

CONVEYORS

and mechanical handling

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

TRANSNORM SYSTEM

High speed divert/merge for horizontal or vertical duties

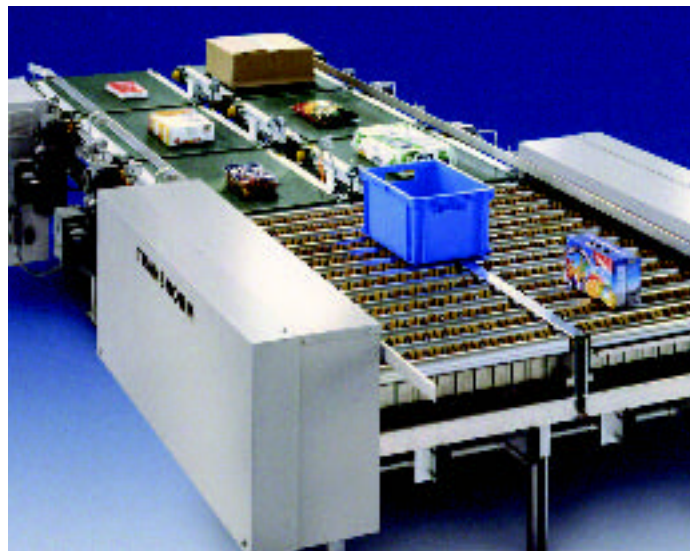
Two high speed divert/merge units are now available from Transnorm System – the horizontal SmartSort capable of 6000 items an hour, and the vertical VertiSwitch capable of 3000 items an hour, both from mixed infeeds.

Both can be supplied as a 'plug and play' module, with intelligent queuing belts to ensure synchronisation between merging product. Drives and controls form part of the module, which is fully wired using a bus system and includes a PLC to interface with the user's existing conveyor controls.

Items from 20 to 600mm high with a footprint of 100 x 200mm to 500 x 800mm can be identified and routed.

In the horizontal SmartSort, the divert/merge function is carried out on a bed of independently controlled rollers that allows the flow of product to be separated or brought together smoothly at an angle that suits the speed, size and fragility of the pack.

One of the first machines to be installed in the UK has now completed 12 months in operation at a major soft drinks filler. However, shortly also to be available is a system that will allow items such as cases to be diverted at 90deg in either the



Transnorm System: SmartSort 'plug and play' divert/merge system

same orientation or at right angles to suit downstream operations.

The vertical VertiSwitch is aimed at operations where floor space is limited and employs a luffing conveyor to take products up to a higher conveyor, down to a lower conveyor or allow them to continue straight through.

To maintain high speed, the upper and lower receiving conveyors are also equipped with a luffing facility. This allows them to dip down or up at product transfer, meeting the infeed halfway to release it early for the next cycle.

Transnorm System points out that the 'plug and play' feature of both the horizontal and vertical SmartSort means that expensive on site software engineering is not required and that the fully run and tested unit can be rapidly installed and commissioned.

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PLANET FLOWLINE

Unscrambler can be adjusted automatically for size change

Italian manufacturer Fava Artemio has launched two new bottle unscramblers, one with an automatic changeover system that allows the operator to change from one container size to another at the touch of a button, with no need for change parts.

This machine, the model 2050 AP, accepts containers in selectors on a rotary carousel via a counter-rotating cone, as with other machines of its type. However, containers can enter the vertical selectors either base or neck first which, says UK representative Planet Flowline, improves the selection efficiency.

Once in the selector, the pincers

softly adjust to the pre-set bottle dimensions and a camera detects upside down bottles, which are then rotated 180deg before being released onto a discharge conveyor. This conveyor also automatically adjusts to accommodate different sizes of container.

The 2050 AP has a running speed of 15,500 bottles an hour, based on a 330ml bottle.

The second new unscrambler from Fava is the model 1600E, a low priced entry level machine capable of speeds up to 17,000 containers an hour when handling 100ml bottles.

