

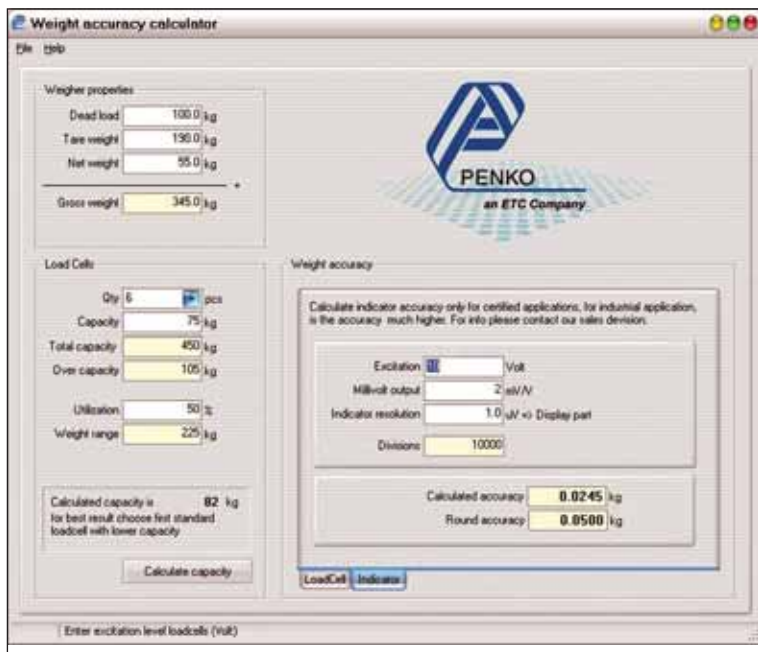
# EuroBulkSystems

The European journal for in-plant handling and processing of powders, granulates, pastes and liquids

INTERNATIONAL NEWS • PEOPLE • PRODUCTS

JULY/AUGUST 2009

ISSUE 10



Dutch industrial weighing specialist Penko Engineering has introduced a downloadable Weighing Accuracy Tool (pictured) which helps plant engineers select the optimum load cell for a specific weighing system. It is also providing a comprehensive help file which guides designers through all stages of setting up its SGM 455 digitizer (see p14).



Germany's Coperion has launched the new FD Series of safety filters which are designed for use in pneumatic systems. They are the first of their kind to be capable of separating dust particles and water droplets from the air or product stream in one single housing, thereby saving both space and costs - as described on p14.



Dietrich Engineering Consultants, Switzerland, has developed a bag emptying station which is capable of discharging powders under conditions of high containment, providing protection for both the operator and the surrounding environment. The system has been designed to achieve operator exposure levels of no more than one microgram per cubic metre. See bagging feature, p11.



This mobile FIBC weigh-filling station has been developed by Delaere Weighing and Bulk Systems, Belgium, for a German customer handling PE and PP compounds. It incorporates a Pelletron dedusting unit to remove granule dust and angel hair from the product flow, while being easily manoeuvred beneath individual bins of a silo battery without need for pneumatic conveying or intermediary storage (see p5).

Celsius of the Netherlands provides a 500m<sup>2</sup> test facility at its Drunen headquarters shared by its sister company Van Beek. Here customer trials can be carried out, supported by advanced measuring instrumentation, in the fields of drying, heating and cooling by means of screw heat exchangers, as well as conveying mixing and dosing by means of screw conveyors. See our special supplement on In-house Test Plants, p7.



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Zeppelin almost doubles in size as a result of Reimelt Henschel acquisition; GEA Process Engineering wins major milk powder contracts in Ireland and China; Maschinenfabrik Möllers demonstrates that reverse hood pallet-less stretch-wrapping of sacks can deliver more than 50% cost savings compared with the traditional pallet plus stretch hood or shrink hood combination; following the departure of Wolfgang Pöschl, Coperion streamlines its main board from four to three; Unitor Chemicals upgrades capacity of detergent powder production line with addition of new Forberg twin-shaft mixer.

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**AZERBAIJAN**

It has been reported that the **European Bank for Reconstruction and Development** (EBRD) is prepared to invest some US\$150M to expand capacity at the Garadagh cement plant by 30%. Partners of **Garadagh Cement JSC** are Holcim (69.4%), EBRD (10%), Azerbaijan Investment Company (10%) and private shareholders (10.6%). Capacity will be increased to 1.7Mt/yr.

**CZECH REPUBLIC**

**De Heus Feeds**, the Netherlands, has completed the acquisition of Czech animal feed producer **Zemedelske Sluzby Bistovice** (ZSB) based in Chocen. It has a production capacity of around 60,000t/yr of compound and complete feed, mainly for cattle and pigs.

**FRANCE**

**Celanese** will permanently close its acetyls complex at Pardies, France, with the loss of 354 jobs. The Pardies site had capacity to produce 450,000t/yr of acetic acid and 150,000t/yr of vinyl acetate monomer (VAM).

**FRANCE**

**Yara International** has restarted production of ammonia and urea at its Le Havre site, after temporarily ceasing operations last November owing to poor market conditions. According to Yara, the decision to restart reflects improved international urea prices and lower energy costs. The facility has an annual production capacity of 400,000t of ammonia and 350,000t of urea.

**FRANCE**

**Kraft Foods** is to invest up to €4M in its **LU Biscuits** plant near Nantes, France. It is understood that about 20 jobs will be created for the new production line at the La Haye-Fouassière site. Kraft Foods acquired **LU** as part of its €5.3 billion takeover of **Danone's** biscuit business in more than 20 countries in 2007.

**GERMANY**

Biofeed trader **Gut Rosenkranz Handelsgesellschaft** is to take over

**Friedrich Schmidt's** mixed animal feed plant in Bassum near Bremen and convert the facility to production of concentrated biofeed. The Bassum plant has an annual processing capacity of 30,000t/yr and a silo capacity of around 7500t.

**GERMANY**

Hirschau-based **Gebrüder Dorfner** has trebled capacity for manufacturing **Dorkafill** functional fillers for use in production of paint. The company has been mining kaolin, feldspar and quartz in Germany for more than 100 years.

**HUNGARY**

Hungarian vinyl and chemicals group **BorsodChem** has been forced to close one of its two methylene diphenyl diisocyanate (MDI) plants in Kazincbarcika in response to a collapse in demand. The company says that closing one plant will allow it to operate the second one on its main site in north-east Hungary at a higher level of capacity. Despite the current economic downturn BorsodChem plans to complete an MDI expansion project which will boost capacity by 30% as a result of more streamlined production.

**HUNGARY**

Dutch cooperative **Cehave Landbouwbelaag** has acquired new production locations in Hungary by taking over compound feed company **Pannonmill-Takarmány KFT**. This will boost Cehave's compound feed production in Hungary to around 200,000t/yr. Cehave's total output currently stands at about 2.7Mt/yr.

**HUNGARY**

**Yara International** is to close permanently its NPK fertiliser plant at Peremarton, Hungary, with the loss of 110 jobs. Production had been halted last October on what initially had expected to be a temporary basis. The site has a capacity of 150,000t/yr but lacks easy access to competitively priced raw materials.

**IRELAND**

**Lakeland Dairies** of Bailieboro, Ireland, has placed an €11M order with **GEA Process Engineering**,

Denmark, to produce various dairy-based powders including whole milk powder, skim milk powder and butter milk powder. The new facility, to be built next to the existing factory, is scheduled to come on stream by early spring 2010. There will be provision for bulk outloading as well as filling the powder into either 25kg sacks or FIBCs (see also p5).

**NETHERLANDS**

Following a €16M investment, **Cargill** has opened a new plant in Deventer built on the site of **Cargill Cocoa & Chocolate's** previous coatings factory. The facility can now produce fillings for the chocolate industry as well as for the bakery, biscuit, cereal, ice cream and confectionery sectors.

**NETHERLANDS**

**Brunner Mond**, Europe's second largest soda ash producer after **Solvay**, plans to close its 420,000t/yr soda ash operation in Delfzijl, the Netherlands, by September of this year. Brunner Mond's UK operations, which include its Northwich 950,000t/yr soda ash facility, are not affected.

**POLAND**

Sugar producer **Krajowa Spolka Cukrowa** (KSC) plans to convert two of its closed sugar factories into plants producing biofuels and bioenergy by end of 2011, working in cooperation with energy producer **Polska Grupa Energetyczna** (PGE). Estimated costs for the project are US\$34M for the sugar plant at Wozuczyn and \$50M for the one at Lapy.

**PORTUGAL**

Madrid-based **Fertiberia**, Spain's foremost fertiliser producer and the second largest in Europe after **Yara International**, has completed the €90M acquisition of Portuguese fertiliser manufacturer **Adubos de Portugal** (ADP) from **Quimicos Industriais**. ADP mainly produces nitrogen fertilisers.

**RUSSIA**

Thailand's **Charoen Pokphand Foods** has established a feed mill and integrated swine business in Lkhovitsy County, Moscow. The facility is operated by **Charoen Pokphand Foods (Overseas) Co** and has capacity to produce around 240,000t/yr of animal feed.

**RUSSIA**

**Maire Tecnimont** has signed a €15M contract with **Novy Urengoi Gas Chemical Complex**, a **Gazprom** subsidiary, to provide detailed engineering and technology services to expand capacity of low-density polyethylene (LDPE) plant

at Novy Urengoi. Capacity will be increased from 300,000 to 400,000t/yr. Follow-up contracts are expected to be worth an additional €80M.

**RUSSIA**

Krasnodar-based **Mayak LLC** has purchased 40% of the shares of the Kanevsky sugar factory and is set to acquire another 34% stake in the company as well as four other sugar factories (Dinskoy, Izumrud, Pavlovsky and Girey-Kuban). It will then consolidate all five factories into the newly founded **Stepnayay** open joint stock company. Annual processing capacity of the Kanevsky factory is 450,000-500,000t of sugar beet and 90,000-100,000t of raw sugar cane.

**RUSSIA**

**Lanxess** has announced that its **Rhein Chemie** subsidiary will establish a facility to produce polymer-bound additives and release agents for the rubber processing and tyre industries at Nizhny Novgorod, Russia. It is scheduled to be operational by mid-2010.

**SPAIN**

**Dow Chemical** plans to close its polystyrene plant in Bilbao in the third quarter of this year owing to decreased demand and depressed margins for the product in Europe. To compensate for the loss of capacity, output from Dow's other European plants will be increased where necessary.

**SWITZERLAND**

In June **Nestlé** opened its latest **Nespresso** production and distribution centre in Avenches, Switzerland. The company invested €198.5M in the new 400,000m<sup>2</sup> facility which will produce and distribute as many as 4.8 billion **Nespresso** capsules per year, a capacity that may double over the next three years.

**UK**

Subject to regulatory approval, **ABN** has acquired a new feed facility in northern England. It has agreed to buy the Flixborough feed mill from Lincolnshire-based feed company **J E Porter**. ABN is a division of **AB Agri**, the agricultural group of **Associated British Foods**.

**UK**

**Castle Cement** has changed its name to **Hanson Cement** to reflect its position as a core division of the UK's leading heavy building materials producer. Castle's parent company **Heidelberg Cement** bought **Hanson Plc** in September 2007. Hanson's UK operations have since been restructured into four divisions:

aggregates, concrete, building products and cement.

**UK**

**BOCM Pauls**, the UK's leading feed manufacturer producing more than 2Mt/yr at 16 mills, has announced a deal with its bankers to enable it to continue its expansion programme. **Lloyds TSB Commercial Finance** has made an additional facility of £77M available to support its plans.

**UK**

Owing to falling demand **Elementis** has closed its chromium chemicals plant at Eaglescliffe with the loss of 138 jobs.

**UK**

Before the end of this year **Croda International** is to close its Bromsbrough site which produces glycerine, fatty acids, esters and surfactants. This will result in the loss of 115 jobs.

**UK**

Earlier this year **Huntsman Pigments** (formerly **Huntsman Tiioxide**) announced the planned closure of the 40,000t/yr titanium dioxide pigment plant on the Pyewipe Industrial Estate, Grimsby, resulting in the loss of 200 jobs. Huntsman described the facility as the oldest and least efficient of its eight titanium dioxide manufacturing facilities.

**UK**

With effect from end of July **Sabic Innovative Plastics**, a **Sabic** subsidiary, is to close its 50,000t/yr capacity acrylonitrile butadiene styrene (ABS) plant at Grangemouth with the loss of 95 jobs.

**UK**

**Lafarge Cement UK** has announced that it is mothballing all cement production at its Westbury works in Wiltshire. Meanwhile the plant will operate as a depot, receiving and forwarding cement by both rail and road. Only four of the 68-strong workforce are being retained.

**UKRAINE**

Kiev-based **Rutile-Ilmenite Co** (RIC) has revealed plans to develop the Tarasovka mineral sands deposit in Ukraine's Volodarskiy district. The company plans to establish a mining operation extracting five million cubic metres a year of ore, which could be processed to yield a total of 240,000t/yr of dry bulk concentrates. These include leucoxene (grading 65-85% titanium dioxide), natural rutile, ilmenite and zircon. Mineral reserves are considered to be sufficient to sustain production at these levels for about 20 years.

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The following editorial features will be appearing in the September/October

## EuroBulkSystems

which will be published in mid-September:

- **Mechanical conveying**  
(focus on aero-mechanical & air-supported conveyors)
- **Bins & silos**
- **Mixing**
- **Valves**
- **Dust Control**
- **Level measurement**

If you have an editorial announcement that you wish to be considered for inclusion in EuroBulkSystems, please send copy to:

**richard.miller@oakhillmedia.com** Tel: +44 1424 446003

# Zeppelin acquires Reimelt Henschel

Subject to German anti-trust approval, Friedrichshafen-based Zeppelin Silos & Systems GmbH has purchased 100% of Reimelt Henschel GmbH with headquarters in Rödermark near Frankfurt, from MBB Industries AG, Berlin. Both companies are leading international players within their respective specialist areas of bulk solids handling. Zeppelin's focus is on the plastics and rubber industries, whilst Reimelt Henschel concentrates on food, pharmaceutical and plastics processing industries. The leading market positions as well as the technological pre-eminence of both companies will be sustained and reinforced by the merger.

