

EuroBulkSystems

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

INTERNATIONAL NEWS • PEOPLE • PRODUCTS

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FIBC discharge rigs are becoming increasingly user-friendly and also more versatile, while at the same time having to comply with ever stricter safety and hygiene regulations. Flexicon (Europe) has been among the leading equipment manufacturers to have pioneered many of these latest developments. One of the company's advanced FIBC discharge systems is pictured at the Beaminster, UK, plant of leading global food ingredient manufacturer Danisco. Apart from incorporating many sophisticated technical features, the system also allows for manual dumping of 25kg bags, as explained in our feature on p11.



J-Tec Material Handling recently delivered a zinc powder dosing system involving use of stainless steel containers to the Zolder, Belgium, plant of Umicore Oxyde. Further details of this novel installation, which is capable of accuracies to within about one gram, are given on p5.



Bag Treatment Holland, founded as recently as 1995, has grown to become one of Europe's foremost manufacturers of bag packaging equipment including bag fillers, palletisers and stretchhood machines as well as total turnkey bagging lines. Although the company has only been trading for less than 15 years, it has already overtaken several well known European specialist bagging equipment manufacturers which have been in business for more than twice as long. We find out from CEO Frans Maas (pictured) the reasons for his firm's success and rapid expansion (see p8).



Anuga FoodTec, which takes place 10-13 March in Cologne, will provide the principal 2009 European shop-window for latest developments in food handling and processing technology. Among the wide array of equipment on display will be this MaxxD vacuum process machine from Romaco FrymaKoruma which is capable of producing emulsions and suspensions in a wide range of viscosities. See exhibition preview, p10.



The death occurred in December of Dr Georg H Endress, co-founder of the Switzerland-based Endress+Hauser Group which largely under his influence has grown to become a world leader in measurement instrumentation for industrial process engineering. He is shown seated with his wife Alice Endress-Vogt, together with close family members, on the occasion of the company's 50th anniversary. He had withdrawn from business operations in 1995, handing over leadership of the group to his second oldest son Klaus Endress who is pictured standing on the left (see p3).

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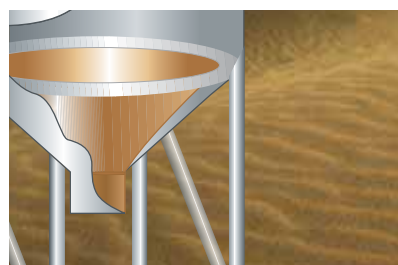
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BELGIUM

With effect from beginning of January the Brussels-based **Tessenderlo Group** has combined its phosphate activities into a newly created subsidiary called **Aliphos**. This new company becomes one of four product clusters within Tessenderlo's chemical business group. The others are sulphates and fertilisers, organic chlorine derivatives, and chlor-alkali and polyvinyl chloride.

CYPRUS

CBMI, China, has placed an order with **Bedeschi** of Italy to supply a circular premixing bed for limestone and marl at the **Vassiliko Cement** plant. Diameter of the storage area is 100m and total storage volume is 67,000t. It is scheduled to be operational by end of 2009.

DENMARK

Danish industrial holding company **Schouw & Co.** has announced that its wholly owned fish feed company **BioMar** has decided to close its facilities in Horsens, Denmark, and in Rancagua, Chile. BioMar will also invest over DKK200M to expand operations in northern Norway. This will include building a new fish feed plant which is expected to start operating in 2011.

FINLAND

Kuraray Europe based in Frankfurt, Germany, a wholly owned subsidiary of **Kuraray** of Japan, has established a marketing subsidiary in Vantaa, Finland, to promote sales development in northern and eastern Europe. **Kuraray Nordic** will initially manage sales of polyvinyl acetate resins and polyvinyl butyral resins.

FRANCE

French food group **Sill** is set to acquire milk powder producer **Laiterie de Saint-Malo** for an undisclosed sum. As a result of the acquisition, Sill's 2008 turnover is expected to amount to €320M and the company will have a total workforce of around 800 based at six sites.

FRANCE

Rhodia has gone ahead with the previously announced closure of its paracetamol production plant in Roussillon, France, which affects 43 jobs. The plant was Europe's last remaining paracetamol manufacturing facility after Rhodia had previously closed a plant making the same analgesic in Avonmouth, UK. The two factories were no longer able to compete with low-cost manufacturers of paracetamol in China and India.

GERMANY

Gustav Grolman of Düsseldorf, Germany, has been appointed European distributor for wollastonite produced by **Nordkalk** of Lappeenraanta, Finland. Grolman is one of Europe's largest chemical distributors with offices in 24 countries. Nordkalk is Europe's only producer of wollastonite.

PORTUGAL

ED&F Man has purchased a 15% share of Portuguese white sugar producer **Sociedade de Desenvolvimento Agro-Industrial SA (DAI)**. DAI is controlled by Spanish company **Azucareras Reunidas De Jaen SA**, a partner of Italian sugar producer **SFIR**.

ROMANIA

Kraft Foods is to close its chocolate factory in Romania with the loss of 440 jobs.

RUSSIA

Taiwan-based **Asia Cement** is planning to invest \$185M in the construction of a cement plant at Sursko-Maisky in Russia's Penza region. Construction is expected to start next year with completion in 2013.

RUSSIA

Buzzi Unicem of Italy is to invest US\$444M in the construction of a cement plant in the Orenburg region of the Russian Urals. Its expected capacity will be 2Mt/yr of Portland cement.

RUSSIA

Nestlé is planning to invest SFr 240M into expanding its coffee factory in Timashevsk, in the Russian Krasnodar region. This will include introduction of state-of-the-art technologies and processes which will provide a major capacity increase. The plant was opened in 2005 and became the first full-cycle production facility for soluble coffee in Russia. In 2007 the factory's output amounted to 27,000t.

RUSSIA

As a result of the current economic crisis **RusVinyl** – a joint venture between **Sibur-Neftekhim** and **SolVin** – has decided to postpone completion of the previously announced polyvinyl chloride (PVC) project at Kstovo, Russia, for two years until 2012.

RUSSIA

Unilever intends to invest €100M over the next five years in the construction of a new food processing plant in the Russian city of Tula. This is believed to represent one of the largest single expenditures the company has ever made in central and eastern Europe. The factory will produce ice cream, dressings and food ingredients.

RUSSIA

Tambov Sugar Company has started construction of a new sugar factory in Mordovsky province of Russia's Tambov region. The \$250M plant is scheduled to come on stream at the beginning of the 2010/11 sugar beet campaign and is expected to have a processing capacity of 9000t of beet per day.

SPAIN

Daicolorchem, a wholly owned subsidiary of **Dainichiseika**, Japan, intends to close its azo pigments plant at Montcada, Spain, in June of this year. In future it will source European customer orders for yellow and red azo pigments from its plants in Japan and China. The company will continue to manufacture phthalo-cyanine pigments at its Tortosa plant which will be its only production facility in Spain after June.

SPAIN

Tereos, France's top sugar producer, is planning to develop sugar refining activity in northern Spain through a partnership with local producer **Acor**. The two cooperatives are planning to launch the operation at Acor's Olmedo facility, currently Spain's largest sugar factory with a refining capacity of 120,000t/yr. In addition to refining, the two groups are to create a trading joint-venture which

will aim to sell over 450,000t/yr of sugar in Spain. It will begin operating in October.

TURKEY

Egesil has stepped up its precipitated silica capacity at Adapazari near Izmit, Turkey, from 15,000 to 40,000t/yr. The company was established in 2002 as a joint venture between **Evonik** (formerly **Degussa**) and **Ege Kimya**.

UK

Kärtner Montanindustrie of Wolfsberg, Austria, has appointed **Albion Chemicals** of Leeds as UK distributor for three of its functional filler ranges: micaceous iron oxide, wollastonite and mica. Albion Chemicals is a subsidiary within the **Brenntag Group** and has 14 depots spread across the UK.

UK

Cemex has announced plans to cease cement manufacture at the Barrington cement plant in south Cambridgeshire, UK, with the impending loss of 87 jobs.

UK

Terra Industries has decided to idle production at its Billingham, UK, fertiliser plant in response to difficult trading conditions. It is operated by Terra's **GrowHow** joint venture and produces ammonium nitrate fertiliser.

UK

Imerys is planning to close its ground calcium carbonate (GCC) plant at Quidhampton near Salisbury, UK, early in 2010 as a result of declining overall demand. It produces 110,000t/yr at this site. However, it will retain its other GCC operation in the UK at Queensgate near Beverley, Humberside, which has a 90,000t/yr capacity.

UK

Cornwall Farmers, the farmer-owned agricultural cooperative, has entered into a joint venture with the UK's largest animal feed compounder **BOCM Pauls** to manufacture feeds for farmers in Devon and Cornwall. A new plant has been set up for this purpose on the outskirts of Exeter. Cornwall Farmers already operates 16 sites throughout the two counties.

UK

In a bid to reduce costs as a consequence of the economic recession, **Huntsman** plans to close its 40,000t/yr titanium dioxide plant at Grimsby, UK.

UKRAINE

Three of the six sugar factories operated by **Sugar Union UkrRos LLC** have undergone a technical upgrade. It recently acquired the **Orzhitsky sugar factory** in the Poltava region of Ukraine. The company is believed to have produced just short of 200,000t of sugar, white value, in 2008/9.



