

CONVEYORS

and mechanical handling

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

GUTTRIDGE SERVICES

Feeding system streamlines tea bag lines for Premier Foods

Premier Foods has moved its tea bag production from Edinburgh to Moreton, Merseyside, and taken the opportunity to streamline the work with new product feeding equipment for the bag making machinery.

Guttridge Services has supplied eight bulk bag dischargers and 11 Easyflo mobile screw elevators – its biggest single order for this type of equipment – to deliver traditional Typhoo Tea and fruit and herbal varieties to a string-and-tag and round tea bag production line.

“The Guttridge equipment provided an ideal solution because it is adaptable and can be thoroughly cleaned to prevent product cross-contamination when we change production from one tea variety to another,” explains Premier Foods engineering projects manager Dave Berry.

“Maintaining product quality is obviously essential and the Easyflo’s solid screw system has inherently gentle handling characteristics because there is no contact between the screw and the tube,” he adds.

“This means there is no loss of flavour or fragrance from the ingredients during the transfer of the tea from the bulk bags to the packing machines.”

Tea is mostly delivered to the



Feeding tea: Guttridge elevators at Premier Foods



Raising cases: Astec conveyors were chosen by Georgia-Pacific

Moreton plant in 200 and 400kg bulk bags. However, some herbal teas are delivered in 25kg bags and the Easyflo’s built-in sack support table allows it to be easily reconfigured to take hand tipping.

Easyflo elevators installed at Premier Foods also incorporate reclaim chutes and special interlocked, quick release safety spouts that allow operators to run the machines in reverse and reclaim residual tea at the end of production runs.

“The Easyflo’s 70-degree inclined elevating screw means it can operate close to packaging machines, leaving more space for forklift trucks to manoeuvre,” points out Peter Lambert from Guttridge Services.

T: 01775 765300

E: sales@guttridge.co.uk

ASTEC CONVEYORS

Spiral conveyors transfer cases to upper level palletisers

Astec Conveyors has supplied Georgia-Pacific with two spiral conveyors for its Horwich factory, to take completed cases from the case-packing machines to palletisers at an upper level.

Inclined belt conveyors were ruled out since the incline would have been too steep and product slippage could have occurred. Instead, the two Astec spiral conveyors – one three and one three-and-a-half turns – provide continuous, smooth vertical

transfer of product in either direction, operating from a small footprint.

According to Georgia-Pacific project manager Paul Sculthorpe the principal benefit of the Astec spiral conveyor is that unlike other slat bed conveyors the slat does not run on a wear strip.

“This means that there is no additional friction created when the conveyor is subject to load by the product being carried,” he points out.

Each spiral conveyor only needs one drive which, says Astec, allowed it to demonstrate substantial savings in controls and systems integration to Georgia-Pacific. Maximum speed is 60 metres a minute.

T: 01283 210333

E: sales@astecconveyors.com

CONVEYOR SYSTEMS

Case delivery system includes orientation for packing

Conveyor Systems (CSL) has supplied a major UK distillery with a new conveyor system to link the existing supply of empty cases to new case-packing equipment, also providing flexibility for packing short runs by hand and the capacity to turn some cases 90deg into the correct orientation for case-packing.

The new case-packers were installed to handle bottles from 350ml to 1.50 litres at speeds of 35 cases a minute and load various six and 12 bottle cases. The smaller case has to be turned to long edge leading before packing, which is achieved with twin speed multi-slat band conveyors that provide a combined braking and slewing action.

CSL director Steve Graham says that while this turning concept is simple, the expertise in balancing slat-band speeds to ensure continuously accurate presentation of various sized cases, particularly when turning from short to long edge leading, is an "engineering art".

Existing empty case supply conveyors are set at high level in the distillery and CSL elected to replace an elevating belt conveyor with a continuous running, stainless steel side grip lowerator. This adjusts to suit different case sizes and carries the empty cases down 3.4 metres onto a roller conveyor at ground level.

The roller conveyor can either be driven, as part of the automatic case-packer feed system, or changed to gravity operation when packing is carried out by hand.

Cases are then pitched correctly by a two speed accelerator belt, pass into the turning section and into the case-packer.



Turning cases: CSL system feeds case-packers at distillery



Track feeder: Twenty-lane machine from AGR

Filled cases are re-pitched on an accelerator belt before being turned and realigned, if necessary, to short edge leading for ink jet coding, checkweighing and sealing.
T: 01283 552255
E: sales@conveyorsystemsLtd.co.uk

GAINSBOROUGH CRAFTSMEN

Food sticks orientated for head-to-toe packaging

Gainsborough Craftsmen has built a system to orientate two dry food sticks, which are moulded following an extrusion process. The products are flow-wrapped in pairs and need to be orientated 'head to toe' in the packaging.

