges in the recycling process – and it particularly affects the transition from drying to extrusion. This is precisely where a common control concept between the bunker silo and extruder comes into play. Dynamic system synchronisation allows operators to specifically control the dwell time of the dried material as well as the extruder loading. For example, the automatic signal exchange ensures that the preconditioning unit (PCU) receives an optimum quantity of flakes at the ideal temperature, which significantly reduces the energy required for heating, for example.

Smooth and automated material flow regulation

Low downtimes are vital in matters of productivity and energy use to conserve resources. It is all the more important for all interruptions to the material flow to be identified as early as possible. The solution: a combined control concept. If the recycling process is interrupted by scheduled maintenance work, filter changes or the need to remove contaminants from the shredder, the system will automatically detect this. Intelligent control parameters will keep the recycling process stable until maintenance is complete or the fault has been solved. This effectively prevents energy losses, unnecessary material waste and unplanned downtime. Once the material flow has been fully restored, the line automatically and seamlessly ramps up – ensuring a consistent and high-quality granulate production at all times.

Smart performance monitoring

Lindner Washtech and EREMA have added another jointly developed feature to analyse and monitor overall performance: a process-oriented HMI dashboard that displays all the critical plant parameters in real time. This adaptive interface supplies operating personnel with information about the current utilisation, likely bottlenecks and the potential for optimisation. Operators can then use this information to respond to the specific issue – and monitor the automatic intervention. The integrated transparency supports a stable, data-driven plant operation, forming the basis for future automated interventions and condition-based maintenance (CBM).

The development of integrated, data-driven and holistic process solutions are key milestones in the strategic collaboration of Lindner Washtech and EREMA. A strong shared foundation has been created with the foundation of this joint venture. At K 2025 in Düsseldorf, the partners will focus on key themes such as integrated plant concepts, smooth material flow regulation, smart monitoring and data-driven, intelligent control systems – for maximum process control and optimisation along the entire value-added chain and for new process and quality standards in plastics recycling: Innovating the standards in plastics recycling.

Lindner Washtech GmbH
www.lindner.com

Establishing the Tray-to-Tray Recycling Market – *Technology, Scale and Challenges*

Tray-to-tray recycling is becoming a recognized approach for advancing circularity in plastic packaging – especially for food-grade applications. Valerio Sama, Business Development Manager – Packaging at TOMRA Recycling, examines the latest developments in tray-to-tray recycling, detailing the challenges, technologies and market trends shaping its growth across the industry.

Unlike bottle-to-bottle recycling, the PET tray stream has historically been underutilized; trays were rarely collected or recycled prior to the early 2020s. When recycled content was used in trays, it typically came from bottles, raising concerns about diverting valuable feedstock away from closed-loop bottle systems. This historical oversight has led to a significant environmental burden: while approximately 1 million tons of PET trays are introduced to the European Union market each year, a staggering 70% of this valuable material is lost, with only around 300,000 tons currently collected for recycling. This represents a critical missed opportunity for circularity and highlights the urgent need for improved collection and recycling infrastructure.

Fortunately, tray-to-tray recycling has recently gained traction as an emerging solution within the broader effort to improve plastic packaging circularity. This shift is largely driven by recent changes in EU legislation, including the Single-Use Plastics Directive (SUPD) and the

ambitious Packaging and Packaging Waste Regulation (PPWR). These regulations have not only increased the required recycled content thresholds in beverage bottles, but are also setting targets for packaging beyond bottles, prompting tray manufacturers to seek new, dedicated sources of recycled PET.

Despite its potential, tray-to-tray recycling presents several challenges today. PET trays often feature complex designs, including multilayer structures, inks, adhesives and labels, which complicate sorting and decontamination. Unlike bottles, trays tend to be less standardized in shape and composition, making automated identification and separation more difficult. Contamination – such as food residues or embedded foreign materials – can further hinder sorting precision, especially once trays are compressed into bales.

Collection infrastructure remains a major bottleneck. While PET bottles benefit from well-established deposit return systems and high collection rates, trays are often collected with mixed packaging or not at all. Furthermore, the technology for sorting PET trays into a separate, dedicated fraction is not yet a standard practice, unlike with bottles. This often results in collected trays being lost within the mixed PET fraction or the general residue stream. This inconsistent feedstock quality and limited availability significantly increase the cost and complexity of producing food-grade recycled PET from trays.

