

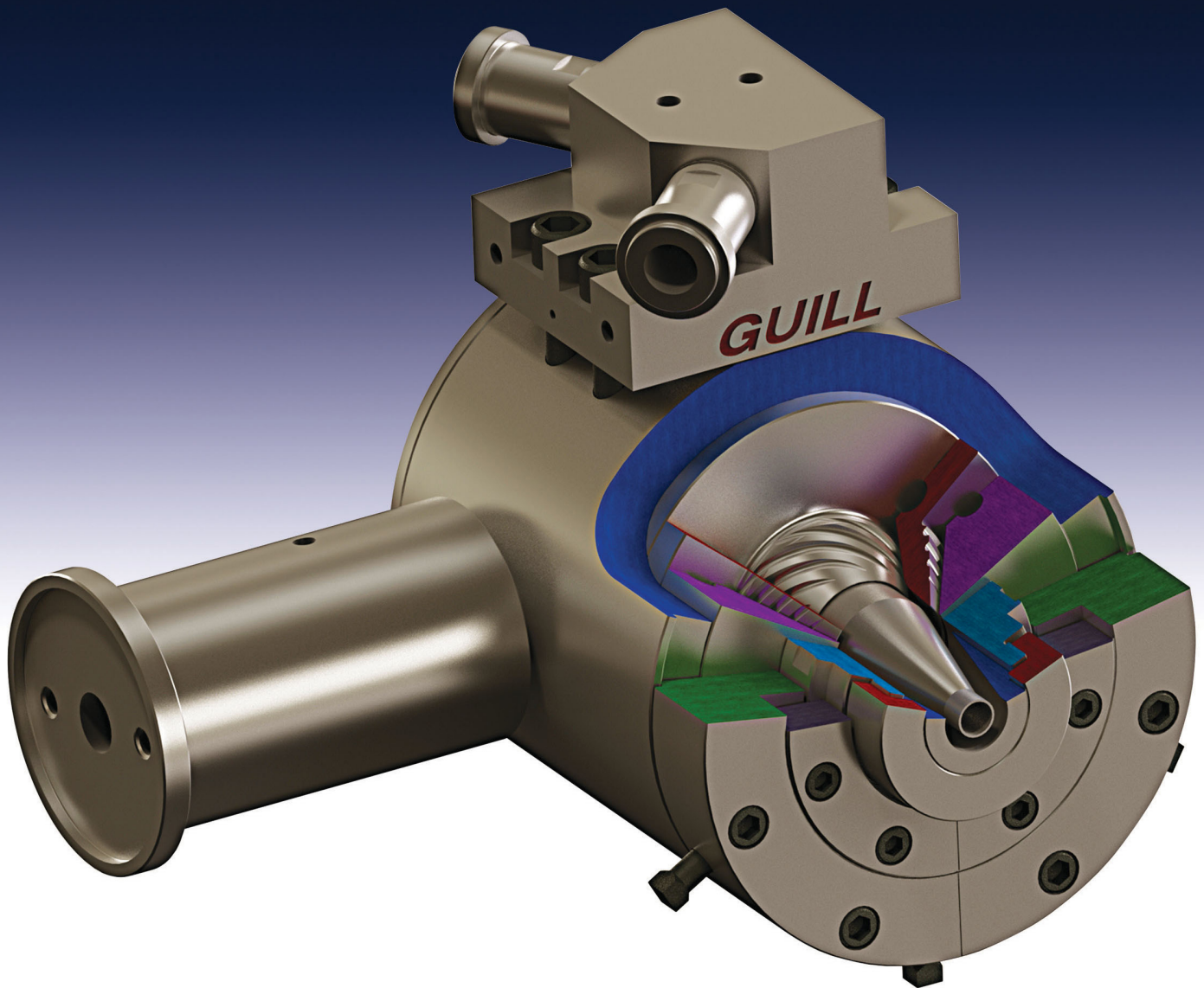
02/2020

VMA VERLAG
Cologne /Germany



EXTRUSION INTERNATIONAL

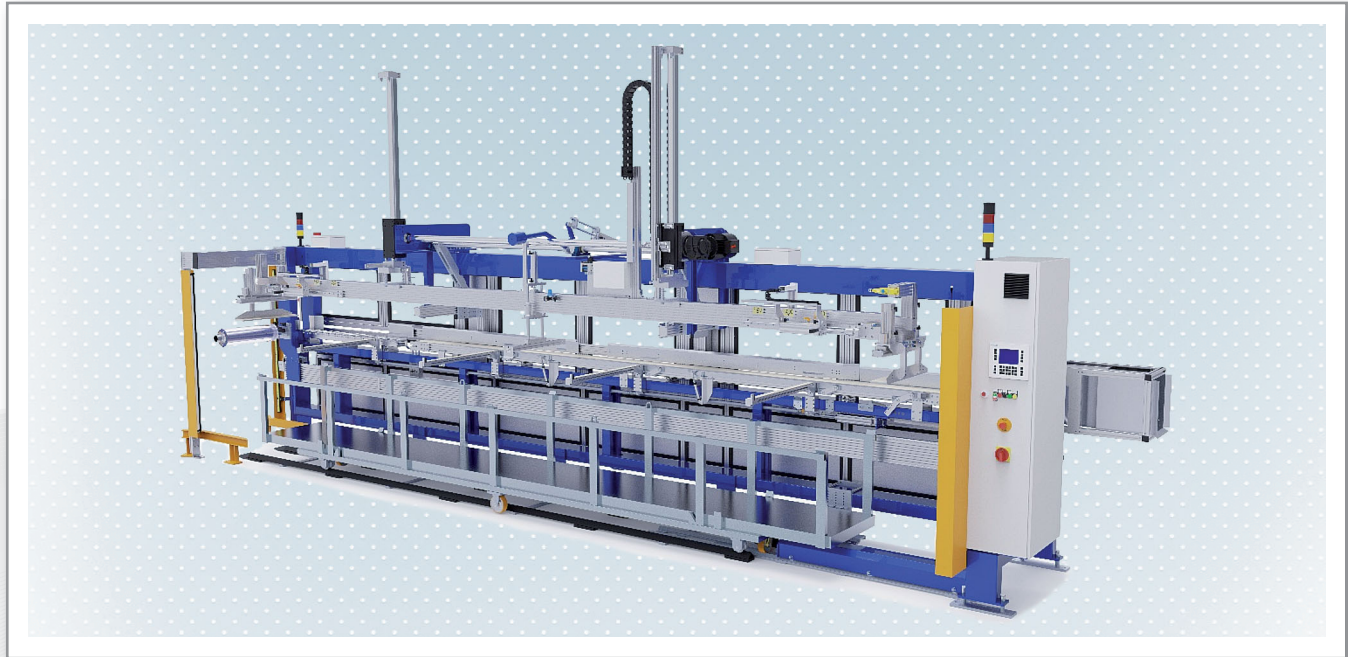
USA



Guill
EXTRUSION TOOLING

3-Layer Drip Irrigation Crosshead

Profile stacking machine PRO



Profile length measurement during extrusion

Using special sensors the length of individual profiles can be detected before the formation of a profile layer to stack. The measured length can be used for checking and correcting the cutting unit of the extrusion line or for documentation (quality assurance) of the produced profile lengths.

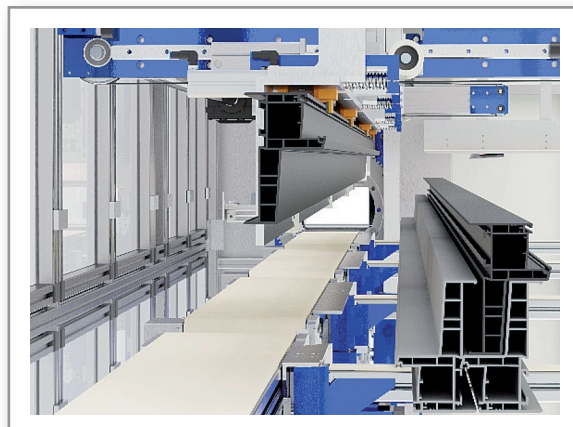
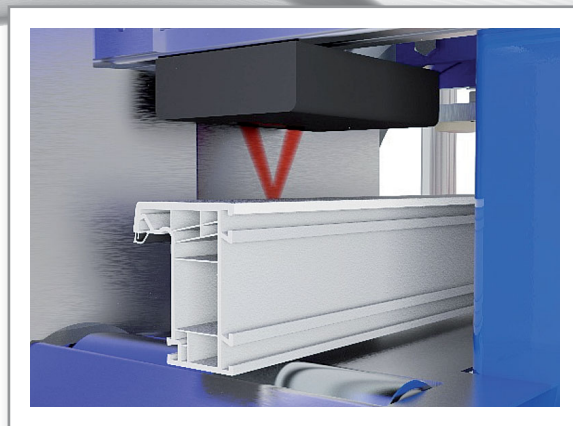
Weight determination during extrusion

Special weighing units can be used to weigh individual profiles before forming a profile layer. The determined weight can be used to optimize the extrusion process.

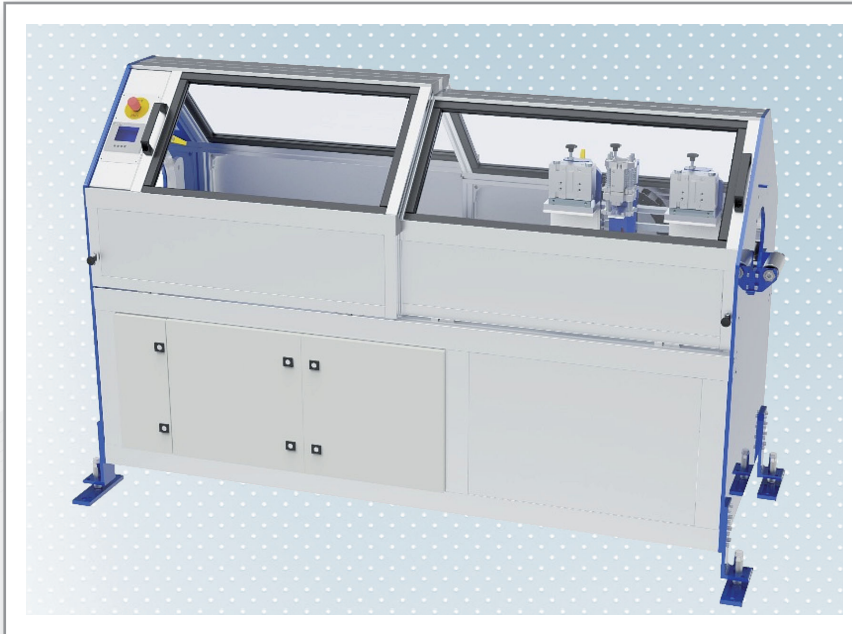
Stacking special profiles

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

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



Laminating foil cutting unit - turnable

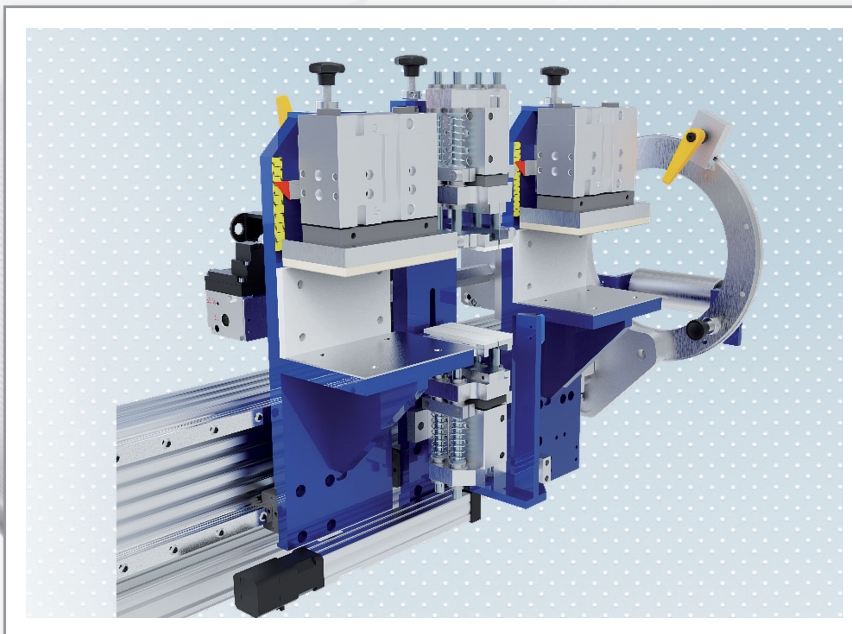


Foil cutting for laminating lines

For the offline lamination of profiles single profile sections are provided to the laminating line **end to end** and are laminated with foil continuously.

After the lamination process the laminating foil has to be cut to separate the profiles again.

The **laminating foil cutting unit** detects the profile ends, makes a gap in between the ends and cuts the laminating foil automatically.



Advantages of the laminating foil cutting unit

- No damage of the profiles when cutting the laminating foil.
- No interference of the cutting process into the laminating process.
- Turnable cutting unit for different film orientations.
- No danger to employees due to manual cutting.

„STEIN BLUE-LINE – for a sustainable future“ stands for sustainable and energy-efficient equipment. Almost 100% domestic production and the high degree of manufacturing penetration guarantee compliance with even the most stringent of demands.



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Firms in this issue	6	New CEO	29
Imprint	7	Delivery of ULTRA Extruders accelerated	29
Industry News	8	Partnership with the Healthcare Plastics Recycling Council (HPRC)	30
Calendar	8	New Executive Leadership Roles announced	30
Equiplast postponed	8	ISO Certification achieved	31
Plastpol postponed	8	Investment in Reclaim Extruders for Sustainable Recycling Operation	31
The Plastics Industry paving the Way for Rebound	11	Second Annual Relfocus Sustainability Innovation Awards	32
Interpack 2020 postponed	12	Vice President of Operations named	32
New date for wire and Tube Düsseldorf	12	New Laboratory	33
Fakuma 2020: Digitalisation and Circular Economy	13	New Director of Sales	33
New Date for American Kuhne Spotlight™ Medical Extrusion Conference	14	Extrusion Tooling	
New Dates Confirmed for Plastics Recycling Show Europe	14	Getting the Most from Your Extrusion Tooling	34
New Executive Vice President	15	Extrusion Technology – Case Study	
Interplastica and upakovka 2020 – Positive Results and a Good Atmosphere	16	New Customer very satisfied with New Generation Extruders	38
Smart Factory is built	17	Film Extrusion	
New Managing Director	18	Wordwide First BOPP/BOPE Hybrid Stretching Line ordered	39
New CEO	18	Recycling – Case Study	
Active Supporter of the Circular Plastics Alliance	19	Kenya: Social Responsibility with Plastics Recycling	40
Sales Office will boost Market Presence in Eastern Europe	20	Additive Blends for Plastics Recycling	
Expansion of Executive Management	20	Highest Performance of Recycled Plastics	42
Reciprocating Head introduced	21	Materials	
New SKZ Inspector active for the Middle East/North Africa Region	22	Certified Compostable Cling Film for Fresh-Food Packaging developed	43
Closing the Loop with PET – Bottle-to-Bottle Recycling Projected to Grow	22	Pipe Extrusion	
Top Position in the Area of Measuring, Control, Sorting and Inspection Systems	23	Largest PVC-O Pipes Manufacturer in the World	44
New Capacitive Charger	24	Compounding – Case Study	
Acquisition	24	Complete Vacuum Supply with MINK Claw Vacuum Technology	46
Find Solutions to Sorting Challenges	25	Automation Systems, Industry 4.0	
FDA Approval for Pharmaceutical Package Leak Testing received	25	Data Security Despite an Open System Architecture	48
Industry News USA	26	3D-Electronics, Thermoforming – From Research	
Recognized for Improved Recyclability	26	Roll to Roll Components developed	50
US Department of Agriculture to Present at Agricultural Film USA 2020 Conference	26	Film Technology, Quality Control	
Plastics Machinery Shipments Stayed Low in 2019 – Despite Fourth Quarter Uptick	27	Automatic Thickness Control System	52
New Material Solutions at 2020 SHOT Show in Las Vegas	27	Cooling Technology – Case Study	
Capacity expanded with Sheet Line	28	Strong Cooling Power, Low Cost	54
PLASTICS Responds to Udall / Lowenthal Bill	28	Pelletizing	
		Circular Economy – Pelletizing High-Quality Polyamide made from Multi-Layer Packaging Waste in Newcycling® Process	57
		Recycling	
		Circular Economy – A Contributing Factor to Success	58

38



Within two years, the Egger Group decided several times to purchase a conical conEX NG 65 twin screw extruder from battenfeld-cincinnati Austria GmbH, Vienna. All extruders were installed in the edge strip plant Egger Dekor A.S. in Gebze, Turkey.



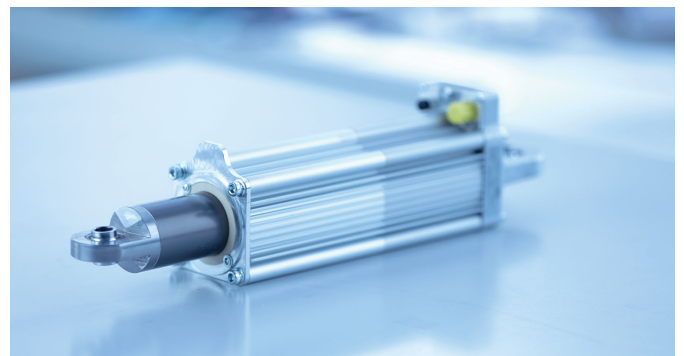
Molecor is the leader company specialized in the development of the latest technology, applying Molecular Orientation to pipeline solutions. Molecor began its business focusing on Oriented PVC pipes and fittings for pressured water conveyance. TOM® pipes cover nominal diameters from 90 to 1,200 mm in 12,5, 16, 20 and 25 bar pressure.

44



43

BASF and Fabbri Group have developed a sustainable solution for cling film used in fresh-food packaging: Based on BASF's certified compostable ecovio®, Fabbri Group produces the highly transparent stretch film Nature Fresh.



The open architecture of an automation system of Generation 4.0 offers key benefits and the significance given to it by operators of these systems is equally high. An open architecture with standardized communications protocols and standardized interfaces is one of the requirements for conversion to Industry 4.0 technologies.

48

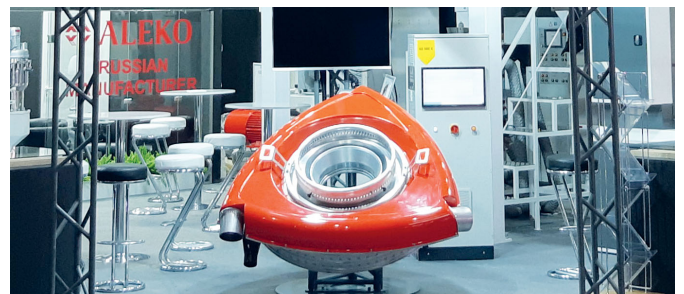
Contrary to the equipment suppliers for the automotive segment, the suppliers of waste disposal and recycling technology see a real boom in incoming orders. Herbold Meckesheim has full order books for 2020 and even further projects for 2021 are already being finalized.

58



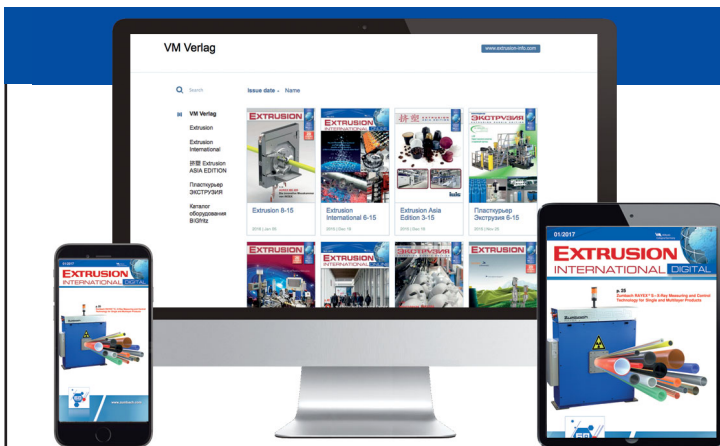
ALEKO – the largest Russian manufacturer of equipment for polymer processing – has presented to the market a product, which is unique in its technical characteristics, and which makes it possible to decrease thickness variations to 70%.

