

# The race is on to produce more Bags of advantage

FOOD AND OTHER FMCG MANUFACTURERS ARE LOOKING FOR EXTRA MARKETING ADVANTAGES FROM VARIATIONS ON THE TRADITIONAL VERTICAL FFS BAG.

The innovative, cube-shaped flexible pack adopted by United Biscuits for the launch of its Mini Hula Hoops Shoks range last year comes at a time when more and more companies appear to be seeking a marketing advantage from added value in vertical ffs bagging.

For while the Shoks pack created a new pinnacle for bagging – in both technical and design terms – the last five years or so have seen steady development in machinery to create reclosable bags and those with the eye-catching stand-up four-corner seal format introduced initially in the mid-1990s by Rovema.

Indeed, the two developments are now often running hand-in-hand with reclosable four-corner sealed bags appearing on the market for products such as rice and biscuits.

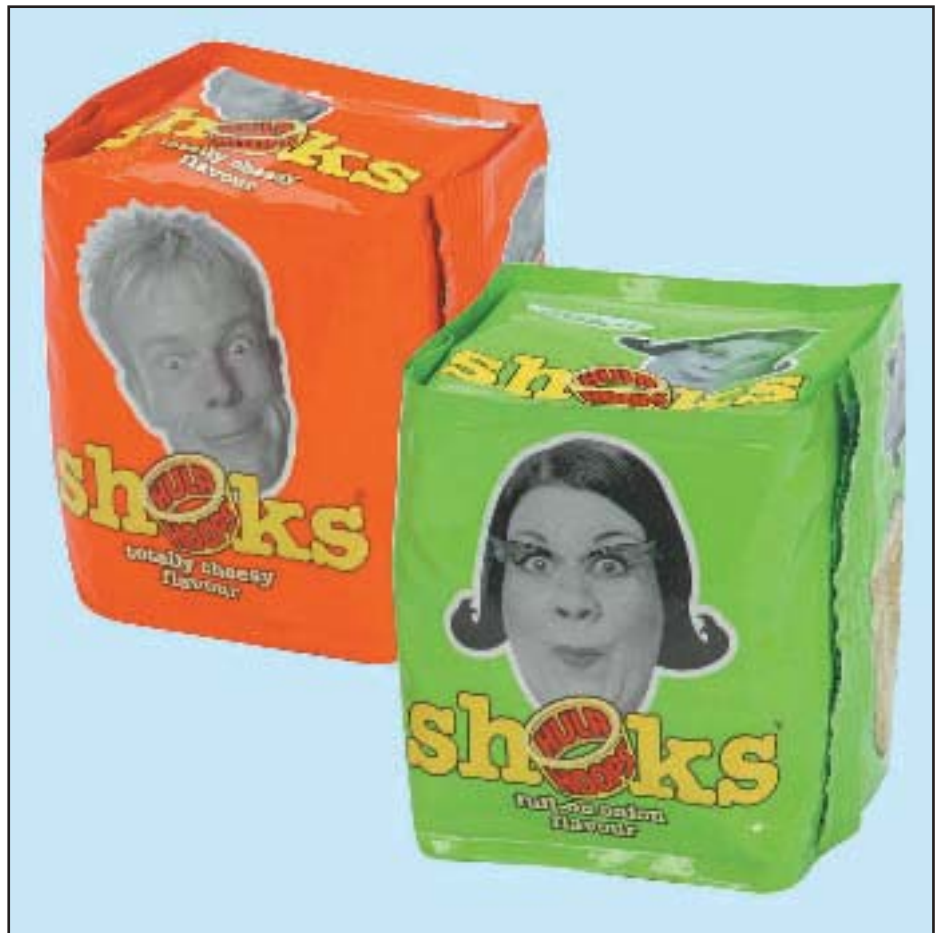
However, it was the four-corner seal Stabulo bag pioneered by Rovema that laid the foundations for the United Biscuits Shoks pack although, initially, Rovema's aim was to save materials. The German Institute of Packaging agreed and, in the run-up to Interpack 1996, gave the company an award for economic use of materials.

