

PPMA Machinery UPDATE

The only 'machinery only' journal for processing and packaging



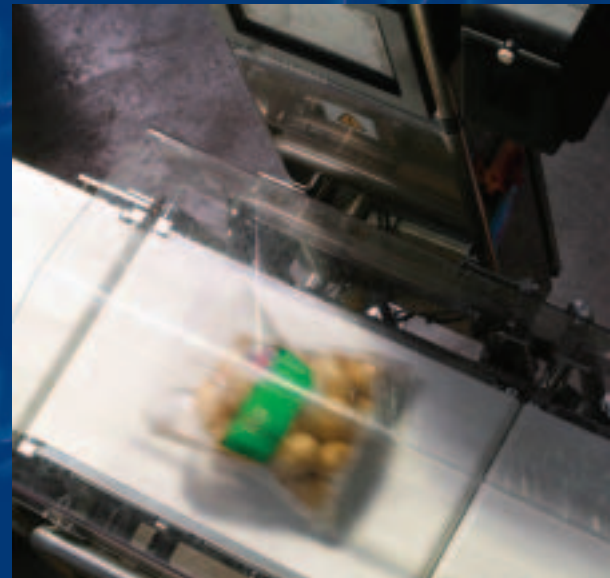
CODING AND MARKING

Late stage customisation



CARTONING

Beyond the box



CHECKWEIGHING

Data collection drives progress

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Machinery UPDATE

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The Chinese dragon

Hardly a day goes by without us hearing some reference to the current impact of globalisation on our lives or businesses. The most popular example, by far, is China – “The dragon is coming”.

China’s economy overtook that of the UK in 2005 to become the fourth largest in the world and is predicted to take the number one slot by 2040. Foreign firms now invest over \$1 billion a week in China and whether you are a large corporate manufacturer or a small to medium sized enterprise, no company executive can afford not to have a plan that accounts for the ‘China Syndrome’.



Let’s remind ourselves why this is so important to UK manufacturing.

It doesn’t require an MBA to recognise that there are two primary variables over which any business has control: the price of its goods or services and the level to which they differ from the competition, whether via the intrinsic technology, reliability, quality of manufacture or simply better delivery and aftersales service.

During a recent trip to China I was being shown round a modern machine shop in a process equipment supplier’s factory and asked the manager what he paid his machine operators.

“The better skilled machinists are earning about 23,000 Chinese RMB a year,” he replied glibly, frowning as if it were rather expensive. This translates to an annual sterling salary of about £1700 – well under 10 per cent of the equivalent in the UK. So we can rule out cost in competing with the growing influx of Chinese machinery and equipment.

That leaves the only other viable strategy – differentiation.

It may be true that Chinese manufacturers are currently some way behind Europe in terms of quality and reliability, but things are changing fast. Chinese suppliers are quickly closing the gap and moving up the ‘price versus differentiation curve.’

For UK manufacturers this means that efforts to find that all-important niche market and those key differentiators must continue with renewed vigour but, when they are not available, we should not try to fight the Chinese head-on – we should embrace the opportunity to ride on the back of their growth.

More and more UK companies are using China to source low cost machine parts while bigger suppliers have even moved their low technology manufacturing into China. This is especially evident in the chemicals market where more and more bulk chemical production is carried out in China while the specialist manufacturing and the intellectual property – the differentiator – is retained in the domestic region.

Although there are inevitable price challenges, there is nevertheless a substantial Chinese market for UK machinery and equipment, but UK suppliers can only concentrate on developing better and better machines to stay ahead of the game.

On this latter point, an issue that merits special mention is the Chinese apprehension of the robotics technology used in the West and its potential for eating into the advantages of China’s extraordinary low labour costs. Compared with the US and Germany, uptake of robotics in the UK may be currently fairly slow, but will surely accelerate as even smaller manufacturers come to appreciate the huge potential savings.

We may not wish to slay the dragon, but robotics will help to create a level playing field.

