

**PPMA**

Issue 1, Volume XVIII. January/February 2007

# Machinery

## UPDATE

The only 'machinery only' journal for processing and packaging



**ROBOTICS**

# More than just labour savings



**BAGGING**

## Shorter drops suit delicate products



**BOTTLING REPORT**

## Flexibility for the future

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## Machinery UPDATE

THE JOURNAL OF THE PPMA

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# Packing it thinner

Whichever way you look at it – climate change, packaging waste legislation or just plain economics – using thinner packaging materials is a good idea, but actually achieving it without a significant reduction in packaging machine performance is another matter.

Right now, with the government's Waste and Resources Action Programme –WRAP – pushing ahead and getting three major food manufacturers to sign up, on top of the nation's top 13 grocery retailers, the pressure is clearly on (see page 6). But what does this mean to the machinery world?

Until recently "try it and see" has really been the only way of finding out if thinner materials will run satisfactorily, but this can be expensive should it go wrong and so most machine manufacturers and users have stuck with minimum thicknesses that have been arrived at empirically. Few manufacturers have been able to invest much money in exploring the possibility of altering machine designs to make them more tolerant of thinner materials.

Seeing this as a growing problem, in 1999 the PPMA and the University of Bath proposed a research project to investigate the behaviour of flexible materials in vertical form-fill-seal machines and cartonboard in cartoning machines. The foresight turned out to be remarkably accurate.

The project got the support of UK Government funding (EPSRC) initially and is now being funded by the University of Bath's Innovative Manufacturing Research Centre (IMRC) and PPMA members.

Work on flexible films has now identified an algorithm for a forming shoulder that provides the minimum resistance to film as it passes over and is formed into a tube. This allows the film tension needed for the film to track reliably to be significantly reduced and will enable much thinner film to be used without risk of it breaking on the forming shoulder.

The work on cartonboard has been in three parts: Identifying how board behaves when it is creased and folded; translating this information into a computer model which demonstrates how cartons of a given size and thickness will behave in a machine of a given design and operating speed; and identifying how the strength of creases is influenced by storage.

The computer model developed from the initial work is now also being used to model the opening of carton skillets on horizontal end load cartoners.

Ultimately, the objective of the work is to produce a set of rules for the design of new cartoning machines that will make them far more efficient with thinner and weaker materials and a computer programme that will allow users, machine manufacturers and materials manufacturers to model how a carton of a given size and design will behave in a particular cartoner and at a given speed.

Meanwhile, the work on carton storage has confirmed and quantified what many users had long suspected – or found out by trial and error – that the moisture content of the board and method of packaging cartons are the main variables that need control to achieve reliable performance from cartons in a cartoning machine. The output from this work has been a set of rules for packing and storing carton skillets that printers and machine users alike are encouraged to follow.

At the end of the day, all of this current work – and hopefully further topics in the future – will filter through into new machine designs that will help FMCG manufacturers in particular reduce packaging weight without suffering the productivity and cost penalties of poor machine performance.

In this way, retailers and manufacturers with the right machinery can hopefully avoid the prospect of more expensive packaging operations putting their green credentials to the test.



*Chris Buxton*

Chief Executive, PPMA

## THE PPMA BOARD

## Jeremy Marden elected as new President of the PPMA

Jeremy Marden, technical director of the overwrapping and shrinkwrapping machinery manufacturer Marden Edwards, has been elected President of the PPMA for 2007-8, in succession to Dr Mike Randall, chairman of Lock Inspection Systems who remains on the board as immediate past president.



**Handing over the reins:** *Outgoing President Mike Randall (left) with Jeremy Marden*

Existing members of the PPMA Board, with their current responsibilities, are:

Peter Binns, managing director, Heuft UK (drinks industry); John Clayton, managing director, Newman Labelling Systems (finance and technical); Karen Cobbett, sales director, Springvale Equipment (publishing); Jeremy Marden, (government relations); Mike Randall (exhibitions); Mike Warren, UK regional sales manager, Niro Pharma Systems (pharmaceutical processing); Chris Williams, sales and marketing director, Selo-Bollans (food processing) and Alan Yates, chairman and CEO, Endoline Machinery (membership).

Joining the board this year are Richard Bull, managing director Enercon Industries (finance) and Stuart Ralph, sales and marketing, Cap Coder (international).

## PACKAGING IN LANDFILL

# Packaging waste reduction bid puts new focus on machinery

Research carried out at Bath University with the support of PPMA members and others into ways of allowing packaging machinery to handle thinner materials more efficiently now looks set to make an increasing contribution to the current government and retailer-led bid to reduce the amount of packaging going into landfill.

"While retailers have begun to make impressive inroads into the issue of packaging in landfill, there is a limit to how much materials can be reduced in gauge or weight without seriously affecting manufacturing efficiency. This is now the challenge for machinery manufacturers," says PPMA chief executive Chris Buxton.

In November three leading food manufacturers – Heinz, Northern Foods and Unilever – signed up to the Courtauld Commitment programme to reduce packaging waste, joining the UK's top 13 grocery retailers who in 2005 pledged their support for WRAP, the Waste and Resources Action Programme set up by the government.

Under the commitment retailers agreed to design out packaging waste growth by 2008, deliver absolute reductions in packaging waste by March 2010 and identify ways to tackle the problem of food waste.

Last November the 13 retailers met with Ben Bradshaw, Minister for Local Environment, and Jennie Price, chief executive of WRAP, to report progress.

The meeting was told that Asda and Sainsbury's have set packaging reduction targets of 10 per cent by 2008 and 5 per cent by 2010 respectively, while Waitrose

has set targets to keep future packaging levels below those of 2002, and has cut packaging waste growth by 15 per cent in the last year.

### Action by retailers

Further action reported by retailers over the past year included:

- 30 per cent lighter ready meal packaging from Marks & Spencer;
- Lighter salad bags at Asda, using 14 per cent less material;
- Reduced packaging around Iceland's own brand pizzas;
- The cartons removed from Co-op's tomato puree;
- 18 per cent less packaging for Boots Botanics shower gel;
- Spirits bottled for Tesco in lighter weight bottles.

Morrison's and the Musgrave Group (Budgens and Londis), meanwhile, are in the process of revising their packaging guidelines to incorporate packaging reduction and Somerfield is redesigning its ready meal packaging to extend shelf life and cut food waste.

"Pressure on food manufacturers to reduce the amount of packaging may now be growing again, and be more public, but market demands to reduce the cost of products have for some time been steadily forcing FMCG manufacturers to use thinner and lighter weight packaging materials," points out PPMA technical consultant Martin Keay.

"In general, thinner materials, lighter materials and materials containing high levels of recycled material perform less well on many current designs of packaging machinery and result in lower operating efficiencies, which are

unacceptable to the machine users and their customers.

"However the PPMA had the foresight to see this becoming more and more of a problem. So in 1999 the Association joined forces with the University of Bath to propose a research project to investigate the behaviour of flexible materials in vertical form-fill-seal machines and cartonboard in cartoning machines."

This project received UK Government funding (EPSRC) initially and is now being funded by the University of Bath's Innovative Manufacturing Research Centre (IMRC) and PPMA members.

### Forming shoulder design

Already the work on flexible films has identified an algorithm for a forming shoulder design that provides the minimum of resistance to film as it passes over the shoulder and is formed into a tube.

This in turn has enabled the film tension necessary for the film to track reliably to be significantly reduced and this will enable much thinner films to be used on vffs machines without risk of it breaking on the forming shoulder.

The work on cartoning machines aims to produce a set of rules for the design of new cartoning machines that will make them far more efficient with thinner and weaker materials.

There will also be a computer programme to allow users, machine manufacturers and materials manufacturers to model how a carton of a given size and design will behave in a particular cartoner and at a given speed.

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## Molins sells Sandiacre Rose Forgrove to Hayssen

Sandiacre Rose Forgrove, the Nottingham based flow-wrapper and bagging machine manufacturer has been sold by parent company Molins Packaging Machinery to Hayssen Packaging Technologies, part of US manufacturer Barry-Wehmiller, for £3 million.

Hayssen is a major manufacturer of both vertical and horizontal form-fill-seal machines and the newly formed HayssenSandiacre operation will have a combined turnover in excess of \$80 million, with a world-wide installed base of over 15,000 machines.

In the UK, the Hayssen sales and service operation will merge with Sandiacre Rose Forgrove to form HayssenSandiacre Europe, based in Nottingham where Sandiacre bagging machines will continue to be built.

The building, which is valued at more than £4 million, is to be sold by Molins but will be leased by Hayssen.

In a statement Molins Packaging Machinery said: "Sandiacre Rose Forgrove operates in a very competitive segment of the packaging machinery market and the majority of its products are sold to customers who are themselves facing considerable competitive pressures, particularly in the food industry in the UK and Europe.

"Despite some operational improvements, current margins at Sandiacre Rose Forgrove are not adequate to support its future development... the merged business will be better able to exploit economies of scale."

Sandiacre Rose Forgrove, which employs 130 people, consists of Sandiacre Packaging Machinery which was founded in 1969 and bought by Molins in 1994, and Rose Forgrove, founded in 1901 and bought out of receivership by Molins in 2001.

Following the sale of Sandiacre Rose Forgrove, Molins Packaging Machinery division will comprise Langen, Langenpac, Molins ITCM & ITCM SSI and Cerulean Packing. Together these businesses had sales in 2005 of £30million and generated operating profits of £2.3million.

### PEOPLE

## Domino expands its development department

Domino Printing Sciences has expanded its group development team with the appointment of **Kirsten Telfer** as group software director and **Chris Beesley** as programme director. Ms Telfer joins from Thales Underwater Systems, a naval defence supplier of sonar equipment while Mr Beesley was previously project director at telecommunications component supplier Bookham.

**Colin Harris** has been appointed sales manager at IWKA



**Kirsten Telfer**

**Chris Beesley**

PacSystems, with particular responsibility for blister-packing machinery. He was previously with Marchesini and Romaco.

**Phil Markham** has become technical manager of Packaging Automation's volumetric division. **Jonathan Mildred** has joined the company as a technical sales engineer for the south of England.

## PPMA MEMBERSHIP

# More new members

THE PPMA CONTINUES TO WELCOME NEW MEMBERS FROM ACROSS THE ENTIRE MACHINERY INDUSTRY.

## KNIGHT WARNER

## Control and mechanical handling for packaging

Industrial automation specialist Knight Warner develops industrial control and mechanical handling systems, offering design, manufacture and installation of bespoke packaging systems in addition to its standard products. This includes management information systems, Scada, electrical controls and mechanical hardware for all types of production processes.

In 2005, in addition to moving into new purpose built premises, the company received its largest single order – in excess of £800,000 – for the turnkey design and manufacture of a new packaging system for snack foods.

Knight Warner successfully designed and implemented a new packaging concept in association with customer Walkers Snack Foods, providing a solution that significantly reduces shelf-stacking time.

The company is now also a robotics partner with ABB.

T: 01246 472061

E: pwarner@knight-warner.com

## PACEPACKER SERVICES

## Sack handling, palletising and complete turnkey lines

Pacepacker Services designs and builds a range of automated packaging equipment including open mouth sack placers, sack closing systems, heat sealers,

ticket applicators, track and belt conveyors, sack turners, sack flatteners, layer palletisers and robotic palletisers.

There are also pallet dispensers, pallet conveyors, retail tray de-nesters and pick-and-place systems.

Pacepacker is also able to provide complete turnkey packaging lines, including bulk feed hoppers, belt and screw conveyors, valves, samplers, volumetric feeders, bagging scales, sewing heads, heat sealers, metal detectors, print heads, checkweighers and pallet wrappers.

T: 01371 811544

E: mail@pacepackerservices.com

## MARLIN STAINLESS

## Smooth bodied stainless motors offer hygiene for food industry

Smooth bodied and offering IP66 hosedown resistance for efficient cleaning, the stainless steel motors and gearboxes produced by Marlin have the inherent hygiene characteristics essential for food processing and packaging machinery.

The motors are to IEC metric dimensions and so directly interchangeable with standard equivalent AC motors with no need for alterations to machinery.

Marlin offers motors with ratings from 0.18 to 7.5kW in metric frame sizes up to 132 as TEFC machines. Smaller units (up to 0.75kW) are also available from 63 frame size as TENV machines.

The worm gearboxes have centre distances of 31, 42 and 61mm with ratios from 5:1 to 75:1. Torques range from 0.9Nm



DC Norris: Thirty-five years experience in building process plant

to 208Nm and options include gears with torque pins, food specification lubricants and various output shaft designs.

T: 01270 270022

E: motors@marlinstainless.co.uk

## DC NORRIS &amp; CO (ENG)

## Process plant in food, pharma, healthcare and cosmetics

DC Norris has been supplying process plant to the food, pharmaceutical, healthcare and cosmetics industries for 35 years, with experience of equipment and projects ranging from raw materials handling to finished product distribution.

The company builds a range of stainless steel equipment incorporating vessels from 10 to 20,000 litres, and maintains full in-house design, automation and project engineering teams to offer a complete service extending from a single unit to turnkey plant.

There is also an extensive trials facility available for cooking/cooling, mixing/blending and sterile product manufacture.

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## RENISHAW

## Magnetic rotary encoders suit washdown applications

Renishaw specialises in measurement products and, in particular, has extensive experience in position feedback encoder systems to meet the diverse requirements of industrial automation.

These include Renishaw's new miniature magnetic rotary encoders, said to provide "fit and forget" reliability. Sealed to IP68, the encoders are well suited for use in high-pressure washdown areas, overcoming many of the problems faced by more conventional shaft encoders in the food industry. Optional stainless steel housings meet food industry requirements.

The non-contact magnetic design eliminates seals, bearings and moving parts for reliable rotary position and speed sensing even in difficult environments.

Applications include conveyor speed control, synchronisation with robotic pick-and-place systems and other packaging machinery.

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E: uk@renishaw.com

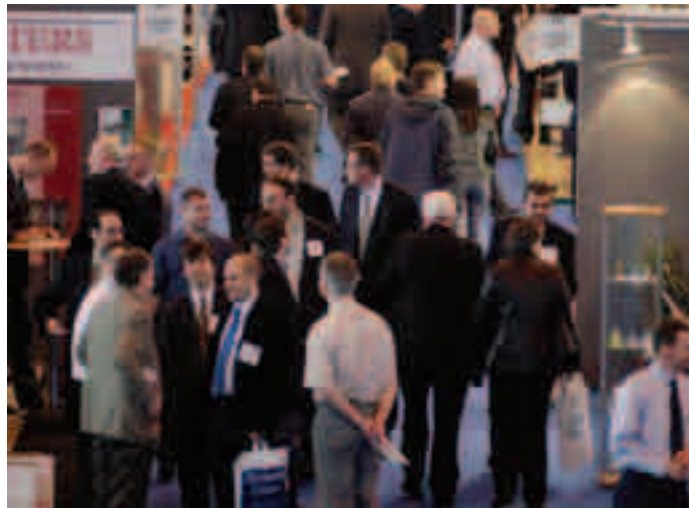
# Total exhibition builds on Pakex, Interphex and PPMA Show origins

This year's Total Processing & Packaging exhibition, which takes place 15-18 May at the NEC, includes a number of new features to broaden the value of the show to visitors, in particular building on the strength of the exhibitions that came together to form Total Processing & Packaging in 2004.

To maximise the link with the PPMA Show, which continues to run in non-Total years, the PPMA will offer a consultancy service for machinery solutions for specific packaging requirements, while a series of seminars for the pharmaceutical industry will be held under the Interphex banner and the Pakex bar will showcase the very best achievements of the UK packaging industry.