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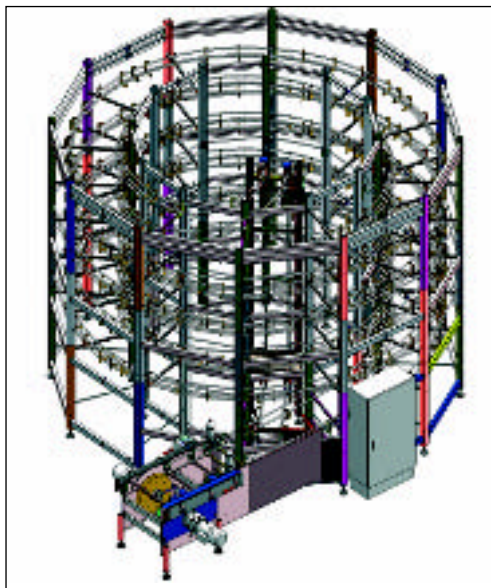
ASTEC CONVEYORS

Combiner-divider controls checkweighing of soft fruit

An Astec Pathfinder combiner-divider is at the heart of a loop system designed by the company to transfer punnets of soft fruit through a checkweigher and then on to lidding and labelling, via weight correction stations if required.

Product is loaded into punnets of 80 x 130mm to 140 x 200mm and, as a norm, conveyed around the system at 80 packs a minute, although variable speed control is provided.

The punnets are checkweighed, and correct weight packs are allowed to pass straight through the



Krones: Accutower buffer system



Conveyor Systems: Empty case feeding system for Chivas



FP Packaging: Transfer conveyor

Pathfinder to lidding and labelling. Under and over weight punnets are diverted to inner and outer loops respectively for correction by hand before being returned into the system.

Astec says the system has improved both the speed and accuracy of the packing operation.
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KRONES

Tower buffer system provides pressure-free accumulation

The Accutower buffer system developed by Krones employs an endless chain in a vertical spiral to provide pressure-free accumulation in the minimum amount of floor space.

The chain, which supports containers on plastic carrier plates, is arranged in a coaxial double spiral and provides a variable buffer length through the use of a transfer carriage between the infeed and discharge.

Two frequency-controlled motors drive the chain at the infeed and discharge. If both drive units, responding to upstream or downstream machines in the line,

are operating at the same speed, the transfer carriage inside the spiral remains in the same position.

In that case the effective buffer length remains unchanged. However, if the infeed and outfeed speed differ, the transfer carriage moves up or down, increasing the buffer length available or reducing the length as containers are fed back into the line on a first-in/first-out basis.

The Accutower can be built in a height to suit the installation and is able to work typically at speeds up to 50,000 containers an hour on a 500ml bottle of 68mm diameter. It will handle most types of rigid pack such as glass bottles, PET bottles, cans, cartons and shrink-wrapped trays.

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CONVEYOR SYSTEMS

Empty case feed lifts packing ergonomics for Chivas Regal

A new case feeding system installed by Conveyor Systems at the Chivas Newbridge plant has improved ergonomics for the packers of Chivas Regal whisky

and allowed output to increase.

It replaces a single high level skate wheel conveyor feeding a wide range of empty six and 12 bottle cases, flaps up, from the case supply point down to the bottle feed line for packing by operatives located on either side of the line.

This required the packers to reach across the roller conveyor on which cases are loaded to pick an empty case from the high level central feed conveyor, set 1.5 metres above floor level.

Instead, Conveyor Systems has provided a purpose designed system and integrated this into the existing feed line, diverting cases down two chutes either side of the hand packing line.

An intelligent bi-directional pusher developed by the company provides an even flow of a wide variety of empty cases down two stainless steel chutes, set either side of the bottle feed line. This presents the cases at a much more accessible height for the packers.

"The new case feed system has improved the ergonomic layout, which has resulted in an improved packing process for operatives and in turn speeded up operations," says Martin Devine of Chivas. "Although the cases are light and easy to handle, the operatives have

welcomed the positioning of the new chutes as this has removed the need to stretch in order to access the packaging."

