



Ajax Equipment has delivered two new screw augers to AMG Chrome (see p3).

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SOLIDS Dortmund 2026 (18-19 March 2026) celebrates its 20th anniversary next year (see p5).



Exact detection of fill levels is crucial for stable, safe and economical production processes (see p7).



Gericke has developed a new universal controller for feeding, dosing, batching, and weighing processes (see p6).



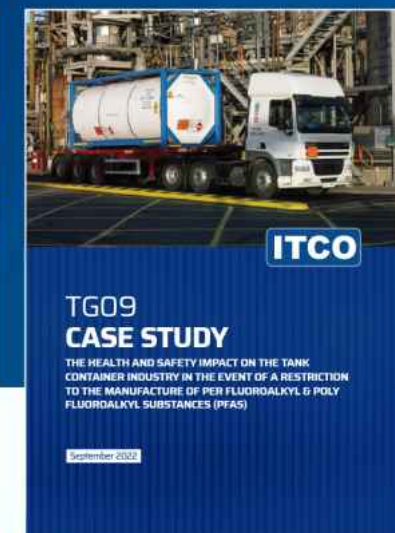
Lindner launches 4th generation Micromat (see p6).



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Upgrading legacy metal detectors

Separation technologies specialists Eriez has unveiled an initiative designed to help food, pharmaceutical and packaging processors modernise their installed Xtreme Metal Detectors without the expense or disruption of full system replacement. The new PrecisionGuard X8-C Upgrade Kit enables existing users to retrofit advanced electronics and a next-generation interface directly into their current machines, delivering improved sensitivity, enhanced connectivity and greater operational control.

The X8-C Upgrade Kit is engineered as a "drop-in" solution: the original metal detector's shell dimensions and footprint remain unchanged, allowing operators to retain the existing sensing head, conveyor and reject system. Installation is rapid



and straightforward, enabling facilities to upgrade performance while minimising downtime. "Our goal is to streamline the transition to our next-generation PrecisionGuard platform at a pace that suits each customer," says Emmett Keim, Global Product Manager for Inspection Systems. "The X8-C Upgrade Kit offers a practical, cost-effective path to bring

legacy systems up to date and prepare for future upgrades."

With the retrofit, users benefit from a projected 7-10 additional years of service life, supported by a suite of high-performance features. These include a large capacitive touchscreen with intuitive controls, a high-speed processor for more accurate, earlier detection, IP69-rated stainless steel construction for demanding washdown environments, and a built-in web user interface with optional Wi-Fi connectivity. Each kit also includes a 12-month installation warranty, access to Quality Retail Compliance software for data logging, and special pricing on verification services and spare parts.

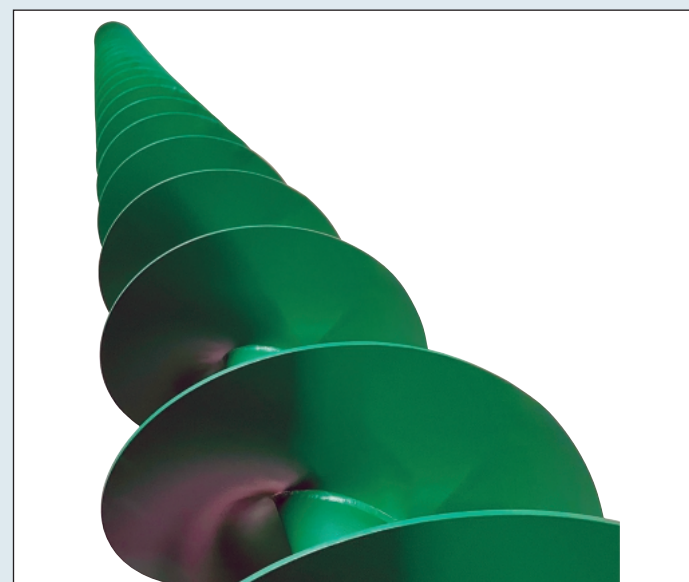
eriez.com/X8C

New screw augers for AMG Chrome

Ajax Equipment has delivered two new screw augers to AMG Chrome, replacing components that have been in continuous service for nearly two decades at the company's Rotherham manufacturing facility. The augers form part of an Ajax screw feeder used in handling speciality metals, alloys and related materials, where reliability and durability are essential to consistent production.

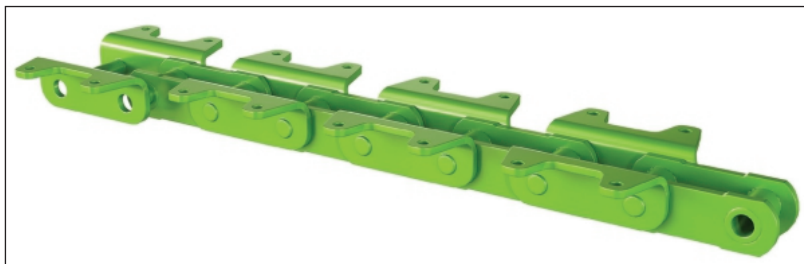
AMG Chrome project manager Michael Channer praised both the quality of the equipment and the customer support: "The experience was outstanding... their team were incredibly helpful and knowledgeable, answering all our questions and guiding us through the best options for our needs. The screws themselves are manufactured to a high quality... Ajax takes pride in offering durable, reliable equipment." He added that AMG Chrome will look to Ajax again for future requirements.

Ajax managing director Eddie McGee highlighted the company's application-focused engineering approach, noting that metal powders and other challenging materials require tailored designs grounded in rigorous materials testing.



One of the new screw augers for AMG Chrome.

New central chains from RUD



New design and lower weight: the new central chains from RUD.

RUD, the conveyor technology specialist, has expanded its product portfolio with the launch of a newly developed range of central chains designed for use in high-performance bucket elevators. Featuring a new design and significantly reduced weight, the latest generation of RUD central chains is available in multiple sizes and in two configuration options: with an integrated mounting bracket or as a separate bracket version. This development extends RUD's offering for lower nominal sizes, providing new application flexibility for industries such as cement, mining, chemical processing and bulk materials handling.

RUD's central chains have been manufactured since 1992 and are widely used as a robust traction component in bucket elevators handling abrasive and high-temperature materials such as cement, limestone, coal, gravel, rock salt and soda. The latest redesign incorporates a revised system that functions similarly to a bicycle chain. RUD has updated the technology behind the rotating pins, achieving a lighter chain structure that delivers higher performance due to reduced deadload within the system.

The new design is a response to

market needs. A global customer and partner survey identified chain weight as a key factor for improvement. By addressing this requirement early in development, RUD succeeded in optimising the design to improve efficiency while maintaining strength and durability.

