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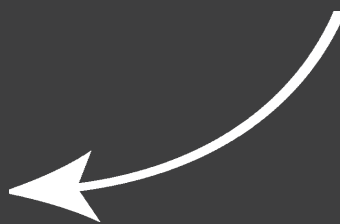
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Pipe and Profile EXTRUSION

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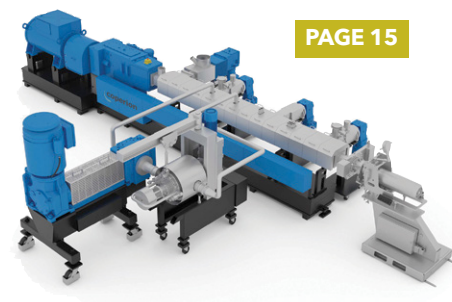
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North American machine sales dipped again in Q4

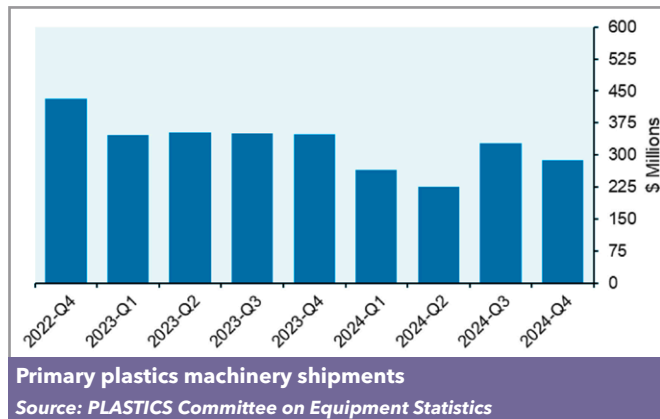
Sales of plastics machinery in North America saw another decline in the fourth quarter of last year.

Estimates for the quarter indicate sales of nearly US\$289 million – a 17% fall compared to the same period in 2023. At the same time, the figure is around 12% lower than that from Q3 in 2024, says the Plastics Industry Association's Committee on Equipment Statistics (CES).

In primary plastics machinery, single-screw extruders saw a decrease of more than 25% compared to the previous quarter – and a 33% fall compared to Q4 2023. Twin-screw extruder sales fell by 48% compared to Q3 – and by nearly 8% in comparison with Q4 2023.

For comparison, injection moulding sales fell nearly 6% on the previous quarter, and by more than 16% over the full year.

"Plastics equipment shipments pared back their gains in Q3, underperforming forecasts," said Perc Pineda, chief economist at the association. "Weakness in US manufacturing



persisted in Q4, driven by increased economic policy uncertainty amid expectations of a shift in US trade policy after the November elections," he added.

Last year closed with US plastics equipment exports falling nearly 6% to US\$329m in the fourth quarter.

The latest CES quarterly survey shows no change of confidence in the market, with 83% of respondents expecting conditions to remain steady or improve over the next 12 months. In addition, 43% reported that quoting activity was holding steady, while 31% reported an increase in quoting activity compared with the previous quarter.

Mexico and Canada

remained the largest export markets for machinery, with total exports to them reaching US\$158m, accounting for 48% of US total plastics machinery exports.

"Plastics demand in the US remains stable, though slack in plastics production is leading to weaker-than-expected demand for primary plastics equipment," he said.

He added that more cuts in the Fed funds rate are still projected this year.

"Lower interest rates and greater clarity on US economic policy – particularly on trade – would help reduce uncertainties across the plastics industry supply chain," said Pineda.

➤ www.plasticsindustry.org

Trex sees sales boost in 2024

Sales at US-based plastic decking manufacturer Trex moved up by more than 5% last year.

Net sales rose to US\$1.2 billion in 2024, while net profit was up around 10% to US\$226 million.

This was despite a 14% sales dip in Q4, reaching US\$168m for the quarter. Net profit for the quarter more than halved, to around US\$10m.

"The continued strong performance of our premium product lines and stable sequential demand trends led to fourth quarter sales above our expectations, enabling us to exceed our full year revenue guidance," said Bryan Fairbanks, president and CEO of Trex. "Our investments in product development continue to yield positive results."

In 2025, Trex expects net sales of US\$1.21-1.23bn – an increase of around 6% on 2024.

Trex recently expanded its distribution network in Canada by collaborating with Alexandria Moulding.

➤ www.trex.com

Eurocell profits despite decline in sales

UK-based building profiles maker Eurocell reported a profit last year, despite a fall in sales.

The company saw sales decline by 2% last year, to around £358 million, though pre-tax profit rose 18% to nearly £14m.

The company has set itself a goal of

a £500m turnover and £50m profit by 2028. One part of this is to expand its branch network to at least 250 sites from the current 212 – which included two new ones in Q4 of 2024. It intends to open at least seven branches in 2025 – mainly in the south of England – and around 30 more over the next

four years.

"Our financial performance in 2024 was resilient, in the context of trading conditions that remained challenging," said Darren Waters, CEO of Eurocell. "Medium and long-term growth for UK construction remains attractive."

➤ www.eurocell.co.uk

Milacron gets new owner

Private investment firm Bain Capital has taken a major shareholding in plastics machinery manufacturer Milacron.

Bain will buy an ownership stake of around 51% of Milacron for US\$287 million, subject to customary closing adjustments. Current owner Hillenbrand will retain a stake of around 49%.

"With manufacturers increasingly focused on supply-chain resilience and domestic production, we believe the US is entering a manufacturing renaissance that will create significant opportunities for industry leaders like Milacron," said Matt Evans, a partner at Bain.

➤ www.milacron.com

German converters report 4% sales fall

GKV, the trade organisation that represents German plastics processors, reported another fall in turnover last year.

It said this was down to "domestic reasons" such as lower consumer spending, rising interest rates and high energy prices.

GKV said that sales fell to just over €69 billion in 2024, a decline of 4% compared to 2023. Nearly 43% of sales (almost €30bn) were from exports – around 2% lower in value than the preceding year. At the same time, domestic sales fell by more than 6%, to account for nearly €40bn.

"Our industry has the potential for growth," according to Helen Fuerst, president of GKV. "The

German plastics converting, 2024

	Sales 2024 (bn€)	% Change
Domestic	39.7	-6.1
Export	29.7	-1.7
Total	69.4	-4.3

Source: GKV

proverbial silver lining on the horizon is gradually becoming visible after two challenging years."

The number of employees in the industry fell by about 2%, to around 313,000, while processing volumes dipped by 5% to 12 million tonnes. Of this, 2.5m tonnes was recycle – a 4% increase on 2024. The number of processing plants remained stable at just under 3,000 facilities.

Figures are not broken down into specific process-

es (such as extrusion). However, the construction sector – which is most relevant to pipe and profile extrusion – saw a 12% fall in the amount of material processed (4.3m tonnes). This equated to turnover in the sector of around €22bn – a fall of 7.5%, said GKV.

For companies in the sector, the prerequisites for an upturn are relief from high energy costs and a consistent reduction in bureaucracy, she said.

➤ www.gkv.de

Polypipe profits and sales down in 2024

UK-based Genuit Group – which trades as Polypipe – saw sales dip by around 4% last year. Sales fell to just over £561 million, while 'underlying' pre-tax profits fell nearly 2% to £73m.

Sales in the water management solutions business – which supplies stormwater and wastewater infrastructure – fell by nearly 6% to £161m. Underlying profit in the division fell 23% to around £14m. Revenue was affected by project delays, including prolonged wet weather and low business confidence, said the company.



Sales in the sustainable business solutions – mainly focused on plumbing and water supply – declined by nearly 5% to £232m. Underlying profit in the division rose by 2%, exceed-

ing £54m. Sales suffered due to lower volumes, but profits rose thanks to effective cost management, it said. One example of this was the use of SMED ('Single Minute Exchange of Dies'),

which cut changeover times by 80%.

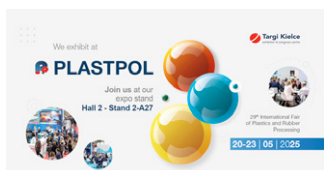
The company also raised the proportion of recycle it used in its products from 49% to 52% in 2024. It previously set itself a target of 62% for this year.

"We saw some signs of market stabilisation in the second half of 2024 and volumes in the early part of this year have been in line with expectations," said Joe Vorihi, CEO of Genuit. "Our growth prospects remain strong, given the need for investment in UK infrastructure and housing."

➤ www.polypipe.com

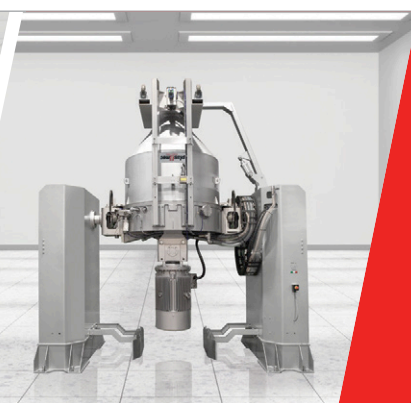
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Sales and profits decrease at Aliaxis

Belgian pipe manufacturer Aliaxis reported decreased sales and profits in 2024.

The company posted a turnover of €3.9 billion in 2024, a fall of around 5% compared to the previous year. At the same time, net profit for the year fell 16% to €240 million, excluding one-off items.

"Growth did not materialise due to several geopolitical and macro-economic factors," said Thierry Vanlancker, managing director of Aliaxis.

The company had one key setback last year – the closure of its Asheville manufacturing site in the US, following Hurricane Helene in October 2024. This led to business disruption of €11m (affecting profitability) and one-off costs of €31m.

"While we will continue to feel the impact into 2025, we are ramping up production swiftly to be full strength by mid-year," he said.

IMAGE: ALIAXIS



Vanlancker "Growth did not materialise due to geopolitical and macro-economic factors"

Despite this upset, sales in the Americas fell only 2% last year. Stable conditions helped support solid results in Canada. In the US, average sales prices were under pressure as market conditions normalised, following higher demand in 2022 and 2023. Market challenges continued to affect businesses in Latin America, the company said.

In EMEA, sales fell nearly 6% and REBITDA by nearly 19%. There was a drop in construction volume and a

19% decrease in building permits issued. The closure of its Lenham site in the UK contributed towards the drop in sales. Lower volumes also affected the top line.

In Asia, sales fell by nearly 2%, but profitability rose by more than 50%. This was partly due to provisions of €13m following withdrawals from specific market segments. The Pacific region saw a sales decline of 8% due to a slowdown in construction markets.

In August 2024, Aliaxis bought Johnson Controls' CPVC pipe and fittings business for residential and light commercial sprinkler systems, generating an annual revenue of approximately US\$100m.

The company expects "market challenges to continue across the group in H1 2025". The impact from the damage in Asheville will also continue.

➤ www.aliaxis.com

Pipeline expands into Idaho

US-based Pipeline Plastics has begun building a new HDPE pipe production plant in Rupert, Idaho.

The plant will manufacture HDPE pressure pipes up to 65in in diameter for water, energy, and industrial applications. The "multi-million dollar" new facility aims to meet increasing demand for infrastructure materials.

The facility is expected to create over 50 direct jobs and become operational by the later part Q3 this year.

"We're excited to bring our manufacturing capabilities to Rupert and deliver solutions built for the future," according to Jordan Latham, VP of production.

Pipeline Plastics already has four separate production plants in Texas (two plants), North Carolina and South Dakota.

➤ www.pipe.us

Soft market caused Deceuninck sales decline

Belgian profile extruder Deceuninck says profits were stable last year despite lower sales.

Full-year sales fell nearly 5% to €827 million, as "soft market conditions led to lower volumes".

Profitability, in the form of adjusted EBITDA, was flat at around €118m. At the same time, net profit rose by 17% to nearly €16m.

Sales in Europe – which accounts for almost half the company's turnover – fell by 10% to €369m. The decline in North

America was much less, at nearly 2%, reaching €164m, while sales in Turkey and emerging markets grew around 2% to €294m. Overall sales volumes fell by around 5% across all regions.

"In Turkey, we had one of the best historical performances, thanks to our strong brands and extensive dealership network," said Stefaan Haspelslagh, CEO of Deceuninck.

European demand remained soft last year. It said its German operations were restructured within time and

budget in the second half of the year – which started to take effect. In North America, trading remained "resilient". In Turkey, it maintained volumes in a market that "cooled down in the second half of the year".

This year, it expects the market softness to continue. Conditions in Europe will be "challenging", those in North America "uncertain" – while it expects the Turkish market to "cool down" after years of strong activity.

➤ www.deceuninck.com



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SECURE YOUR PLACE

Plastiflex makes two buys

Belgium-based Plastiflex – which makes customised tubing – plans to acquire two healthcare companies.

It has already agreed to buy US-based Smooth-Bor, which specialises in heated tubes for continuous positive airway pressure (CPAP) devices, plus other tubes and masks for the respiratory care industry.

The company has factories in California and Malaysia.

In addition, Plastiflex plans to acquire Kobarid, Slovenia-based TIK – a manufacturer of disposable medical devices. The company specialises in coated urethral catheters and other tubing systems.

The two acquisitions will give Plastiflex 12 manufacturing facilities across the world with seven dedicated health care operations – and a workforce of around 1400 people.

➤ www.plastiflex.com

Sales suffer at Georg Fischer's pipe division

Georg Fischer says that its piping systems division reported a sales decline of nearly 5% in 2024.