Chris Buxton

Chief Executive, PPMA

THE PPMA SHOW

PPMA Show 2006 on track to deliver unrivalled display

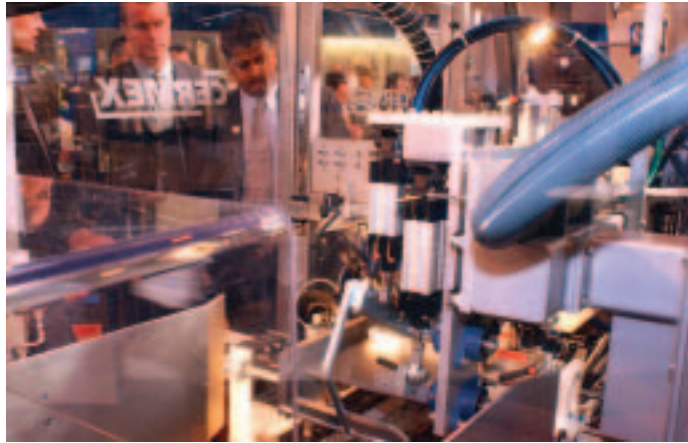
This year's PPMA Show is now more than 90 per cent booked with over 500 exhibiting companies taking part in the event at the NEC, Birmingham 26-28 September.

"There is no denying that the business-to-business exhibition market – just like the industry that it represents – is having a challenging time," says PPMA chief executive Chris Buxton. "But the PPMA Show has managed to buck this trend and still remains the single most successful and prestigious process and packaging machinery event in the UK.

"Visitors are to be presented with an unrivalled range of equipment from leading suppliers from both the UK and overseas."

New exhibitors at this year's event are boosting the size and diversity of the show with around 10 per cent of exhibitors taking part in a PPMA Show for the first time.

These include Asco Joucomatic, Bactoforce UK, Cousins Packaging, Farleygreene, Manex, Micro Concepts, Raupack, Saimo



The PPMA Show: Visitor friendly with the accent on working demonstrations

Technology, Scancon and Wixroyd International.

"Although numbers of new exhibitors are significant, visitors can also rely on a core of well-established PPMA Show participants," points out Chris Buxton.

These include Aetna UK, All-Fill International, Bosch Packaging Services, Cermex, Marden Edwards, Packaging Automation, Propack Automation, Sandiacre Rose Forgrove, Selo-Bollans and TNA Europe.

Visitors to the PPMA Show will

also be able to take advantage of a series of short but topical seminars concentrating on key management issues in manufacturing industry.

Subjects include: Managing people, getting the best from your team; Marketing your business as an SME; and Managing employment risks. In addition there will be an introduction to the latest training software for machinery operators.

Full details are available on the show web site:

www.ppmashow.co.uk

ORDERS AND INSTALLATIONS

Nine pet bottle conveying and palletising lines go to the USA

Planet Flowline has installed a further nine Zecchetti pet bottle air conveyor and palletising lines at Coca-Cola subsidiary Western Container Corporation's factories near New Orleans, Big Spring, Los Angeles and Seattle.

These high speed lines, installed over the last 18 months, take the bottles from a blow moulder and palletise them, complete with tier sheets and top frames, before strapping and stretch wrapping them. Speeds up to 72,000 bottles an hour are achieved with one operator.

Kliklok Woodman has delivered top load and wraparound cartoning equipment to Italian machinery manufacturer Corazza as part of a fully integrated soft cheese production line.

The Kliklok SRWD tray forming machine produces five different sizes of special shallow tray with 'turn-over' buffer walls and a single central lock-in tab. Individual foil wrapped squares of soft cheese are placed in the tray, prior to entering the smart belt infeed of a Kliklok Certiwrap C150 sleeving machine.

This wraps a flat cartonboard sleeve around the filled tray, at speeds up to 85 a minute.

COMPANY NEWS

Single source for dairy and juice packing machinery

Dawson is to market the Danish-built Stamatik range of crate fillers, shrinkwrappers, trolley washers and other equipment for the dairy and juice industry within the UK and Ireland. This, says the company, will create a comprehensive machine range, from a single source, to provide turnkey installations involving filling, cleaning, handling and

end-of-line packing operations.

Planet Flowline has become sole UK distributor for Pieri, the Italian manufacturer of pallet stretch-wrapping machinery.

Valco Cincinnati has acquired Melton, the hot melt adhesive equipment manufacturer, based in Spain.

Collette, Belgium, part of Niro Pharma Systems, has extended its process development centre with the addition of an Ultimapro 75 one pot processor which is now available for customer trials.

The Food Machinery Co has set up a new Northern office, based in

Newcastle, which will be managed by Craig Foster who has joined the company after 20 years experience within the food industry.

PEOPLE

Sales director at Autobox

Barry Tabor (right) has been appointed sales director of Autobox, the short-run box-making machinery manufacturer.



Peter Nutter has joined Ulma

Packaging as new business manager for the company's range of thermoforming machines.

Steve Bradley has been appointed technical services manager at Supreme Plastics.

Dave Cooper has been promoted to UK sales manager at Matcon.

