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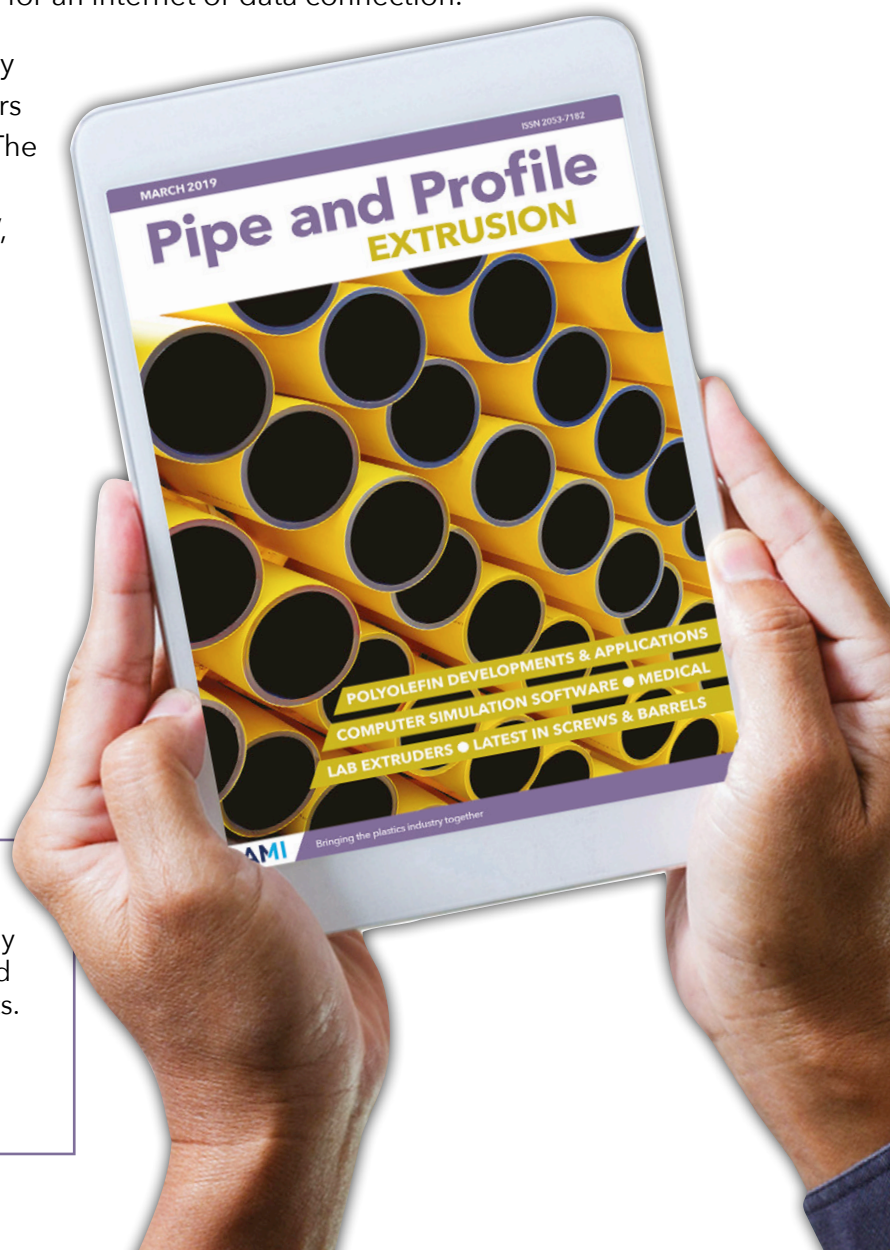
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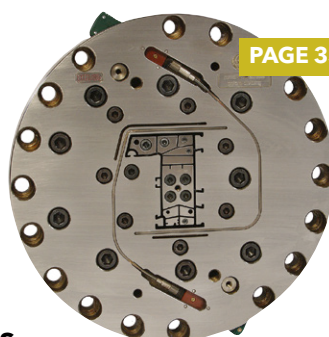
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ADS sales up as employee share scheme depresses gross profit

US-based corrugated pipe manufacturer Advanced Drainage Systems (ADS) reported increased sales for the year ending March 2020. However, an employee ownership scheme saw the company's gross profit decline for the year.

Sales grew by nearly 21% to exceed US\$1.67 billion. Domestic pipe sales rose by nearly 10%, to nearly US\$955 million. Other sales increased by more than 13%, to more than US\$403m.

The increases were driven by strong performance in both the US construction and agriculture end markets. International sales fell by more than 7% to around US\$149m, due mainly to a decrease in Mexico sales.

"We saw sales in our domestic agriculture market increase by 35% as we capitalised on favourable industry dynamics," said Scott Barbour, president and CEO of ADS.

While sales for the year

grew by US\$289m, a one-off contribution to an employee stock ownership plan (ESOP) – of US\$169m – meant that gross profits decline by 3%, to around US\$316m.

Overall, ADS posted a net loss of US\$192m for the year.

Excluding the one-time ESOP compensation, gross profit increased by 48% due to an increase in pipe and allied businesses, as well as favourable pricing and

material costs, said ADS.

In the final quarter of the year, ADS reported a 36% rise in sales (to US\$371m) and a profit increase of 87% (to US\$3.5m).

"Demand and business activity remained fairly stable in the first quarter, but market conditions may weaken in the second half of the year," said Barbour.

The company estimates a capital expenditure of US\$60m-65m for the year.

➤ www.ads-pipe.com

US pupil makes music with recycled PVC pipes

A pupil in Wyoming, USA recently won first prize at his science state fair – by building a xylophone from old PVC pipes.

Korbyn Warren, a sixth-grader at Powell Middle School, came up with the idea while working on a school science project, says a report in the local *Powell Tribune*.

He used a mathematical formula to work out what length of pipe was needed to create 16 different notes. He fine-tuned these using a tuner app on a phone.

Although PVC pipe xylophones have been created before, this one had a modification – in the form of a programmable drum machine that plays three different beats. (He can be seen playing it [here](#).)

Korbyn's winning entry makes his eligible to apply for the national science fair competition, scheduled to take place in the autumn.

Right: Korbyn Warren's PVC xylophone includes a programmable drum machine



Profine grows in UK market with acquisition

German PVC profiles manufacturer Profine has bought the assets of UK-based Aperture – formerly known as Synseal.

Aperture is a system provider that owns a number of PVC window brands, including Legend, Synerjy and Evolve. Profine says that the UK has

traditionally been one of its core European markets.

To date, Profine did not have its own extrusion facility – but now production will begin under the name Profine UK Extrusions. It will have more than 20 extrusion lines, its own mixing plant and several foiling and injection moulding

systems, said Profine. The company also plans to expand the UK workforce by more than 100 employees.

Profine will continue the activities of its Kömmerling brand in the UK, while individual products from the Aperture portfolio are to be marketed abroad.

➤ www.profine-group.com

Simona sales rise in 2019 after strong growth in North America

Simona of Germany – which makes both extruded sheet and pipe – grew both sales last year, due mainly to a solid performance in North America.

The company posted revenues of nearly €433 million (US\$462m), a rise of more than 3%. Despite this increase, poor sales in Europe saw the company fall just short of its target revenue figure of €435-450m (US\$464-480m).

For the same period, profitability (EBIT) fell by around 11% to just over €29m (US\$31m).

"Given the economic fundamentals, we are satisfied with our EBIT margin of 6.8%," it said.

It also said that EBIT for the first quarter of 2020 has



Schoenberg: "Solid earnings performance in the first quarter of 2020 shows we are on the right track"

risen to nearly €10m (compared with around €8m, in 2019), despite the initial impact of the Coronavirus pandemic.

Revenue growth in 2019 was due almost entirely to business in the USA. The

first-time inclusion of its extrusion subsidiary Simona PMC for a full annual period helped drive sales in the region up by nearly 16% to almost €132m (US\$141m) – a rise of nearly 16%.

The Americas region as a whole saw its share of revenue increase to more than 30%. In Europe, sales fell by 1.5% to almost €270m (US\$288m) due to a downturn in the economy in the second half of the year. In Asia, business performance was influenced by a weak first quarter, though sales rose more than 2% to nearly €31m (US\$33m) for the year.

The company's pipes and fittings division increased sales by 5% for the year, to exceed €88m (US\$94m). This

gain was attributable mainly to protective-jacket pipes and products used in the rehabilitation of infrastructure piping systems. Project-based industrial products business also saw growth. For comparison, its semi-finished products division – which includes plastic sheet – grew sales by more than 3% to exceed €344m (US\$367m).

"Our solid earnings performance in the first quarter of 2020 illustrates that we are on the right track with the strategic projects aimed at an application- and process-driven realignment of our semi-finished parts business in Europe," said Matthias Schoenberg, CEO of Simona.

➤ www.simona.de

Coronavirus cancels Chinaplas 2020

Chinaplas 2020 has been cancelled – having earlier been rescheduled from April to August of this year.

The next edition of the show will now take place on 13-16 April 2021, at the Shenzhen World Exhibition and Convention Center in Shenzhen.

Adsale, the organiser of the show, said in a statement: "Since the occurrence of Covid-19, we have been closely monitoring the situation. The virus is now largely under control in China but poses a high degree of uncertainty globally. China



Next year's Chinaplas will be held in Shenzhen

has now a formidable task of fighting against local rebound infections while preventing the next wave of outbreak from imported cases."

On 6 April 2020, the State

Council of China issued a circular on controlling further spread of the disease – which said that "all kinds of exhibitions have to be stopped for the time being", said Adsale.

Next year's event is being held in a new venue, having previously been scheduled to take place at the National Exhibition and Convention Center in Shanghai.

➤ www.chinaplasonline.com

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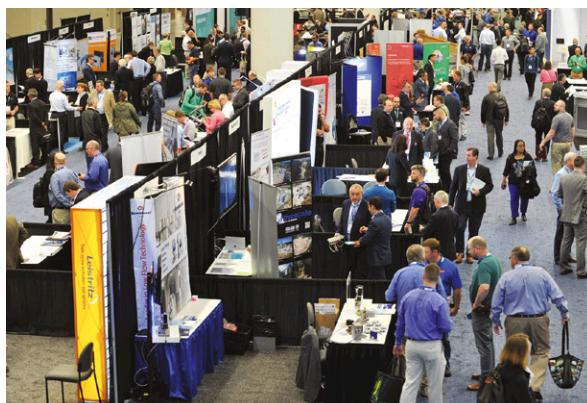
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AMI's Cleveland Expositions on shortlist for exhibition awards

AMI's first plastics industry exhibition in the USA has been selected as a finalist for two prestigious awards organised by the Association of Event Organisers (AEO). The exhibition, which was held in Cleveland, Ohio on 8-9 May 2019, included the Plastics Recycling World Expo, Compounding World Expo and Plastics Extrusion World Expo.