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- New Products • Technical Innovations • Latest Orders •

For up-to-date news on In-Plant Handling and Bulk Processing, visit:

www.eurobulksystems.com

Schenck Process acquires bulk handling assets of TEDO

Schenck Process headquartered in Darmstadt, Germany, announced 18 February that it had taken over the bulk materials handling activities of TEDO Company sro, Czech Republic, for an undisclosed sum. The company which was founded in 1993 is a leading manufacturer of belt-tube conveyors and other types of belt conveyors and elevators which are widely used in cement, power generation and allied industries. Its experienced engineering and design team will be integrated into the German multinational's Czech subsidiary, Schenck Process sro located in Prague.

www.schenckprocess.com

Obituary: Georg Endress



The death occurred in mid-December of Dr Georg H Endress at the age of 84, founder of the Switzerland-based industrial measurement and automation engineering firm Endress + Hauser Group which has over 8300 employees worldwide. In 1953 he founded L Hauser KG in Lörrach, Germany, together with the banker Ludwig Hauser, initially as a distributor of British built electronic level measurement devices. Following the death of Mr Hauser in 1975 he assumed sole control of the family-owned company. He withdrew from business operations in 1995, having handed over the running of the group to his second oldest son Klaus Endress.

www.endress.com

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Particle size analysis vital in production of mortars and refractories

Dupré Minerals, a leading UK manufacturer of mortars and patching refractories, has installed a Mastersizer 2000 particle size analyzer from Malvern Instruments. The device provides rapid product quality testing of different slurry-based mixtures prior to sintering. Key factors which resulted in its selection were the flexibility of its data reporting combined with its sensitivity to coarse materials. Even some of the most recently introduced laser diffraction systems are said to have proved insufficiently sensitive for this application.

The Mastersizer 2000's advanced data presentation capabilities have enabled the development of specific reports for each customer, with the final certificate of product conformance printed directly from within the software – delivering customer assurance while at the same time maintaining straightforward production protocols.

www.malvern.com



Malvern Instruments' Mastersizer 2000.

Pump survey shows reliability and reduced environmental impact to be main user concerns

During the first half of 2008 Larox Flowsys of Finland wanted to find out the opinion of its customers concerning its pump products. It commissioned an international market research company to investigate user preferences in five target countries: Germany, South Africa,

Chile, Peru and Brazil. Companies interviewed included existing Larox customers, engineering firms and potential new customers. Approximately 50 interviews were conducted by telephone in each country. Results confirmed that the company's policy to prioritise low

cost of ownership and low environmental load were appreciated by buyers of its pumps. Other important features identified by the survey included product reliability as well as local service and spare parts availability.

www.larox.fi/flowsys

Chronos gains safety engineering badge of approval...

The UK division of bagging, palletising and weigh filling specialist Chronos Richardson has recently received accreditation from SAFEcontractor, a programme operated by National Britannia Group that recognises very high standards of health and safety amongst UK-based contractors. Chronos general manager Peter Orme said that he expected this latest approval to enhance his company's ability to attract new projects while also reassuring existing customers about its commitment to safety.

Darran Hughes, operations director for SAFEcontractor at National Britannia said: "Major organisations can no longer run the risk of employing contractors who are not able to prove that they have sound health and safety policies. More companies need to understand the importance of adopting good risk management in the way that Chronos Richardson has done. The company's high standard has set an example, which hopefully will be followed by other companies from within its sector."

...supplies automatic bagging and palletising of food ingredients

The Nottingham, UK, branch of Chronos Richardson has supplied a versatile bagging and palletising system to the Lincolnshire factory of a leading producer of food ingredients. Packing schedules are programmed into the SpeedAC NXT weigher controller and the PLC controller on the palletiser, which allows for simple change-over between the different ingredients and bag types and sizes. Typical outputs are up to 350 bags per hour. Filled bags undergo a two-stage de-aeration process to remove excess air prior to being closed by a heat sealer or stitcher.

Not only did the new system have to operate reliably and accurately whilst handling products that were prone to aeration, but it had to be capable of achieving efficient change-over between at least 50 combinations involving different ingredients, bag sizes and bag types, as part of the packing schedule. Another requirement was the need for complete product identification and traceability, through the application and reading of a bar-coded product label on each bag filled by the factory.

Each bag passes through a metal detector before having an individual bar-coded label applied, containing all product identification parameters. The Compact Palletiser features an innovative combination of traditional and robotic palletising techniques, and before each bag enters the palletiser its bar code is checked. Any bags without appropriate identification are set aside.

The automatic bagging and palletising system was supplied on a turnkey basis, with full installation and commissioning being undertaken by Chronos service engineers. The new system has allowed the food ingredient producer to increase outputs to between 240 and 350 bags/h, depending on the product being packed. Higher capacities can be achieved for products that do not require any de-aeration. Chronos Richardson is a business unit of Premier Tech, Canada.

www.chronosrichardson.com

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Zinc powders dosed with extreme accuracy into mixers

J-Tec Material Handling, Belgium, has devised a bespoke system for the Umicore Oxyde plant located in Zolder, Belgium, which allows 20-60kg batches of zinc-related powders to be dosed to an accuracy of about 1g into two existing mixers/reactors. The fine powder, which has a bulk density of about 2.2.5kg/l, is transferred from 500kg bulk bags into stainless steel containers designed specifically for this



Novel J-Tec powder dosing system at Umicore Oxyde, Belgium, using stainless steel containers.

installation. By means of an existing hoist, the container is lifted on to a custom-made stainless steel container docking and discharge device that is situated above the reactor process.

The container chair is equipped with a swivelling arm with a vibratory capability to ensure complete emptying of the container. At the outlet of the container J-Tec has integrated one of its patented dosing valves allowing precise dosing of powders to within an accuracy of around one gram. This degree of precision can be attained when the valve is running in vibration mode. The valve control system, including compressed air connection, is housed in a stainless steel box, mounted on the container. Beneath the container emptying unit the product is dosed in a weighing hopper mounted on load cells. Once the batch is prepared, it is dumped into the selected reactor by way of a dosing screw.

The unit has been designed to take into account current ATEX directives, a dust-free environment, high accuracy and reliable operation, all under operator-friendly working conditions. This project is the latest of several successful collaborations between the worldwide Umicore Group and J-Tec in recent years.

www.j-tec.com

PET bottles reduced to food-grade flakes



Bales of crushed PET bottles awaiting granulation.

Herbold Meckesheim of Germany has supplied six Type SB forced-feeding granulators to the world's largest PET bottle recycling plant which opened mid-January at Spartanburg, SC. A joint venture between United Resource Recovery Corp (URRC) and Coca Cola, it will when fully operational process 50,000t/yr of PET bottles into plastic flakes for subsequent food-grade use.

Plastic bottles in the granulator storage hopper

are evenly and horizontally fed into the cutting chamber with the help of feeding screws, an arrangement which provides several advantages over standard granulators of the same size. Compared with earlier models, the new granulators are designed to provide 50% greater throughput combined with a 50% reduction in energy consumption, thanks to smaller motors.

www.herbold.com

Pelletron MBO finalised

At the beginning of February buy-out was completed of Pelletron Corp of Lancaster, PA, from its founder Jerry Paulson who had established the enterprise in 1986. Five years ago Heinz Schneider was appointed president and CEO and Paul Wagner as vice president of the company, which is a pioneer in dedusting and pneumatic conveying technology. Both executives acquired 100% of the company's shares. Overseas sales now account for more than 50% of total revenues. Pelletron products, including DeDusters and pneumatic conveying components, are available in Europe from MoMaTech, Germany.



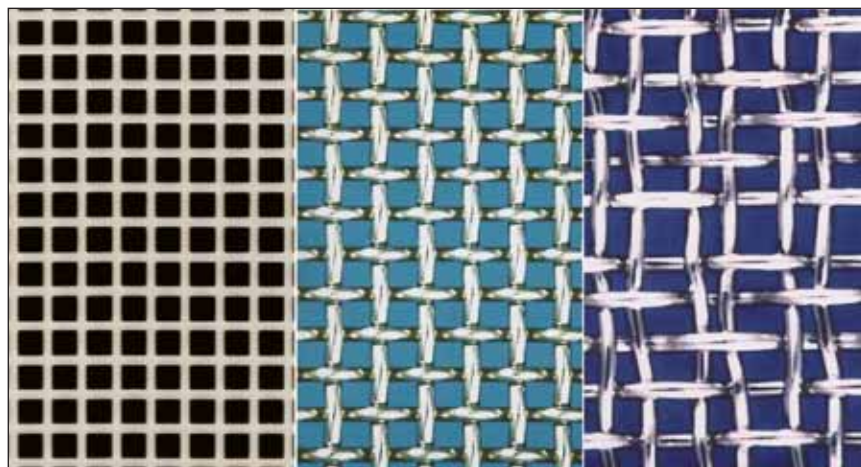
Heinz Schneider and Paul Wagner.

Pelletron is a world leader in dedusting solutions and has recently expanded strongly in the field of pneumatic conveying. It has also established a new component programme consisting of rotary and diverter valves. While focusing primarily on the plastics industry, it has also expanded into the minerals, food and pharmaceutical sectors. This diversification away from a total reliance on plastics is likely to continue.

Schneider said that he expected Pelletron to grow significantly in other markets and, with the company's sophisticated products and solutions, it would aim to improve customers' processing capabilities. He went on: "We have already begun development of new Pelletron product lines that will be introduced later this year at the NPE-Show in Chicago."

www.pelletroncorp.com
www.momatech.de

Sieve mesh found to be inferior



Quality of sieve mesh ranges from good (left) to dreadful (right).

Recent tests carried out by Whitehouse Scientific of Waverton, near Chester, UK, exposed an imported sieve mesh as falling well short of its claimed performance specification. Although the item in question was purchased as precision mesh, it was found to be significantly inferior to competitive products with the same nominal mesh rating. These findings were also confirmed by microscopy. Whitehouse's sieve calibration microspheres allow

detection of subtle differences in performance even when microscope analysis might suggest that two different meshes were identical.

