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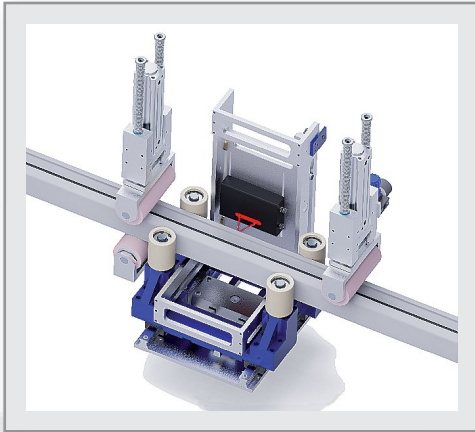
RECYCLING IS A GAME
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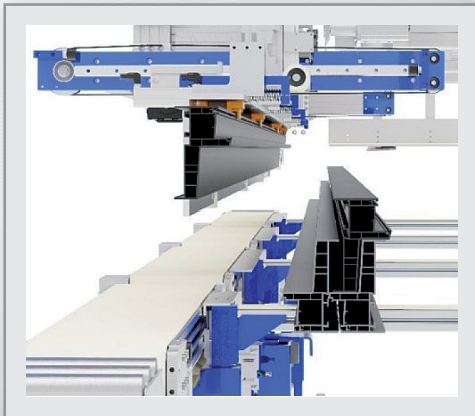
Stein Profile Stacker



Profile length measurement during extrusion

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

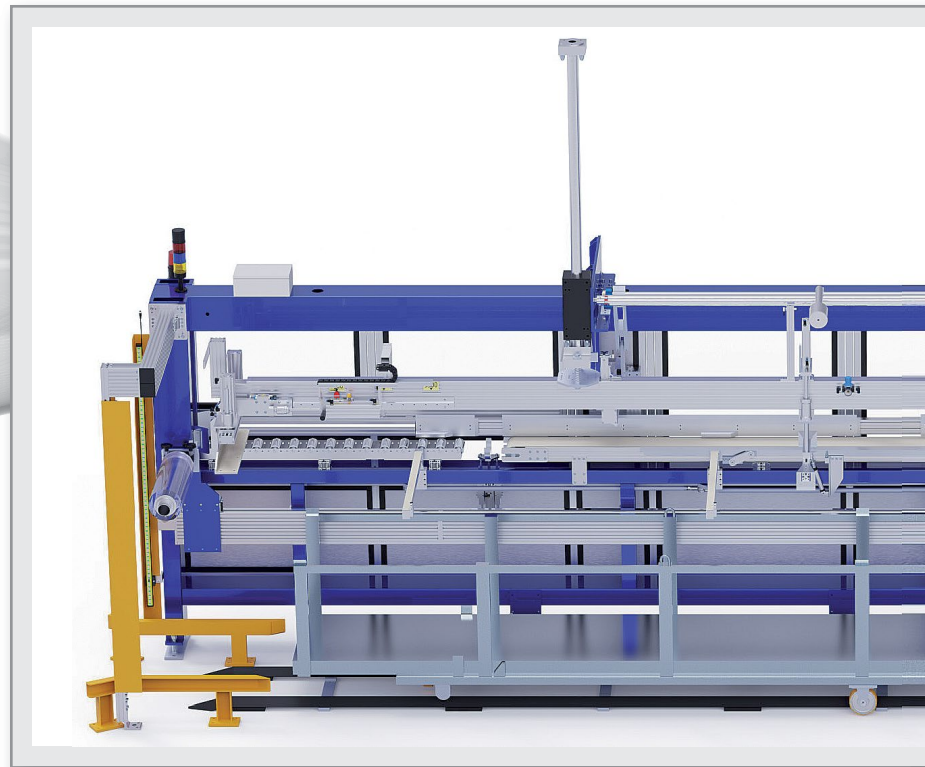
The measured length can be used to check and correct the cutting device of the extrusion line or for documentation (quality assurance) of the produced profile lengths.



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.

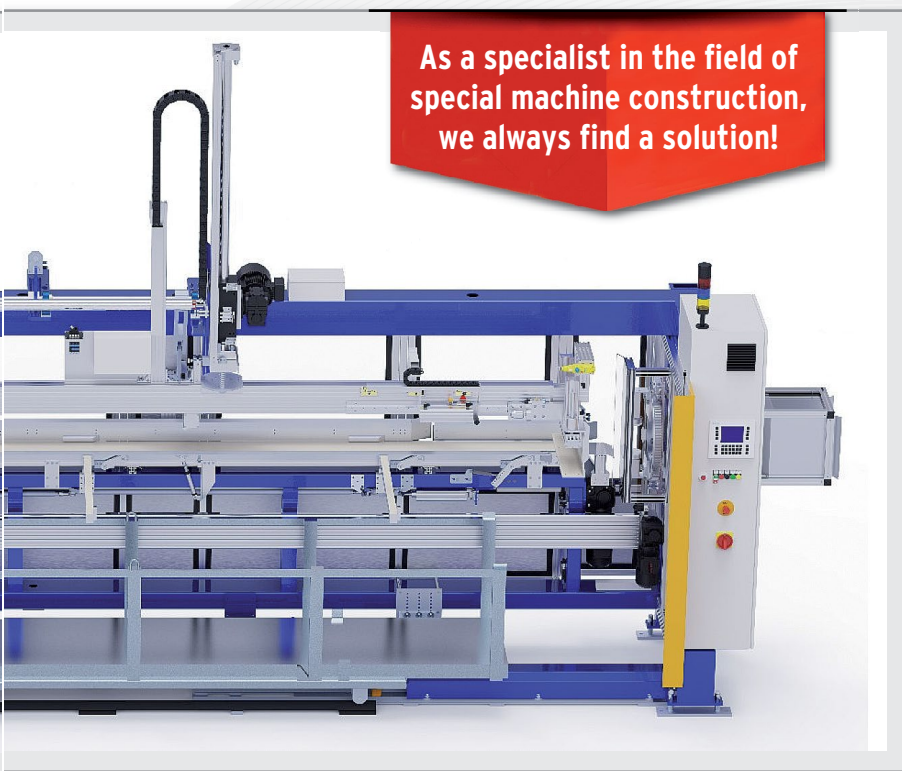
Stein Profile Stacker



Weight determination during extrusion

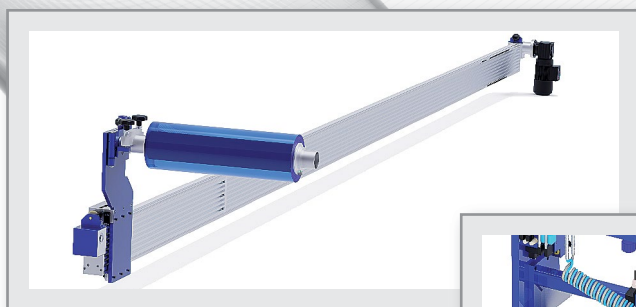
With the help of special weighing units, individual profiles can be weighed before a profile layer is formed. The determined weight can be used to optimise the extrusion.

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



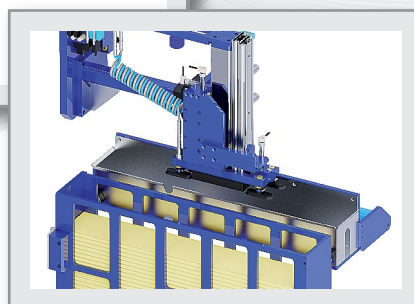
Cassette handling

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.



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GmbH & Co. KG**

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Firms in this issue	6	New and Further Developed Solutions	37
Imprint	7	A Strong Partner for Circular Economy	38
Industry News	8	New Sarlin® TPVs with up to 40% Recycled Content	39
Calendar	8	Certified Recyclates for High-Quality Applications	40
Cooperation Strengthened	8	The Full Range of Advanced Masterbatch Technology	42
Old Plastic Becomes New Adhesive – Project on Chemical Recycling Launched	9	Evolution Accelerator for Plastics	43
Memorandum of Understanding to Develop Strategic Partnership Signed	9	High-Efficiency Technologies for Processing and Recycling Plastics	44
Recyclable Packaging for Dry Pet Food Range Introduced	10	Increased Flexibility. Reduced Energy Consumption – Innovative Solutions for Thermoformed Technical Parts	46
Environmental Management Certificate Distribution of High-Quality Regranulates Launched	10	Live Material Tests and Precise Tube, Hose and Pipe Measurements	47
New Brand Launched – Investment in the Circular Economy	11	Plast Eurasia 2023	
New Benchmark in Plastics Recycling	12	Global Plastic Industry Actors Gather in Istanbul	49
Presence in the Plastic Recycling Market Expanded	13	Recycling – Company Anniversary	
In-Line Thermoforming	14	60 Years in the Game	50
New Services in the Field of Cross-Linked Materials	16	Measurement Technology, Recycling – Case Study	
New Masterbatch Carrier System for Food Contact Applications	16	„Not only do we save time, but we also get clear, reproducible results“	51
Services Expanded	17	Film Extrusion	
Market Survey: Inflation, Uncertainty Weigh Heavily on Industry	18	The Use of Recyclates Reduces the Carbon Footprint of Films the Most	52
New Executive Board Member	20	Film Extrusion – Case Study	
New R5 RA Introduced	20	The New Generation of Recyclable Plastic Films	53
Quality Inspection with Sorting and Material Analysis Systems	21	Extrusion Tooling	
New 500 Series Ruber/Silicone Extrusion Crosshead	22	Getting the Most from Your Extrusion Tooling	54
Large Die Cart with Crosshead Introduced	22	Chemical Recycling – Interview	
Sustainability Initiative for Recycling of Engineering Plastics Launched	23	„Recyclates from chemical recycling will be more expensive than virgin material“	57
New High-Performance Extrusion Line for 5-Layer PE-RT Pipes Presented	24	Recycling	
Market Study: Bioplastic Films	25	For a Greener and Cleaner Future	59
A New Class of Engineering Polymer	26	Film Extrusion	
New 800 Series Hybrid Extrusion Tooling Announced	26	Film Stretching Line Concepts for Multiple Applications – High-End Film for a Better World	60
PET Recycling in Central Java	27	Automation	
Fakuma 2023 –	27	„Quality is our Priority“	61
Focus on Plastic as a Recyclable Material	28	Recycling	
Highlights Fakuma 2023	29	Growing Markets, Higher Throughputs	62
Super Clean Recycling Technologies – High Performance OMNI Recycling Systems for Today’s and Tomorrow’s Increasing Recycling Requirements	30	Pipes, Service	
Process Transparency and Digital Intelligence are Factors for More Sustainability	32	geoTOM® – The Creation of Digital Tracings with the Information of a Water Canalization Network is Now Possible	63
Process in Machinery Technology and Service	34	Pipe Extrusion	
Innovative Solutions that Enhance the Circular Economy at Fakuma 2023	36	Innovative Die-Heads Design for Multilayer Plastic Pipes with Inner Layer in PA or PVDF for Chemical and Gaseous Material Transport	65
		Corona Treatment – Interview	
		In the Spotlight	66



28

With excitement and anticipation, the industry is looking forward to the 28th Fakuma international trade fair for plastics processing in Friedrichshafen/Germany from 17th to 21th of October



57

Mechanical recycling processes have already matured. Chemical recycling is comparatively young. But will it be able to establish itself? An interview with Manfred Hackl (CEO) and Klaus Lederer (Business Development Manager) of EREMA Group



60

At ArabPlast Brückner Maschinenbau will show stretching line concepts for high-quality packaging films as well as sophisticated technical films. Focus of the new developments are topics such as recyclability and circularity but also energy supply, storage and savings



61

The German-based CCA GmbH develops efficient and high-performance solutions for plastic pipe extrusion. The CCA calibration sleeves precisely match their customers' production requirements and optimize complex production processes

geoTOM® is a mobile application designed by Molecor to geoposition pipeline networks with all the data of each piece in a simple and intuitive way. The use of the app facilitates the access to technical information of water networks and increases the capacity of control and water management

Tecnomatic has recently introduced new die-heads for multilayer plastic pipes with inner layer in PA for hydrogen transport or inner protectivelayers in PVDF



63



65

Index of Advertisers, companies and fairs referred in this issue

Achberg	37	Moretto	33
Adsale	Outside Back Cover	motan	7, 32
ALBA	27	NGR	14
ALPLA	12	PaI Plast	38
BBE	31	PIE	18
Brückner	49, 52, 60	PlasMec	11
Busch	20	Plast Eurasia	41, 49
Ceresana	25	Polyplastic	45
CHINAPLAS	Outside Back Cover	Polyplastics	23
CCA	17, 61	Promix Solutions	29
Color Service	16	Schall, P.E.	28
Coperion	44	Schönenberger	23
EREMA	13, 57	SIKORA	20, 43, 47, 51
Erge	39	SKZ	9, 16
Fakuma 2024	28	SML	21
Feddem	34	Sesotec	21
Fimic	Outside Cover, 50	Starlinger	13, 59
Gneuss	30	Stein Maschinenbau	Inside Front Cover+3
Guill Tool & Engineering	22, 26, 27, 54	Tecnomatic	35, 65
Herbold Meckesheim	37, 44, 62	Teknor Apex	39
Hosokawa Alpine	53	Tosaf	16, 42
ILLIG	46	UTH	10
Informa Markets	8	VDMA	57
Koch	19	Vecoplan	17
Lanxess	9	Vetaphone	66
Lehmann&Voss	43	VM Verlag	Inside Back Cover
Lindner	13	Weber, Hans	24
MAAG	29, 36	WIS Kunststoffe	40
Meraxis	11	WM Thermoformin	14
Messe Düsseldorf	8	Zumbach	15
Mondi	10		
Molecor	25, 63		



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Fakuma 2023

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Friedrichshafen / Germany
www.fakuma-messe.de

SPE Thermoforming Conference 2023

24 - 26 October 2023
Cleveland, Ohio / USA
<https://thermoformingdivision.com>

Plastimagen 2023

07 - 10 November 2023
Mexico City / Mexico
www.plastimagen.com.mx

swop (Shanghai World of Packaging)

22 - 24 November 2023
Shanghai / PR China
www.swop-online.com/en

Vinyl Sustainability Summit

4-6 December 2023
Austin, Texas / USA
<https://vantagevinyl.com/>

Plastivision

07 - 11 December 2023
Mumbai / India
www.plastivision.org

pacprocess MEA

12 - 14 December 2023
Kairo / Egypt
www.pacprocess-mea.com

ARABPLAST

13 - 15 December 2023
Dubai / United Arab Emirates
<https://arabplast.info/>

PLASTEX

9 - 12 January 2024
Cairo / Egypt
www.plastexegypt.com

ICE USA

9 - 11 January 2024
Orlando, Florida / USA
www.ice-x.com



Cooperation Strengthened

Messe Düsseldorf Asia and Informa Markets, two of the region's leading international exhibition organisers, have announced a landmark partnership that will see the consolidation of their plastics and rubber trade exhibitions in Southeast Asia.

From 2024, the new alliance will see the two parties jointly organise the Plastics and Rubber series of exhibitions, kick starting with Plastics and Rubber Thailand which is scheduled to take place from 15 to 18 May 2024 at BITEC, Bangkok.

The strategic alignment of the plastics and rubber portfolio by Messe Düsseldorf Asia and Informa Markets will see them streamline their respective plastics and rubber exhibitions in the region into three anchor events. Starting in 2024, the partners will jointly organise Plastics and Rubber Thailand, and Plastics and Rubber Indonesia, in addition to Plastics and Rubber Vietnam which has been a long-established collaboration since 2008.

Aimed at harnessing collective capabilities and expertise of both partners to deliver an enhanced business experience for the industry, Gernot Ringling, Managing Director, Messe Düsseldorf Asia, said: "Our alliance with Informa Markets builds upon a long history of successful partnerships in the region. By consolidating the plastics and rubber trade exhibitions to now include Thailand and Indonesia starting in 2024, we are poised to enhance our customer experience both locally and internationally, delivering even greater value for business growth, especially

against the backdrop of industry sustainability and circularity goals. This latest endeavour amplifies our regional presence and further streamlines both our efforts to serve the Southeast Asian markets effectively. Following in the successful footsteps of our joint partnership with Plastics and Rubber Vietnam in Ho Chi Minh City and Hanoi, with Plastics and Rubber Thailand and Plastics and Rubber Indonesia, we are paving the way for the absolute best local and regional platforms for international businesses in the most dynamic markets in Southeast Asia within the ever-evolving plastics and rubber landscape." The synergy will capitalise on Informa Markets' deep regional insights and connections, complemented by Messe Düsseldorf Asia's extensive global expertise in plastics and rubber and multi-sectorial competence, including their connection with K, the world's leading plastics trade fair organised by Messe Düsseldorf.

The plastics and rubber industries in Thailand, Indonesia, and Vietnam play pivotal roles in the global market. Thailand has emerged as a leading manufacturer and exporter of plastic and rubber products, serving key markets such as China, Japan, India, and the ASEAN region. Similarly, Indonesia and Vietnam are crucial players in this sector, contributing significantly to the regional and global supply chains.

Messe Düsseldorf Asia

➔ www.mda.messe-duesseldorf.com

Informa Markets

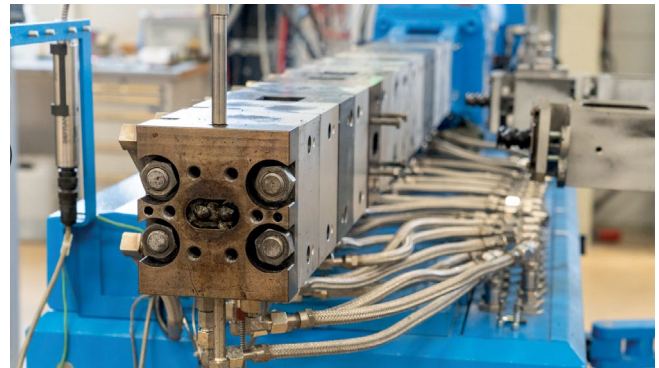
➔ www.informamarkets.com

Old Plastic Becomes New Adhesive – Project on Chemical Recycling Launched

A recently started research project of the Fraunhofer Institute for Manufacturing Technology and Advanced Materials IFAM in Bremen and the German Plastics Center SKZ in Würzburg aims to recycle thermally damaged plastics by chemical recycling. The material of choice is PET, which is already very well established in mechanical recycling. Thanks to the well-known bottles and the deposit system in Germany, the material is mostly sorted by type and most of it is already efficiently recycled. The RezyBond project is dedicated to PET fractions that have aged too much as a result of several recycling passes or do not end up in this (bottle) cycle at all, such as other PET packaging.

The special feature of the process is that in this case the chemical recycling is carried out on a standard twin-screw extruder. "Our goal is to develop a continuous, reactive recycling process of PET recyclates into polyester polyols. These then serve as chemical base material again," explains Hatice Malatyali, group manager extrusion and compounding at SKZ. The polyols obtained serve as a base material for a wide variety of technological areas, such as adhesives or even coatings. In the project, these are to be used as starting materials for adhesive formulations and thus transferred directly into an application. A demonstrator plant is also planned at the SKZ in order to make the process accessible to interested medium-sized companies.

Mechanical recycling is now an established technology. Unfortunately, the plastics to be recycled are usually not sorted by type. The consequence is recyclates consisting



Twin screw extruder in the SKZ pilot plant (Picture: SKZ)

of a mixture of different plastics and the associated loss of material properties. The result is often downcycling, i.e. the use of these recyclates in other (inferior) applications. In addition, there is a certain amount of damage to the material with each recycling cycle, which also negatively affects the properties of the plastics. In order to integrate these two cases into the circular economy, chemical recycling is considered a possible solution. Here, the polymers are degraded down to their basic materials, in order to be subsequently recycled with a low input of new raw materials without any loss of quality. The disadvantage, especially for medium-sized companies, is the high investment in the technology.

Further information:

► www.skz.de/en/research/circular-economy/recycling
Hatice Malatyali, h.malatyali@skz.de

Memorandum of Understanding to Develop Strategic Partnership Signed

German specialty chemicals company LANXESS a global player in the chemical industry and one of the largest flame retardant producers, and FRX Innovations, a leading global developer and manufacturer of environmentally sustainable polymeric flame-retardant additives, have announced the signing of a memorandum of understanding covering:

1. the evaluation of a contract manufacturing, by LANXESS, of a family of FRX patented NOFIA® products,
2. the potential production by LANXESS, of an FRX patented raw material necessary for the production of NOFIA® flame retardants,
3. the exploration of potential marketing by LANXESS of NOFIA® flame retardants in specific sectors and/or geographies.

"Being a unique polymeric, sustainable flame-retardant solution, the NOFIA® range fits perfectly with LANXESS' existing phosphorus flame retardant portfolio and long-term strategy of sustainable flame-retardant solutions," said Karsten Job, Managing Director of

LANXESS' Polymer Additives business unit. "We believe that FRX's NOFIA® technology will capture important market share in this market."

"This relationship with LANXESS is a definitive step in the growth of our NOFIA® business," said Marc Lebel, CEO of FRX Innovations. "As a direct consequence of recently passed legislation, market dynamics have changed significantly, causing NOFIA® products to be pulled into large new application areas. LANXESS operates one of the world's premiere Flame-Retardant Additives businesses and we believe that a strategic partnership with LANXESS can be pivotal to capturing the considerable growth opportunities ahead for us both." Lebel continued, "The relationship we are discussing fits well with FRX's mission to be a leader in the environmentally sustainable revolution now driving the flame-retardant industry."

LANXESS

► www.lanxess.com

FRX Innovations

► www.frx-innovations.com

Recyclable Packaging for Dry Pet Food Range Introduced

Mondi has collaborated with Fressnapf, Europe's market leader for pet supplies, to switch their packaging to a new range of premium mono-material recyclable solutions using process colour printing technology.

Fressnapf | Maxi Zoo's exclusive brand SELECT GOLD dry pet food range will now be packed in Mondy's FlexiBag Recyclable, BarrierPack Recyclable and Recyclable StandUp Pouches. These mono-material packaging solutions provide strong barrier properties providing protection from moisture, fat and odour and are strong and flexible to pack and store. As certified by Institute cyclo-HP, the mono-material packaging is recyclable with other mono-polyethylene (PE) films using various existing recycling streams across Europe,

contributing to a circular economy. The adaptability of the packs enabled Fressnapf | Maxi Zoo to design around 150 pet food packaging designs from 300 g to 12 kg. All packaging sizes offer long shelf life and ease of use for consumers.

Mondi has an ongoing partnership with Fressnapf | Maxi Zoo and quickly responded to their request to create the new packaging range for the pet food. The new SELECT GOLD range features expanded colour gamut printing together with a new screening technology by U.Günther, providing sharp text and visuals on the packs. The innovative process uses less inks and eliminates chemicals from the plate production.

Mondi

➔ www.mondigroup.com



(Photo: Mondy)

Environmental Management Certificate

UTH's management systems in the areas of quality and environment have now been certified according to the internationally recognized norms DIN EN ISO 9001 and DIN EN ISO 14001. The focus of the worldwide operating machine manufacturer was on the validation of their in-house environmental management. "We want to transparently show that social responsibility and our commitment to sustainability is anchored in UTH's corporate management," says Managing Director Peter J. Uth.

During the certification the auditors examined all quality and environment management processes that have been implemented and continuously refined by

DIN certificates award ceremony in May 2023: Peter J. Uth (Managing Director at UTH, second from right) and Sascha Klüber (Project Manager Quality and Environment Management, second from left) receive the DIN EN ISO 14001 and DIN EN ISO 9001 certificates – presented by Christian and Sarah Weinmeister from the certification company CERTainable



UTH. Especially with regard to the environment all information concerning relevant topics in the different departments were evaluated. These include for example ecological aspects in the product development and the production, the selection of suppliers, the handling of hazardous substances or in the waste separation and disposal. Additionally, the examiners inspected the risk management and the emergency plans.