The central chains are manufactured according to VDI 2324 and can be installed in new bucket elevator systems or retrofitted into existing equipment that uses round link chains or belts. This enables production and maintenance engineers to upgrade plants to high-performance operation without major structural changes. In addition, original equipment manufacturers benefit from the ability to design narrower and more cost-efficient bucket elevators operating at higher speeds.

RUD's expanded product line includes the RU 100 model with a separate fixing bracket, offering 1,000 kN breaking force and suitable for bucket widths from 400–800 mm. For integrated bracket variants, the RU 40, RU 55 and RU 70 chain sizes cover bucket widths from 200–630 mm, supporting a wide range of system configurations.

www.rud.com

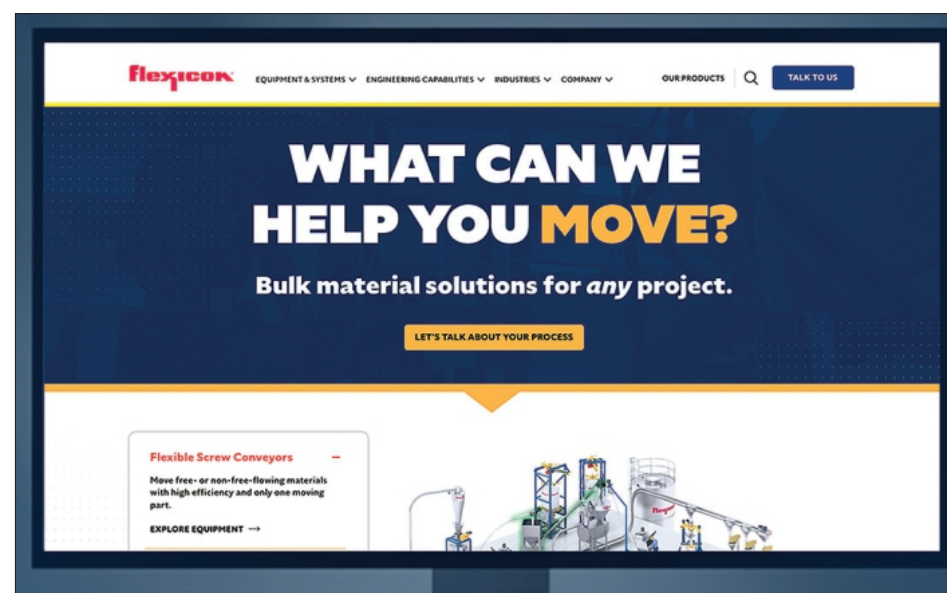
Flexicon's new website

Bulk solids specialists Flexicon has unveiled a redesigned international website, aimed at enhancing user experience and improving accessibility to its product portfolio. The new site features streamlined navigation, improved content structure, and clearer pathways allowing users to quickly locate technical information, application solutions, and system capabilities.

The platform highlights Flexicon's broad range of equipment, including three proprietary conveying technologies, an array of bulk bag and container handling solutions, and fully integrated plant-wide installations designed to improve productivity and operational efficiency. The redesign places a strong emphasis on helping users identify the right equipment for

specific process requirements while providing direct access to Flexicon's expert engineering and sales support teams worldwide.

www.flexicon.com



The new Flexicon website.

Sieve analyses in the laboratory

Daily work in the laboratory places high demands on precision, efficiency and reliability. Retsch is offering a free webinar that focuses on the practical implementation of sieving methods and sieve analyses. The focus is on step-by-step explanations of various methods of sieve analyses. The webinar shows how to avoid typical errors in sieve analysis and how to systematically improve your work processes. The aim is to provide assistance for everyday laboratory work to make optimum use of time and resources and achieve reliable results.

The webinar is aimed at all laboratory teams that work with building materials such as cement, bulk solids, powders, pharmaceutical or chemical products, ceramics, minerals, pigments or food and need reliable sieving analysis - regardless of whether they already work with Retsch machines or want to digitize your sieving processes in the future.

In the webinar, there will be practical insights into the current methods of sieve analysis, an opportunity to learn how to use different sieving processes optimally and what advantages modern test

sieves offer. Step by step we will guide you through a sieve analysis - including tips from our application laboratory. Special highlight: We will introduce the brand new AS 200 jet pro and the GMP-compliant AS 200 jet pharma as well as the innovative EasySieve software. This allows to control and document your sieving processes digitally, error-free and with maximum convenience.

Details of the webinar as follows:
Date: December 02, 2025
Time: 9:00 AM - 10:30 AM
CET / 4:00 PM - 5:30 PM CET
Language: English

Lindner unveils Flexloop high-purity mechanical recycling



Lindner and P&G-Team on the day of Flexloop presentation at K-Show.

Lindner has introduced an important initiative in mechanical recycling with the launch of Flexloop, a pioneering solvent-based cleaning technology developed in partnership with Procter & Gamble. Revealed for the first time at K 2025, Flexloop delivers a high level of purity in post-consumer recycle by extracting non-intentionally added substances (NIAS), odours, adhesives and printing inks from polymer chains. The result is high-quality material suitable even for sensitive packaging applications in sectors such as cosmetics and personal care – traditionally the

domain of virgin plastics or chemically recycled feedstocks.

The innovation stems from initial discussions between Lindner and P&G at the previous K show, evolving into an exclusive licensing agreement and a joint objective of creating an industrially scalable process. “For us, Flexloop is a logical and necessary development in mechanical recycling,” says Michael Lackner, Managing Director of the Lindner Group. Positioned as an extension of established cold and hot washing lines, Flexloop adds a powerful solvent-based extraction

step that removes deeply embedded contaminants – including pesticides, phthalates and dioxins – without degrading polymer structure.