The division reported sales of just under CHF2 billion for the year. For the same period, profitability (EBIT) fell around 14% to CHF239 million. Order intake and sales were affected by delays in microelectronics projects and weaker markets, especially in the APAC region.

The division made progress into the Marine and Cooling business, backed by agreements with global customers, partially offsetting subdued segments such as microelectronics. It also strengthened



IMAGE: GEORG FISCHER

Müller: "Solid performance in a turbulent environment and decisive steps taken to transform our organisation"

its presence in the Gulf region, expanding prefabrication capabilities in Abu Dhabi (UAE) and opening new sales offices. In North Africa, it inaugurated a new

plant in Cairo (Egypt).

Its related business, GF Building Flow Solutions (formerly GF Uponor) reached sales of just over CHF1bn. However, comparisons with the previous are difficult because of a business reorganisation. While markets in North America developed throughout the year, demand in Europe remained subdued. The company made efforts to streamline combined operations, such as closing the division's plant in Sanliurfa (Turkey) and adding a new factory in Poland to strengthen the division in Eastern Europe.

➤ www.georgfischer.com

Tessenderlo: Dyka sales dip

Tessenderlo's industrial solutions division – which includes pipe manufacturer Dyka – reported a decline in sales last year.

Sales in the division fell by around 5% to around

€671 million while profitability (adjusted EBITDA) fell by 20% to around €67m.

In the first half of 2024, the division's sales were down 9% due largely to Dyka revenue being

affected by a lower construction market demand.

In addition, Tessenderlo made several investments, including for "technology improvements" at Dyka.

➤ www.tessenderlo.com

Orbia sales decline in extrusion division

Orbia, the Mexican chemicals company, reported reduced sales and profits in 2023. Overall sales fell 9% to around US\$7.5 billion, with lower sales in all its divisions.

Sales in pipes division Wavin fell 7% to US\$2.5bn. At the same time, profitability also suffered – with operating profit down 8% to US\$130m. It said this was due to lower volumes in Europe – mainly Germany and France

– as well as weaker demand in Latin America.

Orbia has two other extrusion-related businesses: US conduit maker Dura-Line and Israeli pipe irrigation company Netafim. At Dura-Line, full year sales fell 25% to US\$839m, while operating profit fell 78% to US\$62m, due mainly to lower prices and an "unfavourable mix". In Q4, sales fell 9% and profits shrank to zero (compared

to a US\$14m profit the previous year).

Netafim's sales fell by 2% for the year, to around US\$1bn, while profits halved to US\$6m. In Q4, sales rose by 6%, but the division still made a loss of around US\$5m in the period.

This year, Orbia expects "limited to no recovery" in market demand and an overall increase in profit (EBITDA) of around 10%, to US\$1.25bn.

➤ www.orbia.com

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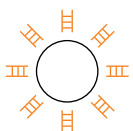
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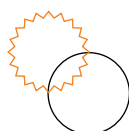
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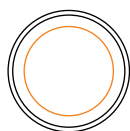
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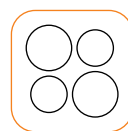
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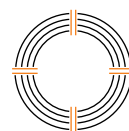
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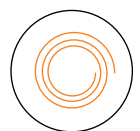
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Wienerberger sees sales rise as profits dip

Wienerberger of Austria reported higher sales but a drop in profits last year.

It reported sales of €4.5 billion, a 6% rise on the previous year. At the same time, EBITDA declined by around 6% to €760 million. The company said the drop in profits was down to "non-recurring negative effects" – the sale of its Russian business and restructuring measures of €80m.

"Despite a challenging market environment, particular in the new residential housing segment, we maintained robust margins through disciplined cost management and operational efficiency," said Heimo Scheuch, CEO of Wienerberger.

Sales in Western Europe rose 14% to around €2.5bn, though profits fell more than 7%. In countries such as Germany, France and



Scheuch: "We maintained robust margins through disciplined cost management and efficiency"

Belgium, the anticipated recovery of the new residential housing markets did not materialise as anticipated, it said, while high interest rates and inflation-driven construction costs continued to affect demand. In Scandinavia, the company strengthened its position in smart water management by acquiring Slatek in Finland and Tekken in Norway.

Sales and profits in Eastern Europe were flat, at €1.2bn and €219m, respectively. While the new-build market in the region remained challenging, positive signs were seen in some markets, driven by government-backed subsidies in Poland, the Czech Republic, and Hungary.

Sales in North America fell around 5%, with profits down around 10%. Long-term housing demand remained robust, and pipe business performed well, supported by sustained demand for water management solutions, it said.

If end markets show stable development in 2025 and interest rates are cut further, Wienerberger expects an operating EBITDA of around €800m – slightly ahead of the 2024 result.

➤ www.wienerberger.com

Azek posts improved results

Azek, a US-based manufacturer of plastic decking, reported a 5% increase in sales last year, to US\$1.44 billion.

This produced a net profit of US\$153m – an increase of 146% compared to the previous year, it said.

This was buoyed by residential segment sales increasing 12% to US\$1.37 billion, and deck, rail and accessories growing 18%.

"We delivered strong financial results that reflect our team's focus on consistently delivering growth and margin expansion," said Jesse Singh, CEO of Azek.

For 2025, Azek expects residential segment sales in the range of US\$1.44 to US\$1.47bn, a 5-7% growth, and profitability to grow at 6-10%.

➤ <https://azekco.com>

ADS expands with new recycling facility

US-based Advanced Drainage Systems (ADS) has begun expanding its recycling facility in Georgia.

The US\$30 million expansion to its recycling facility in Cordele, Georgia will expand its size to 117,000 sq ft and will create up to 50 new jobs. The plant will supply recyclate to the company's factories in the south-east of the US.

"This new facility will enhance our recycled

plastic production, enabling us to lead the industry and set new standards for innovation and sustainabil-

ity," said Scott Barbour, president and CEO of ADS.

The company says the new site will also allow

streamlined testing, thanks to an onsite laboratory.

■ At the same time, ADS is to close its HDPE pipe production plant in Olympia, Washington. The move will lead to around 54 permanent lay-offs, according to a report in the local Jolt newspaper.

➤ www.ads-pipe.com



Left: ADS has begun expanding its plastics recycling facility in Georgia

TeraPlast sees sales boost in 2024

TeraPlast of Romania reported a rise in sales – but flat profits – in 2024.

The company, which produces a variety of products including both pipes and profiles, saw a 34% rise in sales for the year, reaching nearly RON900 million (US\$196m).

At the same time, profitability (EBITDA) remained static at around RON51m (US\$11m). The company said this reflected its strategy to increase market share, plus the impact of price pressures and contraction in some European markets.

Turnover in the pipes business (called ‘installations’) grew 28% to RON642m (US\$139m), driven by increased volumes and the consolidation of new subsidiaries. At the same time, EBITDA rose 3% to RON54m (US\$12m). This is the bulk of TeraPlast’s business, accounting for 71% of sales. Its windows business, which account for 6% of sales, grew 3% to RON52m (US\$11m), with EBITDA up fourfold to around RON2m (US\$430,000).

“Our evolution in 2024 reflects the mix of organic growth and growth through acquisitions, over the fluctuations in European markets,” said Bogdan Crăciunaş, chief financial officer of TeraPlast.

The company also increased sales volume by 46% – with nearly 110,000 tonnes.

In 2025, it expects to grow volumes by a further

12%, sales by a similar amount and profits by nearly 70% – reaching a turnover of RON1 billion (US\$217m).

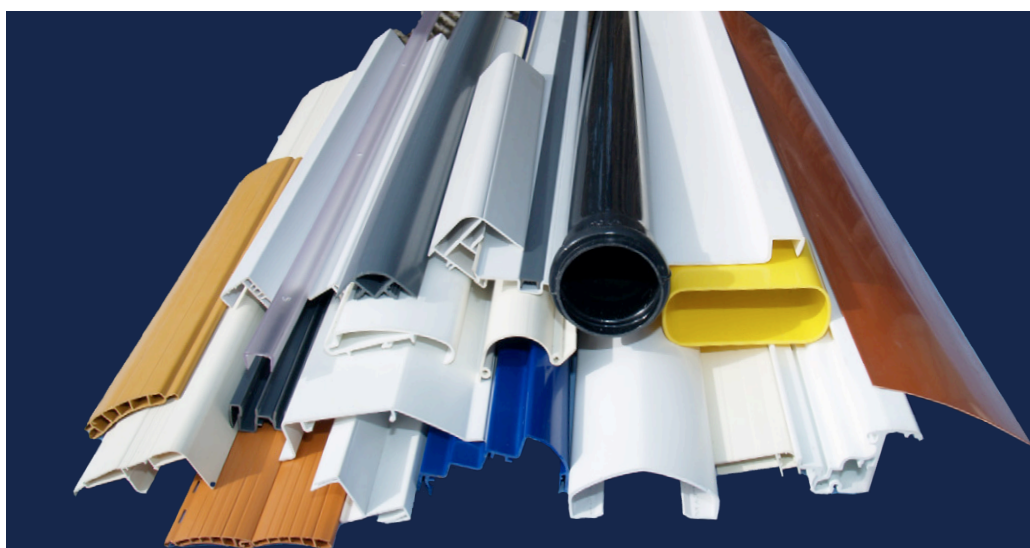
“Starting in the second half of 2025, we expect the synergies generated by new subsidiaries to produce visible effects,” said Crăciunaş.

■ TeraPlast has bought the PVC and PE pipe assets of Wavin Hungary from Orbia. The value of the transaction is €7m and involves around 12,000 sq m of buildings and 40,000 sq m of industrial land located in Zsám-bék, 30km west of Budapest. The equipment acquired has an annual

production capacity of 12,000 tonnes of pipe.

TeraPlast – through its Polytech subsidiary – is expected to begin operating the factory in the second quarter of this year. It operates two factories in Hungary – Polytech and Pro-Moulding.

➤ www.teraplast.ro



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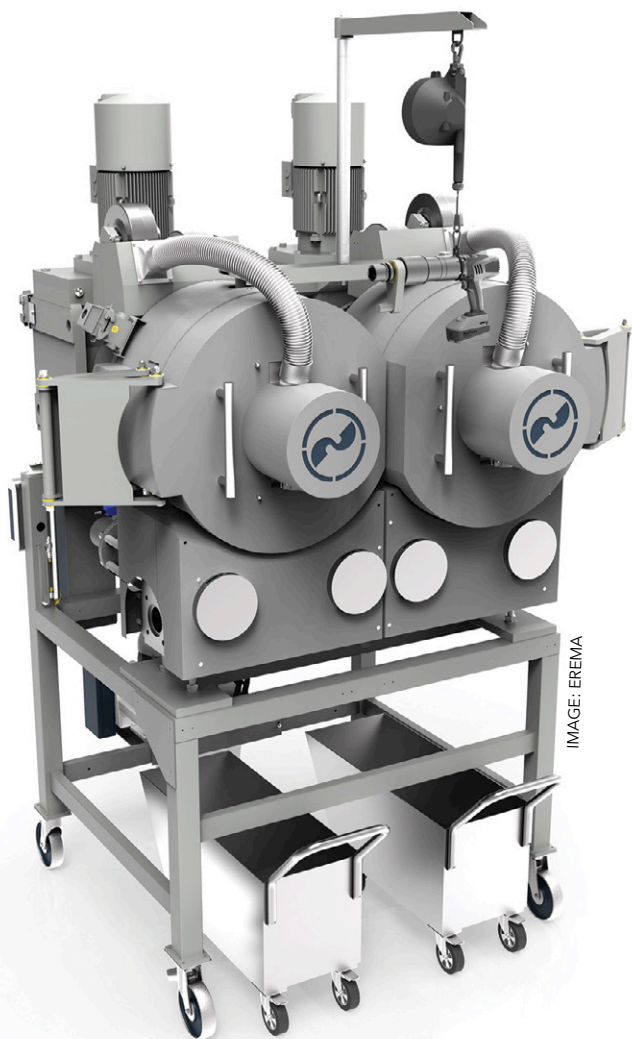


IMAGE: EREMA

Fine lines: advances in melt filtration

Suppliers of melt filtration systems continue to improve their offerings to help processors ensure efficient removal of contaminants at finer levels - and with increasing automation

Recycling - once little more than an afterthought - is now a huge part of the modern plastics industry. A key part of this is filtration, which helps to improve the quality of recyclate - allowing the creation of higher-quality products from recycled material.

Erema has developed DischargePro, a control system for its laser filter that improves process stability by reacting automatically to fluctuations during the recycling process.

The company says that the system helps to reduce melt loss by as much as 50%. By adjusting the speed of the scraper disc and the discharge screw according to demand, DischargePro ensures the melt thickens uniformly during filtration. This is a crucial parameter for a consistent and cost-effective process.

"The new system automatically determines the optimum process setpoints and ensures that these are maintained during the whole operating period of the laser filter," said Robert Obermayr, head of the Powerfil business unit at Erema.

The discharge control system reacts to specific disruptive factors, including contamination peaks, reduced throughput and increased viscosity.

For contamination peaks, it automatically adjusts the speed of the scraper star, returning it to the setpoint speed as soon as the contamination peak

has been discharged. Regarding reduced throughput, the new filter control system detects significant changes in throughput and adjusts the discharge rate so that thickening remains consistent during filtration. As soon as the melt has a higher viscosity and - as a result - creates a higher pressure drop across the filter screen, DischargePro automatically adjusts the setpoint value to ensure a consistent discharge rate.