The technique can be used even on the highest quality electroformed sieves. Since many sieve meshes are used in critical industrial applications, these findings underline the importance of rigorous checks and calibration using proven methods.

www.whitehousescientific.com

IN BRIEF

ProTec technology centre completed at Neuenburg

In mid-December Romaco FrymaKoruma, the leading manufacturer of mills and process systems for pharmaceutical, cosmetic, food and chemical industries, announced the completion of the new ProTec Process Technology Centre at its Neuenburg, Germany, site. This test facility provides 15 different process plants and mills together with modern allied equipment. The complex includes several conference rooms and an analytical laboratory. Trial recipes for liquid and semi-solid products can be developed. The company also has a location at Rheinfelden, Switzerland.

www.romaco.com

Three eddy current separators in series

Goudsmit Magnetic Systems of Waalre, the Netherlands, recently installed three eddy current separators

in one line to ensure maximum yield of recycled metals from domestic waste clinkers. In a development which is believed to be a first for the recycling industry, the separators remove large, medium as well as very fine metal fractions. The company has also built a test installation which provides potential customers with an accurate assessment of expected results.

www.goudsmit-magnetics.nl

ATEX certification for Eclipse Magnetics

Eclipse Magnetics based in Sheffield, UK, states that it has recently become the only manufacturer of magnetic separation equipment to have gained ATEX 'type approval'. This was granted by the internationally respected certification body, BASEEFA. Without type approval, every completed separation unit must be sent to an outside agency for ATEX certification before delivery to the customer, a costly and time-consuming procedure. Every single component that goes into the product must also conform to ATEX standards.

www.eclipse-magnetics.co.uk

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Screening urea granulate for QAFCO

Rhewum of Remscheid, Germany, has won repeat business to supply screening machines to Qatar Fertilizer Corp. for its fifth urea fertiliser production line in Mesaied, Qatar. Four multiple deck screens (MDS), the largest of their kind, will process urea at up to 400t/h. Each machine has an active screening area of 50.4m² and between them they will produce 3800t/day of screened urea granulate. The order was placed by general contractor for the project, Snamprogetti of Italy.

www.rhewum.com

Ajax director wins IMechE award

Dr Eddie McGee, technical director of Ajax Equipment, Bolton, UK, has received the Bulk Materials Award for Innovation from the London-based Institution of Mechanical Engineers. This is in recognition for his work in predicting the flow of bulk solids in manufacturing processes. Essentially the technique maximises the predictive value of standard tests for bulk density, shear strength and wall friction, allowing hoppers to be designed to suit exactly the flow properties of a specific material.

www.ajax.co.uk

Pumps cut costs and downtime for cleaning industrial boilers

Larox Flowsys of Lappeenranta, Finland, has supplied its LPP-M pumps to a major US corn producer to replace previously installed electric diaphragm pumps. The LPP-M units are required to ensure precise feed and flow of 12.5% bleach in the industrial boiler cleaning process. They were chosen for their accurate dosing capabilities and overall reliability. The company specialises in producing peristaltic pumps and pinch valves designed for abrasive, corrosive and other demanding shut-off applications.

www.larox.fi/flowsys

Nitrogen-purged milling system for AstraZeneca



Hosokawa Micron milling system at AstraZeneca.

The UK division of Hosokawa Micron based in Runcorn, Cheshire, has recently delivered a nitrogen-purged milling system to AstraZeneca. Designed in conjunction with engineers from the pharmaceutical manufacturer, the explosion-proof system has been designed to delump an active pharmaceutical ingredient prior to packaging. It incorporates a Bepex Bexmill which provides low-energy, gentle milling action well suited for processing sensitive APIs where a significant temperature rise could be detrimental.

The Bexmill has a single vertical rotor which rotates close to a conical screen mesh. By careful selection of screen mesh size and adjustment of rotor speed, lumpy materials can be rendered free flowing and of a consistent particle size. Air flow through the unit is minimal and the product temperature rise is insignificant, which helps to ensure gentle size reduction with minimum fines.

www.hosokawa.co.uk

Major technological advance in multiwall paper sack production

At the end of October Windmüller & Holscher of Lengerich, Germany, provided a live demonstration at dy-pack's Wenden-Gerlingen factory of the first ever valve sack bottomer to feature digital gluing technology. The new system is said to achieve significant savings in per-unit costs resulting from reduced pre-production handling requirements, shorter change-over times and a notable reduction in water penetration from the glue into the paper.

W&H CEO Dr Jürgen Vutz commented: "The extraordinary response to the announcement of this event and the great interest shown in our AD 8330 bottomer has satisfied us that our engineers have succeeded in setting another milestone in multiwall engineering history. Marking the world's first bottomer with digital gluing system, it is bound to open new perspectives and potentials to the paper sack industry."

Until now traditional bottom gluing systems have been based on the use of pads to apply the adhesive to the paper. This involves the

availability on site of a great number of different size parts and gluing patterns, which would normally have to be changed for each new order or may require regrinding. This is bound to have a negative impact on profitability and productivity, especially bearing in mind increasing diversification of sack sizes combined with ever-smaller order volumes.

With the AD 8330 the gluing system uses contact nozzles in place of pads, thus ensuring an exactly defined glue application pattern. The core element of the gluing system is the flow regulator which ensures consistent glue application at all times, regardless of the machine's speed and the viscosity of the adhesive. The precise manner in which the glue is applied also ensures that no more water is introduced into the paper than is strictly necessary, resulting in reduced storage time. Maximum production output of the AD 8330 is 330 sacks per minute.

www.wuh-lengerich.de



Ground-breaking AD 8330 development from Windmüller & Holscher is set to revolutionise production of multiwall paper sacks

Kemutec wins advanced powder processing export contracts

In recent months Kemutec Powder Technologies of Macclesfield, UK, has successfully commissioned two high-specification, food-grade processing systems which have been installed in Ireland and Guyana.

The Cork, Republic of Ireland, R&D facility of pharmaceutical giant GlaxoSmithKline has taken delivery of a sophisticated machinery package from the company. The system comprises two RB100 screw feeders leading into two KEK Series 220 under-driven cone mills. These in turn feed into two KEK K650 centrifugal sifters. Mobile and sliding support mechanisms were developed to allow a milling or sieving operation to be added or removed quickly and easily. All the machines are manufactured from C22 Hastelloy, designed to withstand the corrosive nature of materials and cleaning fluids. All the machines have been pressure designed to allow them to be fully flooded during CIP (cleaning in place).



Kemutec has updated and upgraded curry powder production at Edward B Beharry & Co., Georgetown, Guyana.

GSK had several requirements that the package needed to fulfil, the most important of which was that it should accommodate a multi-product process train. This was achieved by designing in quick-change operating parameters, equipment speeds, types of grinding media and even the sieve and screen specification. The sifters were mounted on moveable structures, as GSK required them to be interchangeable with two existing flat-deck machines. The offset of the inlet flanges on the two types of sifter varied to a significant degree, and for this reason customised sections of tubing for the screw feeders were designed to adapt the position of the feeders in relation to the sifters.

The stairs in the centre of the assembly are also built by Kemutec to a bespoke design, and are moveable to allow maintenance to be carried out on the equipment. Kemutec sales director Martin Thomson commented: "This project continues our desire as a company to work with GSK, and

to constantly develop and provide solutions for their unique demands."

In the second of these contracts Kemutec has supplied a bespoke curry powder processing system to the Georgetown, Guyana, plant of Edward B Beharry & Co. The equipment package includes a Gardner ribbon blender for pre-mixing the individual spices, a Kek Universal Mill for fine grinding the spice mixture, and two Kek centrifugal sifters to confirm the grind texture. In-spec product is then conveyed to a post-grind Gardner blender for final homogenising, while any

oversize product is recycled back to the Universal Mill for further grinding and eventual post-grind blending. Screw conveyors transfer the batch recipe to packing equipment.

Beharry had contacted Kemutec to upgrade the existing machinery for its curry spice manufacturing process, by installing new Kek and Gardner equipment, while maintaining the existing process.

Curry spice is a combination of about 10 or more different spices which are blended to attain the unique flavour of an individual curry recipe. The existing system required separate grinding and sifting of an array of spices, then blending them together in a stand-alone mixer to produce Beharry curry powder. The process was labour intensive, dusty, hazardous and prone to spillage resulting in lost product. Kemutec proposed a new innovative manufacturing process which included pre-mixing of the individual spices before grinding. To demonstrate the effectiveness of the proposed new system it conducted test trials of the new process at its Bristol, PA, technology centre.

The new system incorporated easy cleaning between major recipe changes. Where possible, all machines were designed with large and simple safety interlocked access doors, allowing operators to clean the internal contact surfaces. The result provided Beharry with considerably reduced downtime due to cleaning.

Also incorporated in the new system was a recipe-driven control system which automates the ingredient selection and confirms the recipe for each batch. This includes a programmable



Sophisticated Kemutec machinery package supplied to GlaxoSmithKline's R&D facility in the Irish Republic.

logic controller (PLC) with a human/machine interface (HMI) touch screen. The HMI allows for identification of a particular recipe, and the ingredients required, then displays the quantity of each ingredient needed. This allows the operator to charge the pre-mixer with the ingredients and confirm the addition, while providing an electronic record for each batch. The PLC controls the passage of each batch from the pre-mixer through the mill, sifters, milling recycle and post blend processes before the transfer to the packaging equipment.

In addition the PLC allows for multiple recipe batches with the concurrent passage of different recipes through the system. This can involve as many as four different recipes in the system at one time. As well as the operation and control of the milling equipment motors and instruments, the PLC controls such parameters as mixing time and grinding mill speed.

In a third recent major contract, Kemutec is currently delivering a system of integrated machines for processing talcum powder at the new PZ Cussons production plant in Nigeria.

www.kemutec.com

Haver Group steps up involvement in India and Brazil

The Germany-based Haver Group, which includes Haver & Boecker and Ibau Hamburg, has opened a subsidiary in India. At around the same time group subsidiary Haver & Boecker Latinoamericana inaugurated new offices and production facilities on behalf of its daughter company Haver Serviços in Brazil.

At a ceremony attended by 130 guests, Haver Ibau Pvt Ltd was officially opened in early December in Vadodara, Gujarat, India. This new subsidiary is headed by managing director Wilhelm Dyckerhoff. He controls a team of 20 which is expected to grow to 50 in the coming months. The 10,000m² factory site comprises an administration building and adjacent production facilities. The German parent group has been supplying equipment to India since the early 1950s. This latest development means that the company is now in a position to meet growing demand in India for automation and efficient plant technology and to ensure short delivery channels.

Also in December Haver & Boecker Latinoamericana (HBL) opened the new Haver Serviços offices and production facilities at Perdo Leopoldo near to Belo Horizonte, Brazil, in the heart of the country's cement and mining region. Haver Serviços specialises in production and refurbishment of large screening machines for the iron ore industry and its service department will also provide support and spare parts for



Official opening of new Haver Serviços facility in Brazil; Dr Reinhold Festge, MD of Haver & Boecker, is pictured on the right.

regional producers of building materials. HBL, a subsidiary of Haver & Boecker, Germany, has been active in the Brazilian market since 1974. The decision to invest in the new facilities had been taken long before the current global financial crisis took effect.