The aim is fairly straightforward. By producing a block-bottom bag in which the four corners are heat-sealed for 5-7mm in from the edge, both rigidity and appearance are improved to the point where powdered products such as desserts can be packed without a carton. The vertical seal is incorporated in one of the corners, giving the opportunity for all-round uninterrupted graphics.

Volume for volume, the Stabulo bags occupy some 13 per cent less space than conventional pillow packs which, Rovema points out, contributes to savings in both transit packaging and supermarket shelf space.

However, for the United Biscuits Shoks bag, four-corner sealing has been combined with Rovema's SBS pack-closing system.

An intermittent motion Rovema VPI bagger is used to create the bags which are then passed



**Four corner sealing:** Shoks bags are created by sealing the four corners of a block bottom bag and then folding over and sealing the top onto the bag. The bag sits on its side for presentation and use

filled, but unclosed, into the cassettes of the SBS machine. Here, in a series of successive operations, the tops are sealed, folded over and then also sealed to the bags, creating a cube that, for display, sits on what were originally two of its corners.

## Top of pack opens easily

The top of this pack can be opened easily, thanks to the use of a polypropylene film which has been purpose-developed by Exxon Mobil to tear across web direction rather than along web direction as usual.

Rovema has been equipping machines to pro-

duce its Stabulo bag for some six years and offers the pack style for a wide range of pack sizes. However, in the past, the use of a rectangular forming tube to produce the pack has restricted the cross sectional area available for filling product into the bag.

To solve this problem Rovema has developed round forming tubes for Stabulo bags, giving the maximum cross section for filling a given bag size. Round tubes have allowed production speeds to be increased to those achievable with a pillow pack, while reducing the incidence of product bridging in the filling tube.

Round forming tubes also have advantages for



**Stand-up bag:** The Snack Factory is now using a new Sandiacre bagger



**Stand-up and reclosable:** Surya rice packs are produced on a Line Equipment machine

powdered products, because a larger diameter of auger can be used to dose the powder, so increasing production speeds and reducing product breakage.

Meanwhile the four-corner seal bag concept is now available from most principal vertical ffs machine manufacturers.

For example, the Snack Factory has chosen a Sandiacre TG320-LDQ bagger and the company's Quad Pack style of block bottom, gable top pack for its new Take Away range of Chinese crackers, Indian grills and tortilla horns.

Although The Snack Factory's current range is being produced in Sandiacre's Quad Pack for-

mat, the bagger can be changed over to other pack styles and sizes using standard changeparts.

Sandiacre's Quad Pack was launched at the PPMA Show 2001. The width of the fins at each corner can be adjusted between 4mm and 12mm while the longitudinal seal can be placed at any position on the back face of the pack or integrated into one of the fins. As an alternative, fins can be made on just two corners of the bag, giving extra rigidity and shelf appeal to the front face.

Earlier this year Surya Foods, Harwich, announced the launch of a range of rice varieties in 500g, 1kg and 2kg stand-up bags with corner seals as well as a reclosable plastic zipper.

"We believe we have created the next generation of retail rice pack," says managing director Sukhi Dulai. "It combines visible, effective resealability with a stable, upright presentation and a new four-cornered shape that stands out on the shelf."

Surya has installed a Line Equipment LE360 vertical form-fill-seal machine, fitted with a volumetric weigher and cross-web zipper applicator, which attaches Supreme Plastics' 7mm wide Keyseal profile in short strips across the pre-printed film.

### Minimum corner seals of 2mm

Bosch launched its SVE 2510 QR machine for corner sealing at Interpack 2002. The width of the corner seals can be set as low as 2mm to minimise materials usage and can be varied by the customer up to 8mm for optimum fin strength.