The industry is responding to the complexities of tray-to-tray recycling with increasingly sophisticated innovations. Advanced sensor-based sorting systems now play a central role in enabling high-quality recovery of PET trays. Traditional NIR systems like TOMRA's multifunctional AUTOSORT™, for instance, are able to differentiate between mono-layer and multi-layer PET trays. This distinction is vital because only mono-layer trays are suitable for high-quality, closed-loop recycling.

Some of the most significant developments are taking place at the flake level, where sorting technologies are deployed to target a broad range of contaminants. Equipped with multi-sensor configurations, these machines can simultaneously detect flakes by polymer type, color, transparency and material aging. This level of precision is essential for removing substances such as PVC, metals, and opaque particles.

Once trays are shredded into flakes, TOMRA's INNOSORT™ FLAKE system uses fast, intelligent sorting to accurately separate materials based on polymer type, color and transparency. Its high-speed capabilities efficiently remove common contaminants such as opaque PET, PVC, PC andother unwanted particles, minimizing material loss while laying the groundwork for an ultra-clean output.

Building on this foundation, AUTOSORT™ FLAKE refines the flake stream even further. This high-end application system delivers exceptional accuracy at the finest levels of detection and is even capable of detecting metals and multilayers. Using multifaceted sorting technologies, it handles complex impurities that could otherwise degrade quality. The combined effort of these two sorting stages is an essential tool for manufacturers aiming to meet the stringent requirements of food-contact packaging.

PET trays often feature complex designs and composition which complicate sorting and decontamination

Some facilities operate dual sorting lines for clear and colored PET fractions, using flake-level detection to enable continuous, flexible production. By achieving purity levels of 99% and above, these systems can allow recyclers to meet the rigorous benchmarks required for food-grade applications, while boosting yield and expanding the range of recycled content, such as trays suitable for microwave use.

Tray-to-tray recycling draws material from both post-consumer and post-industrial sources – each offering distinct advantages and challenges. Post-industrial waste, such as offcuts from thermoforming lines or rejected batches, typically features clean and homogeneous PET, making it ideal for direct reprocessing. In contrast, post-consumer trays recovered through municipal collection systems are more variable in composition, often containing multi-layer designs, labels and residual contamination. Despite these complexities, post-consumer recycling is critical for scaling circularity at the consumer level.

In tray-to-tray recycling, flake-level sorting targets a wide range of contaminants

TOMRA's sorting technologies are equipped to handle both streams – enhancing quality and consistency through smart sensor configurations that adapt to feedstock variability. By integrating post-consumer and post-industrial inputs, recyclers can optimize throughput and generate recycled PET that meets specifications for new tray production.

Outlook: Scaling tray-to-tray recycling for the future

Tray-to-tray recycling has the potential to become a mainstream solution for managing post-consumer PET packaging. While the segment is still in its early stages compared to bottle recycling, innovation and expanding infrastructure can close this gap step by step. Investments in automated sorting technologies, material standardization and dedicated collection schemes are expected to improve feedstock consistency and recyclate quality. Collaborative efforts between packaging producers, recyclers and equipment manufacturers will be critical in scaling operations and overcoming design-for-recycling barriers. Equally critical will be the regulatory approval to use recycled content in food trays. Once the ongoing review concludes positively, the industry can expect a renewed impetus.

Valerio Sama, Business Development Manager – Packaging at TOMRA Recycling

Tray-to-tray recycling is poised to evolve from a niche innovation into a core pillar of circular packaging systems in the coming years. This provides a viable pathway to reduce reliance on virgin plastic and meet crucial recycled content targets.

TOMRA Recycling
www.tomra.com

Black Gold on Repeat – Vinyl Recycling

It defies the ravages of time again and again and celebrates an almost endless comeback – the record. A traditional company from Haarlem is partly responsible for the previous peak in the seventies, as well as for the modern boom: Record Industry. Since 1958, thousands of records in all sorts of color variations have been produced every day west of Amsterdam. To ensure that not a single gram of the precious PVC plastic is wasted, Record Industry recycles production waste directly on site using shredding technology from WEIMA and Wanner.

While many pressing plants had to close at the end of the 1990s due to the triumph of the compact disc (CD), the record industry has managed to remain successful in the music business to this day. This is now paying off, as records have once again become a sought-after medium in recent years, which is not only appreciated by music lovers. In addition to the nostalgia and collector's value, the quality of the analog sound is increasingly preferred.