"The common presence in the markets and mutual support in the handling of projects will strengthen the companies' common position, and business processes will become more efficient," said Peter Gerstmann, CEO of Zeppelin Silos & Systems. He went on: "The new group will be the leading provider in the field of bulk solids handling in the food and plastics sector. This strength is

important in the face of international competition. A global presence is the only way to meet the expectations of our key accounts which are operating all over the world with their production facilities." Synergies in production, R&D as well as sales are expected to arise from the merger.

The decisive factor which led to the acquisition, in the context of Zeppelin's long-term growth strategy, was the overlap of both companies' technical backgrounds. Like Zeppelin, Reimelt Henschel is engineering-oriented and implements similar technologies in its plants. The new company will aim to capitalise on these synergies in the future. On the product side the only overlap is in the field of plastics compounding. Respective expertise in areas of plant design and mixer technology are expected to complement one another perfectly. The acquisition of Reimelt Henschel is a major milestone in Zeppelin's long-term strategy of solid growth.

"Our customers need strong partners. This acquisition strengthens the market



**Zeppelin senior executives (from the left): Peter Gerstmann (CEO), Wolfgang Horn, Michael Baumgärtner, Dr Harald Wilms and Rochus Hofmann.**

position of both companies. Everybody benefits from the constellation: the customers in different industries, our employees in the international network

and of course the Zeppelin Group" Gestmann said.

With a staff of 570, Reimelt Henschel generated sales of 104

million euros in 2008. It has subsidiaries in the USA, Brazil, France, UK, Korea and Hong Kong. Its product range includes conveying systems, and equipment for blending and homogenising, dedusting, weighing and dosing as well as PVC mixers, food kneaders and compounders.

In 2008 Zeppelin generated sales of 240 million euros. Global markets are served by subsidiaries in Italy, Great Britain, India, USA, Singapore and China as well as production sites in Germany, Belgium, Brazil, Saudi Arabia and Turkey. It specialises in engineering, production and installation of plants for handling (storage, conveying, blending, dosing and weighing) of high-grade bulk solids (powders and pellets) for plastics, rubber and chemical industries.

With the integration of Reimelt Henschel, the Zeppelin Industry Division now has over 1200 employees and a 300 million euro turnover.

[www.zeppelin-industry.com](http://www.zeppelin-industry.com)

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## Acoustic cleaners for sale or rent

A year ago Primasonics International, the UK-based manufacturer of audiosonic acoustic cleaners, was approached by the Cleveland, UK plant of Ferro Corporation which was experiencing problems due to high humidity of potassium nitrate build-up on silo side walls. After investigation Primasonics recommended installation of one of its PAS-230 acoustic cleaners on top of the silo. The customer, sceptical that the unit might not be entirely effective, chose to rent it on a monthly basis and it was installed last autumn. However, it has performed so well that Ferro decided in April to purchase the device outright.

Another recent successful acoustic cleaner installation involved a Primasonics Model PAS-420 supplied to PET Processors (UK) of Dumfries, Scotland. This US-owned company produces a range of solid state polymers by enhancing the crystallinity and molecular weight for semi-crystalline thermoplastics. These various polymers are produced in pelleted form and stored in an 8t capacity bin. Unfortunately cross-contamination was occurring within the discharge cone section of the bin which resulted not only in loss of product but also loss of production, since it was necessary to clean out the bin manually between changes of different grades of product. Polyester pellets with a particle size of between 2 and 3mm and a moisture content of 100ppm proved to be the most troublesome material. This had a tendency to form soft clumps over the



**Problems of potassium nitrate hang-up on Ferro Corp's silo sidewalls have been solved with this Primasonics PAS-230 acoustic cleaner.**

bin outlet.

Alex Bergus, Primasonics' director of technology, visited the plant to inspect the problem, and he discussed the benefits of installing an acoustic cleaner just above the bin outlet. This would prevent any build-up of material in this hopper area without causing any risk of structural damage to the bin wall, as can happen with both vibrators and mechanical hammers.

Primasonics was awarded a contract to supply a PAS-420 complete with external mounting tube and accessories. A small hole was cut in the side of the hopper discharge and the mounting tube welded in place. The acoustic cleaner was powered

via a solenoid/timer by compressed nitrogen to avoid oxygen adversely affecting the product. The timer, which activated the titanium diaphragm to create the correct sound frequency, was set to sound the acoustic cleaner for a few seconds only at periodic intervals, but only during either filling or discharging operations. As a consequence the bin emptied completely on every occasion and material build-up was eliminated, thus also solving the problem of product cross-contamination. Savings in terms of both downtime and product losses are said to have more than paid for the acoustic cleaner.

[www.primasonics.com](http://www.primasonics.com)

## Instrument costs recouped in a single day

A leading producer of potato crisps recently installed newly launched FLEX-LIW controllers (see *Euro Industry News* for week of 13 April 2009) from Penko Engineering, the Netherlands. The instruments are employed to control precisely the amount of paprika powder applied to the crisps as they pass along the production line, using the loss-in-weight principle. The quantity of paprika used is critical, not only to maintain uniform flavour but also to ensure that waste is minimised. Using

FLEX's graphical coloured display, which can be easily seen from a distance, an operator can now tell immediately if flow is constant and within preset limits (green bargraph) or if there is a problem such as lumps of powder in the flow which show up as a red warning bargraph, requiring the flowrate to be adjusted. It has been estimated that the FLEX system has paid for itself in terms of paprika powder saved during just a single day's production.

[www.penko.com](http://www.penko.com)



**Not to be sneezed at: Penko controllers pay for themselves in cost savings of paprika wastage during a single day's production.**

## Pallet-less stretch-wrapping of sacks provides more than 50% cost saving

Latest figures released by Maschinenfabrik Möllers of Beckum, Germany, for its revolutionary new reverse hood pallet-less stretch-wrapping system (see May/June 2009 *EuroBulkSystems* p10) show that just 3kg of film costing about €6.50 is required to wrap a 1.5t load. This compares to an average cost of €12 using pallets. However, since the pallet-less system wraps the goods tightly as a sealed unit, a truer comparison is with a pallet plus a stretch hood or shrink hood, which increases the comparative cost to over €14.50. There are additional savings from not having to handle, transport or store empty pallets.

The pallet-less stretch-wrapped load consists merely of the cargo itself (typically a stacked bundle of filled 25kg sacks) and a polyethylene film sheath. It is formed by wrapping one inner hood of ultra-stretch PE film around the machine-stacked goods, then turning the load through 180 degrees and wrapping an external hood, called the reverse hood.

Technical benefits of this pallet-less concept include both the high degree of handling and transport stability of the loads, and the fact that they are completely watertight. This means that even moisture-sensitive materials can be stored in the open as well as



**An inner hood of ultra-stretch PE film is drawn down over a bag stack, after which the load is turned through 180 degrees and the reverse (outer) hood is applied in the same way.**

being transported on open vehicles in all weathers without need for further protection. This yields additional savings such as reduced requirement for covered storage space and faster loading and unloading of more readily accessible open vehicles.

This pallet-less concept also yields considerable savings when shipped

in freight containers. One user has reported that by being able to take advantage of the extra storage volume inside the container normally taken up by a pallet, he has been able to increase utilisation by a huge margin. The product weight loaded per container rose by 7.2%, eliminating the need for 2740 x 40ft containers for an annual production output of one million tonnes. Moreover, the good handling and stowing characteristics of these pallet-less packages makes them well suited for direct loading into ships, opening up the prospect of cost-effective transport in general cargo vessels rather than more costly container ships.

In cooperation with the Dow Group, which applied its Versify elastomer technology to developing the ultra-stretch film that it also uses for its own despatch operations, Möllers has invested a significant development effort in this new technology.

[www.moellers.com](http://www.moellers.com)



**The Möllers pallet-less load is entirely watertight and can be easily handled by forklift.**

## Realignment of Coperion's main board

Following the departure of Wolfgang Pöschl from the executive board of Coperion GmbH which last year achieved annual sales of some 600 million euros, the Stuttgart-based company has with immediate effect announced a streamlining of its top management. Pöschl previously headed Coperion's competence centre for compounding & extrusion. He is not being replaced and his responsibilities instead have now been divided between executive board members Axel Kiefer and Thomas Kehl.

Kiefer, in addition to his existing responsibilities as head of the company's competence centre for materials handling, now also assumes control of its large, high-performance compounding systems business

servicing the polyolefin industry. Kehl will continue to be responsible for the service competence centre, but additionally now takes charge of the business area encompassing small to medium size compounding and extrusion machines for plastics, food and pharmaceutical industries as well as for special applications.

Günter Bachmann, executive board chairman, continues to be responsible for corporate shared services including human resources, management & finance, and information technology.

Coperion, which operates more than 30 sales and service companies, designs, develops, manufactures and maintains systems, machines and components for the plastics, chemicals, food and aluminium industries.

[www.coperion.com](http://www.coperion.com)



**Coperion's trimmed executive board: Axel Kiefer, Günter Bachmann (chairman) and Thomas Kehl.**

## Poole given broader K-Tron sales remit



**Richard J Poole.**

K-Tron Process Group, Niederlenz, Switzerland, has promoted Richard J Poole to sales director covering Europe, Middle East, Africa and Asia, entrusting him with overall responsibility for virtually worldwide sales outside the Americas. He has been with K-Tron Group for more than 20 years, gaining substantial marketing experience working at K-Tron America and as sales manager at K-Tron (Switzerland) and K-Tron Deutschland. In his function as sales director EMEA/Asia he is also a member of the K-Tron (Switzerland) management team and managing director of K-Tron Deutschland. Sales managers at the company's offices in Shanghai and Singapore will now report directly to him.

[www.ktronprocessgroup.com](http://www.ktronprocessgroup.com)

## SHAPA KNOWLEDGE 2009

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# Bespoke semi-bulk filling stations achieve highest standards of hygiene and dust removal

Delaere Weighing and Bulk Systems of Deerlijk, Belgium, recently supplied a novel calibrated bulk bag filling rig to Friesland Foods for handling lactose as an ingredient for baby foods. The high-care zone of the integrated system is fabricated entirely from stainless steel, including the work platforms. Product contact surfaces are polished to ra 8 specification and all steel structures have open profiles to minimise risk of product entrapment. The filling head, which is easily cleanable, is custom designed to remove foreign particles from the product flow.

By means of a mobile table with integrated vibration, the filled bulk bags are transferred out of the high-care zone to the standard zone, where they are placed on pallets, wrapped and prepared for storage.

In another recent purpose-designed intermediate bulk container filling installation, Delaere – in response to the requirement of one of its German customers – produced a complete mobile filling station for PE and PP compounds which incorporates a

Pelletron DeDuster. The calibrated system removes angel hair and granule dust prior to loading product directly into octabins or bulk bags, with no need for intermediate storage or pneumatic conveying after dedusting. Thanks to its mobility the unit can be easily manoeuvred directly beneath individual bins in a silo battery, again removing any need for pneumatic conveying. After each filling cycle, the liner is automatically

closed by two sealing bars.

Delaere has also recently installed two separate octabin filling lines where the fibreboard containers are robotically unfolded and assembled prior to filling, then closed and sealed after filling, also fully automatically.

[www.delaere.com](http://www.delaere.com)



**Ultra-hygienic Delaere filling rig for loading lactose into bulk bags at Friesland Foods and (right) mobile polymer filling system in Germany with integral Pelletron DeDuster.**



# New mixing line for detergent powders

Forberg International of Larvik, Norway, has delivered an F-1000 twin-shaft batch mixer to Norwegian based Unitor Chemicals AS. The machine, which has a nominal capacity of 1000 litres per batch, forms the key element of a new production line for powdered detergents. Raw materials are fed from bulk bags directly into the mixer, where blending of dry products and spraying of liquids take place in the same operation. Discharge of the finished product is via two large bomb doors in the bottom of the mixer into a reception

bin with screw feeder. From there the finished product is filled into barrels. These are automatically transported on to a scale and filled with product until the preset weight is reached.

The new mixer is reported to have improved the quality of the end product as well as increasing capacity of the production line. "The batch time has been considerably decreased with this new mixer and we are really pleased with the performance", commented Rune Kristiansen, factory manager of Unitor Chemicals.

[www.forberg.no](http://www.forberg.no)



**Forberg mixer at Unitor Chemicals.**

# GEA bags major milk powder contract in Ireland...

GEA Process Engineering, headquartered in Soeborg, Denmark, has won an €11 million order to supply a new plant for Lakeland Dairies, Baillieboro, Ireland, which will produce various dairy-based powders including whole milk powder, skim milk powder and butter milk powder. The new facility, to be built next to the existing factory, is scheduled to come on stream by early spring 2010. Specialist services will be provided by eight GEA companies. These include the evaporator from GEA PE France; the drier from GEA Niro; powder conveying equipment from GEA Colby; and the powder packing line from GEA Avapac. Powder manufactured in the drier will be transported gently (to avoid breakdown of sensitive particles) to

new powder silos, and from there to the new 25kg-sack bagging lines, FIBC filling and bulk outloading systems. Site construction is scheduled to start immediately.

The 25kg bagging line, including a degassing system, will have a rated capacity of 12t/h powder packed and is the first order received by GEA Avapac in Europe for its successful low-intervention packing concept. The contract is being managed and coordinated by GEA Process Technology Ireland Ltd.

"We are extremely proud to be awarded this significant contract by Lakeland Dairies," said Paddy Kenna, managing director of GEA Process Technology Ireland Ltd. "As the sole process equipment supplier on this project, GEA Process Engineering will be responsible for the

supply, installation, supervision and commissioning of all the processing equipment – and we see this award as a recognition of our company as a competent and experienced provider of this world class solution. In addition, we see this contract as a major breakthrough for our future involvement as partner for further developing the Irish dairy industry."

Despite the current poor returns shown by most sectors of the international dairy product industry, Irish Minister for Agriculture and Food Mary Coughlan expects that the Irish dairy industry will show some growth over the coming years. This is expected to be as a consequence of the gradual relaxation of the EU's production quota system and the need to increase the output per farm to maintain farm incomes.

# ... as well as similar business in China

Just a few days after announcing the Lakeland Dairies contract, GEA Process Engineering revealed that it had secured an even larger order worth in excess of €17M from Feihe Dairy, one of China's fastest growing, medium-size producers of dairy products. Scope of supply includes installation of two new production plants in Heilongjiang province, one in Gannan and the other nearby in Longjiang, as well as process know-how, technology and staff training. Feihe Dairy previously employed

the services of GEA Process Engineering as its supplier for its first infant formula project three years ago. The company considers the Denmark-based engineering firm to be a strategic partner and expects the partnership to continue well beyond the two new projects.