Longer-term changes are also taken into consideration because DischargePro takes the ongoing condition of the filter screen into account. Over the course of the screen's use period, its effective surface area decreases, causing the pressure drop to increase even though the input material is the same. The control system reacts to this by adjusting the setpoint to ensure the optimum thickening ratio is achieved.

Another innovation in filtration technology is Erema's new 2/406 size of laser filter. Compared to the 2/356 laser filter, it has a 50% larger screen area, enabling much faster filtration of plastic melt.

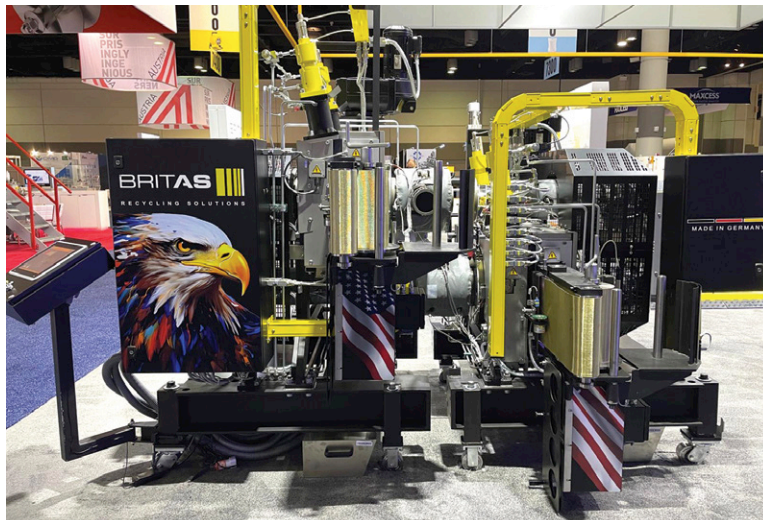
Main image:
Erema's 2/406 size of laser filter has a 50% larger screen area than an earlier model, increasing filtration speed

Fine filtration

At last year's NPE, **Britas** presented its Automatic Belt Melt Filter (ABMF) with two filter heads for powerful, ultra-fine filtration.



IMAGE: BRITAS



Above: The Britas ABMF-TH boasts low melt loss with high output, for efficient melt filtration

The ABMF-TH boasts low melt loss with high output – with efficient melt filtration, flexibility and safe operation.

“Our ABMF 1600 TH Twin Head melt filter – for production of high-performance PCR – sets new standards on the market,” said Heiko Henss, CEO of Britas Recycling-Anlagen.

With a screen area of up to 3,200 sq cm, Britas customers have achieved a throughput of up to 8,000 kg/h with a filtration fineness between less than 40 microns and 1000 microns. Melt loss is less than 1% for polyolefins.

The company has also developed ABMF-PET-C, for recycling of post-consumer PET.

It relies on Britas base technology, with special features that are technically optimised. “High PET pellet quality with low operating costs is essential for our customers,” said Henss. “The ABMF-PET-C is characterised by filtration finenesses down to 20 microns and melt loss of less than 0.5%.”

Right: Fimic will become the Italian agent for Nordson’s BKG melt filtration equipment

Flagship filter

At the same event, **Fimic** displayed its flagship melt filter, the RAS 700, which it says illustrates how its technology can be adapted to the application requirements and is precisely designed for filtration processes.

In addition, the company has developed a screw pump called SPA – available in three sizes – that can be positioned before or after the filter to transport the plastic melt without using gears.

During the show, Fimic experts presented details of trends in plastic recycling, including several seminars in Spanish, aimed at Latin American visitors.

Italy agent

Fimic has since become the Italian agent for **Nordson** BKG products – which include melt pumps and screen changers.

The collaboration combines Nordson BKG’s portfolio of melt pumps, screen changers and pelletising systems with Fimic’s knowledge of melt filtration processes and its network in the Italian plastics industry. The combination promises to deliver technical support, streamlined sales channels and innovative solutions tailored to the specific needs of Italian processors.

Nordson says the partnership will allow it to expand its reach, strengthen the BKG brand and improve its solutions to the Italian plastics processing market.

“This strategic alliance will enable us to reach a wider customer base and provide our innovative melt processing technologies with the high level of service our customers expect,” said Sven Conrad, BKG’s global segment development director at Nordson.

The partnership began on 1 January 2025. Highlights include enhanced technical support – thanks to Fimic’s expertise and understanding of the Italian market – and streamlined sales and service, through Fimic’s existing network.

“Adding Nordson’s BKG products to our portfolio allows us to offer a more comprehensive, end-to-end solution and elevate process efficiency,” added Erica Canaia, CEO of Fimic.

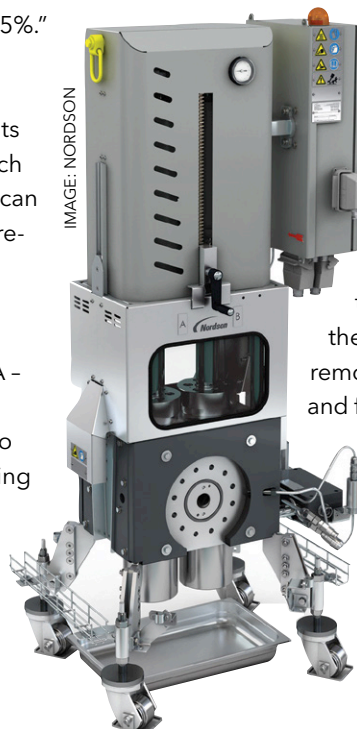
Contaminated melt

At the recent Fakuma show, **Maag** presented its

Eco series of continuous high-performance melt filters, which are used to filter contaminated polymer melts.

For chemical recycling, the technology is used to filter low viscosity polymers, it says. The Eco filter is self-cleaning with a rotating, perforated drum, through which there is a continuous flow of melt from the outside to the inside. A scraper removes contaminants from the surface and feeds them to the discharge system.

This enables the filter to be used automatically and without disruptions over long periods. Benefits include: reliable melt filtration; ultra-low melt losses constant pressure curve; fast spreading of the contamination; and short residence time of the melt in the filter. ➤



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Right: Non-stop filtration equipment can be retrofitted to existing or new machinery, says BBE

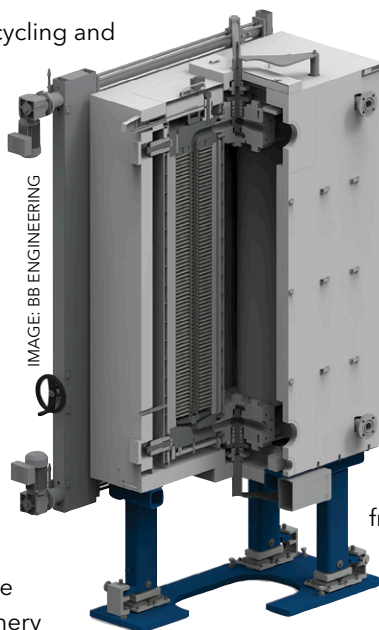
"Sustainable technologies for recycling and the circular economy are becoming increasingly important - whether they are solutions for mechanical or chemical recycling or machines optimised for energy and resource efficiency for the production, processing or treatment of plastics," said Ueli Thürig, president of Maag.

Non-stop filtration

BB Engineering (BBE), based in Remscheid, Germany, says it has recently grown its capabilities in rPET fine filtration. It says its non-stop filtration equipment can be retrofitted to existing or new machinery to make it rPET-ready.

The company says an interruption-free process is guaranteed by an easy switch-over between congested and clean filter inserts.

"With an increasing demand for high-quality applications like melt spinning, the requirement for finer filtration is gaining importance," said Matthias



Schmitz, head of engineering recycling technology at BBE. "Filter ratings of 20 microns or finer are in operation."

One of BBE's latest innovations is called white filter cleaning (WFC), a pre-cleaning system for filter media and filter housings that does not use hazardous and harmful chemicals such as TEG. Instead, superheated steam is used to remove residues on the filter media via hydrolysis. The treatment is environmentally friendly and improve performance and extends filter life, he says.

"With WFC, we are offering an alternative to TEG cleaning, and a solution to reduce filter cleaning costs by 50%," he said. "It uses nothing but superheated steam to free the filter cartridges from polymer and contamination via hydrolysis. A quick switch between production and cleaning reduces manpower to a minimum and guarantees reliable availability of the filtration." ➤

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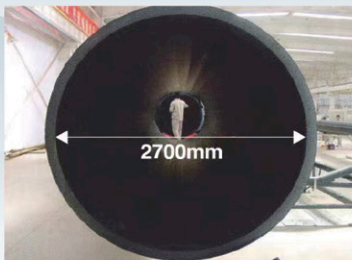
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Right:

Coperion's ZSK FilCo performs filtration and compounding in a single production step

ADG expansion

US-based ancillaries supplier **ADG Solutions** - whose portfolio includes melt filtration equipment - recently moved to a larger facility in Stone Mountain, Georgia.

The manufacturing space has been increased for production, assembly and stocked items - and now includes three dock doors and one drive-in bay. The new space also doubles the size of the office area to accommodate the growing engineering, support and leadership team, said ADG.

The company is also developing dedicated showroom areas for each of its equipment lines such as a laser filter, vent stuffer and a live elutriation T-cleaner system. It is also working on a complete extrusion lab line that will be installed and ready for customer trials and testing by Q2 of 2025.

"We are excited to offer customers live trials on our in-house equipment," said Sandy Guthrie, president of ADG. "This expansion provides the space to continue to provide the highest level of machinery and service to the industry."

ADG offers a range of ancillary equipment including materials handling, extrusion and filtration systems. Its equipment partners include Weima, Hosokawa, Davis-Standard and Break Machinery.

Below:

Ancillaries supplier ADG recently moved to a larger facility in Stone Mountain, Georgia

Filtration compounder

Coperion says its ZSK FilCo filtration compounder allows filtration and compounding in a single production step. It has been developed for recycling post-consumer recyclate (PCR) or any highly contaminated polymer.

With ZSK FilCo, waste plastic is fed into a ZSK

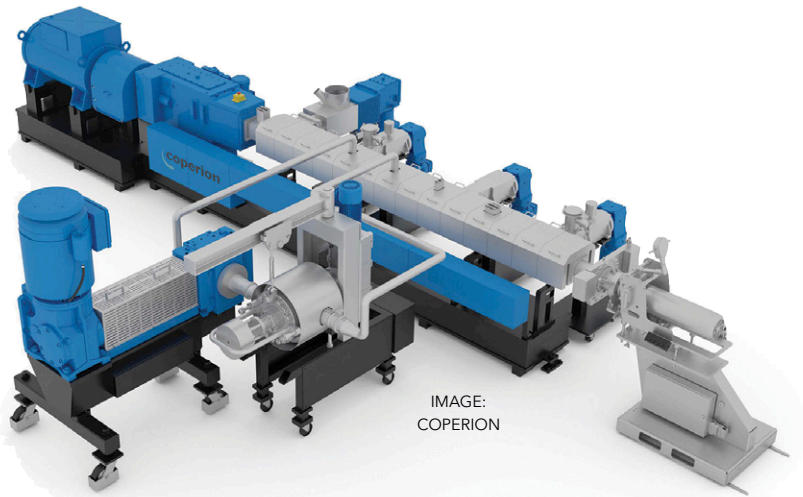


IMAGE:
COPERION

twin screw extruder, where it is melted, homogenised and devolatilised. The melt is then fed through a filter to remove all contaminants before being fed back into the same ZSK extruder to be compounded with reinforcing materials or fillers.

Compared to typical two-step production lines, ZSK FilCo has a more streamlined equipment set-up, says Coperion - claiming a 50% reduction in energy consumption and emissions. In addition, the ZSK FilCo can achieve a higher product quality.

In conventional recycling, PCR and contaminated polymers must first be melted using a single- or twin-screw extruder, then filtered and pelletised. As well as being an energy-intensive process, the recyclate is subjected to high thermal stress - which results in increased degradation, shorter polymer chains and a reduction in product quality. The ZSK FilCo makes it possible to melt, filter, compound and pelletise recyclate in a single production system.

The ZSK FilCo's space requirement is comparatively low. All product streams are added gravimetrically to the process with no fluctuations. The recyclate only needs to be melted once.

"The ZSK FilCo is a result of our efforts to optimise the recycling of plastics and further increase the sustainability of the overall process," said Marina Matta, team leader for process technology recycling at Coperion. "Its energy economy and the product quality it achieves are important benefits."