The Packaging Innovation Show that runs alongside Total will focus on the latest developments in pack design. Features include a Design Challenge supported by Design Week and a full seminar programme organised by IOP: The Packaging Society, with topics that will cover the needs of brand owners, packaging suppliers, packaging designers, retailers and consumers.

"Total Processing & Packaging



*Total Processing & Packaging: Building on the strength of its origins*

will provide the perfect showcase for companies to demonstrate their wide-ranging capabilities," comments exhibition director Ian Crawford. "The UK processing and packaging industries have much to shout about in terms of innovation, product development, manufacturing expertise and pioneering technology. Providing a shop window for these extensive skills is a key theme of the exhibition."

With a wealth of equipment and materials on show, a major focus in the run-up to the exhibition is to provide visitors with detailed

information that will enable them to make the most of their time there. "Our objective is to help drive informed prospects to exhibitor stands," says Ian Crawford. "This will create the right environment for companies to do business."

Central to this is the exhibition website ([www.totalexhibition.com](http://www.totalexhibition.com)), which has been designed to fit the structure of the event.

Under the Total Processing & Packaging banner, the aim is to emphasise the integration of the disciplines represented by these exhibitions and reflect a changing

customer base, which is increasingly seeing the amalgamation of the buying and specifying for both processing and packaging equipment within a single management department.

So the website includes dedicated sections for the eight industry sectors that the show encompasses: pack design and marketing; FMCG processing; packaging materials; ancillary support and contract services; print and decorative finishes; packaging machinery; supply chain; and industrial plant.

Since exhibitors from all these sectors are integrated throughout the halls, the web site also helps visitors plan their day by listing all exhibitors with the products or services in which visitors register an interest.

The website will also offer a special facility for a Personal Show Plan to be prepared and e-mailed to each pre-registered visitor, providing them with the locations of the stands they wish to visit.

Ian Crawford points out that these features have been used on other Reed Exhibitions' websites with great success. Equally important, the experiences of other recent Reed events suggest that at least 90 per cent of visitors to Total Processing & Packaging will register online, further underlining the importance of maximising the features offered by the site.

"Our new website will play a vital role in the run up to Total Processing & Packaging 2007," he concludes. "It provides an extension to the exhibition, giving visitors detailed information that allows them to make an informed choice about how best to spend their time there."

## New show serves food and drink processing and packaging

The new Pro2Pac exhibition for food and drink processing and packaging takes place for the first time on 18-21 March 2007 at ExCel, London, and is being supported by the PPMA.

Situated beside IFE, the UK's largest food and drink exhibition, the show covers equipment, services and materials, with over 60 exhibitors taking part. These include Reiser, Urschel, Nichol

Food, T Freemantle, Windsor Food Machinery, SCS Packaging, Ravenswood Packaging, Harrison Europack, CSB Systems and Bizerba.

"PPMA's involvement with Pro2Pac recognises our continued efforts to support equally both our process members and those involved in packaging machinery," explains PPMA chief executive Chris Buxton.

The PPMA will have a member's pavilion and lounge at the heart of the show while Mintel and Sheffield Hallam University will be amongst organisations contributing to a central feature – Future@Pro2pac – highlighting latest trends in processing and packaging as well as predictions for the future.

More information from [www.pro2pac.co.uk](http://www.pro2pac.co.uk)

MARDEN EDWARDS

## Shrink unit fits inside frame of end-fold overwrapper

Marden Edwards has supplied its first end-fold overwrapper to incorporate an integrated shrink tightening system fitted within the frame of the machine.

The B100FF machine has been installed by a tobacco company and is handling cartons of 200 cigarettes, with the wrap tightened by an ST100 Shrink Tightener fitted across the outfeed of the machine.

"Although a traditional overwrap is tight, any slight variation in the size of the outer box can lead to small stress lines at the edges of the wrap," explains Marden Edwards. "The ST100 not



**Tight wrap:** Shrink unit compensates for variations in carton dimensions

only draws the film tightly around the pack but leaves the tear tape straight, still allowing the wrap to be easily removed."

A portable external version, already in use by a number of manufacturers, can be connected to any existing machine. The internal unit is aimed at applications where space is tight.

Cartons are overwrapped and sealed in the normal way, before side belts transport them to a heat sealing plate which shrinks the top and bottom faces. The belts then drive the finished packs out of the machine.

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WRIGHT MACHINERY

# Feed and flavouring system lifts snack bagger efficiency

A feed and flavouring system that allows weighing/bagging machines in the snacks industry to operate at maximum efficiency despite a fluctuating supply of base product, while also ensuring consistent flavour quality, has been developed by Wright Machinery.

Four systems have recently been completed at snack producers around the world, says the company.

The new Wright Proportioning Distribution System operates with individual flavouring drums to feed each weigher-bagger, rather than the traditional single drum feeding a number of machines, so providing the flexibility for different snack flavours to be produced

simultaneously on a single line, particularly for multipacks.

Each flavouring drum is fed with product by a vibratory proportioning conveyor system which compensates for fluctuations in the supply of base product by interrogating the multihead weighers and allocating less or more product as required to each machine, via variable width gates.

Should total product supply fall below the level required for full production on all baggers, the proportioning conveyor will follow a pre-programmed priority and maintain full output, and hence efficiency, on as many baggers as possible. A buffer store allows any

excess product to accumulate.

"The Proportioning Distribution System irons out the fluctuations in output inherent in most snack processing equipment and so ensures maximum line efficiency by keeping the packaging machinery working at high speed, without interruption," explains Wright sales director Mike Reed.

"At the same time, operating the flavouring drums at a virtually constant throughput, without stopping and starting as flow from the process equipment fluctuates, ensures consistency in the finished product."

T: 0208 842 2244

E: general@wright.co.uk

ORION PACKAGING SYSTEMS UK

## Spiral wrapping raises speed for transit packing work surfaces

Work surface manufacturer Sheridan Fabrications, of Normanton near Wakefield, has abandoned manual shrinkwrapping for transit protection in favour of spiral stretchwrapping, following the installation of two automatic orbital wrapping machines from Orion Packaging Systems.

The worktops, destined for homes, hotels and restaurants across the UK, measure an average 3 metres in length although some are considerably longer.

Manual wrapping using a heat gun was a slow and labour-intensive process, while wrapping consistency was variable and there were significant potential health and safety implications, says Sheridan Fabrications' operations director Paul Speake.



**Protecting work surfaces:** Orion spiral stretchwrappers at Sheridan Fabrications

"We needed a machine that was fast, reliable, economic and versatile enough to cope with differing widths and lengths of product and still produce the same quality of wrapping regardless."

Sheridan initially installed an

HRW90 orbital wrapper which, says Mr Speake "made the entire process so much smoother". A second machine, an HRW 125-S, was then also installed.

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E: enquiries@orionpackaging.co.uk



*Individual drums: One flavouring drum per line ensures product consistency*

BURNLEY PACKAGING MACHINERY

## Lush cuts cost of cosmetics gift packs with paper overwrapper

Lush, the hand made cosmetics producer, has bought a servo-driven SDPO 500 overwrapper from Burnley Packaging to automate and reduce the cost of gift wrapping in paper, previously carried out by hand.

“To meet the peak demand for Christmas gift packs, we required an automatic machine that would wrap a range of gift boxes in printed



paper at speeds up to **Automated wrapping:** Burnley SDPO wrapper at Lush 40 packs a minute,”

explains Lush production director Jason Muller.

“Burnley’s SDPO comfortably met the brief and has proven to be a

very reliable and easy to run machine. In addition, we have significantly reduced the cost of gift wrapping.”

The machine had to be able to handle eight sizes of box, with size changeover within 15 minutes.

This, says Burnley Packaging, was achieved using the pre-programmed setting facility of the SDPO along with a quick-change

magazine system for the eight different sizes of paper wrappers.

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MARLIN STAINLESS

## Stainless motor drops into place to improve process hygiene

An application at Swancote Foods, Telford, has shown how installation of a new stainless motor in existing processing equipment can improve hygiene and reduce substantially the time for cleaning.

The problem lay in the potato processing line where waste from peeling and dicing operations can spill into the space occupied by the motor driving a transfer pump that takes diced potato to the next stage of production.

Until recently this motor was a standard, finned, mild steel AC unit



**Hosedown:** Marlin Stainless motor drops into place on processing line

which, although brushed clean frequently – a time consuming operation – could not be washed down because of the potential risk of shorting the electrics and/or encouraging rust.

So Swancote has replaced this motor with a Marlin stainless steel unit said to offer a number of benefits in addition to stainless steel's inherent rust resistance.

These include an IP66 rating that permits high-pressure hose washdowns and a smooth body and round terminal box that have no awkward angles or crevices to trap food debris.

"In addition, the motor is a standard IEC metric unit, and simply dropped into place," points out Marlin.

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ROMACO UK

# Blister and cartoning line speeds test kit packaging

Microbiological culture media specialist Oxoid, Basingstoke, has reduced operator intervention and improved throughput with a new blister packing and cartoning line installed to pack 80mm long dispenser cartridges of antimicrobial susceptibility testing (AST) discs.

The Romaco Noack 623 blister packer and Promatic P100 cartoner are interfaced with ancillary equipment including an Electro-Mec feeder and a Laetus Polyphem blister inspection system, also supplied by Romaco acting in a turnkey capacity.

The Noack features an extended feeding area to accommodate two cartridge depositors specially designed by Romaco to accommodate Oxoid's products. These operate in tandem to ensure a high degree of autonomy – as one depositor empties, so feed switches to the other to deliver a continuous stream of product.

Complete elimination of moisture is essential for correct operation of the cartridges, so each blister pocket also contains a desiccant tablet, fed by the Electro-Mec unit.

RUSSELL FINEX

## Sieving station screens raw ingredients for bakery

Warburtons' Blackpool bakery has upgraded its screening arrangements for hand-fed raw ingredients with a Russell Finex 3-in-1 sieving station, which replaces an older system not fitted with direct dust extraction or a bag rest table for tipping.

However, the new system



**Higher throughput:** AST blisters and cartons packed at Oxoid

Ninety nine per cent of Oxoid's AST disc production goes into packs containing five cartridges. These are packed into a single blister with perforations between each pocket and with overall dimensions of 145 x 125mm. Forming depth is 10mm.

All cartridges have the same dimensions so there is no need for format change parts on the blister machine. However, Oxoid sometimes produce packs containing a single cartridge, which is achieved by a special arrangement of punching tools, again to minimise changeover requirements.

Blisters verified as correct by the

Laetus Polyphem blister inspection system are conveyed direct to the infeed of the Promatic cartoner, which is equipped with booklet and leaflet feeder systems.

"We are certainly seeing higher throughput thanks to the numerous electronic control devices on the line and also the reliability and ease of operation of the Noack and Promatic machines," says Oxoid project manager Carl Smith. At the same time, he adds, staffing levels have been reduced compared with the thermoformer and cartoner employed previously.

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incorporates a sack tipping platform set at a comfortable height for operators to support the weight of the bag while emptying ingredients and an extractor hood at the top substantially reduces the dust generated during sieving.

Seated beneath the mesh is a magnetic trap to catch any ferrous particles that are smaller than the mesh size.

The machine also fits into a smaller area as a result of a straight through design. Clearance between sieve outlet and the floor is

now sufficient to take a typical wheeled bin, whereas the old machines were mounted on a table bench with a side outlet feeding into a tote bin.

Russell Finex points out that rubber suspension mounts make the 3-in-1 far quieter than springs on the old machines, with noise levels now typically less than 70 dB(A). The machine can also be completely removed from the bag tip area for cleaning.

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AETNA UK

## LGV system at paper-maker cuts labour costs by a third

Paper-maker James Cropper Speciality Papers at Burneside Mill, Kendal, has reduced labour costs in its packing department by a third with a laser guided vehicle system installed to handle some 250,000 pallet and 42,000 reel movements a year.

Supplied by Aetna UK the system is based on four Euroimpianti laser guided vehicles, one with a clamp attachment to handle reels, the others equipped to handle a large range of different pallet sizes. There is also a new

automatic pallet strapping, stretch-wrapping and labelling line.

“Speciality Papers’ complex order book is now handled and packed in minutes and hours, rather than days,” says Steve Crook, finishing operations manager at James Cropper.

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**Reducing labour costs:** Euroimpianti laser guided vehicle system

MJ MAILLIS UK

## Film pre-stretch helps reduce stretchwrap usage by 75pc

Healthcare ingredients supplier Uniqema, Redcar, has reduced the film required to wrap pallets of delicate irregular size packs by 75 per cent, following the installation of a PR303 turntable machine from MJ Maillis.

With its previous machine, Uniqema found that the easily crushed packs often shifted on their pallets, leading to damage, and responded by using large quantities of film to ensure adequate load stability and protection.

In contrast, the pre-stretch system of the PR303 wrapper is able to hold the goods in place with less film, without putting the packs under pressure.

Previously up to 2 kg of 40 micron film was used by Uniqema on each pallet. Now the company uses some 350g of film, pre-stretched to 200 per cent.

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# BOTTLING REPORT

DOWN-THE-LINE REVIEW OF THE LATEST EQUIPMENT FOR BOTTLING FROM PPMA MEMBERS.

PROCESSING AND BOTTLE CLEANING

## Aroma control enhances flavour and quality

Last November's Brau-Beviale exhibition in Nuremberg featured some of the latest process, filling and packing systems for bottled soft drinks, wines, spirits and – above all – beer, the key focus.

Krones introduced the Calypso system, used in the early stages of the brewing process. Since the unit combines a whirlpool and a cooling in a single vessel, with a downstream stripping system, this might at first glance seem specifically designed largely for the mid-range brewery but, as James Johnson, Krones UK sales manager for the Steinecker range of brewing process equipment points out, it is more to do with flavour and quality requirements in the beer than the size of the operation.

"It's about eliminating aromas that may be considered prejudicial to the final flavour," Mr Johnson explains. In particular, he says, the presence of dimethyl sulphide (DMS) is minimised, a preference which is increasingly common in lager brewing.

According to Krones, with the Calypso some 45 per cent of the free DMS and other unwanted aromatics can be evaporated out of the wort before it is cooled, giving brewers greater freedom in selecting malts of varying DMS content. In broader terms it gives them a user-adjustable aroma profile, as well as enhanced ageing stability in the beers produced.

The Calypso is technically uncomplicated, avoiding the need for a vacuum or additional heat, is easy to clean, and offers "exceptional efficiency", says the company. The first unit has gone into the Bischofshof Brewery in Regensburg, Germany, where a Krones ShakesBeer mashing system was also installed in the new brewhouse.

ShakesBeer is said to cut the start-of-process mashing stage to less than two hours. At the same time, says Krones, the quality of the mash is improved and energy consumption reduced.

Throughout the bottling line, Krones is contributing to faster and more efficient changeover for breweries operating short or mid-length runs of different product. Its Raptec changeparts system features quick-release locks, and components are said to be lightweight yet sturdy. Krones claims that use of this system can cut changeover times by up to 30 per cent, giving significantly increased efficiency to the line as a whole.

Among other technology for smaller bottling lines that Krones showed at Brau-Beviale was the new K714 empty bottle inspector. The machine can scan up to 18,000 containers an hour using Distributed Architecture for Real Time (DART) technology. It is operated from a 15in touchscreen, is sufficiently compact to be integrated into existing lines and is also "particularly affordable," says Krones.