The Gannan facility, which will supplement an existing plant, is expected to be completed in the autumn of 2010 and will produce 50t of whole milk powder or 80t of infant formula powder daily. The

new plant in Longjiang, scheduled to be operational by the winter of 2010/11, will provide a daily production capacity of 62t of whole milk powder or 100t of infant formula powder. Feihe Dairy is a subsidiary of American Dairy, Inc. These contracts are the first major projects within China's dairy industry since last year's melamine scandal which resulted in the collapse of Sanlu, China's largest milk powder producer.

[www.geap.com](http://www.geap.com)

# Semi-bulk transport of air-sensitive liquids/pastes

Fluid-Bag Ltd of Jakobstad, Finland, has recently been supplying its novel flexible liquid IBC system to KEFA Drytech, the leading Swedish producer of paints and surface treatments. Fluid-Bags in the 900-1000 litre capacity range, comprising flexible inner container, outer transport bag and a choice of pallet systems, are being used to transport GrafoTherm condensation-protection solutions and Biorid mould treatment fluids. Quality of the filled liquid remains uniform, as neither air nor contaminated particles can enter the container during discharge.



[www.fluid-bag.com](http://www.fluid-bag.com)

**Fluid-Bag Multi.**

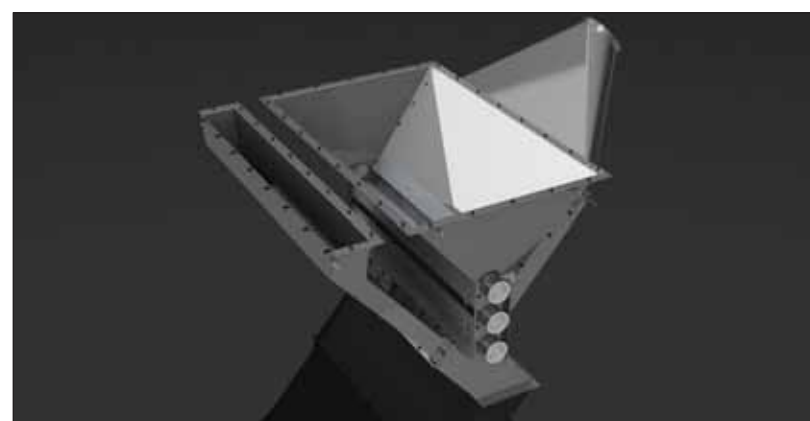
# High-capacity screening of cat litter

Rhewum, Remscheid, Germany, has won an order to construct a DF screening machine featuring an integrated Type QS cross flow sifter. It will be employed to screen cat litter at a throughput of about 300m<sup>3</sup>/h, classification being at a screen cut of 0.5mm and 7.1mm. In this unusual application, overflow from the screening decks is fed to the sifter which dedusts the screened product by means of air flow. The customer requires the end product to have a dust content of less than

0.3%. Commissioning is scheduled for October.

This latest development enables Rhewum to use just one kind of screen type for screen cuts with wide inclinations, instead of having to install various types as was required previously. Dr Matthias Coppers, the main developer behind this major technical innovation, said: "This unique project with its special requirements demonstrates the versatility of this new technology."

[www.rhewum.de](http://www.rhewum.de)



**Rhewum DF with cross flow sifter.**

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## FDI project team achieves landmark consensus

In its quest to develop a common solution for field device integration (FDI), the steering committee of the Electronic Device Description Language (EDDL) cooperation team has reached an important milestone. The FDI project team has worked for the past 18 months to identify use cases encompassing all facets of plant operations, from start-up and commissioning to ongoing maintenance activities and plant operations. A key outcome has resulted in a draft architecture that migrates Field Device Tool (FDT) and EDDL technologies to a common device integration standard.

The success of the project derives from close working relations between the EDDL cooperation team and major global process control suppliers including ABB, Emerson, Endress+Hauser, Honeywell, Invensys,

Rockwell Automation, Siemens, Smar and Yagogawa. In 2003 the three leading field device foundations (Fieldbus, HART and PROFIBUS user organisation) signed a cooperative agreement to develop a common specification for graphical visualisation and persistent data storage enabled by EDDL.

The next milestone of the project will be the development of detailed specifications of the FDI solution. The specifications will then be validated by each of the member organisations, a process which has already begun. Details of the exact FDI architecture and associated device interface will be unveiled with the release of the final functional specification, currently planned for summer of 2010.

Further information from Dr Sigrun Ebert-Heffels (tel: +49 (721) 595 56 76).

## Fine dosing of alumina powder

ST Schüttguttechnik of Landsberg am Lech, Germany, has recently installed four of its Fine Dosing loss-in-weight feeders which have been configured to fill 960 jars per hour each with 1.2kg of alumina powder. The system operates 24h/day and achieves a short dosing time of < 13s to an accuracy within plus-or-minus 1.5%. The load cell and generator are integrated in stainless steel housings, with the loadcell additionally protected against overloads and dust. A batch controller optimises coarse and fine feeding with automatic tolerance control. The system has been designed in accordance with GMP rules for fast cleaning and maintenance operations.

Extraction of powder is based on the company's patented Fine Dosing concept which was launched last year (see p13 of November/December 2008 EuroBulkSystems).

The system is reported to have set new standards in terms of accuracy, short dosing time and flexibility. For example, it has shown itself capable of dosing 3g of fine powder such as flour within a standard deviation of 0.03g and a dosing time of 5s.

[www.solids.de](http://www.solids.de)



Part of SST's Fine Dosing installation for alumina powder.

## Low-headroom dust removal



Pelletron's new XP5 DeDuster.

Pelletron Corp. of Lancaster, PA, has introduced the new XP5 DeDuster™ which, although well suited for a broad range of dust-control applications, has been specially designed to serve the needs of companies which handle and process polymers.

In Europe it is available through Pelletron's German distributor MoMaTech GmbH.

With a capacity of 500kg/h, the XP5 has been engineered to fit in spaces with restricted height (it is only about 50cm high, depending on the type of flange connection) as well as to remove dust and angel hair in one unit. It is also said to be ideal for cleaning regrind.

The well tried and tested electromagnetic coil concept remains

unchanged. The electromagnetic field breaks the static bond between the electrostatic charged plastic pellet and the small dust particles. Particles as small as one micron will be removed efficiently. However, some design changes have been made in order to improve the way in which dust and angel hair are removed.

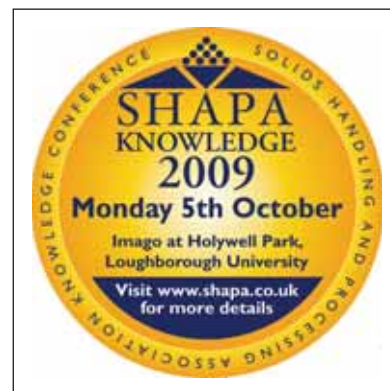
The XP5 can be installed as a compact unit on a mobile frame, including a cyclone, fan, inline filter and electrical equipment. Pelletron works closely with each customer in order to find the most suitable solution. The system is ideal for all types of granular products that need to be cleaned before packaging, shipping or processing.

[www.pelletroncorp.com](http://www.pelletroncorp.com)  
[www.momatech.de](http://www.momatech.de)

## SHAPA one-day conference in October

The UK-based Solids Handling and Processing Association, which has just over 100 member companies, is holding a one-day Knowledge Conference on Monday 5 October at the Imago Holywell Park Conference Centre on the campus of Loughborough University, Leicestershire. Delegates will be able to select individual sessions from two parallel streams of presentations, one covering commercial and compliance topics and the other various aspects of solids handling technology. There will also be a small exhibition of table-top displays.

The conference offers an opportunity to learn about latest regulatory issues, their interpretation and implementation, ways to minimise cost and maximise profit and the latest ideas and thinking of different aspects of solids handling techniques from some of the foremost authorities in their fields. The programme will include keynote addresses by Iain Evans of the Health and Safety Executive on 'Regulation, compliance and enforcement policy' and by Martin Bigg from



the Environment Agency on 'Better regulation, better industry.'

Established in 1981, SHAPA is now recognised as the UK's leading specialist association in its field and has grown to become the foremost authority on all matters – technical, commercial, legal and professional – relating to the British solids handling and processing industry. Further details about the conference are available from general secretary John Whitehead (tel: +44 116 2713704; info@shapa.co.uk).

[www.shapa.co.uk](http://www.shapa.co.uk)

### IN BRIEF

#### Mastersizer sales break 10,000 barrier

Malvern Instruments of the UK recently recorded the 10,000th sale of its Mastersizer laser diffraction particle size analyser, which is now said to be used by more than 90% of the world's leading chemical and pharmaceutical producers. The company was one of the early pioneers of laser diffraction technology which today forms the key element not only for laboratory-based Mastersizers, but also for the Spraytec system and the Insittec range of in-process particle size analysers. Individual experiences from Mastersizer users as well as testimonials can be viewed at

[www.malvern.com/mastersizertestimonials](http://www.malvern.com/mastersizertestimonials).

#### New head office for GHH RAND

GHH RAND's Tanker Solutions division and Ingersoll Rand Industrial Technologies have joined forces in a new Oberhausen, Germany, head office. As a result long established screw compressor manufacturer GHH RAND now has the advantage of a state-of-the-art production facility combined with sustainable office space.

[www.ghrand.de](http://www.ghrand.de)

#### First Roto Classic cement packer goes into operation

In April Haver & Boecker, Oelde, Germany, installed the first of its new Haver Roto Classic cement bagging machines at the Beckum plant of Phoenix Zementwerke Krogbeumer. The machine, which was launched last autumn (as reported in Euro Industry News for week of 27 October 2008), has 12 filling spouts and is capable of packing 4500 bags/h, compared with an hourly rate of 4000 bags available from the previous model.

[www.haveboecker.com](http://www.haveboecker.com)

#### Cronus adopts Goodtech name

With effect from 12 May Cronus Packaging Systems headquartered in Porsgrunn, Norway, which is 100% owned by Goodtech ASA, has changed its name to Goodtech Packaging Systems AS. The company supplies materials handling products and services under the PORTABULK® trademark. General manager Tim Johnstone said that the rebranding is expected to provide long-term advantages and synergies for the company's customers, including a stronger identity and positioning in the market as well as creating a better platform for innovation, customer service and technological capability.

[www.goodtech.no](http://www.goodtech.no)

#### Repeat order for Dino powder tanker loader

Dutch bulk logistics specialist Nijhof-Wassink recently purchased a second Dino bulk truck loader from Van Beek of Drunen, the Netherlands. The first machine was acquired over 14 years ago and is still being used daily to transfer a range of bulk products, notably plastic granules and powdered starch, from bulk bags, octabins and sacks into road tankers. Tonny Haselbekke, business manager at Coevorden-based Nijhof-Wassink Intermodal, explained that the two Dinosaurs could now mainly be dedicated to loading specific products, which greatly reduced time needed for cleaning to prevent product cross-contamination.

[www.van-beek.nl](http://www.van-beek.nl)

## TUF-LOK® PIPE COUPLINGS

### Ring Grip Series 689, 688 & 698

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# IN-HOUSE TEST CENTRES FOR PRECISION BULK HANDLING, PROCESSING & PLANT SAFETY

*Apart from providing invaluable research & development facilities for plant and equipment manufacturers developing new prototype machines, in-house test centres are becoming increasingly important as a marketing tool. Initially they help to kindle a working relationship with a potential new customer and at a later stage can be instrumental in determining whether a new contract, for just one piece of equipment or for an entire integrated materials handling system, is won or lost.*

*Nowadays customers are understandably unwilling to sign a major purchase order unless they are entirely convinced that the system or equipment on offer will perform entirely to specification. Hence the rapid emergence in recent years of in-house test plants.*

*Here we outline the test plant services available from 15 leading engineering firms and equipment suppliers, all but one of which are located in Europe.*

## Van Beek BV, the Netherlands

**Areas of specialisation:** Conveying, mixing and dosing by means of screw conveyors.

**What is available:** see details of sister company Celsius (below)

**Terms of use:** see Celsius.

**Location:** Drunen, the Netherlands.

**Contact:** see Celsius.

## British Rema Processing Ltd, UK



**British Rema's Chesterfield toll processing facility.**

**Areas of specialisation:** Particle size reduction and particle size control

**What is available:** British Rema is one of the UK's longest-established businesses specialising in powder processing equipment and toll processing. It is recognised internationally for its expertise in particle size reduction and particle size control. The company's test facilities provide a full range of powder size-reduction equipment (including jet mills, impact mills and ball mills) as well as air classifiers and sieving equipment, with plant suitable for R&D tests through to high-volume trials.

The company has experience of handling a wide range of materials and customers appreciate being able to run small samples, often treating British Rema as an extension to their own R&D facilities while being able to benefit from the expert advice of the company's technical staff. Regular customers include global suppliers to highly regulated industries such as aerospace and nuclear reprocessing, so the company is accustomed to undergoing detailed supplier audits.

The British Rema laboratory provides particle size analysis

facilities and is used extensively by both its contract processing and equipment sales divisions, as well as providing analytical services directly to customers who do not have their own equipment. It also plays a key role in the specification of new equipment, where the appropriate equipment parameters and sizing can only be properly determined through careful trialling, using customers' actual material.

The laboratory is equipped with a Malvern Mastersizer 2000 and a Coulter Multisizer II, as well as air-jet sieving equipment. Together these provide the full range of standard analytical techniques relevant to the determination of particle size distributions in most industries.

British Rema's customer base is international, with specialist products being delivered for testing from North America, Asia and mainland Europe.

**Terms of use:** Available internationally to all customers and potential customers.

**Location:** Chesterfield, UK

**Contact:** David Bugler (david.bugler@britishrema.com; tel +44 1246 269955).

## Celsius BV, the Netherlands



**The recently enlarged Drunen test plant of Celsius which is shared with sister company Van Beek.**

**Areas of specialisation:** Drying, heating and cooling by means of screw-type heat exchangers.

**What is available:** The Celsius test centre is shared with sister company Van Beek (see above). The facility, with a surface area

of more than 500m<sup>2</sup>, offers a wide range of equipment to simulate applications on a small scale and to define product variables. There is sufficient measuring equipment to determine test values. At the end of last year the company completed an extension to the test plant to allow a wider range of materials to be subjected to small-scale simulation testing. The test space can be used by customers to carry out trials, either independently or with the support of Celsius/Van Beek staff. After tests have been completed the company can propose a specific design of screw conveyor or screw type heat exchanger, with a formal warranty, for the required conveying, cooling, heating or drying application. The test facility is used by both national and international customers.