DIARY DATES

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6-7 September: Pakex Ireland exhibition. Dublin. Details from McCann McGuirk Presentations, tel: 00353 1 4532497.

18-20 September: Taropak packaging technology and logistics show. Poznan, Poland. Details: www.taropak.pl/en

26-28 September: The PPMA Show 2006. NEC Birmingham. Details: www.ppmashow.com

26-28 September: Fachpack packaging and labelling exhibition. Nuremberg. Details: www.fachpack.de

3-9 October: IBA 2006 bakery trade exhibition. Munich. Details: www.iba.de

12 October: PPMA Seminar: Update on the Provision and Use of Work Equipment Regulations (PUWER). Northampton. Details: John Cowdrey: 020 8773 8111, john.cowdrey@ppma.co.uk

18 October: PPMA Seminar: One pot pharmaceutical processing techniques. Liverpool. Details: John Cowdrey: 020 8773 8111, john.cowdrey@ppma.co.uk

24-27 October: Scanpack packaging machinery and materials show. Gotenborg. Details: www.scanpack.se

29 October-2 November: Pack

Expo exhibition. Chicago. Details: www.packexpo.com

2 November: PPMA Seminar: Future uses of robots in the processing and packaging industry. University of Warwick. Details: John Cowdrey: 020 8773 8111, john.cowdrey@ppma.co.uk

15-17 November: Brau Beviale beers and soft drinks industry exhibition. Nuremberg. Details: www.brau-beviale.de

20-24 November: Emballage 2006 packaging machinery and materials show. Paris. Details: www.emballageweb.com

2007

14-15 February: IPOT - imaging, photonics and optical technology, machine vision and displays technology show. NEC Birmingham. Details: www.ipot.co.uk

14-15 February: Machine Building, Drives and Automation show. NEC Birmingham. Details: www.machinebuilding.co.uk

18-21 March: Pro2Pac food and drink processing and packaging exhibition. ExCel, London. Details: www.pro2pac.co.uk

15-18 May: Total Processing and Packaging Exhibition. NEC Birmingham. Details: www.totalexhibition.com



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

www.ipot.co.uk



PLANET FLOWLINE

Westler Foods invests in eight new sterilisers from Spain

Westler Foods' new plant at Malton in Yorkshire is to be equipped with eight Spanish-built Surdry sterilisers, selected following heat distribution tests with Westler products on existing Surdry units at Mackle Petfoods in Northern Ireland.

The results proved better than any previously achieved, reports Surdry UK representative Planet Flowline, which is supplying four five-cage static units and four four-cage rotary units all using the same size cage.



Steam and atomised water: *Surdry units are said to give even heating*

Operation is primarily with steam in an atomised water spray environment which, says Planet Flowline, has advantages in terms of heat penetration, even heat distribution throughout the retort and the containers, and stable pressure control during come up, hold and cooling.

The installation is being supplied complete with the Sterinet retort supervisory data acquisition and management system.

This is to be located in the central laboratories to monitor and record each process as it takes place and to supply over 500 different recipes and programmes to the retorts.

T: 01778 341166

E: info@planetflowline.co.uk

ISHIDA EUROPE

First of new weighers in UK lifts speed for Kerrygold

Cheese processor and packer Kerrygold, Leek, Staffordshire, has raised weighing speeds for grated cheese by 20 per cent while reducing giveaway, following the arrival of the first of Ishida's new R series multihead weighers to be installed in the UK.

Kerrygold's grated cheese packing operation supplies a range of retail bag sizes from 200g to 500g as well as larger packs for food service operations. The company has doubled its capacity over the past two years and the new Ishida CCW-R 14-head waterproof model is part of a further line for retail packs.

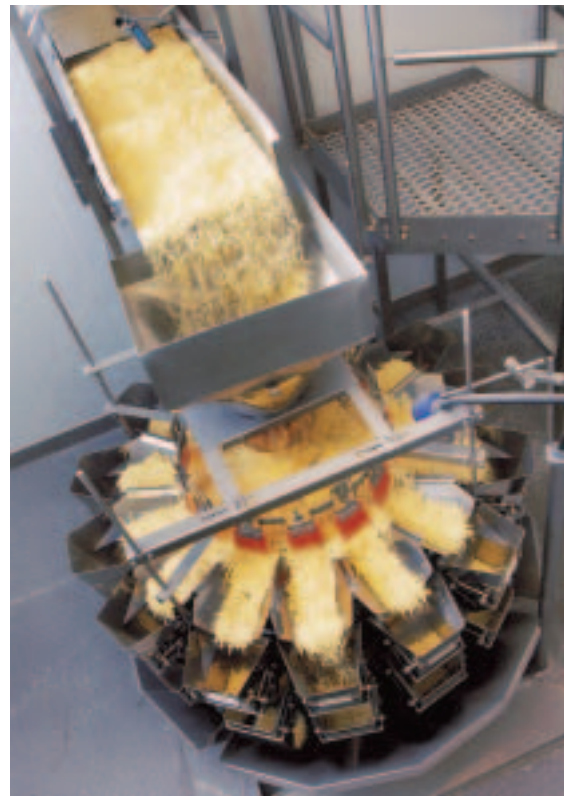
Ishida says that the additional processing capabilities of the new R Series – with its ability to calculate weighing combinations faster and more accurately than before – have