### Challenge of conversions

When it comes to filling and packaging equipment, line conversions can be among the more challenging installations for equipment companies. Old and new machinery has to be integrated, yet the basic line configuration is likely to be fixed, and at the same time, cost expectations from the customer are probably going to be limited.

The benefit for the customer is that lines can be made more flexible to cater for possible future requirements, as well as current needs. This was the case with a recent KHS installation at Austria's independent Stiegl Brewery. Here, evolving demand meant that a former refillable beer bottle line needed to be redesigned to handle non-refillable 330ml bottles as well as refillable 330 and 500ml bottles.

According to KHS, current line speeds with



**Empty bottle inspection:** Krones' new K714 scans up to 18,000 containers an hour

the various pieces of new equipment are 28,000bph on non-refillable bottles and 24,000bph on refillable bottles of both sizes. But the company says there is no reason why output could not be raised to 40,000bph for 330ml and 35,000bph for 500ml bottles.

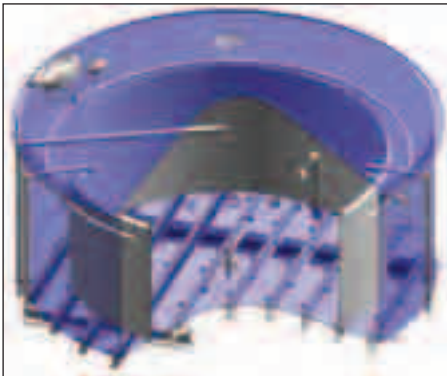
Up to the filling stage, bottles at Stiegl now follow one of two different routes. New single-trip bottles are depalletised, conveyed to the empty bottle inspector, and then directly to the

## Consumption figures

Encouraging figures from market research company Canadean suggest that average per capita European consumption of beer has risen by over 2 per cent a year since 2000, and now stands at 66 litres. However, this includes the expanding economies of Central and Eastern Europe. Compare this average with France (less than half this figure at 32 litres) or Italy (31 litres). German consump-



**New filler range:** Ocme has introduced the Hydra range for PET and glass containers



**Aromatics evaporated:** The Calypso system from Kronos is said to give better hot-break separation

rinsing-filler-capper block. Refillable bottles are depalletised and removed from their crates before being washed, sent through a rinsing bypass, inspected and finally filled.

In the case of the non-refillable bottles, the Innoclean FR-ZM double-channel rinsing uses two different media: chlorine dioxide for disinfection and sterile water for rinsing. Although the rinsing time is pre-set, KHS says that an ability to select other programmes will allow

other sizes and shapes of bottle to be handled in the future.

For medium-sized beverage companies, KHS has developed the Innoclean EC bottle washer, a compact, single-end machine able to handle between 8000 and 25,000 glass bottles an hour. Features include electronic coupling of all machine drives and a carrier system said to save up to 15 per cent of heat requirements and 20 per cent of water compared with conventional alternatives.

The new spray system used to prepare bottles for the washing process and rinse them after the caustic treatment has been redesigned to make the programme longer and also more intense.

At the very beginning of the line, one option for small or medium-sized filling operations is the low level depalletiser from All Glass, Italy. Supplied in the UK by Intercaps, the Minidepal measures just 4 x 2 metres, and sits just 1 metre over the height of the pallet being unloaded.

The depalletiser can handle either glass or

PET, says Intercaps. Unlike some other compact systems, the Minidepal is said to use high-quality gripping tubes combined with a four-way set of clamps to lock the layers of bottles in place. Up to 10,000 bottles an hour can be depalletised.

#### FILLING AND CAPPING

## Suppliers look to full turnkey capability

**W**ith the major international filling equipment companies rapidly plugging any gaps left in their in-house capability to produce full turnkey lines, notably at end-of-line, Ocme clearly thought it was time it reciprocated with some further diversification of its own.

Two years ago, the Italian company launched its Hydra filler and has produced models for water and soft drinks in PET in a speed range extending from 12,000 to 52,000bph. One recent order from Saudi Arabia's Makkah Water is for a tri-bloc rinsing, filler and capper as part of a complete 52,000bph turnkey line for 330ml, 500ml and 1.5 litre PET bottles.

From Ocme UK's perspective, a Hydra installation at Villa Soft Drinks in Sunderland is even more important. Here, 1.5 litre PET bottles are filled with soft drinks, still and sparkling water at speeds of over 12,000bph by the monobloc ISO40-60 10 filler, which uses an electro-pneumatic filling valve to manage the different filling phases. Ocme points out that, since the air return is separate on each valve, the risk of contaminating the main tank is avoided. Straight gravity filling is standard, allowing extremely light preforms to be used.

Now the Hydra range has been extended to include glass bottles. The Hydra S, designed for spirits filling, is very similar to the standard Hydra N, but includes an electro-magnetic actuator on the upper part of each filling valve. This activates the opening and closing to exhaust returned air.

Other features of the Hydra S include a light depression in the tank, to ensure that no product is wasted. For high-value product, the level in each bottle can be corrected automatically, returning any excess to the tank after the filling cycle is complete.

As Ocme points out, the level can be affected by ambient temperature ranges within a single

## show upward trend for beer and wine

tion has, apparently, declined but is still at an impressive 115 litres a head.

When it comes to soft drinks, there are significant differences between Eastern and Western Europe. While annual per capita consumption of soft drinks in Western Europe is put at 240 litres, the average in Eastern Europe is just 94 litres. In this area, the growth in functional components, including

sensitive additives and ingredients, has favoured the rise of processing and filling options such as cold aseptic technology.

Wine industry statistics are also positive. Industry estimates forecast growth in global wine consumption to 31.66 billion x 75cl bottles by 2008. Some 60 per cent of wine production will come from France, Italy, Spain and the USA.

day or, more usually, from summer to winter.

Filling valves can be removed quickly and easily, says Ocme, with just a single half-turn on one screw required to remove two heads.

When Austria's Stiegl Brewery came to choose a filler, it selected the KHS Innofill DRS-ZMS pneumatic pressure system. This computer-controlled unit provides both sensitive filling for beer and options for bottling soft drinks should this need materialise in future. This flexibility includes bottle size and shape as well as the filling technology.

The Innofill's 108 valves offer an extremely low-oxygen filling process, says KHS. They use probes to determine exact filling levels, preparing the way with triple pre-evacuation and double CO<sub>2</sub> purging. According to the equipment company, CO<sub>2</sub> consumption on the DRS-ZMS is an "outstanding" 230g/hr of beer, while oxygen pick-up is just 0.02mg/l.

Streamlined changeover times are said to be a further advantage of the filler when changing either product or bottle format, with central filling level adjustment guaranteeing high machine availability, says KHS. Stiegl also chose to integrate the machinery manufacturer's ReDiS remote diagnostic and maintenance system.

The need for different handling of refillable and non-refillable bottles surfaces again at the capping stage. At Stiegl, ring-pull caps are applied to the 330ml refill bottles, while standard crown closures are applied to the same non-refillable bottle size and 500ml refillable bottles. For convenience, and to target a younger audience, the 330ml single-trip bottles use the twist-off crown closure.

For induction foil liners on wide-diameter closures, Relco UK has introduced the MICS-2.1 automatic cap sealer. This joins the existing range of MICS models, but has a higher output power and a sealing head which is 700mm long, compared with the 400mm supplied by some other companies. As induction heat sealing has developed, says Relco, this trend towards shorter sealing heads has caused problems for larger closure diameters, where heat is required across the entire area of the foil.

The design of the MICS-2.1 means that longer dwell time under the induction head is possible, allowing the foil to heat up fully without burning the edge.

In filling equipment, Stork Amsterdam International has traditionally enjoyed a strong position in both the spirits and dairy industries in the UK. The first of Stork's new generation



**Aseptic flexibility:** Neck ring isolator from KHS allows a variety of container shapes to be handled

ultraclean machines for fresh milk will be ready for installation later this year and, while Stork UK managing director Tony Dignam cannot give too many details, he says that "a few machines" are due for delivery to Wiseman's dairy near Bridgwater, Somerset, in June of this year.

### Cold aseptic

While working on this ultraclean option, Stork has also joined the ranks of those equipment suppliers offering turnkey aseptic filling lines, including bottle blowing. In Stork's case, the bottles produced and filled are three and six-layer HDPE. Three-layer tends to be used for low-acid milk drinks while the six-layer structure is more appropriate for fruit juices, where there is a need to protect the vitamin content as well as shutting out ultra-violet.

Five of these Tri-tec aseptic lines have been installed around Europe over the past year, says Mr Dignam: two in the Netherlands, and one in each of Poland, Spain and the former Yugoslavia. These are all for low-acid milk.

But the biggest European success story for Stork has been the Hero operation in Breda, Holland, producing the brand's single-serve fruit drink which has taken off in a number of countries. The original 12,000bph line was supplemented by a further 18,000bph line and now Stork is installing an additional 24,000bph line in order to help meet demand.

The problem for Stork in the UK is that, while milk processors have moved away from

the type of hydrostatic tower traditionally used for sterilising product, they have not yet made the move to aseptic. Instead, points out Tony Dignam, long-life milk is currently imported from the likes of Campina. It may take an independent entrepreneur to set up an aseptic contract filling line in the UK, he speculates, for branded flavoured milk drinks.

In the meantime, Stork will be spelling out the benefits of its system in industry seminars throughout the year aimed particularly at the low-acid milk market. In the UK, at least, Mr Dignam reckons this will be the first part of the beverage market to move this way, since the fruit juice market is so heavily dominated by cartons.

The Tri-tec line offers a number of optional features. Bottles can either be blown in-line or shipped in and sterilised before filling. If blown in-line, the bottles are conveyed into a temperature-controlled silo and the bottlenecks can then be trimmed inside the aseptic area of the filling machine. If bottles are shipped in, they are decontaminated in hydrogen peroxide solution, before being air-dried.

Post-fill, Stork has similarly extended the processes contained within the sterile area. Now, rather than necessarily sealing the filled bottle with a foil cap, before fitting a screw-top overcap in the non-sterile area, the screw cap can be fitted directly inside the filler enclosure. This allows manufacturers to distance themselves from a look that they may think is too close to that of UHT products, Tony Dignam explains.



**Uninterrupted labelling:** New eight reel magazine allows Krones Controll labeller to run for four hours



**Changing to p-s:** Herma 400 slimline applicators can be installed on existing wet-glue rotaries

Once outside the aseptic area, the sealed bottles are labelled or – most probably – sleeved, date-coded and then placed in their secondary packaging.

Having in the past offered both wet and dry sterilisation processes for cold aseptic filling, KHS has chosen the more economic dry route with the neck ring isolator which it showed at Brau-Beviale. The class 100 cleanroom atmosphere is only required in and around the bottle mouth, says KHS.

The latest system reduces both the amount of hydrogen peroxide used in sterilisation and the consumption of sterile air, the company argues, and minimises the amount of chemicals used to clean the line.

#### LABELLING

## Trialling unusual and diverse dress concepts

**I**n labelling as in other areas of the bottling line, a supplier's ability to organise confidential production-type trials and simulations of a specific product can make a huge difference to clients and materials suppliers alike.

For example, during the early part of last year, Krones Germany added a labelling area to its filling and process pilot plant inaugurated in the spring of 2005.

The labelling area of nearly 700sq metres includes a conference room, staff offices and a laboratory where properties of the label, glue and container can be analysed. Thomas Lang, head of R&D at the labelling pilot plant, explains the increased demand for this type of analysis from bottlers and suppliers of label materials and adhesives.

"Dress concepts are getting progressively more unusual and diverse, but at the same time, bottlers want their labelling processes to be faster and more affordable," he says.

Tests can be run, for instance, on different types of glue, the dispensing properties of pressure-sensitive labels and web characteristics. Simulations can also include the removal of very thin labels from their magazines. "We can simulate almost all labelling processes, and in

## BOTTLING REPORT

a further step concentrate on how the labelling, dating/coding and inspection functions interact," says Mr Lang.

As at other stages of the line, an ability to run uninterrupted for longer periods is a growing demand in labelling. Krones has developed a magazine for its Controll labeller capable of holding up to eight label reels for up to four hours continuous running so, explains the company, extending to reel-fed wraparound labelling the benefits of automatic magazine feed already applied to wet-glue.

### Move to pressure sensitive

One change that can have a massive impact at the labelling stage is the move from wet glue to pressure sensitive. Herma UK says that the compact Herma 400 Slim Line applicator allows bottling lines using wet glue to switch simply and cost-effectively to pressure sensitive by adapting existing rotary equipment.

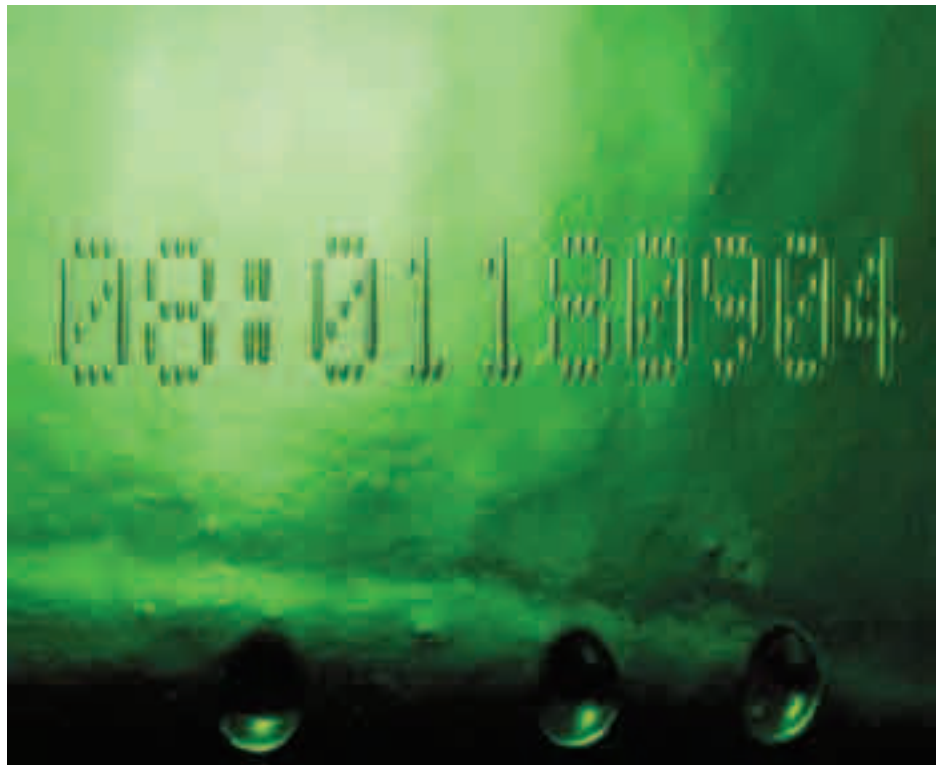
Since the applicator has a built-in control unit, no separate control cabinet is required, says Herma. This means that up to eight application stations can be accommodated in a single rotary machine, so that front, neck, rear and additional special labels can all be applied. But it also means that a second applicator will always be in standby mode, ready to take over when the end of a roll is reached.

Depending on the type of take-up and unwinding method used, the Herma 400 can reach speeds of 120 metres a minute, which translates as around 60,000 x 120mm labels an hour. At all times, the applicators are synchronised with the rotary machine, even during acceleration for start-up and deceleration for shut-down, the company points out. Tolerances on positioning accuracy are put at  $\pm 0.3\text{mm}$ .

The newest entrant into the roll-fed labelling market is Ocme. Better-known as an end-of-line specialist, the company has built on its recent decision to launch a new range of fillers, and chose the Paris Emballage show to present its Sagitta labeller.