"The auditors have confirmed that our environment management fulfills the required criteria for DIN EN ISO 14001:2015," underlines Peter J. Uth. He continues: "This certification is a determined step for UTH GmbH because it is a decisive benchmark for our customers: environmental protection, sustainability in the supply chain as well as transparency are continuously gaining importance in business relationships. The certification according to DIN EN ISO 9001 is also a highly gratifying result. It proves the high standard of our quality management system, which many of our customers from the rubber, tire and silicone industries worldwide rely on."

The DIN EN ISO 9001 and 14001 certifications are based on the principle of continuous process improvement. "This ensures that our management systems will continue to be optimized in the medium and long term," says Peter J. Uth. The concept of continual optimization is firmly implemented at UTH: "All processes are regularly checked and enhanced if necessary." This way the company is well-positioned for the future – in a market which is characterized by ever-increasing requirements, new standards and specifications.

UTH GmbH

➔ www.uth-gmbh.com

Distribution of High-Quality Regranulates Launched

The Swiss distributor Meraxis has partnered with the Danish recycle manufacturer RC Plast: Meraxis will begin distributing selected RC Plast products in Europe. The distribution portfolio includes high-quality unfilled polypropylene (R-PP), such as that made from recycled fibers for technical applications. The aim of this partnership is to make it easier for plastics processors to switch to sustainable recycling material, thanks to both companies' extensive product and application expertise.

"Due to its decades-long experience and reliable sources for materials, RC Plast can guarantee maximum quality and long-term availability," says Dr Stefan Girschik, CEO of Meraxis. "This partnership allows us to further expand our portfolio of high-quality recyclates. As a result, we're enabling more and more customers to switch to sustainable material alternatives. In the automotive industry, in particular, as well as in the construction and packaging sectors, we're seeing increased demand for high-quality secondary raw materials that require guidance and individual solutions." In order to promote the development and production of customized applications, Meraxis is contributing not only its distribution network to the partnership, but also its research and development expertise.



Strategic partners, from left to right: Kudret Sanli – Sales Director (Meraxis), Allan Poulsen – Chief Sales Officer (RC Plast), Helle Vingolf – CEO (RC Plast), Elias Uhlig – Research & Development Engineer (Meraxis), Dennis Lyhne – Research & Development Engineer (RC Plast), Andreas von Dorn – Research & Development Engineer (Meraxis)

Meraxis Group

➔ www.meraxis-group.com

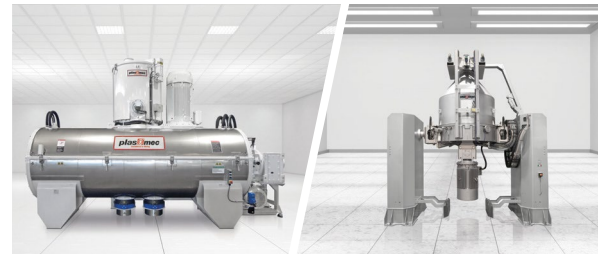
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New Brand Launched – Investment in the Circular Economy

The globally active ALPLA Group has been investing in building up its own recycling capacities since 2005. The plastic packaging company now operates 13 plants, including four joint ventures with regional partners, and aims to be processing at least 25 per cent post-consumer material (PCR) by 2025. After investing millions in new sites in South Africa, Romania and Thailand as well as in a site expansion in Poland, ALPLA is now consolidating all of its activities under the new brand ALPLArecycling.

ALPLA is focusing on mechanical recycling and has invested more than 50 million euros a year in the global expansion of its activities since 2021. Thanks to new plants, the expansion of existing facilities, joint ventures and strategic acquisitions, the annual installed and projected output capacity has since doubled to 350,000 tonnes of PCR material. Together with the construction of a new facility in South Africa as recently announced and the site expansion in Poland, the annual capacity amounts to

Packaging and recycling specialist ALPLA processes used PET bottles as well as used HDPE packaging



266,000 tonnes of rPET (recycled PET) and 84,000 tonnes of rHDPE (recycled HDPE).

Around 1.100 ALPLA employees work on recycling. In addition to the production of high-quality rPET and rHDPE at 13 plants, including four joint ventures with regional partners, the company focuses on the development of sustainable packaging solutions with a high proportion of recycled materials, optimum recyclability and low weight. The growing importance of the recycling sector, strong expansion and increasing demand have now led to the establishment of the ALPLArecycling brand together with its own website. There, you will find comprehensive information about recycling at ALPLA, the products available and the locations of the recycling plants and joint ventures at a glance.

"Every year, we are producing more high-quality, affordable and sustainable packaging from used packaging. With our own production, development and material optimisation, we ensure quality and quantity, while also strengthening regional and national recycling loops," emphasises ALPLA CEO Philipp Lehner. Recycling plastics re-



Dietmar Marin, Managing Director Recycling Division at ALPLA (Pictures, Copyright: ALPLA)

duces carbon consumption by up to 90 per cent, reduces waste and creates value and jobs at the sites.

"Our many years of expertise and access to our own materials give our customers a competitive advantage. The new brand is a clear commitment to recycling and to our expansion plans in growth markets," explains Dietmar Marin, Managing Director of the Recycling division at ALPLA. In the coming years, the company will intensify its activities in areas such as southern Africa, the Middle East and the Asia-Pacific region. "Interest in sustainable packaging is growing all over the world. We are present as pioneers in all the regions of the world and are already a strong partner for future solutions," says Marin.

ALPLA currently processes 20 per cent PCR material and aims to increase this to at least 25 per cent by 2025. In addition, all packaging solutions are to be fully recyclable by then.

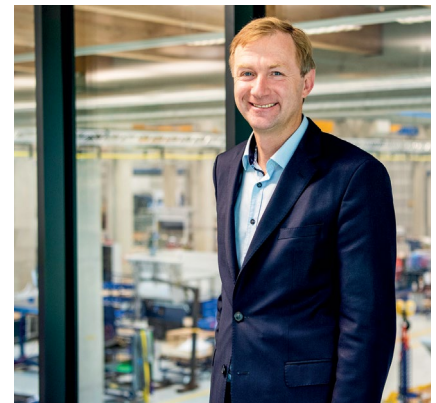
New Benchmark in Plastics Recycling

One Vision – One Goal – One Company. The future is plastics recycling, the owners of Erema Group and Lindner Holding agree. The jointly founded holding company BLUEONE Solutions aims to leverage both companies’ expertise and jointly execute research projects to create industry standards in plastics recycling.

From waste to recycled granulate, potential new raw materials pass through several different recycling processes. These range from sorting, shredding, washing, and drying to extrusion, including filtration, compounding, and odour optimisation. The challenge for the industry lies precisely in fine tuning these individual recycling steps – in particular when energy efficiency and high recycle qualities are to be achieved. The founding of BLUEONE Solutions, a company which is owned 50:50 by the Erema Group and Lindner Holding and to which shares of Lindner Washtech were contributed, is that very starting point. The know-how and experience of Lindner Washtech will be combined with that of the extruder manufacturer Erema. They aim to significantly increase the added value and set industry standards by adjusting and optimising processes and conducting joint research projects. New paths on all too new familiar terrain since the experience of the two companies speaks for it-



Manfred Hackl, CEO of EREMA Group: "A functioning recycling industry demands a focus on the entire process and value chain from waste collection and processing to recycling and the final plastic product." (Copyright: Erema Group)



Michael Lackner, Managing Director of Lindner: "With the merging of the companies, we want to revolutionize plastics recycling and, above all, set new standards in terms of quality, quantity and efficiency." (Copyright: Lindner Recyclingtech)

self: the Erema Group has been active in plastics recycling for 40 years and is considered the extrusion market leader. Lindner, a quality manufacturer of shredders and recycling facilities for the waste management industry for the past 75 years, has established a world-wide presence with the Lindner Washtech brand as a washing facilities specialist in the past 10 years. Joint research projects allowed the companies to enter into a close technical exchange years ago.

For a long time now, the two companies have been united by their common vision of expertly driving

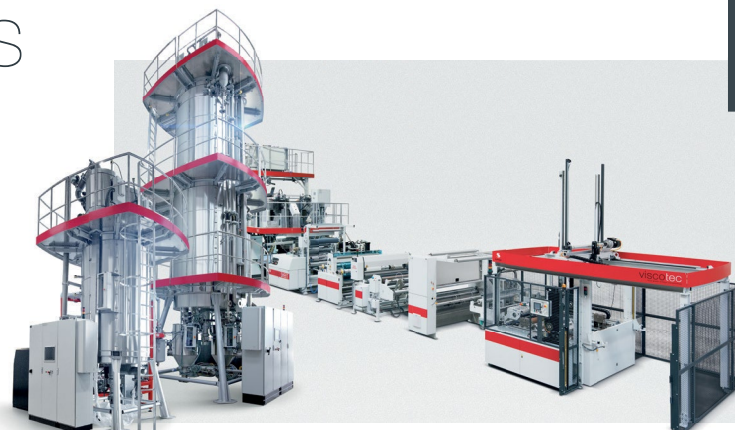
forward plastics recycling. The ever-increasing challenges in the plastics recycling market ultimately led to the founding of BLUEONE Solutions. Founding BLUEONE Solutions clearly puts the focus on the further development of plastics recycling. In the future, the exchange of knowledge and new research projects will not only enable synergies to be exploited, but above all, it will optimise the overall cycle.

Lindner
 ➔ www.lindner.com

EREMA Group
 ➔ www.erema-group.com

rPET recycling solutions

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Presence in the Plastic Recycling Market Expanded

NEXT GENERATION GROUP, a leading provider of unique plastic life solutions, acquires a majority share in HydroDyn, a renowned technology provider specializing in plastic waste cleaning and purifying. This strategic partnership solidifies the group's commitment to offering comprehensive plastic recycling solutions, particularly in the field of post-consumer recycling.

Under the terms of the agreement, HydroDyn will retain its operational independence while working closely with NEXT GENERATION GROUP, by using a high synergy potential. This collaboration will allow both companies to leverage their expertise and resources to deliver comprehensive and efficient end-to-end plastic recycling solutions that address the evolving needs of customers in the recycling machinery market. The shared objective is to prioritize the attainment of specific polymer characteristics that are essential for a diverse array of commodity applications, in order to effectively substitute virgin plastics.

"By joining forces with HydroDyn, NEXT GENERATION GROUP is well-positioned to meet the increasing

demand for integrated plastic recycling solutions," stated Josef Hochreiter, CEO of Next Generation Holding GmbH. "HydroDyn's proven track record and innovative technology make them an ideal partner as we strive to lead the way in driving sustainable recycling practices."

The acquisition provides HydroDyn with access to NEXT GENERATION GROUP's extensive global network, unlocking new opportunities for growth and expansion. Michael Hofmann, CEO of HydroDyn, expressed his enthusiasm about the partnership, saying, "Joining the group not only gives us access to a world-class network but also provides the financial backing and stability needed to realize our ambitious growth plans. Together, we can make a greater impact on plastic waste reduction."

NEXT GENERATION GROUP

▶ www.ngr-world.com

HydroDyn

▶ www.hydrodyn.de

In-Line Thermoforming

WM Thermoforming Machines has realized and supplied the first complete INTEC thermoforming In-line plant in February 1993. Since then, more than one hundred complete In-line plants have been supplied and are now operative all around the world.

The main countries where these In-line systems are installed are Italy, Spain, United Kingdom, France, Russia, Turkey, Israel, Saudi Arabia, Indonesia, Brazil and Australia.

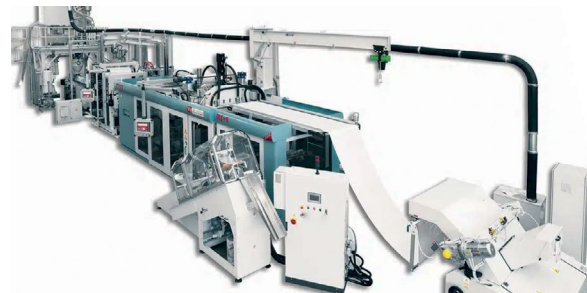
Final users of the Intec lines are manufacturers of disposable plates and cups as well as of the so-called "aquacup" containers and the most used materials are High Impact Polystyrene (HIPS) and Polypropylene (PP).

Some of the plants have been designed for multilayer sheet, used for the production of items in HIPS and for PP cups; WM also finalized a line composed of 4 extrusion groups for the production of two-colors cups.

General functioning of the In-line system: "In-line thermoforming" means a "closed loop process"; a complete "turnkey installation" which starts from the handling of the raw material granules and arrives to the boxing of the finished products. The line begins with the sheet extrusion group which may be equipped with one or more extruders, depending on the quality of the sheet needed (mono or multi-layer). In the extruder hoppers the required proportion of granules of virgin material and granulated scrap, returning from the line itself, are dosed and mixed before feeding the extruders.

Single screw extruders mix and plasticize the materials and a compensation gear pump guarantees a constant feed to the flat extrusion die head.

The flat die controls the characteristics and the thickness of the extruded sheet which is fed into a temperature controlled calender.



There are two different types of calender available depending on the material used:

1. Laminating calender: consists of three rolls that provide to the thickness calibration and the cooling of the sheet itself, then a haul-off unit feeds the transport toothed chains of the thermoforming machine where the sheet is re-heated by an oven consisting of upper and lower heater banks with infrared heating elements. This kind of calender may be used either for HIPS and PP.

2. Thermocalender: consisting of five coated rolls used to maintain the temperature of the extruded sheet, that is fed directly to the thermoforming machine where the material is thermoformed without passing in the oven because no re-heating is required. The thermocalender is normally used for HIPS only.

After the calendaring phase, depending on the nature of the final product, the thermoforming machine may be equipped with:

- Forming and punching in place (cutting of the perimeter of the product directly into the forming tool) in a single station; or
- Forming and subsequent separate trimming (the cutting of the product edges is made after the forming into a separate press) two different stations.

The products are then stacked, counted and sent to the packaging groups, while the line scraps are fed to a granulator. The re-grinded material is finally blown

back to the dosing-mixing units over the extruders to be reprocessed.

Advantages of the INTEC in-line thermoforming process:

- Improved quality of the final product;
- Better use of raw material;
- Better use of energy = energy saving;
- Space reduction;
- Personnel reduction;
- Optimization of production output.

Working In-line – facts to consider: The In-line process is suitable for huge and long series productions. Disposable plates and cups, dairy products containers like yogurt cups or butter/margarine tubs are typical applications.

Due to the involvement of extruders, calender, thermoforming and stacking groups, it takes time to change from one product to another.

The In-line process requires one extruder for one thermoforming machine. For this reason in some cases the In-line thermoforming doesn't offer the same final Kgs output than using one extruder separately. It is important to size properly the extruder capacity according to the product to be thermoformed.

Conclusion: The production with In-line technology system has extremely positive results in terms of quality, costs and efficiency, despite a little less flexibility. For large batches the investment in the In-line solution is absolutely convenient.

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www.wm-thermoforming.com

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2

Min. object diameter (mm)



100

Max. object diameter (mm)



up to 20

Scan rate (scans/s)

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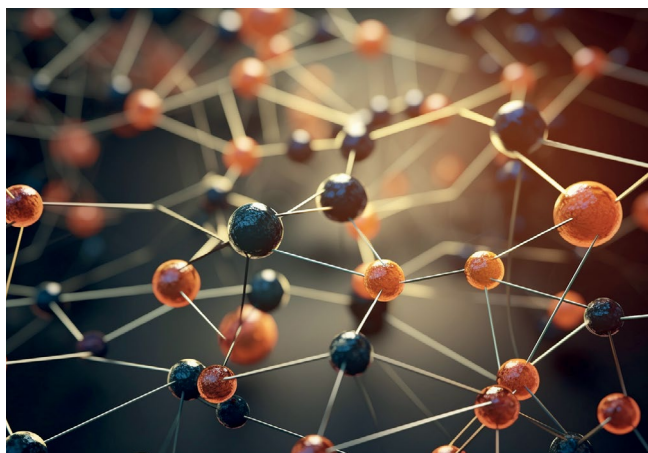
New Services in the Field of Cross-Linked Materials

Cross-linked materials, such as thermosets or elastomers, are currently coming into focus. SKZ has therefore founded a research group for this purpose, which also supports industry with extensive services.

The development of cross-linked plastics with precisely adapted property profiles is increasingly coming into focus for many applications in electromobility, medical technology, fuel cell technology or the generation of

Cross-linked plastics, such as thermosets or elastomers, are currently coming into focus

(Image: Denis Yevtekhov/stock.adobe.com)



renewable energies. The German Plastics Center SKZ is responding to increasing customer inquiries in this area with its own research group. The offer now also includes services for industrial customers.

"In addition to initial research projects, we have started directly with the development of services. The equipment required for this is already available to us in the pilot plants. Twin screw and planetary roller extruders as well as a kneader with extensive metering technology provide a very good basis for processing thermally sensitive materials. We are already looking forward to the first inquiries," explains Dr. Andreas Köppel, head of the "Cross-linked Materials" research group.

Current services for industrial clients include:

- Conducting material research
- Formulation development
- Process design for compounding of cross-linking plastics
- Development of recycling concepts
- Continuous compounding of silicone (elastomers)
- Continuous compounding of casting compounds and thermoset molding compounds

SKZ – Das Kunststoff-Zentrum
Dr. Andreas Köppel, a.koeppel@skz.de

➔ www.skz.de

New Masterbatch Carrier System for Food Contact Applications

A newly developed, universally applicable masterbatch carrier system from Tosaf Color Service now complies with all common food contact requirements. These include the recommendations of the German Federal Institute for Risk Assessment (BfR) as well as the complex and varied regulatory requirements of the USA and China (FDA, China Food Safety Law). Any color and, where applicable, functional and combination masterbatches based on this carrier system can be used across continents without hesitation for any appropriate applications ranging from translucent and opaque rigid and flexible packaging, toys and household items to components for machinery and equipment used in food processing.

The new UN-F (Universal Food) carrier system is based on a product, which itself already has the relevant approvals, from a leading plastics additive manufacturer. As Rudolf Reinhart, Product Manager at Tosaf Color Service, explains: "Our new carrier system has a very similar structure to our previous standard and is therefore just as compatible with the thermoplastics used in these applications. It also has virtually identical mechanical and processing characteristics, such as good suitability for even sparingly dispersible products. This has been confirmed by all preliminary testing of the carrier



(© istockphoto.com / FotografiaBasica)

system carried out in-house and at Kunststoff-Institut Lüdenscheid and by pilot masterbatch applications at customers. The key difference is that it doesn't contain potentially harmful chemical substances that could migrate into foodstuffs."

Tosaf Color Service
➔ www.tosaf.com

Color Service GmbH & Co. KG
➔ www.color-service.de

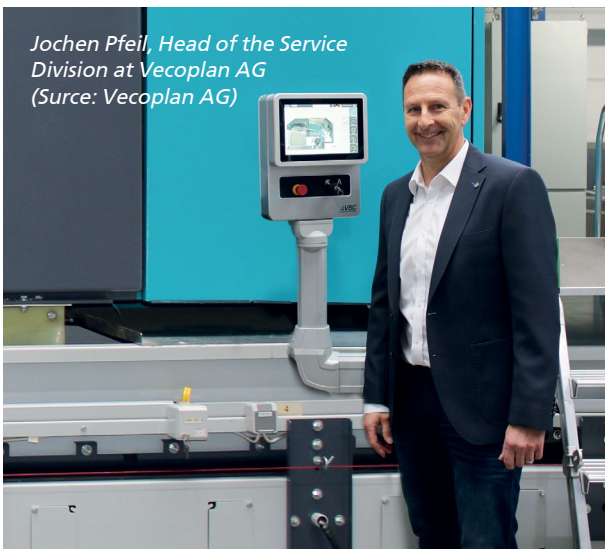
Services Expanded

How can customers be optimally served world-wide? Among other approaches, Vecoplan offers a digitalisation concept that it has now expanded to include additional services. The machine manufacturer is also establishing more branches in selected locations. Jochen Pfeil, Head of the Service Division, knows how customers benefit from these changes.

“The control panel plays a special role in the intelligent networking of machines and processes, because it’s indispensable for optimal communication between man and machine,” explains Jochen Pfeil, Head of Business Unit Service at Vecoplan. Vecoplan also offers a powerful digitalisation concept with its Vecoplan Smart Center (VSC): One component is the modern communication interface VSC.connect. The integrated, intuitive VSC.control panel is a communication medium for the machine’s control system and a live link to the Vecoplan technicians. Vecoplan technicians can use the panel to assist employees with operation and service by connecting to the cloud. “When service is required, our experts can use this to check the system and get it up and running again perfectly in more than 80 percent of cases,” promises the Divisional Head. Another possibility: With the support of cameras or data glasses, they look over the shoulder of the customer’s service technician on site and help him step by step with the solution. Vecoplan has also created specially developed service tutorials that enable the customer to optimally prepare for the maintenance of the machine.

Vecoplan already presented this digitalisation concept at LIGNA 2019. In the meantime, it has supplemented its VSC with additional digital services. These include online commissioning, remote service, key performance indicators and access to a media database. Users simply need to network their machines using VSC.connect to use these digital services.

Vecoplan AG
www.vecoplan.com



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Market Survey: Inflation, Uncertainty Weigh Heavily on Industry

Uncertainty, inflation, low demand – the signs are not good. For more than three and a half years, the European plastics industry has had little reason to remain optimistic. Anyone who thought stability would return after the pandemic was clearly wrong. The impact of Russia's war of aggression against Ukraine is being felt, even though it's not as hot a topic for the media as it was a year ago. To gauge how business is developing in the European plastics industry, PIE conducted its 10th Market Survey. The questionnaire was made open to PIE subscribers and other industry players and attracted almost 200 participants from across Europe.

Although the energy crisis loosened its grip on European economies, rampant inflation and general uncertainty continue to weigh heavily on the European plastics industry along the whole value chain. Almost half of the survey participants said their companies did worse in H1 2023 compared to H2 2022, with only 28.7% reporting some improvements; 25% noted no tangible changes. Things have been going downhill for a while now – in the second half of 2022, nearly half of the respondents admitted worsening business performance, while only 26.7% said things were looking up.

Not all regions are in the same boat, as no surveyed companies in France, Spain, Portugal, the UK, and Ireland reported their operations deteriorating. The majority of companies in the Benelux, Central and Eastern Europe, and Italy reported weaker business.

In terms of sectors, the situation seems to have been particularly dire for recyclers, which is no surprise given falling prices for virgin plastics and huge cost pressures. Over 70% cited less business in H1 compared to H2 2022, with none reporting an improvement.

Despite H1 2023 falling short of expectations, the industry seems to be expressing cautious optimism. In H2 2023, over 29% of the surveyed companies predicted an upward trend compared to H1 2023. As in the first half of the year, a majority said they anticipate no substantial shifts in either direction, while 21.6% shared a pessimistic outlook. In general, the mood in the industry has mostly stayed the same since H2 2022.

The forecast for exports remains the most conservative, pertaining to sales within Europe, where 57.7% of companies expect no changes.

The strongest optimism was observed in Spain, Portugal, and the Benelux. In addition, no survey participant from German-speaking Europe, Italy, and Central and Eastern Europe said they anticipated new blows on the horizon. And yet again, plastics recyclers failed to forecast improvements over the next months. Resin producers and converters are also unable to see things improve anytime soon, while more plastics products traders (33%) projected better performance than the industry average, even though half of the latter group was still pessimistic.

The economic reality also pushed market players to be prudent about spending money. While almost half of the survey participants said their companies' short and

medium-term investment plans remained unchanged in H1 2023, over 31% admitted to cutting their budgets.

Only 19.7% of those surveyed claimed they spent more than in H2 2022.

Across the region, investment activity was higher in Southern Europe and lower in the Benelux and Nordic regions. In the sectoral split, companies working in plastics recycling and recovery appeared most willing to invest, while businesses engaged in plastics products trade, raw materials distribution, and compounding took the most cautious stance.

As European economies keep struggling against persisting labour shortages, staffing across the plastics industry was little changed.

A majority of respondents stated that the number of employees in their companies held steady in H1. Slightly more companies dismissed workers than hired new ones: 26.2% for the former and 19.3% for the latter.