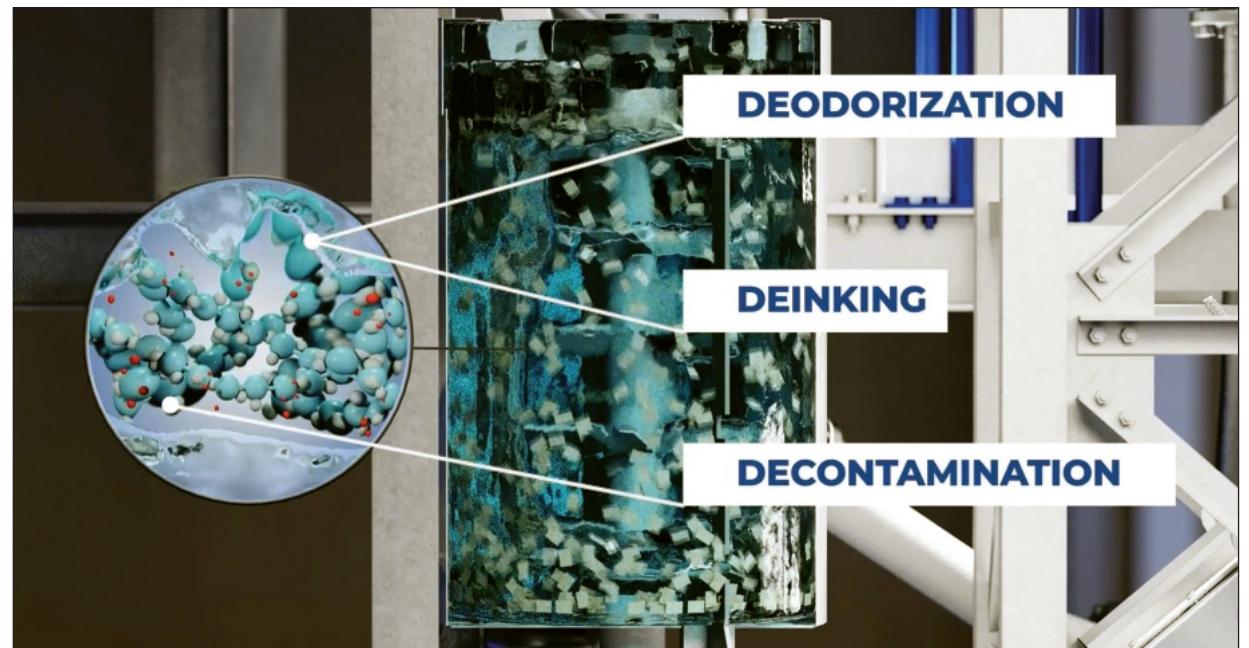
For recyclers, this addresses a long-standing challenge: contamination from mixed post-consumer waste streams. As Yannick Stanau of Lindner Washtech explains, NIAS can diffuse into packaging during collection and sorting, limiting recycle to lower-value applications such as refuse bags. Chemical recycling offers an

alternative but remains commercially prohibitive due to high energy and investment requirements.

Flexloop bridges this gap. By enabling consistent, high-purity recycle, it meets stringent regulatory and brand-owner specifications while preserving the familiar mechanical recycling framework. P&G’s leadership emphasises the process’s potential to scale high-quality rPE and other film grades for fully circular packaging. “This innovation helps address

environmental challenges and supports a circular economy for materials,” notes P&G’s Lee Ellen Drechsler.

Designed as a modular unit, Flexloop integrates into existing Lindner washing and recycling lines, enabling recyclers to upgrade capabilities with minimal capital expenditure. “Target users can simply retrofit their existing washing lines,” adds Gian De Belder, P&G’s Technical Director for Packaging Sustainability.



Flexloop benefits.

Unlocking data-driven performance in packaging



Spencer Cramer (CEO ei3) and Sebastian Pohl (CEO Greif-Velox).

Packaging machinery specialist GREIF-VELOX has announced a strategic partnership with industrial connectivity expert ei3, creating a foundation for secure machine data collection, real-time monitoring, and continuous optimisation. By integrating ei3’s IIoT platform directly into GREIF-VELOX filling and bagging systems, the company is transforming its equipment into digitally enhanced packaging solutions capable of delivering actionable insights across the entire production process.

Central to this new digital architecture is VeloXpert, GREIF-VELOX’s unified performance and service program. Combining digital tools with technical support, VeloXpert provides remote diagnostics via VPN, condition monitoring, efficiency analyses, and comprehensive dashboards designed to improve

equipment uptime and process transparency. These services complement traditional offerings such as commissioning, operator training, maintenance, and spare parts management. GREIF-VELOX also extends flexibility through its Packaging-as-a-Service (PaaS) model, which incorporates financing options and tailored supply concepts for consumables and wear parts.

A key operational tool within this ecosystem is VeloInside – a system-specific performance dashboard that visualises real-time machine data. Built on a customised version of the established OEE framework, GVEE (Greif-Velox Equipment Effectiveness) combines availability, performance, and quality metrics to highlight bottlenecks, detect emerging deviations, and drive improvements in line productivity and process

reliability.

The partnership builds on GREIF-VELOX’s expertise in ultra-precise powder bagging and liquid filling. Its BVP and BVPV packers deliver high accuracy and flexibility, while VeloVac systems achieve dust-free vacuum bagging with compaction levels of up to 400%, supporting demanding applications such as carbon black, silica, pigments, and technical fibres. In liquid filling, the fully automatic A-DOS-P1 system handles up to 40 drums or 15 IBCs per hour, ensuring high-volume throughput with safety and precision.

For ei3, security and interoperability remain key strengths. Its platform supports data integration across new and legacy equipment, currently safeguarding more than 190,000 industrial assets without recorded security breaches.

New MD for Coperion Recycling

Coperion has announced the appointment of Stefan Lachenmayer as its new Managing Director Recycling, marking an important step in the company’s strategic focus on advancing plastics recycling technologies. Lachenmayer, who joined Coperion in 2007 and most recently held the position of Director of Sales – Aftermarket Performance Materials, brings deep expertise in plastics processing, recycling systems and customer-focused engineering solutions.

In his new role, Lachenmayer aims to accelerate the development of innovative process technologies that strengthen recycling efficiency and contribute to global waste reduction. He emphasises that Coperion, together with Herbold Meckesheim, is uniquely positioned to deliver integrated solutions covering the entire recycling value

chain. “It’s impressive to see how closely we have grown together,” he says. “Our partnership allows us to offer comprehensive solutions that provide recyclers with clear added value.”

Reflecting on the success of K 2025, Lachenmayer highlights the strong industry response to Coperion’s latest advancements. “K show was an outstanding event for us. It provided a great opportunity to showcase our innovative solutions to a broad audience,” he notes.

Lachenmayer also credits the company’s progress to its dedicated team. “I have the privilege of leading a committed team that is passionate about recycling,” he says. “Together, we will set the course for a successful future and further strengthen our position as leading providers of plastics recycling technologies.”



Stefan Lachenmayer and the Coperion team of recycling experts.