The company's manufacturing process proves that supposedly outdated technology can pursue modern sustainability goals. Record Industry sees itself as a full-service provider. Artists can record and mix music directly in the company's own recording studio. Next, the

PVC plastic material cycle in vinyl recycling

audio is cut into either a lacquer disc or copper plate (DMM) using a cutting lathe, which translates the audio signal into a modulated groove. This master is then processed through several steps in a galvanic (electroplating) process to create stampers, metal molds that are used to press the grooves into vinyl, producing the final record. So-called pucks (similar in shape to those used in

ice hockey) made of special PVC are used in the pressing process. The pucks are then shaped into thin records using pressure and heat. After a short cooling period, they are placed in fully automated paper sleeves for protection. The final step is packaging in the respective covers and sleeves. The record is ready to be sold and played.

During each pressing process, an approx. 20 mm wide protrusion of PVC material - i.e. the remainder of the puck - is created on the outside due to the process. This is sheared off, giving the record its final circular shape. Next to each of the almost 40 pressing machines is a compact C-series granulator from Wanner in Wertheim, Germany. The production waste is automatically discharged from the pressing machine and transported into the granulator's hopper. Within seconds, the offcuts are shredded into flakes approx. 4 mm in size and fed to the extruder via a mixing chute. This results in no waste, as the edge trimmings are processed directly inline.

Occasionally, pucks or individual records do not meet Record Industry's quality requirements. As the pucks are too massive and the records too large for the small granulators, they have to be processed separately. Record Industry therefore set up an additional recycling line in the building next to the pressing machines. A WEIMA WLK 4 single-shaft shredder was put into operation there at the end of 2024 for shredding predominantly mixed PVC residues. Material can be loaded manually or by forklift from big bags via a conveyor belt. The WEIMA shredder pre-shreds the PVC to approx. 25 mm flakes before it is re-shredded to approx. 4 mm granulate via a further conveyor belt with metal detector in a Wanner granulator of the Dynamic series. To improve the processability of the material, the resulting recyclate is fed through a dedusting system to remove the fine dust from the ground material.

WEIMA WLK 4 plastic shredder

The end product is high-quality PVC flakes that can be reused in the record pressing production process. The colorful mixture of flakes creates an individual marbled coloration during pressing. Record Industry is proud to now have a 100% recycled product in its range thanks to these colorful records. The result of the collaboration with the shredding specialists from WEIMA and Wanner is correspondingly positive:

"The pressing of our records is virtually waste-free thanks to the smooth cooperation with the technicians from WEIMA and Wanner. We make maximum use of our material resources and can supply our artists with a truly sustainable product. This is in keeping with the spirit of the times and is also economically

attractive for us." – Dennis Borst, Technical Manager at Record Industry.

WEIMA Maschinenbau GmbH
www.weima.com

In the middle of the recycling process: A Wanner granulator

How to Use Recycled Plastics Previously Discarded for Food Contact Applications

At a time when the circular economy and sustainability are setting the roadmap for the plastics sector, AIMPLAS, the Plastics Technology Centre, is leading an innovative research project, DECONWASTE, focused on improving the recycling of plastic packaging and enabling its safe reuse in food contact applications.

The project aims to research and develop new methods for cleaning and decontaminating recycled plastics, specifically polyolefins – a type of material widely used in packaging. To achieve this, DECONWASTE will explore advanced decontamination techniques capable of transforming post-consumer waste into safe recycled materials, following the guidelines of the European Food Safety Authority (EFSA).

Unlike other materials such as PET, recycling polyolefins presents significant technical challenges. "Their wide range of uses, the presence of multiple additives, and their chemical behaviour make decontamination processes more complex and require specialized technologies," explained Adrián Morales, lead researcher in Mechanical Recycling at AIMPLAS. Additionally, the inability to easily distinguish between food and non-food packaging during recycling, or to trace the food-related origin of recycled packaging, complicates subsequent processing stages.

"For this reason, it is essential to research and develop new effective decontamination methods that address these challenges and ensure the safety of recycled materials for food contact use," Morales emphasized. He added that the initiative aims "not only to comply with European regulations and directives but also to ensure consumer protection and trust in packaged food products."

In this regard, DECONWASTE will work on developing effective methods to overcome these obstacles and ensure that recycled materials meet safety standards for reuse in food applications. This advancement represents an opportunity for companies—especially SMEs—to incorporate recycled materials into their production processes with guaranteed safety and traceability.