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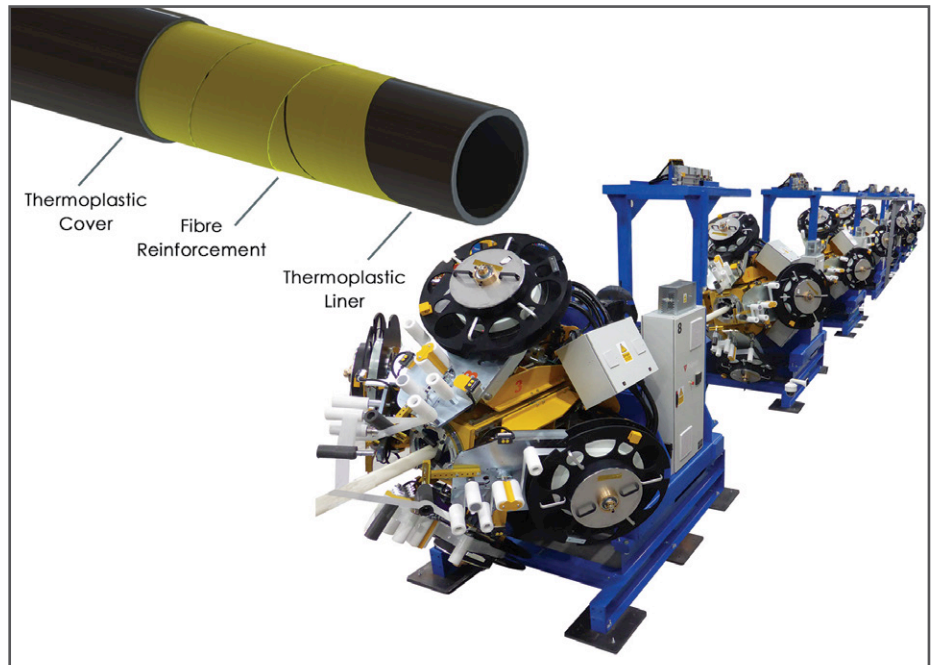
IMAGE: ADG SOLUTIONS

Raising the BAR for Extruded Pipelines

Reinforced Thermoplastic Pipe (RTP) and Thermoplastic Composite Pipe (TCP) are displaying substantial growth by elevating extruded pipe to provide several significant advantages. RTP pipelines are rapidly replacing steel pipelines in a variety of industry sectors such as the transportation of hydrogen, water, oil and gas. Other applications include district heating via a network of insulated pipes, bringing cost effective innovative energy solutions to the doorstep of the next generation.

RTP is revolutionising these industries, outperforming steel pipes in strength-to-weight ratio, corrosion resistance, flexibility and cost. It is capable of withstanding high pressures and temperatures making it ideal for oil and gas pipelines, chemical transportation, and offshore applications. Individual RTP pipe lengths can extend for hundreds of metres, drastically cutting the number of inline joints, on-site welding. In addition, by eliminating corrosion, RTP pipelines offer much lower overall service life costs with the added benefit of being more environmentally friendly. Total life of pipeline costs can be reduced by as much as 50% in some applications.

Ridgway Machines are a world leading engineering organisation addressing the global requirement for precision wrapping machinery for the manufacture of RTP.



Ridgway design and manufacture machinery to accurately apply the reinforcement layers using materials such as aramid, glass or carbon fibre which are thermally bonded onto polymer liner pipes. Some pipe designs do not require bonding enabling faster production.

World leading manufacturers such as Strohm & Baker Hughes already produce RTP/TCP pipes for offshore and onshore applications.

Ridgway have created a range of machinery for global customers for both offshore and onshore projects.

In addition to RTP and TCP wrapping machines, Ridgway also offer caterpillars, bonding systems and reel stands.

Quality assurance through precision tape tension control and real time data capture provides the highest quality and world class products to Ridgway's customers. The addition of RTP machinery into an extrusion company would enable the company to offer high performance pipeline solutions for their customers.

RTP is the future, playing a significant role in achieving global sustainability goals.



Ridgway Machines are a world leading engineering organisation for precision taping and winding machines for the electrical and energy industries. Ridgway have over 100 years engineering experience supplying technically advanced solutions to industries including oil and gas, aerospace, automotive, energy, nuclear and subsea. From innovative flexible designs to worldwide customer support, Ridgway provide expert solutions developed from a close understanding of its customer's individual needs. Ridgway's commitment to innovation ensures the continuous improvement of its range of machinery. www.ridgwayeng.com

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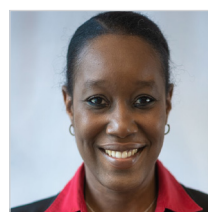
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The latest systems to measure pipe dimensions during extrusion use a number of methods – including X-rays and ultrasonics – to ensure high accuracy and quality

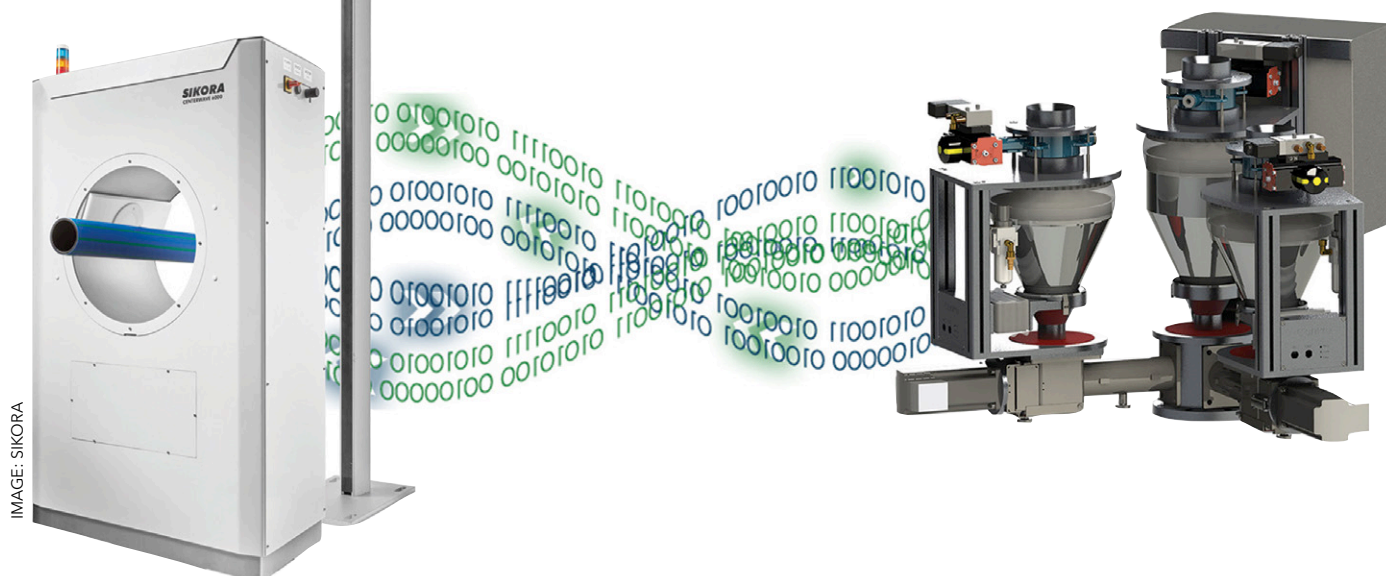


IMAGE: SIKORA

Measure for measure: control in extrusion

Despite its simple shape, an extruded pipe requires many parameters to be measured and inspected – to ensure that the final product meets quality specifications. This has led to a greater sophistication in the systems that inspect features such as wall thickness, eccentricity and concentricity.

Pixargus has modified its AllRoundDia DV system so that it can now inspect larger tubes, pipes and hoses. A hardware and software upgrade means it can now inspect round products of up to 70mm in diameter.

Established features – such as the ability to inspect both the surface and dimension with a single sensor unit – are now augmented by new system extensions. These allow enhanced defect recognition capabilities, an expanded range of analysis tools and more automated processes.

“The upgrade means that we have now more modules and more performance,” said Michael Frohn, sales manager at Pixargus.

In the upgraded version, AllRoundDia DV provides defect tracking. It is now possible to view – in parallel – the last 20 defects of the production

(instead of a previous maximum of five). The upgrade also makes it possible for operators to identify which camera has recorded the defect – allowing it to be precisely localised.

“We get more detailed information on every single defect, allowing us to better track and analyse the defects and improve the quality of production,” he said.

Allroundia DV now also includes an integrated section tracking feature that generates a defect or batch report for every batch produced. This is enabled by linking AllRoundDia via interfaces such as OPC-UA or classical direct IO wiring with the main line. In this way, the system can communicate with the cutter or coiler. If the product is recoiled after the cutter, or there is a coil change, AllRoundDia receives a corresponding signal.

The product is now available with an encoder, making it better suited for use with varying extrusion line speeds. While the basic version makes the defect calculations based on a fixed time sequence, the encoder makes use of the line speed to calculate the exact defect size. By ensuring that

Main image: Sikora and ConPro have combined their expertise in measuring technology and gravimetric weighing

Right: Pixargus has modified its AllRoundDia DV system to inspect pipes up to 70mm in diameter

the resolution at which the defects are recorded is always adequate and constant, the encoder makes defect detection more accurate and dependable.

One pipe producer – Becker Plastics, based in Datteln, Germany – has already tested the new system. The company produces plastic and composite pipes for heating and plumbing systems.

After successful pilot tests, which confirmed the performance capabilities of the new AllRoundDia DV, Becker wants to use it for quality control in its production processes.

“It is vital for us to recognise defects and the sources of defects early on in the production process and be able to take immediate remedial action,” said Pierre Baranowski, head of operations at Becker Plastics.

Measured partnership

Sikora has teamed up with ConPro in a partnership that combines their expertise in measuring technology and gravimetric weighing.

Tube and pipe manufacturers can now directly combine Sikora measuring systems with gravimetric systems from ConPro, to increase efficiency and quality in tube and pipe production. The integration of the two systems is made possible by a new interface. This is based on the latest industrial communication standards and ensures seamless communication between the Sikora and ConPro systems.

“Tube and pipe manufacturers who use our measuring devices can now intelligently combine them with ConPro’s gravimetry and benefit from the advantages,” said Holger Lieder, a member of the executive board at Sikora.

During production, the measured tube or pipe parameters such as diameter, 360° wall thickness distribution, and ovality are continuously compared by the Sikora measuring system. The weight per metre can also be quickly adjusted in real time with the gravimetric system, allowing precise control of minimum wall thickness, maximum material savings and compliance with the product specification.

The graphical integration of ConPro gravimetry into the Sikora Ecocontrol 6000 user interface enables simple, intuitive operation. Both systems work in real time. On extrusion lines with existing ConPro gravimetry and new lines, the Sikora device can be connected directly to the ConPro gravimetry via the new interface without having to go through an extruder control.

Andreas Meyer zu Küingdorf, general manager at ConPro, added: “Both systems complement each other and ensure consistently high tube or pipe quality. Material and costs are also saved.”

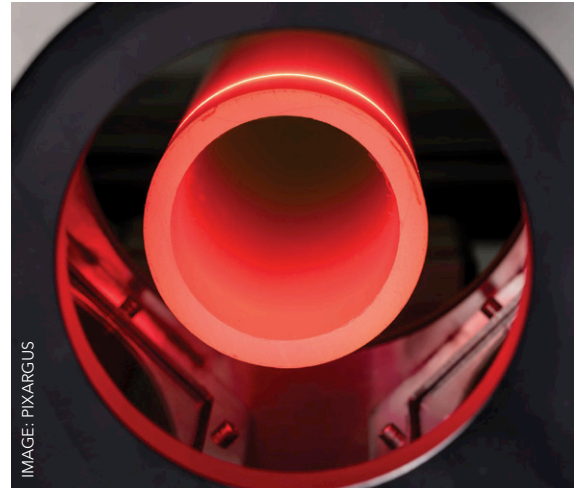


IMAGE: PIXARGUS

AI control

Sikora has also developed X-Ray 6000 Pro C-Pipe AI, a system that measures layer transitions in the production of corrugated pipes.

Combining AI-based software with an X-ray based system allows precise evaluation of the X-ray data of corrugated pipes.

There are two crucial phases during the production of corrugated pipes. At the start of manufacturing, the different layers of the pipes must be concentric. This evaluation can take several minutes – even hours – where only scrap is produced. After start-up, the products must be evaluated so they comply with predefined specifications at a certain line speed.

Scrap can be minimised by implementing a permanent wall thickness and eccentricity measurement as early as possible in the process – and to use these values to control the process and enable fast centring. Due to its hill-valley outer pipe contour, measuring corrugated pipes is challenging.

X-Ray 6000 Pro C-Pipe AI enables precise measurement of the hill-valley outer contour of corrugated pipes in the extrusion process. Measuring wall thickness and eccentricity at an early stage ensures fast centring and the reduction of start-up scrap. As well as adding reliable process control during production, this continuous quality control enables maximum cost savings, says Sikora.

Saving grace

US-based pipe manufacturer SWM International has achieved significant savings by using a UMAC ultrasonic measuring system from **Zumbach Electronic**.

The company estimates it has saved around US\$40,000 in a single year.

“We studied machine time, manpower costs and scrap costs, and the return on our investment was about three to four months,” said Todd Clarke,

production manager at SWM International. "It reduced our previous process for acquiring an accurate measurement from about two hours to five minutes."

SWM, which specialises in manufacturing polypropylene (PP) and HDPE tubes and pipes, uses the UMAC R to maximise efficiency and save cost by reducing waste.

SWM's traditional way of measuring products – off-line, using calipers – was time-consuming and resulted in significant material waste and production downtime, which drove up production costs. Adopting the UMAC R offered fast eccentricity testing capabilities, which reduced start-up times and allowed for quicker changeovers. Real-time feedback enabled immediate adjustments, ensuring consistent product quality and reduced material waste.

The UMAC R measures wall thickness, eccentricity, and concentricity of tubes and pipes with high precision. It can handle product diameters ranging from 0.2mm up to 400mm. It has been developed with a range of different transducer holders that make it very versatile.