**Terms of use:** Available to all potential customers at a charge of €1500 per day.

**Location:** Drunen, the Netherlands

**Contact:** Marco Geradts (geradts@van-beek.nl; tel +31 416 375225)

## Coperion GmbH, Germany



**View inside Coperion's state-of-the-art Niederbiegen test plant where certain equipment combinations cannot be matched by any other test facility in the world.**

**Areas of specialisation:** Pneumatic and hydraulic conveying, blending and mixing, dedusting and heating/cooling.

**What is available:** With regard to pneumatic conveying, there is a choice of pressure or vacuum systems, dilute and dense phase, rotary valves and pressure vessels. There are pipeline lengths up to 2000m and up to 200mm diameter, offering capacities up to

### Main areas of specialisation provided by leading in-house test plants and laboratories

#### Air classifying

- Sweco

#### Briquetting/compaction

- Köppern

#### Classifying

- Poittemill
- Rotex Europe

#### Dedusting

- Coperion

#### Dosing/feeding

- Dasag
- Dietrich Engineering Consultants
- Reimelt Henschel (Zeppelin)

#### Emptying (bags, bulk bags, containers, etc)

- Dasag
- Dietrich Engineering Consultants

#### Explosion protection

- Fike

#### Extruding

- Reimelt Henschel (Zeppelin)

#### Filling (bags, bulk bags, containers, etc)

- Dietrich Engineering Consultants
- Statec-Binder

#### Fluidised-bed systems

- Reimelt Henschel (Zeppelin)

#### Heat exchanging

- Celsius
- Coperion

#### Hydraulic conveying

- Coperion
- Zeppelin

#### Micronisation

- Poittemill

#### Milling/fine grinding & crushing

- British Rema
- Köppern
- Poittemill

#### Mixing & blending

- Van Beek
- Coperion
- Dietrich Engineering Consultants
- Dynamic Air
- J-Tec Material Handling
- Reimelt Henschel (Zeppelin)

#### Palletising

- Statec-Binder

#### Particle size reduction/control

- British Rema

#### Pneumatic conveying

- Coperion
- Dasag
- Dynamic Air

- J-Tec Material Handling
- Zeppelin

#### Pressure relief

- Fike

#### Scalping/lump removal

- Rotex Europe

#### Screening/sieving

- Rotex Europe
- Sweco

#### Screw conveying

- Van Beek

#### Silo technology

- Zeppelin

200t/h. There is a hydraulic conveying facility offering a pipe length up to 100m, a maximum pipe diameter of 65mm and capacities up to 30t/h.

Mixing facilities include gravity silo blenders for pellets and powders. For dedusting trials there is a counterflow elutriator for pellet cleaning with capacities up to 10t/h as well as a filter test unit.

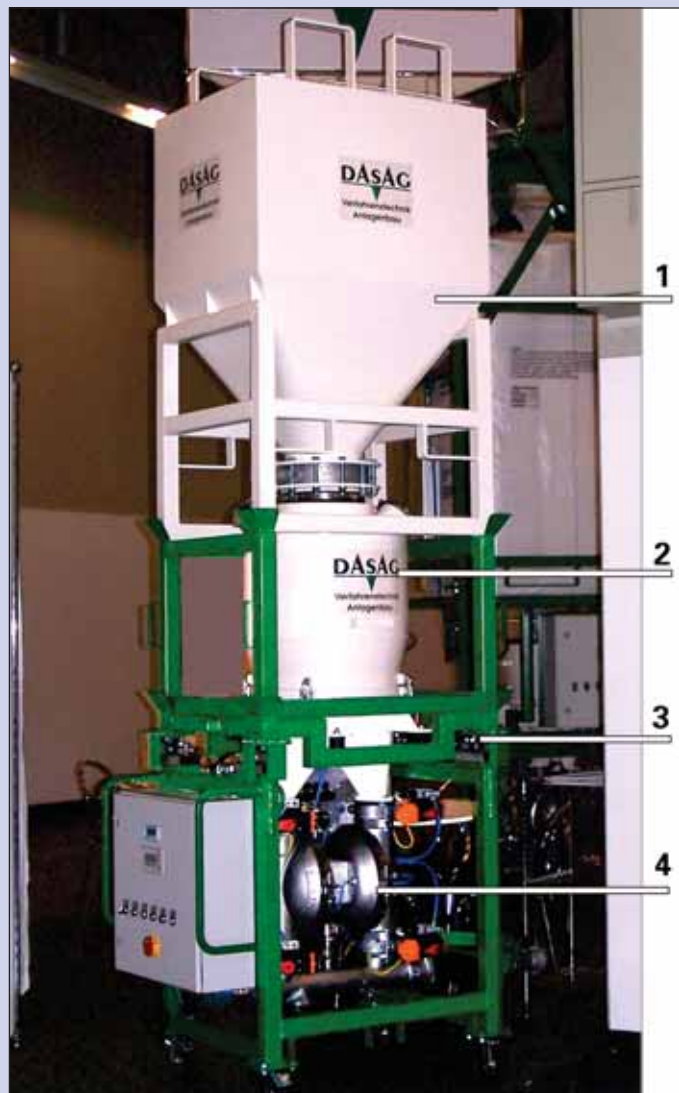
Other test systems include a bulk material heat exchanger for heating/cooling of free flowing pellets and powders. There is also a wear test unit for investigating abrasiveness of different bulk materials and resistance of different types of wear protection system. These facilities are backed up by a bulk solids laboratory equipped with instrumentation for measuring the main mechanical and thermo dynamic parameters of powder and pellets. The scope of services provided is said to be unique and the combination of different equipment and range of capacities cannot be found at other locations. This test plant is used by customers from all over the world, especially from Europe, USA, Asia and Arab countries.

**Terms of use:** The test facilities are available to all existing and potential customers, to research institutes and to suppliers. Customers use the plant for their own product development and for consultation purposes with their own customers. Only direct costs are charged. In the event of a system or item of plant being ordered, the payment is compensated. Customers receive a detailed test report including the results.

**Location:** Niederbiegen, near Weingarten, Germany. This is the main bulk materials handling test plant within the Coperion Group. A small facility for pneumatic conveying also exists in Ramsey, NJ, USA, at Coperion Corp.

**Contact:** Carsten Packeiser (carsten.packeiser@coperion.com; tel +49 751 408619).

## DASAG GmbH Verfahrenstechnik-Anlagenbau, Germany



**DASAG's highly versatile test rig, sufficiently compact to be transported to customers' sites, showing: (1) feeding hopper or receiving hopper with filter or bulk bag, (2) adapter for container or bulk bag or sack, (3) load cells, and (4) powder pump ready for use.**

**Areas of specialisation:** Container emptying (bags, bulk bags, rigid containers, hoppers, etc), pneumatic conveying, dosing.  
**What is available:** With regard to bulk materials handling, the following are some of the main objectives that can be verified in the test plant: continuous discharge of any type of bag or container; steady metering; dustfree handling within a closed system; adjustable flow volume with any bulk material; gentle conveying of sensitive products; part emptying of bulk bags with the possibility of feeding back excess material into the bulk bag; flexible and autarkic design with self-contained controls.

Within the test plant all hoppers and adapters are replaceable by other equipment, depending on the intended test. Only the lower frame (dimensions approximately 1200 x 1200 x 4000mm) with the powder pump and the load cells forms a constant part of the equipment. The company's test system is centred around the advantages of the powder pump, such as the suction effect of the pump, the permanent pressure monitoring, the optimal material load with absolutely low pressure in the line, the low air volume in the conveying flow, and the possibility of

operation with inert gas. These and other special functions can be accurately adjusted to suit the characteristics of the bulk material.

The company points out that customers are sometimes hesitant about ordering a new item of plant unless they are totally convinced of its efficiency, especially in the case of poorly flowing, bridging, cohesive, fibrous or blocking materials. Its mobile or stationary test plant provides an excellent means of convincing customers that equipment will perform according to specification. It is unique with its 'three-in-one' function of emptying, dosing and conveying.

**Terms of use:** It is recommended that trials take place at the test plant but they can also be carried out at the premises of the customer. However, because of the dimensions of the mobile test rig and transport costs, these normally only take place in Germany and neighbouring countries. The facilities are available to everybody and there is no time limit, although one week is the normal maximum period. In general a charge of €1000 will apply which can be partly or fully refunded when an item of plant is purchased. Supply of the material to be tested is at the customer's risk and expense. Test results are confidential unless the customer gives consent for general use.

**Location:** Nordhausen, Germany

**Contact:** Niels Böer (info@dasag-verfahrenstechnik.de; tel +49 3631 460830).

## Dietrich Engineering Consultants SA, Switzerland



**Test equipment at Dietrich Engineering Consultants' Ecublens/Lausanne plant includes a batch mixer (left) and Drum Containment System (DCS) for safe transfer of highly toxic powders.**

**Areas of specialisation:** Powder transfer, loading and discharge to and from receptacles and bags.

**What is available:** Dec offers the possibility to arrange tests in its generously sized and well appointed in-house test plant. Customers are welcome to undertake trials using the company's technologies with their own product or with a test product. Tests are prepared and carried out by Dec's specialist engineers and the customer is invited to participate in the tests.

The company provides testing in the field of powder handling (especially powder transfer), charging of equipment or packaging such as drums or bulk bags and discharge of equipment or industrial packaging (including sacks), mixing and dosing.

It is also possible to hire test equipment if trials have to be carried out at the customer's site, especially where these are long-term or where a toxic product is being handled. In such circumstances assistance of Dec's specialist staff can be provided.

**Terms of use:** A fee is charged for testing services, part of which can be refunded when customers buy equipment, each project being individually assessed in this respect. Dec guarantees absolute confidentiality regarding test results and customers often sign agreements to this effect.

**Location:** Ecublens/Lausanne, Switzerland.

**Contact:** info@dec-sa.ch; tel +41 21 694 20 40.

## Dynamic Air Ltd, UK

**Areas of specialisation:** Pneumatic conveying, mixing, blending  
**What is available:** Full pneumatic conveying testing as well as blending, mixing, agglomerating, cooling, drying, coating, lump breaking, bin discharging, dust collection, vibratory feeding and conveying. All dry material characteristics are analysed to determine their exact handling and product performance values. Most tests are fully instrumented and computerised, using the latest in testing software. A full evaluation can be provided, including equipment performance criteria, efficiencies, hygroscopic effects, build-up tendencies, respective velocities, material-to-air ratios, capacity values, degradation issues, dust collector requirements, optimum conveying pressures, fill times, air volume requirements, bulk densities, segregation, and other relevant data as might be required. The UK test facility serves the UK and Europe. The company offers 16 different pneumatic conveying concepts, including 12 dense phase systems, two dilute phase vacuum systems and two dense phase vacuum systems. Dynamic Air also has full scale testing capabilities at

its US and Brazil facilities.

**Terms of use:** Testing is available to everybody. The company does charge for use of the test plant but does not impose a time limit on the duration of the trials. All test results are confidential.

**Location:** Milton Keynes, UK; outside Europe at St. Paul, MN, USA and at Sao Paulo, Brazil.

**Contact:** Mark Williams (sales@dynamicair.co.uk; tel +44 1908 622344).



**Dynamic Air's new Milton Keynes, UK, test plant is especially well equipped for pneumatic conveying trials and serves a Europe-wide customer base.**

## Fike Corporation, USA



**Fike's US full-scale explosion test site allows a wide range of potentially dangerous trials including flame propagation and isolation, explosion suppression and explosion venting to be carried out under safe conditions.**

**Areas of specialisation:** A wide range of pressure relief and explosion protection testing.

**What is available:** Pressure relief testing facilities include an ASME flow laboratory for quantifying the performance of bursting disc devices, bursting disc/relief valve combinations, and any other device whose flow capacity and/or resistance to flow must be determined. Testing opportunities include: product development, flow resistance and capacity tests, certification tests and production audits, flow capacity measurements, combination capacity tests of bursting discs coupled with pressure relief valves.

There is also a metallurgy laboratory which is employed to increase the understanding of the behaviour of materials used in manufacturing, which is vital to the design and engineering of Fike products. Tests which are available include: analysis of bursting discs, plates, bars, pipes, etc for all sizes, structures and conditions; microscopic measurement, image archiving and electronic reporting; effects of heat treatment and corrosion on discs and disc materials, and also pressure vessels; busting/explosion disc score depth and shape consistency.

In addition to the above-mentioned pressure relief testing facilities, Fike provides explosion protection testing facilities. These include an explosion test laboratory, providing a comprehensive 3000ft<sup>2</sup> combustion and research testing facility. Testing capabilities include: dust cloud explosibility parameters and ignition limits (Kst, Pmax, LOC, MEC), auto-ignition temperature (MAIT), minimum ignition energy (MIE), dust layer ignition temperature (MIT), gas explosibility parameters (Kmax, Pmax, LFL, UFL, LOC), liquid auto-ignition temperature, burning velocity and burning number.

As part of the explosion protection testing facilities there is a full-scale explosion test site. This unique 26,000ft<sup>2</sup> remote test facility is used for large-scale research, product development and industrial application tests. Noise is no issue and release of flame can be done safely. A wide range of tests are available,

including flame propagation and isolation, explosion suppression, explosion venting and combinations.

The main test plants are at Fike Corporation headquarters, Blue Springs, MO, USA. Other smaller satellite facilities are located in Europe and Japan.

**Terms of use:** Available to existing and future customers and inter-company for all Fike subsidiaries; also available for fellow research institutes and standardisation organisations and committees

**Location:** Both the pressure relief testing facilities and the explosion protection testing facilities are at Blue Springs, MO, USA

**Contact:** (USA), Jonathan Britt (jon.britt@fike.com; tel 816 655 4770)  
(Europe) Jef Snoeys (jef.snoeys@fike.com; tel +32 14 849476).