SOLIDS anniversary - with new show highlights



SOLIDS Dortmund 2026 marks a major milestone for the event: on 18–19 March 2026, the trade fair for granules, powders and bulk solids technologies will celebrate its 20th anniversary, held once again in parallel with the 9th edition of RECYCLING-TECHNIK Dortmund. Across four halls, national and international exhibitors will showcase the latest solutions shaping the bulk solids, process and recycling sectors. Long-standing exhibitors such as GKM Siebtechnik GmbH, EMDE Automation GmbH and Bückmann GmbH will be joined by new names including Fraunhofer IZFP, Grenzebach

Maschinenbau GmbH, NT Service GmbH, SEW-EURODRIVE GmbH & Co KG, SMF GmbH and STRABAG AG. “For two decades, SOLIDS Dortmund has been an integral part of our calendar,” says Kevin Schneider, Sales/Marketing at GKM Siebtechnik GmbH. “The personal atmosphere and valuable contacts make it unique.” His sentiment reflects the strong industry commitment behind this anniversary edition, which places a sharp focus on innovation, knowledge exchange and new formats. A key highlight in 2026 is the launch of the “Special Area: Process

Automation”, located in Hall 4. Here, exhibitors will demonstrate how HMI systems, MES tools, advanced sensors and intelligent control technologies are driving greater efficiency, sustainability and safety in industrial operations. For companies looking to future-proof their processes, this zone offers practical insights and actionable solutions. The event also expands its support for emerging innovators through a dedicated start-up area. Founders gain access not only to exhibition space but also direct visibility to decision-makers and investors. Short, trend-focused presentations on the

InnovationCenter stage will spotlight forward-thinking technologies destined to shape the industry. Visitors can also look forward to the launch of BULK TALK, an industry podcast offering year-round expert insights on topics ranging from predictive maintenance to recycling technologies and AI-enabled

production. Registration for SOLIDS & RECYCLING-TECHNIK Dortmund 2026 is now open – secure your free ticket online at: <https://register.visitcloud.com/survey/3na6snhmgz9pd/start?actioncode=1607&translation=1y3e4bjh3me0&>



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4th generation Micromat launched

At K 2025, Lindner presented the 4th-generation Micromat, a major evolution of its stationary single-shaft plastics shredder. Building on the strengths of the Series III platform, the Micromat IV innovations are designed to meet modern recycling demands – combining energy efficiency, adaptable rotor configurations and simplified servicing under the guiding theme: “Ready for the future of your business!”

At the heart of the new machine is a synchronous reluctance motor achieving 97% efficiency and IE6 energy efficiency class. Unlike torque motors, the reluctance drive eliminates the use of rare earth metals and reduces energy losses in windings and bearings. This durability is further reinforced by a maintenance-free coupling concept featuring patented automatic belt tensioning. The belts maintain optimal tension at all times, and if a foreign object enters the machine, hydraulic pressure is released to protect the drive. When belt replacement is required, operators can complete the task rapidly on site, aided by Lindner’s proprietary running-in system – saving

time, money and service calls.

Another feature of the Micromat IV is its new multicut rotor, engineered for maximum flexibility across varied material streams. Four knife configurations allow processors to adapt quickly to films, rigid plastics, panels, lumps, fibres or woven materials such as Big Bags. Knife changes are completed in around five hours thanks to a bolted design that eliminates welding and avoids full rotor replacement. Customer trials have already demonstrated up to 40% higher throughput in film applications.

Serviceability has also been elevated. The cutting gap between rotor knives and counter knives can now be adjusted externally – without opening the maintenance flap or halting production. Additional enhancements include counter-knife cooling and an intuitive, streamlined control interface.

Available in four models tailored to specific feedstock requirements, the Micromat IV sets a new benchmark in energy-efficient, adaptable and user-friendly shredding for the plastics recycling industry.



Climate protection initiative award

MaGeno-Solar eG, an employee-led cooperative formed by active and retired KHS personnel, has won the GenoAward in the Best Newcomer category for its exemplary contribution to climate protection, social responsibility and economic innovation. The award, jointly presented by Genoverband e.V. and the F.A.Z. Institute, recognises cooperatives that successfully tackle key societal and environmental challenges. MaGeno-Solar stood out among 80 entrants from across Germany, becoming one of just five award recipients.

The cooperative was celebrated for its practical, scalable approach to renewable energy development. Under MaGeno-Solar’s model, employees invest in photovoltaic systems installed on the roofs of KHS production facilities. KHS then leases the systems for a fixed annual fee, using the solar power generated directly at its sites. This approach enables the company to procure green electricity below market rates while simultaneously reducing its operational carbon emissions – supporting its long-term goal of reaching climate

neutrality by 2050.

Two solar systems are already operational at KHS locations in Dortmund and Bad Kreuznach, with a third due to come online in Worms by the end of 2025. Cooperative members benefit through dividend distributions financed by KHS’s leasing payments, creating what jury member Marco Schulz described as a “win/win/win situation – for the company, its staff and the protection of the climate.”

The initiative not only avoids the need for additional land use – by utilising existing roof space – but also eases pressure on local power grids, as most of the generated electricity is consumed on site. “We want to do something ourselves for climate protection and help our employer overcome bureaucratic hurdles,” said Bernd Molitor, chairman of MaGeno-Solar, who accepted the €2,500 prize on behalf of the cooperative.

With around 200 members and €700,000 already invested, MaGeno-Solar eG exemplifies how employee-driven innovation can deliver measurable environmental and economic benefits.



Bernd Molitor, chairman of MaGeno-Solar.

Gericke launches new feeding, dosing, batching, and weighing controller



The Gericke GUC-F.

Gericke has developed a new universal controller, the GUC-F, designed for feeding, dosing, batching, and weighing processes used in industries including food, chemicals, pharmaceuticals, and specialty materials. The system is intended to provide a common platform for automated powder-handling operations.

The controller can manage up to four feeders in either gravimetric or volumetric modes and can be used in batch or continuous processing.

This configuration option reduces the number of separate controller units required in multi-feeder applications. It is compatible with both analogue and digital load cells for weighing functions.

The GUC-F incorporates fast signal processing and uses Gericke’s TrendTec control algorithm to stabilise feed rates during process variations such as refilling cycles. Operation is via an HMI with multilingual capability and standard/expert access levels, with the option for local or remote

connection through browser-based devices or plant control systems.

Connectivity features include integration into automation networks, data-access controls, and support for software updates. The controller offers condition-monitoring functions intended to support maintenance planning. The system is built for industrial environments, including shielding and filtering intended to improve performance where electrical or mechanical interference may affect measurement accuracy.

Accurate fill-level detection from Minebea



Exact detection of fill levels is crucial for stable, safe and economical production processes.

Accurate fill-level detection in silos, tanks and process containers is fundamental to safe, stable and efficient production – especially in industries such as food, chemicals and pharmaceuticals where precision is critical.

Yet many commonly used technologies, including radar, ultrasound, microwave or hydrostatic sensors, only provide indirect measurements. They calculate fill levels based on distance, pressure or surface reflection, making them vulnerable to inaccuracies caused by foam, caking, variable densities, temperature fluctuations or uneven material flow.

Industrial practice reveals these limitations clearly. At Solvay Fluor in Frankfurt, non-contact systems delivered inconsistent results because temperature and density variations disrupted readings. Only after retrofitting with PanCake load cells from Minebea Intec – global specialists in weighing and inspection technologies – did Solvay achieve accurate, reliable fill-level monitoring, reducing deviation to as little as 1.1% compared with around 2.5% previously.

