CONVEYORS
and mechanical handling

NEWS ON THE LATEST CONVEYOR SYSTEMS, UNSCRAMBLING AND PRODUCT HANDLING EQUIPMENT.

ASTEC CONVEYORS

Bag-in-box line now handles two sizes of container

Coca-Cola Enterprises at Milton Keynes has installed a new automatic filling and packaging system for 10 and 20 litre bag-in-box syrup containers, replacing the two lines previously dedicated to each size.

This now meets increased demand for 20 litre containers, which were previously filled on a semi-automatic basis at just three a minute.

Working with the main machinery supplier, DS Smith Packaging Systems, Astec Conveyors was involved in the design, manufacture and integration of all handling systems – linking together the bag-in-box lines as well as installing a conveyor system to handle the 250 litre bulk syrup carriers also filled at the plant.

An Otor case erector dispenses the two different size cases to order – for 10 litre or 20 litre – feeding in single file onto a modular matt top side flexing belt conveyor supplied by Astec and operating at line speeds of 25/20 cases a minute respectively. A purpose designed 'one-to-two' lane divider takes the empty cases – bottom sealed, top flaps open – to feed two bag-in-box filling machines.

Handling bag-in-box syrups: *Above: Cases leave the erector via a lane divider. After filling, they are merged (left) for coding and closing and then turned on their side for shrinkwrapping and palletising (below)*

Filled cases are discharged onto a chain driven clutched roller accumulation conveyor and through Astec's Symmetric Merge unit, which is a specially designed roller-based Y lane merger. This eliminates the need for guide rails by centralising the cartons on to a matt top belt conveyor to track accurately around a 90deg bend and be precisely presented for ink-jet coding and checkweighing.

Cases are then closed and carried to the Astec Pack Twister which turns them through 90deg onto their sides, the ideal orientation for automatic shrink wrapping and palletising.

A heavy duty, special stainless steel twin chain pallet conveyor system was also installed by Astec to handle 250 litre MegaBox containers, a bulk returnable syrup packaging system produced by ArcaSystems for Coca-Cola Enterprises.

From store, the collapsible MegaBoxes are manually erected to form bulk liquid containers and positioned onto the pallet conveyor for two to be carried into the dual filling stations.

Lids and labels are then manually placed on the filled MegaBoxes and a right angle chain/roller unit transfers the two containers off the main conveyor line, positioning them side by side for removal by fork truck.

More information - enter 108

GUTTRIDGE SERVICES

Powder conveyor equipped to control weight of discharge

A Bulkflo mobile hopper loader system equipped for close control of discharge weight was announced at the Total exhibition by materials handling specialist Guttridge.

The standard Bulkflo has been re-engineered to include load cells and a weigh controller to allow the machine to be employed for loss-in-weight and measured weight applications. This, explains Guttridge, is increasingly requested by users as mixer recipe accuracy and quality demands become more stringent.

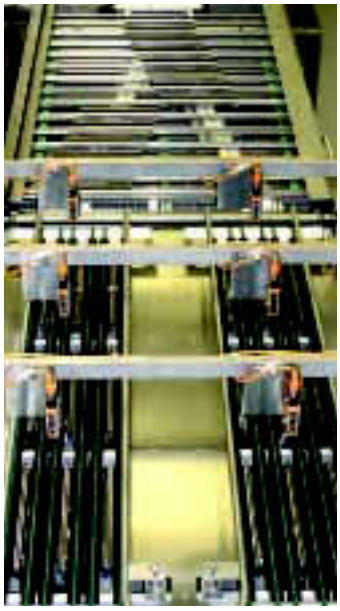
Users can now empty sacks, bags, drums and bulk bags of product into the large Bulkflo hopper and, under electronic control, feed a specified weight via the built-in elevating screw into a mixer, feeder, packaging or other processing machine.

Sugar, salt, flour, starch, herbs, spices and many other foods and chemicals can be handled while options include a check sieve and dust control hood.

Weigh cell control systems can now also be added to bulk bag dischargers and other machines in the Guttridge range.

More information - enter 109

Improved handling: *New Dawson matt top can conveyor at Barr Soft Drinks*



Diverger: *New unit from Raque*

DAWSON

Can conveyor improves product handling and hygiene

Barr Soft Drinks' Atherton factory has replaced slat band can conveyors with new matt top conveyors, designed, built and installed by Dawson to operate at a line speed of 1400 cans a minute.

The investment was justified, explains Dawson, on the grounds of reduced can damage, elimination of fallen cans, reduction of line pressure by improvement of line controls, enhanced hygiene and cleaning access, and the minimal lubrication required.

The control system is designed around a Siemens S7 PLC with Profibus inteface to SEW Drives with Movimot inverters mounted directly to the drives themselves.