Individual products exit a bowl feeder down a conveyor at speeds up to 150 a minute, in single lane, narrow-edge leading. A series of sensors detect their orientation and incorrectly positioned items are turned 180deg by air jets.

The products are then brought together automatically, in pairs and loaded once again automatically into the flighted infeed section of the flow-wrapper.

T: 01427 613994
E: solutions@gainsboroughcraftsmen.co.uk

AGR AUTOMATION

Feeders handle plastic tubes and difficult products

A fast-changeover feed system for plastic tubes of different size and a multi-lane vibratory feeder for products that could not be handled via a conventional bowl feeder are among recent bespoke parts handling systems devised by AGR.

The plastic tube feeder was developed for a Swedish OEM which required a system to handle 100 and 200ml tubes in the same feeder with a changeover time of less than 15 minutes.

The solution was to develop the larger version of the AGR Rotafeed centrifugal feeder to allow a fast changeover without the need for tools. "We are unaware of any other rotary feeder having this feature where two products of different diameters are being fed." says AGR.

The second system was developed after AGR conducted feeding trials on a new product to be launched by an American company. Despite intensive work by AGR and the customer, the product could not be fed in a conventional bowl feeder.

So AGR used its Autovibe vibratory system to power a 20 lane vibratory track which, over several stages, separates and orientates the parts and presents them to an integrated six axis robot.

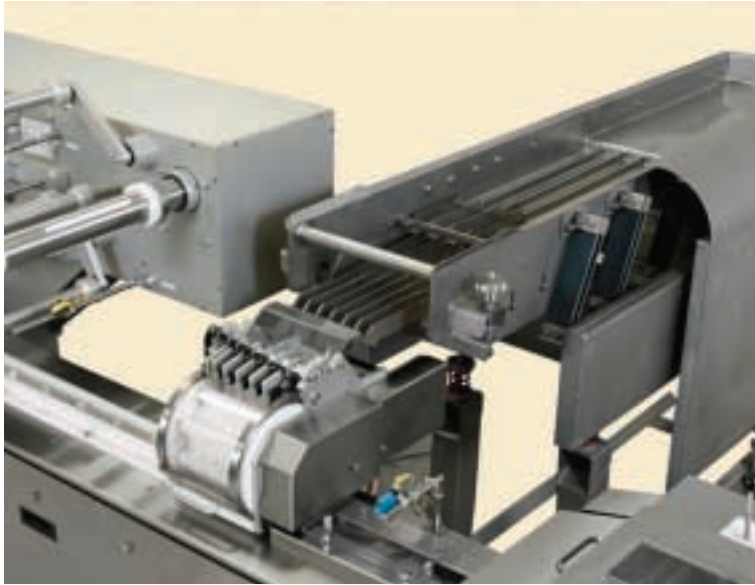
The Autovibe vibratory system was developed by AGR to drive a range of bowl and linear feeders and linear tracks and is controlled via a digital controller with continuous closed loop feedback utilising an accelerometer.

The latest Autovibe composite spring blocks – the heart of the system – can also be used to replace or upgrade previous versions of AGR blocks, which employ steel springs and fixed frequency controllers.

Indeed, in a recent retrofit of blocks and controllers, on a line packing a plastic part at 200 a minute, AGR demonstrated a reduction in noise to below 75 decibels and, says the company, improved output sufficiently to allow a shift to be stood down.

T: 01241 872961
E: agr@agr-automation.com

Machinery Finder:
PPMA.CO.UK
PPMA UPDATED DAILY



Placing doughnuts: Delta drum loader delivers sets of six for wrapping

INTEGRAPAK

Doughnut drum feeder attracts orders for 25 wrapping lines

US manufacturer Delta Systems has now delivered 25 fully integrated flow-wrapping lines equipped with an automatic on-edge feeding system for mini doughnuts, following the success of the prototype installed in 2001 at the Sara Lee Bakery group plant in Paris, Texas.

The system employs a continuous motion rotary drum loader that accepts doughnuts from a vibratory infeed conveyor, then rotates to deposit them onto a lug conveyor for wrapping.

At Sara Lee, the Delta line replaced a manually loaded wrapper fed with product that was counted and sorted by hand, and requires only two operators: one at the wrapping section, another upstream near the vibratory conveyor.