52



Index of Advertisers, companies and *fairs* referred in this issue

Adsale	11	IPTF 2020	Outside Back Cover
Agricultural Film USA	26	IVK-Aachen	17
Airlite Plastics	28	Kautex	18, 29
ALEKO	23, 52	Klear Plastic Ventures	26
Amcor Flexibles	30	Logoplaste	24
American Kuhne	14, 29	Macro	33
AMI	26	Masterchem	24
APK	57	Messe Düsseldorf	12, 16
aquatherm	46	Mitsui	42
BASF	43	Molecor	21, 44
battenfeld-cincinnati	38	motan-colortronic	17
Blend+	42	Mr. Green Trading Africa	40
Brückner	39	Nordson Corporation	33, 57
Busch Vacuum Solutions	46	Petcore Europe	22
Chinaplas 2020	11	Pfeiffer Vacuum	25
DRS Deutsche Rohrwerke	48	PLAS MEC	13
Conventus Polymers	27	Plastchim-T	39
Davis-Standard	15, 28, 31	PLASTICS	27, 28, 30, 32
DRS Deutsche Rohrwerke	56	Plastics Recyclers Europe	22
EFBW	22	Plastics Recycling Show	14
Equiplast	8	Plastpol	8
Erema	19, 40	PreZero	31
Erhardt+Leimer	48	Reifenhäuser	19
Eriez Europe	24	Reisner	54
Fira Barcelona	51	Schall, P.E.	13
Fraunhofer-IVV	50	SIKORA	23
Graham Group	14, 29, 32	SKZ	22
Guill	Outside Cover, 21, 34	Smart Extrusion	Inside Back Cover
Herbold Meckesheim	58	Stein Maschinenbau	Inside Front Cover+3
HOSOKAWA ALPINE	20	Targi Kielce	8
HPRC	30	TOMRA	25
ILLIG	18	Tube 2020	12
iNOEX	20	Weber, Hans	9+10
interpack 2020	12	Welex	29
Interplastica	16	Wire 2020	12
IPF Japan	51	Zumbach	15



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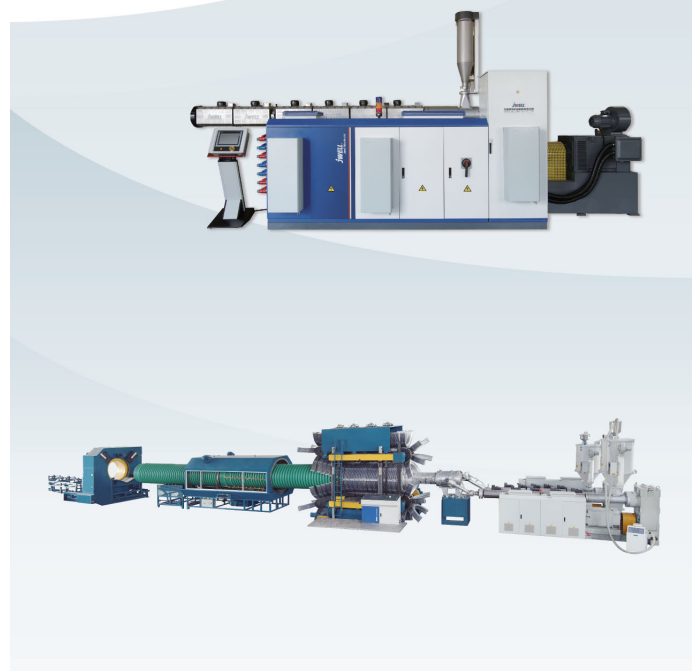
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19. - 21. 06. 2020
Addis Ababa, Ethiopia
www.complastexpo.in/et/

Plastasia 2020

19. - 22. 06. 2020
Bangalore / India
www.plastasia.in

COMPLAST Myanmar

02. - 04. 07. 2020
Yangon, Myanmar
www.complastexpo.in/my/

COMPLAST Kenya

14. - 16. 07. 2020
Nairobi, Kenya
www.complastexpo.in/ke/

CHINAPLAS 2020

03. - 06. 08. 2020
Shanghai, China
www.ChinaplasOnline.com

COMPLAST Srilanka

20. - 22. 08. 2020
Colombo, Srilanka
www.complastexpo.in/sl/

POWTECH India 2020

09. - 22. 09. 2020
Mumbai, India
Powtech-india.com

interplas

29. 09. - 01. 10. 2020
Birmingham, United Kingdom
www.interplasuk.com

PLASTPOL

06. - 09. 10. 2020
Kielce, Poland
www.plastpol.com

Equiplast postponed



■ Fira de Barcelona has decided to postpone Expoquimia, Eurosurf and Equiplast, the three events of the chemical, surface treatment and plastics sectors, initially scheduled for 2nd to 5th June, until December. These three shows will therefore take place from 1st to 5th December 2020.

The decision has been made in view of the current situation caused by COVID-19 with the aim of holding the exhibition in a more positive environment. The president of Expoquimia, Carles Navarro, emphasised the support of most of the main industry agents, as well as the importance of preserving the event, which will have even more participants "in this year's international fair calendar."

On the other hand, the president of Eurosurf, Giampiero Cortinovia, has pointed out that "moving the show to December is the best option when considering the current scenario", while the president of Equiplast, Bernd Roegele, has stated that "the logistic needs of Equiplast, which require some time for the transport and build-up of the equipment on display, make it advisable to hold it in December."

With an expected turnout of more than 600 direct exhibitors, the joint celebration of Expoquimia, Equiplast and Eurosurf is the leading trade fair platform for applied chemistry in Southern Europe, where all the initiatives that mark the future trends of three fundamental sectors for social and economic development will be on display.

➔ www.equiplast.com

Plastpol postponed



■ Andrzej Mochoń, Targi Kielce President of Board: "Because Poland's government as well as governments of many other countries have announced epidemiological threat, thus the situation makes it impossible for us to hold the PLASTPOL expo on previously announced date, i.e. 19-22 May 2020.

Following numerous, in-depth discussions with our partners, exhibitors and expo guests, we resolved to postpone our region's leading plastics and rubber industry event. PLASTPOL – the International Fair of Plastics and Rubber Processing is held on a new date – from 6 to 9 October 2020.

We will make every possible effort to hold PLASTPOL at the new date, but also to make it a supreme-level event. Not only will the trade show provide with the opportunity to meet customers and business partners, the opportunity to exchange experiences and ideas on how to run a business in a new economic situation. This expo will also offer comprehensive promotional support for exhibitors. Polish and foreign media coverage, participation in radio and television shows, on-line advertising campaigns and at the exhibition grounds – this and much more available at the expo.

We have been connecting business people for several dozens of years. We have enabled meetings and experience exchange, we have enhanced communication and have been on a constant look for solutions which make companies develop even further. We are truly convinced that you will demonstrate understanding for the situation we are all facing. We do hope you will also be involved in the developing PLASTPOL – the largest industry meeting in the region held on a new date."

➔ www.targikielce.pl
www.plastpol.com

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The Plastics Industry paving the Way for Rebound

■ The Chinese industries have been normalizing operations as the spread of the coronavirus was slowing down. Indeed, the plastics industry, among others, has to stay positive and prepare for the expected market rebound after the epidemic.

As the leading industry trade show CHINAPLAS was confirmed to be rescheduled to early August, many of the exhibitors are already planning to strengthen their presence at the upcoming show. The official media of CHINAPLAS, CPRJ, has recently released the news about the resumption of operations and some exhibitors' responses:

Most provinces across China have returned to work after an extended holiday. The National Development and Reform Commission stated that in some major economic provinces such as Guangdong, Jiangsu, and Shanghai, the resumption rate of industrial enterprises above designated size exceeded 50%.

Large enterprises are relatively quick to resume work and production compared with small and medium-sized enterprises. Upstream industries and technology-intensive enterprises are faster than downstream industries and labor-intensive enterprises.

Meanwhile, governments at all levels have promulgated a number of policies to proactively coordinating the resumption of production and work of enterprises, ensuring the stable economic development. For instance, Beijing has introduced comprehensive financial support measures, Shanghai has set up tax reduction and exemption targets, and Guangzhou has also launched work and production resumption policies.

VDMA: The iconic CHINAPLAS 2020 to provide a positive impulse for the market

China is one of the largest export markets for the German plastics processing machinery industries. Therefore, the VDMA Plastics and Rubber Machinery Association has been keeping close eye on the latest developments related to the coronavirus outbreak.



*Thorsten Kühmann,
Managing Director,
VDMA Plastics and
Rubber Machinery
Association*

According to the German industry association, no member company maintains production facilities in the particularly affected Hubei region, and also no member has yet reported a coronavirus inflected case.

Regarding when the market will return to normal, Thorsten Kühmann, Managing Director, commented that many member companies expect the situation to slowly level off again in March, and the outbreak "does not change the fundamental importance of the Chinese market for our industry in the future".

VDMA Plastics and Rubber Machinery Association is one of the co-organizers of the CHINAPLAS 2020 concurrent event "Industry 4.0 Factory of the Future".

Thorsten Kühmann believes the iconic industry trade fair "can certainly provide a positive impulse" especially when the Chinese economy is weakening as a result of the coronavirus outbreak.

VDMA Plastics and Rubber Machinery Association said the coronavirus outbreak has not yet led to significant delivery problems in the German mechanical engineering industry.

However, due to the long throughput times in mechanical engineering, it is possible that "these difficulties will only really become apparent in the coming weeks".

Apart from slower production from many suppliers in other industries, the mechanical engineering companies are also facing the challenges of logistics restrictions.

At present, companies in Germany can still compensate for these difficulties by switching to other production locations or suppliers, but Thorsten Kühmann remarked that "the situation must be reassessed from week to week".

(Source: CPRJ)

CHINAPLAS is re-scheduled to August 3-6, 2020 to be held in Shanghai, PR China. Focusing on "Smart Manufacturing", "Innovative Materials", and "Green & Circular Solutions", the organizer is expect to present 340,000 square meters of exhibition space, bring together 3,800+ renowned global exhibitors. Visitor pre-registration is opened and those who pre-register on and before May 22, 2020 will receive a visitor badge by mail in advance.



interpack 2020 postponed



■ Messe Düsseldorf is postponing the leading international trade fair interpack. It will now take place from 25 February to 3 March 2021.

In doing so, Messe Düsseldorf is following the recommendation of the crisis management team of the German Federal Government to take into account the principles of the Robert Koch Institute when assessing the risk of major events. Based on this recommendation and the recent significant increase in the number of people infected with the new corona virus (SARS-CoV-2), including in Europe, Messe Düsseldorf has reassessed the situation. In addition, there is the general ruling issued by the city of Düsseldorf on 11 March 2020, in which major events with more than 1,000 participants present at the same time are generally prohibited.

"The decision was taken in close consultation with our advisory board and sponsoring associations," emphasises Werner M. Dornscheidt, Chairman of the Board of Management of Messe Düsseldorf GmbH. It also reflects the wishes of individual industries: "As their partner, we are currently doing everything in our power to reduce the economic losses suffered by our exhibitors".

"The city of Düsseldorf is following the instructions of the state government. Our aim is to slow down the spread of the corona virus so that the health system can continue to function properly," emphasises Thomas Geisel, Lord Mayor of the state capital of Düsseldorf and Chairman of the Supervisory Board of the Düsseldorf trade fair company.

Delaying the spread of the virus as much as possible is also a declared goal according to the Robert Koch Institute (RKI). In order to fulfil Messe Düsseldorf's responsibility for risk prevention, the company primarily had to minimise the increased risk of infection at major events.

interpack's industry partners support the decision to postpone the fair and together with those responsible, are counting on a successful event next year. "interpack is the absolute top event for the international packaging industry and related processing industries. The trade fair thrives on personal encounters and direct exchange between people from all over the world. This is only possible if there are no health risks involved. Therefore, the postponement is responsible and right. We are looking forward to next year's event to discuss the issues that are defining the industry, such as sustainability, and to present appropriate solutions," comments Christian Traumann, President of interpack 2020 and Managing Director & Group President at Multivac Sepp Haggenmüller SE & Co. KG.

■ Messe Düsseldorf GmbH
www.interpack.de

New date

for wire and Tube Düsseldorf: 7 to 11 December 2020

■ This is Messe Düsseldorf's timely response to the postponement of the industry highlights announced at the end of February. It was agreed in consultation with all partners involved in order to counteract the increasingly dynamic developments regarding the possible spread of the corona virus.

"It is very important for us to inform you of this new date as soon as possible in order to ensure planning security for the

entire industry and its partners," says Wolfram N. Diener, Managing Director of Messe Düsseldorf GmbH, and adds: "Our customers and partners can trust us to act calmly and responsibly even in difficult situations."

Existing contracts with Messe Düsseldorf remain valid for the new date, visitor tickets already purchased remain valid as well. 2,600 exhibitors in 15 halls are expected to present their latest machinery and equipment for wire and tube production, processing and finishing, end products, products and services.



■ Messe Düsseldorf GmbH
www.wire.de, wwwTube.de

Fakuma 2020: Digitalisation and Circular Economy

■ Roughly 2000 exhibitors are expected to participate at the 27th Fakuma international trade fair for plastics processing in Friedrichshafen from the 13th through the 17th of October, 2020. They'll provide expert visitors with a comprehensive overview of all plastics technologies – from injection moulding right on up to extrusion technology, thermoforming and 3D printing. In addition to current processes, technologies and tools covering all aspects of plastics processing, the event will also deal with the issues of digitalisation, resource conservation and circular economy.

Fakuma will occupy all available hall floor space in the modern exhibition centre on Lake Constance. 1933 exhibitors from 40 countries and nearly 48,000 expert visitors from 126 nations came to Lake Constance in 2018. The event is highly esteemed within the industry sector.

Sandra Füllsack, CEO of motan holding gmbh in Constance, Germany, will above tackle the issue of circular economy at this year's Fakuma. "We'll present new products, as well as optimisations, which contribute to energy efficiency and resource conservation in the field of materials management." Sandra Füllsack refers explicitly to contributions the industry

sector can make in the complex area of sustainability: "Responsible use of plastics starts with product design and doesn't end until we finally go full circle at the end of the product's lifecycle. Making it possible to process recycles and new bio-based or biodegradable materials is the job of mechanical and plant engineering, while at the same time fulfilling the end product's strict quality requirements. There are numerous possible solutions, not all of which involve the material itself or its processing. For example, digitalisation also contributes to the recycling process by furnishing the end product with its material data along its journey through life. It's important to consider the entire value chain in everything we do."

► P. E. Schall GmbH & Co. KG
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New Date for American Kuhne Spotlight™ Medical Extrusion Conference

■ Graham Engineering Corporation has moved forward to September the dates of its American Kuhne Spotlight™ medical extrusion and secondary operations conference in Ireland. The venue, agenda, and speakers will be the same as for the May dates that were originally announced. The event will now take place September 1-2, 2020 in Galway, Ireland. Presentations by ten medical manufacturing experts will cover advances in polymer compounds, die design, gel minimization, tipping and welding, low-profile delivery systems, process monitoring and control, in-line surface inspection, quality and traceability, micro-extrusion, and balloon catheter applications. Specialists from Boston Scientific, Teleflex Medical, Vascular Technologies, and Vante will offer medical OEMs' perspectives, and the manager of the research consortium Applied Polymer Technologies will discuss Irish polymer industry research trends.



Dr. David White

The keynote presentation, by Dr. David White, founder and president of ExtruPharm LLC, will be "Extrusion of Drug Eluting Implants," detailing innovations and trends shaping the future of medical extrusion.

"Our decision to return to Ireland for the latest conference reflects our customers' wishes and the global importance of Ireland's medical technology sector," said David Madar, Strategic Market Manager - Medical. Information on the agenda, presenters, and registration is available at

www.grahamengineering.com/resources/pdf/2020/2020-05-medical-spotlight.pdf

■ Graham Group
www.grahamengineering.com

American Kuhne
www.americankuhne.com

Welex
www.welex.com

New Dates Confirmed for Plastics Recycling Show Europe

■ The organisers of the Plastics Recycling Show Europe (PRSE) have confirmed that the 2020 event has been rescheduled to take place on 27 and 28 October in Amsterdam.

The news follows the announcement that PRSE 2020 was being postponed from its original dates of 25 and 26 March in the light of the evolving novel coronavirus (Covid-19) situation.

The rescheduling has been made following consultations with exhibitors, speakers, pre-registered visitors and the venue, and considering the significant impact of international travel at this time. The organisers' first consideration under these difficult circumstances must be for the health and well-being of all stakeholders involved in the event while national governments seek to contain the spread of this disease.

The announcement of the winners of the Plastics Recycling Awards Europe will also now take place at PRSE on 28 October 2020.

The organisers thank exhibitors, speakers, awards finalists and event visitors for their ongoing support for the Plastics Recycling Show Europe and the Plastics Recycling Awards Europe.

Organised jointly by Crain Communications and Plastics Recyclers Europe, PRSE is a pan-European, free-to-attend exhibition and a conference designed specifically for plastics recycling professionals. It brings together key players from across the entire plastics recycling value chain to showcase innovative technology, share best practice, network and do business. Organisations exhibiting at the event include plastics recycling machinery and equipment suppliers, plastic material suppliers and compounders, pre-processors, plastics recyclers, waste management specialists and industry associations. The 2019 edition of PRSE hosted 3,250 delegates and 120 exhibiting companies and 170 organisations had already booked to exhibit in 2020.

■ The Plastics Recycling Show Europe (PRSE)
<https://prseventurope.com/>

New Executive Vice President

■ Davis-Standard announced that Zachary Ament has been promoted to Executive Vice President. He will replace long-time Davis-Standard employee and team leader Ernie Plasse who is retiring. Ament has been with Davis-Standard for

over seven years, most recently serving as Vice President of Business Development. In that role, he has been heavily involved in the development and tactical execution of Davis-Standard’s organizational strategy across the global organization including mergers, acquisitions, strategic agreements and more, positioning him well to assume Plasse’s role. “Ernie’s leadership, industry knowledge and vast experience will be greatly missed,” said Jim Murphy, Davis-Standard’s President and CEO. “He’s had an extraordinary 46-year career at Davis-Standard. His humility and work ethic set an excellent example for our entire team at Davis-Standard, and we wish him all the best in retirement.” Murphy added, “Zachary will do an outstanding job in this role and has been working alongside Ernie to ensure a smooth transition. We look forward to his perspective and leadership as we continue our commitment to outstanding customer service.”



Zachary Ament

■ Davis-Standard, LLC
www.davis-standard.com

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interplastica and upakovka 2020 – Positive Results and a Good Atmosphere

■ At the last edition of the trade fair duo comprising interplastica, International Trade Fair for Plastics and Rubber and upakovka – Processing & Packaging, there were already signs that the Russian market was moving out of the trough again – at least for the plastics and rubber industries as well as for the packaging industry and related process industries. Both trade fairs held in Moscow at the end of January substantiated this stabilisation. A total of 937 exhibitors from 40 countries attracted to the tune of 24,950 visitors mainly from Russia and the neighbouring states. The atmosphere in the halls was good. Exhibitors predominantly praised the high quality of leads.

Werner Matthias Dornscheidt, President & CEO of Messe Düsseldorf, voiced his satisfaction with the course of interplastica 2020: “Russia continues to be an important market that is admittedly going through tough times but still experiencing plenty of movement. The interest taken in high-quality and innovative machinery, systems and materials continues to be high; companies want to invest and make efforts to also implement planned projects. Things are currently happening especially in terms of packaging, recycling and waste avoidance.” He underlines: “Especially today, trade fairs have an important role to play as information platforms, networking meeting points and business engines. With their participation the exhibitors at interplastica have proven that they bet on sustainable customer relations management and have solutions specifically geared to the Russian market in their portfolios.”

After very marked growth in the exports of German plastics and rubber machine to Russia in 2017 and 2018, VDMA’s Association for Plastics and Rubber Machines report of strong export declines in 2019. This means the Russian market is one of the many countries that bought fewer German machines last year. Commenting on this Managing Director of the Association Thorsten Kühmann said: “Despite these developments, there is still a silver lining on the horizon of the Russian packaging sector. Due to the embargo on Western foods domestic production was ramped up substantially. To conserve these regional foodstuffs, however, packaging has also to be produced increasingly in Russia. Furthermore, recycling and the circular economy are gaining increasing importance in Russia. At K 2019 German companies already showed that they are extremely well positioned in this respect and can score points with their technologies.”



It comes as no surprise therefore that the new “Recycling Solutions” segment with 50 highly specialised firms met with great approval at interplastica 2020. In the Recycling area Austria was particularly well represented among the exhibitors. In the accompanying panel discussions lectures on waste management in Russia and exhibitors’ talks on the circular economy were very well received. Commenting on this, Harry Reichert, expert at the Plastics and Rubber Machinery Association within VDMA, said: “The next few years will show whether the numerous declarations of intent will be followed by investment in collection and recycling so that successful business models can also be established across the board in this field.”

Innovative technologies for all sectors of plastics processing are presented not only at the stands of the 680 interplastica exhibitors but also in the lectures and discussions at the Polymer Plaza in Hall 1 as well as in the special show 3D fab+print Russia. There Russian and international experts addressed developments in, and possibilities of additive manufacturing in technical talks and demonstrations.