It has been shortlisted by the AEO for both the 'Best Event Launch' and the 'Best International Show - Americas' categories. The winners will be announced at a ceremony in London on 4 December 2020.

"We are delighted that the success of our American expos has been recognised in the AEO Excellence Awards 2020," said Rita Andrews, AMI's head of exhibitions. "AMI has a long history of organising conferences, but this was only our second big tradeshow and the first outside of Europe, so it's a



The co-located shows return to Cleveland in November of this year

fantastic result to be shortlisted alongside lots of established players," she added.

The Cleveland Expos attracted 261 exhibitors and 4,375 visitors from 42 countries to the city's Huntington Convention Center. In addition, more than 1,000 people attended the evening networking party at The Rock & Roll Hall of Fame.

"The focused nature of the expos worked very well for visitors from the plastics recycling, compounding and extrusion sectors," explained Andy Beevers, events director at AMI. "They could meet with key suppliers and participate in highly relevant conference sessions all under one roof. Similarly for exhibitors, the clear focus of the events meant they were meeting large numbers of buyers with a very specific interest in their products and services".

The Plastics Recycling World Expo, Compounding World Expo and Plastics Extrusion World Expo next take place at Messe Essen in Germany on 7-8 October 2020, and they return to Cleveland, Ohio on 4-5 November 2020. At both locations, they will be joined by the new Polymer Testing Expo.

➤ <https://www.ami.international/exhibitions>

Euromap and OPC publish new interfaces for extrusion machines



Euromap and the OPC Foundation have extended the scope of standardised interfaces for plastics and rubber machinery by publishing a guide for extruders.

The publication, called OPC 40084, considers the extrusion line as a whole with its production status and order management as well as the individual components with status and process values.

Currently the different parts cover extruders, haul-offs, melt pumps, filters, dies, pelletising, cutter, calibration and corrugators. Further parts for components such as calenders, splitting and winding are being prepared. The use of standardised digital data exchange facilitates the commissioning and operation of the extrusion line, said Euromap.

The publication on

extrusion follows earlier versions that covered injection moulding machines and temperature control devices. These guidelines have now been published under the neutral umbrella of the OPC Foundation (rather than Euromap).

"This paves the way for the adoption of the standard in other regions such as Asia and America," said Euromap. "Even if the standard is translated into national

adoptions and, if necessary, assigned a different local number, the uniform namespace ensures that the data to be exchanged is uniform and is recognised by the connected devices."

The OPC UA specifications for plastics and rubber machines can be downloaded from OPC, Euromap and VDMA websites.

➤ <https://opcua.vdma.org/companion-specifications>

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ECHA delays lead pigments report

The European Chemicals Agency (ECHA) has announced a delay of around six months in the submission of its REACH Annex XV restriction report on lead chromate, lead sulpho-chromate yellow (CI pigment Yellow 34), and lead chromate molybdate sulphate red (CI pigment Red 104).

This is due to a lack of certainty over recycling rules, said the organisation.

A spokesperson for the agency said it was not able to move ahead with the submission until it knew the European Commission's next move for its restriction proposals on the use of lead



Recycling policy and court decisions delay ECHA Annex XV report on lead pigments

compounds for stabilisation of PVC, which were voted down by the European Parliament (*Pipe & Profile Extrusion*, March 2020, page 8 <https://bit.ly/2AvoBJa>)

"Both [proposals] deal

with lead in plastics and both identify release during end-of-life as the main source of emissions, hence, the assessments are very similar," according to the ECHA spokesperson.

At the time of publication, the European Commission had not responded to a request for more information on its plans to regulate lead stabilisers in recycled PVC.

ECHA also said it was waiting for the outcome of a pending court case over a 2016 authorisation for the use of the same lead pigments. This was challenged by Sweden then subsequently appealed by the EC.

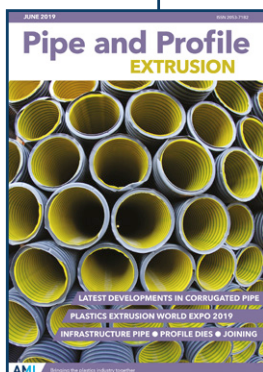
"Depending on the outcome of the policy discussions and the court case appeal, we may need to revise our report before submission," ECHA said.

➤ echa.europa.eu

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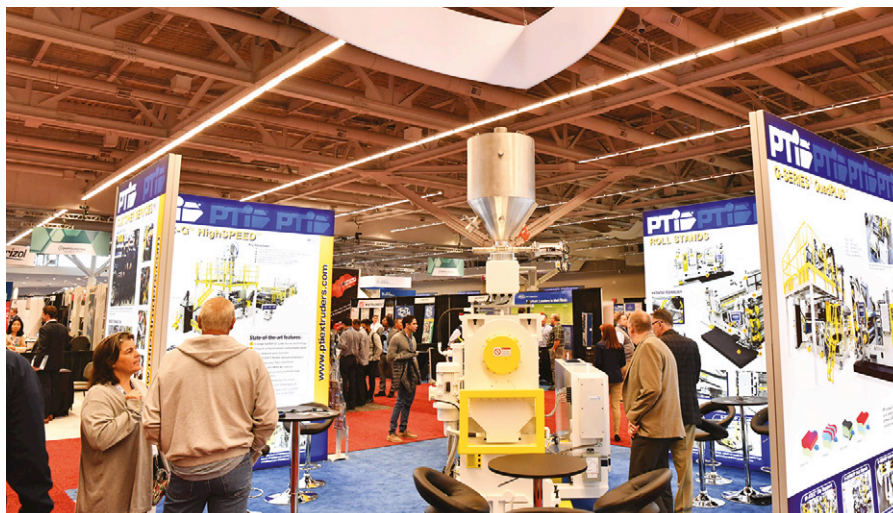
Free registration opens for plastics industry expos in Cleveland, Ohio

Free online [registration](#) has now opened for four exhibitions focused on plastics extrusion, recycling, compounding and testing. Organised by AMI, the Plastics Extrusion World Expo, Plastics Recycling World Expo, Compounding World Expo and the Polymer Testing World Expo will all take place at the Huntington Convention Center in Cleveland, Ohio on November 4-5, 2020.

By registering in advance, visitors will receive free admission to all four exhibitions, featuring more than 250 leading suppliers, plus free entry to five conference theatres hosting technical presentations, educational seminars and business debates. Attendees and exhibitors will also have the option to buy tickets (just \$40 each) for a networking party at the Punch Bowl Social on the evening of November 4.

"The event will provide visitors with a great opportunity to meet and compare suppliers from around the world, as well as giving them the chance to learn from business leaders and technical experts in the conference theatres," said Rita Andrews, head of exhibitions at AMI. "When we ran these expos in Cleveland last year, we attracted 4,375 visitors, making them the biggest plastics industry gathering in the USA in 2019".

The four expos will occupy the



The co-located events take place on 4-5 November this year

largest halls at the state-of-the-art Huntington Convention Center in downtown Cleveland. They will feature a wide array of leading manufacturers of extrusion, compounding, recycling, and testing and analysis equipment, plus suppliers of a huge variety of polymers, additives and related services.

The exhibitor line-up already includes companies such as Amut, BYK, Cardinal Recycling, Clariant, Coperion, CPM Century Extrusion, Cumberland, Davis-Standard, Dover Chemical, Dynisco, Entek, Erema, Geon, Heritage Plastics, Intertek, Konica Minolta, KraussMaffei, Leistritz, Macro, Maguire, Matsui, Milliken, Netzsch, NGR, Nordson, Omya,

PerkinElmer, PTi, Reifenhauer, Q-Lab, SI Group, Struktol, Thermo Fisher, Vecoplan, Windmoeller & Hoelscher, and hundreds more.

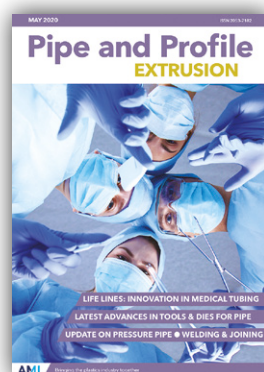
The limited number of remaining booths are filling up fast. To find out more about exhibiting at any of the expos, visit <https://www.ami.international/exhibitions>.

The five focused conference theatres will feature more than 120 expert speakers over the two days, including influential representatives from leading compounders, extruders, recyclers and testing organisations.

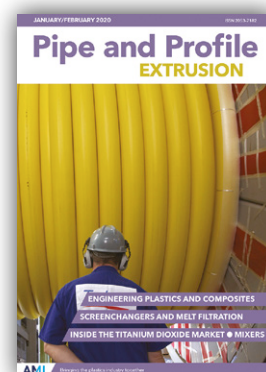
A free ticket for the expos and conferences, which is valid for both days of the event, is available [here](#).

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Machinery to produce corrugated pipe continues to evolve - with some of the latest models boasting high output, fast mould change, central lubrication and flexibility

Draining experience: latest corrugated pipe machinery

Corrugated pipe is typically used in drainage and sewage applications in industries including construction and agriculture - and, for smaller pipe, even automotive. The latest machine developments cater for the whole range of application.

Olmas of Italy showcased a number of its corrugators at K2019 - including its C4 and C2 models.

The C4 is compact and was specifically designed for making small-diameter tubes in a range between 4mm internal diameter and 18mm external diameter. It is capable of making very thin tubes. These features make it ideal for producing nylon tubing in the automotive industry, said the company.

Some other key features include: compatibility with small moulds and dies; the ability to vary the number of moulds easily; controlling all functions through PLC and touch screen monitor; and liquid cooling, with connectivity to an industrial

refrigerator or cooling system.

The system also boasts high productivity, robustness and stability in production - and is customisable to customer needs.

Meanwhile, the C2 is aimed at production of medium diameter pipes for the electrical industry, healthcare, household, automotive and medical industries, ranging from 10mm internal diameter and to 55 mm external diameter.