A continuous motion machine, the SVE 2510 QR is capable of producing corner sealed bags while maintaining a very low machine height, which has the advantage of reducing product breakage and makes installation easier in existing production lines. The machine can be changed easily between corner sealed bags and pillow, gusseted or stand-up bags and has an output up to 80 bags a minute, which is up to 50 per cent more than many intermittent motion machines.

One of the latest developments in four-corner seal bags was introduced at the Ipack-Ima exhibition in Milan during March by Ricciarelli-Sasib, represented in the UK by Oniki Packaging Systems. The Quattro Seal attachment – which can be retrofitted to any Ricciarelli bagger – is aimed at making changeovers faster, much simpler and independent of skilled operators.

"Previous systems require detailed setting of all four seals during format changes, but the

Ricciarelli System has the four sealing elements built into the forming tube," explains Oniki Packaging. "A single connector is all that needs to be unplugged during forming set changes, so users know that, once set, the four-side seal system will operate immediately."

Meanwhile, development of reclosable systems for bags produced on vertical form-fill-seal machines – using male and female zipper profile, adhesive tape or pressure sensitive labels – has accelerated over the past four to five years, contributing to growth in reclosable bagging that trade estimates put as high as 30 per cent in some sectors of the market.

### Bags for grated cheese

Reclosable bags using a male-female zipper profile first started making their appearance in the early 1990s for products such as grated cheese and confectionery. However, in the early years the machinery usually employed a forming tube which was rotated by 90deg to allow the zipper profile to be introduced into the fin seal, which subsequently became the bag top.

In effect, this meant that bags were loaded on their side and ended up being somewhat wider than the contents would usually dictate, using more zipper material than otherwise necessary.

The first sign of change came at the 1998 PPMA Show when Bosch staged the first UK demonstration of the Trans-Zip reclosable bag-making attachment on its SVK 3600 vertical form-fill-seal machine.

The Trans-Zip attachment cuts the appropriate length of pre-closed male and female zipper profile from a reel and pre-seals it transversely across the film web, before the film is taken over the forming shoulder of the host machine for the bag to be created, filled and sealed with the zipper secured in the cross seal.

Working this way provides a number of advantages compared with other methods that introduce the zipper profile into the longitudinal seal, which then has to become the top of the bag.

First, since the zipper is attached to the short edge of the bag, there are savings in the amount of zipper required, while filling into the narrow edge of the bag also reduces ullage, and hence the amount of packaging material for a given weight of product.

In addition, it means that gusseted and block bottom bags can also now be produced with a zipper, as well as flat bags.

Bosch also announced at the time that it had developed automatic temperature control for

## BAGGING

the cross seal tools, so that peelable laminate materials could be employed to give an easy-open seam above the zipper. When reclosable bags were not required, the parent bagging machine could be switched to conventional bags, which might sometimes require a different forming shoulder, in 15-20 minutes.

Since 1998 most of the major bagging machine manufacturers have joined in, offering transverse zipper application systems. Indeed, the current modular construction and servo drives of today's machines is allowing manufacturers to offer zip applicators as add-ons to many standard machines, which can then also be used to produce other styles of pack.

### Reclosable for meat

In early 1999 Ilapak announced an installation for frozen meat, based on a Vegatronic bagger, and at Interpack a month or two later, Sandiacre put its transverse zipper system on demonstration for the first time.

The 1999 PPMA Show saw Rovema demonstrate its zipper attachment system in the UK for the first time while a year later, at the PPMA Show 2000, British manufacturer Line Equipment announced a cross-web zipper attachment system that can be retrofitted to existing vertical form-fill-seal machines "at a fraction of the cost of a dedicated unit".

The Reseal 360X has been designed to work with the new lower cost, narrow profile Keyseal zipper material from Supreme Plastics and uses a multi-slot rotary drum on which profile cutting, end crushing and tack-weld operations are carried out at separate stations as the drum indexes on each cycle. This is said to provide higher speed than machines that cut, crush and tack in a single cycle.