led Kerrygold to report that weight control has improved over that of existing Ishida weighers in the factory.

As a result giveaway targets have been reduced on the new line and speeds increased by around 20 per cent.

"We were already getting excellent results from our other Ishidas, but this latest model has taken weighing accuracy to a new level and, for that reason, our new line is already our preferred line for key production runs," explains Kerrygold managing director Carl Ravenhall.

According to Ishida, other new features of the R Series highlighted as particularly useful by line



Reduced giveaway: *Ishida R series at Kerrygold*

operators at Kerrygold include a camera mounted on the top of the dispersion feeder table which sends pictures to the remote control unit, enabling product flow to the weigher to be consistently monitored.

Also finding favour is the ability to alter target weights during operation without stopping the machine.

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SHRINKWRAP MACHINERY CO

Shrinkwrapper for brewery makes seals on the move

Dorset-based independent family brewer Hall & Woodhouse, producer of Badger Ales, has installed a new automatic twin-reel shrinkwrapper, built by Shrinkwrap Machinery with a moving seal gantry to achieve higher speed and a closer wrap.

The seal gantry reciprocates to handle each pack on the move, making the seal against a continuous motion conveyor to increase wrapping speed, to around



Higher speed: *Shrinkwrap Machinery system uses a reciprocating sealing bar*

25 a minute in this instance.

Shrinkwrap Machinery points out that because the seal bar comes down just behind the pack, minimum shrink film is used while

the shrink tunnel recycles air wherever possible to ensure minimum heat loss.

T: 01202 674944

E: sales@shrinkwrap.co.uk

CINTEX

X-ray system monitors healthy-eating snack bars

Healthbars Unlimited has chosen X-ray contaminant detection equipment from Cintex to monitor its range of healthy-eating snack bars, which are based on natural ingredients such as organic cereal, fruit and nuts.

“One of the problems associated with buying organic natural fruit, nuts and seeds is there are occasions when we find stones and other contaminants from the field,” explains Vince Handley, general manager of Healthbars Unlimited.

“Some form of inspection system is vital in any food manufacturing facility, but we needed to go further than just the conventional metal detector.”

Healthbars has now installed a Cintex Sentry XR low-cost X-ray system which, says Cintex, provides state-of-the-art X-ray technology that is priced well in line with other metal detection systems.

The system is capable of detecting ferrous, non-ferrous and stainless steel, glass, stones, ceramic and cement, calcified bones, high-density plastics and rubber.

With a head size of just 330mm wide the Sentry XR is smaller than most metal detectors but can accommodate products up to

265mm wide and 100mm high.

It includes a new, low power WASC (wide angle, self cooled) X-ray design to reduce moving parts and provide a particularly compact unit. Speed is up to 90 metres a minute.

T: 01252 893300

E: sales@cintex.co.uk



Searching for contaminants: Cintex Sentry XR low cost X-ray machine

**Visitors can now
order tickets for this
year's PPMA Show -
NEC Birmingham,
26-28 September.
See the PPMA Show
web site:
www.ppmashow.co.uk**

ACHEMA REPORT

NEW EQUIPMENT FROM PPMA MEMBERS AND THEIR PRINCIPALS AT MAY'S EXHIBITION IN FRANKFURT.

ROMACO

Vacuum disc gives separation in high speed tablet counter

The rotating disc principle for tablet counting, pioneered by Romaco company Bosspak, has been taken a step further with a new type of machine – shown as a demonstration model – that requires no format parts.

In the original Bosspak design, a series of sorting discs, set at an angle of about 35deg from vertical around a rotary table, lifted tablets from a bulk feed using pockets around their periphery, so providing complete separation of each tablet for delivery to the counting system.

Each disc was a format part, with a series of pockets to suit the size and shape of tablet or capsule handled.