The model's special extrusion heads make it very versatile, allowing it to make central tubes with different colour foils and strips, for instance. Like the C4, it is customisable and features liquid cooling, and is also designed to achieve high production speeds.

Water cooling

For its part, **Unicor** of Germany showed a range of water-cooled corrugators in various sizes.

The small UC15 vertical is used to make

Main image:
Corrugated pipe is commonly used in drainage applications

Right: Drossbach's smallest machines make pipe with an internal diameter of 7mm

technical pipes, starting with an inner diameter as small as 3mm - at high extrusion speed and with high quality, says Unicor.

Features include a closed design, high output, steel mouldblocks, fast mould change and central lubrication with monitoring.

The larger UC 210 is its new all-rounder for mid-sized pipe diameters. The range of diameters has been optimised with this new machine - which can make single- and double-walled corrugated pipes from 32mm internal diameter up to 200mm outside diameter.

Because of a special chain construction, there is no need to set the clearance of the mould blocks. The servo motor is maintenance-free, while the zoom technology of the mould block channel allows for weight minimised mould sizes, short die lengths and a high output, says Unicor.

It has an open design, process-controlled direct water cooling of mould blocks, multi-zone vacuum technology and quick pneumatic opening of centre channel via spindles.

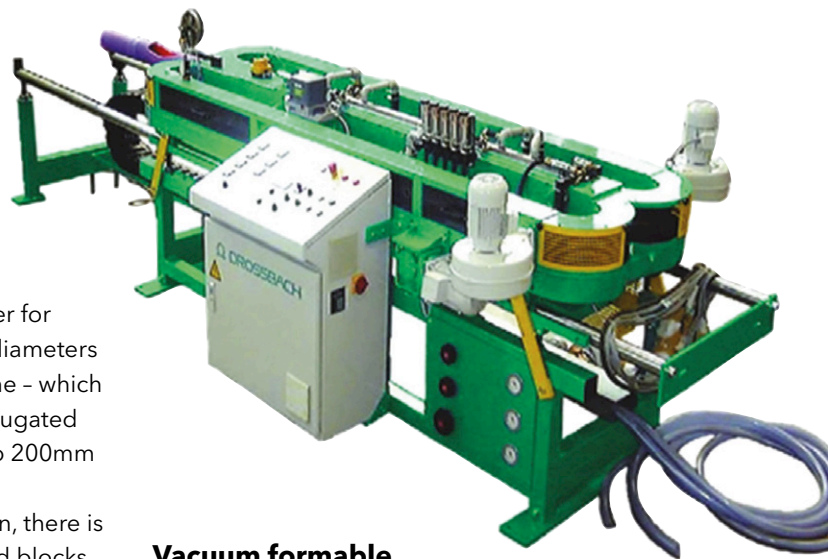
Larger pipes

The new UC 1800 corrugator is designed for the making larger corrugated pipes, for applications such as drainage, storm water and sewers. This corrugator uses a gripper system for the mould block transport in the return channels. The extruders are placed on a movable platform.

Like all other Unicor shuttle corrugators, this model is robust and has a long lifetime, says the company.

Features include an open design, a parking station for in-line cuff production (as an option), metric and imperial mould block lengths, cast aluminium alloy mould blocks and fast mould block change.

Below: Olmas showcased its C4 and C2 corrugators at K2019



Vacuum formable

The 3030 corrugator from **Corma** uses vacuum forming technology and accepts vacuum formable materials including PVC, PE, and PP, says the company. The model produces single-wall corrugated pipe, double-wall pipe with corrugated outer walls and smooth inner walls and triple-wall pipe - produced as a corrugated middle layer between smooth inner and outer walls.

These systems are available for a wide range of applications, including: underground service ducts; industrial waste pipes; cooling/ventilation ducts; leachbed drainage pipes; sanitary drains; land and highway drainage pipes; electrical cable conduits; and stormwater drains.

Corma also offers various die head solutions for all kinds corrugated pipe. It says that its die heads are developed to interface with any Corma system and any make of suitable extruder selected by its customers.

It offers single-wall pipe dies - in either straight or offset design - allowing cable or other materials to be inserted during production. Its double-wall die has a patented design with either one or two channels for use with PE and PP. Advantages include increased output rates and reduced downtime.

At K2019 it showed a compact die for large diameter, double-wall pipe. It was specially designed for making large diameter pipes in PP and HDPE. Adjustments to the wall thickness and the die centring are easy to perform while in operation.

The compact die consists of a base and all different tooling sizes are mounted to this die. Only a different feed block is required for changeover - making this process quick and easy.

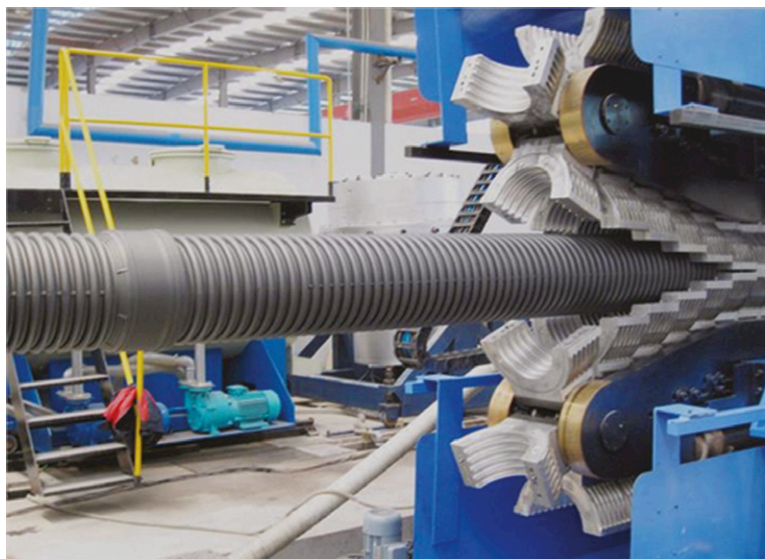
Further advantages - such as vacuum cooling plugs, preparation for in-line couplings and the internal pipe cooling system - are all available for use with the compact die.

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Above:
Zhangjiagang
City Yili
Machinery
makes
corrugated
pipe extrusion
lines to make
pipe from 200
to 1200mm
diameter

Wide range

Drossbach of Germany exhibited a range of its HD-series of corrugators at K2019 last year, in a variety of sizes and outputs.

Its HD25, 50 and 100 are its smallest models. They are typically used to produce cable protection pipe and technical tubing. The HD25 produces single-wall pipe from 7mm inside diameter to 25mm outside diameter. The HD50 extends this to 50mm outside diameter, and also makes double-wall pipe. HD100 makes single- and double-walled pipe, in dimensions from 50 to 115mm.

The HD250 is a high-speed model for maximum output - with a maximum speed of 25m/min and a PE/PP output of 750 kg/h. It makes pipes from 40mm inside diameter to 250mm outside diameter. It has 38 water-cooled mould block pairs to make pipe in 6m lengths.

Typical applications include drainage and cable protection pipe, in materials including PE, PP, PVC, PA and PVDF.

Beyond this, the HD500 is for medium-diameter pipe (100-560mm), with outputs up to 950 kg/h. It has 39 directly water-cooled mould blocks and an integrated full vacuum system. The HD800 is an "optimum start tool" for sewage pipe production - offering PE/PP output of more than 1,000 kg/h and pipe diameters from 150mm inside diameter to 800mm outside diameter.

"The parking station and shuttle principle allow variable pipe length even with inline produced socket," said the company.

The HD1200 offers flexibility in pipe diameter variation - ranging from 150mm inside diameter to 1200mm outside diameter. PE/PP output is 1200 kg/h. Its HD1800 offers outputs above 1500 kg/h, in sizes of 500mm internal diameter to 1800mm external diameter.

Made in China

China-based **Zhangjiagang City Yili Machinery** manufactures corrugated pipe extrusion lines to make PE and PP pipe from 200 to 1200mm diameter.

Lines can make single-, double- and triple-layer corrugated pipe. Each is combined with main extruders - both single and twin-screw. Other equipment includes the forming die set, corrugator, haul-off, cooling tank, cutter and stacker. The whole production line is controlled by PLC. The final products are used as sewer and drainage pipes in road construction and civil engineering, water conveying pipes and other applications.

The die head has been designed to aim at a two-layer inline bellows structure, and feeds material by double-spiral co-extrusion.

A special design for the screw and mould ensures that replacement of the mould is convenient and reliable - and also extends the life of the barrel.

The forming machine has a closed structure and can be vacuum formed. The moulding module reciprocates in an integrally closed moulding tunnel, and the forming tunnel is a sandwich design with the water cooling inside the jacket. The moulding modules are not connected with each other, which speeds up the time for replacing the moulds.

Pipes made on the equipment are resistant to high temperature, corrosion, abrasion and high strength, says the company.

The machinery is used in the fields of electrical threading pipe, automobile threading pipe, sheath pipe and elsewhere.

Size range

Corelco of France showcased a variety of its corrugator machinery at K2019, in a range of sizes.

Its EC14 model is designed for the extruding small-diameter corrugated pipe (4-250mm diameter). It is characterised by a design that reduces the lengths of tooling and the head pressure.

Key features include nitrided steel moulds; a central channel with fast opening and manual locking; a turbulent water-cooling system; a segmented, adjustable vacuum circuit; and variable chains length for specific applications.

At the same time, its EC32, EC50 and EC63 models come in different production capacities - medium, fast and very fast - while offering proven reliability, it says. They are generally targeted at the electrical construction market. At the show, it highlighted two of these machines: one in the 6-63mm range, the other that could make pipes of 40-250mm.

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Above: Around 27,000 ft of ADS' HP Storm polypropylene pipe was used as storm drainage at a new airport terminal

Multiple lines

ITIB of Italy showcased a number of its corrugator lines at K2019.

One example is its F200 HP, for single and double wall pipes from 40mm up to 200mm. The model is available with either 38 or 50 moulds. Output for the F200 HP 38 is 700 kg/h for PVC and 630 kg/h for HDPE; the F200 HP 50 has outputs of 900 kg/h for PVC and 800 kg/h for HDPE.

Other machinery includes: the F15, for small single wall pipes from 4.5mm inside diameter to 15mm outside diameter; the F32 water-cooled corrugator, for making pipes up to 32mm outside diameter; and the FV700SH9, a corrugator that makes double-walled pipes up to 600mm inside diameter.