Gravimetric level measurement eliminates these uncertainties by measuring the true mass of the container and its contents. Load cells

such as PanCake or Inteco deliver linear, precise results across the full filling range, independent of media or container geometry. Because sensors are mounted externally, they avoid contact with aggressive, sticky or corrosive materials and require no perforation of the vessel. This is a major advantage in hygiene-sensitive applications, with load cells available in CIP/SIP-capable, cleanroom-ready designs developed according to EHEDG and FDA guidelines.

The PanCake load cell series is also engineered for easy integration. Installation requires no structural modifications, enabling rapid retrofitting on existing containers and offering up to 50% savings in acquisition cost compared with alternative technologies. With no moving parts, maintenance is minimal and accuracy remains stable for years, reducing lifecycle costs.

Certified for use in ATEX and IECEx environments, these gravimetric systems deliver maximum reliability even under extreme conditions. Their digital connectivity – via MiNex weighing indicators and interfaces such as ProfiNet, Ethernet/IP or Modbus – ensures seamless integration into higher-level control architectures.

Eddy current separator generates new revenue

Recovering small metal fractions from automobile shredder residue (ASR) has traditionally been considered difficult and often uneconomical for many recycling operations. Micro-fines, which can include fine strands of bare copper wire and small aluminium fragments, frequently escape standard separation systems and end up in landfill. However, recent advances in eddy current technology are changing this outlook, enabling recyclers to capture valuable nonferrous metals previously lost in waste streams.

Lakeside Auto Recyclers, a third-generation, family-owned operation located in Carter Lake, Iowa, has demonstrated the benefits of enhanced fines recovery through investment in advanced separation equipment from Eriez. Operating for more than 40 years, the 10-acre facility processes a wide range of metals from automobiles and household white goods. Over the past three years, the company has undertaken a major upgrade of its recycling

systems, installing an American Pulverizer shredder followed by multiple eddy current separators to improve nonferrous metal recovery.

To further increase yield, Lakeside Auto added an Eriez Model ST-22 Eddy Current Separator to handle the small ASR fraction. Most recently, the company incorporated the Eriez Ultra High-Frequency (UHF) Eddy Current Separator to target the extra-fine material missed during earlier separation stages. The UHF system is engineered to recover aluminium and bare copper wire fractions as small as 2–3 mm without relying on costly sensor-based or optical sorting technology.

According to Lakeside Auto President Mike Levell, the upgrade has delivered a significant financial return. The UHF enables the facility to recover approximately 50,000 pounds of fine nonferrous metals per month which were previously lost, resulting in a high-grade zorb product with more than 20% red metal content that commands premium prices in the market.

The system is configured as part of a continuous downstream setup, with the UHF unit positioned after the fines eddy system. Levell notes that even a single additional load of recovered fines per month offsets equipment investment, turning previously discarded material into new revenue.

As recyclers look to maximise output and reduce waste, the Lakeside Auto installation highlights how advanced fines recovery can strengthen competitiveness and improve overall plant efficiency.



The Eddy Current Separator from Eriez.



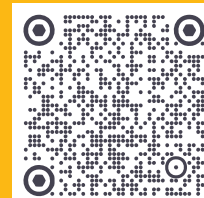
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Conveyor safety training: Optimising results and ROI

Some companies just “tick the box” on training, then wonder why there’s a lapse in safety and efficiency. R. Todd Swinderman, President Emeritus, Martin Engineering explains how operators can expand the results and obtain the benefits of training.

The hours spent training production and maintenance teams can lead to variable results. They might just tick the boxes without providing a return on investment. Or they can enhance safety, foster team building, and develop a deep understanding of the equipment that boosts efficiency and uptime.

Training should be robust and encourage problem-solving using modern methods and standards. Companies that prioritise safety experience fewer safety incidents, less regulatory oversight, and higher productivity and profits.

When it comes to conveyor belts, a one-day training session can serve as a refresher, but it is recommended that staff complete a comprehensive course lasting at least 2 days. Conveyors are as complex as they are crucial to operations, and training should include a mix of classroom and hands-on learning, followed by a pilot program to encourage team building and gauge results.

The problem

A commitment to safety starts at the top with corporate culture. A “production-at-all-costs” approach means safety concerns are always present. Bad habits and injuries often stem from three things:

- Lack of funding
- An understaffed maintenance department
- A “run-till-broke” mentality

Good safety habits require training and the patience for extra steps. Cutting corners and labelling it “efficiency” can lead to serious injuries, low morale, downtime, and lost production.

Basic training

Everyone who operates, cleans, or maintains conveyors should be trained on the hazards of



In-class sessions should transition to on-site, hands-on training, supported by online content for access afterward.



Conveyor maintenance can be dangerous even when LOTO and other safety measures are in place.

bulk material handling. Basic training helps staff identify problems and resolve them safely.

Appropriate safety training emphasizes a basic understanding of conveyor design and operation, as well as the Lock-Out Tag-Out (LOTO) procedures required for working on and around the system.

Advanced Training

Over time, production demands cause the conveyor belt speed and capacity to reach beyond the original design specifications. Systems are incrementally modified to minimize problems associated with the demands. Advanced conveyor design training for engineers and mechanics is critical for diagnosis and the development of updated solutions. No two conveyors are identical, so adhering to standard design methods allows a technician to make adjustments that another can recognise and understand.

Day One

A walk down “problem belts” before the training helps the instructor focus on site-specific problems and the management’s expectations. The first day starts in the classroom with the class reviewing typical problems, discussing challenges, and the best practices of safely addressing them. The class identifies a couple of problem conveyors and splits into small teams. Each team examines the same problem and brainstorms solutions.

Day Two

The class reviews and discusses root causes, solutions, and procedures. Once the teams reach an agreement, they prepare a short presentation using the knowledge they gained. The presentations may also include an estimate of the cost of the proposed solutions.

Management is then invited to listen to the

team presentations, ask questions, and show a commitment to safety and communication. By making the presentations, trainees display knowledge and support for the solutions. It is critical at this step that the manager(s) who attend the presentations have the authority to act on the proposals and are willing to commit to a pilot program to demonstrate that theoretical results can be translated into reality.

Pilot programme

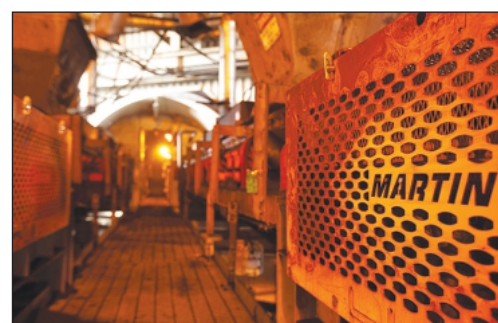
One or more conveyors from the presentation are selected for a pilot programme. Usually, the results of the pilot programme are immediately noticeable. A lapse in maintenance affects the pilot results, so extend the test period to the next scheduled shutdown, with periodic inspections and adjustments made by the equipment manufacturer.