Flexibility is the key says Ocme, with no need for time-consuming parts changes to handle bottles between 330ml and 3 litres. Independent movement in the labelling unit and a synchronised fixing system in the transfer system mean that resetting is not required for format changes.

Features including temperature adjustment mean that a wide range of adhesives and film or paper label stock can also be run on the Sagitta. Controlled by three brushless servo



**Coding while hot:** Linx laser system creates a clean smooth mark on glass containers

drives, for machine speed, unit speed and label unwinding, the labeller will apply up to 30,000 labels an hour.

In print-apply labelling it can be a challenge to ensure all packs come off the line with correctly formatted labels. "Customers often want instant changes to labels to suit their logistics systems, and the print apply equipment at the end of the line is usually at a good distance from the control point," explains Codeway, which now offers a control system said to solve these problems.

Originally developed for Silver Spring Mineral Water Co, the Codeway OCL Online Controlled Labelling system uses simple stainless steel IP64 terminals at each print-apply labeller, linked to the computer controlling the line. This PC has its own copy of a master label database containing all data and formats.

To set up labelling for a new batch, the operator enters its item code on the terminal through the keypad or by scanning a bar code.

When the Codeway OCL programme on the line PC receives a code, it checks the master database for any updates and synchronises its own local copy of the database. It then calculates best before dates and sends the label information to the printer.

At the same time the program also sets up a Codeway Checkrite system to scan the packs coming off the line and validate their bar codes. Local databases allow the lines to continue even when there is a server or a network failure while a hot spare computer can be switched to any line at any time.

### CODING

## Hot glass coding lifts legibility and security

**B**everage brands looking for direct coding on glass for traceability, promotional or security reasons will be interested in a recent laser application at glass manufacturer O-I. The Harlow plant has installed Linx Xymark laser coders over its production line, where bottles are coded with a traceability code while they are still red-hot from the forming process.

Glass temperatures during production reach 650deg C, while the surrounding area is heated up to around 70deg C. With its IP66 construction, the Xymark BBH is able to withstand these gruelling conditions, while the laser optics are designed with a long lens-to-product distance, and a flexible arm houses an extended beam delivery system.

Mounted above the glass production line, the BBH is able to keep pace with manufacture, laying down a single-line code 2mm or 2.5mm high at speeds up to 50 metres a minute.

The principle behind this hot glass technology is that the best laser coding results are achieved when coding takes place close to the point at which the bottle or jar is formed, while the glass is still red hot. This generates a clean, smooth mark that helps avoid the creation of microscopic fissures that occur when lasers are used to mark cold glass.

The dot-matrix code is also unlikely to be confused with subsequently-applied production codes, says Linx, and does not run the same risk of damage as an ink jet code.

Represented in the UK by The Needham Group, Macsa Laser has extended its K-1000 range with the launch of a model aimed at high-speed bottling lines. The Macsa K-1060 SHS (super high speed) is said to offer laser coding speeds 60 per cent higher than the current industry standard. Its line speeds of 500 metres a minute on certain substrates make it certainly one of the fastest coders available, says Needham.

Also from Macsa is the KIP-1000, which offers IP65-rated protection for use in those harsh environments found in some beverage operations. Like all Macsa's lasers, these coders apply the company's own Crystal Font, designed for optimum legibility.

In continuous inkjet (CIJ), Needham has Citronix coders, including the new ci2000. Like Macsa's KIP-1000, this is designed with an IP65-rated enclosure, which withstands tough, wet environments and allows full washdown.

Looking for complete symmetry across laser and CIJ, Needham can also now supply the Citronix Ultra High Speed (UHS) system which, like Macsa's SHS, is said to break records in high-speed coding. As such, it is especially well-suited to the needs of bottling and canning lines, says Needham.

Like all Citronix coders, the UHS has SmartClean printhead maintenance as standard. Results are said to include cleaner start-up, more efficient operation, reduced downtime and improved print quality.

CARTONING AND SECONDARY PACKAGING

## Tubes and cartons see growth for gifts

One of the fastest-growing sections of the drinks industry is premium spirits in cartons or tubes for the seasonal, gift and travel trade markets. Often, the secondary packaging uses sophisticated graphics and a special finish, and so needs to be handled with care on the packing line.

Now under development at Dutch manufacturer Langenpac is a vertical system for loading individual spirits bottles into this type of



**In-fridge alternatives to board:** Frizzpack for cans (left) and Geopak for bottles, both developed by Cermex

carton or tube. The aim, says UK agent Springvale Equipment, is to provide a mid-speed alternative to the 360cpm horizontal machine that it has been supplying to the likes of Diageo and Allied Distilleries for the past 15 years.

In fact, says sales manager for Langenpac equipment Victoria Marshall, with the order placed just a few months ago, the first vertical machine for tubes is currently under construction. Langenpac is also refining the design for a carton-loading version. "The next step is to go to a machine with two different infeeds which will handle both tubes and cartons," says Ms Marshall.

She explains that the top-loader is a cam-driven mechanical pick-and-place system, effectively turning through 90deg the mechanism used on the side-load cartoner.

A current design focus for Langenpac is the gripper head. "Any system for the whisky industry needs to be able to handle the weight and the line speed," she adds, pointing out that cartoning concepts transferred from other industries have not always addressed these issues.

Another feature which will endear the Langenpac system to the independent distillery market is the leaflet/booklet inserting station giving brands the opportunity to create added value with a booklet about the product. Rather than simply slide a small leaflet down to the bottom of the carton or tube, the system curls the booklet around a mandrel, then releases it to sit around the shoulder of the bottle.

Many of the successful premium spirits brands are filled and given their prestige outer packaging in relatively small operations. "We recognised that the big, side-load machine was

over-the-top for them," says Victoria Marshall. The vertical machines will be able to maintain speeds of up to 250bpm, she says, although some lines will only require 150bpm or thereabouts.

Another automated solution currently in development is at the opposite end of the bottling market, where small PET or glass bottles for soft drinks or water are bought and stored in multipacks. The new system, called Geopak, is from Sidel company Cermex, and aims to provide an alternative to the all-board Fridgepack.

### Board box expensive

The completely enclosed printed board box is expensive, says Cermex. For bottle multipacks, it can be replaced with a combination of a traditional shrinkwrap with pre-cut punchline and a printed sheet lying over the top of the bottles. As the company puts it: "You no longer have to tear open the whole pack to get at one bottle." A similar concept, called Frizzpack, has been developed for cans.

Concerns about the quality, convenience and branding potential of secondary packaging were also behind a new launch for KHS at the Brau-Beviale show. The new partition inserter is mounted above product conveyors, and can be used to place partitions into collations of 6, 12 or 24 bottles.

The system can be used on wraparound case-packing lines or tray/shrink combinations, helping to protect the product and stop labels and packs rubbing against each other. KHS says the inserter will run at speeds of up to 60 partitions a minute.



**High speed sleeving:** Cama machine produces 'upper bridge' style multipacks at speeds up to 250 a minute

Machine suppliers have also been working at ways of ensuring that the basic quality of the shrinkwrap itself is high enough to satisfy brands and retailers.

For example, Ocme's medium-to-high-speed Vega shrinkwrapper series has been given an improved shrink tunnel. This is especially important in the beverage industry, says the company, where the trend is away from cluster packs and towards shrink multipacks. The tunnel is also available in a wider version suitable for film-only packs. Running across three-lanes, the Vega is capable of wrapping 450 packs a minute, according to Ocme.

For small-size plastics bottles containing dairy and juice products, material-efficient multipacking systems include Cama's "upper bridge" sleeving machine. This grips the neck of each bottle through die-cut apertures in the blank, which is folded round and hot-melt glued to form an upper surface for branding.

The sleeving machine is operated by six servo motors. Since timing belts are used in the transmissions and drives, this ensures high speeds and low noise, says Cama. The product infeed uses starwheels and a clamping system, with semi-automatic size change. An IP65 washdown model is available, and speeds can be up to 250 packs a minute on the version with a rotating feeder.

Dutch manufacturer AmbaFlex, represented in the UK by Conveyor Systems, has been developing new versions and applications of its spiral conveyor.

Starting out with systems for secondary packaging, the company diversified into spiral conveyors for individual packs – including

unstable petalloid-base PET bottles – in 2002. The SpiralVeyor uses up to four separate belt tracks. "Having four tracks adds cost," managing director Wouter Balk admits, "But it also means you have four times the strength."

At Brau-Beviale, AmbaFlex introduced AccuVeyor, which sees the company striking out in the new direction of accumulation conveyors. The system can act as a buffer either for bottles and cartons post-fill, or for secondary packaging. Here, the separate belt tracks can be used to accumulate successive rows of product, and can offer between two and five minutes of accumulation time.

#### END-OF-LINE EQUIPMENT

## Beer bottles next on retail-ready agenda

**T**he UK's retail-ready packaging (RRP) agenda, favouring smaller unit loads which can easily and quickly be stripped down to a shelf-ready tray, has so far hit food and household goods hardest. Many beverage cartons are already in merchandising units, and for soft drinks and alcoholic beverages in glass and PET, retailer pressure to provide RRP cannot be far away.

One corrugated supplier predicts that the push to enlist ales and other beers in individual bottles will start early in the New Year. The same category managers at the leading retailers will then turn their attention to wines and spirits, according to these reports.

Cases which need to be cut down with a knife will no longer be acceptable. Packs with perforated tear-out sections, or tear-tape to provide a clean edge, may offer short or even medium-term solutions. But if retailers hold out for a tray-and-hood combination, drinks companies that currently use shrinkwrapping for transit could be in for a nasty surprise.

Even parts of the spirits industry may be affected, says Dick South, area manager at Cermex UK. With some suppliers of retailer own-label spirits currently shrinkwrapping collations at speeds of 50 a minute or more, an enforced move to tray-and-lid operations running at a modest 25 cycles a minute would represent a substantial increase in costs.

Already, says Cermex, retailer preferences for smaller case sizes mean that demand for four- and even three-bottle packs is increasing, rather than the traditional six-bottle case. Clearly, this makes the case easier to manipulate. But the theory is also that the shelf-stacker is more likely to be able to put the entire contents on-shelf, rather than having to return surplus bottles to back-of-store.

With fillers looking for automated solutions which would allow them to produce interim as well as fully retail-ready packs, Cermex has launched new concepts for both erecting and side-loading cases and trays.

The recently-launched F550, for instance, will erect full and half RSC cases. But it will also assemble a low tray and half-case combination, which can be separated at point-of-sale to produce a low on-shelf tray. Speed is said to be up to 30 cases a minute.

Adding options to its own Altair wraparound case-packing system, Ocme is now offering automatic insertion of bottle partitions using robotic pick-and-place. This provides distinct space-saving benefits compared with traditional insertion systems, says the company, and also means that low-cost pre-formed inserts can be used.

### Automated blank magazine

The Altair range includes models forming between 30 and 100 cases a minute. Like other suppliers, Ocme has responded to customer requests for longer uninterrupted running with the introduction of an automated blank magazine that can be loaded directly from a pallet. This has effectively reduced the need for operator intervention to zero, the manufacturer claims.

For crate-loading, KHS has the Innopack

PPZ twin-axis system. This not only allows for accurate control as collations of bottles are loaded into crates, but also provides easy changeover. The current gripper head and centering frame can be parked, and the new set of tools gripped and installed in sequence, all automatically. Manual intervention is only necessary, says KHS, in order to connect hoses for the power and air supplies.

The PPZ system was installed as part of the glass bottle line redesign at Stiegl Brewery, Austria. Here, the system layout allows for additional sets of gripper tooling in future, should the brewery introduce new bottle or crate formats.

KHS emphasises the fact that with the PPZ, as with all its dry-area packaging equipment, control is handled by a single PC. By using this single source approach, and transferring data to all other components via the latest bus technology, the supplier says that interface problems are eliminated. Potential trouble-spots can also be quickly pinpointed, it adds.

### Palletising

As the distributor for French-based Newtec Palettisation, Adpal has been behind a few significant recent installations in the bottling industry. These include a Newtec Pal-Vite 1000 two-axis gantry robot commissioned earlier this year at William Grant & Sons near Glasgow. William Grant is one of the largest independent distillers of whisky in Scotland, Adpal explains, and pallet loads have to be of sufficiently high quality for export.

Andrew Lawless, sales director at Adpal, says: "The Newtec system has large grippers picking up a full layer of cases of bottled whisky on each cycle, from 20cl up to 4.5 litre bottles, at speeds of up to 220 layers an hour."

In a further Newtec installation, one particular UK bottler of soft drinks took its fourth Pal Pack 4700 layer palletiser. The machine is handling shrinkwrapped collations of bottles.

The customer was already happy with the previously-installed machines' ability to cope with 24-hour production, seven days a week, but also required fast changeover, since production runs can sometimes be short. Changes can be made to the 4700 via a 10in colour screen, which doubles as a diagnostic display. Euro, GKN Chep or half-pallets can be loaded, with or without layer sheets. Typically, the machines form around 35 pallets a minute.

Adpal also supplies robotic palletisers and moving systems from Costi, Italy. ■

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For full details of all PPMA members able to supply bottling machinery, consult the PPMA machinery finder service, tel: 020 8773 8111, or visit [www.ppma.co.uk](http://www.ppma.co.uk)

## DIARY DATES

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# Machine Building

DRIVES & AUTOMATION

NEC, Birmingham, UK, February 14 & 15, 2007

**30 January - 2 February:**

Upakovra packaging and converting machinery exhibition. Moscow. Details: [www.messe-duesseldorf.de](http://www.messe-duesseldorf.de)

**8 February:** PPMA Seminar on

the operation of the RoHS Directive which restricts use of certain materials in electrical and electronic equipment. Details: John Cowdrey: 020 8773 8111, [john.cowdrey@ppma.co.uk](mailto:john.cowdrey@ppma.co.uk)

**13-15 February:** Logimat

distribution and materials handling exhibition. Stuttgart. Details: [www.logimat-messe.de](http://www.logimat-messe.de)

**14-15 February:** IPOT - imaging,

photonics and optical technology, machine vision and displays technology show. NEC Birmingham. Details: [www.ipot.co.uk](http://www.ipot.co.uk)

**14-15 February:** Machine

Building, Drives and Automation show. NEC Birmingham. Details: [www.machinebuilding.co.uk](http://www.machinebuilding.co.uk)

**14-15 February:** MDT - Medical

Device Technology conference and exhibition. NEC Birmingham. Details: [mark@cancom.co.uk](mailto:mark@cancom.co.uk)

**8 March:** PPMA Seminar:

Machinery risk assessment, for both users and suppliers of machinery. Marriott Hotel, Northampton. Details: John

Cowdrey: 020 8773 8111, [john.cowdrey@ppma.co.uk](mailto:john.cowdrey@ppma.co.uk)

**7-10 March:** Sino-Pack 2007,

packaging machinery and materials exhibition. Pazhou, China. Details: [www.2456.com/sino-pack](http://www.2456.com/sino-pack)

**18-21 March:** Pro2Pac food and

drink processing and packaging exhibition. ExCel, London. Details: [www.pro2pac.co.uk](http://www.pro2pac.co.uk)

**26-27 March:** PETnology Europe

conference and exhibition on drinks and beverage packaging in PET. Munich. Details: [www.petnology.com](http://www.petnology.com)

**2-5 April:** Gulf Pack 2007

packaging exhibition. Dubai. details: [www.gulfpack.info](http://www.gulfpack.info)

**3 May:** PPMA Seminar: Update

on the latest working of the Machinery Directive, for both users and suppliers of processing and packaging machinery. Details: John Cowdrey:

020 8773 8111, [john.cowdrey@ppma.co.uk](mailto:john.cowdrey@ppma.co.uk)

**15-18 May:** Total Processing and

Packaging Exhibition. NEC Birmingham. Details: [www.totalexhibition.com](http://www.totalexhibition.com)

**15-18 May:** The Packaging

Innovation Show. NEC Birmingham. Details: [www.packaginginnovationshow.com](http://www.packaginginnovationshow.com)

# Machine Building

DRIVES & AUTOMATION

NEC, Birmingham, UK, February 14 & 15, 2007

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

IN TERMS OF INVESTMENT IN ROBOTICS, UK MANUFACTURING INDUSTRY TRAILS BEHIND MUCH OF THE REST OF EUROPE. BUT THE GAP APPEARS TO BE CLOSING AS POTENTIAL USERS COME TO SEE THAT ROBOTS CAN BRING MUCH MORE THAN JUST LABOUR SAVINGS.