On the Iberian peninsula, 40% of those surveyed expanded staff, and no respondents reported layoffs. In contrast, no increases were seen in Southeast Europe, Italy, German-speaking Europe, and the CEE. Among the companies with more than 500 employees, 15.5% hired more than they let go, while for almost 38% of businesses, it was the other way around. At the same time, companies with a staff of up to 20 workers seem to forge stronger ties within the working teams, as 87.5% of respondents in this segment reported no changes in the number of employees.

Looming uncertainty over inflation rates and the state of play in the global market seemed to push more operations to delay staff changes.

In the second half of 2023, the share of companies along the plastics value chain planning to keep employee ranks at the same level totaled 65.7%, which was close to expectations seen at the end of 2022 for the first six months of 2023.

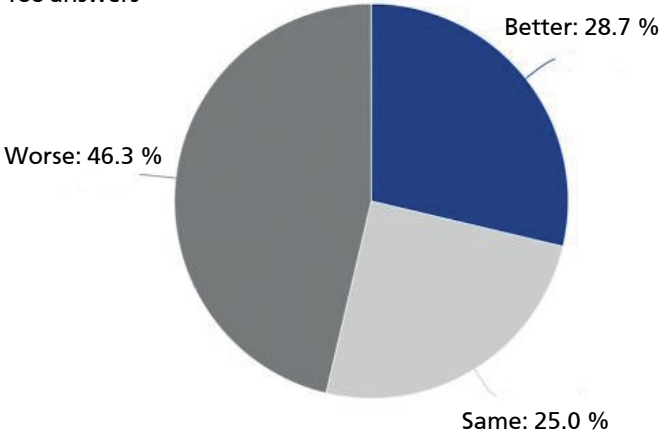
In comparison with the previous survey, the picture turned slightly gloomy, as the share of companies expecting layoffs jumped from 13.2% to 19.3%, while those planning new hirings dropped from nearly a quarter to 15%.

While in H2 2022, managers primarily expressed concerns associated with the meteoric rise in energy costs, sales market turbulence is steadily coming to the fore in 2023.

As many as 70% of survey participants seem to be primarily worried about the (low) sales volumes, with about 55% believing they will be troubled by selling prices, and almost 53% being worried about inflation in H2 2023. Cost-related concerns are about to fade into the background, as only 41.2% of those surveyed think they would be bothered by the cost of materials and slightly more than a third by energy costs, labour, and salary costs.

In H1 2023, sales volumes seemed to be an issue for 63.3%, inflation for 59%, and selling prices for over

188 answers



51% of the surveyed companies. The cost of energy and raw materials bothered nearly every second respondent, while labour and salary costs were a concern for every third.

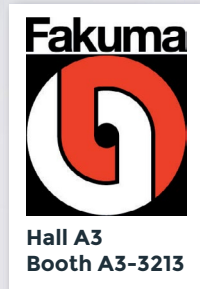
As international forces whipsaw prices with increasing frequency, plastics processors are having to adjust their ordering practices accordingly.

Less than 31% of respondents said their purchasing strategy had not changed, and more than 8% said they didn't generally purchase resin, which means over 60% of those polled took a different tack when it came to buying product. The survey results show that 9% of companies exclusively use the spot market, more than 28% are shifting to that market by signing fewer contracts, and over 17% said they are dropping deals that are longer than a year in favour of those with a shorter timeframe.

Around 46% of those polled said the shift toward spot purchasing has also affected their sourcing, with 23% noting that they have expanded their supplier pool, over 18% saying they have bundled procurement to achieve economies of scale, and more than 5% reporting a change in suppliers.

The words of former US disc jockey Casey Kasem are perfect for describing the seemingly countless events that have been battering the global economy, starting with the pandemic: the hits just keep on coming.

Wars, inflation, recessions, rising borrowing costs, chaotic weather, and a host of other factors have left many managers unsure about their company's prospects. According to the latest PIE poll, only 9.5% of respondents said they have recovered to pre-crisis levels, and nearly 4% said they were not affected. That leaves around 86% that have yet to fully rebound, with over half saying they do not expect to match their pre-pandemic activity until next year. Less than 6% predict a return to previous levels in the second half, almost 7% forecast that they will never reach that mark again, and more than 17% cannot even venture a guess.



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New Executive Board Member

The Supervisory Board of SIKORA AG has appointed Holger Lieder to the Executive Board effective September 1, 2023. In his new function, Holger Lieder takes over the responsibility for the areas of Sales, Marketing and Service. As of September last year, Lieder had provisionally taken over the management of the Marketing and Service departments in addition to his position as Sales Director. During this time, he gained a deeper understanding of the two departments and successfully developed them further.

"Holger Lieder has an excellent knowledge of the company and, thanks to his expertise as well as his objective and level-headed manner, he is held in high regard by both our customers and our employees. He has more than 30 years of experience in sales and brings a comprehensive

technical understanding of SIKORA technologies and market requirements. He has contributed to SIKORA's growth and success," says Prof. Thomas Sikora, Chairman of the Supervisory Board of SIKORA AG.

"I would like to thank the Sikora family and the Supervisory Board for the trust they have placed in me. And I would like to thank my colleague in the Executive Board, Dr. Christian Frank, for the positive and trusting discussions, as well as the constructive cooperation over the last several months. I am very much looking forward to my new responsibilities and would like to concentrate above all on continuing to provide our customers with solutions for their needs. We want to expand the market potential and develop our service to further increase customer satisfaction. In doing so, I see open,



Holger Lieder

good communication and cooperation at eye level with our partners and employees as the basis for a successful future," says Holger Lieder.

SIKORA AG

► www.sikora.net

New R5 RA Introduced

The proven R5 RA from Busch now comes in an improved version with a completely redesigned interior. The new vacuum pump is 25% more energy efficient than its predecessor, thanks to the optimized compression ratio, pump stage dimensions, and oil discharge path.

It is also available with ECOTORQUE, the Busch variable speed drive (VSD), that enables the pumping speed to be adapted to the exact requirements of any process. As a result, additional energy savings of up to 50% and a 20% increase in pumping speed can

be achieved. The accessory extends the supply voltage range supported by the vacuum pump, making it suitable for use in almost all countries around the world. This compact and cost-effective solution is also available as a retrofit.

Compared to the previous generation, the R5 RA 0520 A has a 20% smaller footprint, is 25% lower in height, and the absence of external piping improves leak tightness. The compact and hygienic design features surfaces that repel water and dirt. The total number of spare parts has been reduced by 40%, making maintenance fast and efficient, with all service-related parts located on one side. Heat emissions have also been decreased through an improved cooling system that combines optimal pump operating temperature with compact construction.

The new vacuum pump is made for continuous operation in the rough vacuum range with vacuum levels down to 0.1 hPa (mbar). Field tests were successfully carried out to validate performance and reliability.

The R5 RA 0520 A and the R5 RA 0520 A ECOTORQUE set a new standard in vacuum technology. The pumps are suitable for various applications in vacuum packaging, food and plastics processing, and many other industries. They are an excellent choice for companies looking to improve their processes while minimizing energy costs and reducing their environmental impact.



Busch Vacuum Solutions

► www.buschvacuum.com

Quality Inspection with Sorting and Material Analysis Systems

With more than 100 years of experience, the Reiling Group of Companies is constantly striving to create new opportunities for the optimal recycling and utilization of valuable materials. Reiling contributes to resource conservation as well as environmental and climate protection with efficient recycling processes.

In addition to recycling glass, photovoltaic panels and wood, Reiling operates PET recycling plants at its sites in Hamm (Germany), Marienfeld (Germany) and, since 2020, Burgbernheim (Germany).

In the PET recycling cycle in particular, the purity of the recycled end product is a prerequisite for rPET to be reused in a variety of ways. The production of new PET bottles or the manufacture of polyester fibers are just two individual examples of the use of rPET. If the highest quality recyclate is used, the recycling loop is closed. The need to produce

virgin material recedes into the background.

To produce recyclate of the highest grade and quality, Reiling Kunststoffrecycling relies on a multi-stage recycling process with state-of-the-art equipment. This is because only pure recyclate can be reused for a wide range of new products.

The PET bottles are delivered in the form of briquettes or pressed into bales. First, they are separated, then contaminants are removed, and the bottles are sorted by color. After crushing and washing processes, the PET flakes pass through Sesotec's FLAKE PURIFIER+ sorting systems, which perform separation of colors and metals as well as sorting by plastic type in a single pass.

In addition to state-of-the-art equipment, Reiling's internal quality management system throughout the entire treatment process ensures that only PET flakes of the highest purity leave the plant. Complex manual, thermal and visual random sample analyses are necessary to evaluate the recyclate in the recycling process.

With the new FLAKE SCAN laboratory analysis system from Sesotec, Reiling is able to perform an evaluation of the quality of plastic flakes within a few minutes. Above all, this enables fast and reliable decisions to



be made about the usability of the material. Every single BigBag and every silo delivery is subjected to precise quality control. The Sesotec FLAKE SCAN material analysis system is installed directly in the plant. This allows the material samples from each BigBag to be examined and analyzed precisely and within minutes for foreign plastics, off-color and metals.

Dr. Hanns-Jörg Bentele, Managing Director of Reiling Kunststoffrecycling GmbH: "We had the opportunity to test the FLAKE SCAN shortly after its market launch and were convinced of its benefits after extensive trials. The FLAKE SCAN analysis system from Sesotec provides us with precise, automatic, and above all, reproducible results for the analysis of material samples in a significantly shorter time. The analysis system relieves the laboratory. This saves time, and of course, additional costs in this area."

Sesotec GmbH

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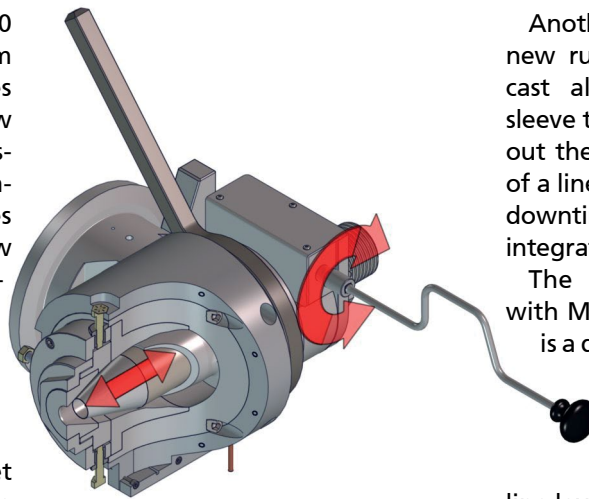
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New 500 Series Rubber/Silicone Extrusion Crosshead

Guill Tool introduces the NEW 500 Series crosshead with MAGS gum space adjustment. The 500 Series is designed specifically for the flow characteristics and unique processing challenges of elastomeric compounds. One of the key features engineered by Guill on this new crosshead design is the mechanically assisted gum space (MAGS) adjustment system. This new method of gum space adjustment allows the operator to make an effortless adjustment from a single point using a common socket wrench. No more need to struggle with multiple nuts and bolts in order to adjust gum space, which leads to faster adjustments. The visual indicator on the core tube allows the operator to see how far the gum space has been moved, making those adjustments much more accurate and repeatable.

The hardware-free and patented cam lock design of the NEW 500 Series from Guill means no time is wasted unbolting and re-securing fasteners for disassembly and re-assembly. Only half of a rotation of the cam nut is required to loosen and automatically extract the deflector from the head body, which is another time saver. Also, with no undercuts on the deflector, there are no material hang-ups when extracting the deflector, allowing



Guill Series 500 crosshead with Mechanically Assisted Gum Space (MAGS) adjustment...specially designed for the flow characteristics of elastomeric compounds

for faster and easier cleaning and changeover.

The NEW 500 Series also features the latest Center-Stage concentricity adjustment system that significantly reduces pressure on the tooling, allowing easier and more precise concentricity adjustments without loosening the face bolts. Easy-Out inserts for the adjusting bolts also allow simple replacement of locked or damaged adjusting bolts, which further saves on repair and downtime.

Another innovative feature of this new rubber/silicone crosshead is a cast aluminum liquid-fed cooling sleeve that allows the user to switch out the cooling jacket in the event of a line obstruction, again reducing downtime compared to traditional integrated cooling systems.

The NEW 500 Series crosshead with MAGS gum space adjustment is a drop-in replacement on most existing NRM lines, however this crosshead design can also be adapted to fit any extruder design or line layout.

The addition of a newly designed flow inlet channel reduces the shear and heat that is generated as the materials are being processed. This leads to lower head pressures allowing the material to move through the head in a much more balanced and even flow.

All crossheads supplied by Guill are furnished with a tool kit for assembly and disassembly as well as a detailed operator's instruction manual. The engineering team at Guill will gladly assist users in the implementation and operation of the NEW 500 series crosshead.

For a video of the NEW Guill 500 Series crosshead with MAGS gum space adjustment, please go to:

<https://youtu.be/jeNovmMtcBs>

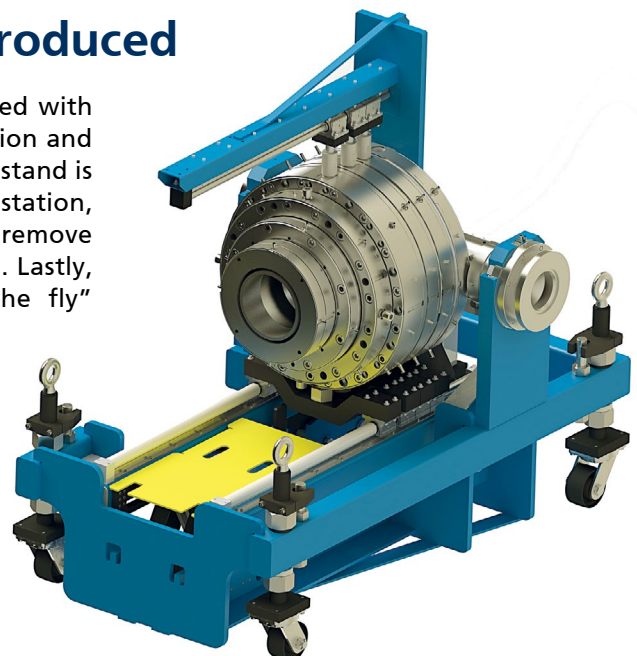
Large Die Cart with Crosshead Introduced

Guill Tool announced the immediate availability of its new die cart with easy disassembly and reassembly. It features a high volume, adjustable center accumulating crosshead. This crosshead is designed to produce a smooth linear bore and provide jacketing over various substrates. The crosshead's maximum thru core is 18," while its' maximum die ID is 23". Built to handle thermoplastic applications, the crosshead includes tooling and isolation sleeve design.

Additionally, the tooling section features quadrant heating. Guill's

crosshead stand is equipped with an integral alignment station and concentric role guide. The stand is also an integral cleaning station, so clients don't need to remove the crosshead for cleaning. Lastly, this crosshead has "on-the fly" catenary adjustment and can be easily maintained with simple hand tools.

Guill Tool & Engineering Co., Inc.
www.guill.com



Sustainability Initiative for Recycling of Engineering Plastics Launched

(Source: Polyplastics Co., Ltd.)

Polyplastics Group, a leading global supplier of engineering thermoplastics, has launched the DURACIRCLE™ initiative for recycling of engineering plastics. This effort applies to a wide variety of sustainable solutions that contribute toward achieving a 100% recycling rate for engineering plastics, without being confined to the existing business model of manufacturing and selling plastics. Polyplastics' goal is to achieve carbon neutrality by 2050.

Phase one of the sustainability initiative consists of the opening of Polyplastics' new DURACIRCLE Re-compounding Service business which will offer high-quality mechanically recycled materials starting by March 2024. Mechanical recycling is a method to melt plastic waste with heat and process it back into pellets for reuse.

DURACIRCLE™ Re-compounding Service is a clear departure from conventional recycling. Its aim is to perform horizontal recycling which is considered difficult with engineering plastics since these materials require high quality in subsequent uses. Horizontal recycling is a recycling method to recycle products into the same products, such as recovering plastic bottles and recycling them back into plastic bottles.

Pre-consumer materials with manufacturing histories that can be traced and pose no concerns of contamination from environmentally hazardous substances are anticipated for use as the raw materials. Pre-consumer materials are raw materials such as hot runners and non-conforming products that arise in manufacturing



processes before products reach consumers, also referred to as post-industrial recycling (PIR) materials.

In addition to expanding DURACIRCLE™ to markets outside of Japan, Polyplastics plans to develop and offer recycling technologies for post-consumer recycled materials (PCR) which are even harder to reprocess. As environmental needs evolve, Polyplastics is developing future solutions for mechanical recycling, chemical recycling, and biogenic carbon cycles.

DURACIRCLE™ is a trademark of Polyplastics Co., Ltd. in Japan and other countries.

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New High-Performance Extrusion Line for 5-Layer PE-RT Pipes Presented

From 20 to 29 June 2023, the WEBER extrusion division of Hans Weber Maschinenfabrik presented a high-performance extrusion line for the production of 5-layer PE-RT pipes with an oxygen barrier layer in its pilot plant in Kronach, Germany. As a supplement to the well-known WEBER machine technology for cross-linked PEXa pipes, WEBER has expanded its portfolio to meet the increasing demand for panel heating pipes with the corresponding machine technology.

The new extrusion line was augmented by an innovative 5-layer coextrusion tool by ETA Kunststofftechnologie GmbH based in Troisdorf, Germany. Outstanding surface quality, low individual layer thicknesses and high output were the focus of the tool development here. The production speed of 70 m/min that could be achieved with the new high-performance extrusion line is well above the usual speeds available on the market.

A total of 20 plastics processing companies had the opportunity to gain detailed insights into the various line components and the performance of the entire system at six demonstration events.

During the six presentation days, sample pipes with an outer diameter of 18 mm and a wall thickness of 2 mm were produced. Hostalen 4731B PE-RT material was used for the inner and outer layers. The quality of the pipes produced was assessed on site in terms of surface quality and layer distribution and convinced all who were there.

The total output of approx. 420 kg/h was the sum of the outputs of five WEBER single-screw extruders. All extruders were linked together with the higher-level NEXXT365 line control. This made it possible to implement and demonstrate starting, ramping up to maximum speed and shutting down the line in a simple way.

The newly developed coextrusion tool by ETA facilitates a maximum total throughput of 500 kg/h and the production of pipes with a diameter range between 8 mm and 32 mm.

The tool uses circular distributors – a special type of helix mandrels – for distributing the melt of all five plastic layers. These circular distributors ensure short holding times of the polymer melts in the tool, fast colour and material changes, as well

as a very even distribution around the entire circumference. This allows for reduced layer thicknesses and a pipe wall without mechanical or visual weak points.

Thanks to the special geometric design of the flow channels, the extrusion tool has a long service life and is easy to operate. It also offers the possibility of making adjustments regarding the number of layers and the layer structure. The modular concept allows the integration of various options such as a colour striping module, different coatings for the flow channel surfaces and an electromechanical centring device.

“With the new high-performance extrusion line, WEBER extrusion is setting a new standard in the production of 5-layer PE-RT pipes,” Robert Frizler, Sales Manager at WEBER extrusion, says. “Our innovative coextrusion tool delivers outstanding production performance and first-class quality of the pipes produced. We look forward to presenting the performance of the pilot plant to interested companies again in 2024.”

Hans Weber Maschinenfabrik GmbH
www.hansweber.de/extrusion



Market Study: Bioplastic Films

Wafer-thin films, often less than 1 mm thick, are one of the first areas of application in which bioplastics are able to establish themselves. Although casings made from petroleum products are still usually sold cheaper and in larger quantities, biobased materials such as starch or polylactic acid do not only offer a better public image regarding environmental awareness, but often also tangible advantages: Food packaging made from biodegradable plastics does not have to be disposed of at high cost, but can be composted; organic mulch films can simply be left on the field and plowed under. Ceresana has studied the global market for films made from bioplastics: The new market report forecasts that revenues will increase to around USD 14.2 billion by 2032.

The study in brief:

Chapter 1 provides a comprehensive presentation and analysis of the global market for biobased plastic films - including forecasts up to 2032:

the development of demand and revenues is examined for each of the regions of Europe, North America, Asia-Pacific and the rest of the world.

In Chapter 2, the 11 countries with the largest revenues generated with films are considered individually: Germany, France, the United Kingdom, Italy, the Netherlands, Spain, the USA, China, Japan, Taiwan and South Korea. Demand and revenues are presented in each case.

In addition, demand is broken down by application area: Packaging - Food and Beverages; Packaging - Consumer Products; Packaging - Other; Agricultural Films; Other Films.

The market study provides detailed data on the use of the different types of bioplastics in films: Polylactic acid (PLA); Starch-based plastics; Other biodegradable plastics; Biobased, but non-biodegradable plastics.

Chapter 3 provides useful company profiles of the most important

Market Study: Bioplastic Films



Ceresana
Market Research Since 2002

manufacturers of films made from bioplastics, clearly arranged by contact details, revenues, profit, product range, production facilities and brief profile. Detailed profiles are provided by 47 manufacturers.

Further information about this new market study:

➔ <https://ceresana.com/en/produkt/bioplactic-films-market-report-world>



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A New Class of Engineering Polymer

Borealis is launching Stelora, a new class of sustainable engineering polymer offering increased strength, durability and a step change in heat-resistance capability.

Stelora was developed in collaboration with TOPAS Advanced Polymers, the world's leading producer of cyclic olefin copolymer (COC). It is created using a unique process that combines COCs, which are a relatively new class of clear, high-purity polymer, with polypropylene (PP). The result is a state-of-the-art material called ethylene-propylene-norbornene (EPN) that is suitable for a wide range of technically advanced applications, primarily used in e-mobility and renewable energy generation. This solution offers a sustainable alternative to replace conventional engineering polymers, which meet the high temperature requirements required for the new generation of energy-saving power semiconductors for invertors.

The first commercially available application of Stelora is within a high-heat-resistant capacitor film. This dielectric capacitor film made with Stelora offers all of the benefits of the equivalent made using PP resin as a dielectric, but with significant performance enhancements including exceptional heat resistance, superior electrical properties at high temperatures, and increased efficiency. Stelora-based film is also fully compatible with exist-

ing converting lines, so it can be processed by customers without the need for investment in new equipment, infrastructure or assets.

The cost and energy efficiency benefits are based on several complementary mechanisms:

- High-heat-resistant capacitors degrade more slowly, so they need to be replaced less frequently. This makes them more suitable for use in offshore wind installations, where repairing and replacing parts is challenging.
- As the capacitors can tolerate higher temperatures, less space is required for cooling, reducing the size and construction cost of invertors.
- The same size-reducing mechanism enables the production of smaller and more energy-efficient final products that use transmitted energy, including electric vehicles.

Stelora's sustainability benefits go beyond energy efficiency. Like many products in Borealis' portfolio, it is produced using renewable feedstock, allowing customers to achieve their sustainability targets, and supporting the transition to a circular economy, fully in line with Borealis' mindset EverMinds(TM).

Borealis Group

www.borealisgroup.com

New 800 Series Hybrid Extrusion Tooling Announced

Guill announced the introduction of a new version of its popular 800 series, known as 800 Series Hybrid. In some extrusion applications that utilize crossheads and inlines, layers of the exact same material are applied multiple times, using a single die. This method is used to reduce the propensity for errors caused by gels breaking through a thin wall, weld lines, inconsistent wall thickness, plus material and process variations. Additional errors include difficult-to-process materials and demanding applications where there is zero fault tolerance.

Seeking to design the next generation multi-layer die to overcome these challenges, the engineers at Guill looked for a way to incorporate this technology into an updated version of the 800 Series. This led to the creation of the 800 Series Hybrid. The inherent benefits of the 800 Series are retained, including compact design, low residence time and a common deflector bore that eliminates tolerance stack up. The challenge was to create a hybrid design that incorporates the benefits



of layer overlapping, while reducing unnecessary complexity and making the technology more cost-affordable for customers. This was achieved by overlapping layers in each semi-deflector, using a single cone. The highly efficient design of the 800 Series Hybrid reduces cost and size, as opposed to other methods of overlapping layers.