The Italian professional association AMAPLAST emphasized visitors’ high technical competency. More than 60 Italian exhibitors participated in interplastica 2020, 40 of them as part of the joint pavilion organised by the association. Stefania Arioli, Marketing Manager at Amaplast, said: “The quality of our leads was good and the technical enquiries often very detailed. The vast majority of visitors came from Russia as well as Ukraine, Belarus and Kazakhstan. The Russian market is currently not an easy place to work.

Thanks to its longstanding presence at interplastica, however, Italian manufacturers have been constantly on site therefore allowing them to successfully develop this market.” The lion’s share of exports from Italian producers to Russia is accounted for by extruders and extrusion lines; these are assets with high value creation and often customised to customers’ specific needs.

The next interplastica in Moscow will be held from 26 to 29 January 2021, again concurrently with upakovka.

■ Messe Düsseldorf GmbH
www.interplastica.de



Smart Factory is built

■ On 16 December 2019, the Institute for Plastics Processing (IKV) was informed that approval had been given for further construction to be carried out at IKV's site in Aachen Melaten. By the year 2022, the "Plastics Innovation Centre 4.0" (PIC 4.0) will be built at Seffenter Weg – a completely interconnected research and development environment occupying a total area of 4,205 square metres. The cost of the project will be 19.5 million euros, to be funded by the state of North Rhine-Westphalia and the European Regional Development Fund (ERDF).

With a holistic approach that covers both research & development and the qualification of companies and employees in the field of digitisation in plastics processing, IKV is aiming to become a world-leading Industry 4.0 centre for the plastics industry.

The project will begin with preparatory research and development work to fully interconnect the existing research infrastructure and covering the complete documentation for the building-up of a Smart Factory. The accompanying development of learning and teaching concepts will ensure the transfer of research results into university teaching and industrial practice, and enabling future skilled workers to become qualified in the field of Plastics Industry 4.0, and thus increase the economic strength of the industry of the State of NRW.

Even during the construction phase and then later in the course of the research work, the scientists involved in the PIC 4.0 project will devise solutions on comprehensive process data acquisition and processing along complex value chains in plastics processing. Through digital engineering, the development of the plastic part and the process technology will be simulated virtually with the help of uninterrupted simulation chains, right the way through from the initial specifications for the part to the finished quality. In addition, the integrated research infrastructure will also be a testing environment for future developments within the Cluster of Excellence "Internet of Production" of RWTH Aachen University. In this connection, PIC 4.0 offers on the one hand support with specific technical and organisational issues from everyday practice in the plastics industry that are linked with digitised processes. On the other, innovative digitisation technologies and approaches can be tested so that even abstract concepts and reference architectures from industry can be tried out and their potential benefits determined.

Finally, the construction work for the PIC 4.0 project on the IKV site at Seffenter Weg will help IKV, 70 years after it was founded, to bring all the fields of IKV research together on one site.

■ IKV – Institute for Plastics Processing in Industry and Craft at RWTH Aachen University
www.ikv-aachen.de
www.bezreg-koeln.nrw.de



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New Managing Director

■ ILLIG Maschinenbau has appointed Carsten Strenger to the position of Managing Director as of February 17, 2020. He has succeeded Karl Schäuble since April 1, 2020, who has held this position for more than 30 years. Strenger is responsible for production operations and business administration. Dr. Heinrich Sielemann is responsible for sales, service and development. The company thus be spearheaded by two managing directors, Carsten Strenger and Dr. Heinrich Sielemann.

With his extensive experience in international management of SMEs, Carsten Strenger is perfectly equipped for his new role at ILLIG. After attending the Technische Universität Kaiserslautern for engineering management, he held various senior management positions in machine and plant engineering companies, and also has experience at a recycling company. Strenger was most recently the managing director of an international machine manufacturing company in the



New double leadership: ILLIG will be managed by Dr. Heinrich Sielemann and Carsten Strenger from April 1, 2020 (Source: ILLIG)

packaging industry that supplied packaging equipment for the pharmaceutical industry.

■ ILLIG Maschinenbau GmbH & Co. KG
www.illig-group.com

New CEO

■ Thomas Hartkämper is the new CEO of Kautex Maschinenbau. He is taking over from Dr. Olaf Weiland, who has had significant influence on the development of the Bonn-based company since 2005. Going forward, Hartkämper is responsible for the areas of operations, research & development, and digitalization. Weiland, who is also a shareholder in Kautex Maschinenbau, is joining the advisory board, which is the controlling body of the company.

Weiland brought Thomas Hartkämper into the company in October 2019 as the preferred candidate to be his successor and initially entrusted him with responsibility for operations. The former CEO had put a succession plan into place four years ago, working in consultation with all members of management. His successor is an expert in change management and organizational development. Hartkämper champions a forward-looking approach to business operations, to ensure

Change at the top for Kautex Maschinenbau. Thomas Hartkämper (right in picture) takes over as CEO from Dr. Olaf Weiland (left) (© Kautex Maschinenbau)



they are consistently aligned with customer requirements. Prior to joining Kautex, he had an active role for many years in managing various companies that operate internationally in mechanical engineering and plant engineering. He also has extensive experience in the plastics industry.

Weiland himself is retiring from day-to-day operational business, for reasons of age. As a member of the advisory board, he will continue supporting the development of the company that he has guided for more than 15 years. Kautex Maschinenbau has seen massive sales growth under his leadership. With his keen sense of future market developments and his strategic skill, Weiland was able to drive forward the internationalization of the company and its transition from an automotive to a packaging-focused company at an early stage. Managing Partner Andreas Lichtenauer certainly sees Weiland in these terms and highlights "mutual trust in 15 years of cooperation, above all" as well as "continuity and fairness towards customers, employees, and partners" as the key to his success. "Weiland has not only enabled dramatic growth for many years. The fact that we ended the private equity phase two years ago and now belong to a majority shareholder, who invests in Kautex as a family business in the long term, is largely thanks to Olaf Weiland. He also took an active part in arranging his own successor for Kautex with the company's best interests at heart", continued Lichtenauer.

Today, Kautex is one of the world's leading manufacturers of extrusion blow molding machines, with production sites in Germany and China as well as many international branches.

■ Kautex Maschinenbau GmbH
www.kautex-group.com

Active Supporter of the Circular Plastics Alliance

■ Reifenhäuser becomes a member of the European Union Circular Plastics Alliance (CPA). On March 10, 2020, Ulrich Reifenhäuser signed a declaration that commits over 175 companies and associations to reuse 10 million metric tons of recycled plastics in new products by the year 2025. It also takes Reifenhäuser’s systematic strategy of sustainability a step further. “Plastics are part and parcel of recycling,” says Ulrich Reifenhäuser, explaining the company’s step in supporting the CPA. “Our industry is called upon to incorporate plastics into the Circular Economy. We bear co-responsibility to establish collection systems, recycle plastic waste, and minimize production waste.” Reifenhäuser already offers solutions for a functioning Circular Economy to ensure that outstanding products with excellent properties are recyclable. Sustainability in the Reifenhäuser Group is incorporated in every product from the start and is an integral part of corporate strategy. The company has many years of experience and a large network of experts and partners, especially in the field of research and development for recyclable films and films containing recyclate material. Tim Pohl, Director Sustainability, summarizes the company’s commitment to the Circular Plastics Alliance: “Besides our know-how in the field



of line technology, we intend to utilize our competence to find solutions for innovative recipes and processes. Together with other members of the Alliance, we can research for recyclable packaging solutions at our modern Technology Center.”

■ Reifenhäuser GmbH & Co. KG
 Maschinenfabrik
www.reifenhauer.com

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Sales Office will boost Market Presence in Eastern Europe

■ Hosokawa Alpine AG, one of the leading suppliers in the field of process technology and film extrusion, continues to expand its global sales network and thus strengthens its local presence in Poland with the newly established Hosokawa Alpine Poland Sp.z.o.o. The sales organisation with headquarters in Warsaw began its operational activities in March 2020. "With our own sales office, we will be able to develop what is for us an important growth market", says Dr Fernández,



*Krzysztof Salamon,
Managing Director
Hosokawa Alpine Poland
Sp.z.o.o.*

CEO at Hosokawa Alpine AG. In order to guarantee optimum customer support on a local scale, the sales office is staffed with experts from the fields of powder & particle processing as well as film extrusion who are able to support the customers in their own language. "Due to the expansion of our sales and support capacities, our customers will profit from fast and competent support which covers the entire range of services of the Hosokawa Alpine Group", says Dr Fernández. Krzysztof Salamon, Managing Director Hosokawa Alpine Poland Sp.z.o.o., is looking forward to his new field of activity and to working actively in setting up the newly founded Polish sales organisation. "We guarantee our customers ongoing comprehensive service on the highest level as well as a first-class product portfolio," says Salamon.

■ Hosokawa Alpine Aktiengesellschaft
www.hosokawa-alpine.de

Hosokawa Alpine Poland Sp.z.o.o.
Krzysztof Salamon
k.salamon@hapl.hosokawa.com

Expansion of Executive Management

■ Effective February 1, 2020, Jan Lohoff has been appointed to the management team of iNOEX GmbH. Lohoff's future responsibilities will include the management of iNOEX GmbH and iNOEX's subsidiaries in China, the United States and Turkey with a particular emphasis on strategy and marketing.

iNOEX GmbH is a subsidiary of CiTEX Holding GmbH and has approximately 150 highly skilled employees throughout the world who are employed in technical development, engineering, manufacturing, sales and service. Since 1984 iNOEX has been offering revolutionary innovations in the field of measuring & control technology, process engineering and the automation of extrusion lines for plastic material products.

Jan Lohoff's professional background includes various management positions and several international stations. Lohoff has excellent international knowledge of the industry and its markets. Since April 2019, he has been employed as Chief Marketing & Sales Officer with CiTEX Holding GmbH. He will give the benefit of his extensive experience in marketing, sales and business development in internationally operating companies to the continuous development and the increasingly international orientation of the iNOEX Group of Companies.

Jan Lohoff

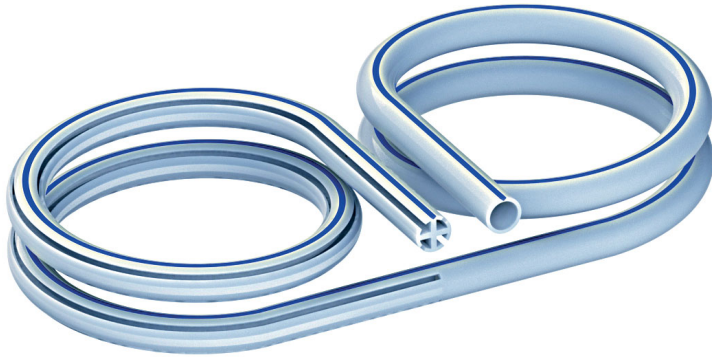


„Besides the marketing of our innovative product novelties which we presented on the K-Show in Düsseldorf in 2019, our objective will be to enter also new markets where we will strive for sustainable growth based on our new products and services" said Jan Lohoff before adding: „We will put an even stronger emphasis on strategy and sales in order to meet the multitude of demands on international markets.“

■ iNOEX GmbH
www.inoex.de

Reciprocating Head introduced

Automated extrusion process drastically changes the extruded profile



■ Guill Tool has released its new reciprocating head. The traditional tip and die assembly is replaced with a linear reciprocating assembly that changes the tube's profile within a given length. This process is repeated throughout a single extrusion run without interruptions. Cutting capability, in as-

sociation with the extrusion speed, cuts the finished product to length. While cost and value stream activities are reduced, quality is improved. Only one extrusion run is needed to produce a finished product, as opposed to multiple extrusion runs with tooling changes along with a manual assembly operation to connect different tubing shapes. Guill's new reciprocating head eliminates an assembly operation. It also eliminates in-process inventory. Thus, there is no need for storage of various tubing shapes and connectors needed for assembly, fulfillment of orders and replenishment of finished goods.

Furthermore, the reciprocating head eliminates a connecting piece, allows JIT production and products made-to-order. Lastly, it reduces total run time from receiving the order to shipping.

■ Guill Tool & Engineering
www.guill.com








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New SKZ Inspector active for the Middle East/North Africa Region

■ Khaisar Syed, Technical Manager at the Abu Dhabi location of the SKZ Plastics Laboratories Middle East LLC, has successfully completed his qualification as an SKZ Inspector for pipe systems. Syed was qualified as an inspector in accordance with the SKZ's internal requirements and can now officially be employed at the SKZ's accredited inspection site as an inspector for the external monitoring of pipe systems.

His first independent inspection trip took him to the pipe and fittings manufacturer Bahrain Pipes BSC in Salmabad, Bahrain.

Khaisar Syed (left, in a black suit) presents the company Bahrain Pipes BSC with the certificate for 10 years of cooperation with the SKZ



As part of the audit, Syed was able to present the customer with a certificate for 10 years of successful collaboration with the SKZ. "We are very pleased that Mr. Syed has successfully completed his further training and is now available to the SKZ as an inspector for the Middle East / North Africa region," emphasized Dr. Jürgen Wüst, deputy managing director of the testing division. "The inclusion of neutral and independent bodies in the quality assurance sector for plastic products is becoming increasingly important worldwide. The SKZ as an accredited testing laboratory, inspection body and certification body takes the tasks of quality assurance and external monitoring very seriously in the interest of end users, and accounts for this development by training expert inspectors," continued Wüst.

Khaisar Syed has been working as an engineer for the SKZ in Abu Dhabi since 2014 and received a Master of Business Administration degree in 2018. He also successfully completed his training as a certified welder and certified welding supervisor for PE pipes in accordance with DVGW worksheets GW 330 and GW 331.

■ SKZ
Dr. Jürgen Wüst, j.wuest@skz.de

Closing the Loop with PET – Bottle-to-Bottle Recycling Projected to Grow

Report¹ highlights new trends in PET collection and sorting

■ A strong trend towards the use of recycled PET (rPET) due to increased demand is projected in the report by sustainability consultancy Eunomia, done in collaboration with EFBW, Petcore Europe and PRE.

Significant improvements have been made in recycling processes and with the increasing quality of materials, rPET could reach as much as 55% of total PET demand by 2030. This is particularly evident for food-grade rPET used in bottle-to-bottle processes, where incentives such as the producers' voluntary pledges and rPET content targets set in the EU Single Use Plastics Directive (25% by 2025) are set to further accelerate the production.

The market for trays and sheets, which currently absorbs 20% of rPET, is also considered in the report. It is estimated that the average recycled content of PET trays produced in Europe is 50% and this trend is set to continue.

Main obstacles identified are collection and design for recycling. To achieve the 90% EU separate collection target for beverage bottles and meet the expanding demand, well-thought-out and harmonised collection schemes must be implemented with the help of local and national authorities. In parallel, a common approach to recyclability and product design must be established. Initiatives such as EPBP² and RecyClass³ have laid out the ground,

providing a common direction for the industry towards improving packaging recyclability.

Furthermore, increasing trust and traceability of the recycled materials by building on schemes such as EuCertPlast⁴ and aiming to establish an EU-wide certification for recycled materials would ensure the optimal uptake of rPET.

The industry must continue to work with policy makers and value chain partners to meet EU targets, in order to successfully establish a circular economy for PET in Europe as we all have a role to play via design for recycling, efficient collection, sorting and state of the art recycling.

1 PET Market in Europe: State of Play. Production, collection and sorting data. Eunomia. 2020.

2 <https://www.epbp.org/>

3 <https://recyclclass.eu/the-platform-about/>

4 <https://www.eucertplast.eu/>

■ EFBW
www.efbw.org

Petcore Europe
www.petcore-europe.org

Plastics Recyclers Europe (PRE)
www.plasticsrecyclers.eu

Top Position in the Area of Measuring, Control, Sorting and Inspection Systems

■ SIKORA AG from Bremen, manufacturer and global supplier of innovative measuring, control, inspection and sorting technology is again listed as “global market leader – future champion 2020”. This is based on the “global market leader index” of the Henri B. Meier Entrepreneur School of the University of St. Gallen and the Academy of German Global Market Leaders (ADWM). SIKORA has already been on the list of global market leaders since 2016.

SIKORA’s CEO, Dr. Christian Frank: “We are delighted to receive this award as it cannot be taken for granted. To be rated among the global market leaders confirms the course our company is taking. The development of future-oriented technologies, the diversification into new markets, our international network and our long-standing experience create the foundation for successful growth.” He points out further: “Above all, we would like to thank all SIKORA employees. The award is an excellent motivation to continue and further expand our commitment.”

The annually updated list of the “global market leaders – future champions” in Germany is based on an objective and transparent selection process. According to the index, global mar-

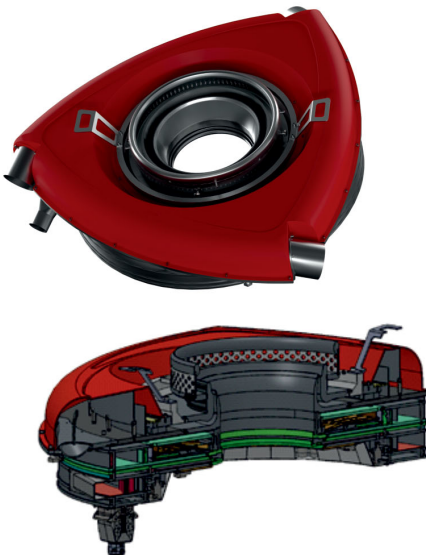


The SIKORA headquarters in Bremen/Germany

ket leaders are worldwide active, successful companies with mostly leading technologies and under family management. They show the largest or second largest market share in their segment. Their annual turnover is between 5 and 50 million euros of which at least 40 percent have been generated abroad. Furthermore, “future champions” are active on at least 3 continents. All these criteria have been fulfilled by SIKORA.

■ SIKORA AG
www.sikora.net

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- UNLIKE ANALOGUES, THE SYSTEM OPERATES IN TWO INDEPENDENT MODES:**
 - AIR VOLUME CONTROL
 - FOR TEMPERATURE CORRECTION

New Capacitive Charger

■ Following years of continued growth, Eriez Magnetics Europe has invested in a second capacitive charger to keep up with increasing demand; a powerful system dubbed “the world’s largest commercial magnetiser”. This new capacitive charger will run alongside the existing charger to safeguard Eriez Europe’s status as the industry leading magnetic separation manufacturer. The charger will be used to magnetise permanent ferrite and rare earth magnetic assemblies, such as Eriez’ range of suspended permanent magnets, which are most commonly installed above process lines to remove ferrous contamination.

As pictured, this specialised charger works by passing a 300kj high intensity current from the capacitor bank through an unmagnetised block of Strontium ferrite or Neodymium iron boron. This ensures that all blocks are consistently magnetised across the full width and depth for a superior magnetic field and guaranteed performance strength. Annually, Eriez Europe manufactures in excess of 2,000 overband magnets and the new charger will future proof this ever expanding core product line. Alongside this, Eriez’ reputation for supplying powerful magnets with large field projection, that don’t compromise on flux density, has enabled sales to continue climbing. Eriez is able to efficiently deliver a high-calibre product whilst keeping costs to a minimum and further reducing its carbon footprint with this more prudent method of charging. Being one of the only European magnetic separation enterprises with multiple capacitive chargers also lends Eriez Europe the fortunate position of having a large stock of equipment for immediate sale, suspended magnets in particular, which is vital in such a fast paced industry where downtime has significant financial impact for both manufacturer and customer.



Alternative charging methods can create an inferior quality of magnetisation due to the fact that the whole magnetic circuit cannot be charged at once, as opposed to Eriez Europe’s single surge method that takes less than one second in a sole 20,000 amp pulse. It is impossible to effectively charge the individual blocks to full saturation as the repeated exposure to the currents within the charger actually begins to demagnetise the outer portions of the individual blocks, decreasing the overall magnetic field intensity by roughly 10 to 20%. When the whole circuit is saturated, this creates a stronger and deeper field, especially key for suspended magnets that require maximum strength for pick-up through a variety of burden depths. Eriez believes that investing in a premium charger is the first step to ensuring the performance quality of a magnet.

■ Eriez Europe (UK)
www.eriez.eu

Acquisition

■ Logoplaste announced that Masterchem, a leading Polish manufacturer of PET bottles, jars, preforms and caps, is now part of the Logoplaste Group. Now the company will be known as Masterchem Logoplaste and will be led by CEO, Piotr Wasilewski.

Located in Zielona Góra, Masterchem Logoplaste brings added value to the Group’s clients, where flexibility is key: Volumes – from a few hundred units to large series; Faster time to market – new products from design to production in 3 weeks; Wide product range – more than 600 SKUs off the shelf; Full packaging solutions – bottle/jar & caps.

Masterchem Logoplaste mainly caters to 6 market segments: personal care, cosmetics, home care, food, spirits and pharma. With 115 state-of-the-art machines and an integrated

tool room, the company focuses on delivering quality products to its customers in a flexible and responsive way.