An analogue interface to downstream machines gives the facility to modulate the speed of the conveyors to suit line conditions and so minimise line pressure.

More information - enter 110

RAQUE FOOD SYSTEMS SALES

PLC-controlled divergers handle up to 400 items a minute

Lane divergers and convergers built in Germany by Schreyer Sondermaschinen – including PLC controlled divergers capable of speeds up to 400 a minute – are now available in the UK from newly appointed agent Raque.

The divergers carry product on non-slip carrier plates and can be programmed to provide alternate lane diverging, to count specific numbers into each lane prior to switching, and can be linked to a bar code reader or checkweigher to allow good product to be carried in one specific lane.

Faulty items, identified by the check system, are then diverted into an alternative lane. This, says Raque, is particularly suited to high value or delicate products, which can be recovered and reintroduced into the production process.

For multiple lane applications, the PLC can also be programmed to generate alternative patterns for loading a freezer. This arrangement allows more product to be loaded on the outside of a spiral belt than on the inside, helping increase freezer efficiency.

Lane centres are adjustable to accommodate varying sized products, which may be running over the same unit.

Schreyer convergers are able to accept randomly arriving product at speeds up to 150 items a minute for each lane.

More information - enter 111

BELT TECHNOLOGIES

All-steel units allow efficient cleandown for hygiene

Food, beverage, pharmaceutical and other hygiene sensitive industries are turning increasingly to steel belts as an answer to the spread of micro-organisms, according to Belt Technologies Europe which supplies a range of conveyors in which the entire unit – the frame, supports, pulleys and belt – is made from stainless steel for efficient cleandown.

"In Germany, a number of food products once had to be recalled as they had become contaminated by the chain lubricant in the manufacturer's machinery," says Belt Technologies. "Germs and potentially harmful bacteria are attracted to the dust gathered by the lubricant grease, which can be transported and fall into the food during the manufacturing process."

Steel belts, however, are claimed to overcome a variety of cleanliness problems faced by users of conventional belts in the food industry and can be made from a number of stainless steel grades – such as 304 FH and 316 FH – which resist wash-down with corrosive fluids.

Steel belts also need no lubrication to transmit power and, points out Belt Technologies, unlike other types of belting, are totally free from particulate. They can even be cooked on, so saving processing time.

"Steel belts are not just available as flat conveyors but can also be customised in many ways to offer novel and exciting solutions to a myriad of complicated conveying problems," adds the company. "Belts can be designed with complex perforation patterns for timing, vacuum and dosing applications."

The belts can also be made with custom designed attachments – for use as timing elements, location devices or product carriers. These attachments can be riveted, screwed, welded or glued to the belts to match users' requirements.

Steel belts can also be finished with a variety of coatings to alter their surface properties, such as Teflon for non-stick effects or silicone for additional friction.

More information - enter 112

For further information on items appearing in Machinery Update*, enter the appropriate number on the free reader service card in this issue.*

All steel: *Belt Technologies conveyor uses a stainless steel belt as well*

PROPACK AUTOMATION MACHINERY

Unscrambler will load bottles into pucks

The Rototech unscrambler has been developed by Italian manufacturer Ronchi particularly to orientate and load unstable bottles automatically into pucks, although the machine can also be used as a standard bottle sorter.

Also built by Ronchi, particularly for personal care, household and medicinal products, is the Rotomatic unscrambler said to be capable of handling pre-decorated and pre-labelled bottles without risk of damage or scratching.

In addition, Propack Automation offers the Halbach HLS 700 linear sorter for caps. Two principal UK aerosol manufacturers have now standardised on the machine for handling gloss finish composite caps.

For sorting special containers or where combinations of components make use of standard machinery difficult, Propack is able to supply equipment from DMP, Germany, which specialises in sorting, orientating and assembly machines. UK installations include units for sorting caps, discs, collars, bottles, tubes and twist-up components.

DMP also supplies sorters for pumps, brushes and spatulas as well as building special purpose machinery.

More information - enter 113

KRONES UK

Discharge unit guides bottles into formation to avoid toppling

Krones has announced a new system for preventing PET bottles toppling as they are discharged from high speed filling machines.

The Deltaliner, which uses delta-shaped rails to guide containers into a stable formation, is said to avoid many of the problems of existing systems while costing less and also taking up less space.

"In terms of container conveyor design, the discharge areas of bottling machines have increasingly been identified as the weak point," explains Krones UK. "As the containers exit the machine in spaced single file, they have to be guided into a flow pattern, which has required some

elaborate design features and a considerable amount of space.''

To prevent bottles falling over, their speed has to be reduced gradually. However, as Krones UK points out, one particular method – offsetting the containers sideways to create a formation – brings problems.

''Pressure is exerted on the elastic containers, which compresses them like a spring. The energy released when the spring is distressed causes the container to accelerate so that it breaks away to the side and, too often, falls over.