Storm winner

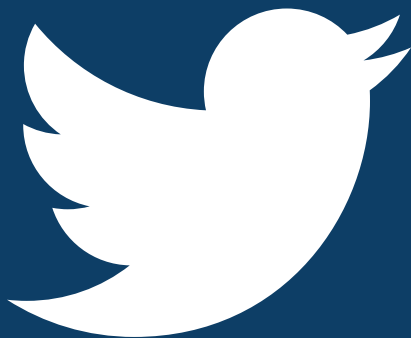
Advanced Drainage Systems (ADS) was a winner at this year's **Plastic Pipe Institute (PPI)** annual awards.

The company was recognised for its role in fitting a new airport terminal in South Carolina.

The original storm drainage design for the new Hugh K. Leatherman Sr. terminal in North Charleston called for a reinforced concrete pipe and concrete box culverts. During the design phase of the project, the engineer became concerned about joint separation and the potential for infiltration due to predicted sub-surface soil settlement along the nearby Cooper River.

To reduce this risk, the project switched to ADS' HP Storm polypropylene pipe as the storm drain conveyance pipe for the entire project - due to its

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Handbook for corrugated pipe

The **Plastics Pipe Institute (PPI)** has published a full-length handbook on corrugated plastic pipe drainage.

The book, *21st Century Drainage Solutions*, is available free from PPI's website. It comprises 11 chapters containing detailed technical information and guidance.

"PPI members developed this handbook using the leading technical experts from industry, academia and consulting engineering," said Daniel Currence, director of engineering for PPI's drainage division.

The book was compiled over a number of years and is aimed at those who design, install and use corrugated plastic pipe for stormwater drainage. Chapter subjects include products and applications, hydrology, structural design, durability and engineering economics.

"What we've brought together is a first for the corrugated plastic pipe industry, and it's a remarkable resource for Departments of Transportation, design engineers,

contractors and users wanting sustainable, resilient, and cost-effective drainage solutions," said Currence.

The handbook includes the PPI Design Guide that will provide a step-by-step path for design engineers based on the complex LRFD Bridge Design process established by AASHTO for corrugated plastic pipe.

A print edition is expected to be available for sale later in 2020.

➤ <https://plasticpipe.org/drainage/handbook.html>

ease of handling, extended joint, double gaskets, and flexible design.

As a result of the redesign, around 27,000 ft of the pipe was used to convey all storm water on the site.

Eco-balanced conduits

Fränkische of Germany says it has developed corrugated "eco-balanced electrical conduits" – which claim to reduce fossil demands by 60% and carbon footprint by nearly half.

It says that sustainability is becoming more important in construction. Institut Bauen und Umwelt (IBU) has provided the company with an Environmental Product Declaration (EPD) for two of its products – the FBY-EL-F co2ntrol and FFKuS-EM-F-105 co2ntrol corrugated plastic conduits. This EPD lists all ecologically relevant details of the conduits' life cycle.

The company says it took around two years to refine the formulation for these conduits. It has managed to reduce the ecological input by using recycled material from the

production of its other conduit products – helping to reduce the consumption of fewer fossil resources, such as mineral oil.

The standardised IBU documents environmentally relevant features of construction products. Information is collected and verified by an independent body such as TÜV Rheinland. The life cycle assessment applies to the entire lifespan of a product – from production through transportation and installation to disposal.

Fränkische says it is the first manufacturer to be awarded the life cycle assessment for electrical conduits by IBU.

"The EPD provides transparent and complete information regarding the contents and different environmental effects of our Co2ntrol conduits through their entire product life," said Marco Siller, head of development and product management for electrical systems at Fränkische.

"We analysed every component and processing step – formulation, energy consumption during manufacturing, packaging of the supplied materials and even the consumption of compressed air and cooling water."



Left: ITIB showcased a number of machines at K2019, including its F15 for small single-wall pipes

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With VinylPlus likely to hit its target of recycling 800,000 tonnes/year of PVC, we look at some of the projects and schemes that underpin this

IMAGE: SHUTTERSTOCK

Progress continues in PVC recycling

PVC has long been attacked – both within and outside the plastics industry – as something that should be replaced with more ‘friendly’ materials. However, it remains one of the most efficiently recycled polymers thanks to a number of collection and recycling schemes. In addition, many PVC users are also increasing their efforts to recover and re-use it.

The largest of these, Europe’s **VinylPlus**, is a voluntary scheme that aims to recycle 800,000 tonnes/year of PVC by the end of this year. Although full-year 2019 figures are yet to be released, it is likely that the target will already have been met.

In 2018, Europe recycled just under 740,000 tonnes of PVC – more than 92% of its final target. It represented a near 16% increase on the previous year. An 8% rise on the 2018 figure means the target will be reached one year early.

Figures for 2019 were due to be presented at the VinylPlus annual event in May – which was cancelled due to the Coronavirus pandemic. It says the figures will now be available in late May or early June.

Despite the likely success in meeting the target, the future of PVC recycling – in Europe at least – has

been thrown into confusion. In February, members of the European Parliament voted against a derogation – proposed by the European Commission – that would have allowed PVC articles to be put on the market containing controlled levels of ‘legacy additives’, most notably lead-based stabilisers.

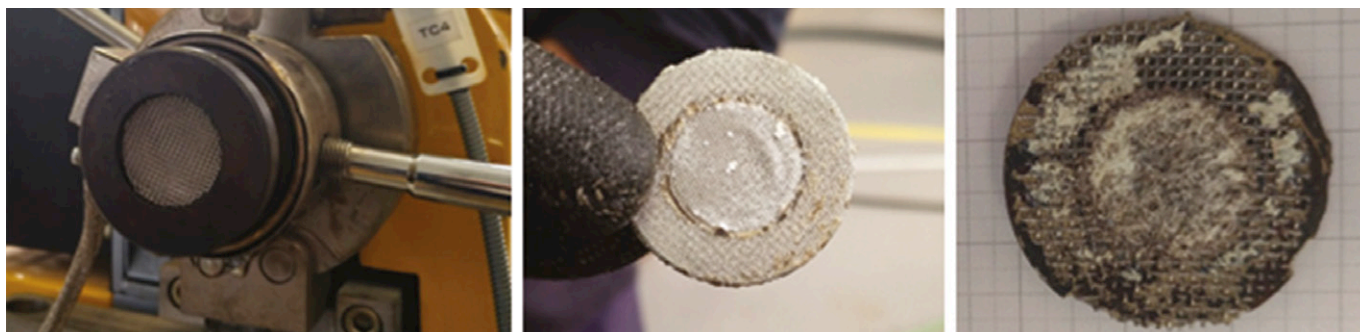
Crucial vote

The vote goes against advice from the European Chemicals Agency (**ECHA**), which has shown in a five-year study that allowing such restricted use was the best waste management option for long lifetime PVC products such as infrastructure pipe and window profiles.

VinylPlus said it “regretted the outcome of the vote”. It added that in the absence of alternative options, it will mean much of the PVC recycled within the EU – nearly 740,000 tonnes in 2018 under its own framework – will be diverted to landfill or incineration.

Lead stabilisers were phased out across EU27 by 2015 but the long service life of many PVC products mean they will be present in the waste stream for decades.

**Main image:
European
Parliament
vote could
block recycling
of PVC profiles
containing lead
stabilisers**



Above: Aimplas has managed to extract fillers from several formulations, including virgin PVC (centre) and a compound that includes a special 'lead scavenger' (right)

Hazard removal

In what would seem like a response to the impasse, VinylPlus is participating in **Remadyl**, a European Union project to contribute to the development of the EU Circular Economy Package.

It aims to remove hazardous substances from PVC – such as lead stabilisers and DEHP plasticisers – and recycle PVC waste into high-purity PVC into products such as window profiles and waterproof sheets.

Over four years, Remadyl will develop a continuous process based on extractive extrusion technology – combined with novel solvents and melt filtration – which could rejuvenate PVC waste into usable PVC.

The project, funded by the Horizon 2020 programme, will study safety aspects, leading to best practices, standardisation input and policy recommendations. The Remadyl consortium comprises 15 multi-disciplinary European partners.

Researchers from the **Institute of Molecular Science (ICMOL)** at the University of Valencia, for instance, are developing scavenger materials that could remove lead stabilisers from PVC.

The researchers have already developed a lab-scale synthesis process to obtain a precursor material for supporting the lead scavenger, based on so-called Layered Double Hydroxides (LDHs). This precursor material comprises layers of divalent and trivalent metal cations with an interlayer space that can be occupied by differently sized anions.

Recently, the researchers have optimised a semi-pilot synthesis to obtain the LDH precursor material at a larger scale and can now produce ZnAl-LDH batches using large scale equipment.

Using the LDH scavenger complexes, in combination with continuous melt filtration, Spanish research organisation **Aimplas** is testing several rigid PVC formulations – including a virgin PVC compounded with lead, and micronised end-of-life PVC samples, both supplied by Deceuninck. It is testing various filter meshes and configurations, and extrusion parameters, to determine the most suitable methodology. The filter selection takes account of the size of

inorganic particles within PVC formulations, such as calcium carbonate and titanium dioxide.

In the first filtering trial, using a single-screw extruder it was possible to filter large-size mineral fillers from PVC, including preblended LDH (without the scavenger complex). However, fast saturation of the filter occurred.

Results from the trials show that large-size fillers can be filtered, without filter breakage, although optimisation will be carried out to increase throughput. Further trials include a scale-up in the counter-rotating twin-screw extruder, using a screenchanger to avoid filter saturation.

Back through the window

PVC recycling has also become a key dynamic in the production of window profiles, with suppliers keen to maximise their use of recycle.

Last year, Belgian profile extruder **Deceuninck** opened a new recycling line in Diksmuide, Belgium – which will eventually allow it to recycle up to 45,000 tonnes/year of PVC. As well as giving a four-fold increase of capacity, the new line can recycle post-consumer as well as post-industrial PVC waste.

“This will further reduce the ecological footprint of our products, and reduce dependency from virgin raw material,” said the company.

Input materials will be sourced from post industrial waste (customers’ offcuts as well as its own process scrap) and from first-generation PVC windows that are gradually being replaced after 30-40 years.

The company expects the new facility to save more than 2 million windows per year from landfill or incineration. It is using recycling technology that enables recycling of PVC profiles of all colours and compositions – including those containing glass fibre reinforcement. Old profiles are decontaminated, sorted by colour and granulated to be used to extrude new PVC profiles.