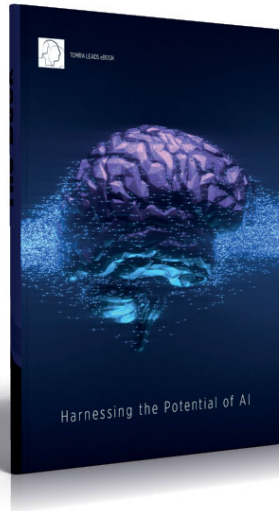
Gerardo Chiaia, Logoplaste’s CEO, is enthusiastic with the conclusion of this transaction: “Masterchem Logoplaste will enable both companies to better serve clients, with 360-degree solutions: from ideation and design, to short bottles and closure series, escalating to full in-house bottle production solutions. With consumer trends changing rapidly, we want to be the partner of choice for innovation, flexibility and speed in the most sustainable way possible. This partnership is very beneficial for us and our clients.”

■ Logoplaste
www.logoplaste.com

Masterchem Logoplaste
www.mch.com.pl/en/

Find Solutions to Sorting Challenges

■ Deep learning is on the rise in the recycling industry, according to the new eBook “Harnessing the Potential of AI” from the global leader in sensor-based sorting, TOMRA Sorting Recycling. Dispelling a common misconception about AI, this latest TOMRA eBook chronicles the long, 30-year history



and contributions AI has already made to the recycling industry, as well the bright future that lies ahead.

“In the months and years to come, those in the recycling industry will hear much more about deep learning, a powerful component of Artificial Intelligence,” says Daniel Bender, Technical Manager, Deep Learning for TOMRA Sorting. “Deep learning shows the promise of providing solutions for the industry’s most complex sorting challenges. Recycling operations at the forefront of using AI to sort material stand to gain a significant advantage over companies who do not.”

The free-to-download eBook goes into detail of how deep learning works and learns to identify materials to resolve problems not solvable with classical machine learning. The book claims deep learning holds the key for achieving more consistent detection rates than manual sorting, elevating material purity while lowering costs.

To download the English copy of the new TOMRA eBook on AI and Deep learning, please visit <https://solutions.tomra.com/ai-ebook>

TOMRA Sorting Recycling
www.tomra.com/recycling

FDA Approval for Pharmaceutical Package Leak Testing received

■ Pfeiffer Vacuum has announced that the ATC by Pfeiffer Vacuum Mass Extraction leak testing process meets FDA standard F3287 for leak testing. This shortens the FDA approval process for pharmaceutical products that require leak testing significantly. Companies that utilize the ATC leak testing process will save hundreds of hours of paperwork for the approval application.

When a pharmaceutical company launches a new product or changes an existing product, FDA approval is required. Normally, companies have to submit extensive documentation. However, with ATC being added to the FDA standard, companies do not need to submit paperwork regarding leak test, test procedure, water ingress, and package testing manufacturers can simply declare that their product is leak tested in accordance with FDA F3287 by using ATC equipment, thus adhering to the standard.

“It is a tremendous advantage for companies in the pharmaceutical market that utilize ATC’s technology since they save time and costs,” said Brian Pahl, President of the ATC by Pfeiffer Vacuum product line.

USP 1207 and ASTM (F-3287-17) recognized ATC Mass Extraction Technology works on the principle of rarefied gas flow.



Mass Extraction test instrument ME2 from ATC by Pfeiffer Vacuum

Testing takes place in vacuum conditions to attain higher sensitivity. This patented technology is particularly suitable for pharmaceutical packaging such as IV-bags, pouches or glass vials. Larger defects and defects as small as 1 µm can be detected with this method. The technology is thereby suitable for laboratory applications as well as for use in production environments allowing stability control as well as 100% automated testing (also in inline machines). FDA laboratories in the US and major pharmaceutical companies have been using the Mass Extraction instruments for over 10 years.

Pfeiffer Vacuum GmbH
www.pfeiffer-vacuum.com

Recognized for Improved Recyclability

■ Far Eastern New Century's Top Green® Heat Shrinkable PET film for shrink sleeve labels has been recognized by The Association of Plastic Recyclers for meeting or exceeding APR's Critical Guidance Protocol for Clear PET Articles with Labels and Closures requirements (PET-CG-02).

The heat shrinkable PET film delivers significantly improved recyclability of post-consumer PET bottles compared to alternative polyester materials such as PETG, according to George Pinter, a partner with Klear Plastic Ventures LLC (KPV), an Ann Arbor, Mich.-based distributor of FENC's heat shrinkable film in the U.S. and Canada. The majority of shrink films currently used for sleeve labels made in the U.S./Canada is unable to meet the APR guidelines.

"Offering a more environmentally friendly, recyclable film to our label customers and brand owners is very important," said Pinter. "We are thrilled that APR has recognized this important development for FENC's Top Green® copolyester Heat Shrinkable Film."

During the PET bottle recycling process, polyester shrink sleeve labels that remain with the bottle are ground into flake and sink along with the PET bottle flake. FENC's TopGreen® PET film creates negligible clumping and intrinsic viscosity (IV) drop, both of which are detrimental to the value of the recycled PET plastic. Some of the competitive polyester shrink sleeve films melt at a temperature that is lower than the melting point of the PET bottle flake and do not crystal-



lize. This causes clumping during the PET bottle recycling process.

Klear Plastic Ventures will work with its customers and ink suppliers to promote the use of TopGreen® film with washable and non-staining ink systems, to provide a more complete recycling solution.

Klear Plastic Ventures distributes FENC TDO, heat shrinkable film in the U.S., Canada, and other markets. KPV provides shrink sleeve film customers with local warehousing and logistics, slitting, short lead times, and competitive pricing.

■ Klear Plastic Ventures LLC
klearplasticventures.com

US Department of Agriculture to Present at Agricultural Film USA 2020 Conference

The event will take place in San Diego, CA, USA from August 18-19, 2020.

■ A ripe business development opportunity is emerging in the North and South American agricultural films markets in 2020 as several unique factors converge together to create a perfect storm. Demand in two key areas in the USA – for organic produce and for CBD oil and other hemp products – is creating fresh opportunities for film, resin and masterbatch producers to innovate new agricultural and horticultural coverings. Meanwhile, Florida's struggle with citrus greening disease (ACP) has resulted in creative new developments in the use of metallized reflective mulch films that can protect crops effectively, not only in the sunshine state but across the whole of the United States; Latin America and beyond. In the growing market of Latin America producers are focusing on the regulatory requirements to be able to export their films to the US, EU and international markets. They're also explor-

ing the environmental impact of agricultural film usage, including the collection and recycling of traditional films compared with the use of biodegradable films in order to honor circular economy commitments. In Canada and in America's Corn Belt in the Midwest innovation in multi-layer films, already in wide circulation in Europe, could assist with crop protection but must be balanced with the sheer expanse of the land being farmed in these geographies.

The Agricultural Film conference, opening with AMI's full commentary on market trends from across the Americas region, will offer a comprehensive picture of all of the latest developments, enabling manufacturers and growers to assess the size of the opportunity; protect crops and food supply more readily and improve their offerings. This two-day program continues with the US Department of Agriculture outlining the regulatory criteria that growers and suppliers both need to comply with to label produce as organic in the USA.

The full program can be found at:

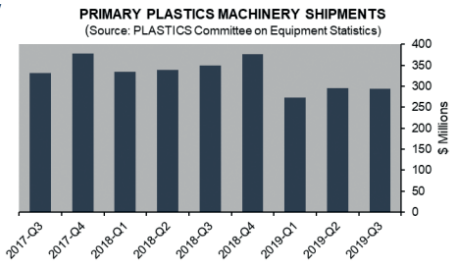
■ www.ami.international/events/event?Code=C1076

Plastics Machinery Shipments Stayed Low in 2019 – Despite Fourth Quarter Uptick

■ The value of primary plastics machinery (injection molding and extrusion) shipments in North America increased in the fourth quarter according to the statistics compiled and reported by the Plastics Industry Association's (PLASTICS) Committee on Equipment Statistics (CES). The preliminary estimate of shipments value from reporting companies in the fourth quarter totaled \$316 million – a 7.7% increase from the previous quarter. While the shipments of injection molding rose 9.6% in the fourth quarter, single- and twin-screw extruders shipments decreased 0.9% and 7.7%, respectively.

Although fourth quarter value of primary plastics machinery shipments improved, from a year ago shipments were 16.2% lower. The shipments value of twin-screw extruders fell significantly by 35.2% and 12.3% for single-screw extruders. Injection molding machinery shipments value was down 14.9% from the fourth quarter of 2018.

"The fourth quarter numbers confirm weaker 2019 plastics machinery shipments compared to 2018. Weaker business investment spending in 2019 due to uncertainties from trade and tariffs and overall weaker manufacturing activity explains the low numbers of plastics machinery shipments," according to Perc Pineda, PhD, chief economist of PLASTICS. "Our projection of a 2.3% GDP growth in 2019 was on point based on the advanced estimates of the U.S. Bureau of Economic Analysis. We expect another year of moderate U.S. economic growth. However, if business confidence turns optimistic this year now that there have been positive developments on trade and tariffs, and interest rates are expected to stay low, we could see better numbers for plastics machinery shipments," Pineda added.



The CES also conducts a quarterly survey of plastics machinery suppliers that asks about present market conditions and expectations for the future. In the coming quarter, 69.4% of respondents expect conditions to either improve or hold steady – a reversal of the 39% that felt similarly in the previous quarter. As for the next 12 months, 73.5% expect market conditions to be steady-to-better, which is up from 63% in the previous quarter's survey.

Trade and tariffs issues in 2019 negatively affected the plastics machinery trade. Exports of plastics machinery totaled \$352.8 million in the final quarter of 2019 – a 6.8% decrease from the third quarter. Mexico, Canada, and Germany remained the largest U.S. export markets. The combined exports to these countries in the fourth quarter totaled \$157.0 million. China was the fourth-largest market in the fourth quarter with plastics machinery exports totaling \$22.7 million. Imports of plastics machinery fell 5.4%. Lower exports and imports have caused the plastics machinery trade deficit to decrease by 4.2% from the third quarter.

■ **PLASTICS Committee on Equipment Statistics (CES)**
Katie Hanczaryk, khanczaryk@plasticsindustry.org

The Plastics Industry Association (PLASTICS), formerly SPI
plasticsindustry.org

New Material Solutions at 2020 SHOT Show in Las Vegas

■ Conventus Polymers LLC, a leading supplier of specialty polymers for firearms applications, showcased new material solutions for the firearms industry at the 2020 SHOT Show®, in January in Las Vegas. Conventus also featured new mold flow capabilities for molders and designers who develop plastic parts for a broad range of firearm applications including stocks, magazines, receivers, rails, and a variety of other parts.

Conventus differentiates itself from competing material suppliers with a strong focus on addressing challenging performance and aesthetics requirements such as high mechanical properties and cosmetics, while offering a range of unique formulations that utilize carbon fiber, long glass fiber, and other modification packages.

Conventus also introduced anew clear glass-filled polymer made of nylon for high-strength transparency. This material offers a range of advantages over other compounds because of high dimensional stability, high strength, and transparency. It

would allow accessory manufacturers to offer parts that have the strength of traditional glass-filled nylon 66, but with transparency.

Polymers have grown in popularity in the firearms market. In addition to lightweighting, they offer reduced recoil, corrosion resistance, serviceability, cost benefits, and design freedom. To create solutions for firearm customers, Conventus Polymers utilizes its expertise in other high-performance markets such as downhole oil and gas, where temperatures and pressures can be very high. The company's primary product categories are specialty nylons, high-temperature polymers, glass fiber and carbon fiber reinforced compounds, and long glass and long carbon fiber reinforced compounds.

■ **Conventus Polymers LLC**
www.conventuspolymers.com

Capacity expanded with Sheet Line

■ Airlite Plastics Company has expanded production capabilities at its plant in Nazareth, Pennsylvania with a semi-custom Davis-Standard sheet line. The new line, installed in 2019, supports Airlite's thin-gauge sheet production for products of various thicknesses and textures. This includes proprietary Orthoform® sheet used in fabricating orthotics and prosthetics, the primary market supported by the company's Pennsylvania Division. Davis-Standard engineered the line for strict repeatability, gauge control, product consistency and low scrap, which are essential to Airlite's highly controlled processes. Airlite operates five sheet lines at the plant, all from Davis-Standard brand companies, to support customers from the U.S. and Canada, as well as a growing international clientele.

"Davis-Standard's equipment has performed really well for us and that is part of the reason we are a return customer. The thing that influenced us the most is the service from Davis-Standard's team," said Tony Alfieri, vice president and general manager of the Pennsylvania Division, Airlite Plastics Company. "From the initial quote request through the manufacturing process and start-up, to aftersale service and support, we always get a great response. The new line is being used for our Orthoform® products and some other customized work we do in thermoforming, die-cutting, printing and lamination applications."

Alfieri said the right equipment combination is important because thin-gauge sheet production is challenging. His plant schedules operations around processing a unique mix of sheet thicknesses from 0.16 to .25 inches (4 to 6mm), and with different textures ranging from smooth to haircell. For example, the sheet used for Orthoform® is drape-formed using a very specific resin. The ability to manufacture this type of sheet with reliability and accuracy is the company's niche along with a "can do" mindset of taking on projects other extruders do not. Projects such as smaller batch custom colors, exotic resin blends, lami-



Tony Alfieri with the newly installed sheet line for Orthoform® product production

nates and R&D are all part of Airlite's service portfolio. As such, the design of the new Davis-Standard line reflects a collaborative effort between Davis-Standard and Alfieri's team. Key components of the new line include a Thematic® III extruder, DS-eVue control system, screen changer package, die, melt pump, and XP Express® PS series roll stand system with a unique roll configuration to ensure quality and consistency.

According to Steve DeAngelis, vice president of sheet, fiber, foam and reprocessing at Davis-Standard, "This line is a great example of how Davis-Standard is equipped to support customers who serve the medical industry. Since we are a single-source supplier, we have more control over every component, which is essential for ensuring customers like Airlite can depend on their investment. We are grateful for their business and wish them much success as they continue to grow their business."

■ **Davis-Standard, LLC**
www.davis-standard.com

Airlite Plastics
www.airliteplastics.com

PLASTICS Responds to Udall/ Lowenthal Bill

■ Plastics Industry Association (PLASTICS) President & CEO Tony Radoszewski said:

"As drafted, we do not believe the Break Free from Plastic Pollution Act of 2020 would effectively address pollution in the U.S. or globally. The title of this bill suggests it is more interested in garnering headlines than it is in finding solutions. Plastics only account for 13% of municipal solid waste in the U.S. Any effort to specifically target plastic materials – that, after life-cycle analysis, prove to be more environmentally-desirable than other materials – would be misguided at best and harmful at worst. Furthermore, this legislation's efforts to shut down plastics manufacturing would hurt the nearly one million hard-working men

and women in our industry and the nation's economy as a whole.

If we can make it easier for everyone to recycle in this country, and make recycling more profitable, we could truly reduce the amount of litter that is finding its way into our waterways and ultimately our oceans. Measures like the RECOVER Act – which would designate funds to improve the recycling infrastructure in this country – and other efforts like the RECYCLE Act and the Save Our Seas 2.0 Act provide better approaches than what we've seen in the "Break Free" Act. We look forward to continuing the discussion with Senator Tom Udall and Representative Alan Lowenthal and all lawmakers to educate them about the benefits plastics provide and the environmental, economic and medical dangers that would accompany ignoring those benefits."

■ **The Plastics Industry Association (PLASTICS)**
plasticsindustry.org

New CEO

■ Admir Dobraca has taken over management of Kautex Machines in USA in February, 2020. He succeeds Bill Farrant, who successfully managed and developed Kautex Maschinenbau's North American site for a decade.

Dobraca has many years of experience in the plastics industry and is a proven packaging specialist. With Dobraca in the lead, Kautex aims to strengthen its strong market position in the North American packaging segment and expand into new markets. To achieve this, the company will improve its product and service offerings for current and future customers.

Thomas Hartkämper, CEO of the German parent company, Kautex Maschinenbau, is confident that Dobraca is the right person for the job: "Admir brings a lot of experience from the plastics industry and is a complete specialist in the packaging sector. He has a clear vision of how we can strengthen and expand our position in the North American market". Andreas Lichtenauer, CSO of the Kautex Group, agrees with the decision to select Dobraca, but is also grateful for Bill Farrant's efforts when he was in the job: "We appreciate his profound knowledge of the industry, gained over many years, and are pleased with his achievements".



Dobraca is optimistic about his new task and working with a dedicated team of experts: "The Kautex Group shows a great development, especially in the packaging segment. I am glad that I will have the opportunity to make a personal contribution to the success of this innovative company and grow its strong market position in North America. But of course, that must not be at the expense of the other important segments".

■ Kautex Maschinenbau GmbH
www.kautex-group.com

Delivery of ULTRA Extruders accelerated

■ The COVID-19 crisis has generated a sharp upsurge in production capacity requirements for ventilator tubing, causing Graham Engineering Corporation to speed up processes for delivering extruders to the marketplace.

"In the past weeks we have seen a strong uptick in orders and inquiries from businesses in North America and the Asia-Pacific looking to add capacity for ventilator tubing," said David Madar, strategic medical market manager for Graham Engineering. "We are responding by validating available inventory, turning quotes instantly, and committing to extruder supply through ac-

celerated delivery. Now more than ever we are here to support the needs of our medical device customers globally, at a time when demands on the medical supply chain have never been greater."

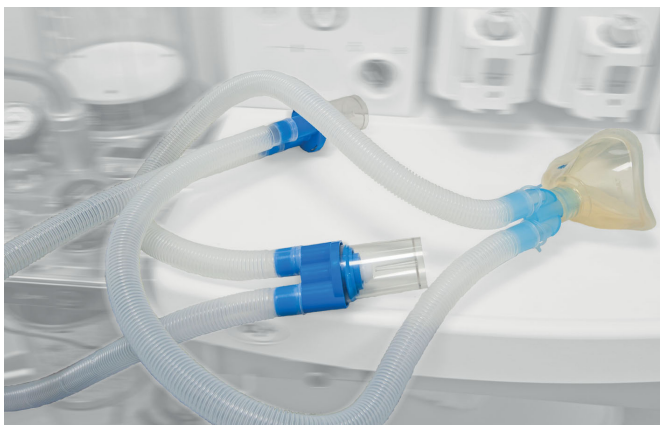
The expanded production of ventilators is part of the worldwide increase in the manufacture of medical devices to fight COVID-19. Governments and companies are executing elaborate plans to deploy funding and resources for expanding or re-tooling existing operations. Ventilators are essential for supporting patients most severely impacted by the virus.

"In the United States alone, ventilator demand could be as high as ten to fifteen times pre-pandemic levels, significantly outpacing the strategic stockpile and current production capacity," said Gina Haines, chief marketing officer of Graham Engineering. Ventilator tubing kits are supplied to hospitals as single-use breathing circuits. A key component of the circuit is corrugated tubing, typically made of medical grade polyethylene or EVA. In adult kits, the standard inside diameter of the tubing is 22 mm.

■ Graham Engineering
www.grahamengineering.com

American Kuhne
www.americankuhne.com

Welex
www.welex.com

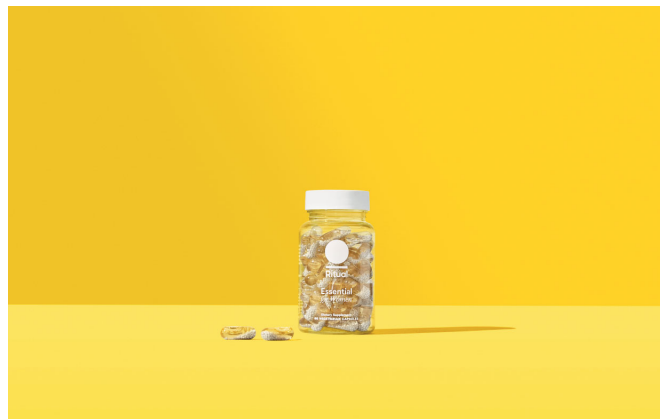


Partnership with the Healthcare Plastics Recycling Council (HPRC)

■ Amcor has joined HPRC, a coalition of industry peers across healthcare, recycling and waste management, seeking to improve recyclability of plastic products within healthcare. Amcor will support the coalition with extensive expertise in packaging design for medical devices and applications in hospitals and other treatment settings. The industry group aims to address all dimensions of the packaging value chain, from packaging design to collection systems and end markets.

There is tremendous potential for recycling medical device packaging. However, the nature of current medical packaging materials and the practical considerations of recycling segregation systems in busy healthcare environments will require a new approach. As sustainability requirements for packaging increase, there is an opportunity for the healthcare industry to work collaboratively to make the most of this valuable waste stream, while continuing to ensure product protection and patient safety.