According to the International Federation of Robotics, in 2005 Germany was the country with the highest robot density in Europe, with 171 robots for every 10,000 people employed in manufacturing industry. Italy had the second highest robot density (130), followed by Sweden (117), Finland (99), Spain (89) and France (84). The UK came way down the list, with a density of just 44 robots per 10,000 people.

Anecdotal evidence from robotic equipment manufacturers backs up these figures. Graham Hayes, chairman of the Bradman Lake Group, estimates that as a company, Bradman Lake supplied about 40 robot systems last year, but only a tiny proportion of these were into UK manufacturing, with the majority being export sales.

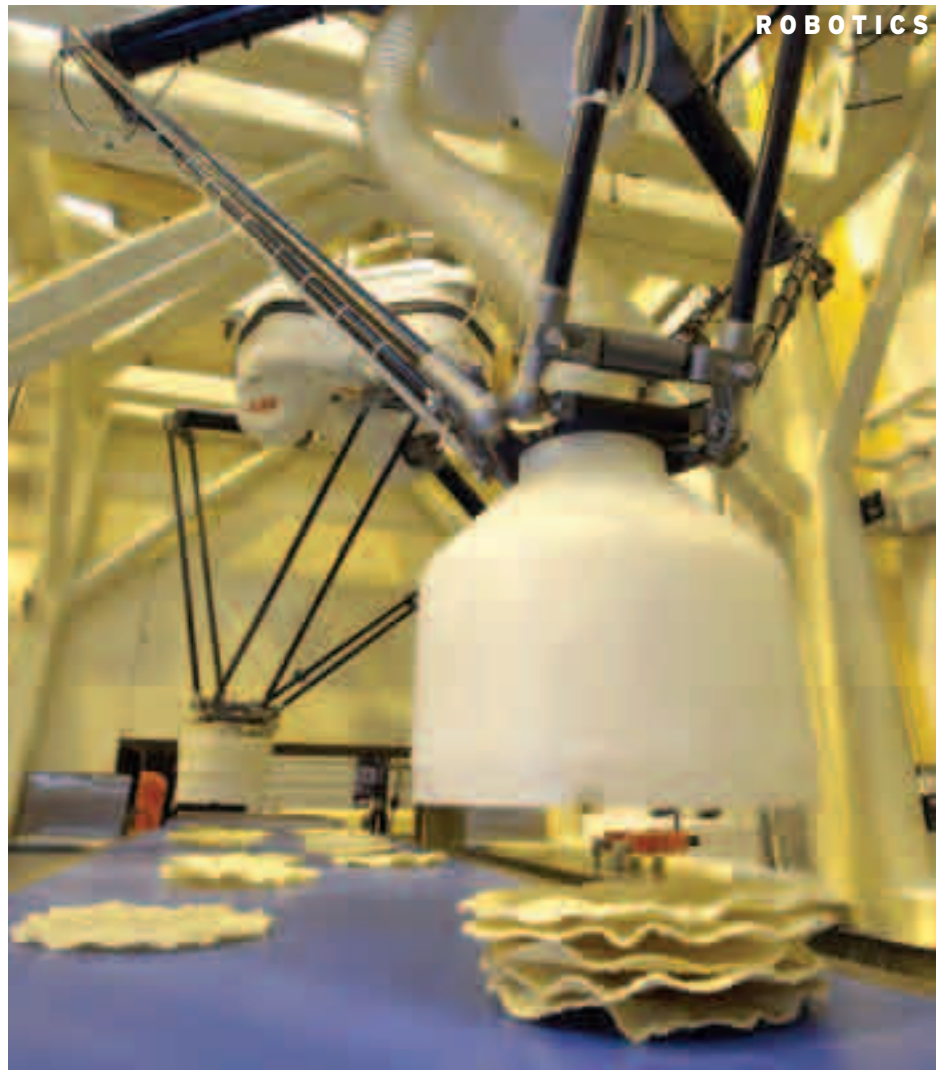
"I don't think the UK is investing enough in robots," he says. "The problem we have in the UK at the moment is that there aren't enough people in places like Grimsby and Humberside who will work in food factories. So the need is there – the problem is getting people to invest in the technology."

So what exactly is stopping UK manufacturers from adopting robotics?

Cost invariably crops up in conversations about the barriers to automation. However, the cost of robots has come down considerably in the last decade – Graham Hayes, for one, estimates that they cost about three or four times less than they did ten years ago.

This should make an investment in robotics much easier to justify, as payback periods can be as short as six or 12 months. However, this message doesn't seem to be getting through to the boardroom, according to Frank-Peter Kirgis, industry segment manager, consumer industries, of ABB's robotics division, with many manufacturers failing to build a convincing case for spending on robotics.

"I see lack of knowledge about how to justify



*Handling delicate products: RTS system with ABB Flexpicker robots for loading poppadums*

# Robotics for packaging More than just labour savings

a robotics project. It's not just to do with reduction of manual labour," he says. "That's a big portion of course, but there are other factors too, such as improved quality control and higher productivity, which are not always taken into account as much as they should in calculations."

A recent installation by RTS Flexible Systems at the Ilchester Cheese Company demonstrates how the justification for robotics can stretch beyond simply reducing manual labour costs.

RTS installed its Pixcell pick-and-place unit on one of the company's cheese portioning lines.

While the primary reason for investing in the unit was to save labour costs on a line manned by two operators, Ilchester Cheese also wanted to reduce costly product giveaway that arises as a result of portioning.

Prior to installing the Pixcell pick-and-place unit, line operators were expected to identify overweight cheese portions. However, as it was difficult to differentiate between the thicknesses of 20g portions at production speeds, oversized portions were slipping through the net.

Now, individual cheese portions are conveyed

## ROBOTICS

to the picking unit, where a sensor measures the height of each portion.

The information is communicated electronically to the Pixcell controller, which estimates the weight of the portion and combines it with information about the product's position, determined by a vision system. Products within the manufacturer's height and weight parameters are picked and placed into a vac-forming machine, while over and underweight portions are let through the Pixcell unpicked, and collected for recycling. The line operates at speeds up to 150 portions a minute.

### Control systems easier to use

Another impediment to robotics which is often quoted is the lack of engineering skills to cover maintenance. In truth, though, the day-to-day maintenance requirements are well within the capacity of an average maintenance engineer with basic on-product training.

Historically, the design and performance of the robots themselves may have proved a limiting factor in some applications. For instance, as Graham Hayes at Bradman Lake puts it: "They were very difficult to control." However, the last few years have seen manufacturers of robotic equipment focusing heavily on making their control systems easier to use. ABB's PickMaster robot packaging software platform, for example, acts as a cell controller for packaging installations with up to eight robots. ABB says the software makes it easier for partners and integrators to incorporate the robot into a system and for users to operate.

With their heritage in the automotive industry, another complaint levelled at earlier generation robots was that they were not really designed with hygiene in mind, limiting their use in the food industry. Today however, robots are becoming more suited to food production environments, with an increasing number of IP67 rated and lighter weight manipulators.

All the machines in Sigpack Systems' range, for example, can be hosed down, and since their joints require no lubrication, the risk of product contamination by grease or oil is eliminated. The grippers which handle the product are also said to be equally easy to clean, either in-situ or after being removed.

Another concern relates to the ability of robots to handle delicate products without damage. Once again, though, recent advances in gripper technology have settled this issue. Indeed, Sigpack has designed a patented vacuum airflow tool specifically for handling fragile



**Packing filters:** Brita has bought its third Schubert system to pack four different types of filters into cartons

products – even when the products are irregular in shape or size.

RTS Flexible Systems has made great strides in this area too, and has developed a robot that is capable of picking up four cooked poppadums in quick succession and placing them in a vacuum forming machine, at a rate of 100 a minute, with a very low breakage rate.

The system uses a combination of RTS Pixcell vision systems and ABB Flexpicker robots. Key to the installation is the end-effector technology, which enables the poppadums to be handled extremely gently, and the ability of the vision software to determine which poppadums can be picked successfully from the conveyor by instructing the robot to avoid any that are on top of or overlapping one another.

### Psychological barriers

It seems then that the real barriers to investing in robotics are psychological rather than physical, in many cases nothing more than fear of the unknown. "People see robots as the stuff of science fiction," says ABB's Frank-Peter Kirgis. "They are hesitant to move over to robotics because they think it's much more complex than it actually is."

It's not all doom and gloom though. The UK might be lagging behind in comparison to the rest of Europe, but the uptake of robots in non-automotive manufacturing sectors is nevertheless increasing slowly.

According to figures from BARA, the British Automation and Robotics Association, 69

robots were installed in the UK pharmaceutical industry in 2005, compared with 45 in 2004 and just 23 in 2003. Growth in the food industry is less dramatic - 2005 saw 51 robots purchased, just one more than in 2004, and seven more than in 2003.

With the use of robots fairly established in end-of-line operations, the most dynamic growth is in applications further upstream, for loading product into primary packaging or linking equipment such as flow-wrappers and cartoners.

"Usually these processes are the most complex to automate, therefore they are the last ones to be automated due to feasibility and profitability," says Sigpack's Roland Czuday. "However, with the promise of labour savings, gentler handling and increased hygiene levels, the motivation for automating these now manually performed processes is really growing."

Schubert reports that it is increasingly being asked to integrate its packaging systems with other in-line equipment such as flow-wrappers, thermoforming machines and bag makers. In fact, the company has just developed a system that takes primary bags from vertical form-fill-seal machines and loads them into the flow-wrapper to create multipacks.

### Third system bought

Meanwhile Brita, a provider of portable household filtration, has just bought its third Schubert system to pack four different types of filters into cartons at its factory in Bicester. The TLN-F44 machine incorporates five two-axis robots and

three transfer stations for processing box blanks, pack inserts and lid blanks.

The system erects and glues boxes from flat blanks before transporting them by vacuum slide to the packing station. Once the packs are filled, they are sealed with a lid.

The confectionery industry has a long tradition of automating the carton and tray loading process. Now there are signs that other areas of the food industry that have historically resisted robotics are cottoning on to the benefits of automated product handling.

RTS says it is seeing 'green shoots of interest' from a much wider range of product processing areas. Solutions it has developed recently range from packing individual pancakes into six-packs before flow-wrapping, to packing raw vegetables into acetate trays and mixing and matching dessert pots in mixed flavour trays.

### Robotics in the meat industry

One industry where the use of robotics is definitely on the up in the UK is the meat industry. Historically, meat manufacturers and packers shied away from robotics, choosing instead to rely on inexpensive labour. However, increasing difficulties with finding and retaining staff to perform unpleasant tasks, combined with developments in robotic and vision technology, are building a strong case for robotics, and automated handling of raw meats is now a reality.

For example, in one Bradman Lake installation, frozen burgers of different sizes and thicknesses coming off the production line in varied row presentations are being packed into flow-wraps at speeds of up to 400 packs a minute. Robotic stackers/loaders, purpose designed by Bradman Lake, hold the key to this performance.

Bradman Lake has also enjoyed success in Germany with a robotic top load packaging system for frozen fish – an application that few robotic solution providers will tackle.

Royal Greenland processes fish fillets, portions and fish cakes coated with breadcrumbs, flour and batter, as well as bagged seafood products. Bradman Lake installed two packing lines, each comprising six pick-and-place robots, a product locating vision system, a triple head carton erector, a high speed carton closer and a wraparound case packer, to pack products into retail cartons and bulk catering packs.

The two lines are packing in excess of 100 products in varying formats into cartons and cases ranging in size from 106 x 100 x 40mm to 495 x 140 x 190mm.



**Frozen fish:** Bradman Lake cartoning system installed at Royal Greenland

Indeed, with few new robot purchases being signed-off in the UK, some of the more interesting success stories are playing out elsewhere in Europe.

For example, Loesch Verpackungstechnik has just installed a robotic pick and place system for inserting four different types of chocolate pralines into plastic trays, which vary in size from 83 x 83mm to 315 x 223mm.

### Inspected for defects

Chocolates are transported to two robot stations via four transport conveyors, and are inspected for defects as well as position by camera en route, with imperfect product being ejected from the line. At the robot station, chocolates are picked from the conveyor by an ABB FlexPicker robot and inserted into trays at speeds up to 60 trays a minute. Some of the chocolates are in branded wrappers – so the robots align these chocolates before they are placed, ensuring the on-pack text all faces the same way.

Further afield in Hamilton, Ontario, Voortman Cookies is using a robotic packing line from Bosch Sigpack Systems to pack more than 80,000 cookies and wafers into trays and flow-wraps every hour.

Fourteen Delta robots use vacuum cups to

pick up individual cookies from the conveyor belt and transfer them into plastic trays supplied by a tray denester, packing them either upright or on edge. Each robot incorporates a vision system that is programmed to pick up product only of a specific size - all other cookies are ignored and continue down the conveyor to a reject bin. Once the trays have been filled they are transferred to a Bosch Sigpack Systems HBW flow-wraper, and wrapped at speeds of about 120 trays a minute.

### Potential for growth

While the use of robots in case packing and palletising operations is well established, there is still plenty of potential for equipment suppliers to grow their installed customer bases.

Yogurt producer Rachel's Organic Dairy in Wales recently decided to switch from manual case packing to an automated solution, following a period of rapid expansion.

"We were expanding rapidly and could see our labour costs spiralling," says Tim Pink, projects and compliance manager at Rachel's Organic. "There is almost no unemployment in Aberystwyth where we are based. As a result, labour costs are high and there just aren't enough manual operatives available at reasonable notice."

An SR-1054 Scara Toshiba Machine robot was provided by TM Robotics (Europe) and was integrated as part of a wider project by Soco System UK.

Rather than specifying a flow line system, Soco recommended a separate case erector and robot, to keep costs down.

The robot's pick-up head is designed to pick up six cardboard sleeves, each containing six pots, and separate them into two sets of three. The Scara then places the sets, two at a time, into outer cases, which are pre-formed and supplied to the robotic pack point on demand.

Fosroc UK and Ireland, a supplier of specialist chemicals, has reported significant increases in output following the purchase of an Okura A1600 palletising robot from Webster Griffin.

Since installing the robot, which is being used to transfer bulk bags of powder from a conveyor onto pallets, Fosroc says the production rate has increased to over 50 pallets per shift and the three shift rota has been reduced to a two shift operation.

All pallet types and bag designs are set up using a self-teach system, whereby palletising patterns are selected and downloaded to the robot directly from a laptop, with no need to

teach the robot every palletising programme.

Planet Flowline, via its agreement with Italian palletising specialist Zecchetti, has carried out a number of robotic installations in the UK, the latest being a second line at Amcor's PET bottle manufacturing factory at Gresford in Wrexham.