The drum fits in the space normally occupied by an overprinter, keeping it close to the forming shoulder to minimise film stretch and preserve registration. The unwind is mounted to the side and there is an extra pair of jaws that attach below the main cross-seal jaws to seal the zipper profile to the bag material. This can be laminate barrier film for MAP products such as grated cheese, or mono-layer polyethylene for frozen food.

The control package requires just one signal to synchronise the Reseal system with the host machine.

One of the most recent installations from Sandiacre is at Sundora Foods of Pocklington, York, where a new TG250-LDZ servo-driven transverse zipper machine has been commissioned, follow-



**Four corner seal:** Ricciarelli forming tube has built-in sealing elements for fast changeover

ing the success of a zipper applicator upgrade on a 15-year old Sandiacre bagger. Now the equipment is producing 500g and 1kg packs of dried vine and tree fruits.

### Using adhesive strips

But zipper profiles are not the only way to reclose bags. For while zipper profile has become narrower, and therefore less expensive, suppliers of systems based on labels and adhesive strips maintain that they can offer a cost advantage.

For example, an easy-open reclosure system that uses a low-cost filmic label, and can easily provide full or partial width openings to suit the product, is now available for the Fuji range of vertical form-fill-seal bagging machines, marketed in the UK by Paramount Packaging Systems. It was demonstrated for the first time at Interpack last year.

Shown mounted on a Fuji FW-77 vertical bagger, the Re-Seal It system allows bags of snacks, pasta, confectionery and other loose or free-flowing products such as tea and coffee to be opened and then reclosed, avoiding spillage while reducing take up of moisture and loss of flavour.

"Unlike other methods of reclosing a form-fill-seal pack, the Re-Seal It system does not involve the expense of plastic profile and, most important in terms of consumer safety, can be opened without scissors or knives," points out Paramount director John Roberts. "A further benefit is that the aperture can be a full width envelope style flap at the top of the front face, typically for snacks, or simply at the corner for pouring, which uses even less material."

The Re-Seal It system operates with conventional wrapping film, first die-cutting it to produce a flap, which is held in place by small notches. A filmic label with peelable adhesive is then applied over the flap and sealed into place.

### Peel back the label

To access the pack, consumers simply peel back the label, which carries the flap with it. A small non-adhesive area at one end of the label provides a pull point. To reclose the pack, the label is wiped back into place, held by the peelable adhesive.

The Fuji FW-77 bagger offers speeds up to 100 packs a minute, with a bag size range of 70-250mm wide and 50-350mm long.

PFM can now equip its vertical machines to produce the latest style EasyPack easy peel open and reclosable bag, including stand-up versions produced with a gusset in the base.

The EasyPack is hermetically sealed, making it suitable for modified atmosphere applications, but can be opened simply, without the need for cutting or tearing, by peeling back a flap. When this flap is pulled back, a waxed paper strip is revealed. When the paper is pulled away it uncovers a strip of adhesive, which can be used by the consumer to reclose the pack. ■

### For further information:

Robert Bosch	enter 101
Ilapak	enter 102
Line Equipment	enter 103
Oniki Packaging Systems	enter 104
Paramount Packaging Systems	enter 105
PFM Packaging Machinery	enter 106
Rovema Packaging Machines	enter 107
Sandiacre Packaging Machinery	enter 108
Supreme Plastics	enter 109

FILLING AND SEALING PRE-MADE BAGS

## Quick changes and a variety of materials

Pre-made bags are still the preferred packaging choice for some products. Pre-made bags are 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 using outworkers to bag items by hand.

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 direct thermal printing to avoid the need for labelling.

"Increasingly we are attracting customers who are bagging their products internally rather than outsourcing," says Paul Hayden, APS marketing and commercial manager.

"Because of the flexibility and compatibility of the machinery and the variety of bags available, a customer can adapt the systems to package a wide number of different products within a company's range without the need for additional systems."

For example, JBS Hardware of Worksop traditionally used a team of outworkers to bag its products, predominantly a range of nails and screws and associated products in varying sizes. This created a number of logistics problems as five vans were required to move the material between the workers and the warehouse.