According to Delta – represented in the UK by Integrapak – the machine was approved during a three-day test period in which it produced upward of 100 six-doughnut packs a minute, operating at 98 per cent efficiency.

The system now runs two 10-hour shifts a day, five days a week, packing mini doughnuts in chocolate, powdered sugar, and cinnamon varieties.

At the Paris plant, doughnuts are delivered from processing areas on a belt conveyor into the first section of the Delta vibratory conveyor.

Product is then conveyed into a second section where the doughnuts continue through stainless steel dividers that separate them into six lanes.

Just downstream, the conveyor narrows in width, forcing doughnuts in each of the six lanes to shift from horizontal to vertical.

Photocells sense six doughnuts as they progress into cavities on the drum, which is shrouded to retain the products as it indexes through 90deg and delivers the six onto card bases.

These are cut from reelstock at the beginning of the line and carried in the lugs of the conveyor.

This takes the collation to the infeed of the wrapper where side pin lugs in the fin-seal area and the conveyor's side rails help hold the doughnuts in place as the leading and trailing lugs retract. The flow-wrapping process then begins.

T: 01420 593680

E: integrapak@integrapak.co.uk

FP PACKAGING MACHINERY

Transfer unit links to wrapper for labour savings

FP Packaging Machinery has linked a single polycord conveyor unit, with automatic transfer for frozen vegetable patties or burgers in singles, and stacks of two or three, to an existing 80-a-minute flow-wrapper at Goodlife Foods, Warrington.

This simple electronic timing transfer unit has enabled Goodlife Foods to eliminate the need for operators to feed the vegetable patties or burgers into the infeed of the wrapper, giving a fast payback for the investment. The small footprint of the unit also meant that the unit could be fitted into the existing factory layout.

Although originally designed for transferring trays into flighted conveyors the polycord conveyor has shown itself well suited to naked products and, says FP, could equally be used in a wide variety of applications involving feeding into flighted conveyors.

T: 01483 532811

E: sales-freezepak@btinternet.com

CSI UK

Modular units incorporate 'plug and play' field wiring

The I-veyor range of modular conveyors from CSI allows any pallet transport system to be created and controlled from a standard cabinet, equipped with an industrial PC and a touch screen monitor.

One control cabinet is able to control 40 conveyor modules and is available with a standard Ethernet connection for communication with higher level control systems.



Transfer: FP system for Goodlife Foods

All sensors are connected to the control cabinet by 'plug and play' field wiring enabling additional sensors to be easily added. The conveyors have integrated cable-trunks for the fieldbus I/O and power cables.

Standard software modules only need to be parametrically configured, while PLC programming has been replaced by configuring the layout and defining the material flow.

All motors are frequency controlled, providing soft start and stop in combination with adjustable speeds so that unstable loads can also be handled at maximum capacity. The roller conveyors are built in stainless steel with standard guiding disks for pallet guiding.

T: 01276 686862

E: johnstillman@csiweb.nl

SYSPAL

Combiner works in line to create and pitch a single lane

Syspal's Transverger is said to provide a cost effective, fast and reliable alternative to peg and belt converging conveyors for combining items from a multi-lane



In line converging: Syspal system employs 90deg turn onto main conveyor

infeed into a single stream.

The machine employs intelligent speed control to manage the outfeed from upstream equipment and employs an index facility to transfer product through 90deg, so avoiding the need to turn and separate items mechanically.

There is also a final speed-up section to separate packs prior to downstream operations such as metal detection, checkweighing and labelling.

Syspal says that tests conducted in a production environment have shown the Transverger to have increased production line efficiency by 45 per cent compared with other methods.

T: 01952 883188

E: sales@syspal.co.uk

F JAHN & Co

Compact unscrambler for plastic bottles

A new in-line unscrambling system for lightweight plastic bottles has been launched on the UK market by F Jahn, recently appointed agent for the Spanish manufacturer PackFeeder.

In effect, the PackFeeder allows the bottles to unscramble

themselves in linear transit through the machine, by using the centre of gravity of the container to place it gradually into a vertical position.

The PackFeeder machine is compact and entirely mechanical in operation with no compressed air required. Changeover for different bottle sizes is said to be simple and quick with no tools required.

T: 020 8977 8822

E: sales@f-jahn.co.uk

SEWTEC AUTOMATION

Air conveyor range carries cartons at high speed

Specialist machine builder Sewtec has introduced a range of air conveyors particularly suited to handling cartons at high speed.

The conveyors can be supplied in any length and layout, including horizontal, inclined or vertical configurations, and in lines that turn through angles up to 90deg.