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RNA AUTOMATION

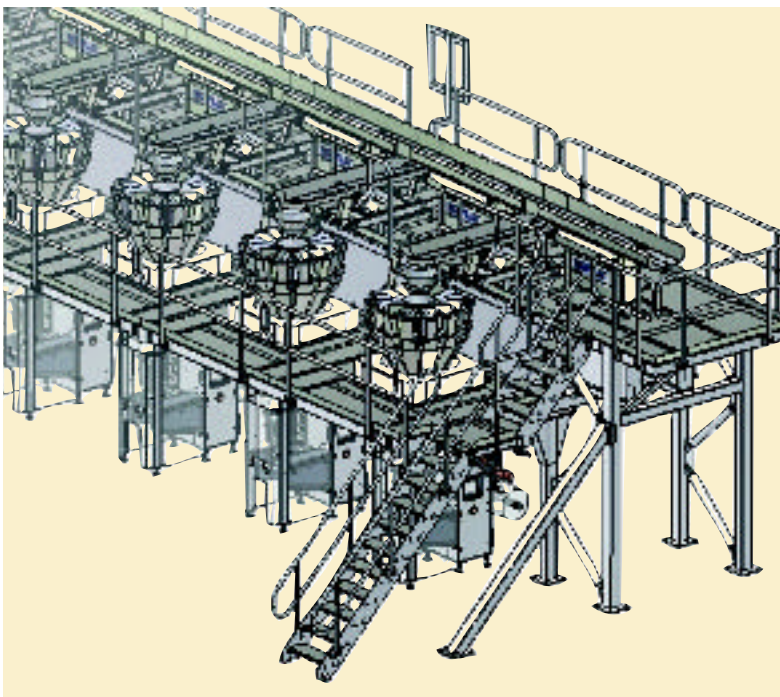
Feeder will handle small flow-wraps and sachets

RNA Automation has entered the market for machinery to orientate and feed small flow-wraps and sachets with a new sorting machine that presents wooden skewers in bags and sachets of mustard or curry sauce to a pick and place robot.

The bags are then placed on the outer packaging of a ready meal.

The new RNA machine consists of two multi-track linear sorters fed with product from large volume vibratory hoppers. Bags and sachets are orientated lengthways on the sorting tracks – with double-lying products corrected – and delivered onto common outlet conveyors.

RNA points out that it is essential for the operation that a minimum quantity of product is available on the conveyors in a



TNA Europe: RoFlo conveyors feeding TNA Robag bagging machines

defined frame area that can be recognised by the vision system guiding the robot. Bags must not overlap or touch.

Feed rate is 120 bags a minute and any bags that are not taken up by the robot system are returned to the vibratory feed hoppers.

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F JAHN & CO

Unscrambler operates by using bottles' centre of gravity

Spanish manufacturer PackFeeder has launched a new concept in plastic bottle unscrambling.

The PackFeeder system allows the empty bottles to unscramble themselves as they pass in-line through the machine, by using their centre of gravity to bring them gradually into the vertical position.

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

Recently appointed UK agent F Jahn & Co claims that the PackFeeder machine gives users a

simple, efficient and cost-effective solution to the problem of transferring lightweight plastic bottles onto a continuously moving conveyor.

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TNA EUROPE

Servo driven conveyor uses less force than vibratory units

TNA's latest Roflo horizontal movement conveyor system is built on a modular basis and requires no discharge gates, which gives easy cleaning and is said to reduce product breakage through reduced drop height into the crossfeeder, give faster product transfer and require less maintenance.

The modular construction means that there are common, interchangeable parts across the system and extra pan sections or lengths of conveyor can be added readily.

Pans themselves are now built in a double skin construction, concealing the reinforcing sections and making exterior cleaning easier, while drive is via servo motors.

This, says TNA, means the drive

can be set to provide just sufficient force to move the product and that maximum acceleration is under 0.8g, against the 5-5.5g typical of vibratory feeding systems.

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FP PACKAGING MACHINERY

Transfer unit links to wrapper or cartoner for labour savings

FP Packaging Machinery has designed and supplied a transfer conveyor system that gates and times products directly into the infeed flights of packaging machines, particularly flow-wrappers and cartoners, eliminating manual loading.

The first machines were supplied for sliced ham shingled into a tray automatically presented to the cutting machine, with the filled tray conveyed and automatically transferred into a horizontal packaging machine.

Subsequent machines have been supplied for unwrapped products such as hamburgers, which are conveyed directly from the production machine into the transfer conveyor and placed – in time with the flights – directly into the packaging machine.

FP Packaging says that speeds depend on the type of product being handled but are generally in the order of 60 a minute.

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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



Wright Machinery: Weighwright weighing conveyor



Fords Packaging Systems: Meurer CM/HSP horizontal buffer system

application better than ± 0.10 per cent.

Three versions of the Weighwright are available, to handle feed rates of 50-650kg/hour, 400-1200kg/hour and 750-3000kg/hour, depending on the product's bulk density.