UK boost

UK-based PVC window manufacturer **Eurocell** has also continued to increased recycling: it used 13,400 tonnes of recycled PVC compound in the



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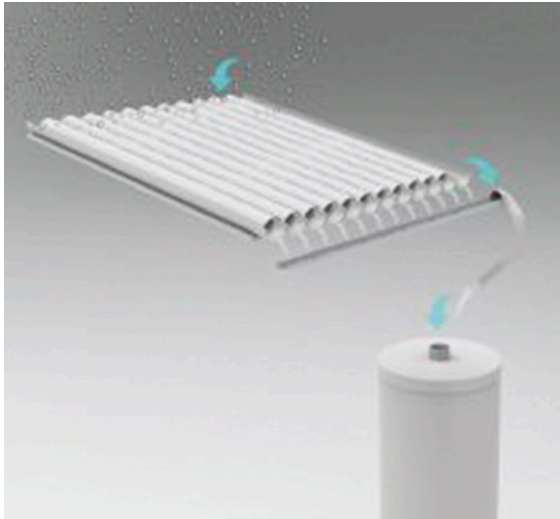


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Right: Second place in the VinylPlus UK competition went to the Tectum prefabricated water collection roof system, which creates insulating roofs using recycled PVC pipes



manufacture of co-extruded rigid profiles during 2019. This was 23% of overall material consumption (up from 9,500 tonnes, and 17%, in 2018).

"We have been investing to increase our recycling capability, in order to capture financial and sustainability benefits and to keep pace with our sales growth," said Mark Kelly, CEO of Eurocell, at the company's annual results.

The company has rebranded its Ecoplas recycling business to bring it into the Eurocell Recycle stable. Ecoplas, formerly the largest independent PVC recycler in the UK, was bought by Eurocell in August 2018. With a nationwide network of collection points - where traders can deposit their waste - it has made a large contribution to Eurocell's collection of 3.6m frames. Eurocell Recycle now offers a closed-loop process for collecting and processing used PVC frames in the UK to be re-extruded and turned into new products.

Eurocell invested around £3 million in Eurocell Recycle Midlands in 2019, to increase output and improve reliability, including new co-extrusion tooling to allow a greater proportion of recycled

material to be used in its products.

The company says that products made from recycled PVC are stronger than those made with virgin plastic because of the chemical transformation of the polymers it contains when it goes through the recycling process. Research shows that it can be recycled up to 10 times with no degradation in quality, giving it a lifespan in the construction industry of 350 years.

Recycling initiative

Another initiative raising the profile of PVC recycling is 'Designing in a Circular Economy', a project run by the VinylPlus UK group of the **British Plastics Federation**.

The winner was Karen Silva of London South Bank University, for her Yuna portable water filtration and storage device, aimed at the poorest communities in third world countries.

Second place - and more relevant to PVC pipes and profiles - went to Kristen Tapping, for her Tectum prefabricated water collection roof system. Tectum creates insulating roofs using recycled PVC pipes. The pipes are cut in half and staggered in opposite directions to deflect water into a gutter and water storage container, both made of recycled PVC pipes and joinery. The pipes are pre-assembled onto panels to make installation faster and more cost effective.

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Bio-boosted PVC enhances sustainability

Inovyn has developed its latest generation of PVC under the brand name Biovyn - as it is derived from sustainable materials.

Made at its Rheinberg plant in Germany, Biovyn is made using 'bio-attributed ethylene' - a renewable feedstock derived from biomass that does not compete with the food chain.

It is certified by the Roundtable on Sustainable Biomaterials (RSB) as

delivering a 100% substitution of fossil feedstock in its production system, enabling a greenhouse gas saving of over 90% compared to conventionally produced PVC, says the company.

"We are developing a new generation of PVC grades that meet the rigorous product quality and performance needs of our customers and move us closer to a circular,

carbon-neutral economy for PVC," said Filipe Constant, business director of Inovyn. "There is growing demand for a specialist, renewable PVC that decouples its production from the conventional use of virgin fossil feedstocks."

The material is expected to have many applications, including specialised end-uses such as automotive and medical.



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Straight and narrow: profile dies update

Profile extrusion is becoming an increasingly digital operation, which is shown in the way that profile dies are designed and operated

Digital technology – such as enhanced methods of process control – has made a huge impact on modern manufacturing, and profile extrusion is no different. Digital control of die systems has become more prevalent. At the same time, simulation programs are increasingly applied to the design of extrusion dies.

Austrian's **Extrunet** showcased its digital extrusion capabilities at K2019 – including a number of die-related technologies.

The company says that digital techniques are becoming increasingly important in extrusion.

"Previously, profile extrusion was exclusively an analogue process. Dependence on the personal know-how during the production process was enormous," said the company. "We bring transparency into the world of profile extrusion."

An example is its Multiple Air Control (E: Mac) module, which controls air management within an extrusion die. Here, digital air volume regulators control air streams by set values and actuals. This helps to control profile dimensions within a full extrusion operation. By logging process data, the process is fully reproducible, says the company.

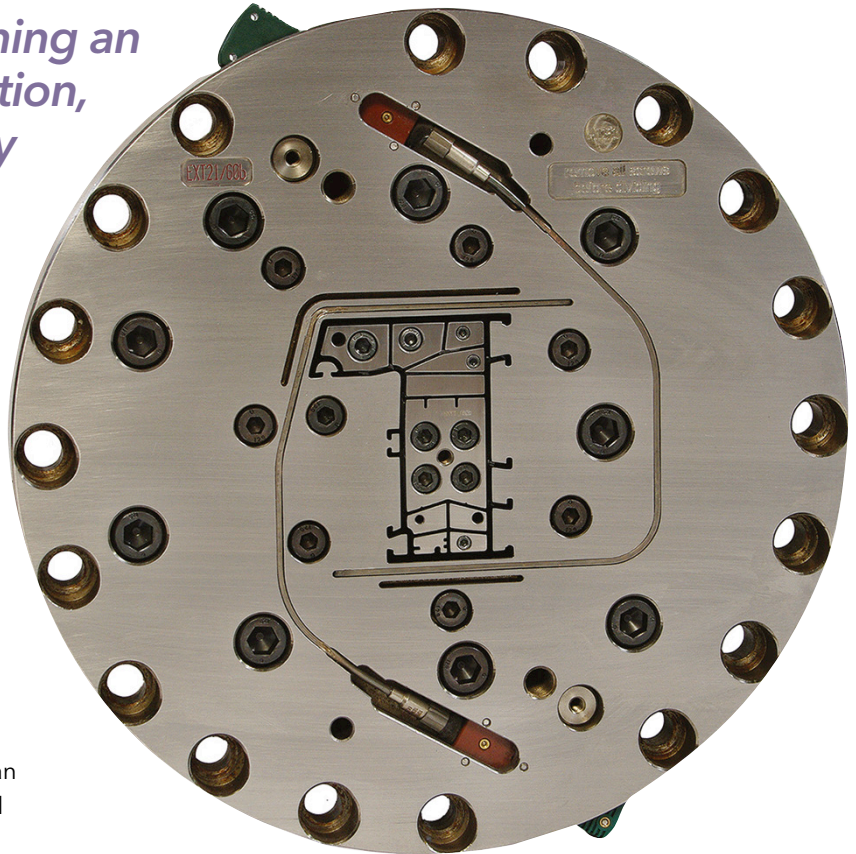
Extrunet has developed a unit with six controlled air outlets, with airflows of 0.5 to 20 litres/min.

E: Mac-C is an air regulator on the calibrator, using shaped contour plates – according to profile design – and air nozzles.

E: Mac-D controls air regulation in the die itself. It can be used to cool or heat special profile sections. Pressurised air can be used as air support through the die to keep small chambers

open. The unit can be integrated in a calibration table and addressed by a central control system.

Alternatively, it can be supplied as moveable standalone unit.



In November last year, the company opened a new pilot plant in Eberstallzell, devoted to digital profile extrusion. Extrunet also has an ongoing collaboration with Battenfeld-Cincinnati, to offer customers combined solutions in profile extrusion.

Windows and panels

Tecno System of Italy was showcasing a range of B-Tec extrusion dies at K2019 – including tools for window profiles and panels.

B-Tec is a specialist in creating dies for making PVC profiles. It develops and manufactures extrusion dies and calibrators for PVC window profiles in single and multiple strand versions, as well as supplying dies for profiles with integral seals and multiple coextrusion.

Its calibrators for window profiles feature high cost efficiency, and ease of both installation and servicing, says the company.

Non-corroding, hard wearing steel (> HRC 34) is used throughout, to ensure a long service life. The

Main image:
Extrunet offers a range of die systems – including many digitally enhanced systems

products also offer a unique design of the vacuum slots for perfect shape, better gloss and low shrinkage, it said.

"Production of more than 3m metres of profile have been achieved, before overhaul, by most of our customers," said the company.

Other benefits cited by the company include: long cleaning intervals during continuous production; minimal energy and water consumption; low haul-off forces; and production speeds up to 6m/min (for main frame profiles).

In addition, the company offers tooling to make panels for windowsills, door cavity closures and wall panel

applications. Wide panel lines are available as turn-key projects for panels up to 1200mm width. It also offers double strand solutions for high speed wall panel production. Die flow channels are designed using computer optimised design, while a special calibrator design boosts surface quality, straightness and panel flatness, said the company.

Extrusion control

Die and extrusion line performance can be enhanced with additional control. **Greiner Extrusion** launched its DigiLine Extrusion 4.0 system at K2019. The launch included a series of live demonstrations, including the production of a hollow chamber profile.

DigiLine Extrusion 4.0 controls the extrusion process - including the tooling die - by digitally optimising the production process, said the company. It helps to minimise material consumption and increase output by ensuring error-free reproduction of all process parameters.