Each outworker required an individually collated kit of items needed to produce a finished product. These kits included the items for packing, the packaging, and a pre-printed header card, which had to be hand stapled to the bag.

JBS Hardware has moved the operation in house and now uses 11 APS Autobag machines, running five different sizes of bag, all incorporating Euroslot headers. On-line overprinting with variable text and bar codes eliminates the need for a separate printed header card.

As a result, says the company's Robin Miller, JBS has increased its bagging capability from around 120,000 a week to up to a minimum of



**Bagging in house:** JBS Hardware estimates a six-month payback on its APS Autobag machines

500,000, depending on product mix. "The machines are used seven days a week, two shifts a day with the minimum of problems and downtime," he adds. "We estimate that payback time has been less than six months."

### Closing or erect-fill-close

Generally speaking, the machinery options for pre-made bags are automatic bag closing machines and fully automatic machines that erect, fill and close pre-made bags.

For example, Soudal offers equipment to just close or alternatively fill and close such bags. For closing alone there is the German Siebler & Goring range of in-line machines for folded top bags which produce either a gable top or parcel type, a flat top style of bag with the folds being secured by gluing, hot air sealing or a self adhesive label. Filled bags can be fed to the closer manually, transferred to the closer from an automatic bag presenting and filling machine or from a vertical form-fill-seal machine.

For filling and closing SOS type bags, Soudal offers machines from the Italian company Paglierani. Rotary and in-line designs are available which can operate up to 100 bags a minute depending on product and bag size. The machines are very much aimed at packing flour and sugar although further products handled include pulses, rice, salt, and bakery items.

The rotary machines can also be equipped to make block bottom bags from reel stock, feeding them into the carousel for filling and closing.

Meanwhile, a new high speed machine to handle pre-made paper or plastic block-bottom

bags has been announced by Oniki Packaging Systems, UK agent for the Italian manufacturer Italpack. Applications include products such as flour, petfood, pasta, building materials in DIY quantities, and sugar.

The Italpack 100/3, with its triple filling head, is capable of speeds up to 110 bags a minute and, says Oniki Packaging, offers a particularly favourable price/performance ratio. Bag size is up to 1kg and the filling method can be auger, volumetric cups or electronic weighing, to suit the product characteristics.

### Triple filling heads

All machines in the Italpack range – which starts with equipment to handle 25 bags a minute – have a vertical magazine offering bags to single, twin or triple filling heads as they are taken round the turntable. An integral checkweighing station is also incorporated, with feedback control to compensate for variations in bulk density.

Tops can be closed in gable-top or fold-down flat style, using heat seal or hot melt – with a pressure sensitive label for reclosure if required – and there is also a riveting system to secure gable top bags. Further methods include stitching and tying. When fine powders are being handled, a de-aeration system is available to give bags a tight 'brick' feel.

Fischbein-Saxon's Superbagger is said to be the first machine of its type in Europe and was developed, says the company, as a cost effective alternative to vertical form-fill-seal systems. It incorporates the Saxon 5 hot-air continuous heat sealer and can handle plastic bags up to 5kg at speeds up to 20 bags a minute.

The machine operates with wicketed bags, which are opened, filled and then automatically transferred into the sealer for closing by hot air and crimping rollers. Electrical integrity is IP54 as standard with IP66 available in the stainless steel washdown version.

Finally, one of Spain's principal olive producers, La Espanola, has just installed a Schur Star pre-made bagging system for a new range of sliced olives packed in dressings. Three bags are used, 135g and 1.5kg Schur UP DP bags made of pet/pe laminate, and 4kg pillow packs.

### For further information:

Automated Packaging Systems	<b>enter 111</b>
Fischbein-Saxon	<b>enter 112</b>
Oniki Packaging Systems	<b>enter 113</b>
Schur Packaging Systems	<b>enter 114</b>
Soudal	<b>enter 115</b>

CSS PACKAGING MACHINERY

## Compact unit suits fruit and veg packing

A compact machine, which requires little floor space, the BDO 1000 from CSS Packaging Machinery is still capable of producing a flat bag 230mm wide by 350mm long.