Operating with the use of electric fans and air ducting systems, the conveyors are said to provide high speed yet gentle handling, which eliminates product scuffing and associated damage.



Air conveyor: Sewtec's new system handles cartons at high speed

Further conveyors from Sewtec include standard packaging belt conveyors, swan neck conveyors, slat bands, large product conveyors, converging/diverging conveyors and systems to handle naked products.

T: 01924 494047

E: sales@sewtec.co.uk

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 Raque.

The divergers carry product, detected via photocell, 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.

T: 01905 642820

E: sales@raque.co.uk

DOYEN MEDIPHARM

Conveyor will count and stack products in shingled piles

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.

T: 01223 264300

E: sales@doyenmedipharm.co.uk

BDL DRUM MOTORS (UK)

Drum motor drives suit range of modular plastic belting

Conveyor drum motor drives now available from BDL are able to operate with virtually all makes of modular plastic belting, providing what is said to be a cleaner and quieter running alternative to traditional chain-sprocket and belt driven conveyors.

Standard drum diameters of 82, 113, 137 and 164mm are completely covered on the face with special polyurethane or rubber lagging, which gives optimum contact and drive, and is profiled to suit suppliers' modular belts.

With over 170 modular plastic belt drive profiles available, BDL is also able to offer additional design features in order to suit individual applications, such as



Drum motors: BDL units suit plastic conveyors

stainless steel or acetal sprockets.

T: 01536 408899

E: uk@bdldrummotors.com

WRIGHT MACHINERY

Vibratory weigh conveyor cuts maintenance and cleaning

A weighing conveyor based on the vibratory principle has been developed by Wright Machinery as a low maintenance and easy clean alternative to systems that use conveyor belts to handle dry, free-flowing products. It has no moving parts and is built in stainless steel to IP65 standards for wash-down.

Applications for the new Weighwright conveyor include a variety of mass flow measurement tasks in processing and packaging, such as filling lines on which dry product ingredients are dosed separately, and in automatic control of continuous processes such as drum coating where flavours are added in proportion to product feed rate.

It also provides opportunities for improved process control in complex systems, particularly those in which balanced outputs of different products are required.

The Weighwright conveyor

employs a geometry that allows only the product, rather than the conveyor, to be measured directly by the weigh cell, giving accuracies said to be repeatable to better than ± 1 per cent of the product weight being transferred.

As a result of this design, the unit is also able to operate for extended periods without tare weight adjustment, and is unaffected by ambient temperature fluctuations in the range 0-50deg C and product temperatures in excess of 100deg C.

"The Weighwright provides hygiene and low maintenance, with no belts, motors and rollers to track, clean, or repair," points out Wright Machinery sales manager Mike Reed. "It also resists product build-up during operation, which maintains accuracy."

The new unit is now also used in Wright Machinery's Integrated Seasoning System for products such as snacks, cereals, cookies, crackers and biscuits, monitoring the weight of incoming product and adjusting the dose rate of powder or liquid additives in proportion. Flavour application accuracy is said to be better than ± 0.30 per cent and salt application better than ± 0.10 per cent.

Three versions of the Weighwright are available, to handle



Easy to clean: Weighwright vibratory weighing conveyor

feed rates of 50-650kg/hour, 400-1200kg/hour and 750-3000kg/hour, depending on product bulk density.

T: 020 8842 2244

E: general@wright.co.uk

BLUEPRINT AUTOMATION



Bulk product feeder separates and orientates

The RPF Rainbow Feeder from BluePrint Automation accepts bulk product such as sachets, bags or flow-wraps, then separates, orientates and pitches each item for feeding to a packaging machine. Speed is up to 200 items a minute.

T: +31 348 410999

E: sales@blueprintautomation.nl

New web directory:

www.PackCentre.info

for all products and services



Aero-mechanical or flexible screw?

AERO-MECHANICAL AND FLEXIBLE SCREW CONVEYORS BOTH OFFER AN EFFECTIVE MECHANICAL MEANS OF CONVEYING POWDERS AND GRANULES. THE TWO ARE QUITE DIFFERENT HOWEVER, AND CHOOSING BETWEEN THEM DEPENDS ON A NUMBER OF DIFFERENT FACTORS. BOTH TYPES ARE MADE BY SPIROFLOW, WHICH OFFERS THIS RUN-DOWN ON THEIR CAPABILITIES.