The main objective behind the move was to intensify direct customer contact by being present locally and to provide positive signals by creating new jobs despite the difficult economic climate. Dr Reinhold Festge, managing director and parent of the German parent company, commented: "We have tremendous confidence in the South American market and our potential to perform there."

www.haverboecker.com



New headquarters of Haver Ibau India Pvt Ltd.

Beumer recruits 1000th staff member



Dr Christoph Beumer, chairman and CEO Beumer Group, Larissa Gnann and Matthias Erdmannsdoerfer, director of Beumer Corporation, USA.

Beumer Group based in Beckum, Germany, has celebrated the appointment of its 1000th employee. Larissa Gnann will operate from the company's North American head office in Branchburg, 40km west of New York City, as assistant to the director Matthias Erdmannsdoerfer. She previously worked for an event agency looking after visitors during the Olympic Games in Beijing and is currently studying for a bachelor's degree in business management at Berkeley College. In 2008 the 53 staff of Beumer Corporation, serving North and Central American markets, achieved a turnover of some US\$50M.

www.beumer.com

Laser diffraction master classes

With effect from January Malvern Instruments has begun a new series of its popular web-based laser diffraction master classes for which participation is free. These live events are delivered as a service to all users of laser diffraction particle sizing systems and aim to provide support from basic principles through to advanced applications. The seminars are also recorded and subsequently made available as free downloads from the Malvern website. Last year more than 500 people from around the world took advantage of the live classes. Further details available from: www.malvernevents.com

Silo cleaning, maintenance and inspection service

Bristol-based Braby, the leading UK manufacturer of aluminium and stainless steel silos, is now offering a comprehensive silo inspection and maintenance service. Also available to non-Braby customers, it is intended to maximise the lifespan of silo storage vessels as well as ensuring that they meet all current safety regulations, and in particular ATEX explosion protection directives. The service offers scheduled as well as non-scheduled maintenance packages.

www.braby.co.uk

E+H opens subsidiary in Qatar

Switzerland-based Endress+Hauser, a global leader in measurement instrumentation and automation technology, has established its own distribution and service company in Qatar which became operational in early February. From its base in Doha, Endress+Hauser (Qatar) LLC will provide support to customers in the emirate. Special focus will be on service business with commissioning, maintenance and repairs. It will cooperate closely with the company's Middle East support centre in Dubai.

www.endress.com

Urea screened at 140t/h

Rotex Europe of Wavre, Belgium, has won a contract to supply two Megatex XD screeners to the Italian engineering firm Tenova Takraf. The machines are scheduled to be delivered by mid-2009 and the end user, a Pakistan fertiliser company, will install them at a new single train ammonia-urea complex which is believed to be the largest of its type in the world. The screeners, which are specially designed for high-volume demanding applications, provide a feed rate of 140t/h. They are of special multi-deck construction.

This design provides a large screen cloth area in a compact footprint, allowing installation in confined areas. Screens are easily accessed through two discharge doors on one side of the machine. The MEGATEX XD screeners achieve high separation efficiency through a novel elliptical-linear motion. Incoming urea is



Rotex Europe's Megatex XD with doors open.

distributed equally to each screen deck level and then uniformly spread across each screen surface. The machine's elongated stroke action is also said to provide effective blinding control, allowing nearly horizontal screen deck angles.

www.rotex.com

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Ned Thompson, president, Hapman



BTH: willing to do it your way

When it comes to properly functioning bagging equipment and systems, CEO of Bag Treatment Holland BV Frans Maas stresses the importance of working closely with the customer at all stages of machinery design, manufacture, delivery and after-sales support. This philosophy has certainly helped his company grow in just a few years to a position of international pre-eminence within its field of specialisation, as he explains to EuroBulkSystems managing editor Richard Miller.

Bag Treatment Holland (BTH) is a young company which has come a long way in a short time. Launched in 1995, it set up a manufacturing plant at Eersel near Eindhoven and the company achieved considerable success within the Dutch market in its first few years, expanding at a rate beyond the expectations of the four original founders. One reason for the early success was that the four-strong management team had expertise in all the right disciplines: mechanical and electrical engineering, technological design, as well as information and communications technologies (ICT) backed up by in-depth market knowledge.

By the early years of the current decade the company was beginning to win a significant amount of export business and the decision was taken to relocate at the beginning of 2004 to a larger site at Eersel, accommodating all manufacturing facilities and administrative offices. At the same time it was agreed that Frans Maas, one of the four original founders, should assume overall responsibility for running BTH. The other three continue to work actively within the company.

Frans Maas, 48, says that by concentrating all its technical expertise under one roof, BTH is now able to function a lot more efficiently. R&D, production, sales and services are all centralised at a single location and customers have benefited from this streamlining of internal logistics. At the beginning of last year the company doubled its covered floor space at Eersel and this extra capacity is already fully occupied. Maas anticipates that there is sufficient work space for the next two years, but further expansion may well be needed thereafter.

A young, skilled and motivated workforce

One of the company's main assets, according to Maas, is its highly skilled employees many of whom are young graduates with specialist knowledge of power transmission engineering, pneumatics, PLC-controlled electronics and mechanics. These skills are constantly being developed as part of the company's ethos of constantly striving for excellence in manufacturing and service.

Maas explains that BTH's success depends to a large measure on human resources. The company employs highly motivated people, all experts in their respective fields, who are willing to work hard and enjoy doing so. Management and staff work closely together in an environment where each employee is equally important. He says that the company's brief history has been characterised by perfectionism, constant innovation and rapid expansion, for which his enthusiastic staff deserve much of the credit.

Listening to the customer

From the start BTH has been aware that companies are primarily interested in machine suppliers who are able to offer packaging solutions tailored to their specific requirements. "We aspire to find the best possible solution for each individual customer", Maas says.

As part of this close working relationship, all BTH customers are offered two separate acceptance tests between receipt of order and final commissioning, providing useful checkpoints throughout different stages of manufacture and installation. This helps to keep the customer fully informed of progress and ensures that the individual machines or integrated systems perform fully to their original specification. Apart from test runs of machinery and systems, initially at the BTH factory and later at the customer's site, other services include installation and commissioning, operator training, provision of an operating manual, troubleshooting, and subsequent maintenance either by appointment or on a contract basis.

Considerable importance is attached to after-sales service and Maas says that wherever a customer is located in the world, a permanently staffed help line is always provided. With immediate availability of nearly all components, it is normally possible to have a fitter on site within 24 hours or sooner to remedy any problems or breakdowns.

BTH divides its customer base into two basic industrial categories: FFC (food, feed and chemicals) and LGBM (lawn, garden and building materials). Whilst it is not the company's policy to provide off-the-shelf equipment, preferring to evaluate the needs of

each individual customers so that the best solution can be provided to specific requirements, users within these two groups nevertheless tend to share certain requirements in common such as an emphasis on hygienic handling (FFC) or a need for high-speed bagging (LGBM) where automation is also often a priority.

Bag it your way

BTH chose last spring's Interpack international packaging exhibition as the occasion to launch its redesigned logo with the accompanying slogan "Bag it your way". These four words neatly sum up the company's credo of working at all times in close association with its customers, allowing feedback to be quickly translated into machine enhancements and modifications.

Owing to its steadily growing international sales network and expanding customer base, BTH needed to present a clear and uniform image to the outside world. This was the reason for taking a closer look at the logo and corporate identity. Frans Maas says that a clear image had to be created that would also express BTH's message at the international level.

It was therefore decided that the logo should be restyled and even though some of the previous important visual elements have been retained, they have been integrated in such a manner that the overall impact is more representative of the BTH of today: a young, dynamic company with big ambitions but which shuns hollow catch-phrases. There is the same use of colour and the same three letters, but in a robust "chunky" type style which gives out an aura which is both technical and at the same time redolent of reliability.

Maas points out that all the company's machines are built around a solid framework designed to give many years of fault-free operation. This provides a robust backbone to which is then added high-quality, ultramodern technology. At the heart of all these machines is an industrial PLC capable of controlling all valves and drives which is operated by means of a human/machine interface (HMI). Each machine requires just one person who is able to operate all functions via a simple and convenient control panel.



Frans Maas has ambitions to expand BTH further: "We have a broad product range, we develop and manufacture all our products ourselves and we have a highly skilled workforce to do so. That way we can deliver tailor-made packaging lines for which the sum is greater than its parts."

"We deliver solid products, but we distinguish ourselves from our competition by delivering solid solutions from one single source", Maas states. He goes on: "We have a broad product



Two fully automatic flat foil bagging lines for potting compost at Dutch garden centre specialist Naturado Bodemvoeding, showing BTH bag fillers, palletisers and a Rainbow stretchhooder; for this type of application very high capacities are normally required.

range, we develop and manufacture all our products ourselves and we have a highly skilled workforce to do so. That way we can deliver tailor-made packaging lines for which the sum is greater than its parts."

Based on market demands and in cooperation with its clients, BTH is continually developing its products to provide the market with equipment and systems which are among the very best technologically while at the same time being the most cost effective.

A recent development that is now being implemented is the integration of a new standard of operating panels. These new panels are touch screens suitable for a graphic interface. "For the future these screens offer a great many possibilities for increasing the user-friendliness of the equipment. For example, in time we shall be able to integrate the instruction manuals."

Also under development for 2009 is a vastly improved BTH standard for the execution of extremely hygienic filling lines. Maas explains: "The BTH under-level dosing system is a highly effective technique to minimise dust. The principle can best be compared to filling a bucket of water whilst holding the nozzle below the water surface. But with minimising dust we are only halfway there. To further meet the high demands our customers in the food and feed industry face, we are currently developing a high integrity concept. This will focus on minimising product build-up in the machine, facilitate easy cleaning and reduce energy use."

Also on the agenda is a weigher which is suitable for up to 1300 weighments per hour. "The development of such a weigher will enable us to use just one instead of two weighers in high capacity projects."