Key features of the system include DigiControl with a 15in HMI, which interconnects and controls line components for complete reproducibility of process parameters and fast start-ups. In addition,



Left: During K2019, Greiner Extrusion produced a hollow chamber profile on a line including its FlowMatic system, which controls filling within the die

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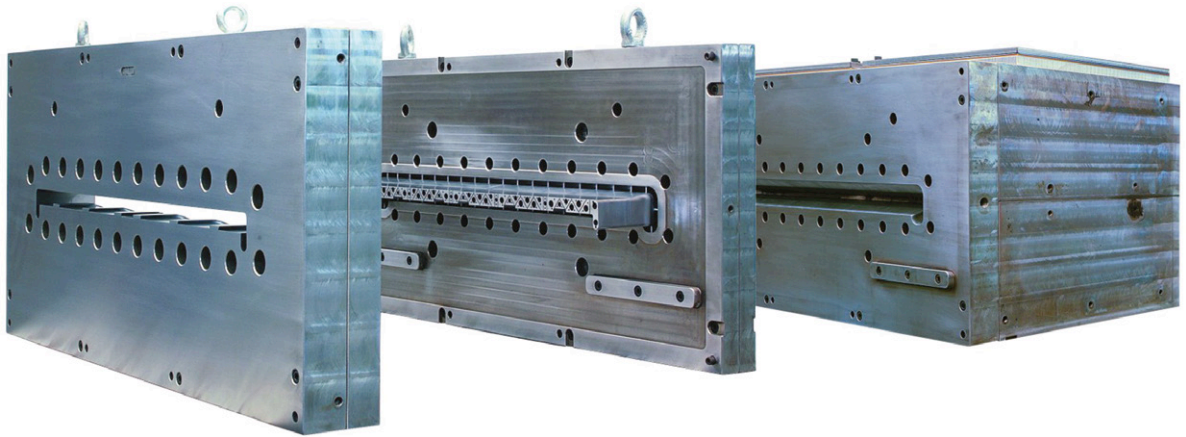
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Right: B-Tec's extrusion dies include models to make a variety of extruded panels



FlowMatic ensures automatic control of full profile sections in conjunction with DigiTank – which controls water level, flow rates and vacuum settings. ShapeMatic ensures exact profile shape geometry is maintained, while DigiScale and WeighMatic automate profile weight optimisation.

The combined benefits of DigiLine optimisation on a typical PVC hollow chamber window profile weighing 1.2kg/m at 350kg/hr output can be up to €125,000 per annum savings, says the company.

Correct design of the profile die can help to reduce material use, and this can be checked with a component such as Greiner's profile stacking end component, RedScale. This allows digitally integrated profile weighing, allowing a further reduction in material use and profile cost. The quick, precise weighing, together with a permanent display of current profile weight, helps to correct weight deviations during production. The device is equipped with an LED strip that shows green (if the profile weight is within the tolerance range) or orange if it strays outside the range.

Extrudate distortion

US-based **Plastic Flow** says the latest version of its PolyXTrue extrusion simulation software has an upgrade of the post-die analysis of extrudate distortion.

"In particular, it will allow up to 20 different calibrators/sizers in the post-die system," said Mahesh Gupta, president of Plastic Flow. "The shape of the profile in calibrators/sizers can be different to the shape of the profile at the die exit."

The software has been used to simulate the flow and extrudate deformation in extrusion dies where the profile shape is changed gradually in successive sizers.

If the geometry of the flow channel in an extrusion die is not designed properly, the shape of the extrudate can change significantly after the polymer exits the die. If velocity at the die exit is not uniform, the thickness and length of a profile

will increase in regions of higher exit velocity and decrease at low velocity locations. The change in length and thickness can also distort the profile shape beyond the die exit.

"The main goal when designing extrusion dies is to minimise the variation in velocity at the die exit," said Gupta.

In order to correct for extrudate distortion, calibrators and sizers are often installed along the extrudate cooling system. Shape of the profile in calibrators or sizers is often different from the profile shape at the die exit. By gradually changing the shape of the profile, the shape of the extrudate profile can be significantly modified after it leaves the die. This can be exploited to simplify extrusion die design.

Polyflow used PolyXTrue to create a model of this process, for profile dies and sheet dies. The simulation includes the effects of non-uniform exit velocity, cooling shrinkage and the shape of sizer profiles on extrudate deformation.

The software was used to simulate a profile die with straight to Z-shaped extrudate transition. The core polymer, which enters from the back of the die, is a recycled PVC. The extruded profile has a thin cap layer of virgin PVC. Virgin PVC enters the die from the side entrance. At the die exit, the profile has an elliptical projection on one end and an H-shaped projection at the other end. Except for these projections, the extrudate is a flat sheet in shape at the die exit. After exiting the die, the extrudate goes through nine sizers with gradually changing profiles.

The velocity distribution in each cross-section of the die is calculated – and found to be very uniform at the die exit. This uniform exit velocity distribution minimises extrudate distortion immediately after the polymer exits the die and before it enters the first sizer.

This die was fine-tuned virtually using PolyXTrue. The first die geometry simulation had significant non-uniformity in exit velocity distribution. It took

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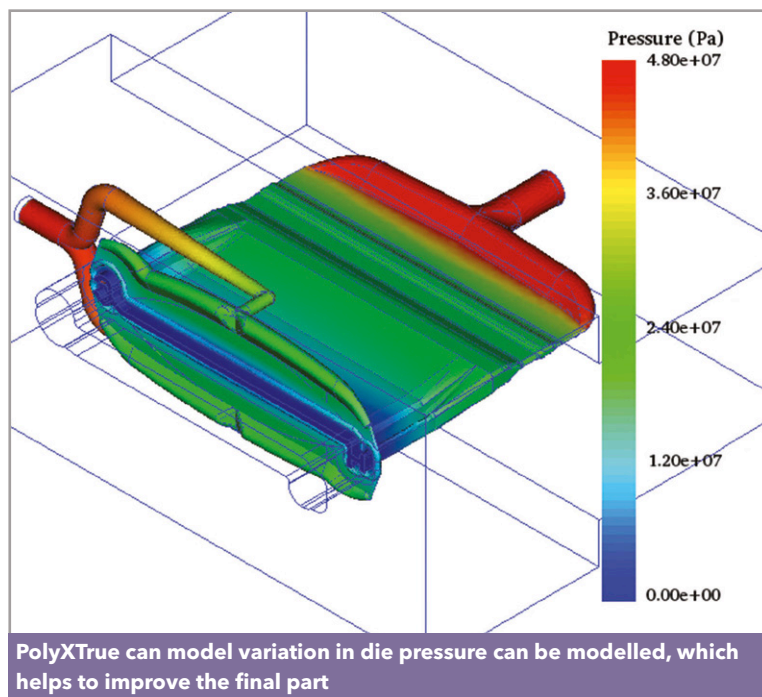
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three virtual fine-tuning iterations before achieving an 'acceptable' die geometry. The die machined from this needed one more fine-tuning by machining before going into production.

"The predicted extrudate shape and layer structure is found to match accurately with those in a coextruded product," said Gupta.

Die modelling

Sigma Engineering of Germany has adapted its Sigmasoft Virtual Molding software – which is usually applied to injection moulding – for use with extrusion dies.

The melt within an extrusion die acts in a similar way to one inside a thermoplastic hot runner, says the company. In the extrusion die, temperature distribution – and the geometry of the flow channel – have a large influence on flow behaviour.

Sigma has now used its knowledge of thermal and geometrical balancing in hot and cold runner systems to create a simulation program for extrusion dies.

Simulation can identify dead spots, long dwell times in the die or high pressure losses before the die is built. This reduces tool changing costs and the need for multiple trial-and-error runs. Overall, this makes developing a new extrusion line faster, cheaper and more predictable, says the company.

Sigmasoft says the software can optimise flow channels in the extrusion die within hours – which improves the quality of the extrudate. To achieve this, geometrical degrees of freedom for the extrusion die's flow channel are defined within the software, which then determines the ideal

geometry for a dimensionally stable extrudate.

"The software helps to calculate the temperature distribution inside the extrusion die," said Timo Gebauer, CTO at Sigma. "With the help of our software – and the included Virtual DoE – users can find a geometry that allows for extrusion with homogenous velocities."

The optimised velocity profile inside the extrusion die helps minimise deformation of the extruded profile.

Banishing cross-flow

Optimised die design can also help to boost the speed of an extrusion line. John Perdikoulis, president of **Compuplast North America**, said that methods to do this must be fast, easy and efficient – and this does not include the typical 'trial and error' approach to improving die design.

"This is very inefficient – but still used by most profile extruders," he said.

He said the main reason for problems is cross-flow – movement of the melt material across the die, perpendicular to the direction of extrusion. To solve this, he said Compuplast's cross-flow minimisation method (CFMM) is low cost, easy to use and allows for fast die development.

CFMM is based on forming logical flow patterns – directing the proper amount of material to each part of the die – which minimises undesired cross-flows or material redistribution, he said. The method uses Compuplast's Virtual Extrusion Laboratory profile die module.

Perdikoulis said that knowing the melt viscosity allows pressure drops to be calculated. This in turn allows polymer distribution to be calculated – according to the resistance of each path.

At last year's *Profiles* conference in the USA, he showed an example of a profile that benefited from this method. The VEL was used to identify unbalanced flow through different cross-sections of the die – which could then be corrected.

The original cross section shape had poor flow balancing. To keep the part within tolerance, line speed was restricted to around 1m/min. Around six hours was needed to balance the four cross-sections – after which the line speed was increased to 4m/min.

CLICK ON THE LINKS FOR MORE INFORMATION:

- > www.extrunet.com
- > www.tecnosystemfe.it
- > www.greinerextrusion.com
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PEX is typically specified in a variety of demanding plumbing applications – and has found its way into some prestigious project due to its heat performance



Keeping up the heat: PEX pipe applications

PEX pipe is often chosen in applications such as underfloor heating systems, where its tolerance of high temperatures and pressures makes it more effective than traditional materials such as copper and steel. It has recently been used in some large-scale building projects.

For instance, polymer pipes specialist **Rehau** has supplied a range of underfloor heating pipe equipment for installation in the South Quay Plaza development in London. South Quay Plaza, in Canary Wharf, is set to be one of the tallest residential buildings in Europe when completed.

The building's owner was looking for premium underfloor heating that would complement acoustic solutions from Instacoustic. Together, Rehau and Instacoustic supplied an acoustic solution specifically for use in residential buildings

where individual dwellings were close together.

Matthew Miller, national sales director at Instacoustic, said: "Close to five years ago we identified that underfloor heating with premium floor systems was something the market desired and we have seen massive success since we decided to venture into this area.

Rehau was tasked with engineering an underfloor heating system that would fit within the fixed structure provided by Instacoustic. Its Rautherm PEX-a underfloor heating pipe will be specified and installed in 685 apartments across 67 floors of the building, to provide underfloor heating with Instacoustic's cradle and batten system.