Flexible screw conveyors are the simplest and lowest cost solution for a host of applications and consist of a stainless steel spiral rotating within an ultra-high molecular weight polyethylene food grade tube. This type of conveyor suits materials with a bulk density up to 2.5kg/litre and can carry product to a maximum distance of 20 metres, although multiple, linked units can extend to greater distances as required. Maximum throughput is 40 tonnes/hour on Megaflow models.

However, as the angle at which the flexible screw conveyor operates becomes steeper, throughput will diminish, at a rate that depends on the nature of the material. The reduction is caused by fallback of material down through the centre of the spiral, which can be checked by the provision of a central core or tube. Single flexible screw conveyors up to 6 metres long can then be used in the vertical.

The term 'flexible' means that the conveyor can be curved to some extent, depending on the tube diameter of the model used. This offers some installation flexibility when conveying around obstacles between the inlet and outlet.

The spiral itself has a round cross-section in most applications but a flat or profiled version can be used for cohesive or fine materials.

It is also desirable to have a generous head of material in the feed hopper, as this assists the elevation of material on start-up. Indeed, this type of conveyor is designed to run full of material as empty running will lead to

excessive noise and wear.

So flexible spiral conveyors are ideal for transferring material from storage to weigh hoppers or a process but not for transferring pre-weighed batches of material



where total transfer is required.

The main advantage of the flexible screw conveyor is its inherent simplicity offering low cost, quick installation times, easy cleaning and low maintenance.

USDA/3A accepted designs are available for pharmaceutical use, which enable the whole system to be stripped down for cleaning in minutes.

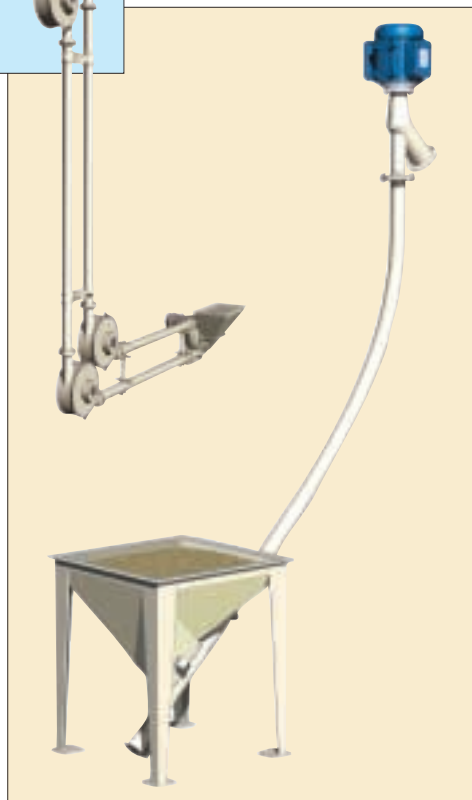
Wear is only a problem with very abrasive products – life with other materials is almost indefinite. Tubes and spirals can be easily replaced.

Aero-mechanical conveyors

The aero-mechanical conveyor has the more descriptive name of a 'rope and disc' conveyor. It provides an effective means of

'mechanical pneumatic conveying' and is not to be confused with drag link conveyors, which operate at much lower speeds. A continuous rope, with a series of equally spaced discs secured to it, travels through a delivery and return tube circuit at high speed.

This type of conveyor is well suited to horizontal, inclined or vertical conveying up to 25 metres



System choice: Top: Aero-mechanical conveyor. Above: Typical flexible screw conveyor

However, the aero-mechanical conveyor does not need a cyclone or filter to separate the product from the air, since the air carrying the material is not expelled at the outlet. The material is centrifugally separated from the air at the outlet and the unloaded air current is drawn back down the return section of the tube and retained in the tube circuit.

Typical maximum rates of throughput are: oats 40 tonnes/hour, milk powder (26 per cent fat) 20 tonnes/hour and granulated sugar 80 tonnes/hour.

An aero-mechanical conveyor should always be started empty and the introduction of product has to be regulated by a slide plate, rotary valve or other means to ensure optimum performance.

However, unlike flexible screw conveyors, aero-mechanical conveyors can be used to transfer batches of pre-weighed material as they are self emptying – ensuring everything that is fed in at the inlet is then discharged at the outlet.

Maintenance needs are moderate. The rope must be tensioned occasionally. Rope life depends upon conveyor length, the number of starts and stops, loading density and whether routine inspection and tensioning are properly performed.

T: 01200 422525

E: info@spiroflow.com

with no loss of efficiency in the vertical.

Another major advantage is that degradation of the material is almost negligible. This is because the system creates a moving current of air in which the material is carried – similar to the effect of a vacuum or pneumatic system.