Maas says that for many applications stretch hooding has recently become the preferred means of securing pallet loads of bags. Apart from providing higher capacities, up to 120 pallets/hour in the case of the company's Rainbow stretchhood machine, this method is more energy-efficient than stretch wrapping,

consumes less polythene, and offers a secure waterproof and dustproof covering which is sufficient to allow products to be stored outdoors. Stretchhooding provides an effective means of protecting bagged goods from humidity and light as well as safeguarding against dust emissions and the risk of pilferage. The Rainbow is capable of processing different size pallets in the same run. The company's BTH-PCD-2400 palletiser, which can handle up to 2400 bags/h, is able to store 99 different pallet patterns which are available for independent selection by the operator.

Buoyant prospects

Although in common with most process equipment manufacturers, BTH is feeling the effects of the current global financial turmoil, Maas says that the level of serious inquiries continues at a surprisingly high and encouraging rate, although this is counterbalanced by many projects being put on hold until there are signs of improvement in the economic climate.

The company is increasingly winning major orders from outside Europe, a recent example being several integrated bagging lines supplied to MicroPellets Australia Pty Ltd, a leading supplier of micro pellet technology to the plastic industry. Further projects in Australia are currently being negotiated. Currently 25% of BTH's turnover derives from the domestic market, 60% from other European countries and the remaining 15% from sales outside Europe.

Maas says that he has no plans in the immediate future to set up any more BTH subsidiaries, although BTH U.K. Ltd located in Ripley, Derbyshire, has performed fully to expectations. On the day we went to press we learnt that BTH had just won a major order from a leading Dutch producer of dog foods. Worth about one million euros, the project will involve delivery of a filling line, palletiser and stretch hood machine.



Palletised bags protected by a waterproof and dustproof polythene covering after passing through a BTH Rainbow stretchhood machine.



Gelatine being bagged for Rousselot; this company has installed a total of four integrated BTH bagging lines, two in the USA, one on France and one in Belgium.

**BAG TREATMENT HOLLAND
at a glance**

Head office: Meerheide 40, NL-5521 DZ Eersel, the Netherlands
Tel: + 31 (0)497 51 49 88
info@bth-bv.com
www.bth-bv.com

Representation outside the Netherlands: UK subsidiary, BTH U.K. Ltd; sales and service personnel covering all European countries, including agents and sales staff working exclusively for BTH; sales and service personnel in North America, Australia, Russia, Saudi Arabia, etc.

Total staff: 97 at Eersel, plus eight at the BTH U.K. Ltd in the UK

Current turnover: In excess of 17 millions euros

Founded: 1995 in Eersel, the Netherlands; moved to larger head office and production plant in 2004; extension to production facilities opened in early 2008, more than doubling the size of manufacturing, R&D and service facilities.

Areas of expertise: Bagging equipment, including filling and sealing all types and sizes of bags with capacities up to 2000 bags/hour; dosing and weighing; customised palletising systems; stretchhood machines; bag and pallet transport systems; total turn-key bagging lines.

Main industries served: Foodstuffs, including bakery materials, flour, milk powder and frozen foods; pet foods, animal and fish feed; chemicals; sand, gravel and building materials; potting composts, bark, peat, seeds, etc.

Focus on food

Anuga FoodTec, which takes place 10-13 March in Cologne, will feature latest technical developments in foodstuffs processing and handling. Here are highlights of some of the innovations which will be on show.

Food-grade bagging system

Behn + Bates based in Münster, Germany, will feature its recently launched ORBIS hygienic bag filling system. Unveiled last spring, ORBIS has been designed for use by producers of milk powder, baking ingredients and other powdered foodstuffs. It is capable of dustfree filling of a variety of bag types in the 10-25kg capacity range at rates of 600 bags/h and above.

The ORBIS system can handle all of the common bag types such as gusseted and flat bags made of paper, PE or combinations of the two. It is equipped with a choice of three, four or six spouts. The model on show will have four filling spouts carrying out the individual filling steps (empty bag application, coarse and fine flow filling, as well as full bag discharge) independently from each other, but in a synchronised manner. Thanks to the carefully sequenced individual working steps, short cycle times and high machine outputs are possible.

www.behnbates.com



Goudsmit's All-Metal-Catcher.

Eliminating metal particles from foodstuffs

Goudsmit Magnetic Systems of Waalre, the Netherlands, has introduced the All-Metal-Catcher which combines a magnetic separator and metal detector in a single system. It has been designed to ensure removal of both ferrous and non-ferrous particles (above 25 microns and 0.6mm, respectively) from flows of food-grade materials. Magnetic pre-sorting means that considerably less product is lost than with detection alone.

The All-Metal-Catcher is said to be particularly suitable for use with materials such as coffee, cocoa, tea, plastics or chemicals. The device has a strong magnetic force of 12,000 Gauss and checks materials for ferrous contamination at the start of a production process or at the end prior to despatch. Thanks to its low overall height, the magnet can usually be easily installed in an existing production process. About 70% on average of all metallic contamination usually takes the form of iron which can be removed by magnets. The metal detector fitted downstream from the magnet ejects other metals without much loss of product. These detectors are not susceptible to external influences such as moving metal parts, vibration, frequency controls, etc and are self-monitoring.

Foodstuffs that have been packaged are always passed through a metal detector at the end of the production process. If a metal detector discovers an iron or metal particle of just a few millimetres in size, the entire product together with its

packaging are rejected. This costs time and money and can be prevented simply by using a magnet. Although magnets are unable to catch copper or aluminium, the iron particles that they are able to collect are far smaller (from 25mhu) than the particles that metal detectors are able to identify. This therefore prevents tedious product liability issues. If extremely powerful neodymium magnets are used in deferrisation magnetic separators, these magnets are even capable of catching stainless steel material. For this reason the combination of a magnetic separator and a metal detector is especially appropriate for the food industry.

www.goudsmit-magnetics.nl

Production of emulsions and suspensions in a range of viscosities

Romaco FrymaKoruma headquartered in Karlsruhe, Germany, will display its recently introduced MaxxD vacuum process machine (see picture on front cover). In the food sector this technology is used to produce ketchup, mayonnaise and sauces. Both liquid and dry product components are vacuumed directly from feed hoppers into the mixing chamber, allowing large quantities of dry material to be rapidly drawn in and processed. Programmable process parameters guarantee high levels of product reproducibility.

The integrated vacuum system of the MaxxD is completely controllable, allowing the vacuum to be adjusted at any time to individual operations. The vessel temperature is controlled automatically through the double-walled insulating jacket, and the product can be heated or cooled as required. During the heating phases, a scraper agitator prevents the product mass adhering to the interior wall of the vessel. The continuous circulation of the mass provides homogeneous mixing of individual phases. The programmable process parameters guarantee high levels of product reproducibility regarding taste and quality.

www.romaco.com

Wet grinding according to the rotor-stator principle

Also on show at the **Romaco FrymaKoruma** stand will be the MK 95 corundum stone mill. Offering wet grinding of liquid, viscous and highly viscous products, the mill features a rotor-stator system designed to provide high product throughput in the shortest time. By means of an infinitely variable milling gap, finest micrometer range particles can be achieved. In the food industry the mill is used primarily to achieve different masses based on mustard, sesame, cocoa or meat.

An integrated feeding screw continuously



MK 95 corundum stone mill from Romaco FrymaKoruma.

transfers the raw materials into the milling zone of the MK 95 mill. During wet grinding, built-in sensors continually monitor the feed pressure, the milling temperature and the fill level of the mill. The conical milling space and the inclined pipelines guarantee optimal evacuation of residues. With regard to the design of the mill, special care was taken to eliminate all dead spaces in the mill interior. Aseptic O-ring seals additionally prevent build-up of product residues.

These MK type corundum stone mills are available in off-line and in-line designs. In an enclosed design they are well suited for all fully automatic cleaning processes such as cleaning in place (CIP), sterilisation in place (SIP) and drying in place (DIP).

www.romaco.com



Matcon's Powder-Packer.

Direct powder transfer from IBCs to smaller receptacles

UK-based **Matcon** will be demonstrating its recently introduced Powder-Packer system which allows powders to be packed into bags or drums directly from intermediate bulk containers without need for any secondary packing equipment. The system incorporates novel VariStroke technology with cone valve discharge, allowing it to handle virtually any type of powder whether free flowing or cohesive.

Operating speeds and accuracies vary depending on the pack size and characteristics of the material. Typically a 25kg sack will take 25-45s to fill to an accuracy between 50 and 100g. In-line sieving or sifting can also be provided.

www.matconibc.com

Homogeneous mixing of sticky ingredients

Dinnissen Process Technology of the Netherlands will be showing the latest variant of its Pegasus continuous mixer which has been designed to mix sticky liquids such as syrups with dry powders or flakes. See p14 for further details.

www.dinnissen.nl

Preventing cohesive bulk materials from bridging

K-Tron Process Group, with European headquarters in Niederlenz, Switzerland, will show its latest invention, the ActiFlow. This reliably prevents cohesive bulk products forming bridges



ActiFlow from K-Tron Europe.

in stainless steel hoppers. The company claims that for the majority of difficult-flowing materials, ActiFlow will make traditional arch breakers obsolete when used in loss-in-weight (gravimetric) feeding applications. It is completely maintenance free and has no direct contact with the product.

K-Tron's new Premier brand will be represented by the 2415 powder and pellet receiver, with a new Series 4 controller as well as a pharmaceutical version of the P30 vacuum receiver.

The 2410 series is designed to handle powder, pellet, regrind or granular materials in the chemical, food and plastics industries. The 2410 receiver is available in either aluminium or stainless steel construction.

www.ktron.com

Food-quality valves and diverters

DMN-Westinghouse of the Netherlands will be showing a selection of rotary valves and diverter valves. These will include the AL drop through Dairy MZC valve with sliding bars and a BL Dairy blow through rotary valve. Also on display will be a PTD plug type diverter and an FDV flap type diverter.