## J-Tec Material Handling, Belgium



**A vacuum batch mixer at J-Tec's Kapellen, Belgium, test facility.**

**Areas of specialisation:** Pneumatic conveying, mixing (dissolving of solids into liquids).

**What is available:** The test room offers a multitude of testing possibilities. These include determination of product characteristics in the company's product laboratory, discharging, extraction, pneumatic and mechanical conveying, sieving, mixing, dissolving of solids into liquids, dosing, dedusting, etc.

All the necessary equipment is available for discharging bags, bulk bags and containers and there is the capability to run tests with fluidisation bottoms or bin activators.

Pneumatic conveying can be tested over a distance of up to 450m, vacuum or pressure, dense and dilute phase. Pressure vessel, air drier and vacuum pumps are available. For certain products (for example, those of very high density or for those that block easily) an overflow system with bypass can be installed in a very low velocity dense phase conveying system.

There is provision for dosing of bulk materials, gravimetric and volumetric, batch and continuous, with LIW feeders or J-Tec's patented dosing valve. There is also a deduster with a capacity of 1.7t/h and a final dust content of no more than 50 ppm maximum.

The test plant also offers inline and batch powder/liquids mixing systems. Inline mixing is achieved with a loss-in-weight feeder, combined with an inline mixer. The solid/liquid ratio can be changed throughout the entire process, and heating and cooling are possible. Powder ratios up to 80% can be reached with this system. It can be used for solids stored in all kinds of receptacle: bags, bulk bags, silos, etc. For batch mixing tests the company provides a vacuum batch mixer. This test plant is used internationally.

**Terms of use:** It is available to everybody and J-Tec charges a fee for testing. Time limits can be discussed depending on the application, but usually one day of testing is sufficient. The test results are confidential.

**Location:** Kapellen, Belgium.

**Contact:** Jonathan Van der Auwera (jonathan.vanderauwera@j-tec.com; tel +32 3 660 5272).

## Köppern Aufbereitungstechnik GmbH

**Areas of specialisation:** Briquetting, compaction, comminution/high pressure grinding.

**What is available:** The company was established about 110 years ago and has developed considerable experience in the fabrication of roller presses as well as engineering services for complete plants incorporating roller presses. Köppern roller presses are designed for briquetting and compaction of fine-grained bulk materials and also for crushing brittle material. The company is particularly well qualified for applications where materials are hot (700°C), abrasive, or if high capacities are required. In Europe the company maintains two sites offering test with roller presses, both in Germany, at Freiberg and Othfresen.

In cooperation with the technical university Bergakademie Freiberg it operates a pilot plant where basic data for the design of its customers' equipment and processes are established. This test facility is equipped with all equipment required for material preparation (such as milling, screening, mixing, drying, as well as heating with ovens offering temperatures up to 900°C), briquetting/compaction and a variety of components capable of analysing numerous physical parameters of feed material and product. For all tests industrial-scale roller presses are used.

Tasks required for high-pressure grinding with roller presses can be analysed at open and/or closed circuit operation conditions.

Another roller press pilot plant located at Studiengesellschaft für Erzaufbereitung (SGA) in the town of Othfresen serves to acquire data for the comminution of ores and cement clinker. In addition high-pressure grinding facilities are located in Australia, South Africa and Canada and mobile crushing units are available on request worldwide.

The process-related knowledge acquired during many years of pilot plant operation is a prerequisite for the successful implementation of industrial projects. Customers frequently accompany the testing activities. After completion of the investigations, a detailed test report is prepared outlining testing conditions and results.

**Terms of use:** Not specified

**Location:** Freiberg and Othfresen, Germany.

**Contact:** Dr Harald Günter (info@koepfern-kat.de; tel +49 3731 2018-10).



**Cold/hot briquetting and compacting presses at Köppern's Freiberg test plant.**

## Groupe Poittemill Ingénierie, France



**Poittemill's Béthune, France, test centre offers an extensive range of fine grinding and classifying technologies.**

**Areas of specialisation:** Fine grinding, classifying, micronisation.

**What is available:** The test facilities cover every type of fine grinding and classifying technology, allowing for the testing of virtually all products (minerals, building materials, solid fuels, foodstuffs, chemicals, polymers, pharmaceuticals, etc). The company has more than 7000 test references. All process combinations can be offered, with drying, cooling, inerting and cryogenic processing. The test plant includes a fully equipped laboratory for particle size analysis under wet or dry conditions.

The following equipment is available:

**Fine grinding equipment list:**

Several grinding procedures are available: compression, impact, attrition, friction and combination of these:

- Pendulum roller mill PMO – 22kW – capacity: up to 2t/h
- High-pressure roller press (patented) – 22kW – capacity: up to 3t/h
- Air-classifier mill PAS300 – 30kW – capacity: up to 1t/h
- Air-classifier mill PAS300 (with SEALMAX and OPTICYCLE) patents – 30kW – capacity: up to 1t/h
- Attrition mill ATM8 – 11kW – capacity: up to 300kg/h
- Air jet mill BLF200 – capacity: up to 50kg/h
- 3 x universal mills – 3 to 11kW – capacity: up to 500kg/h
- High-efficiency pulveriser PHR 25 – 22kW capacity: up to 800kg/h
- Hammer mill MA4/2 – 11kW – capacity: up to 2t/h

**Classifying equipment list:**

- High-efficiency classifier SHR350 (patented) – 7.5kW – capacity: up to 500kg/h
- Double Whizzer classifier DYNNAIR – 11kW capacity: up to 2000kg/h
- Micro-classifier MICRODYN400 – 7.5kW – capacity: up to 100kg/h
- Micro-classifier MICRODYN700 – 15kW capacity: up to 500kg/h
- Micro-classifier SEALMAX700 (patented) – 15kW capacity: up to 500kg/h

**Lump breaker list:**

- ELX10 – 1.1kW – capacity: up to 100kg/h
- EHX 22 – 2.2kW – capacity: up to 300kg/h

Other equipment: Several rotating sieves, screening equipment and cylinder mills, hot gas generator, air compressors, etc.

**Laboratory equipments list:**

- Particle size analyzers (dry and wet types): MALVERN INSTRUMENTS, SYMPATEC, COUNTER COULTER, air suction sieves, Blaine instrument
- Laboratory mills: FOO, Hardgrove mill
- Weighing instrumentation
- Moisture instrumentation.

The test plant is used by companies throughout the world.

**Terms of use:** The test facilities are available for everybody.

Normally there is a charge for testing, but it is refundable in the event of an order being placed arising from the tested technology. Some testing is not charged if it is considered as belonging to an R&D programme in association with a customer, universities or institutions. There is no time limit. Customers are invited to participate in trials and the results are usually kept confidential for the use of the customer and for internal use.

**Location:** Béthune, France

**Contact:** Olivier Nguyen (onguyen@poittemill.com; tel +33 3 21 57 29 87).

## Rotex Europe, Belgium & UK



**An Apex screener forms the key element of Rotex Europe's new Wavre, Belgium, facility which operates in close conjunction with the company's longer established Runcorn, UK, test plant.**

**Areas of specialisation:** fine grading/sizing of dry bulk products, scalping (lump removal) of dry bulk products.

**What is available:** In all its test laboratories the company employs full-scale production machines which are able to deliver the same results during tests as can be achieved by customers' machines. Rotex points out that selecting the best screening equipment for any specific application requires careful evaluation of many variables such as feed rate, speed of the machine, screen mesh size, capacity, accuracy of separation, material characteristics and many more. During testing all these variables are taken into consideration and Rotex application engineers deliver at the end of every test a complete report outlining all the issues they have observed and containing proposed solutions to achieving optimum performance.

In this way several tests can be performed for the same customer and the same product until, by modifying the variables, the best performance is achieved to meet the exact requirements of the customer.

The key item of equipment at the company's Wavre, Belgium, test plant is an Apex screener with 0.8m<sup>2</sup> surface and two decks. At its Runcorn, UK, facility there is a Rotex screener offering 0.8m<sup>2</sup> surface and two decks as well as a Direct Drive screener with 0.8m<sup>2</sup> surface and a single deck.

Machine capacity depends on the application and the material to be screened, from just several hundred kg/h (for very specific and very fine sizing) up to 30-40t/h. The company's US test plant offers higher-capacity machines (Rotex screener and Mineral Separator screener).

The two European test laboratories complement each other (depending on the material tested and the screening machine required by the customer).

**Terms of use:** Material testing services are available free of charge. The company encourages customers to visit during test trials so that they can learn at first hand how their material is screened under varying operating conditions. No limits are imposed on these tests and results are absolutely confidential.

**Location:** Wavre, Belgium, and Runcorn, UK; outside Europe at Cincinnati, OH, USA

**Contact:** Karim Benioucef (kbenioucef@rotex.com; tel +32 104 35049) or Laurent De Wit (ldewit@rotex.com; tel +32 104 35044).

## Statec Binder GmbH, Austria



**Statec Binder offers customers the opportunity to experiment with a combination of open-mouth bagging and FFS technology provided by the Certopac-COMBI at its Gleisdorf, Austria, plant.**

**Areas of specialisation:** combined open-mouth/FFS bag filling, PP-woven bag conversion and filling, robot palletizing.

**What is available:** Trials can be conducted with the high-speed COMBI bagging line, which combines the advantages of open-mouth bagging with the speed and versatility of FFS (form-fill-seal) bagging. This multi-purpose plant consists of an open-mouth bagging line with attached FFS-module. Customers can use PE-bags from the reel, but also all types of pre-made bags out of the magazine. This COMBI line is said to provide the best solution for contract packers or manufacturers with a wide range of bagging requirements.

System-R is said to be the first high-capacity bagging system which combines direct production of bags made of endless tubular woven PP/HDPE cloth with approved Statec Binder bagging systems. Advantages of System-R include: reduction of bag costs by up to 50%, reduction of manpower costs by more than 50%, enhanced handling and logistics, high productivity and reliability, reduced bag thickness with no loss of strength, and high availability by applying approved systems.

PRINCIPAL-R is a new generation of articulated robots specifically designed for bag palletising. It is capable of up to 1600 cycles/hour and provides up to 330-degree rotation, allowing it to perform flexible and high-speed palletising with minimal use of space.

**Terms of use:** Internationally available to everybody.

**Location:** Gleisdorf, Austria.

**Contact:** Josef Lorger (office@statec-binder.com; tel +43 32112 38580-0).

## Sweco Europe, Belgium (also Austria & Spain)

**Areas of specialisation:** vibratory separation, gyratory separation, fine and ultra-fine air classification.

**What is available:** The Sweco Technology Centers around the globe have been set up to provide comprehensive separation and grinding test analysis of most materials. With the use of its wide range of test machines, the company can determine process feasibility and provide detailed sieve analysis and particle size analysis of the materials before and after processing. With its "scaling" capabilities, Sweco can also determine capacities with regard to different machine sizes.



**Sweco test plant showing GyraMax 300 gyratory sifter.**

The pilot plants can handle wet or dry test samples of nearly any size or volume. The test objective of each pilot plant is to determine the feasibility, mesh sizes, capacity, efficiency, optimal settings and machine size. The available equipment for testing includes vibratory separators, centrifuges, ultra-fine air classifiers and vibratory grinding mills.

The testing facility in Belgium has the capability to test on LS18 and LS30 round separators, an LP30 low-profile round separator, MM4 and UM3 rectangular separators, a GyraMax gyratory sifter and a TS18 turbo-screen air classifier. For processes that require finer particle separation, the company carries various ultrasonic technologies to perform fine mesh screening. All mesh sizes are available in the test facility to determine the optimum screen size for each customer's process. Finally, M18-5 and DM4 grinding mills are available for size reduction testing. Using various grinding media, Sweco can perform a complete grind analysis of most materials suitable for grinding, reducing particles down to the sub-micron range.

The company has test facilities in several parts of the world to serve its local customers, but testing can be done in any laboratory for any customer around the world.

**Terms of use:** The test facilities are available to everyone (customers and potential customers). Quite often the first day of testing is free of charge, after which there is a nominal fee per day. However, the fee will often be credited towards any purchase of equipment. No time limit is imposed and test results are confidential to the customer.

**Location:** Nivelles, Belgium; Barcelona, Spain; Enns, Austria; outside Europe at Florence, KY, USA, and at Kolkata, India.

**Contact:** (Belgium) Yann Luyckfasseel (yluyckfasseel@sweco.com; tel: +32 67 893469).

(USA) Dave Abner (dave.abner@sweco.com; tel +1 859 283 8428)

## Zeppelin Silos & Systems GmbH, Germany

**Areas of specialisation:** Pneumatic and hydraulic conveying, silo technology, gas/solid separation.

**What is available:** The Zeppelin Test Center is used for performing conveying tests with bulk solids used in most industries. Pneumatic conveying tests, either dense phase or dilute phase and with or without additional bypass systems, can be carried out with conveying pipe diameters between 2-9in, with conveying distances up to 460m and at capacities up to 80t/h. All related components such as pressure vessel conveyors, rotary feeders, suction hopper loaders, dosing units, diverter valves, filters, elutriators or screeners are available in different sizes and can be tested. In addition, special test set-ups for hydraulic conveying, for fines generation testing and for filter testing are installed. All relevant process data such as pressures, temperatures, weights, flow, etc are collected in a data acquisition system and can be evaluated.

For testing in the field of silo technology there is available a variety of gravity blenders and fluidized bed blenders with volumes ranging from 3m<sup>3</sup> to 35m<sup>3</sup> for powders and pellets, a degassing system including the capability to heat or cool the bulk solids, and silos equipped with a range of discharge aids.

The laboratory offers the means of determining all relevant bulk solids properties for the materials handling and system design, such as bulk density, flow properties, particle size distribution, etc. Basic equipment includes translational and ring shear testers for measuring the flow properties, lambda-meter, sieve machine and optical system for particle size analysis, fluidisation test rig, moisture analyzer, and wet washing unit for measuring the fines content in polymer pellets and similar.

The test plant is used by companies from all over the world and customers are invited to participate in the tests.

**Terms of use:** The test plant is available to everybody.

Standardised test procedures are available. Alternatively the facility can be booked for a full day's use of the complete installed equipment. Charges for use are quoted individually according to the customer's needs. Time schedules are prepared prior to testing and discussed during testing. Non-disclosure of the test results can be agreed if required.