The system, which incorporates a Kawasaki robot, automatically collates unstable empty PET bottles coming from the blow moulder and picks and places them two rows at a time on the pallet, where they are stabilised. The robot also automatically picks and places the tier sheets and top frames and the conveyor automatically feeds empty pallets into the system.

Planet Flowline says it is currently working on more sophisticated palletiser designs where the robot handles the empty pallet, tier sheet, containers and top frames, making the overall cost more justifiable and reducing the footprint.

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For full details of all PPMA members able to supply robots for packaging, consult the PPMA machinery finder service, tel: 020 8773 8111, or visit [www.ppma.co.uk](http://www.ppma.co.uk)

SEWTEC AUTOMATION

## UB opts for robotics on Mini Jaffa Cakes line

United Biscuits' McVitie's factory in Manchester has installed a new robot from Sewtec Automation to load outer cases with Mini Jaffa Cakes 'pods', at the rate of six per cycle. The pods themselves are distinctive six compartment, lidded thermoformed trays, which are folded to give the three-on-three pod style.

The robot is the final element of an extensive upgrade by UB on the Mini Jaffa Cakes line, a large part of which was carried out by Sewtec. This includes two McVitie's Jaffa Cakes pod folding units and a two-to-one converger/conveyor system. This transfers the pods from the pod folder units, through a pod sleever, and into the case loading robot cell.

Previously, two methods were used for packing the outer cases. Standard cases were packed using a side-load machine, while the smaller cash and carry cases were loaded by hand.

UB's project implementation manager at Manchester, Steve Ash, decided to rationalise case packing by making the footprint of all cases identical, while varying the number of layers within the case. So the new Sewtec robot loads the pods into the cases in two, three or four layers of six to give 12, 18 or 24 pods per case, as required.

The robot is a Sewtec model 100/20 two-axis, servo motion, pick-and-place design, incorporating a bank of six vacuum heads with two cups per head. The system is controlled using an Allen Bradley ControLogix PLC-based system, installed and configured by Sewtec and incorporating an Allen-Bradley HMI.

United Biscuits expect payback on the cell within 1.2 years, says Sewtec.

Pods enter the robot cell on a Sewtec slat band in-feed conveyor, which are then cross pushed in pairs onto a collating table to give the final layer collation of six pods after three cross pushes. Another Sewtec slat band conveyor queues pre-erected packing cases and cross pushes the first in line onto a flighted indexed conveyor. The cases are then indexed into a position within the cell where the collated pod of six is picked and placed into the case. Cycle time per layer is 4 secs.

Once filled, the cases are transferred to inde-



*Upgraded line: Sewtec case-packing system at United Biscuits, Manchester*

pendent case taping machines and despatched.

According to Steve Ash, the upgraded production line – allied to improvements in the production process – have raised throughput from 100 to 110 deposits a minute and reduced waste by 20 per cent as well as providing significant labour savings.

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ELAU

## Case-packer controls cater for extra robots

A robotic case-packing line equipped with an open architecture control system that provides a simple future upgrade path by allowing up to four extra robot cells to be simply added, on a plug-and-play basis, was introduced at Pack Expo in Chicago last October by American manufacturer Fallas Automation.

The new R700 Adabot, a compact machine with a footprint of 1500 x 1500mm, uses a PacDrive automation controller from Elau that provides processing speed ten times faster than a PLC, contributing to the machine's speed as well as its flexibility.

The PacDrive controller's 1 millisecond response has increased speed over PLC-based controls which, Elau points out, offer response times limited to 10 milliseconds by their processor architecture. The robot's carbon fibre arm also reduces mass while increasing stiffness.

Layer patterns inside the case are selected



**Case-packing flexibility:** Fallas robot with Elau controls can load a variety of layer patterns

via a simple recipe change at the control panel including U patterns which, says Elau could not be produced by conventional machines.

The U pattern places two bags next to each other, then rotates the next bag at their feet to perform the U. Then the pattern is reversed in a 'chimney stack' arrangement.

According to Elau the modular nature of its robotic software library allows Fallas Automation to change robot arm dimensions readily, move profiles, belt height and picking distances – all without additional programming.

This is because the robotics library of the PacDrive system features a transformation module for each of the various robot kinematics such as articulated, gantry, Delta, Scara, or portal varieties, converting the co-ordinates of the robot's Cartesian space into positions for each axis of motion in real time. Several robots can be addressed simultaneously by a single controller.

The robot's trajectories are preset using special motion commands in Cartesian space, which is said to reduce significantly the effort of creating procedural profiles for different products or formats.

An intelligent acceleration monitor is integrated in the control system and directly monitors the acceleration at the TCP (Tool Centre Point) or the centrifugal force on the product in the robot gripper. Direction and magnitude are also monitored.

The controller automatically calculates the maximum speed possible and reduces the path speed in such a way that a preset TCP acceleration is not exceeded. This calculation ensures that the product gripper, which has a limited holding force, does not drop the product.

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CAVANNA

## Crumpets placed base to base for flow-wrapping

A two head pick-and-place robot that collates crumpets in stacks with every second tier inverted – to allow them to be packed base-to-base – has been built for a UK bakery group by Italian manufacturer Cavanna.

The robot forms part of a complete Cavanna modified atmosphere packing line, including a flow-wrapper, supplied through UK representative Quest Equipment. Formats handled by the line are two and three stacks of three and two stacks of four.

Crumpets arrive on the cooling band in rows of ten to be picked on each cycle of the G35 robot. Those rows to be handled top up are placed directly on a deadplate by the first head while those rows to be inverted are picked by a second head. This rotates 180deg and delivers the crumpets face down to the grippers of the first head, which then stacks them over the first tier.

Stacks of crumpets are then transferred at 90deg by an overhead paddle system and placed on one side of a U-board, which is then folded over twice before the product is carried into the flow-wrapper, a Cavanna Zero 5 machine with box motion sealing jaws.

The system is able to handle 20 rows of 10 crumpets a minute.

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**Stacking the upright tier:** The row of crumpets are lifted face up from the cooling band to the deadplate



**Stacking the inverted tier:** The row is lifted, turned over, and then picked again for transfer face down



CHRONOS RICHARDSON

## Compact automatic palletiser for bags

Chronos Richardson has recently added a compact palletiser to its Chrono-Pal range of automatic palletisers.

The PL 900C palletiser features automatic bag gripping to ensure bags are precisely positioned on the pallet every time. For applications requiring optimum stability, the bags can be positioned with overlapping edges.

Speeds up to 2400 bags an hour are possible, and the machine can palletise all common types of open-mouth bags (sewn or heat sealed), as well as paper, plastic or woven polypropylene and valve bags.

The palletising format can be adjusted to suit different site requirements. An in-built programmer allows 14 different patterns to be selected, forming layers of up to ten bags and

stacks of up to 12 layers high on one pallet.

Modular construction means the palletiser can be supplied in four different layout configurations. Additional options like sliding tables for layer forming and lateral pressing, automatic cover sheet placers for protecting palletised bags and bag flatteners for even product distribution are also available.

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CAMA3

## Loading cartons with thermoformed trays

Italian manufacturer Cama has developed a monobloc unit for loading thermoformed trays into three-flap cartons. It says flexibility and a small footprint are the main selling points of the new 'form, fill, close' unit.

Three-flap boxes are erected and glued via an integral forming machine. Trays are then top

## ROBOTICS

loaded into the boxes at speeds up to 160 a minute and the boxes are closed.

Cama says the use of a two-axis robot has enabled a considerable footprint reduction, as well as a simpler product in-feed and handling system.

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HERBERT INDUSTRIAL

### Case packer promises flexibility on food

Herbert Industrial says its latest Matrix 80i pick and place cell is designed for food industry case packing operations where system flexibility is a key criteria.

The system incorporates a Fanuc M6i robot, which is capable of picking and placing up to 80 packs per minute.

Variable position marshalling and low friction conveyors enable the cell to be programmed to collate different sized packs prior to picking by the robot. Zoned picking hands use vacuum cups, enabling partial drops, which, when combined with Fanuc's rotational axes, are said to create particularly flexible pick-and-place operations.



*Designed for food applications: The Matrix 80i pick-and-place case-packing cell from Herbert Industrial*

The cell can be controlled via Herbert's Gemini Lightening weigh labeller or, for standalone systems, through the robot's interface.

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GRUNWALD UK

### Crate loading system for loaves and rolls

EMB Technik has developed a robotic solution for placing loaves and bagged bread rolls in crates, which is now available in Britain through Grunwald UK.

Product is transported to the robot station via a single conveyor and placed in the crates using a sorting system based on a selected loading pattern. The robot will not only place the bags in the crates but will also stack the crates on dollies and close the clasp if required.

Picking and placing bread is a delicate operation, as bread is often topped with seeds and the like, which can be damaged, points out Grunwald UK, and the softness of the product means it is easily deformed if handled carelessly. EMB has overcome this issue, says the company, with flexible suction cups which pick and place the bread in a controlled manner.

EBM can also integrate bread scanners and cameras into the process to carry out quality control checks.

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# BAGGING

LATEST DEVELOPMENTS IN VERTICAL FORM-FILL-SEAL AND PRE-MADE BAG FILLING EQUIPMENT.

HAYSSEN SANDIACRE EUROPE

## High speed potato bagger monitors seals

Fresh produce supplier Fenmarc Produce is achieving speeds of 100 a minute on 1kg bags of Jersey potatoes using an improved version of the Sandiacre TG250-RC bagging machine recently installed at its plant in Cambridgeshire.

A smaller version of the standard TG250, the TG250-RC is based on a "short-drop" platform in which the vertical fall of products during the bagging operation is reduced.

"Seasonal potatoes such as Jersey's cause production peaks that need to be managed quickly and at an affordable cost," says Darren Howell of Fenmarc. "The Sandiacre bagger is currently handling 1kg bags of potatoes at speeds of 100 bags a minute. We are very pleased that the machine can handle such a delicate product at high speed without damage."

Fenmarc operators are also contributing to higher output with a 60 second film change.

The Sandiacre machine is equipped with a new temperature control system called Intelli-

gent Trending which, explains Sandiacre sales manager Keith Morrow, "is our way of radically reducing the wide temperature variability in the sealing jaws that plague typical bagging machines."

"Seal temperature is particularly important when handling the film used in potato bagging as each type of film has a specific temperature band that ensures a durable seal."

Intelligent Trending maintains jaw sealing temperatures to within  $\pm 2$  deg C on average by monitoring both the temperature and power draw over time, then letting the software predict just how much power is needed to maintain future conditions within the  $\pm 2$ deg C temperature band.

The TG250-RC employs four independent servo drives for the film feed, the horizontal and vertical drives of the sealing jaws, and the back seal.

T: 0115 967 8787

E: sales@rose-forgrove.co.uk

KLIKLOK-WOODMAN INTERNATIONAL

## Expanded range for up to 220 a minute

The Woodman range of bagging machines has recently been expanded and updated to give a series of models able to cater for duties extending from entry level to high speed production in excess of 220 bags a minute, from a single tube machine.

A variety of bag styles, including reclosable versions, can be produced by the machines.

In particular, Woodman has introduced its Insight operator panel on all models, with the aim of improving ease-of-use and reducing reliance on the skill of the operator. The Insight system depends almost entirely on graphic icons for rapid understanding and user adoption, but perhaps most important says Kliklok-Woodman, uses a program to establish and set almost all machine parameters automatically.

"On several models, only three inputs are



Fast on wide bags: The new Kliklok-Woodman KWest

required: speed, sealing jaw temperature, and product weight, with all other settings being automatically set to ensure repeatable machine performance, shift after shift, regardless of the operator," explains the company.

All Woodman baggers use servo motors for critical machine functions, including the company's new Compak II described as an economic option for small to medium size food producers that need pack size flexibility, up to a maximum width of 250mm. Speed is up to 80 bags a minute.

There is now an upgraded Polaris II, with a top speed of 100 bags a minute, and the Cyclone series of machines. These offer extended seal dwell time with the Cyclone SF model providing a number of features specifically designed for the snack food industry, including a product clamp and settler.

The Evolution, built in stainless steel to a dairy hygiene specification and capable of speeds up to 220 bags a minute offers an expanded size range – up to 380mm wide – as well as the flexibility to produce gusseted, flat bottom, four-corner seal stand-up bags, or traditional pillow pouches.

Kliklok-Woodman's latest bagger, the KWest combines a speed of 100 a minute with a 380mm maximum bag width and is said to be one of the most versatile form-fill-seal machines available, capable of producing conventional pillow pouches, reclosable zippers,



Handling potatoes: TG250-RC at Fenmarc Products

block bottom or four corner seal stand-up bags.

"The KWest will re-define what refrigerated and frozen food packagers come to expect from a vertical bagmaker" says Graham Holbrook, general sales manager. "Its enormous bag size range, package style flexibility, intuitive interface and user-friendly nature provide the KWest with a significant competitive advantage."

T: 01275 836131

E: m.tatum@kliklok-woodman-int.com

ERAPA (UK)

## Layflat tubing gives bags up to 2m long

The Simplicita Bag Plus 400 bagger works with layflat tubing, either plain or printed, forming bags with a horizontal base seal, mechanically opening them for filling and then making a top seal. A third weld can also be introduced, incorporating a punched Euroslot.

For bag width changes the film reel is replaced in seconds, says Erapa, with pre-programmed controls then adjusting the sealing positions automatically.

Bag width is 80 to 200mm while bag lengths up to 2 metres can be produced, allowing the machine to cater not only for small components, but also for larger or irregular shaped products such as rolls of cable, radio aerials, or window blinds.

The SP can be operated as a standalone unit or linked into an automatic line fed by robotic systems.

T: 01582 722462

E: info@erapa.co.uk

ROVEMA PACKAGING MACHINES

## Linear motor drive for frozen food

The Rovema VPL 400 bagging machine is aimed in particular at frozen food and employs linear motors to drive the two axes of the box motion sealing jaws, replacing the conventional gearboxes.

As result of the drive system the machine is almost maintenance and wear free, says Rovema, while both sealing times and sealing pressures are pre-programmable for both the

product and the film. Positioning is repeatable to within 5 micron.

Sealing pressure is infinitely variable between 50 and 8000N at the operator console and can be saved as part of the product program. "Time consuming trials with pneumatics or compression spring adjustments when packaging materials are changed are now history," says Rovema.

The machine is also able to detect product in the jaw at speeds of 150 a minute and makes a double bag without stopping.

Built in stainless steel, the VPL 400 offers a broad format range of 80-400mm wide with bag length up to 600mm and can produce a variety of styles including pillow pouch, block bottom and four-corner seal Stabilo bags.

T: 01296 642060

E: sales@rovema.co.uk



Linear motor sealing: Rovema VPL 400

BOSCH PACKAGING SERVICES

## High speed unit offers variety of styles

A machine able to produce all common bag forms and run, on conventional pillow packs, at speeds up to 180 a minute is now available from Bosch.

The SVE 2510 DR provides the flexibility to allow a single machine to be used for standard pillow packs, block-bottom bags, gusseted bags, four corner sealed block bottom bags and also Doypack style pouches, which can be produced at speeds up to 100 a minute.

A servo driven, continuous motion machine, the SVE 2510 is also said to provide lower costs per bag in comparison with other

machines that produce these styles of pack.

Unlike most baggers able to produce a four corner seal pouch, the SVE 2510 DR makes three of the seals while the film is travelling horizontally between the unwind and the forming shoulder.