For the first time at Anuga FoodTec the company will be showing its recently launched 3-TDV tube type diverter. See p10 of the November/December 2008 *EuroBulkSystems* for a picture and further information. Finally, examples of original Morris Couplings will be on the stand.

www.dmn.info

Drying process improved and optimised

GEA Niro of Soeborg, Denmark, will unveil its new DRYNETICS concept which has taken three years to develop. Said to be capable of producing powder of purer quality at lower costs, DRYNETICS involves tests being run on a given feed, on the basis of which a computer model is made of the drying process. The model is put into CFD (computer fluid dynamics) simulations of full-scale spray driers, resulting in very accurate calculations. The new concept is available for trials at the Soeborg test plant.

The DRYNETICS method will also be demonstrated on a large flat screen with videos from the laboratory, with animations of the spray drying process and on posters with pictures of a test assembly backed up by graphics of the methods behind the DRYNETICS concept.

GEA Niro developed DRYNETICS after the company was contacted by a professor and a PhD student from the Friedrich Alexander University in Germany, who wanted to build an apparatus to investigate the drying process of droplets. GEA Niro supported the project and on the basis of the results the company's engineers decided to continue the research and build their own equipment.

www.niro.com

FIBCS: hygienic discharge/precision filling

The UK's two most respected and innovative manufacturers of bulk bag filling and discharge systems have both recently installed equipment which demonstrates conclusively that it is feasible for a tonne or more of high-value bulk material to be cost effectively emptied from or loaded into this type of packaging, whilst achieving extremely high standards of cleanliness and accuracy.

Flexicon (Europe) recently delivered a food ingredient intake system, centred around a specially modified bulk bag discharger, to the Beaminster, UK, plant of Danisco. Materials had previously been delivered in 25kg bags but this gave rise to inefficient handling procedures and product wastage. Some 80kg a week of high-value powders was being lost as residue in the emptied sacks.

The new bulk solids handling system comprises a bulk bag discharge frame with a cantilevered "I" beam, a receiving hopper, with a manual dumping facility, to feed a round wire, 4.5m long screw conveyor housed within an ultra-high molecular weight polyethylene tube. All contact parts are made in stainless steel Type 316 with a refined finish. In addition, a dust collection system mounted to the side of the bulk bag frame operates at a reported 99.99% collection efficiency for materials with a particle size of 5 microns or greater.

The system's primary function is to provide for delivery of raw materials in bulk bags, thus eliminating 90% of the 25kg bags. Now, with the aid of a fork lift truck, a single operative can simply position the FIBC in front of the bulk bag frame and attach the lifting loops to a cruciform connected to an electrical hoist, enabling precise location of the FIBC on to the frame above the receiving hopper. The bulk bag/hopper interface consists of a manual Spout-Lock clamp ring positioned above a pneumatically actuated Tele-Tube telescoping tube. Together, these devices enable an operator to make a quick, dust-tight connection between the bag spout and hopper.

By simple, push-button control (two handed control for safety) the telescoping tube raises the clamp ring assembly allowing the bag spout to be pulled through the ring enabling the operator to seal the clean side of the bag spout to the clean side of the telescoping tube. It then continues to lower until the bag spout is pulled taut. Once the spout is untied, the telescoping assembly exerts continual downward tension on the spout, elongating the bag as it empties into the receiving hopper, via a hopper screen to filter out foreign bodies, promoting flow and evacuation. The high-integrity, dust-tight seal between bag spout and clamp ring allows full-open discharge from the bag with no risk of dust inhalation by the operator. From the receiving hopper the free-flowing raw material is gravity



Raw material is transferred from the receiving hopper and gravity fed into the mixer via the transition discharge adapter of the flexible screw conveyor.

fed into the throat of the 4.5m long screw conveyor, upwards through 45 degrees for transfer via a transition discharge adapter into the original blender. A side mounted, low level hopper sensor warns the operator of the status of material flow.

The manual dumping facility built into the hopper allows for continued use of 25kg bags of the minor ingredients which are still best served by sourcing as before. However, with the undivided attention of the now single operator, product loss is contained to an absolute minimum and the dust extraction unit removes virtually all airborne dust hazards.

The brief had been to:

- minimise the handling of bulk bags and so improve health and safety.
- achieve a quality mix sooner through a more even transfer of raw material.
- reduce waste costs and gain by economies of scale in the sourcing of raw materials.
- decrease environmental impact by minimising waste packaging and residual lost product remaining in the discarded packaging.

All the above objectives were met with the added bonus of halving the plant footprint by replacing the old system and freeing one operator and the on-site engineer to more productive work throughout the batch cycle.

Filling accuracy in terms of grams – not kilograms

Spiroflow recently supplied its most accurate yet Spirofil bulk bag filler to the world's first industrial scale nanotube* manufacturing facility in Sambreville, Belgium. The customer, Nanocyl SA, considered various other suppliers of similar equipment but project engineer, Michel Wattiaux, and Christoph Bossout, who invented the process, were convinced by Spiroflow's guarantees of accuracy combined with Mr Wattiaux's earlier positive relationship with Spiroflow and its local agent whilst working previously for a major Belgian chemical company. The order was secured with the assistance of PHC International, Spiroflow's Belgian agent.

Traditionally, for most industrial applications, Spiroflow offers bulk bag fillers with weighing

platforms using weigh-scales or load cells, typically achieving accuracies of plus-or-minus 1kg. To meet the Nanocyl requirement for a weighing resolution accuracy of plus-or-minus 20g, Spiroflow engineers decided to adopt the 'hang-weighing' principle on this occasion and with total success. This meant that the highly sensitive load cells could be mounted high up in the structure of the filler out of harm's way. Not only does the Spirofil filler weigh the contents of bulk bags - it is so accurate that it also used to fill 2kg bags as well! Accuracy is particularly critical when such a high value product is being handled.

Bulk bag filling takes place under a nitrogen blanket. A folded, flat bag is attached to the filling rig and then the bag is inflated with nitrogen. Given that the ambient air around the filler is 78% nitrogen (by volume) anyway, the displaced nitrogen is vented through a special filter unit into the atmosphere.

During filling, the base of the Spirofil unit intermittently rises to vibrate the bag - it then lowers to allow weighing to continue. The bag is given a final vibration once the target weight has been achieved and recorded. This vibration is critical to ensure that the contents of each bag are consolidated to render the bags in a stable and safe condition for handling and storage.

The controls were designed and manufactured by Spiroflow which employs a dedicated team of electrical engineers and technicians. The heart of the control box is an extremely accurate weighing instrument that receives signals from the high-sensitivity, high-accuracy load cells. These support the bag hanging frame complete with its quick release bag loop hooks. The weighing instrument is connected to a printer so that batch records can be made and kept.

The Spirofil bulk bag filler has now been in operation for some nine months and, according to a member of Nanocyl's production team, has performed fully to the company's satisfaction.

Nanocyl was established in 2002 with the goal of becoming the leading global manufacturer of specialty and industrial carbon nanotubes. Today Nanocyl is one of the key players in its industry with a production capacity over 40t/yr. Further capacity increase is planned to meet the ever growing customer demand. Nanocyl employs 40



Spiroflow bulk bag filling rig at Nanocyl showing bag suspended ready for filling with safety cage closed; unprecedented levels of filling accuracy are attained.

people at the facility in Belgium and at offices in the US. The Asia-Pacific market is covered through a network of partners in South Korea, Japan, India and China.

Nanocyl produces the full field of carbon nanotubes, ranging from single-walled categories, to double-walled and multi-walled versions. The preferred manufacturing technology is catalytic carbon vapour deposition (CCVD), which is currently best adapted to large-scale production. Nanocyl commercialises its products in the form of powders, pellets, liquid dispersions and films.

Flexicon (Europe) Ltd

www.flexicon.co.uk

Spiroflow Ltd

www.spiroflow.com



Flexicon food ingredient receival system at Danisco's Beaminster plant.



Close-up of the Spiroflow inflatable seal on the filling head which is mounted on the weighing frame.

* carbon nanotubes are microscopic-sized cylindrical carbon molecules which offer extraordinary strength and electrical properties. For further details refer to Nanocyl's website: www.nanocyl.com.

Diverter removes need for hopper vent valves

Vortex Valves Europe based in Darlington, UK, has introduced a CE, ATEX and FDA approved diverter valve that allows dry bulk hoppers to dispense with air vent valves. As part of a closed-loop pneumatic conveying system the Fill Pass Diverter routes product flow into one or more in-line hoppers, while venting air back into the loop. The unit performs the single function of directing material either to bypass the hopper or to fill it from the top. It is fully flexible in terms of connecting options and construction materials.

Incorporating the same design technology as the Quantum orifice gate valve and the Wye Line Diverter launched previously by the company, the Fill Pass Diverter benefits from a cost-saving modular construction and a blade and seal slide mechanism. Streamlined, unobstructed pathways

combined with clean shut-off help ensure enhanced filling rates and accuracy over the diverter's recommended working pressure range of plus-or-minus 1 barg.

In addition hard polymer seals which are protected from blast abrasion, self-clean on the opening stroke and self-compensate for wear. Seals and seats can be fitted in materials that include polyamide, PET, UHMW polyethylene, glass-filled PTFE and silicone rubber. Materials of construction are 304 or 316L stainless steel, carbon steel or aluminium. Options are also provided for actuation, position detection switches and for pipe schedules and sizes which are within the 50-150mm diameter range.

Maintenance takes place with the diverter entirely in-line.

www.vortexvalveseurope.com



Fill Pass Diverter from Vortex Valves Europe.

Measuring dust on plastic pellets in accordance with new ASTM standard



Pelletron's FineAlyzer system.

Pelletron of Lancaster, PA, has introduced the FineAlyzer which is designed to measure fines and dust particles on plastic pellets by wet test analysis, in accordance with the new ASTM Standard D-7486-08. The equipment works on the principle that unwanted dust and fines will normally adhere to larger pellets and will be removed by rinsing the test sample with a liquid, preferably demineralised water. The residue is then collected and weighed. The wet analysis quantifies the amounts of dust with particle sizes from 1.6 to 500 microns.

In 1999 the European Federation established a wet test method to determine the content of fines, known

as FEM 2482. This method defines dust content in three classes: Type A within the range 63-500 microns, Type B in the range 45-500 microns, and Type C in the range 20-500 microns. However, this standard does not determine fines analysis below 20 microns. In addition, the fines analysis apparatus described in the FEM standard has one major limitation: it uses a closed loop automated water washing system for a period of one hour to separate the fines from the pellets. The tumbling effect, along with the friction of the pellets against the sieve and walls of the apparatus, can potentially create additional fines during the separation process.