In January 2018, Amcor became the first global packaging company pledging to develop all its packaging to be recyclable or reusable by 2025. Close collaboration with organizations like HPRC, as well as the Ellen MacArthur Foundation and A Circular Economy for Flexible Packaging (CEFLEX),



helps to achieve that goal and increase the rates of recycling across all industries to advance a circular economy.

■ Amcor Flexibles EMEA
www.amcor.com

HPRC
www.hprc.org

New Executive Leadership Roles announced

■ The Plastics Industry Association (PLASTICS) announced three new executive appointments – Glenn Anderson, vice president, industry relations and member engagement as of April 6; Matt Seaholm, vice president of government affairs; and Brendan Thomas, vice president of advocacy and voice. Both Seaholm's and Thomas' roles took effect on April 15. PLASTICS supports the entire supply chain, advancing sustainability, providing education programs to the industry and public and supporting technology-driven innovations.

As the vice president of industry relations and member engagement, Anderson's role will focus on leading the development and growth of PLASTICS' strategic plan. He will oversee PLASTICS' councils in addition to the sustainability, membership and events teams. With more than 36 years in the plastics industry, Anderson also led the Equipment Council and was officer-at-large for PLASTICS Board of Directors. He also served as the chairman of NPE2018.

Seaholm, who previously served as the executive director of the American Recyclable Plastic Bag Alliance (ARPBA), a self-funded group of PLASTICS, now joins PLASTICS as the vice president of government affairs. Prior to joining ARPBA,

Seaholm was a vice president of public affairs for Edelman, one of the largest communications marketing firms in the world.

As vice president of advocacy and voice, Thomas will oversee the communications and marketing departments while working closely with the PLASTICS government affairs operation. Since 2014, Thomas has been a communications director for members of the U.S. House of Representatives, directing online marketing, internal and external communications, and public relations.

"The insight and experience of our new vice presidents will be extremely valuable. These appointments will help us continue to thrive and grow our initiatives to build an even stronger association," said PLASTICS President and CEO Tony Radoszewski, CAE.

■ The Plastics Industry Association (PLASTICS), formerly SPI,
plasticsindustry.org

ISO Certification achieved

■ In an ongoing effort to strengthen efficiencies and customer satisfaction, Davis-Standard's subsidiary in Germany, ER-WE-PA GmbH, recently achieved ISO 9001:2015 certification. The certification validates ER-WE-PA's processes across the board, internally and externally, and serves as a benchmark for the company's commitment to operational quality and process improvement.

ISO 9001 2015 Certification with the Germany team



"In supporting the goals of our recent realignment, all of our processes are focused on the ongoing fulfillment of customer requirements. ISO is an essential part of this as it demands the implementation of a demonstrated quality management system, promoting a holistic approach to evaluating your operation," said Michael Krämer, Managing Director of Davis-Standard GmbH.

At the core of ISO certification is the ability to consistently provide products and services that meet customer and applicable statutory and regulatory requirements while also enhancing customer fulfillment through an effective quality management system. All issues are addressed at the source to support best practices.

"ISO certification is also important from the standpoint of our facility being the product line leader for aseptic packaging machinery within the Davis-Standard organization," added Krämer. "It will ensure every aspect of our business is on par with industry-wide quality standards. Our employees and customers can expect a sustainable approach that holds us accountable to what we promise as part of the Davis-Standard family."

For more information:

■ Davis-Standard, LLC
www.davis-standard.com
 Michael Krämer, Michael.kraemer@er-we-pa.de

Investment in Reclaim Extruders for Sustainable Recycling Operation

■ ACI Plastics, a U.S. leader in post-industrial plastics reprocessing, will install two Davis-Standard reclaim extruders at its new South Carolina plant with two more slated for a fourth-quarter installation in California. The extruders will be used to pelletize scrap materials from the mixed rigid plastics, including the production of PE and PP plastic pellets for re-sale. The expansion is part of ACI's partnership with PreZero, a global waste management and recycling firm that invests in new technologies, systems, and processes committed to long-term environmental sustainability. With PreZero's support, ACI Plastics will expand its footprint for closed-loop sustainable processing of film and rigid plastics to better support customers nationwide. In addition to the South Carolina plant and forthcoming California facility, ACI has operations in Arizona, Nebraska and Michigan.

"Being able to offer great products with significant environmental benefits and cost savings is increasingly important," said Scott Melton, President of ACI Plastics. "Our process expertise combined with PreZero's technical innovation and resources is expanding access to our services nationwide. In addition, we have been very diligent in our equipment selection. We chose Davis-Standard as our extruder provider because of a successful history that spans almost 20 years. A Davis-Standard extruder we purchased in 2000 has operated non-stop without issue." He

added, "We also appreciate the service provided by Gerry Spolato, our Davis-Standard representative, who has been very responsive in addressing both equipment engineering needs and price requirements."

ACI offers services in size reduction, plastic separation, paint removal, compounding, blending and logistics for a range of automotive scrap materials, including technology for recycling multi-layer automotive instrument panels (IPs) and door panels. In addition to reclaimed pellets, ACI can supply pellets derived from virgin materials with a compounding capacity of over 40,000,000 pounds per year. Davis-Standard extruders are a good fit for ACI's commitment to sustainable practices due to minimal maintenance and operating costs, and in Davis-Standard's ability to stock and readily ship spare parts. ACI also appreciates that the extruders are manufactured domestically.

■ ACI Plastics
www.aciplastics.com

PreZero
<https://prezero.us>

Davis-Standard, LLC
www.davis-standard.com
www.davis-standard.com/extrusion_system/reprocessing-and-compounding/

Second Annual Refocus Sustainability Innovation Awards

■ The Plastics Industry Association (PLASTICS) announced the winners of the annual Refocus Sustainability Innovation Awards. The three winners exemplify the best submissions in the categories of materials, design and end-of-life innovations, all of which were assessed by a judging panel of experts in recycling and sustainability from members of PLASTICS. The winners include:

Materials:

Vartega for its reclaimed and recycled carbon fiber that enables the diversion of thousands of tons of carbon fiber from the landfill. Vartega's recycled fibers are used in a broad range of applications including nonwoven fabrics, thermo-plastic pellets, and 3D printing filaments. Vartega's partners for this award include Ford, Dow, Michelman, Techmer PM, Michigan State University, IACMI-The Composites Institute, Colorado School of Mines, Oak Ridge National Laboratory and the University of Tennessee.

Design:

Accredo Packaging for its AccredoFlex® RP™ Gen2, an all-Polyethylene fully-recyclable stand-up pouch that can be uti-

lized for a variety of products. These pouches can be made using up to 25% bio-based resin, and are fully converted into pouches using wind or solar energy.

End-of-Life:

Eastman for its Carbon Renewal Technology (CRT), which breaks down waste plastics into molecular building blocks like carbon, oxygen and hydrogen and turns those building blocks into new, virgin-quality plastics.

These winning entries were chosen out of 35 innovations submitted.

"The 2020 Refocus Sustainability Innovation Awards drew an exceptionally competitive field of entries this year," said PLASTICS Director of Sustainability Ashley Hood-Morley. "Each winning innovation has the potential to be a game-changer when it comes to eliminating waste in plastics manufacturing and eliminating waste, period. There are countless ways in which this industry is working to solve our planet's environmental challenges. We congratulate Eastman, Accredo and Vartega for their commitment to sustainability, and look forward to seeing the impact their innovations will undoubtedly have on our industry and our environment."

In addition to these three award categories, the Leadership in Innovation Award – determined by a judging panel – and a People's Choice Award – determined by Refocus attendees – will be announced at the Refocus Sustainability & Recycling Summit that will take place from May 18-20 in Cincinnati, Ohio, USA.



► The Plastics Industry Association (PLASTICS), formerly SPI, plasticsindustry.org
www.refocussummit.org/2020-refocus-sustainability-innovation-awards

Vice President of Operations named

■ David Schroeder, president and CEO of Graham Engineering Corporation, has appointed Paul Lemmers vice president of operations. In this role, Paul Lemmers will have responsibility for quoting, planning, supply chain, assembly, and project management for all of the company's product lines and its 157,000 square foot (14,585 square meter) facility in York, Pennsylvania.

"Paul's lean expertise coupled with his leadership philosophy make him a strong addition to the Graham Engineering team," said David Schroeder.

Paul Lemmers holds a B.Sc. in mechanical engineering from Texas Tech University. He is a Six Sigma Black Belt with ad-



ditional certifications including Kaizen, Lean Manufacturing, Value Stream Mapping, Daily Management, and Problem Solving.

► Graham Engineering
www.grahamengineering.com

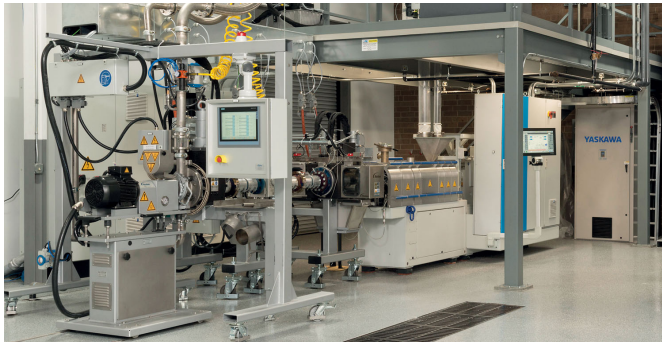
New Laboratory

■ A ribbon-cutting ceremony by Nordson Corporation marked the startup of an extensively equipped process laboratory to serve the Americas market for pelletizing systems and melt delivery equipment.

Installed at an existing Nordson facility in Hickory, North Carolina, the new laboratory has a pelletizing line with throughput capacity up to 1,000 lb/hr (450 kg/hr). The line includes a twin screw extruder, BKG® pelletizer, Optigon™ self-cleaning process water and pellet drying system, and jet cleaner for removing polymer residue from die plates. Both underwater and water ring pelletizers are available for testing. Melt delivery components include three HiCon™ screen changers (backflush, continuous, and discontinuous types), a BlueFlow™ gear pump, and a Hy-Flex™ diverter valve. For evaluating materials to be processed, the facility also provides rheological analysis.

“The new BKG technical center is the latest example of Nordson’s global commitment to support the needs of customers and prospects with local, state-of-the-art laboratories,” said Kevin Tuttle, business director for the Americas. “The move is

BKG® Underwater Pelletizing Line at Hickory, NC



Shown at ribbon cutting, from left to right: Parke Strong, R&D Engineer; Merritt Christian, Market Development Manager; Kevin Tuttle, Business Director, Americas; Udo Gielen, Business Development Manager; Suzann Smith, OEM Sales Director

part of our company’s overall strategy for business growth and our continued investment in the BKG Americas business.”

The laboratory enables existing and prospective customers to see BKG systems in operation for comparison with competing products, evaluate new formulations, carry on application development, and train equipment operators.

Nordson operates process laboratories in Europe, the United States, and Asia, including BKG laboratories in Münster, Germany, Shanghai, China, and Chonburi, Thailand. “The new BKG laboratory in Hickory is Nordson’s first in the Americas, supporting the rapid growth in this region for our pelletizing and melt delivery systems,” said Kevin Tuttle.

■ Nordson Corporation
www.nordson.com

Nordson Polymer Processing Systems
www.nordsonpolymerprocessing.com

New Director of Sales

■ Plastic film and sheet extrusion machinery supplier Macro Engineering & Technology announced that Latin American Sales Manager Martin Baron has been promoted to the position of Director of Sales. Effective immediately, Martin will oversee all sales activities in Canada, Latin America, Europe, Asia and the Middle East, working with the regional sales managers and agents. Martin is based in Macro’s headquarters in Mississauga, Ontario.

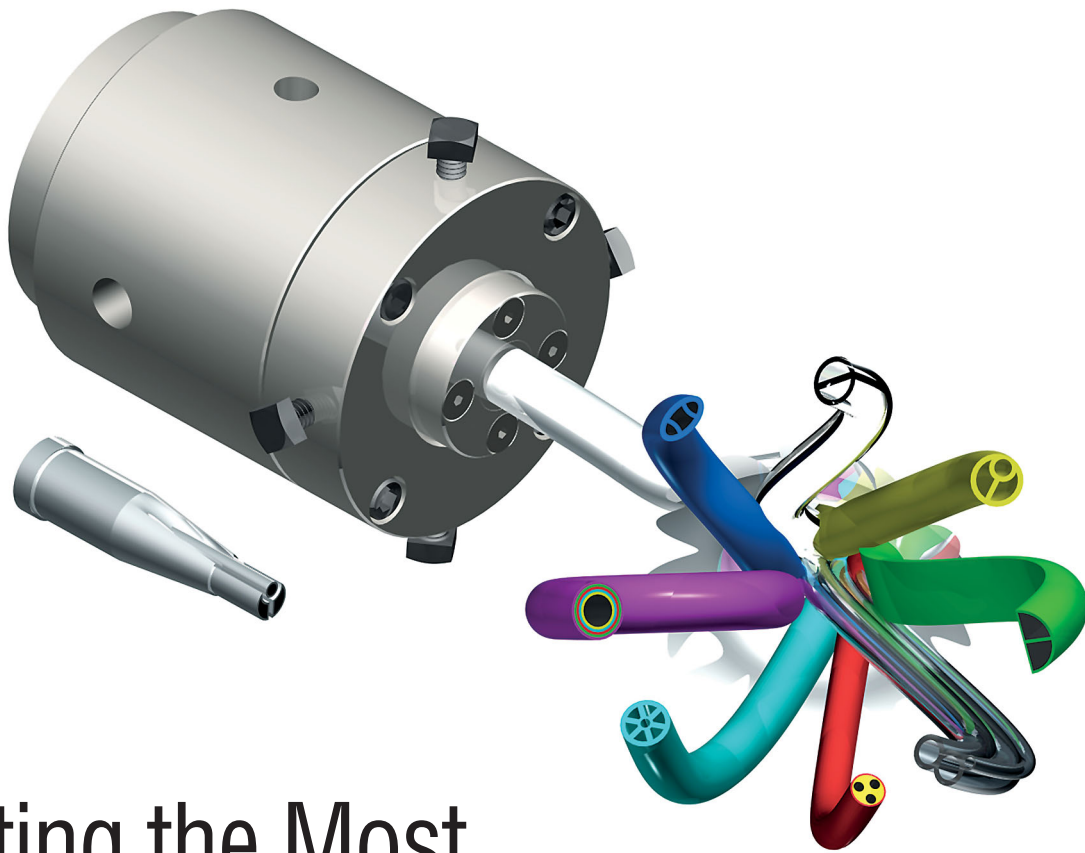
“I’m excited for the opportunity to help Macro’s sales team to achieve further success and deliver value and quality to our clients. Macro is uniquely positioned for growth since we focus on custom-engineered equipment to suit our customer needs. We see a lot of opportunities in this area as most of

our competitors are standardizing all their product lines,” Martin Baron commented.

“I have tremendous confidence in Martin’s ability to implement and manage the sales activities, identify new market opportunities, and define the actions required to generate new growth in a manner that is aligned with Macro’s fundamental commitment to innovation,” says David Cui, Executive Director.



■ Macro Engineering & Technology Inc.
www.macroeng.com



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 tub-

ing. 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 at-

tention 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.

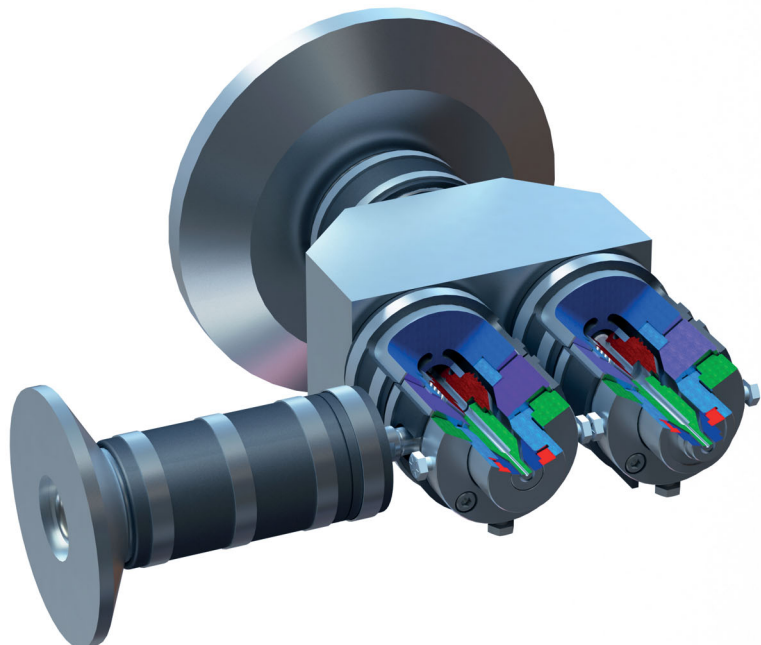
Today, tubing manufacturers compete with companies all over the world. To be a successful and profitable company, quality and efficiency are essential. This is especially true in extrusion, where material costs are usually much higher than labor costs. Like a racing car stuck in the pit, many extruders 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 dis-

tributed 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 % wall = min. wall thickness, max. wall thickness X 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 compound 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 spec-

ified do not exceed 850 degrees F (454 degrees C). Don't quench tooling to cool, as this could affect tooling hardness, concentricity and tolerances

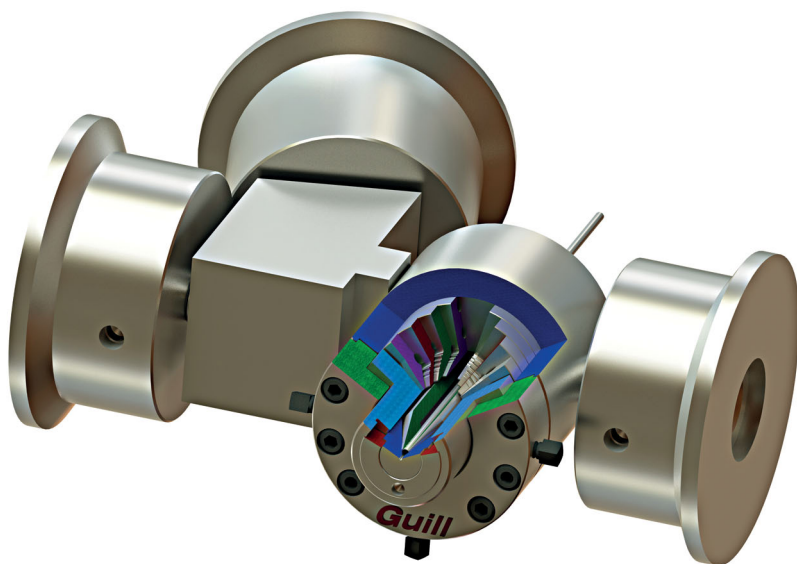
j.) Purging compounds – several are offered to purge the extruder screw/barrel of residual polymer and rubber compounds

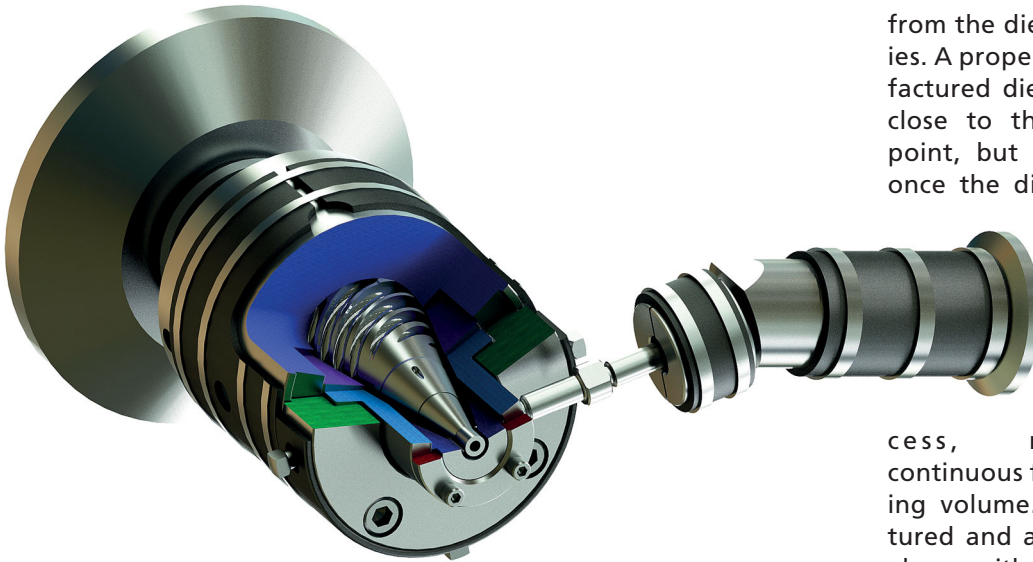
Removing Excess Material for Optimum Machining Efficiency

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 freestanding 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.