Essential benefits of the 800 Series Hybrid include eliminating weld lines in materials through patented overlapping technology,

producing a more consistent finished product; reduced sensitivity to changes in viscosity; reduced sensitivity to changes in line speed; myriad material and multi-layer application possibilities; works in all tubing and jacketing applications with a wide range of materials; low residence time; compact design and a low tolerance stack-up error factor, all resulting in improved concentricity.

The 800 Series Hybrid extrusion tool greatly reduces stagnation, because overlapping layers are more inherently balanced than single layers and also because each semi-deflector is "tuned to flush." Conventional deflectors must simultaneously achieve a balance between flushing, balancing and eliminating the weld line. There is less difference between the slowest moving material and the fastest moving material in the deflector channels, thus making the viscosity more consistent in the deflector.

Guill Tool & Engineering

www.guill.com

PET Recycling in Central Java

The ground-breaking ceremony of PT ALBA Tridi Plastics Recycling Indonesia's (AATPRI) new facility represents a significant step forward for Indonesia towards its near-zero plastic pollution target by 2040.

AATPRI is a joint venture between ALBA Group Asia and PT Tridi Oasis Group founder Dian Kurniawati. As a sister company of Interzero, the leading recycling service provider in Europe, ALBA Group Asia brings to the project its combined technological know-how, operational experience, and global sales and marketing capabilities. ALBA Group Asia has chosen the Asian Development Bank (ADB) as its financing partner. In accordance with the associated specifications, the new plant is to be built and operated to the highest technical and social standards.

The new recycling plant, with an investment of around US\$60 million, will be built on an area of 2.6 hectares in the Kendal Industrial Park in Central Java. The new facility will house state-of-the-art equipment capable of processing PET beverage bottles and transforming them into high-quality rPET flakes and food-grade rPET pellets. The advanced technology comes from leading equipment manufacturers in Asia and Europe and can produce approximately 36,000 tons of recycled PET annually, including food-grade recycled PET. Food-grade rPET is increasingly in demand from consumer-related industries due to their increased sustainability efforts.

Dr. Axel Schweitzer, Shareholder and Chairman of Interzero and ALBA Group Asia, led the ground-breaking ceremony together with, Dian Kurniawati, ALBA joint venture partner and Founder of PT Tridi Oasis Group, and ADB Vice-President for Private Sector Operations and Public-Private Partnerships, Ashok Lavasa.

Dr. Schweitzer commented "At ALBA Group Asia, we are following our vision of a World Without Waste. Therefore, we decided to enlarge our operations into Indonesia and establish this recycling facility in Kendal, Central Java and bring in our know-how from Interzero and similar projects in Asia. Each year, approximately 8 to 12 million tons of plastic ends up in the ocean. Indonesia is one of the top contributors to marine plastic pollution. We aim at increasing the collection rates in Indonesia by creating markets. We believe in the positive social impact of this project as we work closely with local collectors and will create 150 new jobs in the region."

Dian Kurniawati also commented "All of us know that Indonesia's plastic pollution problem is everyone's problem. Therefore, we need everyone's solution including the government, civil society, global companies, as well as financial institutions, through multi-stakeholders' collaboration. We are excited to jointly working together with our joint venture partner, ALBA, who strongly demonstrates gender lensed investing. This investment not only aims to solve the waste problem and create economic value, but also empowers local SMEs and women entrepreneurs like me to upscale our organizational capabilities. We believe that this partnership is a significant example on how social and environmental issues can be resolved through strategic collaboration of multi-stakeholders."



From the left: Dian Kurniawati (Director of the PT ALBA Tridi Plastics Recycling Indonesia), Dr. Axel Schweitzer (Shareholder and Chairman of Interzero and ALBA Group Asia), Jackie B. Surtani (Director, Private Sector Operations Department, ADB as well as representatives of the national and regional government) (Source Interzero)

To fulfill its production capacity of 36,000 tons, the factory will require approximately 48,000 tons of waste PET bottles each year. These bottles will primarily be collected in Java and the region, and ALBA will actively work with, and support local collectors providing this feedstock. The project will also generate new employment opportunities within the region in various technical and administrative roles recruited from within the local area.

ALBA Group Asia
 ➔ www.alba.info/en

New Spiderless Pipe Die



Guill just launched its **Spiderless Pipe Die**, a new offering in extrusion. Capable of providing a finished extrusion with **OD** from **2"-15"** and available in 4140 steel or stainless with heat treating, it's ideal for tube and pipe producers for large diameter capabilities.

With its focus on precision tooling thanks to extensive experience in medical tubing, flow analysis and **Guill's ISO 9001** and **AS9100** (Aerospace) quality systems, this new design offers increased material savings.

Guill

EXTRUSION TOOLING

10 Pike Street
 West Warwick, RI 02893
 Email: sales@guill.com

For more information, visit www.guill.com/series/900-series

Fakuma 2023 – *Focus on Plastic as a Recyclable Material*

With excitement and anticipation, the industry is looking forward to the 28th Fakuma international trade fair for plastics processing in Friedrichshafen from the 17th through the 21st of October, 2023. The world's leading trade fair for injection moulding is setting new performance benchmarks in the fields of extrusion technology, thermoforming and 3D printing, as well as for circular economy. Roughly 40% of the exhibitors come from outside of Germany.

As a recyclable material, plastic is an indispensable constituent of everyday life – in the private sphere, for business and in technology. Innumerable consumer and industrial products would be inconceivable without plastics. Plastics manufacturers and plastics processing companies rely on top-quality, durable high-tech solutions for a wide range of industry sectors such as power generation with solar modules, e-mobility components, the construction sector, the packaging industry, technical components, lightweight design and automobile manufacturing, medical technology and the furnishings industry. At the same time, plastics represent a challenge in terms of the consumption and reuse of natural resources. "Many Fakuma exhibitors are addressing the topics of advanced machinery for the production and reuse of plastics, optimised processes for production and processing, improved materials, newly designed products and forward-looking business models," explains Annemarie Schur, Fakuma project manager at trade fair promoters P. E. Schall. A functioning circular economy, intensified conservation of resources, improved environmental compatibility and genuine sustainability are thus important topics at Fakuma. "This trade fair with worldwide recognition will make the significance of plastics and their special importance a topic of discussion for everyone," emphasises the project manager. "Plastics will have to meet the challenges of both the present and the future. This is why Fakuma 2023 is an ideal platform for new products and technological so-



lutions, as well as for expert discussion of upcoming spheres of action."

The industry sector is being confronted with a variety of far-reaching tasks – amongst others the goal of decreasing greenhouse gas emissions, reducing energy consumption and improving operations at manufacturing and processing companies. At the same time, the transformation to circular economy must be implemented in all its facets. In any case, digitalisation and automation are triggering significant transformation processes which act as beneficial drivers: they support the efficient use of all resources in the production, processing, utilisation and reuse or recycling of plastics. AI-based solutions will also be increasingly helpful in this regard. "In many respects, Fakuma 2023 will provide important and valuable stimuli for the positive advancement of thought and action in functioning circular economies," says Bettina Schall, managing director of trade fair promoters P. E. Schall. "The practice-oriented trade fair format in a familiar working atmosphere is an appropriate setting for technical discussions, objective clarification and the demonstration of implementable solutions for a circular economy."

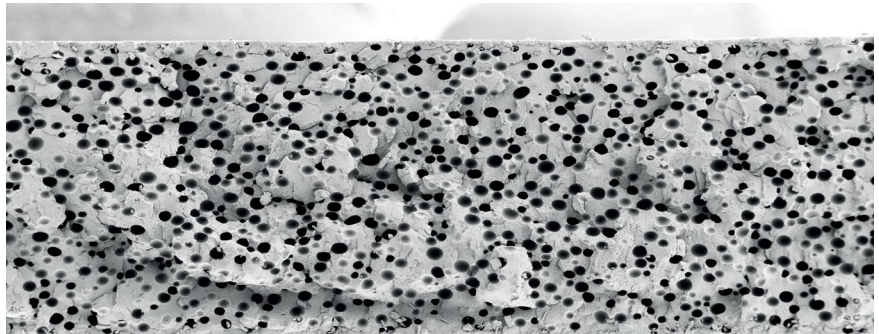
As the world's leading trade fair highlight for injection moulding, Fakuma also serves as an industry and technology barometer in the fields of extrusion technology, thermoforming and 3D printing. Suppliers and users will explore the exciting, future-oriented topic of plastics from all sides for five days at this well-established industry meet. High levels of internationalism, the quality of the expert discussions and the event's concrete practical relevance mean that forward-looking solutions can be expected for the tasks being faced by the industry sector. Not least of all, the world-class expert presentations at the exhibitor forum promise to provide important impetus for the relevant topics of plastics, the circular economy, efficiency and sustainability.



Highlights Fakuma 2023

At the upcoming Fakuma fair, Promix Solutions will be presenting solutions for mixing, foaming and cooling of polymer melts. The focus is on saving raw material costs, reducing the carbon footprint and increasing production capacity.

For manufacturers of light foams such as XPS, XPP, XPE, XPET, Promix will show how P1 cooling mix technology can be used to achieve better mechanical properties and lower foam densities. Promix displays clever solutions for efficient cooling or tempering of viscous media and for inline viscosity measurement.



Foamed sheet with Promix Microcell Technology (Picture: Promix Solutions AG)

Microcell Technology – saves raw material costs and protects the environment

In plastics processing, materials account for 80% of the CO₂ footprint and this is exactly where the company comes in. Promix Microcell Technology creates a microcellular foam structure in the polymer by adding environmentally friendly atmospheric gases (N₂ and CO₂). This reduces the product weight by 20 to 50 %, which leads to massive savings in raw materials. This not only saves production costs, but also the environment!

Promix Microcell Technology is suitable for packaging films, sheets, foam core and corrugated pipes as well as profiles, cable sheathing, blow molding and blown films. Promix will exhibit relevant key com-

ponents at the Fakuma and will provide information on possibilities within specific fields of application. In the meantime, more than 300 industrial references are in operation and various machine manufacturers are successfully integrating the technology into their plants.

Promix Microcell Technology can be used for almost all raw materials. For example, for PP, PE, PET, TPE, TPU, PA, hard & soft PVC and bioplastics. The technology is available both for newly planned extrusion lines and as a retrofit solution.

Promix Solutions AG

▶ www.promix-solutions.com

Fakuma: Stand A2-2105



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Super Clean Recycling Technologies – *High Performance OMNI Recycling Systems for Today's and Tomorrow's Increasing Recycling Requirements*

With its innovative OMNI recycling systems, Gneuss offers highly efficient solutions for today's and tomorrow's recycling requirements. Thanks to the company's many years of experience in recycling, the technological components of the OMNI recycling systems have been matched to each other in such a way as to achieve a level of performance previously unattained on the market and to achieve super-clean recycling qualities in just one process step.

The OMNI recycling systems consist basically of an MRS extrusion system, a fully automatic RSF*genius* melt filtration system, an online viscometer and optionally a 3C Rotary Feeder.

Polymer reclaim such as fiber waste, thin film or other low bulk density waste is fed into the Gneuss 3C Rotary Feeder. PET post-consumer and industrial waste does not require thermal pre-treatment. A conveyor belt feeds the material into the 3C Rotary Feeder, which cuts, compacts and conditions the material and feeds it directly into the MRS extruder.

The MRS extrusion technology in the OMNI recycling line is based on conventional single-screw technology, but is equipped with a multi-screw degassing section. The degassing section of the patented process unit consists of an enlarged single screw drum with a series of satellite screws that rotate in the opposite direction of the extruder barrel, creating a very large melt surface area and ensuring very rapid surface exchange. This provides unprecedented melt phase degassing



OMNImax Recycling System including 3C Rotary Feeder, MRS Extruder, deep vacuum system, Rotary Melt Filter RSFgenius and Online Viscometer VIS

performance with minimal material stress. Multiple Letters of Non-Objection (LNOs) from the FDA, EFSA compliance and local approvals in Latin America confirm the high decontamination performance of the technology.

After passing through the MRS extruder, the polymer melt is filtered by the highly efficient, self-cleaning Gneuss RSF*genius* melt filtration system. This system ensures that fine filtration is possible without pressure or flow disturbances and with minimal polymer losses, even at high contamination levels. The RSF*genius* works with an integrated backflush system for self-cleaning of the screens for very demanding applications and highest quality requirements.

If the recycled material to be processed requires a particularly high decontamination and degassing performance, the OMNI*max* recycling system is used with a longer, modified version of the Multi Rotation Section in the MRS extruder, which ensures both a longer residence time of the material and a dis-

proportionately high surface area exchange under vacuum.

The OMNI*boost* recycling system is specifically designed to recycle PET waste. The integrated Gneuss JUMP polyreactor raises the IV value to the desired level within minutes. After leaving the MRS extruder, the polymer flows directly into the reactor in the melt phase, while the viscosity of the melt is tightly controlled. By controlling the vacuum, residence time and surface exchange rate in the reactor vessel, the viscosity is adjusted to the desired level. With a consistent set viscosity, the melt can then be fed directly into the production process. By ensuring that the polymer remains in the melt phase from the extruder to the final processing stage, the OMNI*boost* recycling process is the fastest and most efficient way to recycle PET when viscosity increase is required.

Gneuß Kunststofftechnik GmbH
 www.gneuss.de

Fakuma: Stand A6-6501

Clean. Nothing else.

First things first: Melt filtration for your recycled PET

Transforming PET waste into a valuable resource

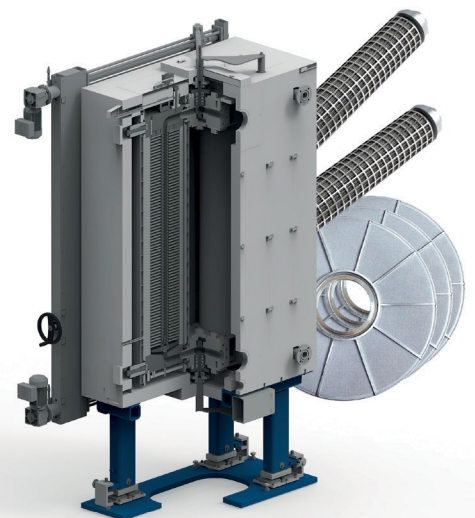
Recycling and filtration go hand-in-hand: Our polymer filters guarantee a clean, pure melt – non-stop and perfectly fitted to your requirements and production line.

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- ✓ Continuous operation

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Process Transparency and Digital Intelligence are Factors for More Sustainability

The motan Group is focusing its attention on minimizing energy consumption and the circular economy. At Fakuma the materials management specialist will be presenting a selection of its energy-efficient ancillaries tailored to this purpose, as well as a CO₂ calculator for assessing the carbon footprint when producing plastic parts. For processors in the medical and pharmaceutical industries, a completely new product line will be presented.

"The energy data of the material have a massive influence on the overall ecological balance of the manufactured products. Plastics processors expect more transparency and standards here," explains CEO Sandra Füllsack. By means of energy monitoring, it is possible to record

the energy consumption of each individual process step. The CO₂ footprint of each individual part can be calculated, and the data is certified. This provides the processor with the basis for a systematic optimisation of the energy consumption of his individual production processes.

Process-safe and energy-saving drying

The material drying process is particularly energy intensive. In the latest generation of LUXOR SG small-volume dry air dryers, motan has incorporated the ecoPROTECT function as standard. Depending on the unit size, the function reduces energy consumption by 10%. At the same time, the protective function ensures a secure and reliable drying without over- or under-drying. The mobile small dryers, in which this process-safe technology has been combined with state-of-the-art microprocessor control, are among the trade fair highlights at the motan stand.

FDA-compliant material conveying and gravimetric dosing and mixing

motan has designed the new METRO G med material loaders especially for plastics processors in the medical and pharmaceutical industries. The extensive family of loaders are based on the established METRO G series of system loaders for plastic granulate and meet all strict hygiene requirements according to FDA 21 CFR. Special attention has been paid to process-safe use in all types of clean room. Special filters with high-quality FDA compliant seals and electropolished stainless steel surfaces ensure reliable, dust- and contamination-free operation.



GRAVICOLOR 110 med – Gravimetric batch dosing and mixing unit (motan group)

LUXOR SG with BIN SG – Dry air dryer for plastic granules (motan group)



A highlight is the new membrane implosion vacuum valve, which does not require compressed air.

The gravimetric batch dosing and mixing unit GRAVICOLOR 110 med is tailored to the same target group. Like the GRAVICOLOR 110 introduced earlier this year, motan developed this new FDA-compliant version for flexible and reliable mixing and dosing in injection moulding, blow moulding and extrusion applications. Both systems can be seen on the exhibition stand. The dosing and mixing technology is identical. Specially developed vertical slide valves dose and mix up to four different components precisely and with the highest recipe accuracy. The integrated and improved IntelliBlend analysis function records the recipe, material and operating environment and documents all process data. With the help of this function, the user achieves continuous self-optimisation of the system and consequently the best possible operating

DISCOVERY



*METRO G med – Medical material loaders
for granulate (motan group)*

point with the highest recipe accuracy and consistent, high product quality. Thanks to event-based logging, all parameter changes are stored in a control report and can be subsequently evaluated.

Promoting a holistic understanding of the process

Within the scope of the motan academy, companies can have their personnel trained to such an extent that not only the technology and function of individual units is understood, but also the entire production process. Being able to set up and operate a machine is important. Understanding how settings affect the entire process is even more important. The basic and advanced seminars of the motan academy teach users the interrelationships of material management in theory and practice.

Plastic as a valuable material

In a functioning circular economy with high-quality recycling, material handling plays a key role. To achieve this, motan focuses intensively on the digitalisation of systems and the networking of production processes. The avoidance of material or energy losses through appropriately designed systems is just one aspect that the material management specialist expresses with its slogan 'Zero Loss'. Continuously developing processes and products and making them more sustainable is part of motan's long-standing strategy. Fakuma is an important signal. This is where the motan Group demonstrates how it is helping to shape the future of plastics.

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➔ www.motan-group.com

Fakuma: Stand B1-1111



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Progress in Machinery Technology and Service

The machinery builder FEDDEM is displaying developments in its extrusion and compounding equipment at this year's FAKUMA.

At its booth, FEDDEM presents the latest version of its proven FED 43 MTS extruder and accessories. The exhibit boasts the following features:

- The FED 43 MTS extruder is now available with up to 157 kW of drive power. The processing length of the displayed extruder is seen in its base length of 32 L/D. There is the option to expand the extruder with attachable extensions in various lengths. A 10 L/D extension is highlighted at the exhibition. In a production environment the transition between 32 L/D and 42 L/D processing length can be completed in about two hours.
- For reliable introduction of liquids into the compounding process multiple ports can be made available on the extruder's processing section. At the exhibit, a nozzle is installed after the melting zone.
- The latest version of the vacuum-assisted side feeding unit, FSB-V, is now equipped with a viewing window. This allows for direct observation of flow patterns within the device during processing lightweight fillers and expedites adjustments of device parameters for optimisation.

Additionally, conventional FSB side feeding and FSV side vacuum degassing units can be attached to the processing section as required.

In the maintenance sector, the popular double-brush cleaning unit, Type FRE, which is designed for cleaning figure-8-shaped barrel bores, is now available with a modular shaft, allowing for on-site adjustment of the device's length.

"In the pursuit of sustainability in compound production, a seamlessly continuous production is quickly recognized as one of the most critical prerequisites for efficient production," says Lars Mansfeld, Team Leader for Assembly & Service at FEDDEM. "To minimise unplanned

FEDDEM's twin-screw extruder MTS 43 with FSB-V side feeding with vacuum support



production stoppages, FEDDEM now offers tiered service packages, ranging from simple wear condition measurements of barrels and screws to tailored maintenance plans specific to the individual line configuration."

The Sinzig-based company also offers LFT pultrusion lines for producing LFT-G pellets (Long Fiber Thermoplastic-Granules). According to their own claims, FEDDEM's equipment excels in terms of performance, quality, and ease of use in conventional short-fibre compounding processes. For instance, alongside unparalleled narrow tolerances of fibre content in the pellets, the repeatability of achievable material properties of the LFT compound is achieved when using various production line sizes at strand speeds of up to 60 m/min.

The use of a patented modular impregnation tool plays a crucial role in this context. "Our extruder for melt preparation is positioned parallel to the roving line, allowing significant space savings in the plant layout. FEDDEM pultrusion lines require only slightly more floor space than a conventional compounding line of similar throughput. All maintenance access points for individual line components are designed to provide direct and fast access, ensuring maximum line availability in case access is required," explains David Constroffer, Head of Project Management.

FEDDEM GmbH & Co. KG
www.feddem.com

Fakuma: Stand A6-6217

The FEDDEM FRE cleaning unit for twin-screw barrels



The FEDDEM FRE cleaning unit for twin-screw barrels



BOOST YOUR EXTRUSION



To achieve perfection and continuous improvement, Tecnomatic chooses maximum specialization and concentrates its efforts on the development of

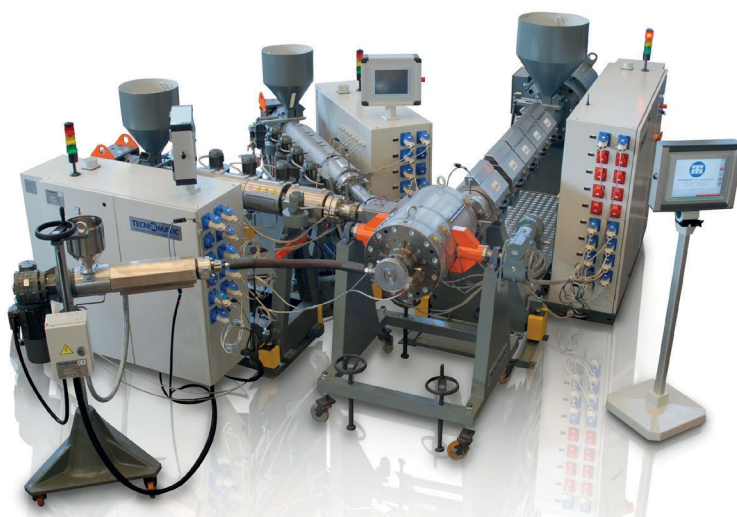
extrusion lines for the production of polyolefin pipes with diameter up to 3 000 mm. Technical knowledge, constant research and great passion allow Tecnomatic to offer

high-performance solutions fulfilling all possible customer requirements since 1977.



TECNOMATIC

TECHNOLOGIES FOR PLASTIC PIPES PROCESSING



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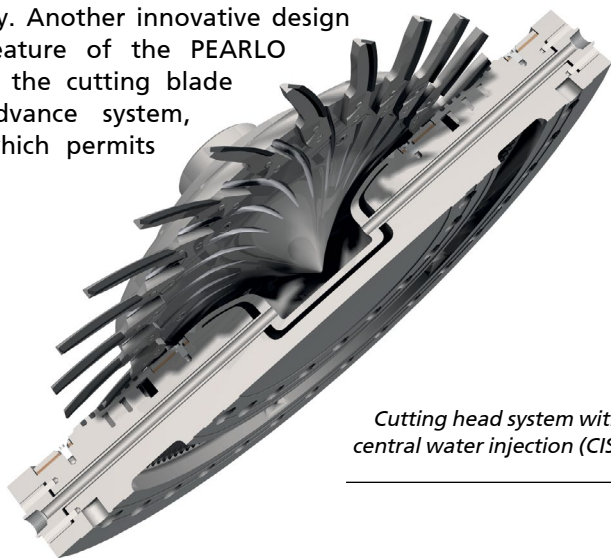
Innovative Solutions that Enhance the Circular Economy at Fakuma 2023

MAAG Group is a broadly diversified global solutions provider of Pump & Filtration Systems, Pelletizing & Pulverizing Systems, Recycling Systems and digital solutions.