Rehau uses the high-pressure peroxide method of crosslinking in manufacture, allowing the final pipe to tolerate extreme temperature and impact

Main images:
Rehau has supplied PEX pipe for underfloor heating in the South Quay Plaza development in London

NSF opens new testing lab

US plastics testing specialist NSF International has expanded its capabilities for testing a wide variety of pipe - including PEX.

The company has moved two of its laboratories into a single 20,000 sq ft space in Ypsilanti, Michigan. The expanded location brings all its plastics testing and certification capabilities together, including chemical and structural testing on plastic pipes, fittings and valves.

The testing laboratories have been relocated from Aurora in Canada and



from NSF's global headquarters in Ann Arbor, Michigan. The new facility, known as the Willow Run Laboratory, is close to NSF's headquarters.

NSF's Willow Run Laboratory expands the company's plastics testing capabilities

"By bringing our laboratories under one roof, we are offering greater ease to our clients, providing advanced plastic pipe, fitting and material testing," according to Dave Purkiss, vice president of NSF's global

water division.

The lab is capable of testing many types of pipe, including PEX, PE, PVC and C-PVC.

and withstand pressure surges more effectively than copper, steel or CPVC pipe - while also avoiding water hammer, it said.

Operating temperature and pressure ratings on PEX-a pipes for underfloor heating include 6 bar at 70°C and short term temperature resistance of up to 110°C in case of malfunctioning safety equipment.

Its smooth interior walls and high flow characteristics help to minimise pumping costs, while heat loss is kept to a minimum - and there is no condensation through pipes when compared to equivalent copper products, said Rehau.

Tony Harbour, senior commercial manager at Rehau UK, said: "Our experience in the manufacture and supply of underfloor heating pipe is extensive, and our team worked closely with Instacoustic, architects and contractors to deliver this solution for South Quay Plaza."

School PEX switch

Two high schools in Texas, USA have installed PEX pipe from **Uponor**, in preference to other materials.

The school district - in Katy, Texas - is responsible for 80,000 students across eight (soon to be nine) high schools. The district originally specified copper and C-PVC pipe, but was looking for other options - especially at Patricia E. Paetow High School (the district's eighth school).

Plumbing contractor Letsos looked to add PEX to the specification after its success in a waterway project in Houston. Representatives from Uponor and Pepco Sales met the engineer - and the school

district's maintenance staff and head of construction - to explain the benefits of PEX.

"The maintenance staff loved it: the ease of the system - with no torches or glues - the longevity, the warranty," said Mike Rostvold, technical sales representative at Uponor. "After the meeting, the district rewrote their specification to include PEX."

Although PEX was not in the Katy ISD design standard, it was previously installed in eight schools. In the winter of 2017-2018, when there was freezing in the area, the only buildings that avoided pipe failure were those plumbed with PEX.

Anthony Gardner, senior plumbing estimator at Letsos Company, said: "Freeze protection is just one of the advantages of PEX. The speed of installation, the flexibility and the material cost savings are also great benefits."

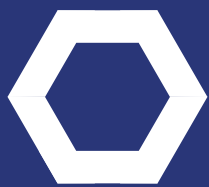
The Katy #9 high school - which is yet to be named - is scheduled to open in the autumn of 2020 and will install Uponor PEX plumbing from the start.

Other school districts are also considering installing PEX.

"We met with Houston ISD about new construction and re-pipe opportunities, and now have 13 different K-12 school projects in process," said Rostvold.

CLICK ON THE LINKS FOR MORE INFORMATION:

- > www.rehau.com
- > www.uponor.com
- > www.nsf.org



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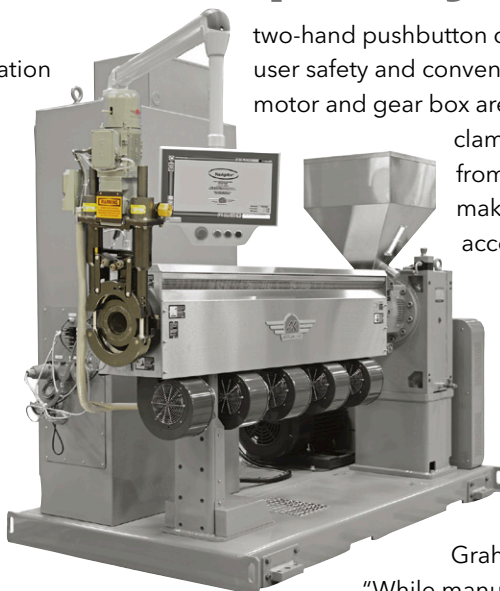
Extrusion clamp adds safety and simplicity

An extrusion clamp with electro-mechanical actuation claims to be safer and simpler to operate than manual devices, while providing more repeatable clamping forces.

The AutoGrip power clamp, from Graham Engineering, reduces downtime in installations with frequent screw, breaker plate, or tooling changes. It can also reduce the risk of injury or burns involved in manually releasing and tightening clamps during changeovers.

The torque required in manual systems to seal the clamp assembly can be dangerous with large extruder sizes. In addition, the manual clamps are typically heated to temperatures above 400F (200°C), which increases the risk of injury with traditional manual systems.

AutoGrip is remotely controlled by a



two-hand pushbutton controller, to enhance user safety and convenience. The drive motor and gear box are mounted above the clamp, protecting them from melt residue and making them easy to access for maintenance.

"We have engineered AutoGrip with simplicity and safety in mind," said Michael Duff, vice president of sales and service for Graham Engineering.

"While manual clamps are difficult to operate and inherently dangerous, this automatic system speeds up changeovers and is easy to maintain."

The power clamp is available for extruder sizes of 3.5in (90mm) to 6in (150mm).

As well as applications involving new extruders, it can be retrofitted to many existing installations.

➤ www.grahamengineering.com

FRICTION TESTING

Accurate testing of friction

UK-based RDM says that its CF-200i inclined plane friction tester can measure the coefficient of friction of various materials.

The inclined plane method relies on measuring the angle of a slope upon which an object starts to slide. Instruments that do this employ a flat smooth bed fixed to a pivot, upon which a sled - of defined dimensions and mass - is placed with the test materials loaded. The bed starts in a horizontal position and is then moved by hand or powered, whilst an angle measuring device is observed.

The CF-200i uses a fine pitch motor and is driven by PLC logic control.

➤ www.rdmtest.com

GRANULATORS

Blade and screen discount help cut costs

CMG Granulators of Italy, which supplies a wide range of size reduction equipment, is offering discounts on its range of replacement blades and screens.

The company says that, as companies look to cut costs in difficult times, many will be looking to replace these common 'wear and tear' items - rather than invest in new machinery - but all within lower budgets.

"The involvement of every party, internal or external, in the production of blades and screens - from fabrication all the way to packaging - allows us to offer a discount of 40%," said Giorgio Santella, general manager of CMG. "These spare parts help our customers to keep operating efficiently and safely."

The promotional sale of blades and screens will be kept in place until September 2020, he said.

➤ www.cmg.it



PROCESSING

Thermal blanket keeps in the heat

Shannon Global Energy Solutions has developed a thermal removable and reusable insulation blanket, LT550SG, to improve safety for owners and operators of plastics machinery.

Shannon's representative, Associated Steam Specialty, led a project to install a blanket at the Pennsylvania facility of Airlite Plastics, a producer of thermoplastic sheet – in order to improve safety and reduce ambient heat.

"Associated Steam intrigued me with the idea of blanketing our boiler and steam system," said Tony Alfieri, vice president and general manager for the Airlite plant.

He said that the blanket has openings allowing the extrusion line to be adjusted without removing the blanket. The blankets eliminate temperature swings in the area around the equipment. Operators no longer need forearm protection for safety

because the blankets serve that role.

"The best compliment comes from our machine operators, who continue to remove and replace these blankets once a month to make routine adjustments and perform maintenance," said Alfieri. "The blankets aren't required for the plastics-making process – but my guys would have put them in a box if they weren't beneficial, and easy to take off and put back on."

➤ www.shannonglobalenergy.com

TOOLING

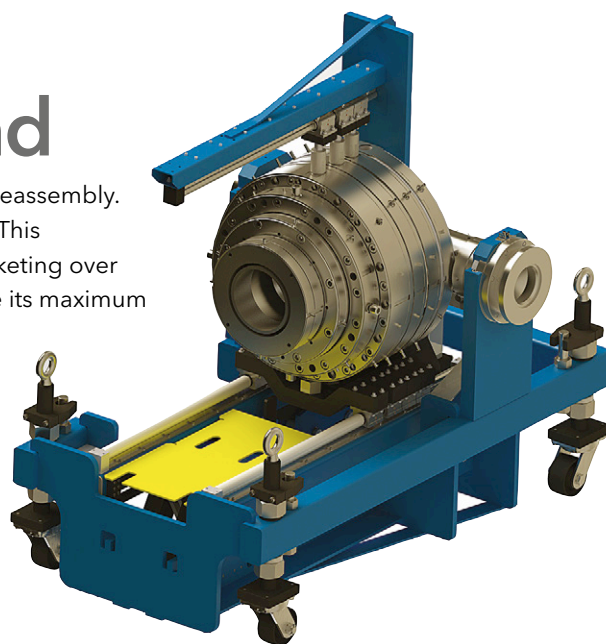
Large die cart includes accumulating crosshead

Guill Tool has launched a new die cart that offers easy disassembly and reassembly.

It features a high volume, adjustable centre accumulating crosshead. This crosshead is designed to produce a smooth linear bore and provide jacketing over various substrates. The crosshead's maximum through core is 18in, while its maximum die ID is 23in. Built to handle thermoplastic applications, the crosshead includes tooling and isolation sleeve design.

In addition, the tooling section features quadrant heating. Guill's crosshead stand is equipped with an integral alignment station and concentric role guide. The stand is also an integral cleaning station, so clients do not need to remove the crosshead for cleaning. Lastly, the crosshead has 'on-the fly' catenary adjustment and can be easily maintained with simple hand tools, says Guill.

➤ www.guill.com



TOOLING

Tracking materials through processing

The TrueRate intelligent inventory tracking system from Conair tracks changes in the inventories of up to 500 different resins or flowable powders in a processing plant.

Developed as an alternative to the use of single-component batch blenders for resin inventory measurement, it

uses highly accurate gravimetric measurement.

It is available in two sizes, consisting of an 8in weighing ring equipped with two load cells, or a 12in ring equipped with three. Both configurations connect to a separate electrical control panel containing a PLC. The weighing ring is mounted below a material

loader or receiver but above a container or bin. It uses resin information from the user to calculate the change in weight of the loader/receiver before discharging the material through the ring and into the container.