Within two years, the Egger Group decided several times to purchase a conical conEX NG 65 twin screw extruder from battenfeld-cincinnati Austria GmbH, Vienna. All extruders were installed in the edge strip plant Egger Dekor A.S. in Gebze, Turkey. A first for both companies: Egger is a new customer and now operates its first extruders from Vienna, and for battenfeld-cincinnati it is the first time that a customer processes ABS on a New Generation extruder

New Customer very satisfied with New Generation Extruders



The family-run Egger Group, headquartered in St. Johann in Tyrol, is one of the world's leading wood processing companies with a group turnover of 2.8 billion euros and 9,600 employees. The former Roma Plastik SAN located in Gebze has been a member of the group since 2010 and has been trading as Egger Dekor A.S. since the middle of last year. Egger ranks among the world's leading manufacturers of edge strips, primarily for the furniture industry. In Turkey, around 900 employees produce edge strips made of ABS and PVC on a total of some 80 extrusion lines. "In addition to the two main materials ABS and PVC, which we process in roughly equal quantities, we make a small contingent of special strips made of PMMA," explains the company's Technical Plant Manager Ender Celebi. "Our edge strips are sold in some 70 countries worldwide." While ABS strips are more in demand in Western and Central Europe, PVC strips are common in Eastern Europe and North America.

When choosing the new extruders, it was very important for the plastics processor that all raw materials could be processed on the same extrusion lines. "Together with the customer, we processed several compounds at our technical lab in Vienna, were thus able to convince him of our new conical extruders' excellent performance and won the

contract for the first machine," reports battenfeld-cincinnati Austria's CTO Dr. André Wiczorek.

In 2017, the extruder specialist installed the first conEX NG 65 in Turkey. Some existing components designed by the customer were connected to the extruder there to form a complete line. "In practice, we were so pleased with the extruder's performance that we ordered several more identical models," is how Ender Celebi praises his new machine supplier.

Dr. Wiczorek is sure that: "A great advantage of our new generation of conical extruders is their long service life." conEX NG extruders have been on the market for about three years. They are based on the proven Konos and conEX series, but achieve significantly higher outputs with enormous flexibility thanks to a complete process overhaul. A long preheating zone and an optimized screw design ensure a balanced ratio of mechanical and thermal energy input, so that not only different materials can be processed, but also high tool pressures of up to 520 bar can be applied.

"Finally, the extruders of the new generation also score with their small footprint, low energy consumption and modest investment costs in relation to their high performance," concludes Dr. Wiczorek. The extruders are available in the three sizes of 42, 54 and 65 mm. For profile applications, they can reach outputs ranging from 35 to 250 kg/h, and for pipe applications from 50 to 450 kg/h.



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From left to right: Helmut Huber (CEO Brückner Maschinenbau), Sebastian Ruhland (Senior Sales Manager Brückner Maschinenbau), Blagomir Todorov (Maintenance Manager Plastchim-T), Beyan Faik (Managing Director Plastchim-T), Karl Zimmermann (Sales & Marketing Director Brückner Maschinenbau), Aydan Faik (Owner Plastchim-T), Peter Mertes (Head of Sales Europe, CIS, Maghreb Brückner Maschinenbau)



Worldwide First BOPP/BOPE Hybrid Stretching Line ordered

Plastchim-T, one of Europe's biggest manufacturers of oriented films, and Brückner Maschinenbau have been cooperating for two years to develop films with the highest possible recycling capabilities. The focus is on BOPE (biaxially oriented polyethylene) films, which will be able to substitute traditional multi-layer films made from different materials. The common goal: New, single-origin packaging solutions with a good sortability in waste separation and an optimal recyclability

The results of the numerous joint trials at Brückner's technology center in Germany and Plastchim's site in Bulgaria were promising and Plastchim-T now consequently took the next step: They invested in a 6.6m wide BOPP/BOPE hybrid line for an extended range of films. As the demand for innovative BOPE films is now starting to develop, Plastchim-T will be able to react swiftly and flexibly to market trends by also producing BOPP specialties such as UHB

films and inline-coated films alongside conventional packaging film. Full output up to 26,000 tons/year for both film types is guaranteed, a material change can be handled within a few hours.

The 5-layer machine comes with the new Brückner inline-coater, making the production of extremely thin functional layers within the nano-range possible. Thus, the layers don't disrupt the sorting and recycling, but cater, for example, for an

improved adherence during metalising and excellent barriers in combination with the equally thin but effective aluminum oxide coating. Plastchim-T's Owner Aydan Faik says: „For us this is a major step into the future. We are convinced that the BOPE films produced on our new line will perfectly match the requirements of the circular economy. And we are also a little proud that we are among the first film producers to make this move.“

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Kenya: Social Responsibility with Plastics Recycling

Keiran Smith and Karim Debabe in front of the brand new INTAREMA® 1108 TVEplus® Re grindPro® made by EREMA. The machine processes up to 500 kg/h of HDPE and up to 600 kg/h of PP plastic from household waste to produce recycled pellets (Photo credit: Mr. Green/EREMA)



At this year's Propak East Africa in Nairobi from 17 to 19 March, visitors to the shared trade fair stand could find out how the recycling company Mr. Green Africa combines social responsibility with the highest specification technology and cost effectiveness. Since the beginning of the year a brand new INTAREMA® 1108 TVEplus® Re grindPro® with laser filter has been processing industrial and household waste plastic to produce recycle at the company's plant in Nairobi



Keiran Smith (Mr. Green Africa), Bruno Witvoet (Unilever Africa), Sanjay Brahmhatt (Blowplast) and Justin Apsey (Unilever East Africa) at the product launch of Sunlight scouring powder earlier this year in Nairobi. The packaging is made of material recycled 100 percent by Mr. Green Africa. The product is available in Kenya and surrounding regions (Photo credit: Unilever Kenya)

Massive international interest is being attracted by a business idea in Nairobi, Kenya, which is unique in the plastics industry. Starting in 2014, the start-up company Mr. Green Africa has succeeded in establishing a collection and sorting system for plastics from industrial and household waste in the greater Nairobi area. The company is interested in upgrading the waste collection system to provide the many “waste pickers” with fair and stable pay. Today, Mr. Green Africa is an important employer in the region with over 100 permanent employees and almost 2,000 “waste pickers”.

As of February, the young entrepreneurs have expanded their business model and no longer sell only washed flakes, but now recycle directly on site at their plant in Nairobi. The Institute for Polymer Materials and Testing at the Johannes Kepler University Linz carried out material analysis in advance to specify the recycling technology needed to achieve high quality recyclate despite the level of contamination of the input material. In the end they chose to go for EREMA, or more precisely for the INTAR-EMA® 1108 TVEplus® Re grindPro® with laser filter, which specialises in processing challenging post consumer materials.

Kenya’s plastics industry on course for sustainable success

“When choosing the recycling technology, the decisive factor for us was that HDPE and PP material can be processed on the same line. With HDPE we collect all types of packaging, including canisters and bottles, which are often contaminated with paper labels and printing inks. Despite different input materials and their varying quality, we have to meet the demands of our customers and deliver a consis-

tent quality of recyclate output,” explains Mr. Green Africa CEO Keiran Smith. Following their initial discussions it was clear to EREMA Group CEO Manfred Hackl that EREMA definitely wanted supply technology to Mr. Green Africa. “Keiran Smith and Karim Debabe captivated me with their business idea from the very first second. As far as I know, setting up a company with such an effective social impact is unique in the plastics recycling sector and could serve as a model for other regions,” says Hackl.

Regional buyers for the recyclate were quickly found, such as Unilever Africa. The packaging of the new Sunlight scouring powder, which was launched at the beginning of the year, consists 100 percent of material recycled by Mr. Green. “The launch of the first truly circular plastic packaging for Sunlight scouring powder in Kenya is a great win for the environment and goes a long way in our quest to ensure that plastic only remains in our economy and stays clear of the environment,” says Bruno Witvoet, President Unilever Africa.

■ EREMA Group
www.erema-group.com

Mr. Green Trading Africa (Kenya) Ltd
www.mrgreentrading.com

At its Düren, Germany, facilities, Blend+ operates hot-compaction production lines. Compaction takes place at processing temperatures of up to 160°C



Highest Performance of Recycled Plastics

Blend+ GmbH und Mitsui & Co. Deutschland GmbH have entered into an agreement about the joint development of additive blends that will enhance the performance of recycled polyolefins and make them suitable for higher-grade applications. Under this partnership, Blend+ will develop process technology for the optimal mixing of customized additive blends, of more than five ingredients in most cases, and produces and ships the blends in the product form that best meets the compounders' requirements in each individual case

Mitsui Deutschland uses its extensive knowledge of additive chemistry and applications to provide customized additive blends used in the production of polymer materials from recycled plastics. The new blends, which may contain more than five components, are specifically adjusted to the individual requirements specified by the ordering plastics recycler. For these customers, not only the formulation of the blends counts. Easy handling and processing are just as important for them, as is a high repeatability of production, in other words, the assurance that each delivery features exactly the same blend composition.

To meet the growing demands of their customers, Mitsui Deutschland and Blend+ have joined forces to develop high-grade additive blends for recycled polyolefins. Under the agreement, Blend+ and Mitsui Deutschland will collaborate to provide customers with customized blends in conve-

nient formats (powder, pellets, etc.) requested and needed by the compounders to meet the specific requirements of the recycling market.

Blend+ supplies the blends in the forms of pellets, agglomerates or powder, depending on the specifics of the application. The additives are manufactured at the Blend+ facilities in Düren, near Cologne, Germany. The unique design of the production lines enables the company to produce blends of most complex formulations and specialty blends, in virtually any batch size. With its most advanced production lines, which are one-of-a-kind in the plastics processing industry, and its ultra-precise, process-controlled ingredients weighing process, Blend+ assures highest repeatability of its production.

Dr. Achim Roth, General Manager at Mitsui Deutschland, explains why the two companies have entered into this agreement: "Mitsui Deutschland

develops specific concepts for the stabilization of polyolefins and their recyclates. We decided to cooperate with Blend+ because the company has both: excellent process know-how and the plant technology that we need to produce our high-grade multi-component additive blends. We are sure that we will constantly receive the same excellent quality from Blend+ because we know how accurately and reliably the company controls the processes at its production facility."

Joachim Bayer, Manager Sales of Blend+, sees significant growth potential for blends in the recycling market: "The leading trade fair for the plastics industry "K" has clearly shown that plastics recycling is continuously growing in importance. The development of customized formulations and blends is driven by the fact that the quality of sourced raw materials for the production of recyclates varies tremendously from customer to customer. Here is where the know-how of Mitsui Deutschland and Blend+ come together ideally."

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Mitsui & Co. Deutschland GmbH
www.mitsui.com/de

Certified Compostable Cling Film for Fresh-Food Packaging developed

BASF and Fabbri Group have developed a sustainable solution for cling film used in fresh-food packaging: Based on BASF's certified compostable ecovio®, Fabbri Group produces the highly transparent stretch film Nature Fresh. Meat, seafood as well as fruit and vegetables can be wrapped manually or with automatic packaging equipment. Industrial stretch packaging is also possible. It is the first certified compostable cling film that combines optimal breathability for an extended shelf life of fresh food with high transparency and excellent mechanical properties for automatic packaging. Nature Fresh is food-contact approved according to US and European standards

With this property profile, the film helps to keep food fresh for a longer period of time when compared to polyvinyl chloride (PVC) alternatives used for cling film such as polyethylene (PE). As a consequence, the greenhouse gas emissions originating from food that is produced and distributed – but ultimately wasted – can be reduced. After usage Nature Fresh can be composted together with any food waste in home compost or industrial compost according to national legislation. It thus enables organic recycling and helps closing the nutrient loop towards a Circular Economy. Cling or stretch film is a flexible thin film that is predominately used for packaging and applied in a stretch-wrap process.

BASF and Fabbri Group have developed a sustainable solution for cling film used in fresh-food packaging (Photo: BASF 2020)



Wrapping can be done manually or by machines. The Nature Fresh film made of ecovio® is the certified compostable alternative to cling films made of PVC and PE so far used in fresh food packaging: Its overall performance – mechanical properties like tensile strength and elongation at break, breathability, film transparency and aesthetics like elastic recovery and anti-fogging – is comparable to films made of PVC. At the same time ecovio® shows a better water vapor transmission than PE, which is essential for optimal fresh food packaging.

Carsten Sinkel from Global Business Development Biopolymers at BASF says: "We observe a changing market environment: The market is looking for alternatives to PVC that is today's performance standard for most cling film packaging of fresh produce. PE films are lacking in performance, often leading to a reduced shelf life of packed fresh food. This results in considerable greenhouse gas emissions from food waste: fruits and vegetables, for example, are responsible for 33% greenhouse gas emissions from all food waste globally. Our certified compostable ecovio® enables the production of a cling film that prolongs shelf life of fresh food and at the same time can be composted after use together with organic waste according to national legislation." The EU Waste Framework Directive promotes solutions to reduce food waste and increase organic waste collection.

In order to find the perfect match of a sustainable material with excellent packaging properties and easy wrapping, BASF and Fabbri Group joined to develop a cling film which can also be efficiently used on stretch wrapping machines. Stefano Mele, CEO at Fabbri Group: "The Fabbri new way to sustainability is combining our Nature Fresh solution with our new Automac NF wrappers so that the food packaging industry can benefit twice: from an innovative cling film and easy film processing. In this way our certified compostable cling film can be used together with trays and labels of the same kind in order to have a complete compostable packaging." Fabbri Group offers Nature Fresh in four different formats: as rolls for manual or automatic packaging machines in industrial food packaging, for cutter boxes in hotels, restaurants and catering services, as jumbo rolls for converters as well as rolls for end consumer hand-wrapping applications. Further information:

BASF
www.basf.com
www.ecovio.basf.com

Fabbri Group
www.gruppofabbri.com

Largest PVC-O Pipes Manufactured in the World



TOM[®] pipes, from DN90 mm to DN1000 mm, best option to pressured water conveyance

Molecor is the leader company specialized in the development of the latest technology, applying Molecular Orientation to pipeline solutions. Founded in 2006, Molecor began its business focusing on Oriented PVC pipes and fittings for pressured water conveyance. But if the company has a completely differentiating element, this is, without any doubt, the possibility of manufacturing large diameter PVC-O pipes. It offers product ranges not previously available on the market.

TOM[®] pipes cover nominal diameters from 90 to 1,000 mm in 12,5, 16, 20 and 25 bar pressure. Moreover, they are certified in more than 10 countries and are 100% recyclable. These points have also facilitated their expansion world-wide when Molecor offered these products to the market.

In 2010, Molecor designed the M-OR-P 3163 system. For the first time this technology offered the possibility of manufacturing bigger diameters that had not been manufactured previously by the company. Before this design some tests were done with the M-OR-P 1640 machine, manufacturing a 500 mm diameter tube and but they had to study the possibilities of an expansion on the market, maintaining the quality on their product. After that, the 630 mm diameter in Oriented PVC was born, and it still maintained the highest quality, Class 500, without losing its best mechanical and physical properties. This is because the PVC-O Class, the highest, which is obtained during the manufacturing process.

In 2013, the next technological development, M-OR-P 3180 system, went

hand in hand with the DN800 mm. Molecor extended its product range one more time, making the largest PVC-O pipe in the world to date, positioning with this achievement in this way Molecor as the largest Oriented PVC pipe manufacturer globally.

The M-OR-P 5012 system is now a reality, bringing a new machine for high quality Oriented PVC pipe manufacture to the market with never before seen diameters. The pipelines market received the widest range of pipe diameters, which can be manufactured up to DN1200 mm with this technology. Molecor has now expanded its offer with a wider choice of pressurized water solutions.

Large diameters with the highest quality Class 500

As it is well-known, large size pipes are usually heavy and uncomfortable

or difficult to handle. But the full range of PVC-O TOM® pipes has become the best choice for the conveyance of water under pressure due to their physical and mechanical properties, which are improved during the manufacturing process.

PVC-O pipes are lighter and more ductile, and this lightness and ductility allow an installation performance impossible to think with tubes made of other materials but with the same outside diameter. TOM® PVC-O pipes weigh less than the half of PVC and PE pipes, and between six and twelve times less per linear meter than cast iron pipes of an equivalent nominal outside diameter. This lightness, together with the ease of the connection system of these pipes and the watertight of its joints, make of them the ones with the highest speed installation performance in the market. Besides this, TOM® pipes have an extremely high resistance to impacts; this means that shocks or impacts are minimized during their manipulation or installation. Moreover, the material creep behavior is very low, ensuring the durability of the pipe working at nominal pressure for over a hundred of years.

They offer lower celerity than other piping systems, which means less water hammers caused by sudden variations in water volume and pressure. This reduces the possibility of break-



age during opening and closing the water network. Thanks to Molecular Orientation, TOM® pipes counts with a higher internal diameter and greater flow section contributing to their hydraulic capacity and having about 15 to 40 per cent more than pipes made from other materials. Additionally, they have a maximum ductility. Thanks to this ductility, TOM® pipes can bear big deformations of their internal diameter.

The full range of TOM® PVC-O pipes manufactured by Molecor, as well as the ecoFITTOM® PVC-O fittings, are products that cover all the medium and high pressure needs of the market, present these features,

regardless of its size. These products have also proved to be highly chemical and mechanical resistant against degradation and corrosion since Oriented PVC is completely immune to corrosion, to chemical substances and organisms present in nature, insuring water quality.

All products manufactured by the technology of Molecor, TOM® pipes and ecoFITTOM® fittings, can be used with several applications: conduits for potable water transport, pipelines for transport of water that have been treated to remove impurities, irrigation facilities, sewage, fire protection nets and even industrial applications.

The choice of what product we should use must be posed considering several parameters like the intallation's durability, hydraulic capacity, ease of installation, operational efficiency or the maintenance costs, all of them characteristics well covered by the TOM® pipes and the ecoFITTOM® fittings, becoming the best solution to pressure water conveyance.





Picture 1: Pipelines from a cooling water treatment system in an industrial plant (Picture: aquatherm)

Complete Vacuum Supply with MINK Claw Vacuum Technology

aquatherm is the leading worldwide manufacturer of PP-R (polypropylene random copolymer) pipe systems for plant engineering and building services. At their headquarters in Attendorn/Germany and their subsidiary plant in Radeberg/Germany, aquatherm annually manufactures 38,000,000 meters of pipe and over 40 million molded parts like fittings for pipeline construction. At their Attendorn site, aquatherm relies on MINK claw vacuum technology from Busch Vacuum Solutions for material feed from their external silos to the extrusion lines, as well as for degassing molten material in the screw sections of the extruder, and exclusively uses MINK vacuum pumps throughout the entire production process



Picture 2: Glimpse of the machine room with the MINK claw vacuum pumps from Busch that supply various feed circuits with vacuum (Picture: Busch Vacuum Solutions)

aquatherm is the leading worldwide manufacturer of plastic pipeline systems made from PP-R (Picture 1). Areas of application include potable water applications, heating systems, fire sprinkler systems, air-conditioning and refrigeration technology, as well as surface heating and cooling systems. The product range comprises more than 17,000 articles in seven product lines. aquatherm products are found in a wide variety of buildings and ships all over the world.

To ensure worldwide product availability and provide local services, aquatherm works closely with long-standing partners in over 70 countries around the world. The com-

pany employs more than 600 people in Germany, Italy, the UK, US, and Canada. The company manufactures exclusively at their headquarters in Attendorn and in Radeberg, both in Germany. Today the family company, which was founded in 1973, is managed by the second generation.

Over 20 years ago, aquatherm began switching from vacuum generation with conventional oil-lubricated vacuum pumps for material feed to using MINK claw vacuum technology, a new technology in those days. The advantages at the time were as obvious to management as they are today: MINK claw vacuum pumps operate without



Picture 3: Extrusion facility: aquatherm manufacturers PP-R pipes with diameters of 16 to 630 millimeters (Picture: aquatherm)

operating fluids and thus provide completely dry compression of intake air. The moving parts within MINK vacuum pumps do not come into contact with each other. So there is no resulting friction that would make lubrication of the parts necessary. No friction also means no wear. For Markus Korth, who is responsible for maintenance, this means he does not need to replace spare parts or worry about work associated with operating fluids like oil. Because aquatherm runs a three-shift operation seven days a week, the vacuum supply needs to operate reliably almost around the clock. This is why an internal maintenance team annually changes gear oil in the vacuum pumps as a preventive measure. Today, aquatherm uses a total of 29 MINK claw vacuum pumps for material feed, supplying a total of 22 material feed circuits with vacuum. All vacuum pumps (Picture 2) are located in a machine room and are easily accessible. Over the past 20 years, the number of MINK claw vacuum pumps has grown parallel to aquatherm's success and the associated production increase.

This vacuum technology provides a further benefit: Claw vacuum technology has the highest efficiency factor of all mechanical vacuum pumps. By eliminating internal friction and thus the need for operating fluids, MINK claw vacuum pumps are extremely energy efficient. The only change at aquatherm since the first MINK vacuum pumps were delivered 20 years ago, is that the IE1 motors have been exchanged for today's standard motors in energy efficiency class IE3.