For many years Pelletron has used a fines analysis to measure the dust between 1.6 microns and 500 microns. The company has worked with ASTM to establish the new standard using the Pelletron fines analysis procedures, the FineAlyzer. Its method in accordance with the ASTM procedure avoids any vigorous movement or friction of pellets during the fines separation process and delivers the most accurate results. Dedusting trials are available from the company free of charge. The system is available in Europe from MoMaTech, Germany.

www.pelletroncorp.com;
www.momatech.de

New generation of laser particle sizers

Fritsch Milling and Sizing of Idar-Oberstein, Germany, has launched the Analysette 22 MicroTec plus, its latest advance in compact particle measurement instrumentation offering

revolutionary dual-laser technology and an extremely broad 0.08 – 2000 micron measuring range. Other advantages include variable suspension volume, fast analysis

times, good reproducibility and simple operation/calibration. It is also said to be very economically priced.

www.fritsch-laser.com

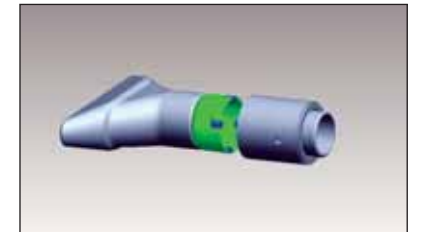


Analysette 22 MicroTec plus from Fritsch Milling and Sizing.

Removable air cannon discharge nozzle

Martin Engineering of Walluf, Germany, a specialist supplier of air cannon systems, has introduced a patent-pending removable nozzle for use with air cannons in high-temperature applications such as cement plant preheater towers. It has been designed to reduce downtime during refractory replacement by eliminating the need to disassemble the air cannon from outside the vessel to change the nozzle from the inside. This innovation was developed at the company's main manufacturing plant and headquarters in Neponset, IL.

A further advantage is that the new nozzle eliminates the cost of labour to remove worn-out nozzles and reinstall new conventional nozzles. The new product is a two-part assembly consisting of an outer collar and an



Martin Engineering's removable nozzle.

inner fan-type nozzle. The collar is permanently mounted to the outside of the vessel, while the replaceable fan nozzle mates to the collar from the inside of the vessel.

The new removable nozzle can be used with 4in (100mm) Big Blaster air cannons as well as with most competitive air cannon systems.

www.martin-eng.de

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www.eurobulksystems.com

Fully digital ultrasonic system provides enhanced screening performance

Sweco Europe based in Nivelles, Belgium, has introduced the new Sono-Wave digital ultrasonic system which has just been developed by its US parent company, a world leader in separation technology. This latest innovation is designed to promote improved screen excitation across the entire screen surface with more even energy distribution. It also features adjustable amplitude and frequency sweep. The generator is available in 100W and 200W versions and can drive two screens simultaneously, eliminating the need for a second generator in two-deck applications. The ultrasonic converter is mounted



Sono-Wave from Sweco.

outside the separator. With no requirement for cable or electrical components inside the separator, the

unit can readily be configured to meet ATEX zone 20 requirements.

www.sweco.com

EVOH gives plastic IBCs a competitive edge over steel versions

Using the latest multilayer extrusion blow moulding technology, which allows up to six different functional materials to be plasticised together, it is now possible for the first time to integrate an EVOH permeation barrier into the bottle wall of a plastic intermediate bulk container. The breakthrough has been made by Schütz based in Sellers, Germany, the world's foremost manufacturer of IBCs. With an EVOH barrier, the company's IBCs can now be used for certain applications which were previously the preserve of stainless steel containers. The EVOH IBCs are also lighter and cost less.

They offer further advantages over conventional stainless steel alternatives in that they require less raw material in their production, which results in a significant reduction in weight with correspondingly lower transport costs.

EVOH is a copolymer made from ethylene and vinyl alcohol. Embedded in an IBC bottle it provides reliable permeation protection as a barrier against ambient gases; a flavour and aroma barrier; a barrier against solvents such as toluene, xylene, MEK and petrol; and a barrier against oil and grease.

Schütz has developed the ECOBULK MX-EX-EV IBC which has a static-conductive outer layer combined with an EVOH barrier specially for manufacturers of UP (unsaturated polyester) resins as well as for producers of adhesive resins, paints and lacquers who need to store normally flammable products and transport them to end consumers.

One of the main benefits of an EVOH barrier is that it increases the shelf life of the filled product by reducing the emission of solvents. This guarantees the constant and unaltered high quality of the filled product. As a result customers benefit from the unvarying consistency, processability and storability of the product. In the event of a need for nitrogen injection,

this multilayer solution offers protection from loss of gas and so from reduced quality.

MX-EX-EV also offers clear advantages when it comes to safety and handling. As far as explosion protection is concerned, it is said to be the safest combination IBC available.

www.schuetz.net



Schütz antistatic IBC model MX-EX-EV has a six-layer inner bottle with integrated EVOH barrier.

Universal Mikro-Pulverizer offers flexible size reduction

The UK arm of Hosokawa Micron based in Runcorn, Cheshire, has introduced a new range of small-size Universal Mikro-Pulverizers designed for use in pharmaceutical, food and speciality chemical industries. They feature interchangeable multiple grinding mechanisms providing multi-purpose usage for a broad range of final particle size and particle size distribution requirements. They are available in three model sizes to suit throughputs from less than 45kg/h up to 907kg/h.

Development of this new range of machines was brought about by market demand for equipment that offers multi-purpose usage, simplicity of operation and accessibility during processing and maintenance.

Interchangeable grinding mechanisms include a knife type rotor operated at low to mid range speeds for milling of granular products, a Mikro impact hammer and screen assembly for production of finer materials down to 50 microns, and a pin disc design capable of achieving results down to the 25 micron range.

The new unit features a fabricated housing with a hinged door equipped with tri-clamp closure mechanism. This facilitates access for cleaning or changing of internals. A single cantilevered high-speed bearing housing with sealed-for-life, air-purged bearings makes regular maintenance quick and easy.



Universal Mikro-Pulverizer from Hosokawa Micron.

Multiple feed and collection options further enhance the flexibility of the Universal Mikro-Pulveriser across food, pharmaceutical and chemical applications, whilst specialist PSR units are available for hazardous applications. All mills can be incorporated into bunker style, once through, closed-loop or inert system designs. These small mills offer a level of versatility which make them suitable for both R&D and production operations.

www.hosokawa.co.uk

TUF-LOK® PIPE COUPLINGS

Ring Grip Series 689, 688 & 698

The Tuf-Lok ring grip pipe coupling is a rugged, heavy duty, self-aligning and self-grounded pipe coupling with a high end pull. It can be used for almost any application where pipe ends need to be connected. The Tuf-Lok coupling installs quickly and aligns pipe ends with little effort.

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www.vortexvalveseurope.com

Pneumatic conveying from one source to three destinations – and vice versa

Another new product from Vortex Valves Europe (see also page 12) is the patent-pending Quantum Series 3-Way Wye Line Diverter which has been specifically engineered to handle dry bulk solids in pneumatic conveying systems with vacuum or positive pressures up to 1 barg. Suitable for pipe diameters of 50-200mm, it has been designed to provide a number of advantages over traditional flapper and rotating tunnel style diverters, providing superior sealing, low installation weight and easy in situ maintenance.

Capable of directing dry bulk material from one source to three destinations, or converging from three sources to a single destination, this new Quantum Series Wye Line Diverter provides positive shut-off of air and material, thereby improving process efficiency, minimising cross-contamination and eliminating material build-up beyond the closed port.

There is a wide choice of actuators, position indication switches, flanges and tube stubs which allow the diverter to meet individual system requirements. A broad range of modifications are also available to accommodate



Vortex's new 3-Way Quantum Wye Line Diverter.

high or low temperatures as well as corrosive, humid and hazardous environments.

www.vortexvalveseurope.com

Heaters keep IBC and tanker contents at optimum temperature

The Isopad business unit of Tyco Thermal Controls based in Washington, UK, has developed



Isopad heaters are suitable for use with tankers as well as IBCs.

a range of heaters for intermediate bulk containers and tankers designed to maintain the liquid contents at a constant temperature. This is achieved by a choice of heating blankets, panels and heating elements mounted directly and securely on the tank surface using a special spring attachment. Temperature limiters can be included and formats range from foil heaters for single trips through to semi-permanent designs for multiple journeys.

Many chemicals, fuels, adhesives, paints, foodstuffs and beverages that are transported in IBCs or tankers are temperature sensitive. They need to be kept within predetermined temperature ranges to prevent them spoiling, becoming difficult to handle

www.tycothermal.com

In-process and bagging weighers now ATEX-compliant

The Nottingham-based UK division of Chronos Richardson reports that the company has now introduced compact and versatile ATEX-compliant weighers into both its APW in-process and high-speed bagging weigher ranges. It has developed upgrade solutions and kits of parts which comply with ATEX and DSEAR (Dangerous Substances and Explosive Atmospheres Regulations) safety requirements. At a minimum level these upgrades ensure that all components such as load cells and sensors are ATEX-certified.

The company's service engineers are willing to work with customers to ensure that existing weighers meet specific ATEX zone requirements.

www.chronosrichardson.com

APW weigher from Chronos Richardson.



Continuous mixing of sticky ingredients

Working in close association with its customers, Dinnissen Process Technology of Sevenum, the Netherlands, has launched a new version of its well known Pegasus continuous mixer. It has been designed to mix sticky liquids such as syrups with dry powders and flakes such as flour or wheat meal, even in a ratio of up to 75% by weight of the dry material. The system eliminates caking or lump formation and complies fully with food safety and hygiene standards.

Mixing dry basic ingredients with a high percentage of sticky liquids presents a challenge for companies in the food, feed, pharmaceutical and chemical sectors. This is rendered more acute when other complex factors such as hygiene, food safety, capacity, quality and efficiency come into play. The mixing system of this new Pegasus mixer meets food safety and hygiene standards with regard to ease and speed of cleaning. Its versatility allows it to be easily

switched to other recipes.