**Additional test facilities:** Following Zeppelin's acquisition earlier this year of Reimelt Henschel, two further test plants have now become available at Rödermark and Kassel.

The test facility at Rödermark specialises in materials handling for the food industry and is equipped with several conveying systems, fluidised bed systems, feeding and dosing units and other equipment. A laboratory is available for analysis of special material properties.

The test plant at Kassel specialises in mixing systems and compound extruders. Here the complete product programme of Reimelt Henschel mixers can be tested to select and optimise the correct mixer and to demonstrate mixing and processing performance.

**Location:** Friedrichshafen, Germany; Rödermark and Kassel, Germany (Reimelt Henschel); outside Europe, at Sao Paulo, Brazil (JMB Zeppelin) there is a facility for conveying and component tests.

**Contact:** Hans Schneider (hans.schneider@zeppelin.com; tel: +49 7541 202-127).



**Zeppelin's Friedrichshafen Test Center by night: here at least one world first in pneumatic conveying technology has been pioneered.**

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# Cleaner and faster bagging

*Bag filling, whether FFS or employing pre-made bags, continues to achieve ever higher capacities, while at the same time becoming more energy efficient. Other key developments from leading equipment manufacturers include virtually dustfree operation, resulting in filled bags which are clean, compact, largely de-aerated and leak-proof.*

Spanish bagging equipment manufacturer Payper, which has just celebrated its 35th anniversary, exhibited its new FFS (form, fill, seal) bagging station called ASSAC-M10 at HISPAC 2009 which took place during the second week of May. The system, which has been designed to withstand contact with corrosive products and complies with ATEX regulations, offers a performance up to 2000 bags/hour.

Last year Payper unveiled the PFG 10 air packer which has been designed to pack powders and small-particle granulates into valve-bags. This machine is available with STV ultrasound sealing system. Another recent development from the Spanish manufacturer is the CSA-90 automatic bag placer for open-mouth bags. It combines medium output capacity (up to 900 bags/h) with maximum flexibility in its ability to accommodate different bag sizes ranging from 5 to 50kg. Other models in the CSA series include the CSA-70 and the CSA-100, respectively lower and higher capacity versions of the same concept.



**The new Chronos Richardson FFS-H series was launched jointly at AICHEMA by Ingo Jonas (right) and Riccardo Taino, managing directors at the company's German and Italian divisions.**

TMI (Técnicas Mecánicas Ilerdenses), another Spanish manufacturer, chose HISPAC 2009 as the occasion to unveil a new range of bag filling equipment. This complements the company's existing palletisers and stretch wrappers, allowing it now to offer complete integrated packing lines from a single source. Distributors from various European countries including Poland, Czech Republic, Slovakia, France and Belgium were in attendance.

Also new from TMI is an automatic de-palletiser and paper valve-bag breaker/emptier which successfully adapts technology from the company's Robosac P4 gantry palletiser. Several modules have been modified to adapt the

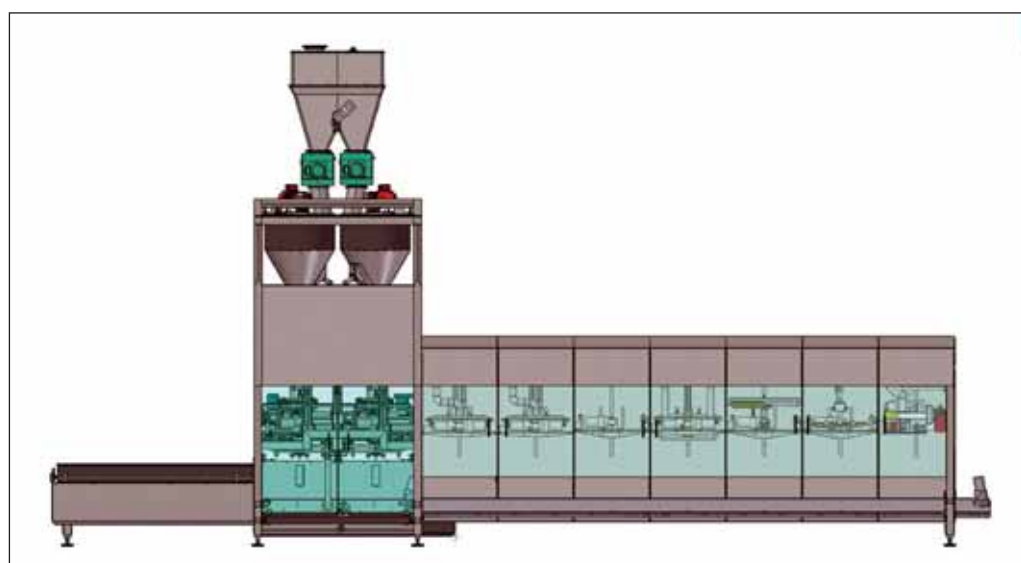


**Haver & Boecker Integra with Seal Control.**

Robosac P4 to this new application.

BTH BV of the Netherlands has just introduced a new high-integrity bag filling line which achieves extremely high standards of cleanliness and dustfree operation, combined with reduced energy consumption. Designed specifically for the food industry, the VLP-600-2BO has been engineered in accordance with EHEDG guidelines. The revolutionary new machine, which is of modular construction, has been arranged in zone formats. For example, moving structural parts and controls are located outside the functional space as much as possible (the functional space being the area where the bag is filled and closed). This prevents contamination and dust entrapment while facilitating speedy cleaning of the machine.

The closing line comprises separate modules, each of which performs a specific operation, which are provided with their own power supply and software control. Applied remote I/O technology makes this possible. Cables go directly from the functional space to the rear of a module, not back to a control cabinet. This allows the number of cables to be reduced to a bare minimum, which again assists cleaning operations. The filling line uses the under-level principle whereby dust dispersion is eliminated (BTH's CEO Frans Maas points to the analogy of filling a bucket with water whilst holding the nozzle below the water surface). The filling line has a maximum capacity of 600 bags/h or 12t/h. We hope to report further details of this major new development in the next issue of the magazine.



**The new ultra-hygienic VLP-600-2BO bag filling line from BTH, the Netherlands, has been designed to EHEDG guidelines and incorporates several revolutionary new concepts.**



**Latest Payper bagging developments on display at HISPAC 2009.**

equivalent of between 5 and 50kg). The system lends itself for applications where packing plants often have to make frequent product changeovers, resulting in lost time caused by necessary cleaning procedures. There is also increased risk of product contamination from residues, because of difficult to clean product paths and conduits. The Cyrus is said to set new standards in this respect.

Normally the machine functions with just one filling spout, but there is also the possibility of using twin-spout systems. This allows cleaning work to be conducted while filling is allowed to continue without interruption. Risk of product cross-contamination is also greatly reduced. According to Haver & Boecker, the Cyrus represents a quantum leap in terms of economy, flexibility and cleanliness.

As reported in the May/June *EuroBulkSystems*, other latest Haver & Boecker bagging machine developments include the PumpPacker, for high-speed filling of low-density materials, and the Delta NT bag filling line that can achieve rates in excess of 2400t/h. This latter FFS development is especially suitable for free flowing products. It can use single or multi layer, neutral or printed, continuous side-gusset tubular film made of PE or PP from 80 to 250 microns. The machine is able to handle bags with a length ranging from 600 to 950mm.

The PumpPacker has been designed to fill light products with a bulk density up to 0.3kg/litre into paper and PE valve-bags. The main component of this machine is a double-acting membrane pump which is capable of providing a filling capacity of 120 bags/hour per spout. Thanks to the high degree of compression achieved by the



**A compact, uniformly filled, leak-proof bag produced by Haver & Boecker's new Cyrus FFS system.**

## Further FFS advances

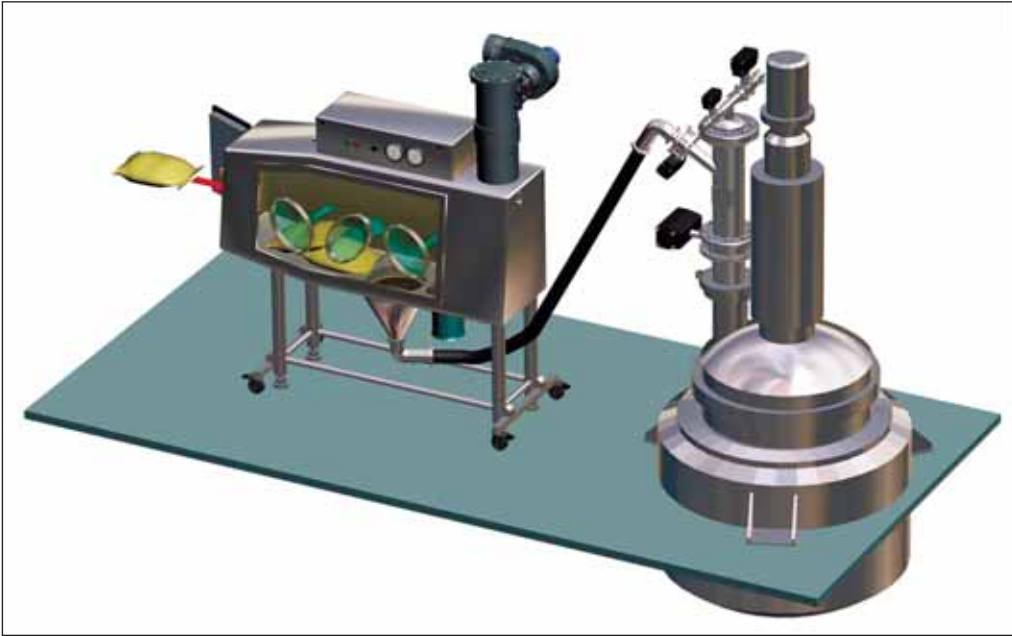
Haver & Boecker of Germany chose AICHEMA, the world's foremost chemical industry trade show which took place in Frankfurt at the same time as HISPAC in Barcelona, to unveil various new bagging products. Its latest FFS machine is the Cyrus which has been designed for filling loose powdery materials with a particle size in the 20-300 micron range such as PVC powder or starches, as well as coarser products with a high dust content such as sugar, salt or flakes.

An advantage of the FFS concept is that it ensures minimal consumption of packaging material, the bags being formed from an external plastic film tube roll. The Cyrus has evolved from the company's already highly successful Adams and Benjamin family of FFS machines, incorporating many of the proven components and well tested FFS technology from these earlier models. However, through a series of innovative developments, speed and output have been greatly increased. By using a dust-tight filling spout, a speed of up to 1500 bags/h has been reached for the first time. This provides the technical basis that allows the FFS concept to be applied to product areas that remained, until very recently, the domain of traditional valve-bag systems.

The Cyrus features an entirely enclosed product path that eliminates any risk of product or dust leaking out. This results in dust-free operation and removes the need for unwanted dust collection systems, always a drawback with earlier FFS designs. The Cyrus can provide bag sizes ranging from 6 to 50 litres (weight



**Bag drop tester from H & B.**



**Dietrich Engineering Consultants' system for high-containment bag emptying of toxic products.**

pump system, a minimal amount of air enters the bags which results in maximised product filling and a stable bag shape. This last feature is further improved by an integrated pressing station, ensuring minimum bag volume and enhanced stackability (for pictures of both the Delta NT and the PumpPacker, see the May/June *EuroBulkSystems*).

An important innovation from Haver & Boecker is the Seal Control quality assurance system which can be positioned on the conveyor which feeds bags on to the shipping pallet. This device checks the seal of ultrasonically closed valve-bags and can be retrofitted to existing Haver machines, helping to put valve-bags into the same quality league as comparable film-tube packaging systems.



**Payper's CSA-90 bag placer shown at a recent exhibition.**

The Seal Control unit checks the valve closure for tightness and ensures that only completely sealed valve-bags end up on the shipping pallet. This new quality assurance system was shown at ACHEMA in association with the fully automatic Integra valve-bag filling machine which was introduced several years ago.

Also on display at ACHEMA was the new generation Chrono-Bag FFS-H tubular form, fill and seal bagging system from Chronos Richardson. This offers capacities up to 2200 bags/h, depending on the handling characteristics of the bulk material being packed. The system is said to be suitable for both free flowing and difficult-to-handle products.

The FFS-H series of machines is of robust, compact design and is available in three versions: FFS-H, FFS-HS and the high-speed model FFS-HSS. System operation is user friendly with a graphical touch panel interface and clear text-based operator guidance. The control cabinet is a



**PFG 10 air packer from Payper.**



**H & B's Big Gurley.**

pre-installed and tested component of the system for simple integration and commissioning when being installed on site. An automatic reel lifting system allows reel change-over to be safely carried out within a matter of minutes. Apart from its compact design, a key feature of the FFS-H range is minimal film overlap to reduce film wastage.

To ensure that maximum operating speeds are attained, bag forming, filling and sealing are simultaneously completed in dedicated stations. Bag forming is determined by either pre-programmed data in the system control or by photo-cell reading of a pre-printed mark on the film. The formed bag is then transferred to the filling station. The bulk material is pre-weighed by high-capacity E55/56 series net weigher and matched material feeders, which can be screw, double screw, belt or vibratory feeder depending on the nature of the product being packed. After welding the upper seal, the filled/closed bag is released on to a conveyor for transfer to the warehouse or palletiser.

Industries to which the Chrono-Bag FFS-H system is expected to appeal include plastics (PE, PP, HDPE, LDPE, PVC), fertilisers (urea, NPK), salt, building materials (sand, gravel, concrete mixes, expanded clay), animal feed, pet food, chemical powders or biofuel pellets.

Complementing the development of the FFS-H, is Chronos Richardson's new Chrono-Fill PTK, one of the world's fastest bagging lines for pre-made open-mouth bags. This new product has evolved from cooperative interaction between

different national divisions of the Chronos Richardson Group, which itself is a business unit of the Canadian company Premier Tech.

The PTK range offers high-speed bagging at rates up to 40 bags/min and features a modular design, allowing it to be easily adapted to suit specific applications and products. Packing speeds of up to 1500 bags/h are available with the PTK-1700 series, whilst the dual-spout system of the PTK-2700 offers capacities even up to 2400 bags/h. This innovative bagging system can be easily deployed for any pre-made, open-mouth (pillow or gusseted) bags made of paper, plastic or woven polypropylene. PTK bag filling systems have been designed to attain high hygienic standards and are capable of achieving fast changeover to accommodate different bag dimensions in less than five minutes.