PP-R is delivered to aquatherm as a raw material in pellet form and then processed to create a master batch using additives, stabilizers and pigments in compounding extruders. The polyolefin-based thermoplastic PP-R is excellently suited for use in potable water and heating installations due to its high heat and extraction stability. When used in potable water installations, its absolute corrosion resistance is of great significance for hygienic reasons. The pipeline systems are also used for industrial applications in pressure and vacuum lines. At ten of the 19 extruders (Picture 3) the molten PP R is degassed using the MINK claw vacuum pump. A standing filter from

Busch directly attached to the extruder prevents water vapor, residual monomers, and other by-products and degradation products resulting from chemical reactions, temperature load, and shear stress in the molten material from entering the vacuum pump, potentially leading to splitting.

For nearly 17 years aquatherm has also been using MINK claw vacuum pumps for degassing molten material. The ten extruders that need to be degassed are each connected in parallel to two MINK claw vacuum pumps in constant operation. Both of these vacuum pumps are also set up in a separate machine room. For safety purposes, an inlet filter is installed directly on the vacuum pump's gas inlet. However, if any cracking occurs inside the vacuum pump, which can happen on occasion, two vacuum pumps are available as a reserve and can be immediately switched in. Contaminated or cracked vacuum pumps can be easily dismantled, cleaned and reassembled by the maintenance team. They are immediately operational after that. Maintenance Manager Markus Korth says: "Our maintenance staff is able to dismantle MINK claw vacuum pumps in 20 minutes." Maintenance effort and thus maintenance costs are significantly lower than the previously used liquid ring vacuum pumps. These use water as an operating fluid, which needed to be checked on a daily basis and replenished, if necessary. Furthermore, the entire water circulation system required regular cleaning. Correct disposal of the operating water also took additional time and produced further costs. After about 20 years of using MINK claw vacuum technology, the team at aquatherm is very satisfied. The high degree of operational safety and reliability as well as the high economic efficiency – thanks to energy-efficient operation and low maintenance costs – speak for themselves.

Busch Vacuum Solutions
Schauinslandstr. 1, 79689 Maulburg, Germany
www.buschvacuum.com

aquatherm GmbH
Biggen 5, 57439 Attendorf, Germany
www.aquatherm.de

The open architecture of an automation system of Generation 4.0 offers key benefits and the significance given to it by operators of these systems is equally high. An open architecture with standardized communications protocols and standardized interfaces is one of the requirements for conversion to Industry 4.0 technologies



Data Security Despite an Open System Architecture

Simple and rapid implementation, reduction of the commissioning times and more efficient development steps, which deal with the application and not with system questions or grappling with IT topics, are the main criteria when selecting new IIoT components. This is because the in-built intelligence of the smallest components is not supposed to serve its own ends but should be reflected in tangible

competitive benefits. Many users are afraid of the risks – with regard to data security. Suppliers of components and systems must get to grips with this and develop strategies, in order to offer their customers secure solutions.

Continuous networking of intelligent devices

The benefits can be felt: In Industry 4.0-compatible production systems,

all the automation components, such as sensors, controllers, command stations or actuating devices, are networked via Ethernet. Access to the system and its components is then possible using any web browser, independent of software and the location. Data can be transmitted via Ethernet and exchanged in the system. When a component is exchanged with a new component of the same type, the system updates it automatically, comparable to a RAID system, meaning that it is possible to talk of a true Plug & Play system. It is thus not necessary to set the parameters again.

Production reliability thanks to data analysis

The process data which the automation components can deliver offers system operators a wide range of analysis options, with the aim of drawing conclusions about production and preventing errors and production down times.

Various scenarios are possible. For example, a drive can deliver its motor temperature to a higher-level sys-



tem, which continuously records this value.

Predefined values could be used as indicators influencing the process or production and allow predictive actions, such as predictive maintenance or condition monitoring. The drive itself is of course protected by self-diagnostics. It now barely needs to be regarded as a source of errors. As a reminder: IIoT keeps its focus on the application and not the subcomponents.

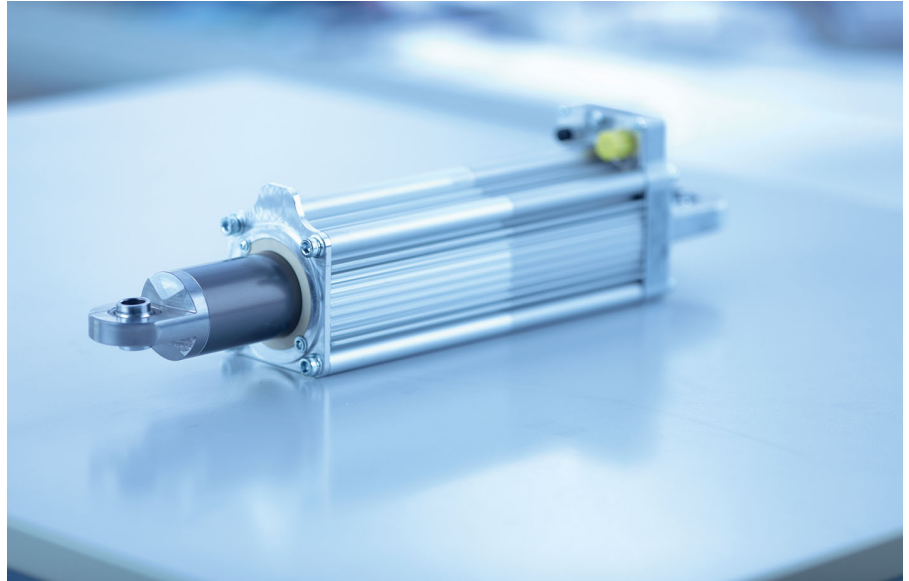
But the journey continues: If we do not know the indicators, then the question arises of the occurrence and correlation of problems and causes, which allow conclusions to be made about production.

If, for example, the web tension is monitored, then, when observing undesired effects, such as web tears, the entire available data record could be reviewed for outliers. Large volumes of data become smart data. Here, the technologies from the field of "deep learning", a subsection of automatic learning, will help us. To remain in the example: This allows determination of whether web tensions were chosen incorrectly or the penetration of the web with moisture has led to changes in the e-module.

This is only possible thanks to an open architecture.

How can data security be maintained in spite of this?

If remote access now also comes into play, with which the manufacturers of components and systems can offer rapid support during commissioning, maintenance or troubleshooting, then the operators of production facilities worry about the security of their data. The risk appears to be too great that the open architecture generates unwanted transparency and, in extreme cases, opens the door to industrial espionage or sabotage. To rule this out with absolutely certainty, special coupling software is used with secure hardware switches. In this way, for example, a supplier of automation technology can perform remote maintenance for their cus-



tomers and temporarily access their data in a defined subarea of the system.

Users profit from interchangeability

Among manufacturers, a further consequence of the open system architecture is discussed with understandable controversy: Open systems with unified network protocols and standardized interfaces allow the substitution of the components of a system. For example, the company operating the system or the machine manufacturer can easily replace a sensor with an identical sensor of another manufacturer - a benefit for users, but a double-edged sword for the manufacturers. Providers of engineering services, who integrate third-party components, can find an additional field of occupation here.

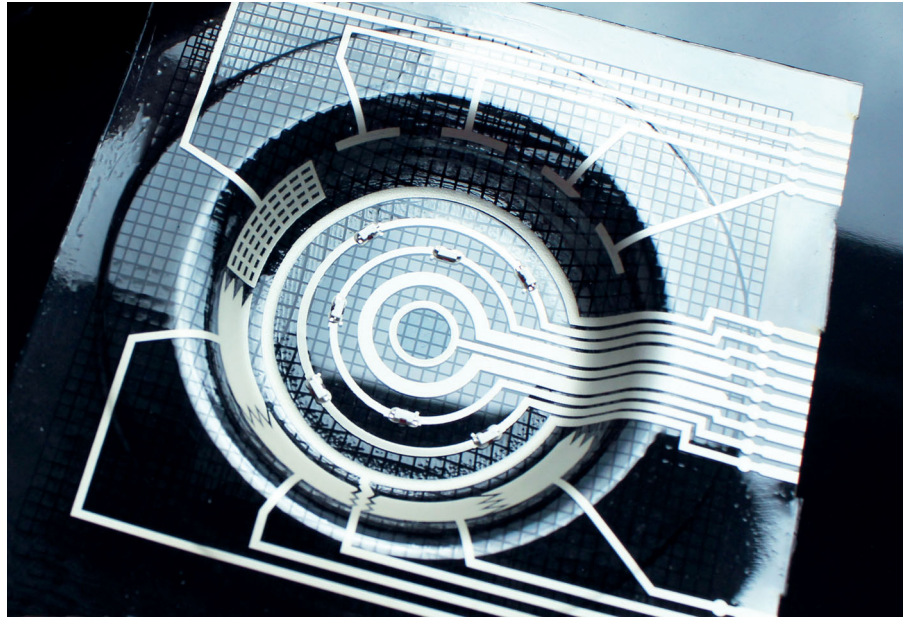
Remote maintenance is a matter of trust

The open architecture of a system allows not just data analysis for status monitoring of machines and devices, but also preventive maintenance and rapid aid in cases of fault - the benefits of remote maintenance are usually uncontested. However, there is often a contradiction in the requirements for availability from the point of view of production and security from an IT point of view.

Manufacturers are keen to take this subject seriously and offer solutions. "Remote maintenance is a matter of trust," explains Dirk Schröder, Head of Sales for the Printing/Film division at Erhardt+Leimer. The company is a global leader in the manufacturing of automation technology for web guiding, web tension control and web inspection. Schröder knows what he's talking about: "For many of our customers, the open architecture of their automation system has a high priority. Our new product generation of sensors, controllers and drives for web automation fulfils this requirement. At the same time, we also have to guarantee the security of our customers' data. If, therefore, a machine is to be connected to the Internet for the purpose of remote maintenance, for example, then we can offer a solution that takes into account both the requirements of production and also IT." This also ensures that devices already installed on customer premises can be kept at the latest security level, thanks to automated updates.

Erhardt+Leimer GmbH
 Albert-Leimer-Platz 1, 86391
 Stadtbergen, Germany
www.erhardt-leimer.com

The thermoforming process of the Fraunhofer IVV allows the manufacture of 3D electronic components using the roll-to-roll principle (© Fraunhofer IVV)



Roll to Roll Components developed

The Fraunhofer Institute for Process Engineering and Packaging IVV presented the manufacture of 3D electronics using the roll-to-roll. A new thermoforming process makes this possible. It allows higher degrees of forming via temperature profiling. It was developed at Fraunhofer IVV Dresden, Germany

Thermoforming is suitable for large batches of products and is combined here with innovative technologies for temperature control in order to precisely regulate the forming process. Up until now the manufacture of electronic assemblies from structural and functional components has involved production, assembly, and wiring. These are costly steps in terms of time and money. A collaborative project has now developed forming technology whereby a substrate is first processed in its planar state using established technologies for printing and assembly. Only in the last processing step is the 3D geometry generated by forming. Interactive (operating) panels can, for example, be produced at favorable cost. Applications in robotics, home products, medical technology, and the car and aircraft manufacturing industries will benefit from this. The high requirements on

ergonomics, design, and functionality in these industries will hence be optimally met. The new process also offers greater design freedom and flexibility.

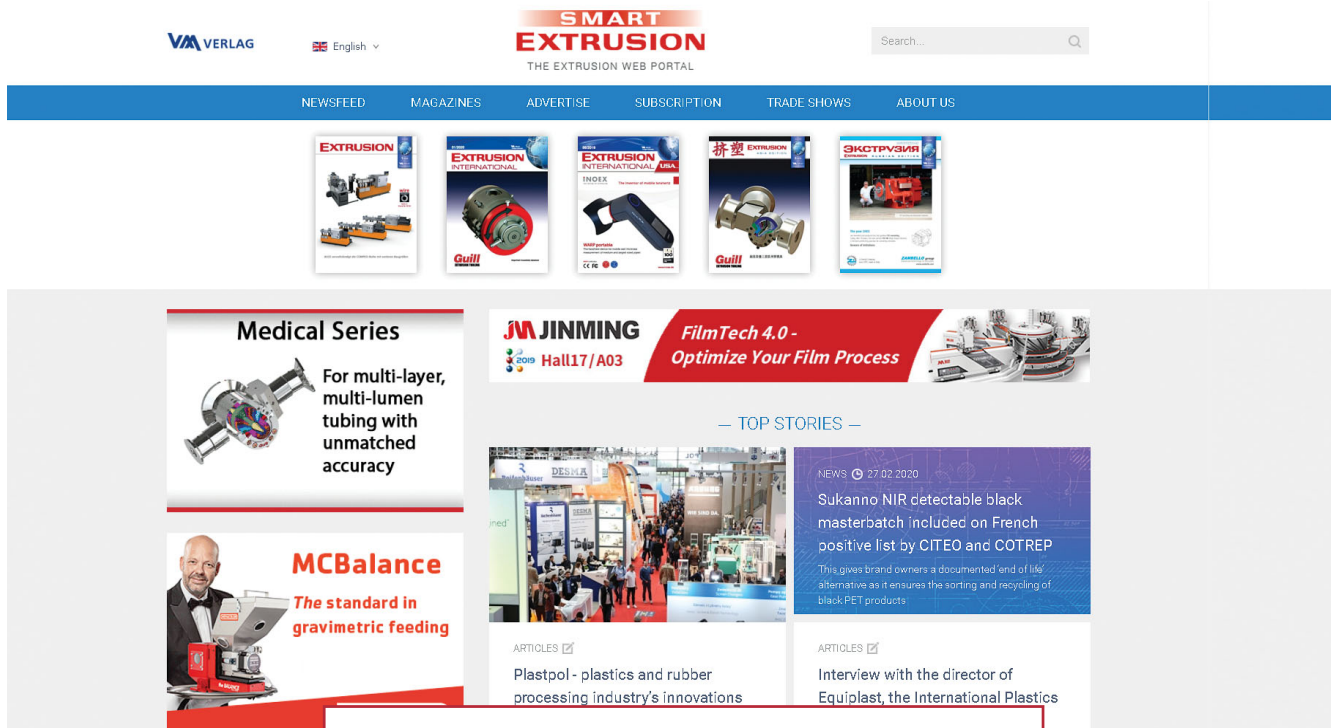
Customization of forming processes

The Fraunhofer IVV is developing innovative heating and forming technologies to realize novel products. The Fraunhofer IVV Dresden has a specialist team supporting the development of 3D electronic components and offers assistance to companies with aspects such as product design, material selection, and process configuration. A self-developed characterization method enables process limits and relative industrial load limits to be determined. In addition, a thermoforming test rig enables the flexible manufacturing of products on a trial basis. For this work a range of forming processes and technologies are available. Using experimental and numerical simulation, manufacturing processes and product geometries can be simulated and optimized. The thermoforming test rig allows the Fraunhofer IVV Dresden to form a variety of materials with printed electronics for companies.

Fraunhofer Institute for Process Engineering and Packaging IVV
Heidelberger Str. 20, 01189 Dresden, Germany
<https://www.ivv.fraunhofer.de/en/dresden.html>

SMART EXTRUSION

The only website collecting information about smart technologies of extrusion

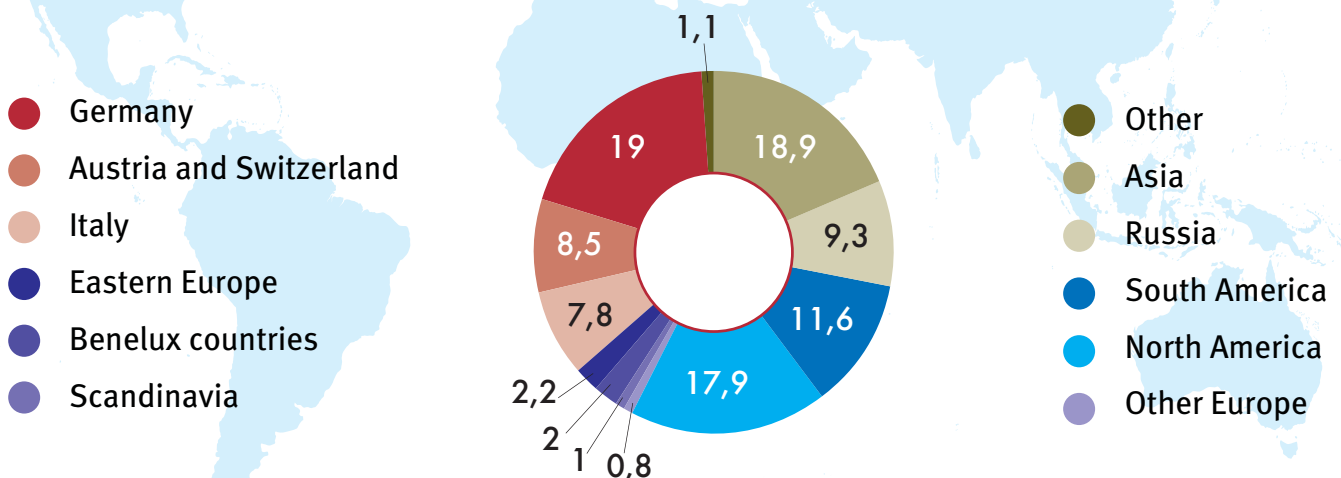


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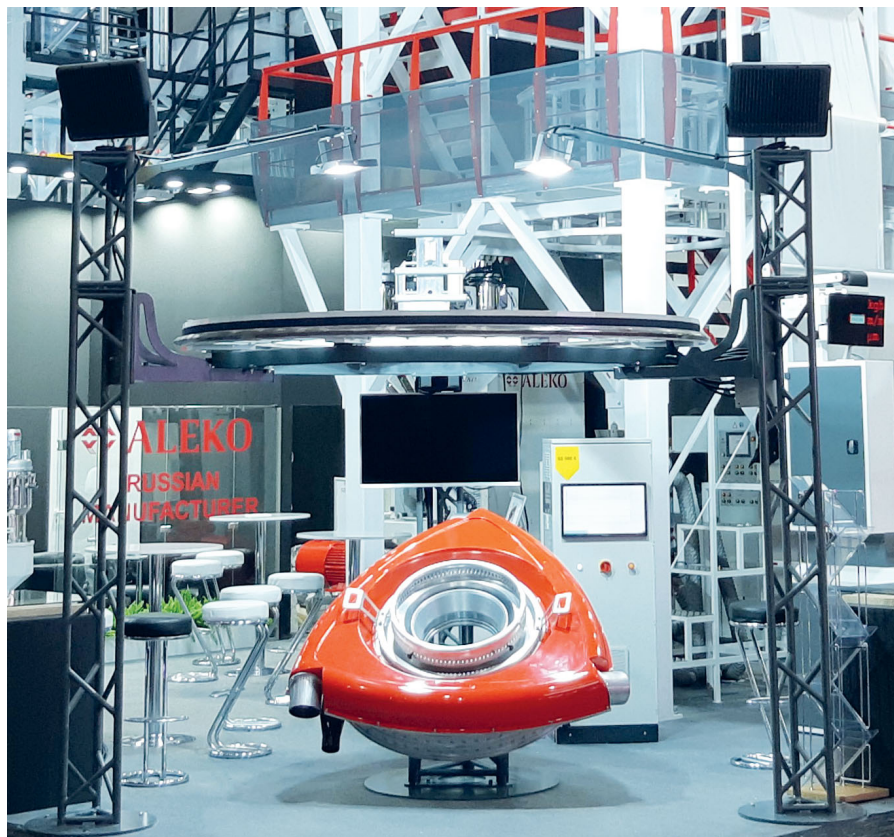
www.smart-extrusion.com

Automatic Thickness Control System

ALEKO – the largest Russian manufacturer of equipment for polymer processing – has presented to the market a product, which is unique in its technical characteristics, and which makes it possible to decrease thickness variations to 70%

Thickness variation is a frequent phenomenon in the production of film, which has a significant impact on both the quality and the actual cost of a unit of the final product (packaging). In addition, thickness variations of film may affect the stability and performance of packaging equipment.

The Russian company ALEKO is one of 9 companies in the world that has designed and offered the market a system for monitoring and control of thickness variations of film. The device is intended for continuous measurement and operational correction of the profile thickness of tubular films during the extrusion process in real time. This is an excellent solution to achieve optimal film thickness and minimize the thickness variations.



Operation principle

An annular system of continuous measurement of film thickness based on a capacitive sensor from company Hch. Kündig & Cie. AG (Switzerland) detects deviations from a given value. The received data is transmitted by the sensor to the control system, where the software calculates the necessary adjustment algorithm and corrects the corresponding film segment.

The thickness variation is controlled by simultaneously correcting both the temperature and the volume of the airflow. This is a unique solu-

tion for the global market, as even foreign analogues carry out the correction only sequentially. Such an integrated approach of the system from ALEKO allows to reduce the indicator of the thickness variation up to 70%.