MAAG Group will be represented at the Fakuma with an exhibition stand. There you can find out more about the AMN die plates for highest quality requirements for throughputs up to 100 t/h. Specifically designed to produce high MI or complex polymers, the CIS system increases the water flow locally to facilitate cutting, improve pellet quality and reduce cavitation phenomena. Easily plugged on existing installations, the additional water flow is then efficiently distributed thanks to the knife holder equipped with a cone and saber knives, facilitating pellet cooling and ejection.

MAAG ETTLINGERs ECO 500 is a high performance melt filter for the filtration of heavily contaminated polymer feedstock. For chemical recycling, this technology is outstanding for filtering low viscosity polymers. The filter is self-cleaning with a rotating, perforated drum, through which there is a continuous flow of melt from the outside to the inside. A scraper removes the contaminants that are held back on the surface and feeds them to the discharge system. This enables the filter to be used fully automatically and without any disruptions over long periods without having to replace the screen.

The underwater pelletizing system PEARLO® 350 EAC is especially designed for high throughputs of like 18.000 kg/h of Virgin Polymer production. The unique cutting blade design and optimum water and material flow conditions within the cutting chamber provide not only ideal and homogeneous cooling effects but also outstanding pellet quality. Another innovative design feature of the PEARLO is the cutting blade advance system, which permits



Cutting head system with central water injection (CIS)



MAAG Ettlinger's ECO 500 high performance melt filter

axial movement of the cutter shaft resulting in a precise blade advance as well as a regrinding of the blades during production. This allows higher equipment availability, elongated production runs and thus saves costs.

MAAGs strand pelletizing system EBG is designed for highly filled, hygroscopic and water-sensitive compounds. EBG scores with a high degree of automation, gentle material processing and excellent product quality. From the die head to the granulator, the pelletizing system forms a unit that, despite its compact design, has features of a large compounding system.

MAAG Group extrex® gear pumps offer an optimized interaction of the components. Specially developed gear teeth with low compression allow very high pressures to be achieved with low shear rates. The result is a further increase in achievable product quality, volumetric efficiency, as well as production consistency and safety.

Maag Group
 www.maag.com

Fakuma: Stand A6-6202

New and Further Developed Solutions

Siloanlagen Achberg will present a broad product range of new and established products related to bulk material storage and handling at this year's FAKUMA. The focus will be on the new silo control user interface, the mobile mixing container and the new slide valve with optional end position monitoring.

The latest version of the silo control user interface, which is specially developed for the plastics industry, offers more intuitive operating options and an optimized design. As a result, warning and fault messages are visualized more clearly and the registration of parameters is simplified.

The new slide valves with optional end position monitoring closes and opens pipelines reliably and over the full cross-section even during conveying. The slide valves are installed in material and vacuum lines. The optional end position monitoring reliably checks the position of the slider plate and sends a corresponding signal to the higher-level control system.

The mobile mixing container is a new solution for mixing and intermediate storage of bulk materials. It is mobile and can therefore be used flexibly. The container is equipped with a centric mixing screw, which homogenizes the granulate or regrind in the best possible way thanks to its special geometry.

"We're happy to be able to present our latest products and solutions at FAKUMA 2023," says Gerd Maass, Managing Director of Siloanlagen Achberg GmbH & Co. KG. "We've invested a lot in the development of new products and technologies in the last few years, and we want to offer our customers a comprehensive overview of our range of offerings at the trade fair."



*The focus is on handling and storage
(Source: Siloanlagen Achberg)*

Siloanlagen Achberg GmbH & Co. KG
www.achberg.com

Fakuma: Stand B3-3121

Energy Efficient - Easy Maintenance - Excellent Flakes Modular system solutions for automated PET washing lines



A Strong Partner for Circular Economy

At Fakuma 2023, pal plast will focus on its service offering for plastics processors. "Managing Director and co-owner Amit Wirnik explains: "The trend in the industry is towards closed material loops. With our modern technical equipment, our many years of expertise and our highly qualified workforce, we can help our customers set up their production to be as waste-free as possible."

On request, pal plast analyzes its customers' material flows, develops a system for collecting surplus or production waste and handles its processing. If required, the company looks for additional recyclate sources for its customers and supplies ready-to-use recompond in the desired quality and quantity. The materials are tested and certified in the company's own laboratory. Production is monitored more precisely and closely than at almost any other supplier.

Compounds with customized recycled content

As a pioneer in plastics recycling, pal plast has a wealth of experience and an extensive network. "Our many years of experience provide us with the expertise to use recyclates, virgin materials and additives in such a balanced way that our compounds correspond exactly with the required properties. In recent months, we have once again expanded our product portfolio of recyclates and compounds containing recyclates. Among other things, pal plast offers new PBT grades with variable recycled content, especially for automotive and electrical applications.

Also on display in Friedrichshafen are transparent or piano black-colored PMMA recomponds suitable for the production of cosmetic packaging. In addition, pal plast now has glass-fiber-reinforced polyamide 6 in its range, which is heat-stabilized and can

At Fakuma, pal plast will showcase PA6 recyclates with glass fiber content



Managing director and co-owner Amit Wirnik in front of the new P2 plant in Mühlheim am Main. Hi is already looking forward to Fakuma and many goal-oriented technical discussions. "In the future, it will hardly be possible to run a profitable business without addressing the issue of waste management. We invite all plastics processors who want to establish closed-loop recycling in their operations to join us at booth A5-5001. Let's find out together, over a refreshing drink and a tasty snack, how easy it can be to get started with closed-loop recycling when you know you have a competent partner at your side. It's time for circular economy. True to our claim: "Circular. Now."

withstand temperatures of 160 °C on a permanent basis. This makes the material predestined for applications in the engine compartment of vehicles, for example.

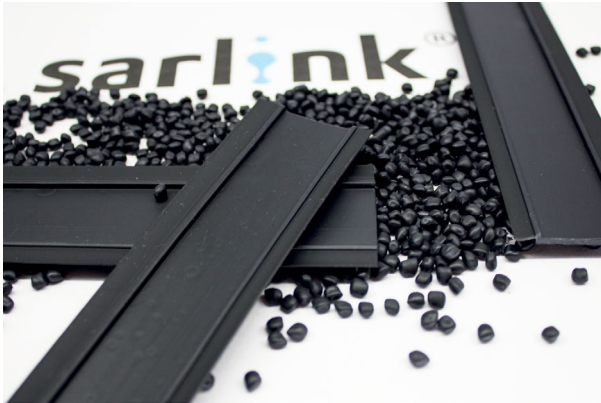
pal plast GmbH
www.palplast.com

Fakuma: Stand A5-5001

pal plast has PMMA recyclates for the production of cosmetic packaging in its product range (Photos: pal plast)



New Sarlink® TPVs with up to 40% Recycled Content



The NEW Sarlink® RX 3100B Series TPV with 40% recycled content is a multi-purpose TPV containing high-quality Post-Industrial Recycled (PIR) content and processes and performs like its virgin counterpart

Sarlink® thermoplastic vulcanizates (TPVs) are the premier choice for automotive applications requiring superior elasticity and long-term performance, as a recyclable, light-weight alternative to EPDM rubber. This latest series, Sarlink® RX 3100B, was developed to help automotive brands achieve sustainability targets, by incorporating up to 40% post-industrial recycle, depending on the hardness. These multi-purpose TPVs are suitable for injection molding, extrusion, overmolding and co-extrusion with polypropylene or other thermoplastic elastomers (TPEs). For these high-durometer grades, applications include the backbone or carrier for extruded seals, like in glass run channels, or boots, bellows, and other under hood components.

The two grades, an 84 Shore A and 94 Shore A, are based on the existing Sarlink® 3100 Series technology, but contain 25% and 40% recycled content, respectively. The materials process and perform similarly to their virgin counterparts yet offer sustainability benefits such as reduced dependency on virgin petroleum-based plastic – ideal for OEMs looking to reach aggressive targets around the use of sustainable material content in vehicles. Sarlink RX 3100B TPVs are pre-colored black and can still be recycled in process or at the end of the product’s life cycle.


The use of PIR content versus Post-Consumer Recycled (PCR) content derived from household waste, provides for a more controlled and consistent raw material stream that can be used in extrusion-grade TPVs without issue. Teknor Apex treats recycled feedstocks like prime raw materials, and they are subject to the same quality assurance testing and must meet relevant specifications for use.

“At Teknor Apex, we recognize our responsibility as part of the value chain, to manufacture our products as sustainably as possible, while continuing to deliver more sustainable material solutions to the market. We collaborate closely with major brands to understand

their sustainability goals and deliver relevant solutions,” said Scott Nakon, Global Automotive Market Manager. “Our ongoing projects include new sustainable raw materials streams such as recycled and bio-based content, as well as carbon negative additives. Also, we plan to introduce new thermoplastic elastomers with up to 65% post-consumer recycled content later this year, as well as expand the Recyclon® portfolio of recycled polyamide solutions.”

Teknor Apex Company
 ► www.teknorapex.com

Fakuma: Stand B2-2114



ERGE Elektrowärmetechnik - Franz Messer GmbH
 91220 Schnaittach - Hersbrucker Straße 29-31
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 www.erge-elektrowaermetechnik.de
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Visit us:
 Hall A6,
 Stand 6301

Certified Recyclates for High-Quality Applications

At Fakuma 2023, WIS Kunststoffe will present its capabilities as a compounder and distributor. WIS Kunststoffe places particular emphasis on its high-quality regranelates. WIS offers recyclates from both post-consumer sources (PCR) and post-industrial sources (PIR). Daniel Römhild, authorized signatory at WIS Kunststoffe, explains, "We have secured long-term access to recycling streams and, because we have our own production facilities, we can respond very individually to our customers' requirements. In our fully equipped in-house laboratory, we can constantly monitor the quality of our products at the highest level." WIS Kunststoffe offers compounds with different recycled content optimized for specific applications. For example, recyclates with high color purity can be offered in white or natural colors, which have approval for the production of cosmetic packaging or toys.

At Fakuma, WIS Kunststoffe will show odor-optimized polypropylene and polyethylene recyclates. These are suitable for sensitive applications, such as toys or household applications. For applications in the automotive industry, special "high-tech" recyclates (PCR) have been developed that meet

the high standards of the industry and already fulfill the criteria of the upcoming regulations in this area. Reinforced variants are also offered for exterior components, while odor-optimized grades with low emission values are available for interiors. Also new are polyamides with high heat resistance for technical applications, especially in the engine compartment. For the packaging industry, WIS now offers recycled polystyrenes (rPS).

All materials from WIS Kunststoffe have application-specific approvals. These include European food approvals according to (EU) No. 10/2011, FDA, leave-on & rinse-off for cosmetics (EC) No. 1223/2009 and EN-71 for the toy industry. All common conformities can be confirmed, such as REACH, California Proposition 65, SVHC, etc. Furthermore, automotive applications can be realized according to European as well as global standards. Individual solutions for applications from the electronics sector (some with flame retardancy) can also be implemented, always tailored to the requirements of the respective project.

New Schneckenputzer – Maximum cleaning at a low price

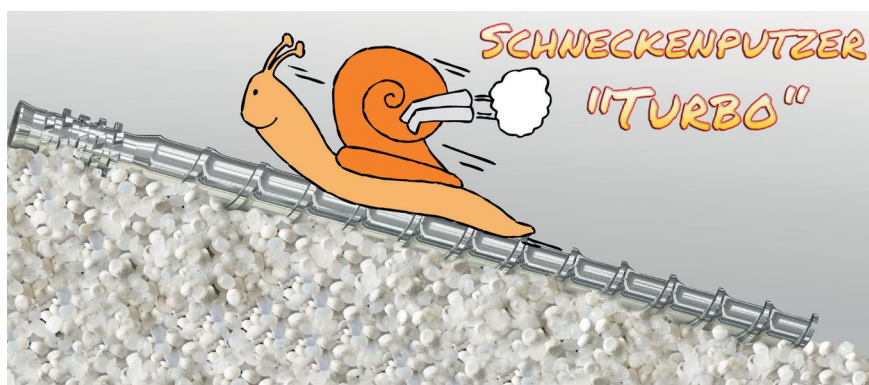
WIS now also offers its customers unique cleaning granules from its own production. The granules are marketed under the name "Schneckenputzer"



High color homogeneity can be ensured by advanced color sorting equipment (Photo: WIS Kunststoffe)

(screw cleaner). Conveyor screws and hot runners can be completely cleaned in a short time by using Schneckenputzer. "The special feature of our screw cleaner is the cost-effective and fast cleaning between material changes and that parts can optionally be produced with it, so that the tool can remain on the machine at all times and the production process is thus hardly interrupted" explains Daniel Römhild. "This brings considerable advantages. The operator does not have to supervise the entire cleaning procedure; rather, it is enough to fill in the screw cleaner, set the machine and let it run. After a few cycles, the machine, the screw and, if necessary, the hot runner are cleaned and ready for use again. The number of cycles depends, of course, on the degree and type of contamination and the polymer used." For longer machine downtimes, the cleaners can be used as a freezing mixture so that carbon deposits cannot emerge.

Experience Schneckenputzer live in action in Friedrichshafen! Graphic: WIS Kunststoffe



WIS Kunststoffe GmbH
 www.wiskunststoffe.de

Fakuma: Stand B4-4307

Plast Eurasia istanbul 2023

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November 22-25, 2023

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THIS FAIR IS ORGANIZED WITH THE AUDIT OF TOBB (THE UNION OF CHAMBERS AND COMMODITY EXCHANGES OF TURKEY) IN ACCORDANCE WITH THE LAW NO. 5174.

The Full Range of Advanced Masterbatch Technology

At Fakuma 2023, Tosaf will be presenting their latest developments in masterbatches for applications ranging from agricultural films to rigid and soft packaging and technical parts. For example, Tosaf's new additives for contour-sharp laser marking are also suitable for transparent plastics in a wide range of applications. Also in focus are a new masterbatch carrier system with approval for direct food contact as well as masterbatches to produce light-diffusing elements, for example for covers of LED lights. Adapted to growing sustainability requirements are blowing agents for foamed plastics that help to reduce the ecological footprint, as well as colour and functional masterbatch solutions for compounds containing recycled materials.

A new laser additive family from Tosaf can be used for transparent applications without affecting the optical properties. It enables contour-sharp, high-contrast markings on thermoplastics that originally show poor or no colour change during laser marking, as well as on compounds with fillers such as calcium carbonate, talcum, titanium dioxide or carbon black. Depending on the substrate, optional settings for marking colours ranging from white to grey to black are possible. Since very low dosages are sufficient and the laser marking process can be fully automated, the new masterbatches help to reduce production costs compared to conventional processes such as labelling or embossing. By eliminating the need for chemicals, varnishes or stickers, their use is also non-critical and more sustainable. Typical applications include pipes, fittings, profiles and irrigation systems as well as, thanks to their suitability for food contact, caps and closures for beverages and other food packaging. Customised combi-masterbatches are also possible.

A new universally applicable masterbatch carrier system from Tosaf Color Service meets all common food contact requirements, including those in Germany, the USA and China. Masterbatches based on this carrier system can thus be used without hesitation across continents for applications ranging from translucent and opaque materials for rigid and flexible packaging, toys and household items to components for food processing machinery and equipment.

To achieve uniform light distribution even with point-shaped LED light sources, Tosaf Color Service has developed light diffusing (LD) masterbatches that contain microfillers. Even very small amounts in the range of 1 to 2 % result in highly efficient scattering of light in originally transparent material, mainly polymethyl methacrylate (PMMA) and polycarbonate (PC). The light transmission and mechanical properties of the base material are almost completely retained. Both colour-neutral grades and combinations with specific colours and functional additives such as UV stabilisers are available.



Tosaf's light-diffusing masterbatches ensure uniform illumination even with LED spotlights (© Tosaf Color Service)

In the spirit of the circular economy, Tosaf has developed colour masterbatches specifically for recyclates, with a focus on post-consumer plastics. They compensate for origin-related inconsistencies that are typical for such materials. A special additive masterbatch range from Tosaf is based on biodegradable carriers such as polylactic acid (PLA) and resin (rosin) and gives corresponding agricultural films properties such as increased UV stability, anti-fogging and IR filtering.

Also geared towards sustainability in plastics processing are chemically active blowing agents that Tosaf has developed for the material-saving foaming process. The portfolio includes endothermic and exothermic types for a wide range of thermoplastics. Endothermic grades are considered safe to use, are approved for food contact and generally require relatively low temperatures for activation. Their applications range from thin-walled films and moulded parts with high surface quality as well as PP tapes to XPS and XPE trays for food packaging and large and thick-walled parts. The exothermic grades combine a high foaming effect with very good dispersibility. Exothermic and endothermic blowing agents combined in one concentrate are particularly suitable for PVC applications such as sheets, profiles and pipes.

Beyond colour and foaming agents, Tosaf's portfolio includes other additives that can contribute to greater sustainability, including antioxidants, moisture and odor absorbers, processing aids and chain extenders.

Tosaf Compounds Ltd.

➤ www.tosaf.com

Fakuma: Stand B4-4402

Evolution Accelerator for Plastics

Making new technology possible and creating real added value - that is the goal of the LEHVOSS Group. Concrete product ideas are just as much a focus as sustainability and tangible profitability. At the FAKUMA, the Hamburg-based company will present numerous application examples that go beyond the limits of what was previously feasible.

For the LEHVOSS Group, the trade fair is all about increasing performance. The Customized Polymer Materials division presents products that are unique in the world and open up completely new possibilities in the design and processing of plastics.

The LEHVOSS Group is also setting the course for the future in the area of masterbatches and additives. Weight reduction is the keyword here, and the results are quite impressive.

With newly developed propellant masterbatches, 24% lighter components could be manufactured in the automotive sector – with an addition of just one percent. The masterbatches are suitable for standard injection molding and extrusion processes, are ADC-free and have excellent processing properties. For example, a significant reduction in sink marks can be achieved from a dosage of just 0.1%. Due to their physiological harmlessness, they can also be used in the food industry.

When it comes to flame retardancy, the Hamburg plastics professionals score points with halogen-free masterbatches based on nitrogen,

phosphorus and mineral additives with high intumescence. A high level of material compatibility is achieved through specially adapted polymer carriers: the possible uses range from film structures to cables and components with high wall thicknesses. The additive Inovia enables PMMA and PC to be flame retardant, which is also halogen-free, without sacrificing transparency.

In addition to the latest technological solutions, the company wants to demonstrate their main strength at the trade fair: the rapid and practical development of high-performance plastics.

Lehmann&Voss&Co. KG
www.lehvoss.de
www.luvocom.de

Fakuma: Stand B1-1106

SIKORA
 Technology To Perfection



Booth A6-6110



3D-printed laminating molds made with LUVOCOM 3F



CENTERWAVE 6000
 360° measurement of large pipes

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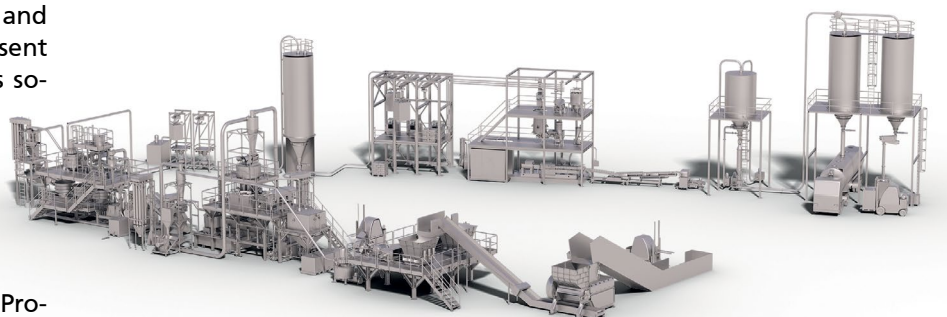
Video link

High-Efficiency Technologies for Processing and Recycling Plastics

At Fakuma 2023 Coperion and Herbold Meckesheim will present innovative product and process solutions that make both the compounding and the recycling of plastics markedly more efficient and increase the product quality achieved.

One eyecatcher at Fakuma booth is the preconfigured Pro-Rate™ PLUS-S feeder. It serves as a representative of Coperion's comprehensive technology and process expertise in all compounding tasks. From raw material handling to conveying, feeding, melting, dispersing, homogenizing and devolatilizing up to pelletizing, Coperion delivers both high-efficiency individual components as well as complete systems.

The added value from the merger of Coperion and Herbold Meckesheim, specialist in mechanical recycling of plastics and plastic waste, is evident at the booth in a virtual PET recycling plant that both companies have created. This virtual plant presents one of the complete solutions for plastics recycling that Coperion, together with Herbold Meckesheim, is now making available from a single source. It demonstrates the entire process and at the same time allows a glimpse into numerous key components and their functions.



Moreover, rotors from Herbold Meckesheim granulators will be on display in several sizes and for various applications. The rotor concept with the cutting geometry is a decisive reason for the high efficiency of Herbold Meckesheim's granulators.

Plastics Recycling Plants from A Single Source

Along with individual components, Coperion and Herbold Meckesheim now build entire systems for plastics recycling. From mechanical processing – size reduction, washing, separating, drying and agglomerating of plastics – to bulk material handling as well as feeding and extrusion all the way to compounding and pelletizing, such plants cover the entire plastics recycling process chain. Since

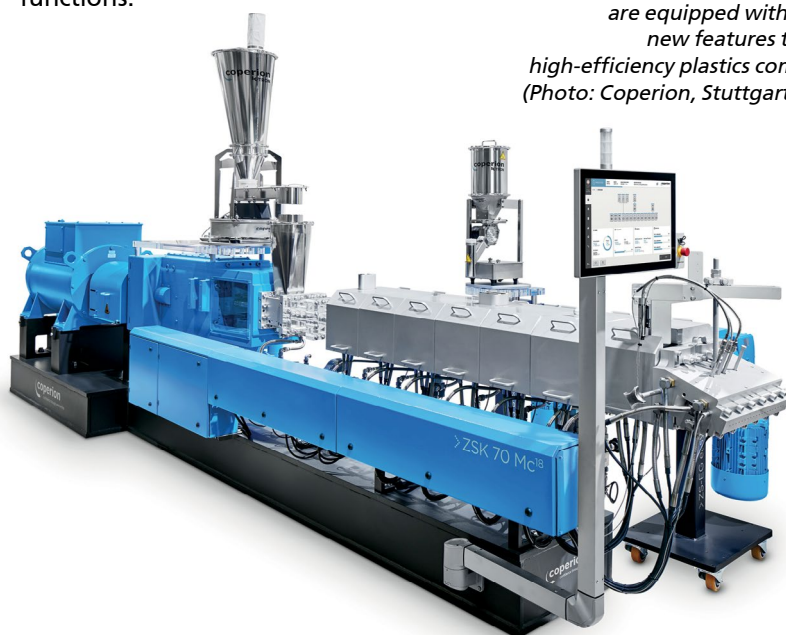
With their complete systems, Coperion and Herbold Meckesheim create especially efficient solutions for plastics recycling (Photo: Coperion, Stuttgart/Germany)

their merger, both companies have continued to develop and optimally attune their technologies for individual process steps so that entire systems excel in operation with extremely high efficiency.

Coperion and Herbold Meckesheim realize solutions for mechanical recycling of post-industrial and post-consumer waste, chemical recycling, solvent-based recycling, and deodorization, tailored to the type of plastic being processed. Representative of their expertise in these various plastics recycling processes, Coperion and Herbold Meckesheim will be showing a PET recycling plant simulation at Fakuma. Booth visitors can look directly into all process steps and view the construction and functionality of key technologies.

Pivotal for the high efficiency of Herbold Meckesheim's granulators are both the rotor concept and the cutting geometry, individually adapted for the task and the raw material. Herbold Meckesheim granulators work with true double cross cutting action: not only the rotor knives are mounted at an inclined angle, even the stator knives are creating a clean cut with a constant gap across the entire knife width. The end product is a regrind with very good flow characteristics, low fines percentage, and high bulk density that can be easily reintroduced into the process.