Recent installations include packing 1kg bags of potatoes where the low fill height of the BDO 1000 has allowed the machine to be installed under existing weighing machines with no need for an extra framework.

With a left hand and a right hand version of the BDO 1000 mounted either side of a twin outlet weighing machine, speeds up to 50 x 1kg bags of potatoes, onions or citrus fruit a minute are achievable, says CSS.

**More information - enter 117**

RECORD PACKAGING SYSTEMS

## Mail bagging machines introduced

Two new mail bag machines for print and direct mail have been announced by Record Packaging, UK distributor for the Italian manufacturer Minipack Torre.

The Continua uses a continuous sealing system to pack items up to A3 size at speeds up to 50 a minute while the smaller Digit machine can handle up to 25 pieces a minute.

This machine can accommodate pieces up to 250 x 360mm and up to 20mm thick and adjusts automatically to product depth.

**More information - enter 118**

WARD BEKKER SYSTEMS

## Latest range offers three seal methods

Three types of sealing method are now available for the latest Revo range of baggers from Inno-Tech: continuously heated jaws for both polyethylene and laminates, impulse for very thin polyethylene, and ultrasonic sealing for special applications.

A high pressure mechanical jaw sealing system is used to give secure seals, particularly for gas flushed packs, while servo motor drive gives a number of advantages including adjustment of sealing pressure to suit a wide range of film gauges.

Bag styles include block bottom with sealed or contoured edges, reclosable with zip, carrying handles, and three-side sealed edge bags with or without a block bottom. Bag widths range from a minimum of 50mm on the smaller machines up to 600mm on the larger models.

**More information - enter 119**

GAINSBOROUGH ENGINEERING

## Entry-level unit is built on modular basis

Country Products in York has just taken delivery of a new entry-level weighing and bagging system from Gainsborough Engineering to pack a range of products from pulses and grains to dried fruit and snacks.

The installation consists of twin linear weighers feeding a GV2kl vertical form-fill-seal machine, a set-up which Gainsborough says suits users who require versatility and relatively high speeds but have a restricted budget. Bags

50-200mm wide can be produced in heat seal or polyethylene materials at speeds up to 40 a minute.

The system is built on a modular basis and equipment for block bottom bags, Euroslot, gas flushing or printing can be added at any time.

Meanwhile, a high speed stainless steel version of the machine, the GV2k2, has been recently installed in Ireland to produce gas-flushed packs with an equal amount of both red and green apple slices, marketed by one of the main supermarket chains as a healthier convenience snack for school lunch boxes.

The main specification from the customer was to pack at speed but avoid any damage to the apple slices, since they bruise easily.

So, to keep product drop-height to an absolute minimum, Gainsborough employed a combination of specially designed cross-feeders to spread out the slices before feeding onto separate shallow angled elevators. A wiping mechanism at the top of each elevator ensures that all the slices are transported to the weigher with minimum contact.

The slices are fed into a split multihead weigher which drops equal amounts of each colour of sliced apple into the bag.

**More information - enter 120**

COMCOUNT

## Count-pack system for key blanks

A complete system to produce bags of key blanks in various styles and quantities has recently been supplied by Comcount, using a W22 bagger from Swiss manufacturer Willi Maschinenbau, a Valentin DPM III thermal transfer printer and a Comcount BF650 bowl feeder-counter.

The printer, used to add data such as product codes, bar codes, logos and company addresses, is installed within the housing of the bagger and prints directly onto the film, using the forming tube as a backing pad.

This, points out Comcount, makes the machine well suited for short runs, since there is very little waste when the data is changed.

The W22 bagger can also be fitted with a device for producing reclosable bags from Mini-grip film and a hot knife sealing system to give an edge seal for improved pack appearance.