Advanced conveyor training highlights the relationship between equipment, efficiency, and safety.

It is incumbent upon management to take safety and maintenance training as seriously as the staff, listen to employees’ concerns, and fix the problem correctly the first time. As research has shown, companies that prioritise safety, training, and updating equipment enjoy fewer safety incidents, less regulatory oversight, higher productivity and greater long-term profits.

The online Martin Foundations Learning Center draws on the collective knowledge and expertise gathered over 80+ years of solving bulk-handling challenges. Aimed at apprentice technicians and experienced engineers alike, the non-commercial information is offered at no charge and is accessible by computer, tablet, or smartphone. An extension of the Foundations training curriculum, the Learning Center uses a mix of text, photos, videos, webinars, online



A conveyor system with safety engineered into the design maximises efficiency and productivity.

events, and live experts available to answer questions.

martin-eng.com

R. Todd Swinderman joined Martin Engineering’s Conveyor Products division in 1979 and subsequently served as V.P. and General Manager, President, CEO and Chief Technology Officer. Todd has authored dozens of articles and papers, presenting at conferences and customer facilities around the world and holding more than 140 active patents. He served as President of the Conveyor Equipment Manufacturers’ Association (CEMA) was the editor of CEMA’s 6th and 7th editions of *Belt Conveyors for Bulk Materials*, *The Design Guide for Belt Conveyors*. Todd is active on several CEMA committees including Chair of the Bulk Safety Committee and is a member of the ASME B20 committee on conveyor safety which set U.S. conveyor safety standards. He retired from Martin Engineering to establish his own engineering firm, currently serving the company as an independent consultant.



Third-party inspection ensures the integrity of pilot results.

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Working with challenging materials, demanding process requirements and awkward plant layouts

Ajax Equipment's Eddie McGee discusses how to overcome the challenges solids often present for screw conveying – as well as meeting process and plant requirements.

Screw conveying is often thought of as a simple, reliable and effective way of transferring materials from A to B. It can be. But without careful consideration of the material and application, performance can be easily compromised.

Whenever you're using a helical screw, its operation involves the rotation of an inclined face to provide a direct positive means of transfer to powders and other bulk solids, transporting them forward. This positive action differentiates screw conveying from more passive conveying methods such as vibratory and belt conveyors.

However, to achieve a positive means of transfer you must understand the material you want to move.

How material informs design

Ajax Equipment always recommends beginning any solids handling project by learning about the material and its characteristics, and screw conveying is no different.

Conducting bulk density, wall friction and cohesive strength tests provides essential information for the design process and will deliver significant value over the service life of the conveyor for most materials. If you are working with particularly demanding materials, such as those below, testing is of tremendous value.

Cohesive & Sticky Materials

Sticky materials may have a tendency to build up, limiting the conveyor's effectiveness or capacity, if this property is not considered in the design.

Routine tests like wall friction measurements against the contact surface the screw is made from can also inform on adhesion aspects.

For screw conveyors supplied to Indorama Ventures Quimica to handle a cohesive damp polymer powder, Ajax utilised LynFlow™ ribbon flights. Ribbon flights provide excellent powder transfer while preventing product build-up.

The flight form used in these conveyors also allowed a process aspect to be accommodated by allowing gas to flow through the system. In doing so other considerations like pressure rating were also accommodated with the screw conveyors casings also rated for elevated pressure (8 barg) and temperatures (200°C).

Whilst wall friction coefficients affect the efficiency of axial transfer and is an important aspect for selecting suitable transfer pitch, particularly when the conveyor needs to be inclined, some poor flow materials, such as damp salt, soon expose any 'standard screw' deficiencies, in some cases allowing lumps and blockages to form which damage the machine.

When the UK's largest producer of vacuum salt products, Ineos Salt, wanted to improve transfer of salt from two driers to a tableting machine, Ajax Equipment was brought in to implement a new plant arrangement, providing a new inclined screw conveyor and collecting screw conveyor.

Several issues needed to be resolved. The existing design of the outfeed system from the driers meant that only one drier could effectively feed the tablet machine. This meant that if this drier was taken off for maintenance, then the



Ineos Salt's new plant arrangement provides a reliable and consistent feed.

tableting system would also lose feed, leading to a loss of production. In addition, the plant was not effective at only transferring fine material for tableting. This was compounded by the plant layout making it difficult to access the tablet feed screw when required to unblock it.

The new layout as well as some thoughtful design choices have improved process performance. The first change was to introduce a new collecting conveyor to receive salt from both driers. Secondly, the second drier's entry point was offset via a new inclined screw conveyor, reducing the likelihood of the collecting conveyor becoming blocked.

The collecting screw conveyor serves two outlets, each leading to processes with different material requirements. To prevent lumps of salt entering tablet production Ajax designed an outlet with tapered slots, ensuring unsuitable material continued to the second outlet as well as avoiding the need for a lump breaker.

Waste & Other Irregular Materials

Although many materials may have some degree of consistency in their condition, waste materials by their nature tend to be irregular and lack quality control. As a result, how they behave can be highly variable which can make them challenging to handle. To ensure reliable performance the design must include even greater tolerance in handling capability than might usually be the case.

For a recent project transferring shredded waste as part of a process to produce 'circular economy' fuels and chemicals, in addition to working with the customer to determine the material's needs, it was decided that trialling a conveyor on site would be highly beneficial. The insight from running an Ajax test machine and even stress testing it beyond normal operations expected helped to ensure the screw conveyor's final design would accommodate the material's varied conditions to ensure no material could become trapped in the inlet or outlet, or between casing and flights, jamming the screw.

Working with Plant Layout

Often new equipment must fit within an existing plant layout. To adapt the previous layout to the new frequently brings about handling challenges, such as covering a distance longer than ideal or

transferring material on a significant angle, which must be addressed.

Conveying Over Distance

Usually screw conveyors are only required to cover a few metres, most screw conveyors are no longer than three or four metres, however, occasionally they may be as long as 8 metres, as was the case with the screw conveyors for Indorama Ventures Quimica. Although possible, longer screws lead to a variety of design hurdles.

Ajax Equipment's longest screw conveyor to date is 28m, an extremely unusual distance to cover with a single conveyor and so required several hanger bearings to support the screw in situ. At such lengths, the resultant stresses are often a source of issues including excessive loading or bending stress; even fabrication and installation 'trueness' can impact whether the screw catches the conveyor's casing. Additional sizing of the conveyor drive and accommodating torque needs for turning the screw and moving the required capacity are also more challenging than usual.

However, these can be mitigated with careful design and attention to detail in manufacture. To guarantee good performance in the 28m long screw, Ajax ensured that each screw section was very well aligned, with robust torque bearing shafts, and that the hanger bearings, including their supports, minimised any impediment to product flow so that together with the flight sections design all would work well together and avoid any jamming or overload.