A Strategic Alliance with Key Companies

The project involves collaboration with ACTECO, SPBERNER, and PICDA – companies committed to innovation and sustainability that are actively participating in validating the developed technologies. Additionally, DECONWASTE aligns with the Sustainable Development Goals (SDGs), specifically goals 8, 9, and 12.

The project is funded by the Valencian Institute for Competitiveness and Innovation (IVACE+i) through the 2024 call for Strategic Cooperation Projects, and by the European Regional Development Fund (ERDF).

AIMPLAS highlighted that "this research will allow companies to overcome one of the main bottlenecks in polyolefin recycling, enabling the use of materials previously discarded in the manufacture of new packaging or other products intended for direct food contact."

With this project, AIMPLAS once again positions itself as a leader in applying science and technology to major sustainability challenges in the plastics industry, promoting a more circular, safe, and environmentally aligned economy in line with European policies.

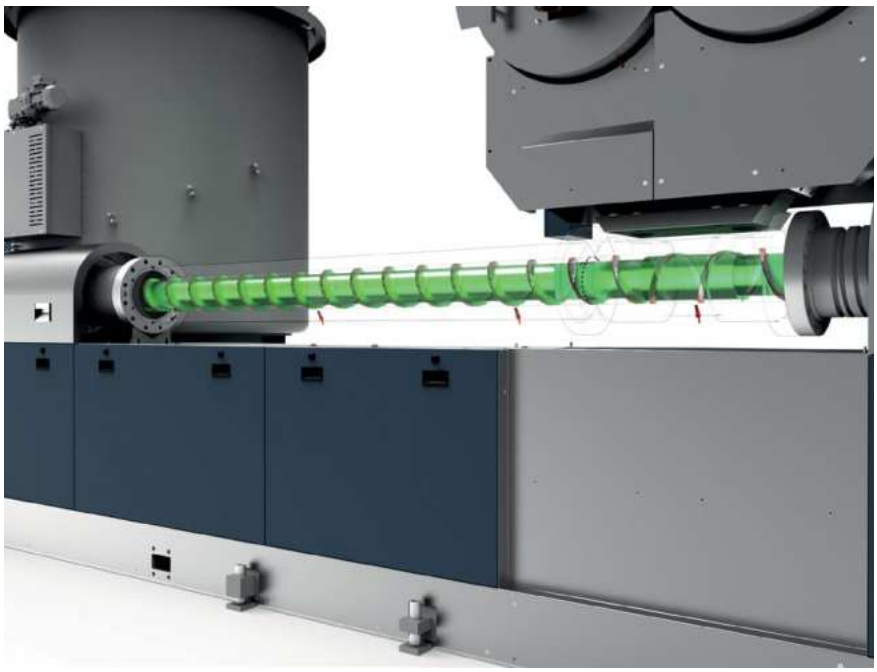
AIMPLAS
www.aimplas.es

New Intelligent Assistance Systems for More Uptime

Detecting wear on key components at an early stage minimises the risk of unscheduled downtime in plastics recycling. EREMA's PredictOn solutions enable predictive maintenance based on current process data in real time. The result is that maintenance measures can be scheduled in good time and, in contrast to routine preventive maintenance, are only performed if they are really necessary. Personnel deployment and spare parts procurement can be better coordinated, reducing maintenance costs and increasing system uptime. PredictOn provides instructions on recommended maintenance tasks, supported in part by video tutorials.

PredictOn:Drive monitors all the main drive trains on the preconditioning unit and the extruder, as well as the vacuum pump status on PET systems. The new in-depth data analysis option makes PredictOn:Drive even more powerful because it detects any abnormal process values and automatically triggers remote analysis using AI-supported algorithms to identify potential damage and pinpoint the affected components. In the event of anomalies, the machine operator receives precise diagnoses and specific recommendations for action directly on the BluPort® platform. Monthly status reports also provide an analysis of all monitored components.

This is the first ever intelligent assistance system to continuously monitor the status of the plasticising unit. Ultrasonic sensors detect wear to the extruder screw and barrel in real time without direct contact with the melt. Dimensional changes are displayed on the machine HMI using a traffic light colour system, and detailed long-term data can be viewed online on the BluPort® platform. This means that critical states of the plasticising unit can be detected at an early stage to avoid unscheduled machine downtime. Individually defined wear limits for the extruder screw and barrel make it possible to get the maximum operating time out of component service life and see when it is best to replace the component. This significantly improves reliability in scheduling.