''When the bottling process does not feature any internal pressure, for example still water, the compression effect is substantially stronger. The containers do not move into an offset pattern, but are strung out like a long row of pearls on a necklace.''

Other pattern-forming methods – which similarly aim to achieve the mutual support effect of adjacent bottles – have still left the machine discharge as one of the weak points in the line, says Krones UK. ''This is particularly true when there are problems involved in rejecting fallen bottles, and these are causing the line to malfunction.''

The new Deltaliner module is said to avoid many of the problems above.

Bottles arriving in single file are passed between two delta-shaped rails in a special configuration with careful gradations of chain speed. This not only offsets the containers, but also presses them into a stable formation, supporting each other to avoid toppling.

''Within a minimal distance, a three or four-bottle formation is created in this unit,'' explains Krones UK. ''The speed when handling PET containers is up to 50,000 bottles an hour, depending on the shape involved.''

The Deltaliner is also suitable for lines handling both PET containers and glass bottles and can cope with rectangular, radiussed corner PET bottles.

More information - enter 114

Servo controlled: *TNA Roflo distribution system employs horizontal motion conveyors*

GAINSBOROUGH CRAFTSMEN

Sausage collating machines will handle up to 600 a minute

Gainsborough Craftsmen has developed a range of machines that collate groups of individually cut fresh sausages and load them directly into the infeed of a variety of different wrapping systems, at speeds up to 600 a minute.

The AISL 424 model loads products into bunch or flow-wrap style machines while the AISTL 424 has an integral tray denester to collate and load sausages in single or multiple layers directly into the waiting tray. Once loaded, the tray is sent to a tray sealer or overwrapper.

Gainsborough Craftsmen says that as well as the savings made from reduced labour for packaging – with the product untouched by human hand from production through to packing – the individual sausages are much more convenient for consumers to handle.

More information - enter 115

TNA EUROPE

Servo drive for distribution system allows fine tuning

The Roflo distribution system now available from TNA Europe employs horizontal motion conveyors that are driven by servo motors, rather than the conventional mechanical drives, linkages and counterweights.

As a result, the conveyors are able to stop, start and reverse instantaneously at a variety of velocities, acceleration and deceleration rates, and with variable stroke lengths up to 127mm, rather than operate on fixed values and stroke lengths.

Servo drive also allows the power of the system to be adjusted to give only the force required to carry out the task. Where vibrating feeder systems typically operate at accelerations of 5-5.5G, the Roflo operates at a maximum acceleration of less than 0.8G, reducing the force on the product and conveyor structure to 15 per cent of that applied by vibrating feeders.

TNA points out that horizontal motion conveyors – which use differential horizontal movement of the tray, with a slow advance and rapid retraction to move the product forward – produce less noise than vibratory conveyors and also provide more delicate handling.

This means that product-on-product agitation is eliminated and with it the cause of most flavour and coating loss.

Servo drive also allows the system to be programmed for different products and different movements and to maintain the flow rate automatically, using product level sensors.

More information - enter 116

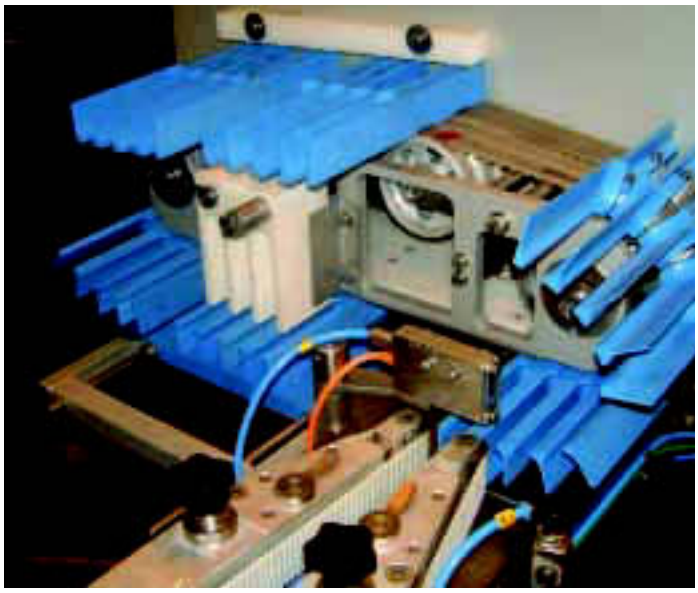
PLANET FLOWLINE

Rotary range of unscramblers can handle 50,000 an hour

Latest unscrambling systems from Italian manufacturer Fava – represented in the UK by Planet Flowline – are capable of handling PET bottles at speeds in excess of 50,000 an hour.

Most of the company's machines are rotary designs to suit a wide range of applications including beverage and pharmaceutical industries.