The system can operate in two modes: in default (or 'totaliser') mode, in which it automatically measures the

total resin flow through the receiver to a bin or container below; and, in job (or 'active') mode, which adds an optional discharge valve to the weighing ring.

"TrueRate is an elegant way to track flowable powders and resins," said Alan Landers, product manager for blending.

➤ www.conairgroup.com

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2 - 3 February 2021

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9 - 11 February 2021

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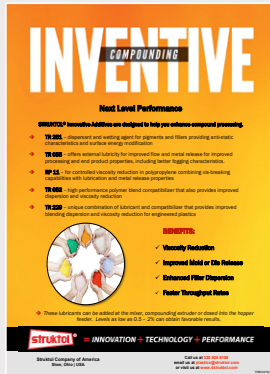
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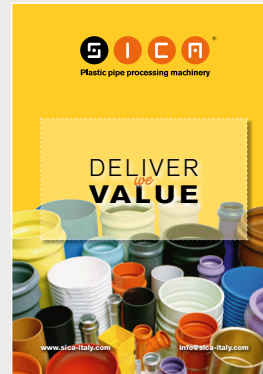
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SICA: PIPE PROCESSING



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The Dryflex family of TPEs from Hexpol TPE add soft touch appeal, function performance and product safety features in a range of consumer, automotive, industrial and packaging applications. Find out more in this brochure.

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Davis-Standard supplies a wide range of extruders and extrusion systems for pipe, profile and tubing applications, including medical tubing. This brochure details the range of equipment available and key performance benefits.

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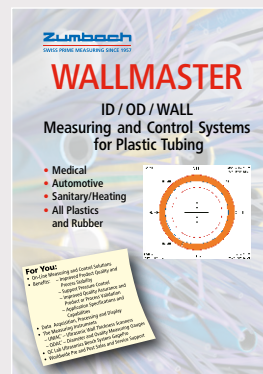
UNICOR: PIPE CORRUGATION



This brand new 48-page brochure from Unicor provides detailed insight into the design, production, applications and advantages of corrugated pipes. It includes specification data on the company's wide range of pipe corrugation equipment.

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ZUMBACH: MEASUREMENT CONTROL



This eight-page brochure details the main features of Zumbach's Wallmaster measurement and control system for improving product quality, process stability and data capture in plastic tube and pipe extrusion applications.

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Tecnoperfiles

Head office:	Buenos Aires, Argentina
President:	Fernando Martinez
Founded:	2004
Ownership:	Private
Sales (2019):	Around A\$725 million (approximately US\$11m)
Employees:	Around 150
Profile:	Tecnoperfiles was founded in 2004 by Ricardo Martinez and is now run by his son Fernando. It is a leading manufacturer of PVC window profiles in South America and supplies its products to the entire continent - with around 150 domestic customers and 100 across the rest of South America. The company produces around 240,000 windows per year, with an annual output of around 5,000 tonnes.
Product lines:	The company produces a wide range of window profiles. One of its most recent is Jumbo-Line - a system that is used to make windows up to 3m high. Other new products include its Ecolife line, a double-contact system that offers high thermo-acoustic insulation and efficient sealing thanks to a co-extruded weatherstrip. Its Advance line, developed using tooling from Greiner Extrusion of Austria, includes a hidden drainage system and high thermo-acoustic insulation. Tecnoperfiles says that, while the market for PVC window profiles is growing in South America, the product is still "largely unknown".
Factory location:	The company's products are made at its 7,000 sq m plant in Buenos Aires, which has an annual capacity of 6,000 tonnes of PVC profiles. Last year, it invested in tooling from Greiner Extrusion - and says it uses a wide variety of Europe-made extrusion technology.

To be considered for 'Extruder of the Month', contact the editor on lou@pipeandprofile.com

Pipe and Profile EXTRUSION FORTHCOMING FEATURES

The next issues of Pipe and Profile Extrusion magazine will have special reports on the following topics:

July/August 2020

PVC stabilisers & lubricants
Oil & gas industry applications
Extruder technology

September 2020

Window profile developments
Downstream equipment
Large diameter pipes
PEWE Essen preview

Editorial submissions should be sent to Lou Reade: lou@pipeandprofile.com

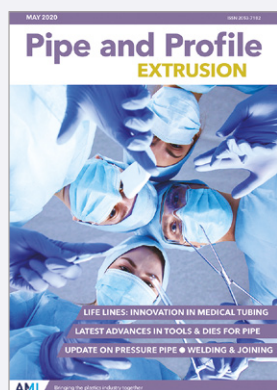
For information on advertising in these issues, please contact:

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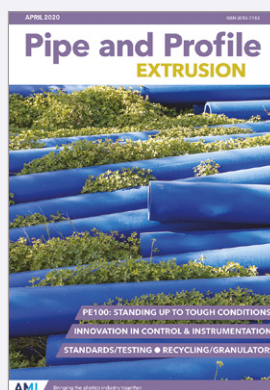
AMI publishes five process-specific FREE plastics industry magazines. Simply click on the cover below to read each magazine. Or download the issue in the relevant Apple or Android app



Pipe and Profile May 2020

The May edition of Pipe and Profile Extrusion magazine examines some of the latest developments in the medical tubing sector. It also looks at innovations in pressure pipes, pipe dies and pipe joining technology.

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Pipe and Profile April 2020

The April edition of Pipe and Profile Extrusion takes a look at some of the latest innovation in PE100 pipes. It also examines new developments in process control and instrumentation, extrusion standards and material size reduction.

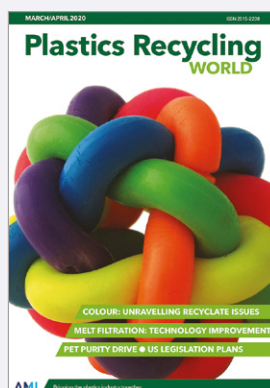
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Compounding World May 2020

The May 2020 edition of Compounding World looks at the latest developments in natural fibres that are helping deliver high performance bio-compounds. Other features cover the burgeoning 3D printing materials sector, engineering plastics and wire and cable compounds.

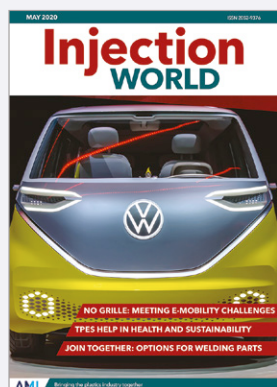
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Plastics Recycling World March/April 2020

The March/April edition of Plastics Recycling World looks at the challenges of effective colouring, plus the latest developments in melt filtration and PET recycling. It also updates on US recycling legislation moves.

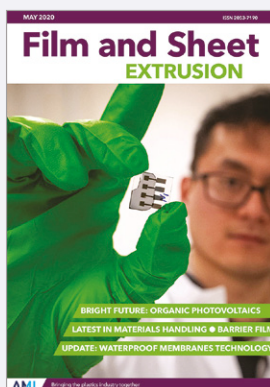
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Injection World May 2020

The May 2020 edition of Injection World magazine explores how the shift to electric and hybrid vehicles is placing new demands on producers of injection moulded parts. We also take a look at the latest developments in plastics welding and TPE applications.

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Film and Sheet May 2020

The May issue of Film and Sheet Extrusion features new developments in materials handling and looks at innovations and opportunities in waterproof membranes, barrier film and organic solar cells.

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Injection
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Plastics Recycling
WORLD

GLOBAL EXHIBITION GUIDE

2020	15-18 June	Plastivision Arabia, Sharjah, UAE POSTPONED	www.plastivision.ae
	8-10 September	Feiplar, Sao Paulo, Brazil	www.feiplar.com.br
	9-11 September	Plastics, Printing & Packaging, Dar-es-Salaam, Tanzania	www.expogr.com/tanzania/pppexpo
	9-13 September	Taipei Plas, Tapei, Taiwan	www.taipeiplas.com.tw
	10-12 September	Plasti & Pack, Lahore, Pakistan	https://plastipackpakistan.com
	22-25 September	Colombiaplast, Bogota, Colombia POSTPONED	www.colombiaplast.org
	29 September-1 October	Interplas, Birmingham, UK POSTPONED	www.interplasuk.com
	7-8 October	Plastics Extrusion World Expo Europe, Essen, Germany NEW DATE	https://eu.extrusion-expo.com
	13-17 October	Fakuma, Friedrichshafen, Germany	www.fakuma-messe.de
	29-31 October	MECSPE, Parma, Italy NEW DATE	www.mecspe.com
	4-5 November	Plastics Extrusion World Expo USA, Cleveland, USA	www.extrusion-expo.com/na/
	10-13 November	Plastimagen, Mexico City, Mexico	www.plastimagen.com.mx
	24-27 November	Argenplas, Buenos Aires, Argentina NEW DATE	www.argenplas.com.ar
	1-5 December	Equiplast, Barcelona, Spain	www.equiplast.com
2021	14-17 December	Interplas Thailand, Bangkok, Thailand	www.interplasthailand.com
	9-11 March	JEC World, Paris, France NEW DATE	www.jec-world.events
	13-16 April	Chinaplas, Shenzhen, China	www.chinaplasonline.com
	4-7 May	Plast 2021, Milan, Italy	www.plastonline.org/en
	17-21 May	NPE 2021	www.npe.org
	15-18 June	FIP, Lyon, France	www.f-i-p.com

AMI CONFERENCES

14-16 September	Polymer Sourcing & Distribution, Hamburg, Germany
16-17 September	Plastics Recycling Technology, Vienna, Austria
23-24 September	Medical Tubing & Catheters, San Diego, CA, USA
27-28 October	Plastic Pipes in Infrastructure, Hamburg, Germany
2-3 November	Profiles USA, Cleveland, Ohio, USA
4-5 November	Wood-Plastic Composites, Vienna, Austria

For information on all these events and other conferences on film, sheet, pipe and packaging applications, see www.ami.international

PLASTICS RECYCLING
WORLD EXPO

POLYMER TESTING
WORLD EXPO

7- 8 October, 2020
ESSEN, GERMANY

PLASTICS EXTRUSION
WORLD EXPO

COMPOUNDING
WORLD EXPO

4 - 5 November, 2020
CLEVELAND, OHIO

www.ami.international/exhibitions