This gives a reduced drop height, particularly for delicate products, and allows a circular rather than rectangular forming tube to be employed, giving room for a larger diameter auger and hence faster filling.

T: 01332 626262

E: ukenquiries@boschpackaging.com

GOLCONDA

## Sack filler makes handles from same film

A method of creating handles at both ends of a finished sack is among recent developments on the Continua range of vertical form-fill-seal machines from Italian manufacturer Concetti, represented in the UK by Golconda.

The Continua machines are available with a wide range of options for most applications in filling polyethylene sacks, either flat or gusseted, and can be fed by nett or gross weighers. Even liquids or liquid based products can be dispensed and filled using a newly developed feeding device.

The handle system has been specified on two Continua 900 machines ordered by a UK user to pack cement based building materials and requires no additional consumables, the handles being made out of the tubular film employed to make the bags themselves. "This feature is particularly useful for products intended for the retail sector where ease of handling is essential," notes Golconda.

Other features of the Continua range include various de-aeration systems for fine powders, corner seals to improve subsequent palletising, air evacuation lances, plastic seal reinforcement, bottom-up auger fillers for extremely difficult materials, hot foil printing, all stainless steel construction, and installation on rails for multiple lines. Speeds range from 400 up to 2000 bags an hour.

The Concetti IGF handles pre-made pillow or gusseted paper and plastic bags of 5-25kg at speeds up to 1200 bags an hour with closure by sewing, heat sealing or gluing. An advanced version is fitted with servo motors to allow press



**Pre-made or form-fill-seal:** Concetti IGF-FFS fills and seals pre-made bags as well as making bags from a reel

button changeover between different bag sizes in the range 2-20kg.

For smaller packs of 1-5kg the Concetti IPF is aimed in particular at the dried petfood market. Speeds of 2400 bags an hour can be achieved with closure by a variety of means.

According to Golconda, lower cost and improved reliability have fuelled a current trend to polyethylene bags handled on a form-fill-seal basis, but few producers are able to switch completely from pre-made paper bags to polyethylene bags made from a reel. Usually, there is a need to produce both from separate machines.

However, Concetti's combination unit, the IGF-FFS, enables users to employ a single machine to fill pre-made paper, coated paper, paper and pe liner, polyethylene or PP woven sacks as well as polyethylene bags made from tubular film on a reel.

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ANCHOLME

## Low drop model is aimed at delicate items

Ancholme has enlarged its range of bagging machines with a stainless steel low drop height model to handle delicate products, particularly in the food industry.

The AB330 Mk 3 is capable of producing bags up to 320mm wide and 300mm long and, for example, is currently employed in one application handling orange and apple slices at

speeds of 90 bags a minute. In other applications the machine is able to achieve speeds in excess of 100 bags a minute.

Like other machines in the Ancholme range, the AB330 can be installed with a multihead weigher and feed system beneath a 3 metre high ceiling, the machine itself measuring just 1300mm high.

Standard equipment includes a reel clamp system that avoids the need to lift heavy reels into the film carriage while optional equipment includes servo jaw closing for high speeds and automatic film tracking.

Further machines from Ancholme are able to produce bags up to 600mm wide and 600mm long, or longer on a double draw basis.

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E: ancholme2@aol.com

GAINSBOROUGH ENGINEERING

## Modular design allows choice of specification

Gainsborough Engineering's range of vertical form-fill-seal machines are based on a modular concept in which frame size is determined by the size of the bag and further specification by the user: from the type of drive, pneumatics, plc and electronics through to feeding arrangements such as auger, multihead weigher, in-line vibratory tray feeds, or robotics.

Further options include block bottom attachments, valve applicators, gas flushing facilities, carry handle and tear strip applicators and a

## BAGGING

choice of printers. These modules are available as bolt on units with the connections and programming pre-installed into the bagger, which allows installation by the user. As a result, a relatively low cost bagging system can be bought initially and upgraded with additional modules if required.

Gainsborough says that changeover times have been substantially reduced by incorporating easy washdown features, tool free parts and settings that are readily accessed via the touch screen. The screens have self-help menus and even warn the operator if potentially conflicting data are entered.

Fault diagnostics reporting can be carried out via ethernet or wireless connection to a base station and an engineer sent a text message. T: 01427 617677

E: sales@gains-eng.co.uk

### FORDS PACKAGING SYSTEMS

## Stand-up coffee packs with degas valves

Italian manufacturer ICA is launching a new machine to pack ground and whole bean coffee in a gas-flushed four-corner sealed, stand-up flat top bag. It incorporates an AromaSystem degassing valve in the pack, and applies a tintie and a face label.

The CSV40 Paket Tin-Tie Quad Seal machine is capable of packing 12oz of whole bean coffee at 45 bags a minute on the single tube configuration and 75 bags a minute on the twin tube version.

The same twin tube machine can also produce up to 150 pillow packs a minute, says UK representative Fords Packaging Systems.

T: 01234 846600

E: sales@fords-packsys.co.uk

### GAINSBOROUGH INDUSTRIAL CONTROLS

## Continuous motion for 100 bags a minute

Gainsborough Industrial Controls (GIC) has enlarged its range of continuous motion baggers with the VFB3000 machine, aimed in particular at applications requiring speeds in excess of 100 a minute, such as confectionery,



**Addition to range:** The new GIC VFB3000

snackfood and also fresh produce.

Capable of handling bags up to 250mm wide, the new machine complements the established VFB8000 machine, which gives a maximum flat bag width of 400mm. Both employ a control system based on a high speed industrial PC and use servo drives for all machine movements.

In addition, the operator interface is a 10.4in colour touch screen offering multiple access levels for operators, engineers and management.

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### PFM PACKAGING MACHINERY

## Big bags carry catering and food ingredients

Aimed in particular at bulk packaging operations such as catering packs, food ingredients, building materials or even multi-packs, the Zenith EEW announced by PFM can produce bags 460mm wide up to 1000mm long.

The machine can be fed by any of PFM's filling systems including augers for powders, cup fillers for larger particulates or linear or multi-head weighers, and equipped with sealing jaws to handle polyethylene or laminated and co-extruded films.

Power assisted film reel loading and power unwind are standard, to cope with reel weights of up to 80kg.

The Zenith EEW was developed initially to give a plastic closures manufacturer – which now has several of the machines – a low cost solution to packing the injection moulded components on line. Caps are fed from the moulding equipment at 1000 a minute through foil liner insertion equipment and then into the PFM holding unit and the bagger.

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E: sales@pfm-ltd.co.uk

### FILLING AND SEALING PRE-MADE BAGS

## Quick changes suit a variety of materials

Pre-made bags are still often the preferred packaging choice when runs are short and a wide choice of packaging media is required. Pre-made bags are also available in many different designs and types of packaging material, ranging from plain paper through to complex laminates, many of which cannot be run on vertical form-fill-seal machines.

In many cases also, changeover from one bag size to another is virtually instantaneous, with no loss of material, which is one reason Automated Packaging Systems (APS) gives for attracting customers who were previously bagging items by hand.

In addition, APS points out, material suppliers frequently over gauge on flat film, which can increase costs by as much as 10-20 per cent. Further money is wasted on scrap, largely produced during set up and changeover.

APS supplies the Autobag system, which operates with pre-made bags on a reel and can be equipped with a variety of feed systems as well as a printer for information such as bar codes and product codes, avoiding the need for a separate labelling operation.

One recent application is at West Midlands electrical accessories distributor GET, which has installed an Autobag Excel Print and Pack system to automate its packaging process.

GET special projects manager Darren Shoter says: "The machine is quick to set up and changeover of bags is fast and efficient. The saving to the company is in excess of £20,000 a year in terms of materials and labour since implementation."

At handmade cosmetics manufacturer Lush, Poole, gifts production manager Sharon Ether-



**Eliminating labels:** Lush is using an Autobag

ington, says the use of an Autobag machine has given a much more professional appearance. "And we have removed the need to print a separate label therefore eliminating that extra cost."

Also using pre-made bags, but on a string, is the Pronova-Joker bag filling and sealing system from Supreme Plastics, recently updated to handle an extended range of packs including those that require hermetic sealing, stand-up pouches and wet-wipe packs as well as laminate bags with gas barrier properties.

The Pronova machine works with a continuous chain of pre-formed bags which feature channels that allow the bags to run along two fixed guide rods, supporting and opening each bag at the point of filling.

Generally speaking, machinery to handle pre-made bags divides between those that work with a string or roll of bags and those that use individual pre-made bags, usually held on a wicket.

One of the latest for wicketed bags, able to handle bags 50 x 50mm up to 400 x 800mm, with virtually instant changeover between different sizes, is now available in the UK from Advanced Dynamics. Speed is up to 2000 bags an hour.

Aimed in particular at short runs of goods

such as toys, stationery, clothing, automotive parts and DIY goods, the German-built Strubl Plug & Pack machine consists of four stations – empty bag magazine, thermal transfer overprinting, bag opening/loading, and bag sealing – linked by a captive chain conveyor.

This conveyor indexes on a fixed pitch between each station, with the bag automatically centred, so eliminating any need for width adjustment. Only the side guides in the empty bag magazine – where the bags are supported on the wicket – need be altered for different bag widths.

As a result, the Plug & Pack is said to be particularly efficient on extremely short runs such as just a few bags, as well as larger batches, and can be size changed in a matter of 10 seconds or less by simply placing the new bags in the slide-out magazine and moving the guides.

The machine can be supplied for hand-loading only, or equipped with a range of filling, weighing and counting systems. Thermal transfer coding equipment can also be installed for printing one or both sides of the bag with product information, bar codes, graphics and date and batch codes.

At the loading point, bags are held open by an

air knife or mechanical fingers, while the sealing system, which requires no adjustment, delivers the flattened, sealed bags direct into transit cases or onto an outfeed conveyor.

The Plug & Pack machine operates with pre-made bags made in a range of materials and supplied either plain or printed in up to eight colours. Bags can also be made with a reinforced header that prevents heavy products stretching or tearing the Euroslot. ■

### For further information

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**Automated Packaging Systems**  
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**Supreme Plastics**  
T: 01947 604161  
E: [info@supremeplastics.com](mailto:info@supremeplastics.com)

For full details of all PPMA members able to supply bagging machinery, consult the PPMA machinery finder service, tel: 020 8773 8111, or visit [www.ppma.co.uk](http://www.ppma.co.uk)

# War on global warming sees Small drives called up

ENERGY SAVING IS NOW SO HIGH ON THE INDUSTRIAL AGENDA THAT VARIABLE SPEED DRIVES SHOULD BE CONSIDERED FOR EVEN THE SMALLEST MOTORS, WHERE PREVIOUSLY THE INITIAL OUTLAY WAS CONSIDERED UNRECOVERABLE. DRIVES MANUFACTURERS HAVE RESPONDED WITH A FLURRY OF NEW PRODUCTS.

**D**rives represent one of the key technologies for improving energy efficiency in almost all areas of industry and small drives will have an increasingly vital role to play in the coming few years.

Indeed, the recent Stern Report has served as a wake up call for many industrialists by addressing energy issues in financial and commercial terms rather than as nebulous global phenomena. Drives manufacturers can develop the report's theme to show how saving energy benefits individual companies as much as mankind as a whole.

Mitsubishi Electric has unveiled three new small sizes of its flagship F700 series drives, extending the range from the existing 0.7kW model down to 0.2kW sizes. The range, which goes up to 630kW, majors on performance and efficiency. In addition to its inherently efficient operation, the F700 also offers a forward-looking 'Optimum Excitation Control' function. This monitors changes in the load profile and automatically optimises energy usage to provide a 10-15 per cent efficiency advantage.

Actual energy savings can be monitored via the front panel, which can display the power, percentage or cumulative energy saving in kW/hours or local currency. This information, along with other performance measures can be downloaded via the communication network to a central location.

F700 inverters feature a custom-designed ASIC which boosts performance by reducing speed fluctuations to less than 50 per cent of those measured using conventional drives.

In standard form, the F700 is ideally suited to fan, pump and agitator duties where its energy saving capabilities will offer huge benefits. Additionally, a flux vector option is available for applications requiring high levels of dynamic control.

ABB's new general machinery drive is rated

from 0.37 to 7.5kW and is claimed to be up to 60 per cent smaller than comparable products allowing notably increased packing density in control panels. To enable easy side-by-side mounting all units in the range are the same height and depth, with only the width varying between sizes.

No additional space is needed for air circulation, partly because of the use of a new generation of power semiconductors which gives lower power losses, reducing the need for cooling through large heat sinks.

Despite the small size, the drives have both EMC filter and brake chopper built in, although many other features are available as options. The drives are available as single-phase, 200 to 240V, 0.37 to 2.2kW; three-phase, 200 to 240V, 0.37 to 4kW; and three-phase, 380 to 480V, 0.37 to 7.5kW.

Features include ABB's FlashDrop technology, enabling users to upload parameters in less than 2 seconds without even powering the drive up. Important parameters can be quickly and safely downloaded into a drive using a handheld FlashDrop unit. This makes it easy for OEMs to pre-configure drives before delivery and helps high-volume OEMs to streamline the commissioning process.

## Future proofing

Control Techniques says it has put two years' intensive development into its new Commander SK AC drive range to meet the present and future needs of customers in the biggest sectors of its market, distribution and OEM.

Like its competitors, this year's watchwords are compact size, simplicity of use, price and functionality. Yet, scratch the surface, says the company and there is a very smart, versatile product that is also suitable for more complex system applications.

The first phase of the launch covered sizes up



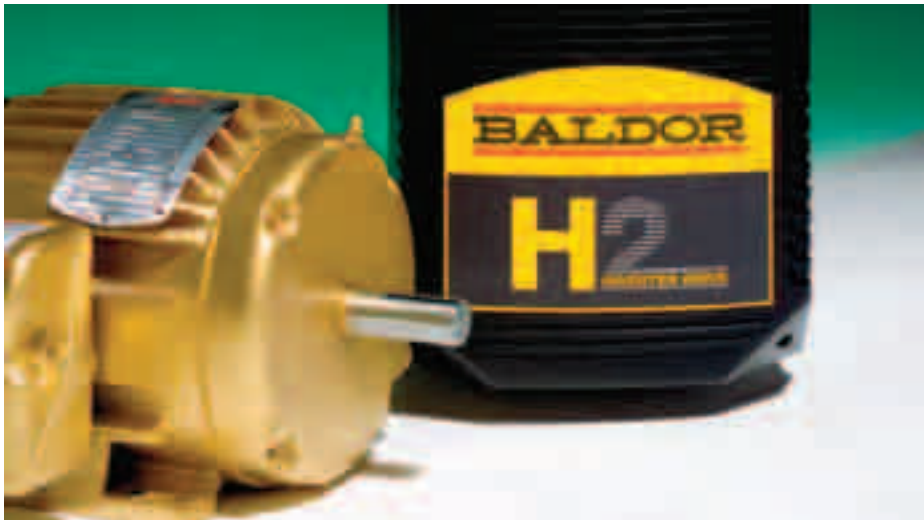
**General purpose drive:** New Rockwell PowerFlex 40P offers increased functionality

to 4kW. The second phase will see larger sizes up to 110kW introduced over the next year.

The Commander SK is said to be a very competitive, compact drive, with an ease of set-up that brings much lower support requirements. For OEMs who need price, simplicity and flexibility the Commander SK has a list of embedded features over and above other mainstream drives available today.

As standard, the Commander SK is said to be simple to fit and can be programmed for most tasks using just ten basic parameters on the front-mounted keypad. A plug-in Smart-Stick allows easy copying of parameters from one unit to another.