Structure

Due to the number of actuators evenly spaced around the perimeter of the ring, the adjustment occurs pointwise, directly in the zone of occurrence of the thickness variation. So, for example, with a die head diameter of 250 to 400 mm,

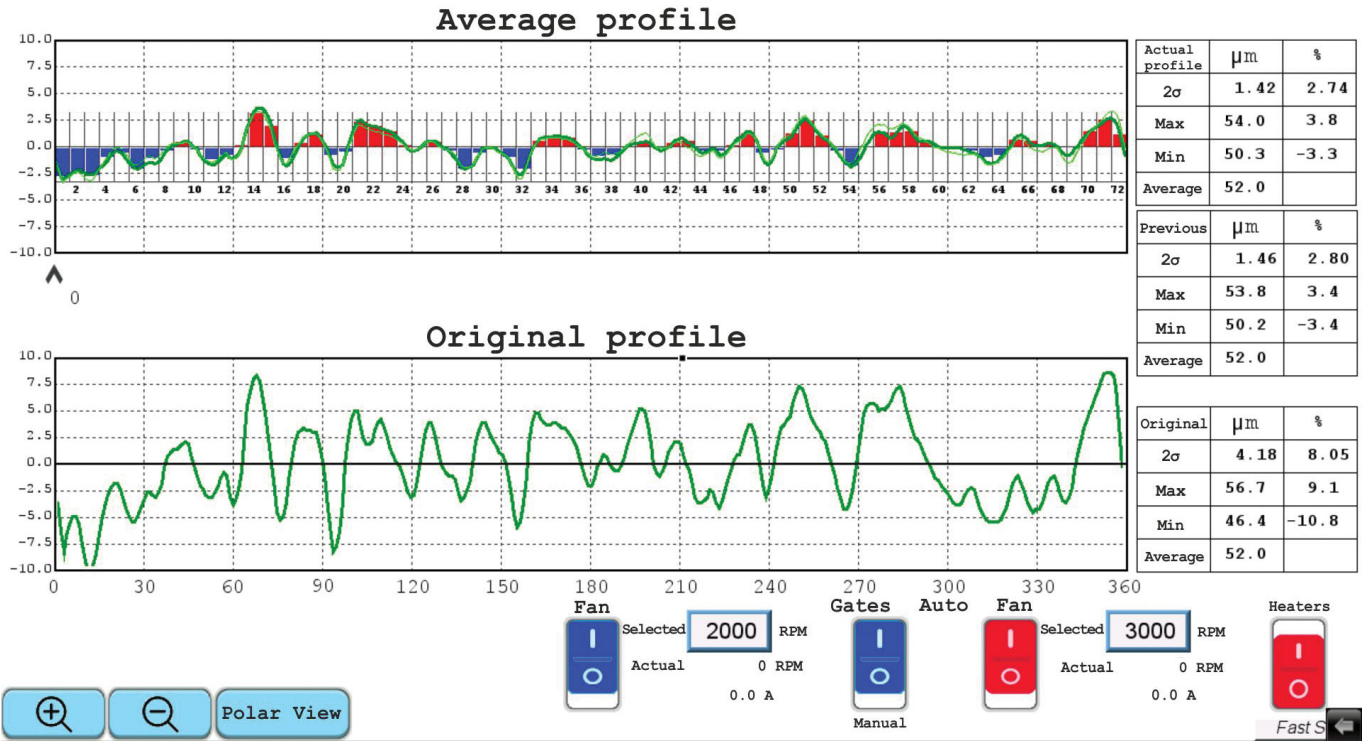


Chart of thickness variation correction during the extrusion process

the total number of actuators in the device is 144 pcs.: 72 pcs. for the volume of the air flow and 72 pcs. for temperature control. The designed system exceeds all similar devices available on the market in terms of the number of adjustment points (for its diameter). In the case of a die head with diameter of 450 to 600 mm, the number of adjustment zones will already reach the number of 184 pieces – 92 on each level, respectively.

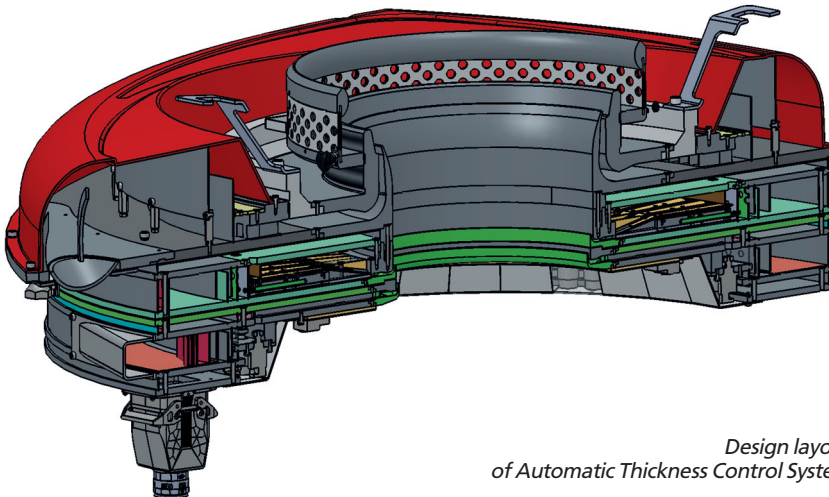
Service and customer support

The design of the device is designed in such a way that servicing does not cause difficulties. At the same time, the fully protected structure prevents any mechanical obstruction. In case of malfunctions, optional remote diagnostics are possible. ALEKO's own customer service is ready to provide technical support at any time, both in a remote mode and with the departure of specialists to the client's territory.

Cost-efficient and convenient

At the moment, the ALEKO system for monitoring and control of thickness variations of polyethylene films is the most affordable device among similar offers in the market. It is important that it can be installed both on new blown film machines and on existing extrusion lines in order to improve film parameters and save raw materials. Fast return on investment and reduced costs are guaranteed.

A device for monitoring and control of thickness variations has already been presented both at well-known Russian exhibitions and at the largest European exhibition – K 2019. The received feedback and high interest in the product confirms the need for the majority of polymer market players in such equipment and an understanding of the real economic effect of its use.



Design layout of Automatic Thickness Control System

Aleko Machinery <http://en.polimerexpert.ru/>

Strong Cooling Power, Low Cost

Smart Reisner Refrigeration System for New DRS Pipe Extrusion Plant

In the energy-intensive business of plastics extrusion, producing companies welcome every opportunity to keep electricity consumption and operating costs in check. Refrigeration technology offers an effective adjustment screw: with the right system, considerable amounts can be saved in short term. The more accurate a refrigeration matches its production surroundings, the stronger the effect. DRS Deutsche Rohrwerke Sachsen GmbH, a pipe extrusion specialist in Bautzen/Germany, are currently delighted about the perfect solution they have found. Their latest expansion project has resulted in a huge new requirement for cooling capacity. This demand is now covered by a container cooling system designed and manufactured Reisner Cooling Solutions GmbH – 100% reliable and at the same time astonishingly economical

Great success for companies often comes with great challenges: For DRS, several favourable events occurred in 2019, and in the end the pipe manufacturer more than doubled its production output. A breathtaking development, recalls managing director Andreas Seibel. Whereas DRS previously operated six extrusion lines with an output of 300 to 400 kilograms per hour, six new lines with 900 to 1,000 kilograms each were now to be added. Fur-

Thanks to the Reisner container, DRS does not waste any valuable space inside their new production hall



Cooling system container and dry coolers are placed between the new silos on the DRS outdoor area, where they are well protected

thermore, the machine park was expanded to include a new injection moulding machine with a clamping force of 200 tonnes and a new re-granulation system.

The right partner to starting a major project with

While negotiations with their new customer orders were still underway, DRS began their search for reliable partners to implement the expansion measurements. They could clarify the spatial situation at short notice because they were offered a neighbouring plot of land including suitable commercial property. Immediately afterwards, the issue of cooling came up. With only the existing refrigeration systems, DRS would not have been able to supply the new production under any circumstances. "We have made a very conscious decision for the new step in our business development, and thus we carefully selected our suppliers," reports Seibel. He already knew Reisner cooling systems from previous professional stations, both from the user's point of view and through recommendations of his customers. Nevertheless, he asked for several comparative offers: "We had high demands on the cooling technology. With the dimensions and the foreseeably complicated schedule, consulting, conception and finally project management were also important issues. That's why we invested a lot of time and intense thoughts into selecting the best offer".

The Reisner concept has convinced Seibel in several respects, especially because the refrigeration specialists from Holzwickede analysed the production beyond their own field and included the overall situation: "Reisner was

able to offer an unrivalled, short delivery time. They could not provide the new refrigeration system at the start-up phase of our new production lines, but they supplied a rental system which allowed us to set up and test the new plastic processing lines. The situation was turbulent, requirements changed at short notice, but the team adapted without any problems. We felt well advised right from the start, also by Mirko Jurke from Reisner's sales partner Jurke Engineering GmbH – and we felt excellently accompanied during the whole planning phase”.

Adding to the performance while saving energy

The most important factor, however, was the unique energy saving concept developed by Reisner managing director Thomas Imenkämper and his staff. It is based on the fact that the new DRS production requires a lot of cooling capacity, but it does not always need to be supplied at full load. The tailor-made cooling system therefore consists of three separate cooling machines. Each machine has a maximum cooling capacity of 400 kW, so that a total of 1,200 kW is available. The individually programmed Reisner control system regulates which machine contributes which amount of cooling performance at any given time. This demand-oriented supply goes even further, as each individual unit can be regulated again and thus reduced a partial load of up to 25 percent. Consequently, energy consumption is always kept as low as possible in any given production situation. As an attractive side-effect, the self-sufficient operation of the individual cooling units also boosts operational safety.

Reisner has even enhanced the energy saving effect by adding further technologies that also reduce the consumption. An important feature is the Reisner Vario technology. It allows the cooling machines to adjust their condensation temperature to the low average outside temperatures that are common in Germany. The lower the condensation temperature, the more efficient the refrigeration system. Thanks to precise control, DRS also save energy operating their condensers. They are



Three cooling units with a capacity of 400 kW each plus the respective control cabinets are installed inside the container – neatly and with a lot of space for service and maintenance works



DRS' managing director Andreas Seibel and Reisner's Thomas Imenkämper (left to right) read off the well-structured touch panel how the system adapts to each operation situation

equipped with EC fans which adjust their output precisely to the respective operating point, reducing not only energy consumption but also noise emissions. Finally, two dry coolers, also equipped with EC fans, supplement the cooling system. Each of these dry coolers provides up to 600 kW cooling capacity. Together, they gradually relieve the refrigeration systems when outside temperatures decline, and during wintertime they can even completely supply the production, reducing the chillers' compressor energy by 100 percent.

Extreme effects

From all these measurements, Reisner have assembled a complete package that effectively keeps energy consumption as low as possible under given circumstances. The figures speak for themselves: without energy-saving technologies the DRS refrigeration system would consume 1,366,743 kWh per year. The Vario technology alone reduces energy consumption by 550,687 kWh, while the winter relief system saves a further 636,784 kWh per year. This reduces electricity consumption to just 178,272 kWh per year - drastic savings of around 87%! Costs are reduced accordingly. While with a conventional system DRS would have to spend 205,011 Euro per year on cooling energy, using the Reisner system they get away with no more than 26,891 Euro.

Our environment benefits from the fact that much less CO₂ is emitted to provide the necessary electricity. Annually, based on the local power mix, the Reisner concept saves the atmosphere around 630 tons of carbon dioxide. In addition, the system is designed for the future as it is operated with the state-of-the-art refrigerant R513a. This substance is much less harmful to our climate than comparable refrigerants. Its so-called Global Warming Potential (GWP) is only 631, while the reference value of CO₂ is

1 and the refrigerant R410A which is still frequently used today has a GWP of 2,088. This way, even in the long run DRS won't have to fear that their cooling system operation could be affected by stricter environmental protection regulations.

A practical solution for every problem

Today however, DRS had to overcome very practical challenges. The adjacent sites had to be converted, new production and storage areas had to be created within record time. Among other things, the company commissioned six huge new silos, each with a capacity of 75 tonnes. Foundations were laid, the infrastructure rebuilt, and numerous new machines delivered and tested. Suitable refrigeration technology was always on hand, but never in the way. "Reisner integrated our new cooling units directly into a container", reports Andreas Seibel, "we only had to provide a foundation. On the inside the container was already perfectly piped and wired, so everything went very quickly. We have gained more space with the new building, but we are still glad about every cubic meter that stays available for actual production purposes". The container with the cooling technology is safely and securely located next to the silo system and can be quickly and easily moved to another location should need arise - for example following a production restructuring.

With the connections from the container to the tank Reisner covered a special request asked by DRS and used materials manufactured by the FRANK Group DRS belongs to. These materials are state-of-the-art PE100-RC pipes, that unlike standard PVC pipes are completely sealed by leakproof welding. Details like this as well as the reliable and confident work of Reisner's project planning department made the difficult tasks much easier for Andreas Seibel. "We continued to produce during the reconstruction phase, in three shifts and with an enormous material turnover. Each day, we had 30 to 40 trucks collect our finished pipes. Nothing could go wrong with the extra tasks. But we knew throughout the process that we could rely on Reisner", he remembers, "our contact person was

The cooling water is perfectly stored within large custom-made Reisner tanks. The piping was accurately manufactured by Reisner – on special request using FRANK Group materials



What stays inside these filters cannot harm the production anymore. The load of solids is high in pipe extrusion cooling water – no problem for the Reisner full stream reverse flow filtration system

project manager Detlef Badziong. Thanks to his many years of experience he reacted confidently even to spontaneous changes of plans. Thus, despite all efforts, the joint work on the project was really fun for everyone".

Cooperation for the future

After the project phase which started in July 2019 and ended in November, DRS could start their day-to-day production as they had planned. Commissioning of their new cooling system in November went smoothly, as Reisner had already laid the foundation stone during the conception phase. Robust components and a maintenance-friendly design of the container make service operations an easy task. An integral part of this future-oriented plan is the cooling water quality. In pipe extrusion, water is often highly loaded with solids which can ultimately impair the function of all plant components. Therefore, Reisner have installed their unique full flow return filter system inside their custom-made 20 m³ production tank. Without any risk of backwater flow nor great maintenance effort the filters keep the water clean and thus protect the entire production. Dosing systems for biocide and corrosion protection agents complement the water care concept and spare the DRS staff from having to handle the chemicals.

For the near future, the project partners plan to jointly monitor how the energy-saving measures prove themselves in practice. "As we have only been producing since November 2019, it is still too early to take stock," reports Seibel, "but we will remain in close contact with Reisner in this regard. Together with Jurke Engineering we will monitor consumption and besides have the regular preventive maintenance carried out by the Reisner team".

Reisner Cooling Solutions GmbH
Schäferkampstr. 18, 59439 Holzwickede, Germany
www.reisner-cooling.de

DRS Deutsche Rohrwerke Sachsen GmbH
02625 Bauen, Germany
www.drs-rohrwerke.de

Newcycling® plant at Merseburg, Germany



Circular Economy – Pelletizing High-Quality Polyamide made from Multi-Layer Packaging Waste in Newcycling® Process

Nordson's BKG® Melt Delivery and Pelletizing Components Transform Purified Polyamide from APK AG Process into Resins Comparable to Virgin Technical Polymers

APK AG has deployed a complete downstream melt processing system from Nordson Corporation for use with its innovative Newcycling® process, which carries out the dictates of the circular economy by transforming mixed and multi-layer waste into purified polymer with properties close to virgin resin.

The first Newcycling® plant, located in Merseburg, Germany, began commercial operation in June 2019 with

an annual capacity of 8,000 tons and is used for separating polyethylene and polyamide from multi-layer packaging films (post-industrial source). The Newcycling® process produces the polymers in purified form by shredding the waste, using solvents to selectively dissolve the plastics, separating liquid and solid components, purifying the polymer, and removing the solvent for reuse in the process. An extruder delivers polyamide

to BKG melt delivery and pelletizing components for production of APK's Mersamid® polyamide resins.

The BKG equipment includes a Blue-Flow™ gear pump, HiCon™ screen changer, polymer diverter valve, underwater pelletizer and Master-Line™ process water / pellet dryer system.

"Our Mersamid® products are intended for demanding technical applications as alternatives to virgin plastics," said Florian Riedl, Director of Business Development for APK. "Nordson's BKG pelletizing and melt delivery equipment contributes to meeting our requirement for high-quality granulates with homogeneous properties. In addition, these systems help us achieve a level of production efficiency that is consistent with our sustainability approach."

Elsewhere in Europe, Florian Riedl noted, APK will build a second Newcycling® plant, with a capacity of 20,000 tons, for processing of mixed film waste of post-consumer origin.

*Florian Riedl,
director of business development at APK AG*



BKG® HiCon™ K-SWE-4K-75-RS screen changer

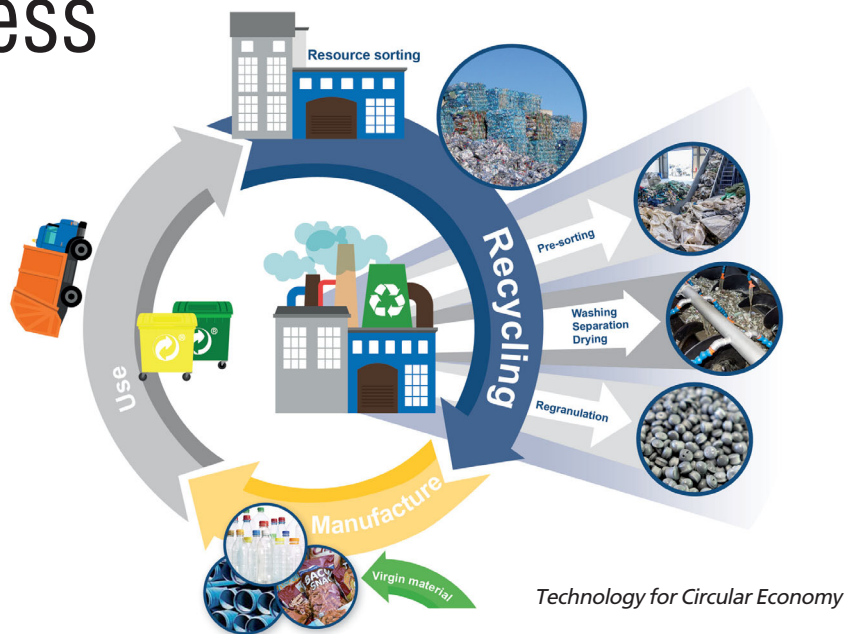


Nordson Corporation
www.nordson.com

APK
www.apk-ag.de

Circular Economy – A Contributing Factor to Success

Contrary to the equipment suppliers for the automotive segment, the suppliers of waste disposal and recycling technology see a real boom in incoming orders. Herbold Meckesheim has full order books for 2020 and even further projects for 2021 are already being finalized. That is unusual for a market that used to have delivery times of less than 6 months



The reason for this sudden rise in demands can be explained by the simultaneous action of regional driving forces and long-term technological trends.

Among these driving forces are EU programs and subsidies, the decision of different countries to make up for their obvious deficits in recycling plastics, above all France and Germany. Among the regional driving forces are also countries that all too much relied on the export of their waste to China. Among them are not only Ireland and Germany but also Australia, New Zealand and Japan.

Among the regional driving forces is also China where they started to build a modern waste industry. Similar, but much smaller in Russia.

Another point is that a self-sustaining recycling industry has risen in the US, in Canada and Mexico that, graded according to the degree of difficulty, treats all kinds of waste according to the recycling knowledge developed in Europe. In this area considerable quantities are available, above all film waste looking for a different use than landfill and incineration.

Two technological trends have emerged:

1) Chemical recycling: different market participants are working on solutions and a lot of larger plants are being built in North America and Europe. In this field, the procedures supplied by Herbold are in demand in order

to treat the flow of waste in a cost-saving, high-performance way and a constant high-level quality.

2) Equal to virgin recycled plastic: For the production of high-quality recycled material, Herbold has developed optimized washing procedures that allow to use a high percentage of recycled plastic material for new products. The main criteria compared with procedures of the past are a considerable odour reduction and hardly any visual errors caused by foreign colours or residual contamination.

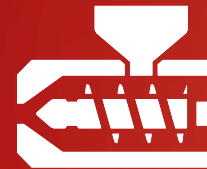
These solutions are rendered possible by the clever conception and combination of the following process steps: size reduction, washing, separation and drying as well as compacting of fines, films and fibres. As far as film recycling is concerned, Herbold is one of the most successful plant manufacturers. For the recycling of PET and polyolefin bottles Herbold succeeded in developing energy-efficient size reduction and (hot) washing systems characterized by not only a high quality but also by low operating costs.

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