Coperion ZSK twin screw extruders are equipped with numerous new features that ensure high-efficiency plastics compounding (Photo: Coperion, Stuttgart/Germany)





Herbold Meckesheim granulators are characterized by a very efficient mode of operation, in particular due to the cutting geometry of the rotors (Photo: Herbold Meckesheim, Meckesheim/Germany)

Various rotors from Herbold Meckesheim granulators will be available to view at the booth.

Smart Solutions For More Efficiency In Classic Compounding Tasks

At Fakuma, Coperion will also present versatile and efficient uses of its ZSK and STS twin screw extruders as well as its feeding and conveying technologies in classic and forward-looking compounding tasks.

Coperion technologies are ideally suited for manufacturing demanding compounds such as bioplastics. Due to the number of possible base polymers and the variety of recipes, bioplastics manufacturing creates very high demands upon compounding technology. Coperion has already supplied numerous systems for the production of bioplastics. The company's comprehensive process expertise is leveraged to design each process step such that the required mechanical properties of bioplastic end products are achieved.

Representative of its first-class compounding technology and process solutions, Coperion is showing the preconfigured ProRate PLUS feeder in size S with integrated refill system at its Fakuma booth. This continuous-operation gravimetric feeder from Coperion K-Tron is very robust and stands out with a good price-performance ratio. This single screw feeder is an especially economical solution for reliably feeding free-flowing bulk materials. Coperion K-Tron has also expanded the ProRate PLUS feeder line with a PLUS-MT twin screw feeder especially for feeding powders.

Coperion
www.coperion.com
 Herbold Meckesheim GmbH
www.herbold.com

Fakuma: Stand A6-6312

OTHER MATERIALS

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- Electricity consumption for drying 1 ton of materials up to 18-20 kW*h
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www.polikam.com.tr

Increased Flexibility. Reduced Energy Consumption – Innovative Solutions for Thermoformed Technical Parts

At Fakuma 2023 ILLIG will be presenting a comprehensive portfolio of solutions and machines with a focus on the forming of technical plastic parts. Under the motto "Performance for a sustainable future", the company will present high-performance thermoforming systems with roll and sheet loading for the cost-efficient production of precise formed parts. ILLIG has a new machine in its portfolio in Friedrichshafen: the UAF, newly presented this year, with flexible clamping frames and integrated preheating and finish heating. Development here was focused on flexibility and reduced energy consumption.

The fields of application for the technical parts produced using the thermoforming process range from e-mobility or classic automotive and commercial vehicle applications, through to transport and logistics solutions, caravans, sanitary and household. Weight-optimised car body parts or battery covers can be formed cost-effectively from plastic, for example.

ILLIG has two systems to meet different requirements in its portfolio: the UAF and UAg sheet processing thermoforming machines. The entirely newly developed sheet processing thermoforming machine UAF launched at the beginning of 2023 with its flexible clamping frames is the number-one choice when it comes to flexible production of small to medium batch sizes with frequent tool changes. Developed from scratch, the machine has an automatic sheet loading system and an integrated preheating and finish heating system that realises shorter cycle times and guarantees an optimum forming process. The UAF is available in four sizes for all standard sheet formats.

For this newly developed machine, special emphasis was placed on an energy-efficient design: servo motors, regenerative drives, preheating and an efficient heating system all add up to reduced energy consumption

and therefore lower energy costs per formed part. A tool change on the UAF is possible in under 30 minutes. Forming tools made by market competitors can now be used, too. For post-processing, ILLIG offers various options and handling systems via partners. With the UAF, the system supplier with its own toolmaking unit continues to pursue its path towards higher performance, enhanced sustainability and increased flexibility.

ILLIG offers a proven sheet processing thermoforming system in the form of the UAg. ILLIG's UAg has always stood for very short cycle times and maximum output, and it continues to set the benchmark here. Combining the UAg with fixed clamping frames enables the very highest final vacuum levels to be achieved. The final vacuum level is directly reflected in the sharpness of the formed part. The UAg series covers forming areas from 270 x 170 mm to 2,450 x 1,450 mm with drawing depths of up to 700 mm. This means it is particularly suitable for formed parts in large batch sizes. Automation via a sheet or roll loading unit is possible with all UAg machine types.

Most recently, ILLIG has worked with its customers to optimise the machine and process configuration of the UAg series in order to achieve maximum output. For example, considerably higher cycle times can be achieved by using a third heating station. With an investment of 25% of the total cost for this extension, it is possible to increase the performance of the machine by up to 90%. Tool changes on the UAg have been optimised, too. The so-called quick tool change can be carried out within 15 to 20 minutes with a package combining upper tool, clamping frame set and lower tool.

The UAg machines with fixed clamping frames can be configured to suit individual customer requirements. They offer a cost-efficient entry-level option as well as a wide range of upgrade options to create a high-end modular system. Here, too, ILLIG offers new possibilities with regard to energy consumption: for example, the main axes can be fitted with servo motors instead of pneumatic drives.

With the RDF 85 and the RV series, ILLIG shows that technical formed parts such as transport trays can also be produced using classic thermoforming systems with roll loading. Roll processing enables initial thicknesses of the semi-finished products up to a maximum of 2.5 mm. The benefits here lie in low tool acquisition costs and high article output (forming pressure: 6 bar in the RDF 85, 1 to 3 bar in the RV machines).

With the RDF 85 from the ILLIG RedLine segment, formed parts for different requirements can be produced cost-effectively – to ILLIG's customary stan-

ILLIG sheet processing thermoforming machine UAF



dards in terms of quality and performance. Thanks to an open tool interface, tools from the customer's inventory or made by market competitors can now also be used for the first time.

The thermoforming process offers significant benefits both in terms of the production process and the formed parts themselves: cost-efficient parts production can be set up with a comparatively low investment, with short creation and change cycles, and also low energy requirements compared to other production processes.

One significant advantage of formed parts made of thermoformed plastic such as car body or interior trim parts is their low weight – a factor that is crucial both in vehicle construction and in transport logistics. Taking into account the robustness and durability of plastic parts.

ILLIG firmly believes that energy-efficient thermoforming systems not only promote the customers' business success but also reduce the impact of the manufacturing process on the environment. Energy consumption and the CO2 reduction are key decision-making criteria and competitive factors. In addition to



Thermoforming system with roll loading, RDF 85 RedLine

economical production systems, ILLIG also offers its customers support in the form of calculations that can be included in applications for subsidies, for example.

ILLIG Maschinenbau GmbH & Co. KG

www.illig.com

Fakuma: Stand A3-3005

Live Material Tests and Precise Tube, Hose and Pipe Measurements

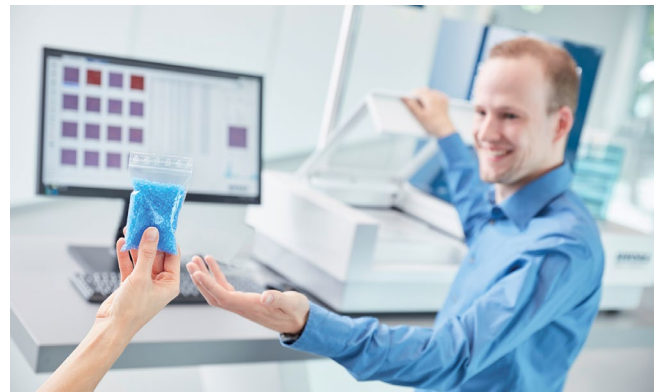
At Fakuma SIKORA presents trendsetting solutions for quality control in the hose, tube and pipe as well as plastics industry. The trade show appearance is in line with the motto "Ideas, Passion, Future", which SIKORA has developed for its 50th anniversary.

Inspection and sorting of plastic material

How to reliably sort plastic material is demonstrated by the modularly developed PURITY SCANNER ADVANCED. In addition to optical 25 µm high-resolution cameras, which detect black specks and discolorations, an X-ray camera ensures the detection of metallic contamination. Depending on the material and requirements, the customer decides how many and which camera types are used. Common systems on the market have a maximum of two optical cameras. By using a third camera in the SIKORA system, a significantly higher detection rate is achieved, so that more contamination are detected. The interaction of reliable detection and intelligent sorting ensures highest material quality. At the same time, production processes are optimized, which contributes to a cost-efficient and sustainable production.

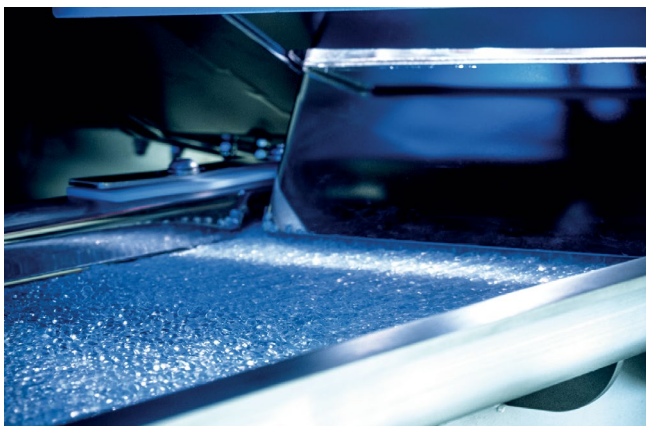
Live material tests

At the SIKORA booth, visitors can automatically inspect and analyze small quantities of crystalline and amorphous pellets, flakes or test plates for contami-



At the SIKORA booth, visitors can have small quantities of pellets, flakes or test plates inspected for impurities with the inspection and analysis system PURITY CONCEPT V

nation with the inspection and analysis system PURITY CONCEPT V. The system is suitable for reproducible laboratory applications and detects black and colored contamination from a size of 50 µm as well as discolorations. Analysis takes less than a minute, including test certificate and HSV color chart of the detected color deviations. The system thus contributes to increased product and quality reliability. Visitors can see the system's performance live at the booth and are invited to bring samples to be tested free of charge.



Measurement of tubes and pipes by means of millimeter wave technology

In the area of extrusion, SIKORA presents the CENTER-WAVE 6000/250 for the measurement of tubes in the diameter range from 32 to 250 mm during production based on millimeter wave technology. All dimensions of the tube, such as the diameter and the wall thickness, are determined and visualized in real time over 360 degrees of the pipe circumference. The measurement data obtained enables automatic control of the minimum wall thickness, taking into account the standard deviation of the extrusion line. This allows potential savings to be exploited to the maximum. In the line, the system enables gapless, reliable quality control as well as automatic control. The model is characterized by its simple operation. At the push of a button, the operator immediately receives continuous and precise measured values, without presetting the product parameters, without the influence of a coupling medium and without any calibration. The exhibited CENTERWAVE is only one model out of a comprehensive product family offered by SIKORA for the measurement of different product diameters from 32 to 3,200 mm.

Measurement of tubes and hoses by means of X-ray technology for single-layer and multi-layer applications

For more than 30 years SIKORA has been offering X-ray technologies for quality control and enables manufacturers a reliable inline quality control of stranded products. How to reliably measure different layers of tubes and hoses during the extrusion process is demonstrated at the SIKORA booth by the X-ray measuring system X-RAY 6000 PRO in combination with the processor system

*At Fakuma, SIKORA presents
the CENTERWAVE 6000/250
for the measurement of tubes
with diameters from 32 to 250 mm*

*The PURITY SCANNER ADVANCED
is used for inspection and sorting
of plastic material*



ECOCONTROL 6000. At the 22" monitor the measuring values are displayed numerically as well as graphically as trend and statistical data. By default, the wall thickness is displayed at eight measuring points. In addition, an intelligent physical evaluation model determines the minimum wall thickness, i.e., the available value, which optimally supports the user in controlling the process. The physical model also allows the wall thickness to be visualized over the entire circumference of the tube or hose at any point. The user selects how many points and at which position the values are to be displayed. The processor system is also used for automatic control of the line speed and extruder rpm. It thus guarantees the compliance with the given specifications as well as highest performance for a maximum of process optimization and productivity. The X-RAY 6000 PRO can be used for product diameters from 0.65 to 270 mm.

For products where a single layer measurement is required, SIKORA presents the X-RAY 6000 PURE to the Fakuma visitors. Also using X-ray technology, the device measures single-layer products as well as the total wall thickness of multi-layer products and covers with two models product diameters from 6 to 110 mm. The measured values are visualized on a 15" display; if required, automatic control to minimum wall thickness is also possible. Ensuring quality while saving material leads to a significant increase in productivity and also contributes to save CO₂ and thus to protect the environment.



SIKORA AG
www.sikora.net

Fakuma: Stand A6-6110

Global Plastic Industry Actors Gather in Istanbul

The Plast Eurasia Istanbul Fair, a significant annual exhibition for the plastic industry, will bring together market actors from November 22 to 25, 2023. The 32nd iteration of the event will take place at the Tüyap Fair Convention and Congress Center, providing industry representatives with a comprehensive overview of the latest advancements and technologies in the plastic industry, all under one roof.

Plastics are involved in our lives

The plastics industry in Türkiye is a significant contributor to the national economy with a total production of over 10 million tons, a turnover exceeding 50 billion USD, and direct product exports valued at over 8 billion USD while experiencing an annual growth that exceeds the GNP growth in the last decade, making it a significant player in the Turkish economy. Türkiye is ranked first in Europe and sixth in the world in the plastics industry.

Plastics are now an omnipresent part of our daily lives, with their usage ranging from packaging to building and construction, transportation to agriculture, electrics, electronics, healthcare, and even sports, design, and hobbies.

The Plast Eurasia Istanbul Fair, the hub of technology and innovation

The Plast Eurasia Istanbul Fair, an event showcasing the latest technologies and innovations in the industry that shape the industry's future and steer our lives, is expected to host over 1,000 exhibitors and 65,000 industry professionals. Visitors will be able to explore thousands of products from leading brands in the plastics industry during the fair, featuring the newest

products and services under the categories of machinery and raw materials.

The industry's prominent trade show is growing even larger

The Plast Eurasia Istanbul 2023 Fair is a comprehensive event that showcases a wide variety of products, including plastic machinery, machinery equipment and sub-industry, molds, recycling, heat and control devices, automation, cooling systems, raw materials, chemicals, and semi-finished goods. This year, the fair has experienced significant growth and has sold out two months in advance. As a result, a new hall has been added for visitors in 2023. Exhibitors from all over the world will meet with visitors from leading countries such as Germany, the UK, Poland, the Netherlands, Spain, India, and Iran during the fair.

A perfect time for visitors to buy discounted tickets

An excellent opportunity to acquire discounted online tickets for the highly anticipated fair is currently available. Early-bird ticket buyers will enjoy a reduced price for admission.

➔ www.plasteurasia.com

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THE LIMITS**

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60 Years in the Game

A strong team that loves a challenge. That's FIMIC. The company celebrates their first 60 years with a game. It'll be an unforgettable adventure, learning about the milestones that made them what they are today, as well as what is always in the company's heart: Recycling.

A magic box and a special game that will tell the company's story

To celebrate such an important achievement, FIMIC wants to reward those who renew their faith every day, because there's no one more important than the customers.

The company had the idea to create a special box that will tell FIMIC's story, describing the many challenges overcome and the goals achieved, which over time have made them a leading company in the plastic recycling technology industry.

Of course, to collect sixty years into a box may seem like an impossible task...

At FIMIC they have the courage to be bold in groundbreaking ways, improving the filtration process when it was still fully manual; the desire to think outside the box, continuing to design and build all their products almost completely internally in own facilities; and the strength to embrace change, removing, even in the face of difficulties, the word "impossible" from their vocabulary.

That's how the innovative machines and technologies were created, the product of Italian craftsmanship, and over time they've become synonymous with industry excellence, helping to make mechanical recycling systems ever more effective and high performing. Great many FIMIC installations demonstrate this – especially the melt filters for treating plastic materials – which the company has exported worldwide, taking Italian engineering and attention to detail with them wherever they go.

The game is packed with gadgets and surprises and you'll learn lots of fascinating things about the history of FIMIC. Which is, first and



foremost, the history of a group. The game will also teach interesting facts about recycling, to which FIMIC has always been committed.

The mission from the start has been to improve the recyclability of materials in order to reduce pollu-

tion. A mission that FIMIC also pursues as co-founders of 'Are You R', a European project aimed at raising awareness of the importance of recycling plastics.

And aware of how respect for nature and the environment is learned when we are young, the company has published their first children's book: "The magical journey of the Plastic Bottle and RAS-UP" – which will be included in the box.

In its long history, FIMIC has grown year after year, partly by listening to the many needs and requests of those operating in this exciting industry. Aware that a company's real growth lies not just in increasing its turnover, the floors of its offices, or the number of employees, but in its capacity to embrace the future with a hunger to discover together how much it still has to offer us. Today, just like sixty years ago.



FIMIC SRL

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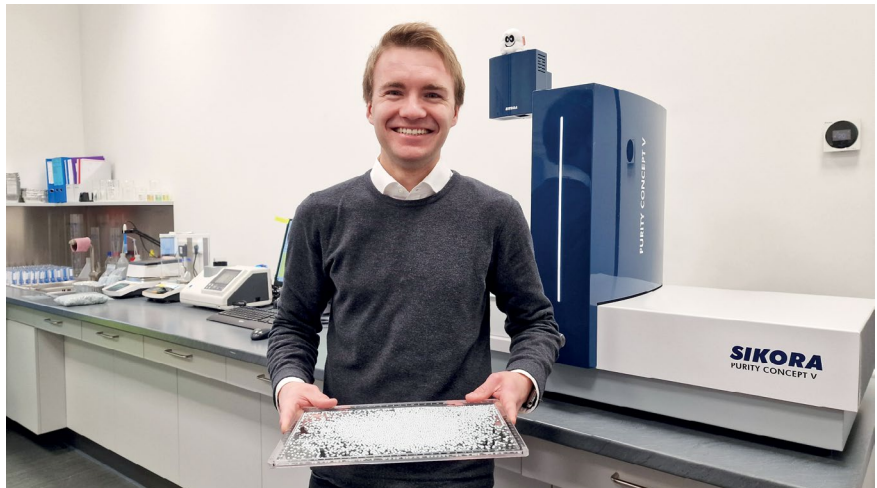
www.fimic.it

"Not only do we save time, but we also get clear, reproducible results"

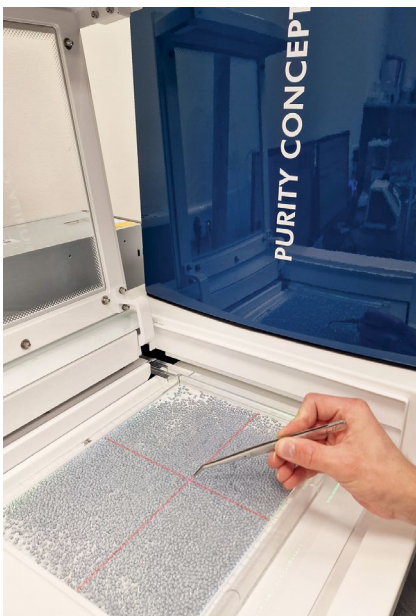
RCS relies on SIKORA technology for recycling

The RCS Group is a family-run, medium-sized recycling and waste management company founded in 1985 and based in Werne, Germany. Today, the activities are bundled into three business segments. While RCS Entsorgung GmbH coordinates the transport and disposal of waste for commercial customers, RCS Rohstoffverwertung GmbH sorts PET flakes for the non-food plastics processing industry. In addition, RCS Plastics GmbH processes the latter into high-quality regranulate for preform and beverage bottle manufacturers. To ensure the required food quality of the recycled material, the company group relies on SIKORA's PURITY CONCEPT V for the quality control of the rPET flakes and pellets.

Impurities in the material can lead to considerable problems in the production of beverage bottles with rPET pellets. In addition to the appearance, the functionality can also be impaired, so that bottles can even burst if the material quality is insufficient. Therefore, the RCS Group uses SIKORA's inspection and analysis system PURITY CONCEPT V in the laboratory to check the quality before further processing of the regranulate into preforms. A material sample containing 80 g of rPET pellets is placed on the sample tray of the testing device. Within 30 seconds, the tray is automati-



Cedric Steeg, Employee in Quality Assurance, holds material sample in front of the PURITY CONCEPT V



cally moved to the inspection area, scanned with the integrated camera and analyzed. A projector marks contaminated pellets in color directly on the sample tray. Simultaneously, the affected material is displayed on the monitor with an indication of the size of the contamination. This facilitates the assignment and removal of contaminated grains for further analysis.

"With the PURITY CONCEPT V, we can find contaminants in just a few seconds. This previously required up to 45 minutes of manual sorting," says Pascal Renner, Head of Quality

The clear marking the contamination on the sample tray facilitates the removal and further analysis

Management at RCS. "Not only do we save time, but we also get clear, reproducible results. With the system, we detect black spots as small as 50 µm; the human eye can't keep up here." For quality control, the RCS Group has defined its own limits that the recycled material produced must not exceed. Immediately after sample analysis, it is apparent whether or not the batch meets the required criteria. The test results are documented and stored for traceability for 5 years. In addition to black spots, the recycling company also checks



PET bottles in the cycle: The flakes from used deposit bottles are processed into high-quality regranulate, which is then used to produce new beverage bottles

the material for butterfly grains. By evaluating the material with the PURITY CONCEPT V, conclusions can be drawn about any mechanical problems that may have occurred during granulation that lead to the undesired deformation. Additionally, the system can also be used to analyze amorphous and crystalline pellets as well as test plates.

The PURITY CONCEPT V impressed the RCS Group, as it reliably detects black spots and localizes them with precision. The company was also very satisfied with the consulting prior to the investment and the service of SIKORA during commissioning. "We are pleased that we have gained a reliable partner with SIKORA, with whom we will further advance the topic of recycling together," says Renner.

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The Use of Recyclates Reduces the Carbon Footprint of Films the Most

What influences the carbon footprint of a plastic film and where is the greatest potential for reduction? Brückner Maschinenbau, supplier of film stretching lines, and the energy consulting company envistra investigated this question in a study. Based on the data from a running film production plant in Eastern Europe, the energy consumption and emissions of the plant as well as the specific emissions from the production and transport of the raw materials were recorded.

Result: Per square meter of biaxially oriented polypropylene film (BOPP) produced, the proportion of energy-related CO₂ emissions from the production plant is around 12%, while the CO₂ emissions from the manufacture of the raw materials are just under 72%. The remaining 16% is accounted for by packaging, transport and, in this example, thermal recycling. This clearly showed that the greater lever for reducing CO₂ emissions lies in the raw materials used.

By using 30% recyclate, it was also possible to reduce the total CO₂ emissions by 20%, from 2.744 kg to 2.193 kg per kilogram of film produced. If you consider that modern Brückner film stretching systems produce around 8,000 kg per hour, the reduction in CO₂ emissions when using recyclate is even more striking, namely with 4.4 tons fewer emissions per hour of production.

Michael Baumeister, Managing Director/CTO of Brückner Maschinenbau: "For us, a continuously declining use of fossil raw materials and ever lower energy consumption in film production are traditional goals in the further development of stretching technology. We have also devoted ourselves to the increased use of recyclates in research and development for years. The study under real production conditions is now another important step."

Steffen Kuhnigk, process engineer at Brückner Maschinenbau, is already active in several cooperations



and initiatives and hopes to convince new partners with the results of the current study: "Recyclate quality, availability and new areas of application for films containing recyclate must be developed together. To do this, we need all members of the value chain, from recyclers and raw material manufacturers to branded companies and retailers. And politics and legislation must also be on board."

Brückner Maschinenbau GmbH

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www.brueckner.com

The New Generation of Recyclable Plastic Films

The Polish packaging manufacturer ERG S.A., headquartered in Dąbrowa Górnicza, has invested in a modern 7-layer blown film line with inline MDO (Machine Direction Orientation) from Hosokawa Alpine for the first time. The line has been in operation since August 2022 and supports the traditional company in its vision to produce only fully recyclable plastic films. In addition to the positive environmental effects, the plant has increased production capacity by 30 percent.