For OEMs, the Commander SK dimensioning allows high installation density, saving significantly on control cubicle size and installed cost.



**Extended range:** Baldor has introduced higher power options in its H2 family of drives

But despite its "simple and compact" headline Control Techniques has packed the SK with features: dynamic braking, ModBus, PID control, EMC filter, fieldbus options, extensive memory, basic closed-loop and positioning control – even task scheduling.

As is increasingly common, DIN rail mounting is possible, all sizes have an internal braking chopper and EMC filter. The Commander SK is even said to provide simple PLC functionality using a Logic-Stick and therefore the promise of major cost savings.

It should also be noted that this year there have also been drive developments in other parts of the drives spectrum with, for example, both Mitsubishi and Baldor introducing larger drives and washdown/splashproof drives.

### Higher power and washdown

Baldor has greatly extended its H2 family of drives with new higher power options – up to 96kW – washdown variants, and more plug-in expansion cards. One of the key features of the H2 drive family is a high-integrity design strategy which includes FMEA (failure mode and effect analysis), built-in protection modes to guard against misuse, and a manufacturing process embracing stress testing and full-load testing of final products.

And to finish where we came in, Mitsubishi's extensions to the F700 drives range includes the F700 FSU floor standing unit which covers the range from 45kW up to 450 kW (630 kW for light duty) and provides a cost effective AC-in, AC-out solution for IP20 standalone use, such as in a control room. Assembly and installation usually takes less than an hour with the unit being delivered in easy to handle, pre-drilled sections.

The drive is aimed at both retrofit and OEM users, being suitable for a wide range of applications from fans and pumps, conveyors and hydraulics to compressors, pumps and blowers.

Rockwell Automation has extended the Allen-Bradley PowerFlex range of drives with the addition of the PowerFlex 40P, a highly flexible and cost-effective drive that addresses the requirements for closed-loop control and Category III Safe-off functionality to EN 954-1, in a compact design.

The PowerFlex 40P is a general-purpose drive geared for machine level or standalone applications. Features designed to offer the user more functionality and application versatility include: dual-channel pulse-train input; Drive Guard, to achieve Category III Safe-off (as per EN954-1); and a DC bus ride-through feature for use in critical applications where continued drive output is required, even in the event of a "brown-out" or reduced voltage situations.

### For further information:

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**Mitsubishi Electric**  
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E: automation@meuk.mee.com

**Rockwell Automation**  
T: 0870 242 5004  
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## Integrated drive aims to cut costs for multi-axis applications

German manufacturer Elau has launched a new integrated servo drive for packaging machines, the iSH Servo series, aimed in particular at reducing hardware costs by about 15 per cent per axis where more than three servo axes are required.

This new servo module, with flange dimensions of 70 and 100mm, combines the compact Elau SH servo motor and the necessary power electronics of the Elau MC-4 servo amplifier in a single module. These are connected directly to the PacDrive motion/logic controller by means of a new cabling concept and power supply.



**Integrated system:** New Elau iSH cuts hardware costs for multi-axis servo installations

Hybrid cables run from the power supply to the servo modules, allowing up to 16 iSH servo modules to be supplied by the same power supply. Line and tree structures can be constructed as well as a mixture of both variants with the hybrid cables using distribution boxes.

Compared with standard cabling, Elau says this reduces cable lengths required by up to 70 per cent.

The iSH drives are fully software compatible with the existing SH servo motors and MC-4 servo amplifiers. They can therefore be connected within the same synchronised drive network. The electronics of the iSH drive can be expanded with I/O or safety functions using option modules.

The I/O module uses the drive bus to link up to a maximum of eight sensors or actuators with the controller. The safety module integrates all expanded safety functions that are required to develop safety concepts in accordance with EN 954-1 Category 3 and PL d/EN 13849 for packaging machines as well as the existing basic functions of "Safe Stop 1" and "Safe Torque off".

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ATWELL SELF-ADHESIVE LABELLERS

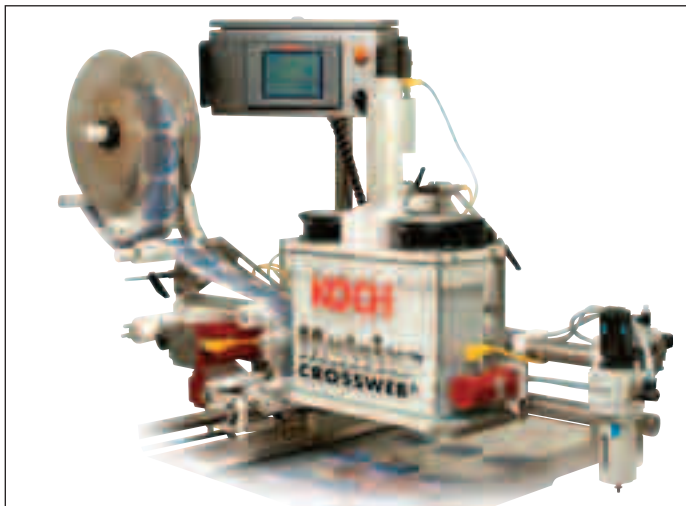
# Cross-web IP65 labeller offers higher speeds and accuracy

A cross-web labeller that provides speed up to 20 cycles a minute, more than matching the speed of typical multi-lane host machines such as thermoformers, has been announced by Atwell.

The new Koch Matrix cross-web machine is specifically designed for food and other hosedown applications, with sealing to IP65, stainless steel construction, and perforated PTFE rollers that allow water to drain and avoid contamination traps. The machine is also built with a minimum of flat surfaces that could retain water.

Speed is 33 per cent higher than previous Koch machines, due in part to a new height adjustable fan box and tamp fins for supporting the labels immediately prior to application.

In place of the traditional vacuum box used by most cross-web machines, set above a series of transfer belts that carry the labels cross-web, the Matrix employs a series of honeycomb tamp fins through which a vacuum is created to hold the labels on a similar



**Hosedown applications:** Matrix cross-web labeller is faster than its predecessors

system of cross-web belts.

This provides closer control of the labels – in particular helping to prevent small labels twisting – and higher accuracy, while also allowing the tamp label application system to be set much closer to the products, reducing label time-in-flight and raising speed.

Atwell has also launched the Express IP65 pressure-sensitive labelling head, based on the Matrix machine with which it shares many

common parts, including full stainless steel construction and perforated PTFE rollers.

“Like the Matrix, the Express has been specifically designed for hosedown applications,” points out Atwell managing director David Charlesworth. “This means that all components have been chosen for use within a harsh environment and to resist corrosion.”

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LOGOPAK INTERNATIONAL

# Pallet labellers add RFID ‘flag-tags’ on demand

Logopak has supplied its first pallet labellers to be equipped with “flag-tag” on demand RFID capability to Kraft Foods/Power Logistics in Germany. The four adjacent-side labellers add RFID tags to conventional A5 print-apply labels only when required – saving the cost of using RFID tags on all pallets – and also fold out the tag part of the label at 90deg as a



**Flag-tag:** Logopak labeller folds out the RFID section as a “flag”

“flag” to improve radio reception. Speed is up to 90 pallets an hour.

Each machine consists of two Logopak labellers: a 920 pallet labeller and a secondary 804TS labeller which carries the RFID tags on a reel.

Print-apply labels are handled in the conventional fashion by the Logopak 904. However, when an RFID tag is required for a particular pallet the 804TS machine automatically dispenses, reads and applies a 25mm wide tag to the undersides of the main labels, at one end.

Any RFID tags that fail to read are rejected before application to the main label and a second RFID tag dispensed and read.

Then, as the completed “flag-tag” label is applied, a small pneumatic system within the head of the pallet labeller folds back the last 25mm of the label, leaving the section carrying the RFID tag standing out as the “flag”.

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DOMINO UK

# Laser coders lift product security for Boots

Following successful retailer trials, security and risk management consultancy The Courtenay Group is to supply Boots with two Vendormark 6000 product security systems incorporating Domino S200W scribing lasers.

These are used to mark products with a unique code – the Vendormark – carrying information on the outlet where they are to be sold.

During the trial, a Domino S200W laser was installed at Boots’ Nottingham factory to add security codes to several high profile cosmetic brands which were then shipped to Boots stores in the north and southeast of England.

Shortly after the merchandise was placed in the stores, a quantity of stolen goods were identified from the Vendormark branding and reported to Theftline, the Vendormark theft reporting service. As a result, a market trader was arrested and goods seized from his stall.

Generally Boots also saw a



**Unique mark:** Laser coded Vendormark identifies legitimate sales outlet

significant reduction in theft, points out Domino.

“Vendormark is already having positive results in securing quick arrests from the instant proof of identification of stolen property,” says Simon Jarvis, managing director of The Courtenay Group.

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ALLIED PHARMA MACHINERY

# Lab scale granulator in UK launch of coater/dryer range

A laboratory scale one-pot mixer-granulator-dryer said to give particularly reliable scale-up, is among coating and drying equipment launched on the UK market by Allied Pharma Machinery, recently appointed representative of the German manufacturer Lödige.

The Lödige Druvatherm VT 20 laboratory scale shovel dryer is a horizontal batch vacuum dryer with shovels rotating in a heated cylindrical drum. Short drying times are said to be achieved by steady contact of the product with the heated wall as a result of the fluid bed generated by the shovel rotation.

The drum is equipped with a high speed chopper unit to disperse any lumps during phase transition, releasing additional product surface and increasing the drying capacity considerably. This, says the maker, prevents temperature and moisture gradients developing in the product.



**Laboratory scale:** Lödige VT 20 one-pot mixer-granulator-dryer

The VT 20 is also said to provide gentle thermal treatment of the product as a result of high vacuum. Drums of 5, 10 and 20 litres are available.

Lödige also produces a range of

full scale drying equipment as well as tablet coating machines, particularly the LHC Series coaters which employ segmented drums that are only partially perforated.

By limiting the number of perforated plates to four, abrasion and friction on the product are reduced, the company points out, while the sealed drum allows very little heat to escape.

The sealed drum also reduces waste coating materials and, says Lödige, makes the machine easier to clean as well as reducing its footprint. Fully perforated coating drums are however also built by Lödige for applications that demand their use.

Lödige coaters extend from laboratory scale units to production models capable of handling 720kg batches. Most can be equipped with a choice of either bottom or front discharge.

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AMBASSADOR PACKAGING

## Side-sealing shrinkwrapper has maintenance free sealing

A continuous motion automatic side-seal shrinkwrapper that uses sealing systems claimed never to require cleaning has been introduced on the UK market by Ambassador Packaging.

As a result, the US built Lantech SW-2000 is said to avoid line stoppages – particularly to clean the side seal system – as well as rework which, Lantech says, can be as high as 20 per cent according to research carried out by the company amongst users of wrapping equipment.

The machine has an adjustment-free rotary side-seal system that cuts and seals simultaneously at minimum temperature.

Two different wheels, adjacent to each other, trim and fuse the side seal. Trimming requires no heat, so the seal head can be threaded and checked cold for operator convenience. Likewise, the sealing wheel does not cut the film so, explains Ambassador, seal temperature can be set for the minimum necessary, eliminating the tendency for film to melt on sealing surfaces.

The Lantech SW-2000 operates with centre-folded film at speeds up to 60 packs a minute and handles items up to 15in wide, 6in high and any practical length.

It is supplied with Lantech's new "soft convection" ST-900 shrink tunnel, which uses convection heating, rather than direct forced air. This, says the company, eliminates common shrink-wrapping problems, including dog-ears and bubbles.

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SPECTRUM INSPECTION

## X-ray system employs new high speed sensor array

The Loma X4 X-ray inspection system employs a new high speed USB sensor array and Windows XP operating system and is available with belt widths of 300-600mm and aperture heights up to 250mm.

Product set-up is an automated process and, says the company, can be accomplished with minimal operator training while product changeover and set up can be further simplified with the addition

of an optional bar code reader. Start up time is just 30 seconds.

Apart from contaminant detection, the machine comes equipped as standard to monitor other product qualities such as component count, zone mass measurement and shape conformity.

Separate reject signals are provided for each type of non-conformity so that contaminated



**X-ray inspection:** Loma X4 system from Spectrum

and improperly packaged products can be kept separate.

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AUTOWRAPPERS

# Confectionery bars handled by infeed at 1000 a minute

Autowrappers has announced a product infeed system that allows its Flowtronic flow-wrappers to handle confectionery bars at speeds up to 1000 items a minute.

Key to this performance is a new row distribution system – the Automatic Distribution System – which accepts, aligns and feeds the bars using a height adjustable, single belt feeding process which halves the amount of product transfer.

Product handling and line efficiency are improved, says Autowrappers, and belt changeover times have also been halved compared with earlier machines.

The Autowrappers ADS is designed on a modular basis with a 1.1 metre wide belt and is able to distribute bars to a number of



**Distribution system:** Autowrappers' ADS aligns and feeds bars for wrapping

packing stations if required. Light guarding in place of conventional metal or plastic guards helps reduce cost.

The new ADS can be linked to a Flowtronic flow-wrapper by the Power Bend and Shuttle Phase

Feeder. The bar turning unit increases use of floor space while the shuttle feeder eliminates pressure on the product queue, maintaining a consistent feed.

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PFM PACKAGING MACHINERY

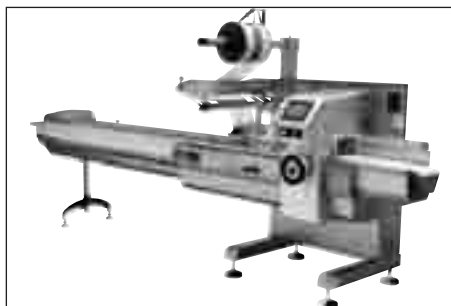
## Entry-level flow-wrapper is built on balcony basis

PFM has announced an entry-level flow-wrapper which, for ease of cleaning and access, is built on the balcony basis usually associated with top-of-range equipment.

The new Pearl machine also makes extensive use of panelling

with radiussed corners to avoid dirt traps while construction is from modular pre-assembled groups of components that can be easily accessed and replaced in the event of failure.

Servo drive is used for all functions while set-up data for different products can be held in memory for immediate recall.



**Balcony construction:** Pearl flow-wrapper from PFM

Speed is up to 120 a minute.  
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LOGIC TPS

## Tablet counter is linked to checkweigher for accuracy

An infra-red counting system linked to a checkweigher accurate to within 0.02mg is said to give the Collischan TC 8210 tablet counter particularly high accuracy.

Available in the UK and Ireland through Collischan's agent Logic TPS, the machine is able to fill tablets of all shapes and sizes, including small or unusually shaped tablets, into containers at speeds up to 50 packs a minute.



**Double check:** TC 8210 tablet counter and checkweigher

The weighing unit then identifies any containers that are under or over filled as well as any with chipped or broken tablets.

For higher speed applications two TC 8210 units can operate in tandem to provide an overall speed of 100 containers a minute.

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AUTOBOX

## Short run case maker can now add graphics simultaneously

Short run just-in-time case-making equipment from Autobox can now be equipped with a digital print system that allows logos, bar codes, handling instructions and product dimensions to be added to quantities previously considered too

small to justify print set-up costs.

The new HiPrint system is now a standard option on the Autobox HiPak single-pass box-making machine and operates from digital artwork, quickly uploaded via Windows compatible software.

The system includes an air knife to remove debris from the cut board and also an encoder on the box-maker's driveshaft to give the ink jet precise information on the position of the board during its pass through the machine.

In addition to short-run in-plant use, the HiPrint system is also said to enable larger sheet plants to re-assess single colour work currently run on printer-slotters.

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