A system-on-a-chip unit called UMAC CI is

integrated into the system. This expands capabilities with recipe-based operation (without needing manual setting manipulations based on the echo signal display), provides a 1kHz sample rate and an integrated webserver. The UMAC R provides fixed transducer holders, available in configurations for 4, 6 or 8 measuring points. The ring-shaped transducer mounting fixture is configured for installation into an existing vacuum tank and integrates seamlessly into existing production lines.

True measure

Nordson Measurement & Control Solutions says that its TrueWall gauge uses ultrasonic echoes to generate fast, accurate wall thickness, diameter, and concentricity measurements.

The sensor can output different frequencies and can measure a variety of products such as multi-layer tubing, thin-walled tubing, clear tubing, and materials including polyamide, PE and PP.

It is based on a patented AI-optimised wall measurement technology. With its auto-search, auto-setup, and auto-tracking functions, it makes waveform setup instantaneous and completely automatic, says the company. In addition, it boasts

CONEXTRU Coextrusion systems stands for individual engineering, easy to operate and maintain, suitable for a wide range of applications.



Right:
Nordson's
TrueWall uses
ultrasonics to
measure pipe
dimensions
accurately



IMAGE: NORDSON

an integrated web server that displays key data live, such as product centring, wall thickness, eccentricity, diameter, and echo waveforms.

This information enables operators to start production quickly, eliminating scrap and effectively monitoring the product specifications. The TrueWall webserver can be integrated with external laser OD measurements, line speed (encoder/LaserSpeed), and other digital inputs/outputs. In addition, it eliminates the need for a PC-based control application or separate controller, enhancing ease of use and lowering total cost of ownership.

Other benefits include: product recipe creation and storage; settings and tolerance configuration; and internal diagnostics capabilities. Fieldbus configuration files and manuals are stored inside the USDSP and easily accessed.

Wall accuracy

LaserLinc has introduced its UltraGauge+ series of ultrasonic gauges, which it says offers accurate, real-time measurements of wall thickness, layer thickness, and concentricity for cylindrical products such as plastic pipe.

UltraGauge+ can be tailored to fit specific product types and production environments. It is commonly installed on an extrusion production line for continuous in-process measurement. With precise real-time wall and concentricity measurement, operators can adjust extrusion die bolts to achieve concentricity within minutes after start-up, reducing downtime and waste.

One key benefit is its thin-wall measurement capability. The device can measure the 0.001in (25 micron) wall thickness of micro polymer medical tubing and the 0.003in (75 micron) wall thickness of metal nickel-titanium (NiTi/

Nitinol) stent tubing.

It can be paired with LaserLinc's laser micrometers for outside diameter measurement, providing an inside diameter measurement for tube, hose, and pipe. This combination enables operators to make precise, in-process measurements, reducing material usage, improved product quality, and shorter start-up cycles.

"UltraGauge+ is designed to provide precise, real-time measurements that help our customers easily achieve their production goals," said Jeff Kohler, president of LaserLinc.

The product line includes a range of sensor assemblies and accessories to support a variety of production processes and locations, making it a versatile solution for high-specification product manufacturers. For instance, it can be used with LaserLinc's Total Vu HMI for process visualisation, data logging, reporting, SPC and tolerance checking.

AI benefits

At last year's NPE, **Conair** ran a live, interactive demonstration of a new AI-driven conveying technology, which claims to "virtually eliminate" the need for human interaction or adjustments to central conveying systems.

The patented AI technology creates and maintains optimal source-to-destination material flows regardless of material characteristics, distances, or destinations and automatically compensates for common conveying problems.

"Artificial intelligence will not only optimise the process of conveying but will also eliminate labour costs – specifically the need for error-prone manual interactions with the conveying equipment," said Sam Rajkovich, VP of sales and marketing at Conair.

In addition, Conair has added an optional AI-driven feature to its ResinWorks centralised, multi-hopper drying system. ResinWorks with Optimizer automates the process of maintaining

Right: Conair
has added an
AI-driven
feature to its
ResinWorks
multi-hopper
drying system



IMAGE: CONAIR



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process-ready resins at the correct temperatures and varied throughputs, while preventing over-drying and delivering energy savings.

Typical ResinWorks systems rely on operators to physically actuate a manual damper to manage and balance airflows into each active hopper. While this is mechanically simple and reliable, it is generally based on the use of fully loaded hoppers and a predicted throughput rate for each material. This means that any changes or interruptions in hopper usage, resin mass flow through each hopper, or process resin demand can introduce imbalances that are difficult for operators to manually detect and correct. The system was developed to address this common challenge.

AJ Zambanini, director of product management at Conair, said: "Central drying systems are often 'up-sized' to meet maximum demand and throughput requirements. Yet, in many cases, they run at less-than-maximum levels, resulting in suboptimal airflow, potentially over-dried material, and excess energy usage and cost."

Medical expertise

Davis-Standard showed its in-house medical tubing capabilities at the recent MD&M West exhibition.

With Conair and Zumbach, it showcased a static silicone tubing line, a four-lumen Pebax line and a three-lumen TPE bump tubing line.

The four-lumen Pebax tubing line merged the in-house medical tubing technologies of Davis-Standard and Maillefer. The lightweight, elastomeric properties of Pebax have made it a material of choice for medical applications involving fluid transfer, catheters and balloon tubing. The line included Davis-Standard's HPE extruder with a Maillefer die and downstream equipment. A Zumbach gauge system and servo air controllers – along with a Conair chiller and drying system – completed the line.

In another demonstration, they produced multi-lumen taper tubing used in cardiology applications. A Davis-Standard HPE extruder with XEL drive and control system was paired with Conair downstream equipment and Zumbach gauge controls – which modelled the process for producing three-lumen tubing for heart catheters used in minimally invasive therapies. The process requires meticulous dimensional control of a

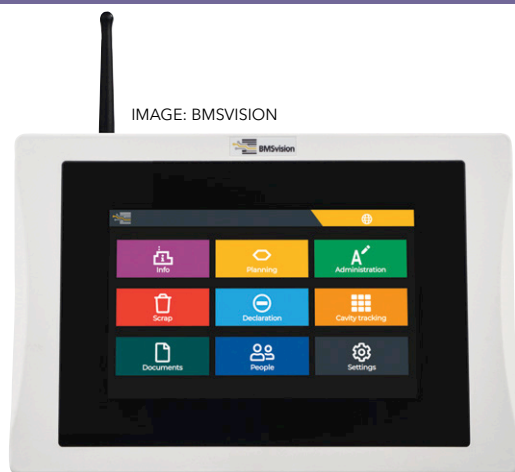


IMAGE: BMSVISION

changing taper tubing profile as well as the profiles for each internal lumen.

"By harnessing the collective expertise of Maillefer brand and collaborating with Conair and Zumbach, we're proud to introduce advancements that will shape the future of medical device manufactur-

ing," said Joe Wnuk, VP of elastomer and pipe/profile systems at Davis-Standard.

Smart energy

At last year's Fakuma exhibition, **BMSvision** showed a number of systems that can help plastics extruders to raise performance.

One was its energy management solution called EnergyMaster – which makes energy flows transparent and relates the exact energy cost to each product. Excessive consumptions or low e-KPIs are automatically detected and reported in real time, it says. EnergyMaster is BAFA-approved in Germany which means 30-40% of the investment can be subsidised.

In addition, PlantMaster is the company's dedicated MES system for the plastics industry. It monitors, in real time, the production machines and processes in the factory and provides managers with useful information. The digitalisation of the factory improves efficiency, profitability and competitiveness without loss of quality, it says.

A new version of Web-DU, which is typically used as a group terminal, was showcased with various new features to assist operators and technicians in optimising their workload.

Finally, BMSvision's DU11 v2 data units are equipped with a new, faster processor to increase customer experience. A swipe functionality has also been added, so operators can easily access the necessary screens by swiping left, right, up or down. The user interface of these data units has been updated with a new and modern look which is easy on the eyes and pleasant to operate.

Left:
BMSvision's
DU11 v2
data units are
equipped with
a new, faster
processor

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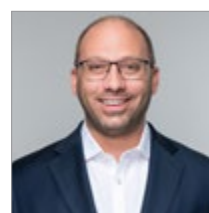
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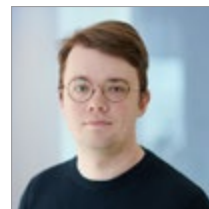
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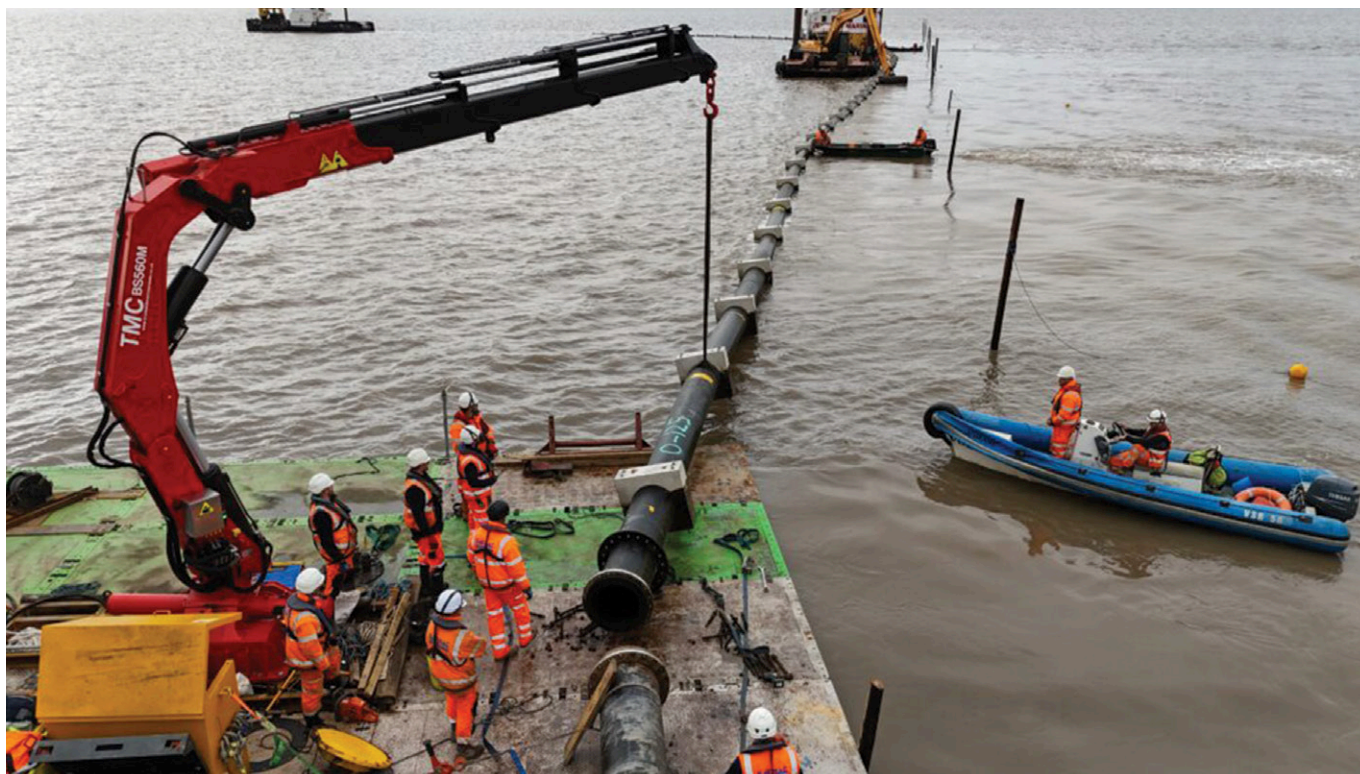


IMAGE: KAYMAC

Standing tough: latest in polyolefins

Polyolefins are still the dominant material for plastic pipes, as shown in recent applications in water transport, cable protection and geothermal heating

Polyolefins remain the most used plastic, with huge volumes consumed in the construction of plastics pipes. The toughness and relative affordability of these materials - whose properties can be raised by crosslinking or the use of different catalysts during production - make them as critical as ever in a variety of applications.

Kaymac Marine & Civil Engineering recently completed a marine infrastructure upgrade in the Severn Estuary in the UK - replacing a long sea outfall pipeline that was originally constructed in 1960.

The company led the £8.4 million project as the principal contractor, installing a 1.4km 560mm HDPE outfall pipe to replace the original concrete-coated steel pipe.

The new HDPE pipe was manufactured by **Pipelife** Norge in Norway and towed 1,134

nautical miles to the site in 11 sections. On arrival, each section underwent stringent inspections and testing before installation preparations began.

This included installing more than 260 bespoke pre-cast concrete ballast collars to stabilise the pipeline against hydrodynamic forces and buoyancy. These ensured the pipe remained securely in place once submerged in the trench.

A key milestone was towing the first 250m section of pipe to the installation site. This segment, equipped with 50 concrete collars, was positioned over the trench at low tide, sunk with guidance from the dive team, and backfilled with previously excavated spoil.

The pipe installation was completed in four separate sections, totalling 1.47km, with a diffuser head separately installed through diving operations at the seaward end. A backhoe dredger

Main image:
Kaymac
recently
installed 1.4km
of Pipelife's
HDPE pipe in
the Severn
Estuary in
the UK



Above: Neste will supply renewable feedstocks from its Porvoo plant to Borealis

placed the previously excavated material over the pipe, and approximately 210 pre-cast articulated concrete mattresses, each weighing 8.3t, were laid to provide further protection.