Hosokawa Alpine's MDO technology is a key component in the production of high-performance mono-material films made of polyethylene. In the past, to create certain product properties, composites had to be produced from different materials that cannot be fully recycled. A more sustainable concept is packaging solutions made from pure polyethylene composites. These are in line with the principle of the circular economy, as they can be fully recycled after their original use and reused for end products without material loss. "Our vision and mission is the sustainable development and production of innovative packaging that meets the needs of our customers while minimising the negative impact on the environment," emphasises Tomasz Gwizda, commercial director of ERG. In doing so, the company can draw on 120 years of experience. Today it produces various types of films, including films made of PE composites or EVOH, fully recyclable films or full PE films. For full PE films, ERG uses the new 7-layer line with inline MDO from Hosokawa Alpine.

Precisely fitting line design and high film quality.

"More than 100 MDOs made by us are now in use all over the world," says Richard Hausner, Sales Manager Poland in the Film Extrusion Division of Hosokawa Alpine. Together with the customers, Hosokawa Alpine designs the respective MDO blown film line precisely for the desired film production, tailored exactly to the customers' needs. "This was also the case with ERG and this is one secret of our success. The other is the quality of the MDO films," says Hausner. It is characterised by excellent processability, optimised flatness and no hanging edges. To achieve this, Alpine's MDOs are equipped with three unique features: TRIO technology (Trim Reduction for Inline Orientation) for best flatness and roll cylindricity, the flexible adjustment of the stretch gap to reduce neck-in, and the unique vacuum technology for best flatness and excellent process stability.

The Hosokawa Alpine MDO technology is based on monoaxial stretching of blown film. The film is pulled between two rollers that rotate at different speeds. Depending on the application, the film runs over eight to twelve rollers, two of which are stretching rollers. After heating to the optimum temperature, the film is brought to the desired ratio in the stretching phase. The stretching process reduces the film thickness while improving the optical and mechanical properties. These include, for example, barrier properties, transparency or processability. "The raw material requirement can be reduced with this technology in a resource-saving way and efficiency can be increased," Hausner explains. The stresses created during stretching are reduced in the subsequent annealing phase. Finally, the film cools down and compensates for the thermal shrinkage. "Our composite films based on MDO-Full-PE films and a sealing layer made of LDPE - also in a high-barrier version for gases - meet all the requirements of a modern circular economy and are 100 per cent mechanically recyclable," says Gwizda happily.

PE-MDO film replaces BOPET and BOPP films

One of ERG's products manufactured with the MDO system is the PE-MDO film Premium. Depending on the version, it is a seven- or fourteen-layer film for printing and laminating. As a mono-material packaging and an

The new 7-layer line with inline MDO (Machine Direction Orientation) from Hosokawa Alpine at ERG in Poland



The Hosokawa Alpine MDO technology is based on monoaxial stretching of blown film. The film is pulled between two rollers that rotate at different speeds. In addition to the positive environmental effects, Hosokawa Alpine's MDO line has increased ERG's production capacity by 30 percent

alternative to LDPE composites with BOPET and BOPP films, it is 100 per cent recyclable. "Due to its unique mechanical properties, the film is suitable for both surface and interlayer printing in flexo, offset and digital printing," says Gwizda. In addition, the MDO technology gives the film several properties with explicit added value due to the specific arrangement of the polymer chains. Among these are higher stiffness, transparency and durability, as well as lower permeability to water vapour and gases. Depending on the choice of raw materials, MDO-PE films can be produced in different versions, which are additionally characterised by a much higher temperature resistance. They are mainly used in food packaging.

With the new MDO line from Hosokawa Alpine and its own laboratory for research and development of new film types, ERG currently sees itself as being ideally positioned to meet the challenges of current future trends. "If you want to benefit from all the advantages of MDO technology and install a future-proof plant, there is no way around Hosokawa Alpine and its more than 25 years of experience," concludes Gwizda.

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Getting the Most from Your Extrusion Tooling

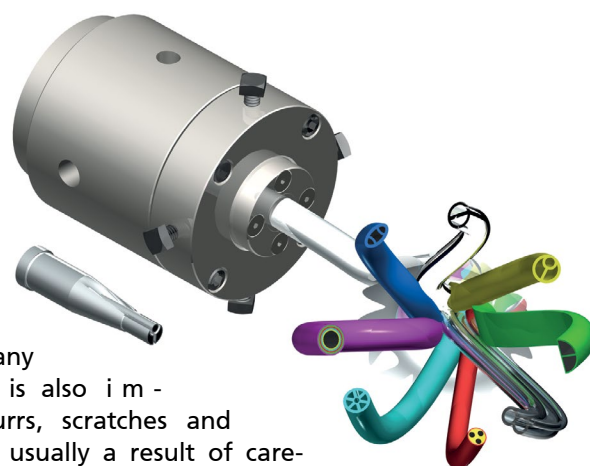
Tooling maintenance improves extrusion efficiency, enhances quality and boosts overall productivity for your medical tubing applications.

By: Glen Guillemette, President Guill Tool & Engineering

By utilizing state-of-the-art production equipment and processes, machining tolerances are held extremely close on today's multi-lumen and multi-layer medical tubing. It is important to note that any misalignment of the tools may be exaggerated in the final product output. Clean parts, especially with sealing and locating surfaces, are key to product performance and successful end products. These surfaces receive the most care and attention during manufacturing and are the control surfaces that ensure uniformity throughout the tubing. Remember, precision-machined alignments are affected by even a speck of dirt measuring only a few thousandths of an inch. A human hair is about 0.003" (0.08 mm), and since there are many such surfaces in a quality tool, cleanliness is critical.

Checking of the tools for any deformities is also important. Burrs, scratches and scrapes are usually a result of careless handling and/or storage of equipment.

Double and triple-layer extrusion heads pose an even greater challenge for maintenance. The number of sealing and centering surfaces multiplies and can magnify the results of dirty tools. During changeovers, the head may be disassembled in order to change compounds and/or tips and dies. Foreign matter is usually introduced at this point and residual materials must be thoroughly removed. Physical tool damage often occurs during this phase, due to mishandling and poor



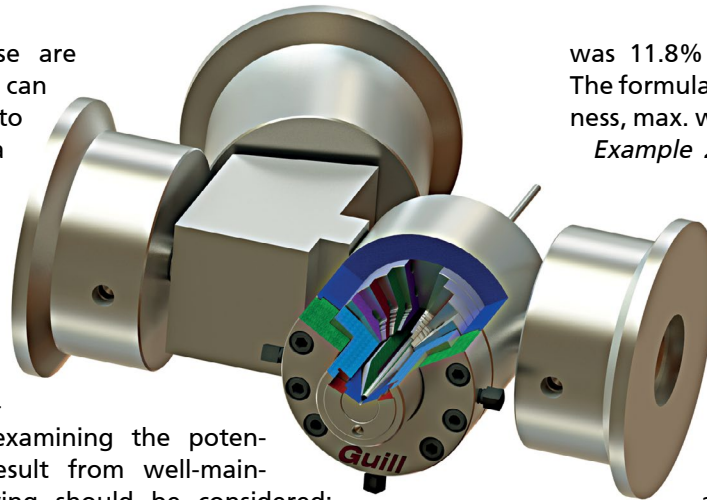
storage techniques. These are highly precise parts, but can also be heavy and bulky to remove by hand. Use of a dedicated work cart exclusively reserved and equipped for extruder head maintenance is recommended. This cart along with a supply of spare components and hardware is easily justified, especially when examining the potential cost savings that result from well-maintained tools. The following should be considered:

- 1.) Maintain a clean, organized work area with soft and clean renewable work surfaces
- 2.) Use a vise with soft jaws, such as copper
- 3.) Use special equipment, such as tip removal tools, etc.
- 4.) Standard tools include wrenches, soft-faced hammers, etc.
- 5.) Maintain a supply of soft, clean rags
- 6.) Use cleaning solutions in spray bottle
- 7.) Use spare parts as suggested by your tooling supplier, properly organized and stored
- 8.) Keep handy your equipment's repair/maintenance manual
- 9.) Have a small surface plate to provide a true flat surface
- 10.) Use a set of appropriate gauge and tip pins for initial tool location adjustment
- 11.) Make sure you have all the proper lifting aids available, including overhead hoists, hydraulic lifts, etc. In most situations, the head and tooling will still be at elevated temperatures, therefore lined gloves are needed when handling.

Today, tubing manufacturers compete with companies all over the world. To be a successful and profitable company, quality and efficiency are essential. This is especially true in extrusion, where material costs are usually much higher than labor costs. Like a racing car stuck in the pit, many extruders sit idle because of poor or damaged tooling, plus excess maintenance time. Overhead costs add up and losing money is the result. Some start up quickly and make scrap, whereas others start up and run a product oversized to hold minimum tolerance. They waste 10 to 20% of the material, which can run from 50 to 90% of the product cost. The tooling supplier goes to great lengths so that tips and dies are machined to a determined specification, ensuring perfect concentricity and alignment. The material is then distributed in the proper location as part of the finished product.

Understanding Maintenance Procedures: Get Organized Before You Start

Example 1: In this example, with an improperly centered tool, a calculated out-of-tolerance area of 0.059 in² (38 mm²) was derived. When the two surface areas were compared, the calculated material waste



was 11.8% of the finished product. The formula is $\% \text{ wall} = \frac{\text{min. wall thickness}}{\text{max. wall thickness}} \times 100$.

Example 2: Alternatively, if the % wall can be increased from 80 to 95%, a savings of about 12% of total cost can result. Savings will vary depending on the designs, of course.

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

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

Recommended cleaning tools and materials include:

- a.) Brass pliers to grip material and aid in pulling
- b.) Brass scrapers available in different widths for cleaning flat exposed surfaces
- c.) Brass bristle tube brushes that are available in diameters from 1/16" to 1" in 1/16" increments (ideal for cleaning holes and recesses)
- d.) Brass rods – different diameter rods are good for pushing material out of flow holes
- e.) Copper gauze for cleaning and polishing exposed round or conical surfaces
- f.) Copper knives for removing residue from recesses and other hard-to-reach areas. Also, polishing com-

pound restores polished surfaces

g.) Compressed air, which is more effective for releasing plastic, but also aids in rubber removal.

Be careful not to force debris into recesses with compressed air

h.) Cleaning solutions may be useful, so remember to use fresh, clean rags (used rags often have metal chips embedded in them, which may scratch polished surfaces)

i.) Cleaning oven – for plastic only. Follow manufacturer's recommendations. If no temperatures are specified do not exceed 850 degrees F (454 degrees C). Don't quench tooling to cool, as this could affect tooling hardness, concentricity and tolerances.

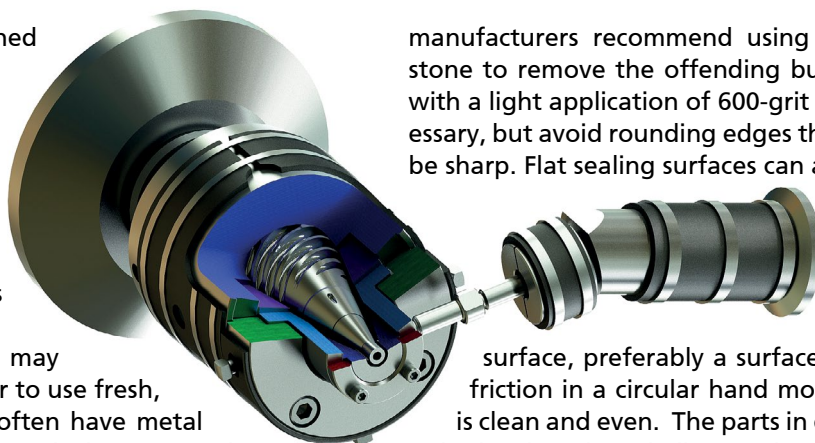
j.) Purging compounds – several are offered to purge the extruder screw/barrel of residual polymer and rubber compounds

Removing Excess Material for Optimum Machining Efficiency

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

Make Tool Cleaning Easier

The quickest way to remove the die is to employ the pressure of the extruder to push it out. Clean the body by using an air compressor and brass pliers so that the material cools down which increases the melt strength, making it into one-lump versus an elastic, gummy-like substance that is harder to remove. Cleaning the body feed port using compressed air and brass pliers to simultaneously cool and remove the excess residue from the feed ports. This procedure is followed by brushing with a round brass brush that polishes the surface. The flow area of the 2" (51 mm) flange adapter should be cleaned by carefully using a brass brush. Examine all surfaces for any irregularities such as burrs and scratches since these must be repaired before the head is reassembled. Most



manufacturers recommend using a hand polishing stone to remove the offending burr. Follow stoning with a light application of 600-grit emery cloth if necessary, but avoid rounding edges that are intended to be sharp. Flat sealing surfaces can also be cleaned using

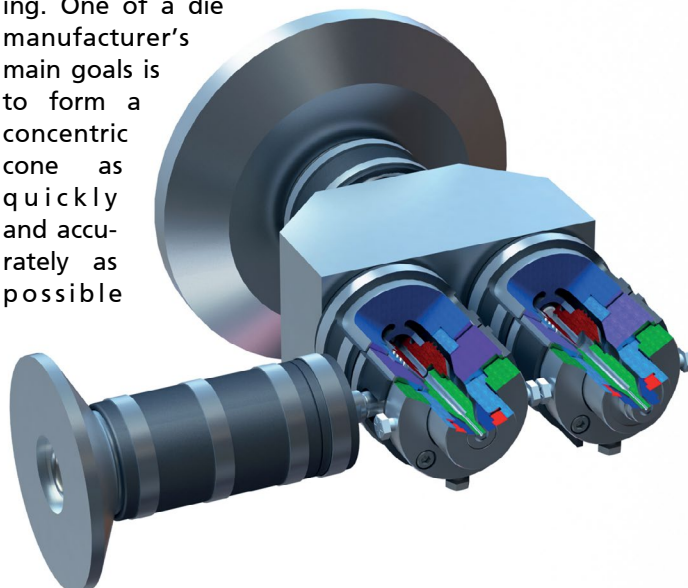
a stone, followed by a 600-grit emery cloth. Place the cloth on a clean, flat surface, preferably a surface plate, then apply friction in a circular hand motion until the area is clean and even. The parts in question should all be hardened steel alloys and will not be adversely affected using these methods.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

Don't Overlook Repairs

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

Working from your dedicated tool cart, follow the manufacturer's instructions for reassembly. Give each component a final wipe down with a clean rag before installing. Even the smallest amount of grit, dirt and residual material must always be removed. Use mechanical or manual assistance for heavy and awkward components to avoid unnecessary mishaps. Reapply anti seize compound to all fasteners if required. Tighten fasteners to manufacturer's recommended specifications as well as in the recommended sequence. This fastening sequence should be specified in the manual and is generally in a star pattern. Tighten gradually until the proper torque is achieved to prevent distortion of the tooling. One of a die manufacturer's main goals is

to form a concentric cone as quickly and accurately as possible



in the primary section of the die – when the extrudate first emerges from the die's distribution capillaries. A properly designed and manufactured die has even distribution close to the extrudate entrance point, but this effort is negated once the die is adjusted, shifting the extrudate off to one side. An eccentric cone is formed in the primary area, and a concentric cone exists at only one point in the process, rather than a smooth, continuous flow path with decreasing volume. A properly manufactured and aligned extruded head, along with well-maintained tooling should require little or no adjustment. Another adverse affect of unnecessary die adjustment is the stress introduced to the extrudate caused by unbalanced flow. The net effect is the final product retains memory of this imbalance and unpredictable die swell occurs.

Company Profile

Guill Tool & Extrusion Co., Inc. has supplied quality extrusion tooling since 1962. First established as a free-standing support facility for the wire and cable industry, the company has expanded its product line to include fixed or adjustable center crosshead and inline tubing dies for the demands of our customer markets, including medical, electronics, defense and aerospace. All crossheads and inline dies are available for multi-layer applications.

Guill Tool & Engineering Co., Inc.
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"Recyclates from chemical recycling will be more expensive than virgin material"

Interview with Manfred Hackl (CEO) and Klaus Lederer (Business Development Manager) of EREMA Group

Mechanical recycling processes have already matured. Chemical recycling is comparatively young. But will it be able to establish itself?

Klaus Lederer: There is every indication that it will, and the demand is certainly there. The big brands need solutions for their packaging, public pressure is increasing, and the EU's recycling targets are very high. Chemical recycling could possibly make a contribution in that regard; however, some open questions remain. One challenge is, for example, to have the correct input material in the correct quality and quantity at the correct location. Some chemical recyclers will be able to

solve this problem, others will not. It is also not clear at present whether chemical recycling will make sense economically. Those who expect recyclates from chemical recycling to be cheaper than virgin material will be disappointed. However, if you consider it a valuable factor to keep the raw material in the cycle at least, even if it is expensive and energy-intensive, it can still make sense. There are also currently multiple pros and cons concerning the question of whether chemical recycling benefits the environment. For a more accurate assessment of chemical recycling, we will have to wait until the first truly commercial plants are up and running.

Some say chemical recycling consumes much more energy than mechanical recycling, others disagree. What is your view?

Lederer: It's a question of perspective. If you say that plastic is an energy carrier, and a large part of the required process energy can come from the plastic itself, then the energy consumption is lower than often claimed. But if you take into account that much more energy has to be put into it than in mechanical re-

CHEMAREMA



cycling, for example to fuel the pyrolysis process, and if you consider that afterwards you are right back at the beginning of the value chain, namely with synthetic crude oil, which then has to be processed again using energy, the claim that chemical recycling does not consume that much more energy than mechanical recycling cannot be upheld.

Manfred Hackl: An honest process analysis would immediately show quite clearly that the energy input is higher in chemical recycling. In mechanical recycling, a temperature of 250 degrees is needed for washing and extrusion. After that you have finished regranulate. In chemical recycling, the energy required for breaking down the raw material into its basic chemical components and then merging the components is many times higher.

A lot of research is being done in mechanical recycling to constantly improve recyclate qualities. Won't the research become obsolete if all the raw materials are broken down into their original components in chemical recycling anyway?

Hackl: We don't see it that way at all. In the last few years, a lot has happened in mechanical recycling, also because the entire industry is developing many things jointly. This has made it possible to realise solutions that were unimaginable just a few years ago. The quality of the re-granulate now allows for very demanding applications. In addition, mechanical recycling is already a functioning business model that makes sense ecologically and economically. It is both efficient and scalable. That's why I don't see why the development of mechanical recycling should be rendered obsolete by chemical recycling. We will also see further developments within mechanical recycling. At EREMA, for example, we are opening our new research and development centre for mechanical recycling at our headquarters in Ansfelden in June – a 10 Million-Euro investment. However, chemical recycling has its justification for certain material streams that mechanical recycling is not suitable for.

What division of duties would then make sense in the future from your point of view?

Lederer: The goal must be for the two technologies to complement each other; and in such a way that chemical recycling processes those materials that cannot be recycled mechanically. These are, for example, mixed plastics such as multi-layer films or fibre-reinforced plastics – or also such material that is intended to come into contact with food as an end product later. If chemical recycling manages to process the poorer quality materials and bring them into a cycle, then this would be a valuable addition. The division of duties would then be to avoid waste. If that isn't possible, mechanical recycling will come in, and only when that reaches its limits will chemical recycling get a chance. This hierarchy makes sense because chemical recycling is more expensive and energy-intensive. At EREMA, we try to support chemical recyclers



Klaus Lederer



Manfred Hackl

with our extrusion technology so that they can reliably and energy-efficiently bring potentially difficult-to-handle material streams into their chemical recycling process. In this way, we are making an important contribution to developing chemical recycling to the point where it can ultimately be a real complement to mechanical recycling.

So EREMA serves both processes with its recycling machines. Where do you see the potentials for each?

Hackl: We already offer the entire process technology for the mechanical treatment. Based on the strong increase in demand in the last two years, we can see how dynamically mechanical recycling is developing.

For the chemical process, we supply a process for mechanical treatment that is often applied at the beginning of the process chain to prepare input streams for subsequent chemical recycling processes. We also see a lot of potential in this area and have already received a number of orders. However, numbers are still comparatively small at the moment, because very few large plants for chemical recycling have been completed worldwide so far. In any case, our wish is to raise both potentials.

Will the circular economy be accelerated by chemical recycling?

Hackl: That will occur in the medium or long term at the earliest, but chemical recycling can already help improve the image of plastics today, because it will be the case that eventually, very many types of plastic will be able to be recycled.

Thank you for this interview.

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➔ www.erima.com

VDMA e.V.
Plastics and Rubber Machinery Association
Lyoner Str. 18, 60528 Frankfurt am Main, Germany
➔ vdma.org/kunststoffmaschinen-gummimaschinen

For a Greener and Cleaner Future

Akmert İplik San. ve Tic. A.Ş. is currently installing a Starlinger bottle-to-bottle recycling line for its new "GSR GRANULES" brand at the company's rPET manufacturing facility in Kocaeli's Gebze district near Istanbul.

The recoSTAR PET 165 HC iV+ has an output of up to 1,800 kg of bottle-grade rPET pellets per hour and will recycle PET bottles from post-consumer collection. The produced rPET resin, which is 100% food-contact approved, will be sold under the brand name "GSR GRANULES" and be used for PET bottle production, creating a closed loop for PET bottles.

The commissioning of the line is scheduled for mid of February 2023. With the new Starlinger recycling line, Akmert is expanding its product portfolio by supplying rPET pellets in addition to PET flakes.

"We consider recycling the business of the future, that's why we have directed our investments towards rPET", said Kasim Aksoy, owner of Akmert. "We opted for Starlinger technology because we believe in quality from the start. There is no other technology we would rather use than Starlinger as we aim to belong among the top players in the industry."

With a monthly capacity of 1,200 tons of rPET flakes, marketed under the brand name "SENA PET", Akmert is one of the biggest suppliers of rPET flakes in Turkey. State-of-the-art sorting and cleansing technologies ensure top product quality that meets the requirements of the PET sheet producers the company supplies to.



Starlinger's recoSTAR PET 165 HC iV+ recycling line will produce bottle-grade rPET pellets for Akmert's new brand "GSR GRANULES"

Turkish PET recycler Akmert is currently installing a Starlinger PET bottle-to-bottle recycling line at its new recycling facility in Gebze, Kocaeli, near Istanbul (Pictures ©Akmert)



Akmert was founded in the 1990's in Gaziantep. The company produced, traded and exported yarns made of cotton, wool and artificial fibres before it opened a recycling facility for post-consumer PET bottles in Istanbul's Silivri district in 2014. Akmert's recycling plant comprises an area of 7,200 sqm and has a production capacity of 1,200 tonnes of rPET flakes per month which are sold under the brand name "SENA PET". With the Starlinger recycling line for the company's brand "GSR GRANULES" at the new Gebze facility, the monthly production output will increase to 2,600 tons for both plants.

Starlinger recycling technology
 Furtherstr. 47a, 2564 Weissenbach, Austria
www.recycling.starlinger.com
www.gsrgranules.com

Film Stretching Line Concepts for Multiple Applications – *High-End Film for a Better World*

Worldwide megatrends such as (food) safety, health, mobility or environmental protection have gained great influence on the field of flexible plastic films. At ArabPlast Brückner Maschinenbau will show stretching line concepts for high-quality packaging films as well as sophisticated technical films. Focus of the new developments are topics such as recyclability and circularity but also energy supply, storage and savings.

Mono-material films: Number 1 in achieving recycling targets

The design of new packaging is aimed at mono-material solutions that consist of only one polymer and yet have all the necessary functionalities. Brückner Maschinenbau will show solutions for the state-of-the-art materials BOPP and BOPET and also for new opportunities with BOPE:

- PP mono-material applications, where complex laminates are substituted by all-polypropylene versions
- Usage of recylate PET made from post-consumer without any losses in quality
- Unique BOPE/BOPP hybrid lines allowing to react swiftly and flexible to market trends

Solutions for bio-based and bio-degradable film

Bio-materials are increasingly being used for the manufacture of biaxially stretched packaging films. The most successful to date is PLA/PHA – Brückner has vast experience with it. Recently other bio-based raw materials are in discussion as competitive alternatives to the existing polymers.