Intelligent assistance in the extrusion process: PredictOn:Plastification Unit continuously monitors the status of the extruder screw and barrel and signals any deviations (Photo credits: EREMA GmbH)

The visualisation of both PredictOn modules is fully integrated into the BluPort® online platform. It accompanies customers through the entire product life cycle, from initial contact to maintenance and upgrades, and potentially to a subsequent repurchase of the equipment. All information on quality control, spare parts, contact persons and system data is displayed in one place, accessible at any time, barrier-free, and synchronised between desktop and mobile devices. Over 4,500 users worldwide benefit from the advantages offered by this platform. "BluPort® lets us offer a comprehensive digital ecosystem that supports customers in their daily work, puts them in touch with the right contacts, and keeps everyone involved on the same level of information," says Christoph Krump, Head of Business Unit Service at EREMA. "Together with our experts' know-how, we offer our customers a strong network of digital tools and technical expertise wherever they are."

Visitors to K can experience PredictOn live in action on an INTAREMA® TVEplus® DuaFil® Compact, processing different input materials. The machine is equipped with PredictOn:Drive and PredictOn:Plastification Unit. The BluPort® displays at the EREMA stand and at the Edvanced Recycling Centre in the outdoor area will let visitors see how the assistance systems work.

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K 2025: Hall 9, Stand C09, and Edvanced Recycling Centre: Outdoor area, CE03

Ready for the Future of Your Business

At the K 2025, Lindner will be making the most of its exhibition space – spread across **Hall 9, Stand B17/19, and the outdoor area CE02** – showcasing trailblazing technologies and new products to process waste plastics. The spotlight will be on first-class recyclate quality, energy efficiency, maximum flexibility, smart process optimisation along the entire value-added chain, and – a world first in mechanical recycling.

Ready for the future of your business – This is the motto underpinning the groundbreaking technologies and innovations being exhibited by recycling pioneer Lindner at the K 2025, including a revolutionary world first in mechanical recycling. Visitors will also see the new fourth-generation Micromat, whose smart technology sets new standards in energy efficiency and material flexibility. The joint venture between Lindner Washtech and EREMA is an impressive example of the impact of holistic process optimisation – from bale to pellet – of guaranteed recyclate quality, throughput and resource utilisation.

Ready for energy-efficient versatility – the fourth-generation Micromat

For the new Micromat series, Lindner has built on the proven strengths of Series 3, adding upgrades that improve both maintenance and productivity. The core of the new shredder series is the innovative drive concept that features a remarkable level of efficiency of above 97 %. Unlike a torque drive, the new concept operates without any rare earth elements and has an impressively long lifespan. Another highlight is the flexible, configurable blade system. This makes it possible to quickly replace pointed knives with step knives – which enables the shredder to flexibly adapt to different material requirements.

Lindner's Micromat series is established globally as a reliable solution for shredding plastics. The fourth-generation Micromat has built on the proven strengths of Series 3, with added upgrades that improve both maintenance and productivity. A new drive concept is at the heart of the new series boasting efficiency above 97 % and a flexibly configurable blade system (Images copyright © Lindner Recyclingtech)

Ready for smart process control and guaranteed quality

Systematically and smartly optimising processes along the entire value-added chain – from shedding, sorting and washing to extrusion – is the key to achieving reliable quality standards and an efficient use of resources. These are only some of the results of the joint venture between Lindner Washtech and EREMA. "In the past few years we have been working specifically on optimising process interfaces and look forward to presenting the results at the K 2025 together,"

Matthias Egarter (left), Managing Director at Lindner, and Georg Krenn (right), Managing Director of Lindner Washtech, eagerly await the K 2025. At the trade fair, Lindner will be showcasing an exclusive world first in mechanical recycling. This innovation will set new standards in the sector

says Georg Krenn, Managing Director at Lindner Washtech. Topics include integrated plant engineering for a defined throughput, seamless and automated material flow regulation, smart performance monitoring and recyclate qualities for use in the cosmetics and food sectors.

Ready for a revolution in mechanical recycling

From post-consumer plastics to high-quality recyclate that can also be used in sensitive applications such as cosmetics and personal care – as well as being energy efficient and reliable? That was the key question at the start of the project. At K 2025, Lindner and a well-known partner will present a revolutionary world first in mechanical recycling. It is an innovative washing process that sets new standards in material purity, redefining the recyclate quality for the cosmetic and personal care sector. This technology also opens up access to other complex areas of application and the method will be presented for the first time at Lindner's exhibition stand.

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