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FORDS PACKAGING SYSTEMS

Buffer 'table' uses conveyors to give first-in/first-out

A horizontal accumulation 'table' that uses a bank of narrow conveyor belts to provide high density, pressureless accumulation within minimum floor space, yet is able to operate on the basis of first in/first out, has been developed by German manufacturer Meurer, represented in the UK by Fords Packaging Systems.

The Meurer CM/HSP Horizontal Buffer is available in four standard sizes to give accumulation lengths from 27 to 168 metres and consists of a series of individually driven conveyor belts with an indexing 90deg transfer unit at either end. Most rigid and semi-rigid packs, such as

bottles, cans, briks and cartons, can be handled.

Under normal working conditions packs pass directly through the system, directed down one conveyor, from the transfer unit at the infeed to the transfer unit at the outfeed.

However, in the event of a downstream machine stoppage, the first conveyor is brought gently to a halt and the infeed transfer unit indexes to the next conveyor, which is again filled with product and stopped, and then on to the next and so forth.

When product is required again the buffer empties on a first-in/first-out basis with the outfeed transfer unit indexing to each conveyor in turn and product accelerated smoothly to line speed.

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BOSCH PACKAGING SERVICES

Buffer uses endless chain to accumulate and re-feed

In place of the more usual series of trays, the Sigpack FS buffer system employs an endless chain with pockets to store and then return product to the line on a

first-in/first-out basis.

This chain is driven at a speed that synchronises with the rate of supply while the degree of accumulation required – to balance input with the capacity of downstream equipment – is achieved by lengthening or shortening the amount of chain given over to storage.

The chain is also inclined so that several layers of accumulation can be provided within a rectangular footprint – like a multi-storey car park. No special infeed units are required and there are no transfer points within the system, which is said to be easily adapted to meet particular customer requirements.

Products in trays, pillow packs, cartons, bottles and also unpacked items can be handled by the FS storage system which can also cope with products that travel shingled through the system – such as flat bags – and in one or more rows – such as blister packs.

Among the first systems to be sold is one installed between a cartoner and a case-packer in the pharmaceutical industry while two others have gone to biscuit manufacturers, installed between the primary packaging equipment and a cartoner.

Two further systems, supplied in a washdown specification, are

being used to handle frozen food.

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BLUEPRINT AUTOMATION

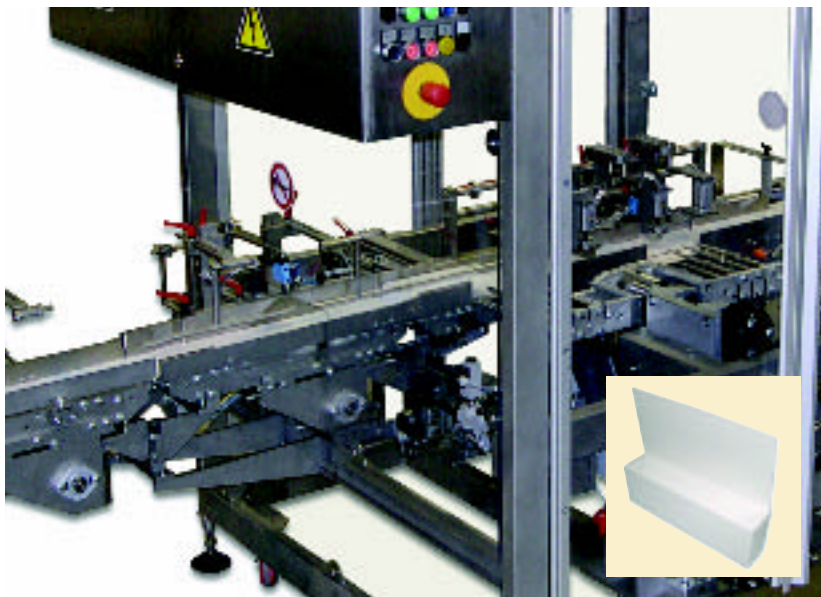
Feeder handles broad spectrum of flexible packs and products

The Rainbow feeder now available from BluePrint is able to handle a broad spectrum of flexible products and packs – hence its name – coming from non-continuous production processes.