Energy intensive

In summer 2024, transmission system operator Tennet began connecting three offshore wind farms – off the island of Baltrum – to Germany's extra-high voltage network. The connections were protected by Power Protect PE-RT pipe from **Egeplast**, which was installed by horizontal drilling to protect the natural environment.

Connecting offshore wind farms to the grid requires so-called grid connection systems. Tennet builds these with The Egeplast pipes for high and extra-high voltage cables for up to 525 kV.

The offshore connections run from Baltrum to the mainland. To protect the sensitive environment of the mud flats, Tennet opted for horizontal drilling to cross under the island and the embankments. Here, the high temperature-resistant Power Protect PE-RT, 450 x 61.5mm pipes are used, as they can withstand the high thermal loads involved. With its combination of high flexibility and stability, the PE pipe provides the optimal properties for the horizontal drillings, says Egeplast.

In a second project, decommissioning an old sewage treatment plant in Neckargerach in Germany meant that a new 9km pressure pipe was needed. This was implemented using SLM DCS pipes from Egeplast.

One specific challenge was that the pipe had to be laid across a flood plain along the river Neckar – as well as through drinking water protection zones.

To safely divert the sewage, the contractor opted for fully monitored SLM DCS pipes. The intelligent early warning system offers two advantages:

permanent leakage monitoring, which allows for documenting damage-free installation; and the ability to detect and solve any potential damage.

For easy maintenance and cleaning of the pipeline during operation, various SLM DCS pigging stations were installed. SLM DCS pipes have a multi-layer structure in which the inner pipe is made from PE 100-RC.

Renewable line

Neste is to supply polyolefins producer **Braskem** with a series of renewable and recycled feedstocks for polymers production.

Braskem products based on these feedstocks will be sold mainly in South America and included in Braskem's Wenew product portfolio.

"We're introducing a new solution that will adhere to the industry's high quality standards while ensuring sustainability right from the start of the value chain," said Fabiana Quiroga, director of circular economy at Braskem in South America.

Braskem will sell resins and chemicals made from Neste RE, a feedstock made from plastic waste via chemical recycling and from processing renewable raw materials such as used cooking oil (UCO).

Chemical recycling enables the recycling of plastic waste that is otherwise difficult to recycle, such as multi-material or coloured plastics.

"We are looking forward to seeing our Neste RE solution in action in South America, reducing the dependence on virgin fossil feedstock in the production of polymers," said Jeroen Verhoeven, commercial director for polymers and chemicals at Neste.

Resistant material

Borealis says that its BorSafe HE3490-LS-HP material is now certified as PE100-RD

with higher resistance to water disinfectants.

Ensuring that the polyethylene (PE) pipes used in water networks are resistant to disinfectants is key to their reliability and long working life. This is critical when aggressive disinfectants are used in high-temperature regions.

Water management company Suez has developed an accelerated ageing methodology to test the long-term effects of exposure to water disinfectants on PE100 pipes in drinking water systems. The 18-month test, involving exposure to controlled chlorine dioxide concentrations, is designed to simulate the conditions of aggressive media in drinking water distribution.

Its recently completed test of BorSafe HE3490-LS-HP, which uses Borstar bimodal technology, has

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Above: A New Orleans project to replace water transmission mains used 4,400ft of 48in HDPE pipe from Agru

resulted in the material's certification as disinfectant resistant under the NF114 quality mark group 2 as PE100-RD managed by LNE (Laboratoire national de métrologie et d'essais).

The high performance of the grade was shown by its resistance lasting for 24 months - at which point the test was stopped.

The material's performance makes suitable for no-dig installation methods, as well as renovation methods such as pipe slip lining, pipe bursting or pipe slitting. Here, its high resistance to slow crack growth enables cost effective and less invasive installation methods, while keeping maintenance costs low and leakage rates low, says Borealis.

"We are pleased that BorSafe HE3490-LS-HP has been validated through robust testing by Suez experts," said John Webster, global commercial director for infrastructure at Borealis.

Pipe comparison

US-based **Plastics Pipe Institute** (PPI) has published a document providing a technical basis for comparing PE 100-RC and PE4710 pressure pipe. The document, TN-68, provides a perspective on the slow crack growth (SCG) resistance requirements for the PE 100-RC designation in comparison with the North American PE4710 designation.

"The PE 100-RC concept has been around since 2009," said Patrick Vibien, technical director of PPI. "However, there is a lack of clarity to the implications of the designation and a lack of consensus on whether a comparable designation has value for the North American industry given the already elevated SCG resistance requirements of PE4710."

Development of the PE 100-RC designation was not due to documented performance issues with PE 100, he said. The grade designation has been promoted internationally by the PE 100+ Association and is now being introduced into ISO and CEN standards, he added.

"Although PE compounds are fairly similar, the test methods and requirements for assessing the performance of the designations differ significantly," he said. "Our document goes into detail about this and provides a comparison chart and other data that can be helpful."

Polyolefin projects

Several polyolefin pipe projects were successful at last year's PPI awards. In the building and construction category, the award went to Versaprofiles of Canada, for a geothermal heating and cooling system for the 1 Java Street project - the largest mixed-use development in New York State to incorporate a ground source geothermal system for heating and cooling. When completed in 2025, there will be more than 800 residential apartments plus retail spaces in the block in Brooklyn. The geothermal system included 321 vertical boreholes drilled 499 feet into the ground, spaced 15ft apart with a 1.25in diameter high-density polyethylene (HDPE) PE4710 pipe inserted into each. A total of 326,000ft was used in the boreholes with another 31,000ft of HDPE pipe in various diameters used for lateral distribution.

At the University of Alabama, its Crimson Tide stadium required a non-typical underground drainage system. Because it is often used in playoff games, it now has a system that can provide heat to support grass growth in the cooler months. Hundreds of feet of both perforated and non-perforated HDPE Goldflo dual-wall pipe from Prinsco was used. In Texas, 7,000 ft of 1.25in HDPE pipe from Petroflex was used to construct an aquatic habitat for the fish in Lake Conroe. The synthetic branches accumulate algae and plankton to feed the numerous species of fish in the lake. The HDPE conduit was better than small trees, limbs or brush because it does not deteriorate and can be easily configured into various shapes.

And in New Orleans, authorities launched the huge South Claiborne project to replace its 100-year-old water transmission mains with a modern piping system. It featured an innovation from **Agru** called compressed fit, which uses existing infrastructure as a framework for installing a new pipeline to minimise disruption.

Agru expanded its production capabilities to include 30in and 48in SDR 17 solid-walled HDPE pipes to support the installation. In all, the project required 4,400ft of 48in pipe, installed by Murphy Pipeline Contractors.

Especially important to this section of New Orleans was the pipe's corrosion resistance, flexibility, durability, and lower seismic susceptibility

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Astrid Della Porta, Commercial Manager, Market Intelligence

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than other piping materials such as concrete or steel.

Thanks to the compressed fit installation approach and HDPE pipes, project owners estimated an overall 25% savings compared with other methods.

Data cooling

Agru has also supplied a PE 100-RC piping system to a new data centre in Poland. The centre, owned by Data4Poland, uses the piping as part of its cooling water system.

"The ever-increasing dependence on digital services requires server rooms that can withstand the highest loads," said Agru. "Reliable cooling of the data servers is particularly critical here."

The heart of the cooling system is a piping system that connects the heat exchangers to the server rooms. The pipelines were designed to operate with water at 18-23°C and a pressure of 2.5-3 bar.

Agru supplied the PE 100-RC pipes and fittings for the cooling system. The pipes have diameters of 75-280mm and were joined using butt welding and electrofusion fittings.

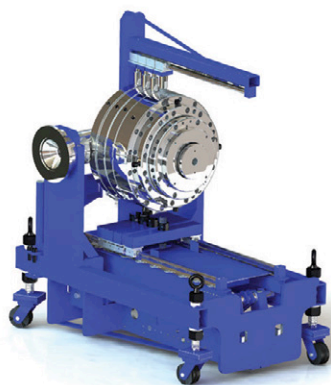
PE 100-RC is characterised by special crack resistance and long-term reliability. This is an advantage for exposed pipe systems, as the material increases operational safety, especially for welded joints, says Agru. Its high UV resistance also makes it suitable for outdoor installation, while the material can also cope with temperatures below freezing. It can also absorb water hammer and vibrations. Because it also provides basic insulation for the piping system, less insulation material is needed. Because of the lower weight of the plastic pipe, the pipe clamps are also subject to less stress.

During the construction process, an external auditing company supervised the work to ensure that the high technical standards of the products supplied were maintained during installation.

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showcase/plasticsworld](https://uk.linkedin.com/showcase/plasticsworld)

DRAINAGE

Sustainable additive helps raise output

Timewell Drainage Products has used a variety of additives from GreenMantra Technologies to help it incorporate recycled HDPE into its stormwater and agricultural drainage pipe.

It has used Ceranovus PN speciality polymer additives as processing aids – made from waste plastic using a patented molecular recycling process – to raise output of its pipe.

The additives act as melt flow modifiers to help Timewell smooth out processing inconsistencies resulting

from variability in post-consumer and post-industrial recyclate (PCR/PIR).

They also help Timewell to increase production line speed by up to 25% without raising energy use and costs.

“When we began producing HDPE stormwater pipe with a high percentage of PCR, we saw processing issues like higher extruder torque,” said Jake Colclasure, chief operating officer at Timewell. “Using GreenMantra’s sustainable additives, we were able to increase line speeds at the same fixed

costs, including energy costs.”

By providing an alternative to fossil-based additives, GreenMantra products help Timewell decrease the carbon footprint of its pipe. Samples of Timewell’s HDPE drainage pipe made this way were seen at last year’s NPE. Its dual-wall corrugated stormwater pipe contains up to 50% recycled content, while its single-wall, corrugated agricultural drainage pipe uses around 40%.

➤ <https://greenmantra.com>

ADDITIVES

TiO₂ grade free of TMP and TME

Venator, a supplier of speciality chemicals, has introduced a TMP- and TME-free Tioxide TR81 grade – the first in a series of reformulated titanium dioxide (TiO₂) pigments.

This, it says, will help customers in the plastics sector stay ahead of evolving regulations while maintaining high-performance formulations.

Designed to meet stricter chemical regulations, the new pigment delivers the same opacity, brightness, dispersibility, and durability as its predecessor – without trimethylolpropane (TMP) or trimethylolethane (TME). By replacing TMP with different organic compounds, customers can meet compliance requirements without compromising performance.

➤ www.venatorcorp.com

IRRIGATION

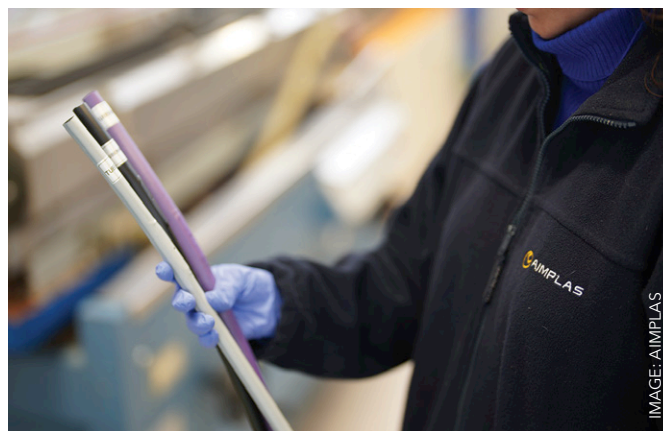
Research project looks for natural way to stop pests

Aimplas of Spain is taking part in the Walldrip project, which plans to develop a novel system to protect drip irrigation by repelling insects without using pesticides.

The aim is to enable irrigation pipes and emitters to protect themselves by introducing natural additives with repellent properties into their composition, in an attempt to promote sustainable agriculture.

Other project partners are Azud – a specialist in filtration and irrigation systems – the Centre of Soil Science and Applied Biology of the Segura (CEBAS-CSIC) and the Murcian Institute of Agricultural and Environmental Research and Development (IMIDA).

The project is in line with the European Union’s aim to minimise the use of



chemicals in agriculture. It will initially develop the first of two prototype of high-precision emitter pipes with controlled protection mechanisms against pests.

Elena Domínguez, a researcher in controlled release and soil quality at Aimplas, said: “Legislation, industry and society need to work together to develop integrated and sustainable solutions that provide farmers with tools to produce more food in an increasingly efficient way,

optimising the use of natural resources.”

The aim is for the irrigation pipe and emitter to be able to protect themselves through modification of their manufacturing process and design.

“In the case of the pipes, we incorporate repellent substances that are respectful of the fauna in the soil and protect the irrigation installation – thus increasing durability,” she said.

➤ www.aimplas.es

PEX

Taking steps to recycle PEX

Sweden-based LK Systems is looking to increase circularity by developing a way to recycle PEX scrap.

PEX is commonly used in the plumbing industry for its pressure resistance and flexibility but is considered difficult to recycle.

"This is a major step for us in finding a sustainable solution for recycling PEX," said Hans Bramevik, sustainability manager at LK Systems.

Tests are ongoing to determine which products



IMAGE: LK PEX

are best suited for the material.

"We see great potential in scaling up this process and using recycled PEX in various products," said Bramevik. "It

is not only a way to reduce our footprint but also a way to create value from material that would otherwise go to waste."