#### 16-spout rotary packer to India

Following installation of the first 12-spout Haver Roto Classic bag packer earlier this year at Phoenix Zementwerken in Germany, Haver & Boecker announced in July that it is currently installing the first Seal-version of this newly developed packer at the Grasim Birla White cement plant in Kharia Khangar, India. This 16-spout machine is designed to fill white cement and allied cement products into paper and polypropylene bags. In addition to its high-speed performance, 4000 bags/h with 25kg bags and 3200 bags/h with 50kg bags using manual bag application, this machine thanks to its modular design needs about one third less space when compared to a conventional 16-spout packer.



**16-spout Haver Roto Classic which is currently being installed at an Indian cement plant.**

The valve sealing system helps to ensure that the bags do not get soiled and the product remains protected, thereby also eliminating contamination and dust in the surrounding environment. As a consequence costs arising from cleaning, maintenance and wear are significantly reduced, providing further cost savings for the Indian cement producer.

Because Grasim Birla White was well satisfied with the performance of its eight-spout Rotoseal equipped with a sealing system which had been installed two years previously, it again opted for a similar sealing arrangement for the new 16-spout unit. The ultrasound sealing technology produces tightly closed bags which are leak-proof and easier to stack. Apart from its low energy consumption, the new packer benefits from significantly reduced stoppage times thanks to its modular design.

#### Ancillary measurement & control

In recent months Haver & Boecker has made available to its customers a number of ancillary measurement and control machines which had originally been developed by the company primarily for in-house use. These include the Airflow Tester which allows air escape capability of an entire bag to be measured, including all paper and plastic layers with glued areas. This allows decisions to be reached in respect of filling behaviour and machine speeds, and thereby greatly simplifies the preliminary process of bag selection from the wide variety of bag types currently available. Additionally, it helps to a large measure to eliminate costly and time-consuming filling, palletising and storage trials.



**TMI's automatic de-palletiser and bag emptier shares many design features of Robosac P4 gantry palletiser.**

A closely related test instrument is the Haver Big Gurley which provides information on the porosity and air escape properties of packaging materials, feedback which is vital for the attainment of high packing speeds. It measures and evaluates the bag material and thus assists in the overall quality assurance of bag fabrics and components, also indirectly optimising the packing machine's filling speed.

The quality of bags and their respective seams can be checked by the company's Bag Drop Tester. This machine provides information on the bag's resilience and the extent to which it can be loaded. Such information is important because bags are often submitted to heavy load forces, for example when positioned in the lower layer of a stacked pallet. In the past drop tests were normally carried out manually but this machine provides far greater measurement precision and repeatable accuracy.

#### High-containment discharge

With regard to bag emptying, Dietrich Engineering Consultants of Switzerland has recently developed a system for safe transfer of hazardous powder from bags to one or more reactors or similar receiving vessels under conditions of high containment, providing protection for the operator and the surrounding environment. The main chamber of the bag discharger opens at the side to enable easy loading of bagged powder into the chamber. A simple hinged door is provided which is closed only during WIP to prevent splashes escaping the unit. All WIP fluids can be drained from the chamber via the PTS (Powder Transfer System) into the reactor, while also cleaning the powder transfer hose and PTS itself.

Using the gloves, the operator is able to move the bag into a position on the powder charging bars above the hopper. The bag is then split and the powder emptied through the bars into the suction hopper. The empty bag is then discarded through the adjacent continuous liner bag-out port, after which the loaded hopper is charged via the PTS into the reactor. On the opposite side from the bag entry port is an exhaust plenum, on top of which is a HEPA filtered exhaust connected to an exhaust fan. The system provides for operator exposure levels of no more than one microgram per cubic metre.

#### Inquiries:

BTH

[www.bth-bv.com](http://www.bth-bv.com)

Chronos Richardson

[www.chronosrichardson.com](http://www.chronosrichardson.com)

Dietrich Engineering Consultants

[www.dec-sa.com](http://www.dec-sa.com)

Haver & Boecker

[www.haverboecker.com](http://www.haverboecker.com)

Payper

[www.payper.com](http://www.payper.com)

TMI

[www.tmipal.com](http://www.tmipal.com)

# Vibratory motor achieves 30,000kg of centrifugal force



The world's most powerful vibratory motor from Italtibras.

Italtibras G Silingardi SpA of Sassuolo, Italy, has extended its MVSI range of electric vibratory motors with the launch of a model capable of generating up to 30,000kg of centrifugal force, a world record performance. The unit is available with 6, 8, 10 and 12 pole options, with the provision of electrical and mechanical oversizing to allow the vibrator to be used in applications requiring increased starting and peak torque. Versions are available for use in potentially explosive

dust and gas environments.

To aid eccentric mass regulation operations, the latest model has been equipped with two standard split covers with ring seals, ensuring the same IP66 protective strength as traditional seals.

The entire Italtibras electric vibrator production programme is now carried out at the new Fiorano plant where a major investment has been made in innovative fully automatic, semi-automatic and robotic electric motor assembly lines, a state-of-the-art working

environment, and technically advanced stator winding lines. This typifies the company's overall commitment towards guaranteeing the quality and reliability of every manufactured item. This latest advance to the MVSI range reaffirms Italtibras' focus on research and development, geared towards extending the use of electric vibrators to new sectors and fields of application.

[www.italvibras.it](http://www.italvibras.it)

# Twin centrifugal screener



Twin version of Kason's Centri-Sifter.

Kason Europe based in Stoke-on-Trent, UK, has introduced a twin ultra-high-capacity version of its Centri-Sifter centrifugal screener. The machine, designed and manufactured at the US headquarters, is said to match the capacity of two individual high-capacity screeners within a much smaller footprint. Each of the screening chambers features a sliding end cover and a three-bearing shaft that cantilevers for quick removal

of internal components. Apart from sifting and scalping of dry bulk materials, the unit is also capable of breaking up soft agglomerates and/or dewatering moist solids or slurries.

Dry or moist bulk material is fed into the machine under gravity via a splitter which evenly divides the flow of incoming product into two horizontal cylindrical screening chambers which operate in parallel. A shaft in each chamber rotates

a helical paddle assembly that accelerates the radial movement of particles against the screen. On-size particles pass through the apertures in the screens and fall through a cone-shaped discharge chute, while oversize particles are propelled through the open end of the screen cylinders and are ejected through a discharge spout.

[www.kason.com](http://www.kason.com)

# Vacuum drier can now perform additional functions

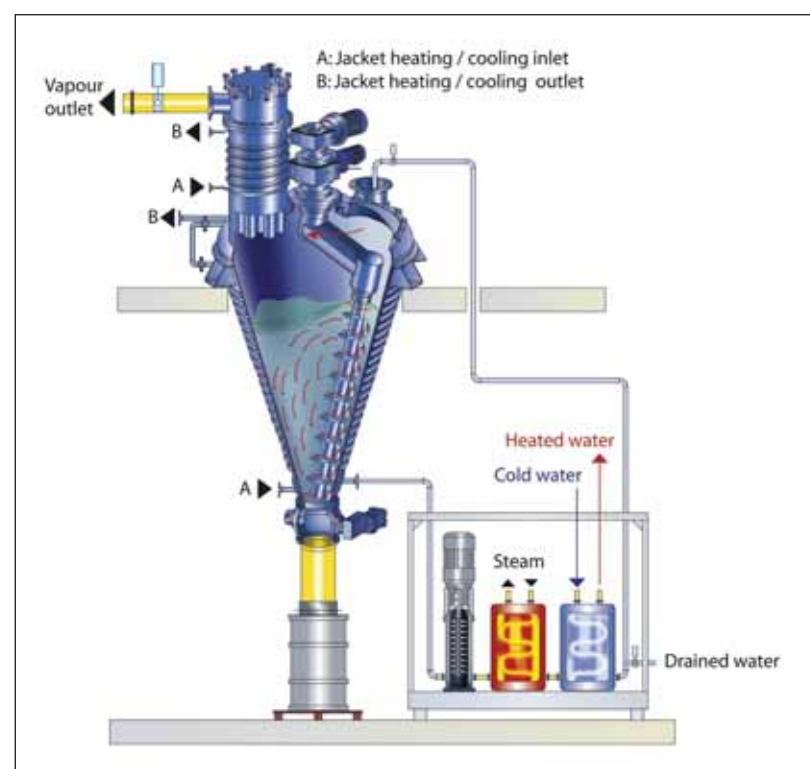
The UK division of Hosokawa Micron, Runcorn, Cheshire, reports that the Vrieco Nauta vacuum drier has been upgraded to a multi-purpose piece of equipment capable of fulfilling many more tasks than just drying at low temperatures. Various chemical and crystallisation reactions as well as thermal and/or pressure treatments such as steam stripping and vacuum sterilisation are now among the machine's capabilities. Mechanical dewatering prior to drying can also be performed by installing a filter directly on top of the drier or even inside the vessel.

The latest multi-purpose vacuum drying system combines many different processes such as filtration, chemical treatments, sterilisation at high temperature and pressure, and

vacuum drying making it suitable for a broad variety of products. Using smart process engineering methods, the original multi process sequences have been reconfigured, resulting in a 50% reduction in processing time. This delivers potentially significant energy savings. The system has been designed to offer maximum production flexibility with minimal operator intervention.

Process time is reduced not only by mechanical dewatering prior to drying but by then heating the extracted water which is subsequently recirculated back into the drier, thereby reducing process heating time. Alternatively, the heated water is available to other processes.

[www.hosokawa.co.uk](http://www.hosokawa.co.uk)



Upgraded version of the Vrieco Nauta vacuum drier from Hosokawa Micron.

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**IN BRIEF****Mixer reduces product reworking costs**

Dinnissen Process Technology of the Netherlands, in a joint development with K-Tron, Switzerland, has introduced the latest version of its recently launched Pandora End of Line Mixing system. It has been developed to minimise rework. Very accurate K-Tron feeders respond extremely quickly to the process controls. In addition, a special batch-start-up-setting has been provided, based on intelligent cut-off valves which close off the mixer during the initial start-up phase. As a result start-up losses are significantly reduced.

[www.dinnissen.nl](http://www.dinnissen.nl)

**Circular vibratory bag dump screener**

Kason Corporation Europe, Stoke-on-Trent, UK, has introduced a new circular vibratory bag dump screener which is designed to remove oversize particles from manually discharged bulk materials, while at the same time protecting the operator and plant environment against dust contamination. The mobile unit incorporates a 1016mm diameter Vibroscreen separator that causes bag scraps, agglomerates and other oversize material to travel across the screen and discharge through an upper spout.

[www.kasoneurope.co.uk](http://www.kasoneurope.co.uk)

**Dustproof container docking**

AZO of Osterburken, Germany, has introduced CleanDock, an economical new contamination-free container docking system for weighing applications. The innovative system prevents cross-contamination of different products and dust emission is avoided during both dosing and transporting of the containers. This development is said to be technically less complicated compared with traditional double-flap systems. The

dosing element and containers only make a dustproof connection after docking and a special flexible system provides for scale decoupling during the dosing and weighing process.

[www.azo.de](http://www.azo.de)

**Dynamic weighing instrumentation gains EC Type approval**

The UK arm of Dutch industrial weighing specialist Precia-Molen reports that its I 400 range of instrumentation for dynamic weighing applications has received EC Type approval under the Measuring Instruments Directive.

[www.preciamolen.com](http://www.preciamolen.com)

**Cutting mill fulfils broad range of size reduction tasks**

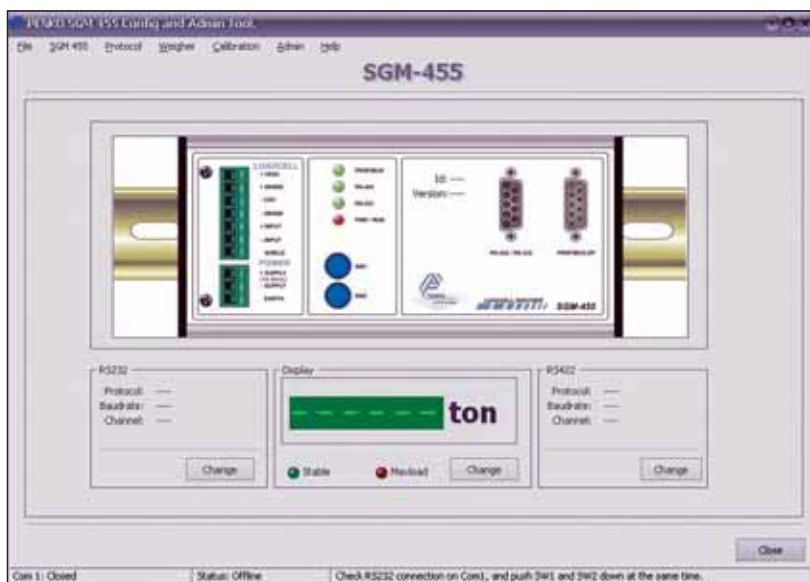
Retsch of Haan, Germany, has extended its range of cutting mills with the introduction of the new SM 300 model which combines powerful size reduction with very easy handling. Thanks to its variable speed from 700 to 3,000rev/min and a very high torque, it can be perfectly adapted to many different, as well as difficult, applications including grinding of rubber and electronic waste. Easy access is provided to the grinding chamber for cleaning.

[www.retsch.com](http://www.retsch.com)

**Bag dump weigh batch system with emphasis on hygiene**

UK-based Flexicon (Europe) has introduced a stainless-steel sanitary bag discharger/weigh batch system which has been designed to collect dust created during manual dumping of bulk material from bags, boxes and drums, while discharging the material by weight. The hopper discharges into an integral flexible screw conveyor supported by a boom.

[www.flexicon.co.uk](http://www.flexicon.co.uk)

**Guidance in load cell selection for weighing systems**

**SGM 455 configuration and admin screen from Penko Engineering.**

Penko Engineering of Veenendaal, the Netherlands, has created two new applications to help designers make the optimum choice of load cell and to set up the Penko SGM 455 digitizer. The Weighing Accuracy Tool is a stand-alone PC application for calculating the required capacity for each load cell in an array, depending on the gross weight of the weigher (including the sample to be weighed), the individual load cell capacity estimated and the utilisation factor. The application also provides the estimated accuracy of a measurement for either certified or industrial use, and the accuracy of the weighing indicator

(calculated and rounded).