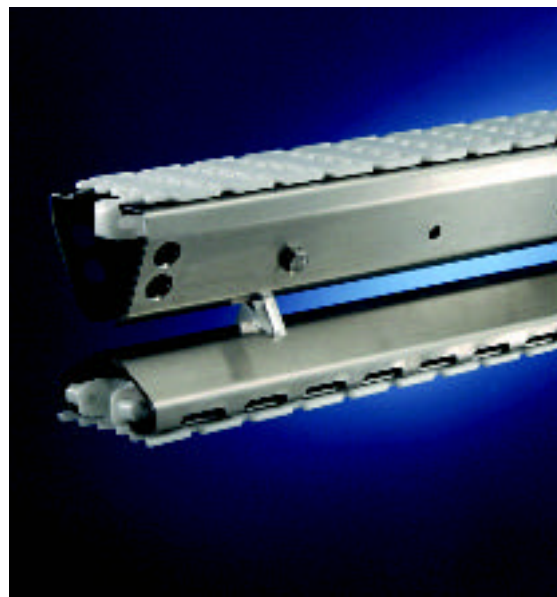
Examples include individual items for flow-wrapping or particular flavour products to a packing line for inclusion in multi-flavour packs.

Products in bulk are fed manually or automatically into the bulk hopper of the feeder where they are released on demand into a series of multiple tracking sections. Here the products are separated, brought into a single line and then, if necessary, turned to the correct position before being fed out on an even pitch.

They can then be fed directly into the infeed chain of a flow-wrapper or to other packaging or handling equipment.



Marden Edwards: Turning system for five-panel cartons (inset)



FlexLink Systems: Modular hygienic conveyor

Systems are available to handle over 200 items a minute, depending on shape and size, including pillow packs, block bottom bags, stand-up pouches and vacuum packs in the weight range 10-500g.

Product dimensions handled as standard extend from 100 x 50mm to 250 x 150mm.

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MARDEN EDWARDS

Cartons with fifth panel turned to nest for collation

A machine to rotate and collate cartons with a fifth panel – used for hanging displays – before overwrapping has been developed by Marden Edwards Group for a customer in the USA where this style of carton is popular.

The extra panel means that half the cartons in the collation need to be rotated 180deg in order to nest and present a rectangular collation to the wrapping machine.

Previous methods either involved a dedicated conveyor that would only handle this style of carton, or the use of an additional section of conveyor that needed to be inserted each time fifth panel

cartons were being wrapped.

However, the customer in America runs 13 different types of cartons, most of which are regular rectangular cartons. All are grouped into collations of six for presentation to the overwrapper, so the new system had to be capable of switching between both types of carton with minimum downtime.

The answer provided by Marden Edwards involves the use of a special turning device, developed by the Group's German subsidiary Petri, mounted alongside a section of the standard conveyor.

As a group of three cartons reach the device they are pushed sideways off the conveyor and gripped by fingers that rotate them through 180 deg before placing them back on the conveyor, in front of and nesting with the next set of three cartons.

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FLEXLINK SYSTEMS

Modular style hygienic conveyor offers high speed

FlexLink has announced the second generation of its modular hygienic conveyor which features

open and self draining surfaces, eliminates the need for lubrication and is said to allow the highest chain conveyor speeds available – up to 100 metres a minute.

Speed control has also been integrated into the drive units, giving the facility for dynamic buffering and soft start and stop.

Built in stainless steel, the conveyor can be fitted with an optional automatic CIP system which, compared to manual hose-down, says FlexLink, reduces consumption of hot water by 50 per cent, detergents by 80 per cent and increases line uptime by up to 5 per cent.

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GAINSBOROUGH CRAFTSMEN

First-in first-out buffer stores can reach height of 6 metres

Buffer stores built by Gainsborough Craftsmen are designed specifically for the product and process application and some vertical versions have reached a height of 6 metres while others have been built with integral cooling units.

Recent examples include a

system to handle continuously extruded sticks arriving at 300 a minute and at over 100deg C – feeding to a flow-wrapper at 150 packs a minute, counted into selectable quantities – and another to cater for small packs of chocolate enrobed confectionery arriving at speeds up to 80 cassettes a minute prior to final cartoning.

In Gainsborough Craftsmen's first-in/first-out live buffer store systems incoming product is accommodated on a system of shelves or gondolas that hang on spindles, driven by chains on large sprocket wheels.

Should downstream packaging equipment be slowed down or be unable to accept product the buffer store will increase its storage capacity by extending the products' path of travel though the store by raising the sprocket wheels and carrier chain.

The systems have variable capacity which adjusts on demand and reintroduces the product back into the production line once the downstream delay is over. This avoids taking product manually off the line, risking damage and creating scrap.

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