➤ www.lkpex.se

HTPs

PPS aimed at tough pipe uses

Syensqo has launched Ryton PPS XE-5000NA, the first grade of an extrudable polyphenylene sulphide (PPS) for piping materials.

The material provides a safe, proven solution for pipes working at high temperatures and pressures. Its chemical and permeation resistance makes it an economical and efficient choice for both traditional and emerging energy applications, says the company.

"There is a growing need for new piping materials solutions capable of exceeding the chemical, thermal and pressure resistance of conventional polyethylene or polyamide resins without compromising processability or efficiency," said William Sattich, principal scientist for PPS at Syensqo. "Ryton PPS XE-5000 delivers high-performance extrudable thermoplastic compounds with a permeation resistance superior to that of common piping materials."

The material is commercially available worldwide.

Mike O'Brien, global marketing manager for energy at Syensqo, added: "The new grade expands the legacy of Ryton into higher performance non-metallic piping solutions."

➤ www.syensqo.com

BIOPLASTICS

Spiral hose is biodegradable

Masterflex, which makes hose and connection systems, says it has produced a cradle-to-cradle spiral hose prototype made from biodegradable polymer.

The breakdown of the hose is metabolised by micro-organisms and so provides nutrients for the environment. Further development steps include the selection of

environmentally friendly adhesives, additives and wire.

"We show our customers and other interested parties how recycling and technical excellence go hand in hand," said Christian Horstkötter, managing director of Masterflex.

The latest prototypes are being prepared for series production and will gradually expand and transform

the existing product range. Masterflex plans to transform its business model into a system based on a circular economy by 2035. Its consulting and product business will gradually be realigned and expanded to include services such as systematic support for take-back, recycling and eco-certification.

Andreas Bastin, CEO of the Masterflex, added: "Our vision is a circular economy for plastic hoses and connecting systems with minimised resource consumption. Companies can now get involved early in the development of circular hose solutions. Pilot customers can help shape individual solutions and benefit from innovative added value."

➤ www.masterflexgroup.com



IMAGE: MASTERFLEX

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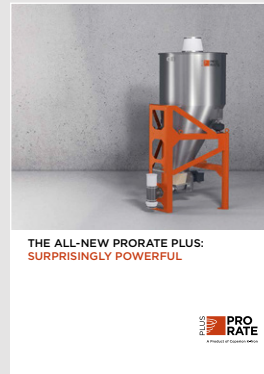
INOEX: WARP PIPE MEASUREMENT



The WARP contact-less radar-based pipe measurement system from Inoex uses terahertz technology to provide simple and effective multi-point dimensional control of thick and thin wall plastic pipes. Learn more in this brochure.

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COPERION: PRORATE PLUS FEEDER



The new ProRate Plus feeder system from Coperion K-Tron offers a cost-effective and simple-to-configure gravimetric option for processors looking for reliable handling of pellets and free-flowing bulk powders.

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MIXACO: MIXING TECHNOLOGY



Mixaco has been driving innovation in PVC mixing technology for more than 50 years and has 7,500+ machines installed worldwide. This brochure explains some of the details that make its HM and KMH heating cooling mixers stand out.

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PIXARGUS: INLINE PROFILE INSPECTION



For over 25 years, PIXARGUS has been at the forefront of manufacturing cutting-edge systems for quality inspection of extruded products. The iProfilControl system, shown in this brochure, provides 360° all-round inspection of profiles of any kind.

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NDC: PRECISION GAUGING



The Accuscan Pro series single-axis diameter gauges are the latest addition to the NDC Technologies precision on-line measurement product line. Learn more about performance and features in this four-page brochure.

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WEBER EXTRUSION TECHNOLOGY



Hans Weber has been developing and producing extruders, extrusion systems and extruder screws for more than 60 years. The German company has a large technology range for pipe and window profile extrusion, as shown in this brochure.

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LK Pex

Head office:	Ulricehamn, Sweden
CEO:	Fredrik Simonsson
Founded:	1998
Employees:	Around 400 (parent company LK Group)
Ownership:	Private
Profile:	LK Pex, founded in 1998, is part of the larger LK Group that began life in 1910. The Swedish family-owned company manufactures PEX-a and PE-RT pipes, as well as pipe-in-pipe products that are suitable for heating and tap water systems.
Product lines:	The company produces PEX-a and PE-RT pipes, as well as pipe-in-pipe products. Its PEX-a pipes are for both heating and drinking water. It has in-house expertise in pipe processing, crosslinking technology and tooling design. These pipes – which are crosslinked by peroxide – are made in a one-step process with extrusion followed by shortwave infrared-initiated crosslinking – plus optional extrusion of oxygen barrier layers for pipes used in heating systems. They are available in sizes of 8-110mm. PE-RT pipes are designed for use in floor heating but can be used in other applications such as snow-melting systems. They are five-layer constructions with an embedded oxygen barrier for optimal performance, available in dimensions of 16-25mm.
Factory location:	The company's single production facility is in Ulricehamn, Sweden. Here, it runs 14 production lines – working five shifts around the clock – and makes “millions of metres” of pipe each year. It recently initiated a project to increase circularity by developing a way to recycle PEX scrap. While PEX is commonly used in the plumbing industry, it is considered difficult to recycle. Tests are ongoing to determine which products are best suited for the recycled material.

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



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Pipe and Profile Winter 2024

Pipe and Profile Extrusion's Winter 2024 edition has a cover feature showing how R&D is helping wood-plastic composites continue to improve, while other features are on large-diameter pipe, materials handling products and PVC additives.

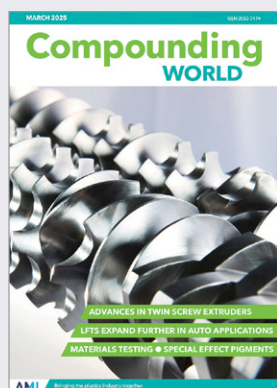
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Pipe and Profile Autumn 2024

Pipe and Profile Extrusion's Autumn edition has features that explore applications for pressure pipe, recent developments in recycling and granulation, and new extruder technology. Plus a preview of the Plastics Extrusion World Expo in Cleveland in November.

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Compounding World March 2025

The March issue of Compounding World magazine has a cover feature on technological developments in twin screw extruders, plus updates on special effect pigments, materials testing and long fibre thermoplastics.

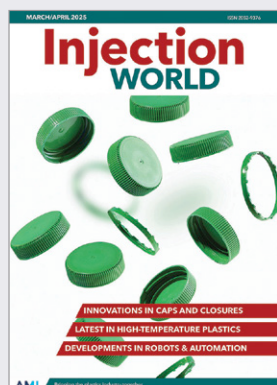
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Plastics Recycling World January/February 2025

Plastics Recycling World's January-February edition looks at technology partnerships in recycling flexible packaging waste, plus trends and products in pelletising and the ongoing sustainability drive of the PVC sector.

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Injection World March/April 2025

The March/April issue of Injection World magazine reports on expert opinion in the caps and closures sector, performance polymers in high-temperature operating environments and the use of AI for automation and robotics in injection moulding.

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Film and Sheet March 2025

The March issue of Film and Sheet Extrusion has a cover story looking at the increasing sophistication of control systems for film and sheet companies, while other features cover the latest developments in thermoforming, barrier film and additives for film.

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Compounding
WORLD

Film and Sheet
EXTRUSION

Pipe and Profile
EXTRUSION

Injection
WORLD

Plastics Recycling
WORLD

GLOBAL EXHIBITION GUIDE

2025	15-18 April	Chinaplas, Shenzhen, China	www.chinaplasonline.com
	7-8 May	PlastTeknik Nordic, Malmö, Sweden	www.plasttekniknordic.com/en/
	8-10 May	RePlast Eurasia, Istanbul, Turkey	www.replasteurasia.com
	13-15 May	Kuteno, Bad Salzungen, Germany	www.kuteno.de
	14-17 May	Plastics & Rubber Thailand, Bangkok, Thailand	https://www.plasticsrubberthailand.com
	20-23 May	Plastpol, Kielce, Poland	www.targikielce.pl/en/plastpol
	27-30 May	GreenPlast, Milan, Italy	www.greenplast.org
	8-15 October	K2025, Dusseldorf, Germany	www.k-online.com
	12-13 November	Plastics Extrusion World Expo North America, Cleveland, OH, USA	https://na.extrusion-expo.com/
2026	3-6 December	PlastEurasia, Istanbul, Turkey	https://plasteurasia.com
	20-22 January	Swiss Plastics Expo, Lucerne, Switzerland	https://swissplastics-expo.ch
	2-4 June	Interplas, Birmingham, UK	www.interplasuk.com
	2-5 June	Equiplast, Barcelona, Spain	www.equiplast.com

AMI CONFERENCES

1-2 April 2025	Medical Tubing and Catheters, Dusseldorf, Germany
19-21 May 2025	Polymer Sourcing and Distribution, Malaga, Spain
21-22 May 2025	Polymers in Energy North America, Tampa, USA
17-18 June 2025	Masterbatch, Malaga, Spain
10-11 September 2025	Polymers in Hydrogen and CCUS Infrastructure, Germany
15-17 September 2025	PVC Formulation Europe, Dusseldorf, Germany
2-3 December 2025	Polymer Engineering for Energy, London, UK
2-3 December 2025	Polyolefin Additives, Cologne, Germany

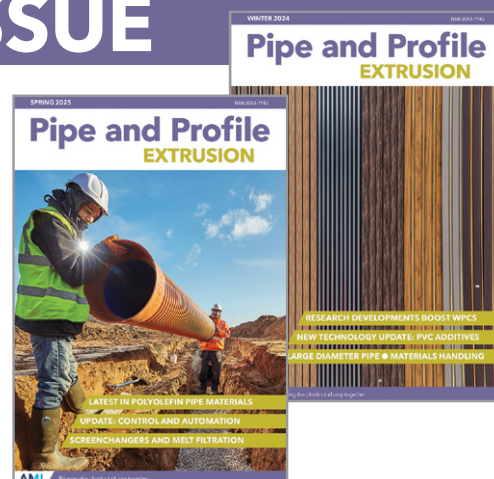
For information on
all these events
and other conferences
on film, sheet,
pipe and packaging
applications, see

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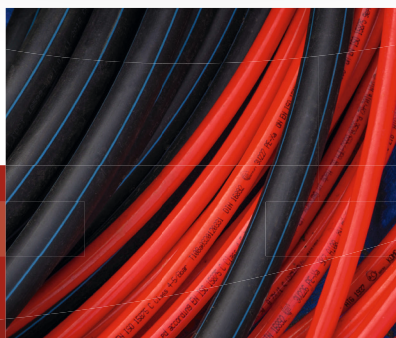


iNOEX
INSPIRE BEYOND MEASUREMENT

FOR MAXIMUM EFFICIENCY AND QUALITY

WE SET THE STANDARDS.

For over 40 years, iNOEX has been a trusted solution provider of innovative, high-quality measurement technology in the plastics industry. Our intelligent, user-friendly systems bring lasting added value to your extrusion processes.



Many of today's manufacturing sectors face increasingly complex challenges that can influence their success. Our products are designed for a wide range of pipe, tube, cable, and profile extrusion applications, serving as comprehensive solutions for process automation.



INSPIRE BEYOND MEASUREMENT

TODAY'S CHALLENGES

- » Long-term competitiveness
- » High standards for product quality
- » Increasingly complex requirements for process and product data documentation
- » Shortage of skilled labor resulting in a loss of manufacturing process knowledge
- » Rising material costs and strict sustainability targets
- » Production environment digitization



Our broad and innovative product portfolio enables us to respond flexibly to market challenges.

This is why we are a solution provider for the pipe, cable, profile and film extrusion industry.

Jan Lohoff

CEO iNOEX Group

In addition to global supply chain issues and the overall economic climate, the challenges mentioned above are particularly relevant to much of the plastics processing industry today and therefore also to the production of pipes, tubes, and cables.

Improving efficiency and achieving the highest level of accuracy is not possible without systematic process automation.

Finding solutions to these challenges requires the ability to react quickly to changes in the market and, at the same time, meet the highest standards when it comes to product quality, accuracy, and documentation. This requires precise wall/layer thickness distribution data, compliance with limit values for ovality and eccentricity, the ability to easily adjust

varying product parameters, and robust and durable system components.

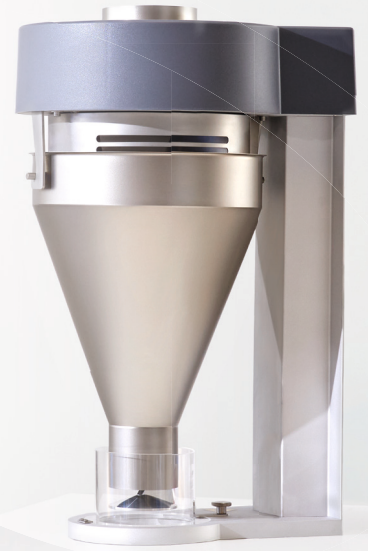
The demand for high-quality products yet the shortage of skilled workers has created a major challenge for many branches of industry. In combination with our gravimetric systems, our measuring systems offer various control options to ensure consistently high product quality. The data collected for process improvement and quality control create the data pool used for automation.