**More information - enter 121**



**Stainless steel execution:** Gainsborough GV2k2 bagger with multihead weighing machine

ULTRAPAC

## Detergent and coffee packing lines

Detergent powder and coffee are two of the most recent applications for bagging machines from US manufacturer Triangle.

For detergent powder the machines are equipped with either a volumetric cup filler or auger and employ an integrated control system which, says UK representative Ultracpac, provides greater productivity by simplifying day-to-day operator activities, changeovers and software.

Systems can be equipped to run either 1ldpe films in pillow packs or linked sachets, or to run supported films in pillow or block bottom styles.

The auger fed bagger for ground coffee is equipped with an applicator to fuse a polyethylene valve to the film. This valve releases the gas generated by freshly ground coffee, allowing it to be packed immediately in block bottom bags. Once pressure in the bag drops, the valve closes.

A single control system synchronises the auger and bagger with its integrated valve applicator for speeds of up to 60 a minute on 1lb to 2lb stand-up bags.

Ultracpac also points out that most Triangle machines are equipped as standard with a modem link. This allows the company's engineers to be given remote access for fault finding and software enhancements.

**More information - enter 122**

GAINSBOROUGH INDUSTRIAL CONTROLS

## PC controls chosen for latest machine

Gainsborough Industrial Controls (GIC) has launched the latest addition to its established VFB series of vertical form-fill-seal machinery. The VFB 8000 has a control system based on a high speed industrial PC and employs servo control for all machine movements.

"Mechanical components are minimised which reduces maintenance requirements to a minimum," says the company. "In addition, the operator screen is a 10.4in full colour touch screen offering multiple access levels for operators, engineers and management."



**Bullion bagging:** Complete system from GIC with bulk feed elevator and bag counter

GIC goes on to point out that the new machine has been developed to meet customer demand for increased flexibility and connectivity to management information systems.

"During the development of the VFB 8000 machine GIC investigated alternative traditional PLC based controls systems but found that the required performance and flexibility could not be achieved," the company states.

Fresh produce has proved to be a major market for GIC which, over the last two years, has installed some 40 lines in the industry, handling jobs from 500g of carrots through to 5kg of main crop potatoes.

**More information - enter 123**

ERAPA (UK)

## Layflat tubing gives bags up to 2m long

The Simplicita Bag Plus 400 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. A twin lane option is available for smaller products requiring higher speeds, with two rolls of layflat tubing running simultaneously, forming, filling and sealing the bags in tandem.

However, with a maximum bag width of 400mm, length up to 2 metres and a seal depth of 2.5mm, the Simplicita unit can also be used for larger or irregular shaped products such as rolls of cable, radio aerials, or window blinds.

**More information - enter 124**

WLT

## Parts baggers can handle heavier items

A system to help handle heavy items is among optional extras now available for the Swiss-built Willi Maschinenbau range of bagging machines distributed in the UK by WLT and used for goods such as stationery, auto-parts, electrical items, plastic components and even pharmaceuticals.

It uses a retention flap, which sits below the forming tube and takes the weight of the product, easing the tension on the seal while the bag is being made, ensuring a more secure closure.

In addition, the machines can now be equipped to produce linked bags or packs with two compartments, while there is also a film spreader, which reduces the size of the final bag, and a Euroslot punch for hanging displays.

**More information - enter 125**

PFM PACKAGING MACHINERY

## Single source supplies dry ice line

A complete packing line for dry ice pellets has been supplied by PFM to Hydrogas and Chemicals, Immingham, as part of the company's current expansion.

The installation employs a CTC800 vertical form-fill-seal machine made by MBP and a weighing system designed specifically for dry ice.

"Choosing PFM was made easier because of their experience with difficult products such as dry ice and the fact that they could supply the feeding system as well as the bagmaker," says Mark Thornton, project engineer for Hydrogas.

MBP joined the PFM group in September 2002 and builds a range of vertical form-fill-seal machinery as well as linear and multi-head weighing equipment.

**More information - enter 126**