Transferring on an Incline

Although there are many valid reasons for conveying on an incline, once to allow a leading food manufacturer's production line to pass through a metal detector the layout of plant meant Ajax had to utilise a steeply inclined conveyor, it is not ideal to transfer on an angle as operating on an incline risks material falling back.

On an inclined conveyor for Johnson Matthey, Ajax included a range of features to ensure effective material transfer and mitigate any material fall back. Material testing by Ajax indicated stainless steel flights with a smooth finish would provide better slip and transfer than mild steel. In addition, screw geometry was selected with flights that compensate for the angle



Carefully selected flights prevent cohesive powder from building up in Indorama's screw conveyors.



Long screw conveyors present a number of design & manufacturing challenges.

of operation. While to limit the impact of material fallback on effective transfer, each section of the screw conveyor's covers has a special profile. Despite careful design making conveying on an incline perfectly possible, beyond 20 to 30deg, depending on material wall friction coefficients, it's worth considering whether a screw elevator could be more effective, noting the mode of operation is then very different from simple conveying.

Meeting Process Requirements

Delivering Material to Multiple Outlets
Most processes only require material to be transferred to one outlet, however, when required to deliver to two this usually means using bifurcated valves and inclined chutes which take up valuable height and space as well as not providing a positive method of moving the material. A reversible screw conveyor offers an alternative.



Successfully operating on an incline requires a conveyor design that compensates for the angle.

Ajax's experience includes using screw conveyor with a heated oil jacket to maintain a hot pressurised environment for an organic solvent while biomass was transferred through it to alter its chemistry. Other more common examples include using screws conveyors in pyrolysis processes. Working with a research group based at the School of Technology and Architecture (TEAC),

Working with other equipment
Whatever the needs of your material or application, a screw conveyor should never be overloaded. When the level of material exceeds the height of the screw's shaft this leads to some material tumbling back into the prior pitch space. This causes a cascade effect where material begins to build up towards the conveyor's inlet and reduces axial transfer efficiency.



A reversible conveyor provides flexibility to this paper pulp handling system.

part of the SRH University of Applied Sciences in Berlin, Ajax supplied a range of equipment for a pyrolysis system including a high temperature rated screw conveyor. The screw conveyor passes through a furnace with an operating temperature of up to 800°C, this allows shredded material moving through the conveyor to be heated to several hundred degrees and transformed into char and gases. Whilst to rapidly cool processed char produced at another European pyrolysis plant Ajax supplied a screw conveyor with a water filled jacket and screw auger. These cooling features, along with the screw's full flights and reduced pitch, provide a large surface area to efficiently transfer heat away from the material, reducing the temperature from up to 500 degC to below 50 degC, while positively transferring the char.

Alternatively, if previous equipment is likely to momentarily provide more material than is ideal, overfill can be mitigated by including a reduced pitch feed control section at the screw conveyor's inlet.

Conclusions about conveying
Screw conveyors can provide positive transfer and total containment of product in a compact construction, with many variants in length, screw form and casing design possible.

However seemingly simple tasks like powder transfer by screw can only be achieved with performance reliability if the design is matched to the material being handled and its measurable characteristics – make sure you don't fall victim to easily 'knowable' unknowns!

www.ajax.co.uk



Heat exchange screws are highly effective at transferring materials and heat.

The benefits of smart fill level adjustment

Frank Borrmann, Market Manager for the Checkweighing & Vision Strategic Business Unit at Mettler-Toledo Garvens GmbH explains why smart fill level adjustment is key to reducing waste and protecting margins.



Mettler Toledo checkweigher.

There is no prestige in giving away product. Yet across production lines everywhere, that is exactly what happens when filling processes are left to drift. A few extra grams here, a wider tolerance there, and it quickly adds up.

As raw materials grow more expensive and sustainability targets become sharper, more manufacturers are turning to fill level adjustment as a smarter way to close the gap between target weight and actual pack contents.

Smart fill level adjustment uses dynamic feedback from checkweighers to automatically regulate filling equipment in real time. Rather than relying on manual checks or occasional adjustments, the system monitors the average weight of a series of packs and instructs upstream filling machines and multi-head weighers to make micro-corrections. The result is a tighter weight distribution, reduced product giveaway and more consistent pack quality.

This approach is especially valuable in high-speed environments where small inefficiencies compound quickly. It is already being adopted across a range of industries, from

frozen food to snacks and confectionery. The common denominator is a shift in mindset, from accepting giveaway as a cost of doing business to actively managing it with intelligent automation.

The case for tighter tolerances

The business case is clear. Every extra gram of product represents money lost and raw material used unnecessarily. In categories with thin margins or expensive ingredients, even minor improvements in fill accuracy can lead to substantial gains.

Traditional filling processes often rely on conservative tolerances to reduce the risk of underfilling. But this comes at a cost. Wider margins may keep lines running smoothly, but they also increase the likelihood of overpacking, particularly as machines drift over time or respond to subtle changes in product flow.

Fill level adjustment addresses this by creating a feedback loop. As the checkweigher gathers real-time data, it adjusts the filling system automatically to maintain a tighter, more predictable package weight. This not only reduces giveaway but also supports greater line

stability, especially during changeovers or when dealing with variable product formats.

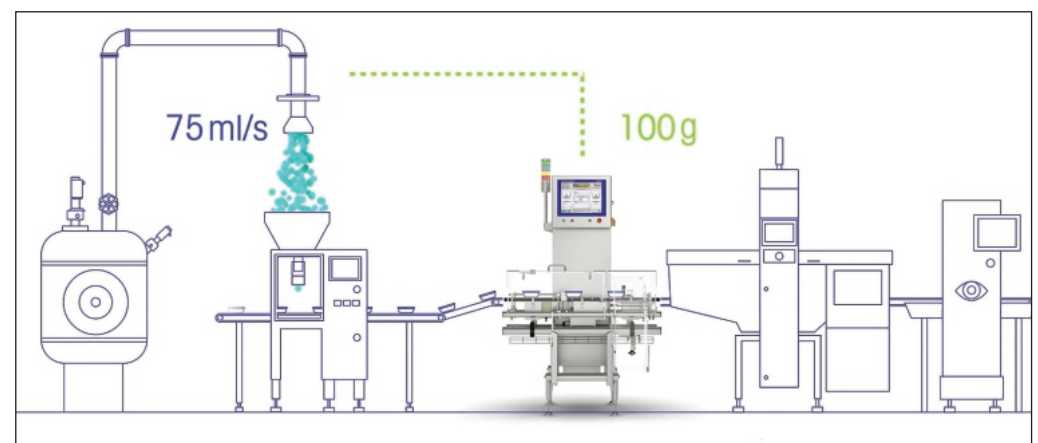
Smarter use of existing technology

One of the strengths of modern fill level adjustment is that it does not require a complete overhaul of the line. In many cases, it can be integrated into existing checkweighers and filling equipment with a software upgrade and some configuration support. That makes it a cost-effective and scalable option for manufacturers looking to boost performance without introducing complexity.

supports consistency, frees up operator time and lowers the risk of human error. As many manufacturers face labour shortages or shifting staffing patterns, this level of automation helps build resilience into the process.