This holistic approach makes us a solution provider for the plastics industry. Manufacturers benefit from increased material savings of up to 5% and drastically lower quality assurance and documentation costs, resulting in a quick return on investment. At a time when there is a growing shortage of skilled labor, plant managers are no longer solely dependent on specific plant operators with many years of experience.

OUR SOLUTIONS AT A GLANCE

SAVEOMAT gravimetric dosing

Our SAVOMAT product line measures, controls, and doses a wide range of raw materials with the highest level of precision. It is suitable for both mono- and co-extrusion and can be seamlessly integrated into your production line, serving as the foundation for a customized process automation approach. From pipes and films to cables and profiles, our systems are designed for a variety of applications and ensure consistent quality in each stage of your production process.



AUREX ultrasonic measuring system

Our intelligent AUREX ultrasonic systems not only reliably measure pipe diameter, wall thickness, ovality, and eccentricity with precision. Defect detection is also available as an option. The result is higher quality single- and multi-layer pipes and cables. When combined with our SAVEOMAT gravimetric systems, the entire process can be completely automated.



WARP radar-based measuring system

Developed using our own sensor technology, WARP radar measuring systems provide precise, non-contact measurement with automatic centering and (optional) 100% pipe coverage. Our inline system is specifically designed to measure smooth walled and corrugated pipes to give you maximum flexibility. Thanks to advanced chip technology, our WARP systems are reliably accurate and efficient.



iXRAY X-ray measuring system

Our non-contact iXRAY X-ray technology measures the diameter and wall thickness of single and multi-layer pipes and hoses with precision. The advanced 3-axis technology measures twice the number of points of a 2-axis system, resulting in improved ovality detection. Our systems are versatile and perfectly suited for aluminum multilayer pipes, fabric-reinforced pressure hoses, pipes, and cables.



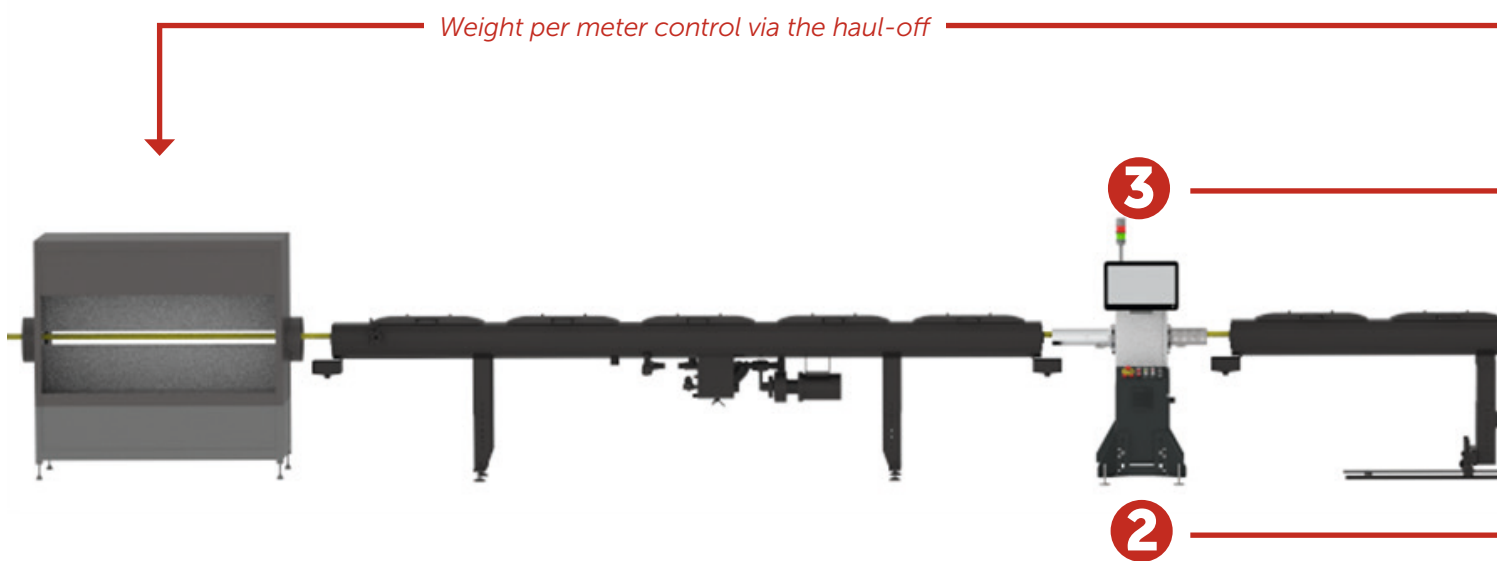
TURN YOUR MEASURING SYSTEM INTO AN INSTRUMENT FOR CONTROL

One of the main challenges many manufacturers face today is fulfilling increasingly complex product and quality control requirements while at the same time experiencing a shortage of labor. **Improving efficiency and achieving the highest level of accuracy is not possible without systematic process automation.**

As a solution provider for pipe extrusion, automation is therefore our guiding principle.

Combining gravimetry with a measuring system and control technology is the key to increasing productivity, significantly reducing costs, and at the same time ensuring the highest level of quality possible.

Furthermore, when raw materials are used efficiently, you move closer to achieving your sustainability goals and securing your competitive advantage for the future.

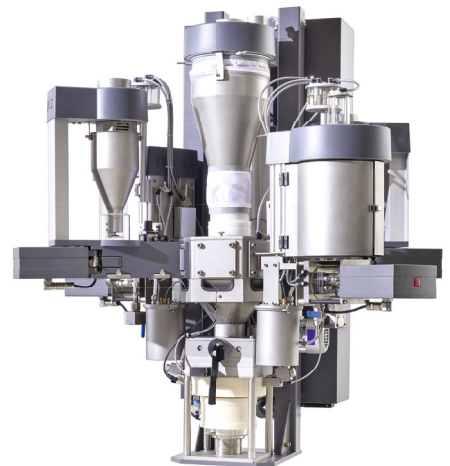


1 THE ROLE OF GRAVIMETRY

Every raw material is subject to fluctuations in bulk density. Gravimetric weighing allows fluctuations in mass throughput to be recorded and automatically balanced out. In principle, gravimetry offers two control options: mass throughput control and meter weight control.

Mass throughput control: The extruder speed is adjusted to the material feed into the extruder.

Weight per meter control: The haul-off speed is controlled based on the amount of material fed into the extruder. This keeps the weight per meter constant and eliminates fluctuations in wall thickness in the direction of extrusion. The smaller fluctuations also reduce the target wall thickness, saving material.

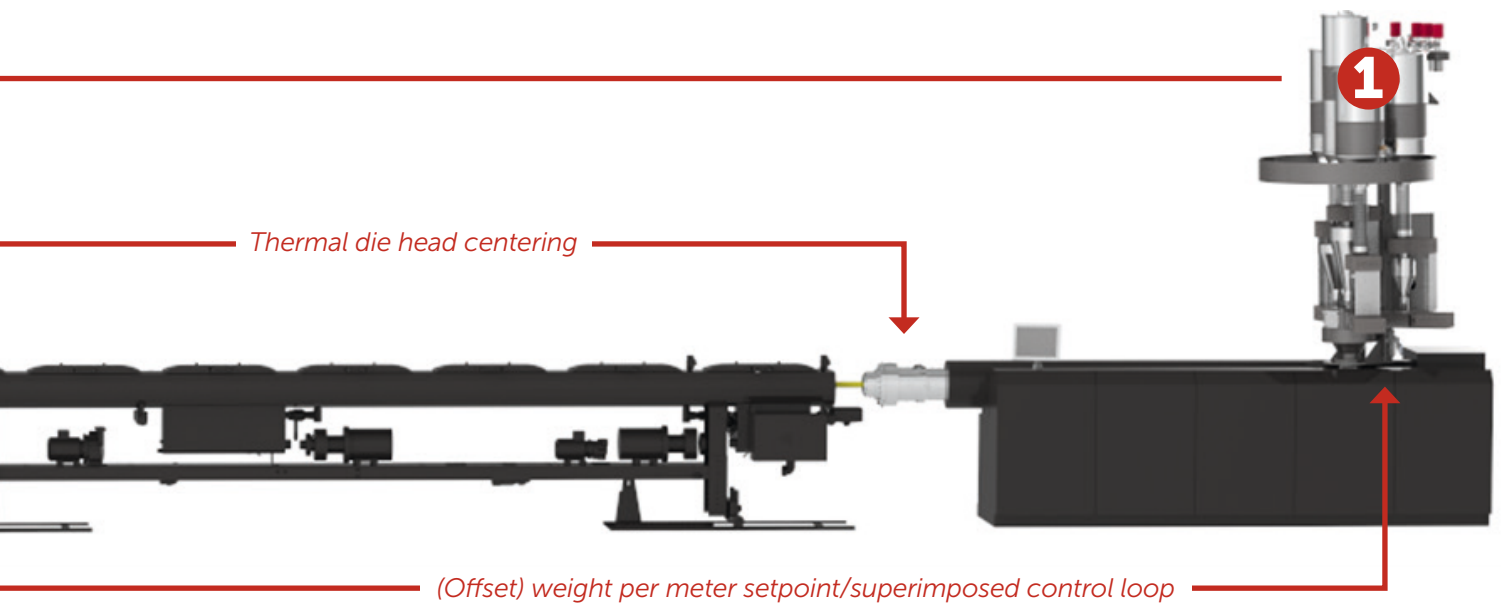
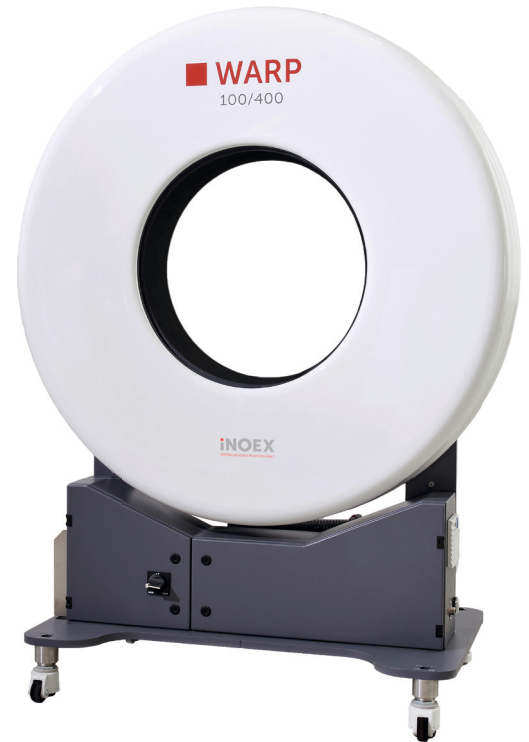


2 THE ROLE OF THE MEASURING SYSTEM

The wall thickness measuring system is integrated into the production line and offers additional control options during the extrusion process. The system measures important parameters such as diameter, wall thickness, ovality, and eccentricity.

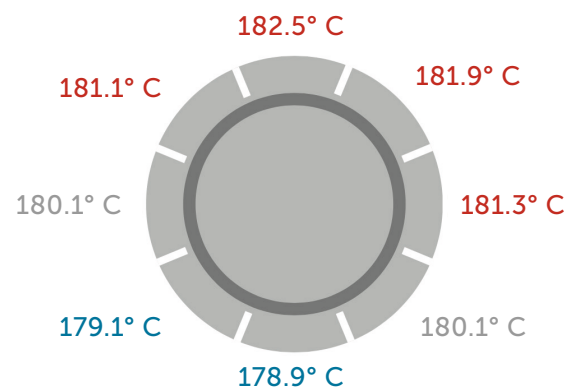
Thin point control: This is where the pipe or tube is first measured. The thinnest point defines the control section. The control system then calculates the new target value for the weight per meter and adjusts the haul-off speed, which also changes the wall thickness.

As a result, the system records fluctuations in mass throughput and wall thickness so adjustments can be made. This ensures a further reduction in weight per meter. Wall thicknesses are significantly reduced while the minimum wall thickness is maintained.



3 FURTHER CONTROL OPTIONS

Thermal die head centering: Thermal die head centering for PVC pipes helps save material. The measurement data from the measuring system can be used as a starting point for manual pipe centering. The wall thickness distribution and pipe geometry are recorded by the measuring system and temperature adjustments are then made according to the optimum wall thickness and pipe geometry. New target values are defined and set for the temperature zones. The resulting change in melting speed in the heating zone reduces eccentricity. This leads to a further reduction in the weight per meter and optimal end products.



40
1984-2024
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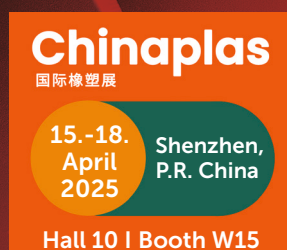
iNOEX
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For more than 40 years, the iNOEX name has been associated with cutting-edge solutions and breakthrough innovations in measurement and control technology for pipes, tubes, cables, and profiles. As an integrated solution provider, we offer intelligent and innovative solutions and services that create added value for our customers. Our products stand for quality, reliability, and ease of use.

Approximately 150 employees worldwide are an important pillar of the company, contributing to the company's success with their experience, knowledge, and skills. Our goal is to inspire our customers through innovative strength, the courage to push boundaries, and a wide range of products and services.

Customer service is our top priority. That is why continuous and open communication is important to us. Successful, long-term partnerships and the daily challenge of finding the right solution for your requirements motivate us to drive innovation forward.

#iINSPIRATION #iINNOVATION #iINTEGRITY



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