For example, the Fava Model



Feeding sausages: *Gainsborough unit runs at 600 a minute*

PB557 rotary unscrambler uses two counter-rotating discs operating in the horizontal plane to increase line efficiency and eliminate potential for jamming.

Up to three segments on each disc can be used for bottle drops which, says Planet Flowline, enables high speeds to be achieved in a relatively compact area.

More information - enter 117

WRIGHT MACHINERY

Mini feeders are designed for ease of installation

A range of mini vibratory conveyors designed specifically to fit easily on packaging machinery to feed powders, granules, hardware items and small components has been announced by Wright Machinery.

The new Flowright MiniFeeder vibratory conveyors are built with a shallow profile for ease of installation while drives and controls are sealed to IP54 specification to resist ingress of dust and dirt. Vibratory trays can be made as shallow as 25mm and just 25mm wide where space is particularly restricted.

Applications cover a broad range of packaging machinery in the food and chemical industries, particularly installations handling powders or granules that tend to agglomerate and require vibration to feed at a steady rate.

Vibratory feeder: *Flowright Mini-Feeder from Wright Machinery*

Further industrial applications include feeding weighing or counting machines with hardware items such as fasteners or washers, curtain hooks and so forth.

The feed rate can be operator controlled, or adjusted automatically in response to demand from the host machine. Alternatively, the Flowright MiniFeeder can be mounted on load cells and deliver at a pre-set rate, operating on a loss-in-weight basis.

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DOYEN MEDIPHARM

Conveyor will count and stack products in shingled piles

Counted stacks: *Doyen Shingling Conveyor*

Diverting system: *CSi switch sorter handles 30 items a minute*

Doyen's servo driven flat belt Shingling Conveyor accurately shingle-stacks products in user selectable counts.

Mounted at the discharge of a packaging machine, the unit counts a pre-defined number of products, advancing a small amount for each, to give a shingled stack of product that can be easily collected manually.

The count is achieved via the use of a photocell at the front of the conveyor. Each product is counted as it passes the photocell, and the conveyor advanced a small amount before the next product is stacked, so giving the shingled effect.

When the correct number of products in a stack is complete, the conveyor advances to leave a space and then starts the next stack.

Spacing between each shingled product and each group of products can be easily selected by the operator via three controls.

These are: count, the number of products required in a stack; slow speed, the degree of shingling; and high speed, the interval between stacks.

More information - enter 119

CSI UK

Modular pallet conveyors have integrated control system

The I-veyor range of standardised and modular pallet conveyors introduced by CSi allows any pallet transport system to be created, while the integrated controls are said to provide considerable cost and time savings during the design, installation and commissioning stages of a new system.

Control is via a standard cabinet, equipped with an industrial PC and a touch screen, which is able to control 40 conveyor modules.

For communication with higher level control systems, the PC has a standard Ethernet connection while all sensors are connected to the control cabinet by the 'plug and play' field wiring, so that additional sensors can be easily added.

Standard, field-proven software modules are employed and PLC programming has been replaced by configuring the layout and defining the material flow.

Software is real time, multi-tasking and event driven, which is said to guarantee high system availability, and includes product tracking and tracing functions as standard.

All motors are frequency controlled (Movimot) providing soft start and stop in combination with adjustable speeds, so that unstable loads can also be handled at maximum capacity.

CSi points out that the high level of standardisation means that only a limited number of spare parts are required.

More information - enter 120

CONVEYOR SYSTEMS

High speed switch sorter diverts 45deg to left or right

Conveyor Systems' new high speed pneumatically operated switch sorters can divert to left or right at 45deg, handling a wide range of products from as little as 200mm square at speeds of 30 items a minute.

Applications include high speed sorting in distribution and mail order as well as pallet handling.

The units can be slave driven directly from any existing main lineshaft conveyor and are said to be particularly quiet in operation as a result of the smooth rubber sortation wheels.

More information - enter 121

WIRE BELT CO

Turn belt for small items is quick and easy to clean

The Series 380 Flex-Turn launched by Wire Belt's ConveyorTec division has been developed to meet demand for a turn belt to cope with small delicate food products and be quick and easy to clean.

It features an 800mm inside radius belt, made from 1.6mm diameter wire, that provides a tapered mesh with pitches from approximately 6.5mm at the inside radius and up to 10.5mm at the outside. This means that even small products can be handled across the full width of the belt while still providing an open structure for cooling, washing or draining.

Initially available in belt widths of 400, 600, 900 and 1000mm, the 380 Flex-Turn handles loads of up to 9kg/m^2 at standard belt speeds variable between 3 and 11 metres a minute at the inside radius. The unit can be supplied with custom angles and any height can be specified.

Other features include an easy-to-clean hygienic open design, hose proof motor, and stainless steel and polyethylene components.

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