Technical and industrial films enabling high-end technology

Technical films are more and more requested – without them, many everyday but also future-oriented applications would not exist: e.g. displays and screens, mobile phones, electric vehicles, printed electronics, solar panels. Within this field, E-mobility applications are the big drivers, requesting new line concepts for the production of various high-tech films:

- **Battery separator films:** Brückner Maschinenbau presents unique lines as well as customized machine components for the battery separator production. They are in operation at leading manufacturers around the globe, separators from Brückner machines have successfully passed all standard battery tests.

- **Current collector films:** Beside separator films, current collector film is another important part of the battery cells. Benefits of the usage of oriented films: downgauging, weight saving up to 3 to 4 times and reduction of metal up to more than 80% – this means decisively



reduced costs. At the same time the energy density per cell is increased.

- **Capacitor films:** Our present and future life would not function without capacitors. The demand for capacitors of all kind – from micro to power capacitor – will extensively grow in the coming years. Brückner delivers the sequential as well as the simultaneous stretching process. Both are ideal for the manufacture of extremely thin and high-temperature films for EV applications or high energy density film for renewable energy applications in the power industry.

Brückner Servtec: Latest service & upgrading solutions for film stretching lines

- **Line conversion**
 - Portfolio extension with 5-layer or 7-layer film production
 - Upgrade to production of sustainable PE film-types
 - Inline-coating for increased surface properties
- **Production & process optimization**
 - Increased line uptime and optimized product quality with software upgrades
 - Expanded line availability and efficiency with a new clean oven concept including heat recovery system
 - Clip and chain refurbishment

At the joint Brückner Group booth, besides Brückner Maschinenbau and Brückner Servtec, Kiefel will be showing the latest developments for the packaging, medical and appliance industry.

Quality is our Priority

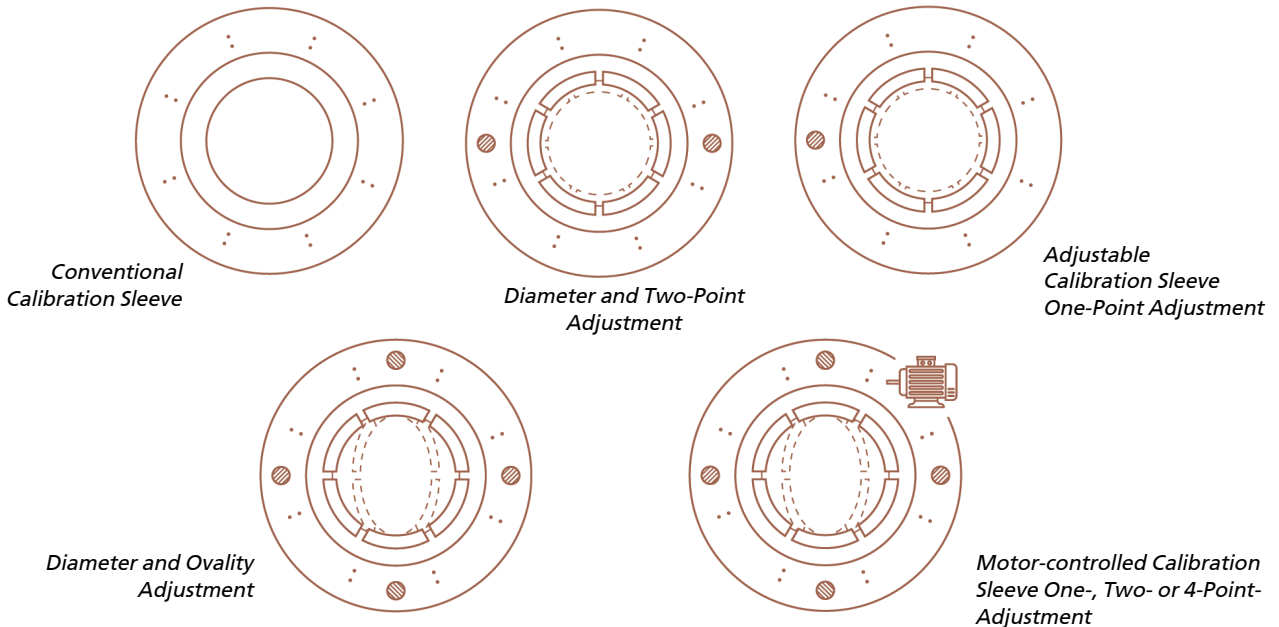
The German-based CCA GmbH develops efficient and high-performance solutions for plastic pipe extrusion. The CCA calibration sleeves precisely match their customers' production requirements and optimize complex production processes. Backed by more than 30 years of experience, the company focus on long-term cooperative partnerships with their customers worldwide. With reliable state-of-the-art technology CCA creates individual solutions.

Innovation is our Passion

The company puts their customers' requirements into practice – dimensionally precise, for pipe diameters from 14 to 2400 mm (also available in inch sizes).

Here are the five different sleeve types which have one thing in common: an adjustment without maintenance-intensive adjustable gear.

OVERVIEW OF THE TYPES



CCA'S LATEST INNOVATION



The motor-controlled calibration sleeve for controlling the diameter and the ovality of the pipe (inline). Designed for plastic pipes from 280 up to 2400 mm (also available in inch sizes)



CCA GmbH – The Original – For Practical Solutions

Growing Markets, Higher Throughputs

Herbold Meckesheim is reporting an excellent order situation for PET and film washing lines towards the end of the current fiscal year. Towards the end of the US fiscal year, because since last summer Herbold belongs to the US group Hillenbrand Inc. Last October, a separate Recycling Business Unit was set up under the umbrella of Hillenbrand with the machinery building company Coperion to cover the entire process chain of plastics processing. This gives the Meckesheim-based plant manufacturer an even stronger basis and more impetus for its steady growth.

The Recycling Business Unit offers comprehensive and innovative overall solutions based on the complementary and aligned technologies of Herbold and Coperion. From mechanical processing – size reduction, washing, separating, drying and agglomeration of plastics – to bulk material handling, feeding and extrusion, as well as compounding and pelletizing, the Business Unit covers the entire process and thus value chain. A global network of engineering sites, project management and service centers ensures fast order fulfillment, whether in the USA or Asia, and, thanks to literally short distances, enables installation and commissioning as well as competent and fast on-site service. State-of-the-art test centers for product development and customer trials round off the Recycling Unit's range of services.

In the course of the integration, the management of Herbold Meckesheim was also restructured: In addition to Massimo Serapioni, who is also General Manager of the Business Unit, Christian Raiser took over the management of the operating business as Managing Director in July of this year. He is responsible for the success of the site and reports directly to Markus Parzer, President Polymer Division of Coperion.

Christian Raiser has learned the management of a mechanical engineering company from scratch: His professional career began in 2007 in production at Coperion in Stuttgart in the screw element manufacturing segment. From 2013, he was responsible for assembly and logistics in the former Compounding and Extrusion Division. In 2019, Raiser moved to Coperion's Wytheville site in the U.S.



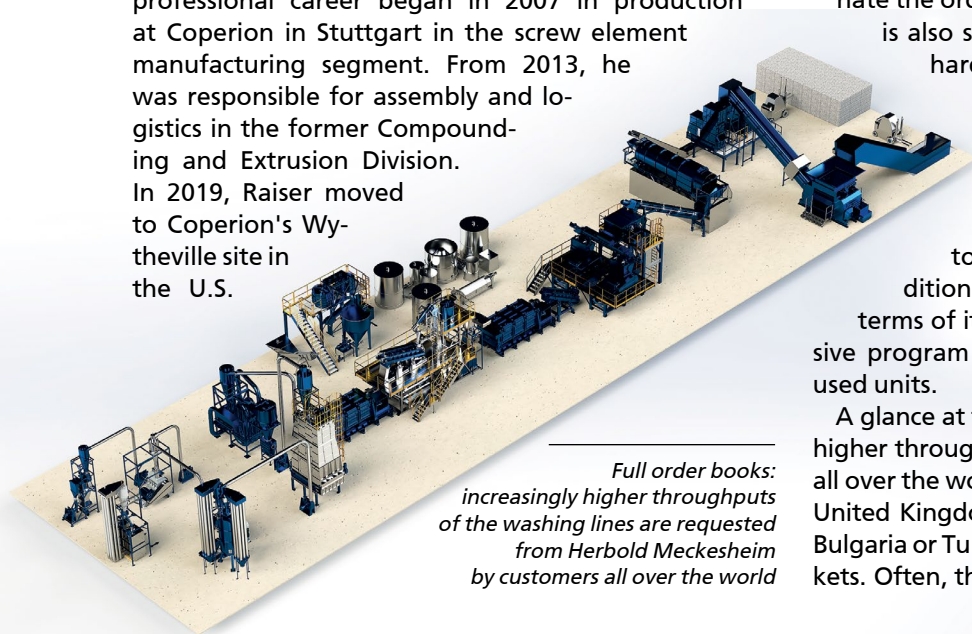
The new management of Herbold Meckesheim: Managing Director Christian Raiser (left) and Massimo Serapioni, also General Manager of the Recycling Business Unit (Pictures: Herbold Meckesheim)

state of Virginia, home of parts manufacturing and assembly of ZSK extruders for the American market, as General Manager and Vice President Operations.

Not only in the United States, where Herbold has a subsidiary, but especially here the interest in the modular and automated recycling solutions from Meckesheim is unabated. And PET washing lines continue to dominate the order intake alongside those for films. There is also strong demand for lines for big bags and hard plastics in general. In addition, the special machinery manufacturer is not forgetting those customers who are still interested in single machine solutions. These are mainly granulators and fine mills as well as plastcompactors. Moreover, Herbold Meckesheim traditionally thinks of the circular economy also in terms of its own machines and maintains an extensive program for overhauling, retrofitting and selling used units.

A glance at the order books shows that it is constantly higher throughputs that are being sought by customers all over the world. In addition to the United States or the United Kingdom, the EU countries from Scandinavia to Bulgaria or Turkey and India are strongly expanding markets. Often, the inquiries here are now aimed at several

Full order books: increasingly higher throughputs of the washing lines are requested from Herbold Meckesheim by customers all over the world



parallel plant lines. The necessary mechanical processing of post-consumer material for subsequent chemical recycling on an industrial scale is becoming increasingly important too. Here, Herbold also offers its own solutions for turnkey systems together with Coperion.

The Meckesheim-based company meets the growing customer requirements through technical advancements in machine and plant design to increase throughput, durability, wear protection and ease of maintenance as well as the purity of the recyclates on the one hand. On the other hand, energy consumption, water usage and personnel requirements are to be reduced as far as possible through efficiency and automation.

It is also clear that ever larger recycling lines are driving the demand for production space and manpower at Herbold Meckesheim. Currently, 16,000 square meters are available, distributed among logistics, assembly and technical center. Accordingly, Herbold is constantly looking for new employees and talents, whereby the embedding in a large, global group of companies facilitates the recruitment of specialists.

Herbold Meckesheim GmbH
Industriestr. 33, 74909 Meckesheim, Germany
→ www.herbold.com

geoTOM[®] – *The Creation of Digital Tracings with the Information of a Water Canalization Network is Now Possible*

New technologies and the development of digital tools have facilitated many aspects of our lives. The creation of digital layouts allows a better positioning and maintenance of water pipeline networks, and it is now possible to create them from a smartphone with the geoTOM[®] mobile app.

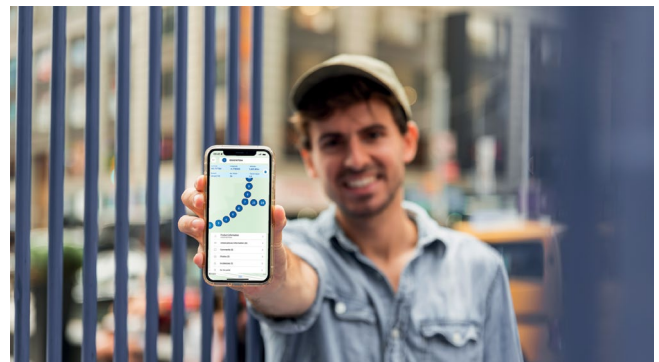
Water is becoming an increasingly scarce and precious resource, which is why it is so important to preserve it and optimize its use to the maximum. Global warming and population growth are putting more and more regions in a situation of water stress where demand exceeds supply. In addition, there is a major problem that is contributing to the increase in this stress: water losses due to leaks.

Russia loses more than 1,300,000 million liters of water per year due to leaks and failures, equivalent to the consumption of almost 18.5 million people. And it is not only a Russian problem, worldwide water losses due to leaks reach 36% of the total available water.

This situation generates a problem not only for society, but also for the environment and it is necessary to take measures to facilitate the repair of these leaks and failures. For this reason, Molecor has developed geoTOM[®], an application that allows to create digital tracings of the piping networks during their installation to geoposition each piece and record its information to facilitate the repair or replacement in case of incidents.

What is geoTOM[®]?

geoTOM[®] is a mobile application designed by Molecor to geoposition pipeline networks with all the data



of each piece in a simple and intuitive way. The use of the app facilitates the access to technical information of water networks and increases the capacity of control and water management. It allows creating a virtual map with the exact position of each piece in real time and sharing it with other members of the project, digitalizing its information and accessing it at any time or place.

In addition, it offers complete traceability of the products manufactured by Molecor and the ability to include the information of those developed by other manufacturers, regardless of the material. The information of the installation of the piece is stored in the project in real time and allows all participants to access data such as

the date of placement, the depth of installation or the exact location from a smartphone or tablet (both on Android and IOS).

Advantages of digitalizing water networks

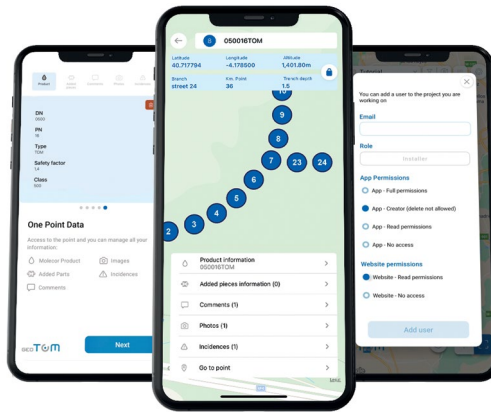
The use of the new technology developed by Molecor offers multiple benefits when creating and maintaining a piping network. From the designer to the installer can see their work facilitated thanks to the access to complete and accurate information of each of the pieces installed in the structure.

The main advantage is to be able to perform an effective maintenance of the network thanks to which at the time of any malfunction it is easier to find the exact position of the damaged piece for substitution and to have complete information about that piece at any time and place to find a substitute with the necessary characteristics.

The app enables collaborative work by offering the possibility of adding multiple users to the project who can not only position the pieces, but also include pictures and comments for the rest of the participants. In addition, it is possible to carry out a complete follow-up in the event of an incident to find out the status and communicate directly and immediately with the Molecor team to handle any query.

In the case of the PVC-O TOM® pipes and ecoFITMOM® fittings manufactured by Molecor, to obtain the necessary information, the application scans the QR code printed on each piece. With this data, a complete traceability of the installed elements is achieved, and the technical information of each product can be consulted from anywhere. The ease of obtaining information on Molecor products is due to the M.E.S. (Manufacturing Execution System) process monitoring system with 4.0 connectivity, but the application also allows the geolocation of parts from any other manufacturer or material from the library or even the manual inclusion of elements.

Molecor is aligned with the achievement of the Sustainable Development Goals proposed by the United Nations General Assembly. Due to the very nature of



the company and its products, the main goal is number 6: "Ensure availability and sustainable management of water and sanitation for all". geoTOM® contributes to this SDG by providing a highly efficient way of managing water transport networks, using at all times, the latest technology available on the market. In addition, this application also contributes to achieving the goals under SDG 9 "Build

resilient infrastructure, promote inclusive and sustainable industrialization and promote innovation".

How to digitalize a water supply system

Creating the digital layout of a pipeline network with geoTOM® is a very simple task to learn and quick to perform. The only prerequisite is to have the application downloaded on a smartphone and a registered user to access it. Once the user has been accepted, the only thing left to do is to create the project.

When creating the network you can include all the information about it, from the date of creation to the location and companies involved. Once created, the only thing left to do is to add the rest of the users with whom it will be shared.

In order to add the products during the installation you can either do it with the GPS of the smartphone activated to have the highest precision or in case of lack of signal you can register the pieces and once you have connection again the app will place them automatically.

If it is a Molecor product, simply scan the QR code of the piece to obtain all its information, if it is a piece of another material or manufacturer, the data must be included manually. In addition, pictures or comments can be added to complement the information.

After this, the layout will be created and made available in real time to all users included in the project to access the information and position of each pipe, fitting, valve, etc. wherever and whenever. Complete and immediate information that can be accessed from a smartphone without the need for exclusive equipment or special training to operate the software.

New technologies at the service of water

Innovation is one of the most important values of Molecor's identity and drives the company to create and adapt new ideas to reimagine the water canalization sector. This has made it possible to develop more efficient, sustainable and durable pipes and fittings or to offer digital tools that facilitate installation and maintenance.

geoTOM® is, by its contribution to the improvement of the efficiency of water networks, another example of Molecor's commitment to the environment, and of its



commitment to R&D&I in the water transport sector, one of the bases of the company's development. This drives the creation of better solutions to help combat one of the biggest problems in today's society, water scarcity.

With this, it joins other services and products of the company that are committed to the reinvention of pipeline networks, generating greater value, reducing consumption and preserving the environment. Examples of this are the TOM® PVC-O pipes that have reached the largest diameters on the market (up to DN1200 mm)

in order to take advantage of the benefits of the material in the widest possible range of piping networks, the ecoFIT TOM® fittings (the first to be manufactured entirely in oriented PVC) and digital tools such as TOM Calculation that facilitate the performance of all the mechanical calculations necessary for the installation of TOM® pipes and thus ensure the optimal performance of the water network.

Molecor

<https://molecor.com/en>

Innovative Die-Heads Design for Multilayer Plastic Pipes with Inner Layer in PA or PVDF for Chemical and Gaseous Material Transport

Tecnomatic, a leading Italian company in the field of extrusion technologies, has recently introduced new die-heads for multilayer plastic pipes with inner layer in PA for hydrogen transport or inner protective layers in PVDF. The new die-heads are the result of the company's new R&I team's efforts to develop innovative solutions that meet the growing demand for safe and reliable transport of hydrogen and other chemical products.

Hydrogen is increasingly seen as a clean and efficient energy carrier that can contribute to the reduction of carbon emissions and mitigating climate change. However, the hydrogen transportation poses significant challenges, as it requires special materials and technologies that can ensure its safe handling and delivery. Tecnomatic's new die-heads for multilayer plastic pipes with inner layer in PA are specifically designed to face these challenges.

The use of PAs (polyamides) as an inner layer provides high resistance to hydrogen permeation and excellent mechanical properties. PA is a thermoplastic material that has high tensile strength, high elastic modulus, and excellent impact resistance. It is also resistant to many chemicals, including hydrocarbons and alcohols, making it suitable for use in the transport of fuels and other chemical products.

The outer layers of the multilayer pipes are made of PE, while an inner layer of PVDF (polyvinylidene fluoride), a highly resistant and chemically inert material provides excellent protection against corrosion and chemical attack. PVDF is widely used in the chemical process industry for handling harsh and unique liquids to gaseous products including sulfuric, nitric, and hydrochloric acid, as well as compounds such as halogenated, aliphatic, and aromatic solvents. It is also used for handling natural and refined products, oils, and combustible fuels.



Tecnomatic's die-heads are designed with a meticulous attention to detail, considering not just the mechanical performance, but also the specific characteristics of the polymers being processed. For polyamide (PA) and polyvinylidene fluoride (PVDF), Tecnomatic uses materials and treatments that are specifically tailored to meet the unique demands of these materials. This ensures that the die-heads can achieve optimal processing efficiency while minimizing any potential material degradation.

TECNOMATIC S.r.l.

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www.tecnomaticsrl.net

In the Spotlight

Nick Coombes speaks with Thomas Eskildsen, who is Chief Operating Officer (COO) and Quality Manager at Vetaphone A/S in Denmark and finds out what it's like behind the scenes of a technology leader.

Nick Coombes: Tell us about your background?

Thomas Eskildsen: I was born here in Kolding and grew up just outside the city. As a teenager I intended to go on and study biology but through my parents and their friends and colleagues I'd always had a connection with the metal working industry – and to this day the distinct smell of machining metal and welding has a deep-down appeal and brings back happy memories.

Coombes: How did your early career pan out?

Eskildsen: After my apprenticeship in CNC machining, I had a mix of jobs like training apprentices and new colleagues, and programming. The company I was working for had started a 'LEAN' project and I got involved in different aspects of that process. At the same time, I started attending evening classes for management and project management. My days ended up being mostly about LEAN work.

Coombes: How did that progress?

Eskildsen: I helped set up a new production line, and when that was done, I was offered a similar task at a different company and ended up working within the composite industry for just under a year. After that, I took on the challenge of implementing an ISO 9001 quality system at a metal working factory. I was in charge of the project and was responsible for the quality system once it has been approved.

Coombes: How did you come to join Vetaphone?

Eskildsen: I was living about 10 minutes on foot away from Vetaphone, and my workplace was a 1-hour drive away, so when I saw there was an opening for a Production Manager at the company, I applied.

I have a friend who worked for Vetaphone at that time, so I had some insight into the company and its culture,

which resulted in me having coffee with Frank (Eisby CEO) one evening after work. During the interview process the job changed character and ended up being a position as Quality Manager.

Coombes: When did you start and what was it like?

Eskildsen: On the 1st of May 2017, just in time to be part of moving the whole administration into our showroom. This involved rearranging production while we renovated the entire factory building and trying hard not to be a disruptive influence – or at least as little as possible. I must say that the approach that all my new colleagues took to the turmoil cemented my impression that Vetaphone has a very special 'can do' culture.

Coombes: What do you like about working for the company?

Eskildsen: Mostly, I like the informal and flat management structure we have here. We can communicate effectively across functions and departments, and there are good opportunities for taking on a diverse array of tasks. In my six years here, we have been growing continually and my responsibilities have changed accordingly. The ongoing development of our organisation and products means there is never a dull moment. We are very agile, and decisions are made not only by the Directors but to a large degree by the Management Team, with valuable input from our solid base of experienced and dedicated work colleagues.

Coombes: What is your job function now, and what are the challenges?

Eskildsen: I'm the COO and Quality Manager responsible for production and the performance of the Quality system. I have a great team around me, and we are constantly pushing to develop the organisation and increase our output. Over the last couple of



Thomas is Chief Operating Officer and Quality Manager at Vetaphone

years, we have battled the same global supply crisis/issues as everyone else in our line of business, and we still experience problems from time to time today. We have increased our stock of standard items and placed orders on a long horizon with our suppliers. The biggest challenges we face now are having sufficient production capacity, and the long lead times on non-standard components.

Coombes: How do you assess the current state of the market?

Eskildsen: Sourcing-wise, it's much better than last year. With regard to orders, different regions react in their own way to local or global trends, but we are seeing a steady influx of new orders. What is really encouraging is the increase in demand for wide web systems coming through the pipeline, especially systems with high complexity that end up in our special project portfolio.

Coombes: Looking ahead, what are your ambitions for the future?

Eskildsen: First of all, I intend to finish my Diploma of Leadership over the coming winter. Both the company and the industry are very different now to when I started in 2017, and I'm looking forward to seeing the next stages of our development. We have ambitious goals for growth, a great team and a solid foundation both financially and culturally, so I think the future of Vetaphone will be very interesting to be part of.

Nick Coombes

The Publicity Studio, The Coach House

Vetaphone A/S

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www.vetaphone.com

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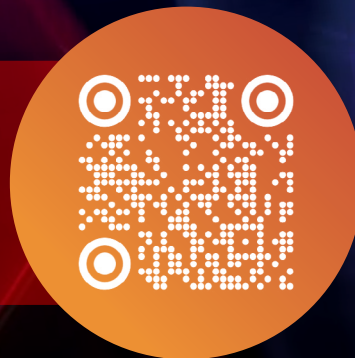
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