The system is capable of homogeneously mixing a large number of dry basic ingredients, after which the mixture can be blended with a roughly similar quantity of sugar-containing sticky liquid in a second stage. The system is said to function effectively even if the dry basic ingredients vary in terms of particle size, bulk density and flow characteristics.

www.dinnissen.nl



Dinnissen's latest Pegasus mixer.

or even changing their composition.

Isopad container heaters are maintenance-free and ensure an even heat dissipation. They can be designed to any shape, dimension, voltage and temperature requirement using the most appropriate cable types. Temperature limiters can be incorporated within the heaters or, with the addition of a sensor and temperature controller, the user has the capability to set a required temperature for each specific load.

www.tycothermal.com

Ultrasonic transducer can measure liquid level in a corrosive environment

The industry automation division of Siemens is now offering a PVDF (polyvinylidene fluoride) nose cone as an option with its non-contacting ST-H ultrasonic level transducer for liquids. Impervious to dust, moisture, corrosion, vibration, flooding and temperature

extremes, the ST-H virtually eliminates the nuisance, danger and expense of cleaning, adjusting and repair associated with contacting devices. The transducer functions accurately at distances up to 10m.

www.siemens.com/level



Siemens ultrasonic level transducer with PVDF nose cone.

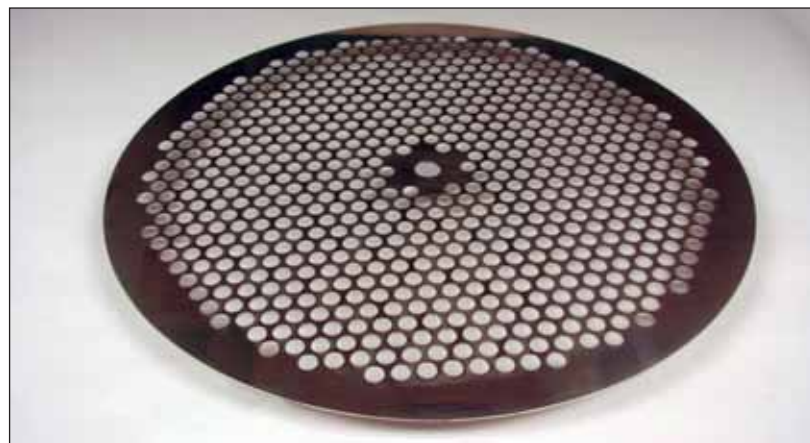
Small shredder for large objects

Germany's Herbold Meckesheim has developed the new HR 102 P single-shaft shredder which is very compact but can process bulky hollow bodies such as plastic barrels up to 220-litre size. Other applications include large injection moulding parts such as bumpers and loose film waste. In addition to the conventional horizontal pushing mechanism, the shredder has a secondary pneumatically operated pusher acting from above. This has a positive effect on the material being seized by the rotor.

If quality granulate is required, there is the option of adding a secondary low-speed granulator from the company's product range. These shredders are said to be comparatively quiet in operation.

www.herbold.com

Screen noise reduction with Quiet Clean



Sweco Europe's Quiet Clean.

Screening equipment manufacturer Sweco Europe based in Nivelles, Belgium, is offering the new Quiet Clean which has just been developed by the US parent company. A newly designed multi-laminated perforated plate is said to reduce noise output by up to 14% compared to

standard metal perforated plates. The Quiet Clean is FDA approved and is available in sizes up to 48in. Perforated plates are used in conjunction with sliders and/or balls to dislodge near-size particles or fibres and improve screening efficiency.

www.sweco.com

Flow instruments with Foundation Fieldbus interface

Siemens Industry Automation Division has developed a new communication module for connecting flow instruments to the Foundation Fieldbus (FF). The module is suitable for the series of Sitrans F M 6000 and Sitrans F C MASS 6000 devices. It is based on the 'plug-and-play' principle, allowing the user simply to click the module into the mount of the instrument. Depending on the desired communication method, there are additional communication modules available such as for Profibus PA/DP, Hart, Modbus RTU and DeviceNet.

www.automation.siemens.com

Cutting materials handling costs during plastics processing

Mann+Hummel Pro Tec of Bensheim, Germany, is offering a new service to plastics producers on how to make more efficient use of energy in the field of materials handling. Embracing all aspects of warehousing, conveying, dosing and drying, advice is available to companies of all sizes from an expert team headed by managing director Michael Zlotos, who has many years of materials handling experience.

www.mh-protec.com

Sieve shaker provides 3-D screening motion

Retsch, based in Haan, Germany, has introduced the AS 450, its first analytical sieve shaker to operate with a three-dimensional sieving motion. This feature allows the sample material to move equally over the complete sieving surface. It offers high load capacity, very smooth operation and short sieving times with high separation efficiency. The machine can cope with loads up to 20kg and can process dry or wet materials.

The company explains that an optimised electromagnetic drive allows for an amplitude up to 2.2mm. This renders the separation process much more effective than with other sieve shakers of this type. All parameters such as amplitude, time and interval are digitally set, displayed and controlled. It is possible to store up to nine parameter combinations for routine tasks.

www.retsch.com



AS 450 sieve shaker from Retsch.

Intelligent sensor management

Mettler Toledo, a global supplier of precision instrumentation and weighing systems, has launched digital sensors with ISM (Intelligent Sensor Management) technology. This has been designed to reduce time and effort associated with installation, maintenance and calibration of sensors. Its digital sensors with ISM capability are equipped with an integrated chip that stores relevant parameters and algorithms for enhanced diagnostics.

www.mt.com

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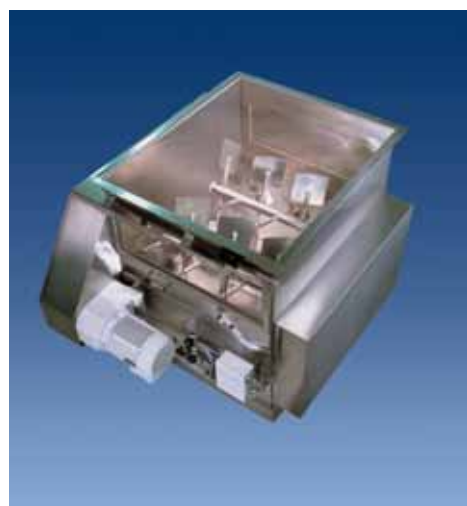
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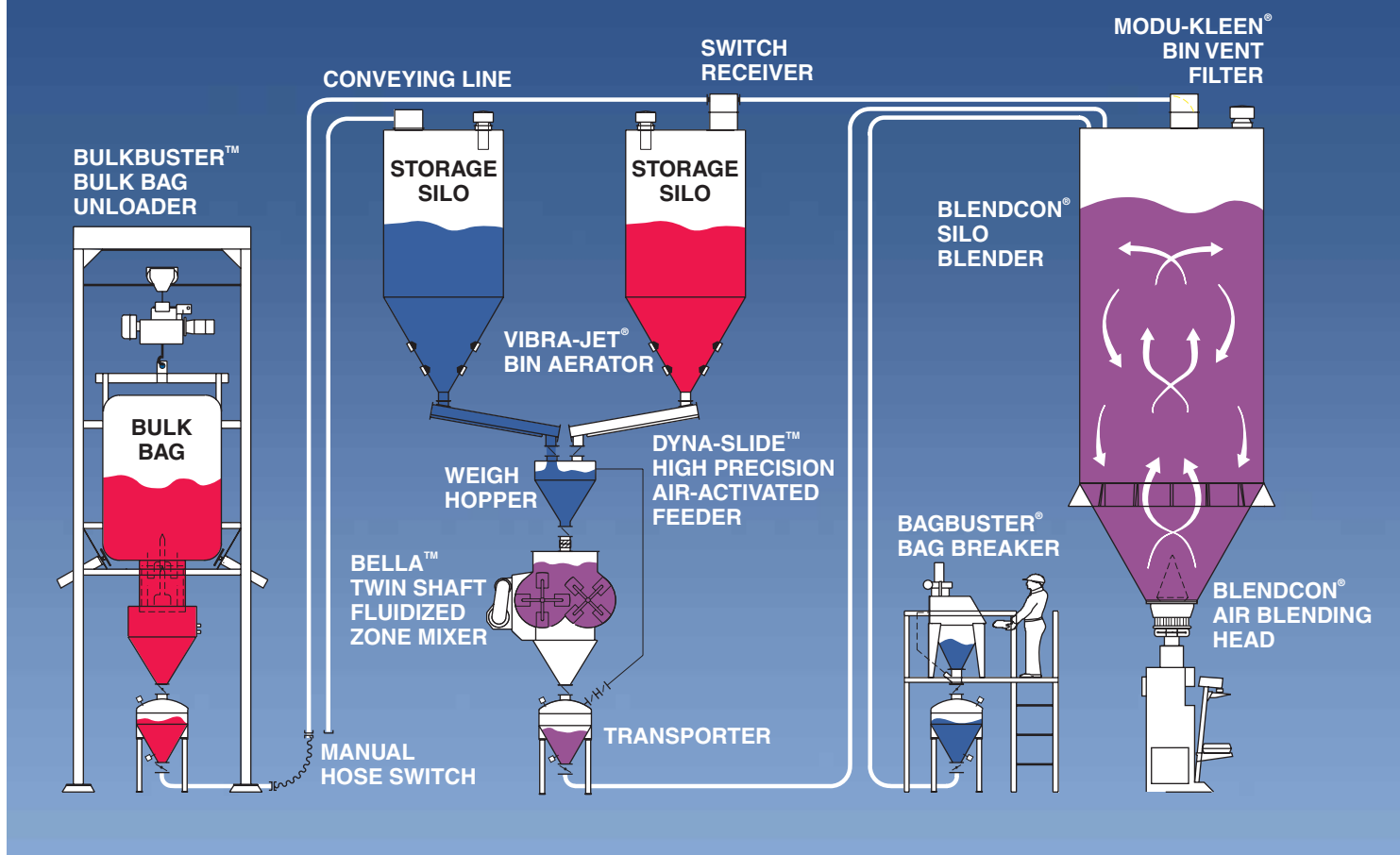
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