Real-world impact

At Greenyard Frozen Belgium, which produces millions of frozen fruit and vegetable packs each year, fill level adjustment has already delivered measurable improvements. One of its packaging lines reduced excess weight from 0.69 percent to 0.14 percent. On another, the figure dropped



Feedback control diagram.

On average, we calculate that the investment is recouped within a month or a few months, depending on the product and the line. Companies realise that they can save a lot with smart technology.

The return is not only financial. By reducing reliance on manual intervention, the system also

from 0.3 percent to 0.11 percent. Those numbers translate directly into reduced waste, lower costs and more efficient use of materials.

“That may not seem like much, but if you calculate it on an annual basis over large volumes, you are talking about considerable quantities of product that you no longer unnecessarily pack,” said Dominiek Vierstraete, Technical Manager at Greenyard. “That is beneficial for the cost price and for reducing waste.”

The company now uses fill level adjustment on all six of its small pack lines, a move that supports both sustainability goals and operational consistency.

Looking forward

As material costs remain volatile and consumer expectations continue to rise, manufacturers will need to find new ways to optimise their processes without compromising quality. Fill level adjustment offers a clear path forward. It addresses a known source of waste, requires minimal disruption to implement and can unlock performance gains almost immediately.

The technology is also evolving. As communication between systems becomes more streamlined and visual interfaces improve, operators gain even more transparency into line performance. “You can immediately see how the average weight develops via a visual interface,” said Vierstraete. “After a few hours of testing and adjustments, the system runs stably.”

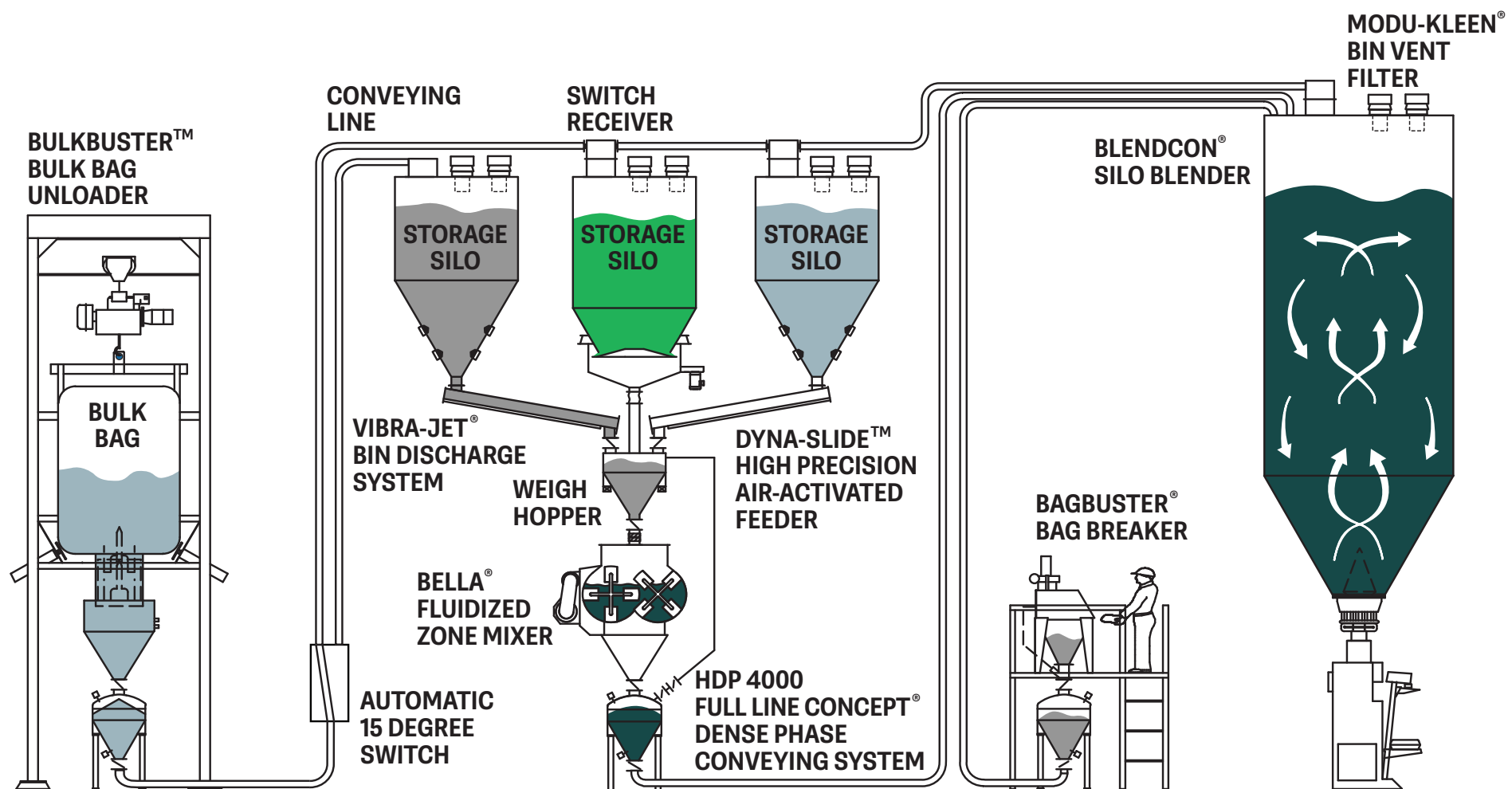
For manufacturers ready to take tighter control of their line efficiency, fill level adjustment is no longer a niche add-on. It is fast becoming a standard expectation in high-performing production environments.

www.mt.com/filllevel-pr



The Mettler system at Greenyard.

SOLUTIONS *that Power Success*



Who We Are

Dynamic Air has over five decades of expertise in designing and manufacturing pneumatic conveying systems and equipment for handling dry bulk solids. We are a leading provider of custom solutions for the handling of bulk materials for processing businesses across various industries.

Our Approach

We never take a cookie-cutter approach just to cut costs up front; we know that the right solution will save you money in the many years to come. Our tailored solutions involve thoughtful planning, meticulous engineering and precise manufacturing that optimize efficiency and productivity.

Dynamic Difference

At Dynamic Air, we set the standard for excellence in bulk solids handling. With a relentless focus on quality, reliability, and customer satisfaction, we deliver reliable, high-quality pneumatic conveying systems, equipment, and custom solutions that exceed expectations.



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