The SGM 455 Configuration and Administration application is provided with a comprehensive help file to take a designer through all stages of setting up the digitizer. With four function areas, the application provides access to edit settings of (a) the various communications protocols (RS232, RS422 and Profibus), (b) the digitizer's calibration, (c) the weighing parameters and (d) access to save and recall all the settings within the administration environment. Both applications are free to download at

[www.penko.com/products\\_software/software\\_home.html](http://www.penko.com/products_software/software_home.html)

**Extended range of filters/separators, plus optimised cleaning system**

Coperion's competence centre for materials handling headquartered in Weingarten, Germany, has introduced its own range of filters for pneumatic and materials handling systems. The new FD Series of filters, equipped with an integral water separator, is the first of its kind to be capable of separating dust particles and water droplets in one single housing. The range includes standardised suction and venting filters of various designs as well as safety models featuring an extremely high filtering/separating efficiency of 99.97%.

Used as safety filters, they serve – depending on their application in the pneumatic system – to protect either the machine or the product. These innovative FD combi filters and separators have been developed and fine-tuned in close collaboration with customers.

According to Paul Erasmus, general manager service at Coperion, all the company's filters meet customers' needs for an efficient solution for their own specific compressed air systems. He goes on: "Our new, standardised FD combi filter and separator requires less space thanks to its dual function and is an efficient safety filter that has often proved its capabilities in practice."

Another brand new product from Coperion is the Jet Cleaning system



**Coperion FB Series filter used in dust extraction systems for containers and silos.**

designed for venting and similar filtration installations that have to be cleaned at regular intervals. The new technology has evolved from an existing and already highly efficient cleaning system, optimised after many extensive tests and trials in a specially built filter testing facility. "When it comes to cleaning filters, the devil is really in the detail," says Michael Duerr, head of the technical centre. "More than a dozen parameters

must be perfectly coordinated in order to obtain the three necessary performance features – high cleaning efficiency, low compressed air consumption and long service life time of the filter elements. Precisely for this reason we have subjected jet cleaning systems and various filtration materials to extensive tests regarding efficiency, wear, service life and operating costs." The end result is the new Jet Cleaning System where the filter dimensions, the quantity and arrangement of the cleaning jets and the intensity and frequency of the air blasts are configured to give optimum performance while at the same time drastically reducing operating costs to a minimum.

Since February this year, the filter testing installation at the technical centre at Weingarten has also been available for industrial scale trials with filtering and separating systems for specific customer applications. These tests permit Coperion to determine compressed air consumption and filter changing intervals prior to the customer's purchase of a filter system, thus allowing for accurate predictions of operating costs and, at the same time, a reliable prediction of the amortisation period. (See also In-house Test Plant Supplement in the centre-fold of this issue of EuroBulkSystems).

[www.coperion.com](http://www.coperion.com)

**EISA-compliant NEMA motors now available in Europe**

Bristol-based Baldor UK Ltd reports that NEMA three-phase motors produced by the US parent company are now available in Europe which meet the increased energy efficiency demands required by the forthcoming US Energy Independence and Security Act (EISA). This legislation, which becomes mandatory in December 2010, sets stringent new efficiency standards for a broad range of three-phase motors – including explosion-proof, severe duty and brake motors – with power ratings from 1 to 500hp. After this date, imports of equipment containing non-compliant motors will be rejected at the US port of entry.

The relevant part of EISA – section 313 "Electric motor efficiency standards" effectively replaces the current 192 Energy Policy Act (EPAct) legislation that covers low-voltage, general-purpose (Subtype 1), three-phase electric motors in the 1-200hp (0.75-150kW) range. It raises the minimum energy efficiency requirements of these motors from NEMA "Energy Efficient" to NEMA "Premium Efficient" (equivalent to the recently created IEC 60034-30 standard, "IE3 Level of efficiency"). It also encompasses Subtype II motors not previously within the EPAct scope, such as close-coupled pump motors, vertical motors and motors from 201 to 500hp (150-375kW), all of which must now be rated to at least NEMA "Energy Efficient".

All Baldor Super-E motors – a product line that includes nearly 1000 different standard models – already meet or exceed the NEMA "Premium Efficient" levels mandated by the EISA for 1-200hp Subtype 1 motors.

By making EISA-compliant motors directly available to European OEM exporters, Baldor is effectively enabling its customers to stay one step ahead of the game. Similar Canadian legislation will become mandatory in Canada in 2011 and comparable energy efficiency standards will be implemented



**Baldor NEMA three-phase motors.**

across the European Union in 2015.

As Baldor UK's marketing director Mark Crocker points out: "We have heard a lot recently about forthcoming mandatory minimum efficiency standards for motors in Europe, but not many people are aware that the USA is moving even more quickly and upgrading from current EPAct Energy

Efficiency levels to EISA Premium Efficiency levels in less than 18 months time! Machinery exporters consequently need to start thinking about this now. Baldor is the leading manufacturer of NEMA motors and we are offering advice to help OEMs make the transition."

[www.baldor.co.uk](http://www.baldor.co.uk)

**Increased load capacity for belt scale weight calibration system**

Siemens Industry Automation Division has improved the capacity of the Milltronics MWL Weightlifter mechanical calibration system for belt scales to accept heavier loads. It can now accept up to 340kg, compared with the previous maximum of 225kg. The system is said to provide simple, reliable and safe calibration for Milltronics MSI, MMI, MBS, MCS and MUS belt scales. The compact calibration system is located beneath the conveyor belt and stores the calibration test weights above the calibration arms of the belt scale.

The user can easily lower the reference weights manually by means of a crank handle and safely apply them to the belt scale, without having to lean into the conveyor or remove any machine guards. The MWL calibration system, which is maintenance-free and adaptable to any application, is available for use with flat bar or integral round bar style calibration weights.

[www.siemens.com/continuous-weighing](http://www.siemens.com/continuous-weighing)

**ON OTHER PAGES...**

**Pelletron introduces new low-headroom DeDuster (see p6)**



**Various new bag filling and emptying developments, including measurement and control equipment (see p11, 12)**

# Hose systems meet latest food regulations

Norres Schlauchtechnik of Gelsenkirchen, Germany, has already implemented the latest amending directive 2007/19/EC to EU Directive 2002/72/EC. With effect from May 2009, plastic materials and articles that might come into contact with foodstuffs must be produced in all member states with virtually no phthalate softeners. A number of recent studies have demonstrated that these have a tendency to migrate into food products, with possible health risks. All hoses and hose assemblies produced by Norres have been officially approved by an independent test laboratory to comply with the requirements of the new amending directive.

The tendency of softeners to migrate into food has been demonstrated in many recent studies (for example, by the German Federal Institute of Risk Assessment). This migration can be attributable to agricultural processes as well as to production, processing, storage, packaging and transport. If

phthalates migrate, the product may become modified and/or the health of the consumer endangered. However, there are several other reasons why softeners are nowadays considered undesirable. Material embrittlement due to migration can result in premature failure and hence additional safety problems. Softeners can also be problematic in the instance of fire, leading to high clean-up costs. Costly disposal problems can likewise arise in certain circumstances.

Norres points out that not only the hoses themselves but also the connecting elements that clamp them in place have to comply with food regulations. The company offers a broad portfolio of connection technology that includes special food-quality products, such as the CONNECT Safety Clamp System 230. In the past most free-flowing solids had to be transferred to and from powder tankers by means of rubber hoses owing to the lack of a suitable connection system. Apart from other



**CONNECT Safety Clamp System 230 from Norres.**

drawbacks, these types of hoses are much heavier, less flexible and less resistant to abrasion than their modern polyurethane counterparts and because they are not transparent they do not allow the process to be observed. For this reason the company's R&D

department has developed a system that, for the first time, allows a plastic spiral hose to be combined with a safety clamp system with clamp shells. The CONNECT Safety Clamp System 230 is absolutely free of softeners.

[www.norres.com](http://www.norres.com)

## 4-way wye line diverter

Vortex Valves headquartered in Salina, KS, has introduced a patented Quantum Series wye line diverter for pneumatic conveying applications. It can direct dry bulk material from one source to four destinations or converge from four sources to a single destination with vacuum or positive pressures up to 15 psig (1 bar g), depending on size and modifications.

Vortex states that its new Quantum series represents a significant design innovation compared with its original wye line diverter. The company utilises precision laser cutting and bending technology in the manufacture of the new valve. The patented design provides improved sealing performance, enhanced weather resistance, greater durability, easier maintenance and fewer parts. The unit can be installed quickly and maintained safely within the production line. It also provides positive air and material shut-off, eliminating material build-up beyond the closed port and improving process efficiency.

The new Quantum Series 4-way wye line diverter is available with a variety of options to accommodate very high or very low temperatures as well as corrosive, abrasive and hazardous environments. Specifically designed to eliminate problems

commonly encountered with traditional flapper and rotating tunnel style diverters, it is available from UK-based Vortex Valves Europe.

[www.vortexvalveseurope.com](http://www.vortexvalveseurope.com)



**Quantum Series 4-way wye line diverter from Vortex Valves.**

## Knife gate valves for abrasive slurries

To complement its well established family of pinch valves, Larox Flowsys of Finland has launched a new series of heavy-duty knife gate valves which are well suited for applications involving abrasive or corrosive slurries. They feature a robust stainless steel gate, on either side of which are removable seats providing a bi-directional bubble-tight seal. They are suitable for use in the chemical industry as well as for sand and gravel handling and mineral processing.

There are three categories of knife gate valve in the new series that are suitable for heavy slurries: a flanged unit (LKF), a high-pressure unit (LKH) and wafer knife gate valve (LKW). Further models are to be introduced in the near future.



[www.larox.fi](http://www.larox.fi)

**Larox Flowsys LKW knife gate valve.**

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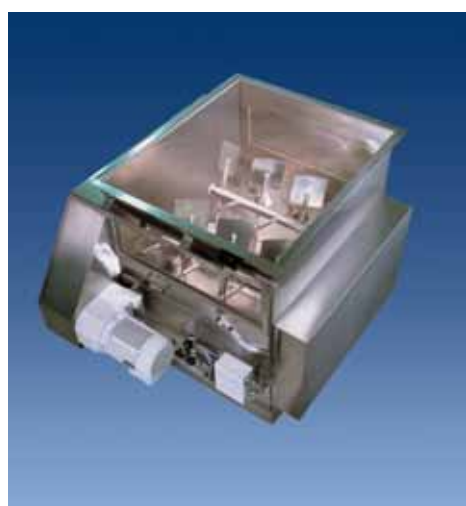
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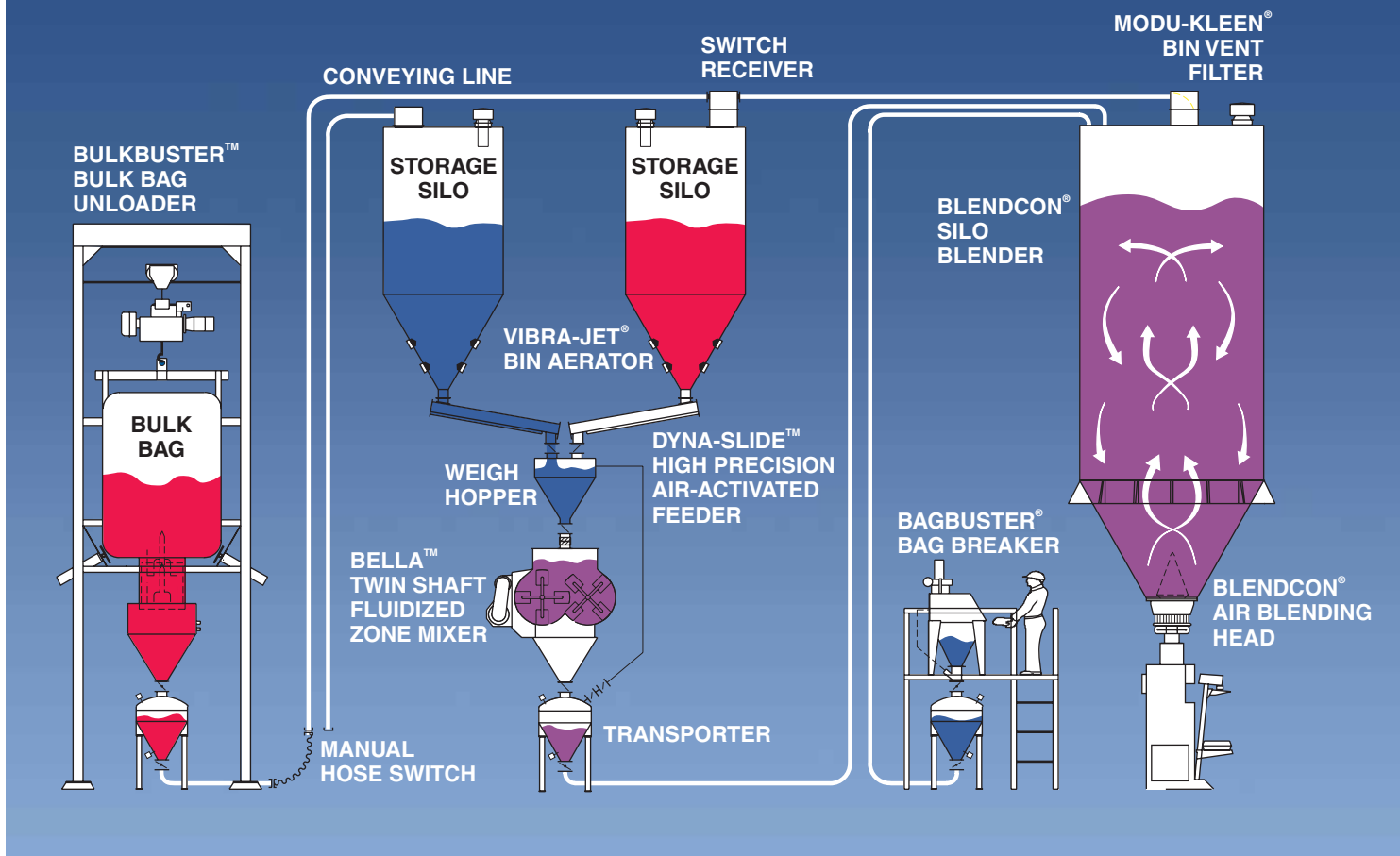
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