However, Bosspak has now eliminated the pockets and employs a flat disk, set vertically, to lift and separate the tablets, using vacuum that acts through a series of holes around the periphery.

This means that the new



Lifting by vacuum: New Bosspak tablet counter has no format parts

generation counters can handle tablets from 2.5 to 25mm diameter with no change parts and that de-dusting becomes an integral part of the tablet separation process.

Speed from a single head is around 1500 tablets a minute and Bosspak intends building two, four and eight head machines on an in-line basis. For higher speeds, machines with ten and 20 heads

arranged around a rotary turret are envisaged.

● Also introduced by Romaco was an upgraded version of the Noack 900 blister packer, now equipped with Elau servo control for all main movements, XML technology that allows plug-and-play integration of downstream and ancillary equipment, and the Noack QuickFeed system of interchangeable feeding units. Speed is up to 600 blisters a minute.

In addition, there was the Promatic PC 400 continuous motion horizontal cartoner for speeds up to 300 cartons a minute, with the cartons supported on combs rather than chains to prevent scuffing.

Sterile powder and liquid filling specialist Macofar introduced the WM 8000 intermittent motion automatic washing machine for ampoules, vials and other glass containers.

Built on a balcony basis, the machine employs a format-free system of universal grippers to handle the containers, including those of unstable design.

T: 01480 435050

E: uk@romaco.com

PAGO

Label loop eliminates inertia in high speed ps labeller

A high speed pressure sensitive labeller that uses an air cushion to support a variable length buffer loop of labels between the unwind and dispensing beak, eliminating inertia in the system and allowing high speed without risk of web snatch or breakage, was introduced by Pago.

As a result of the buffer loop system, which allows the label reel of the new Pagomat 6/3 to unwind smoothly in continuous motion while labels are dispensed in intermittent motion to suit product pitch, very high dispensing speeds can be achieved with particularly short labels.

Depending on label length, which can be 10-300mm, the new machine can run at dispensing speeds up to 120 metres a minute. In addition, the main drive employs a servo motor with short

acceleration times, said to ensure accuracy at high speed, typically $\pm 0.5\text{mm}$ at the dispensing edge.

A separate stepper motor drive with control via a dual dancing roller arrangement with two sensors is employed on the backing paper rewind to eliminate snatch and risk of breakage.

T: 01206 755206

E: sales@pago.co.uk



Pagomat 6/3: Buffer label loop is tensioned by air



Sachet filler: The LA400 machine with, inset, how ultrasonics can even seal through a leaf

KOERBER MEDIPAK

Ultrasonics give better seals and flexibility on sachet machine

Koerber Medipak announced a new ultrasonic sealing system for its LA 400 vertical sachet machine, allowing non-heat sealable materials to be handled and, in some circumstances, for seal areas to be reduced on liquid products with no loss of security.

In addition, the new system provides an answer to contamination in the seal area – possibly from a flocculent powder or stringy liquid – in effect cutting through the contamination to weld both sides of the pack together securely.

Non-heat sealable materials handled include polypropylene film and non-wovens for applications such as detergent and medical products such as wound management systems.

When heat sealable material is used, particularly for liquids, the ultrasonic sealing system allows seal widths to be reduced from typically 5-6mm to some 2mm, contributing to materials savings that, depending on sachet size, can

be up to 15 per cent says Koerber Medipak.

The LA400 machine also features a new perforation system with rotary knives engaged by pneumatics to give controlled pressure and hence a variable degree of perforation.

This, and other working stations in the machine are mounted on a series of slots in the frame to provide easy adjustment for different sizes and configurations of sachet. Dosing units are mounted on a trolley that can be wheeled away for off-line cleaning and set-up.

The LA400 can run up to 12 lanes of sachets at speeds up to 70 cycles a minute. It was shown at Achema in a six-lane version.

T: 07841 678122

E: info@uk.koerber-medipak.com

Visitors can now order tickets for this year's PPMA Show - NEC Birmingham, 26-28 September. See the PPMA Show web site: www.ppmashow.co.uk

UHLMANN PAC-SYSTEME

Fast-changeover blister line offers 500 a minute from a single lane

Uhlmann demonstrated what it says is the fastest single lane blister line in the world – aimed at high efficiency in handling medium run lengths – and launched a new non-destructive blister inspection system that provides a 100 per cent check. There was also a new powder-in-blister line for small batches of inhalant powders.

The high speed integrated blister line is the Blister Express Centre 500 which operates at speeds up to 500 blisters a minute – 20 metres a minute web speed – and requires just 20 minutes for a full three-dimensional size change.

Made up of a B1550 thermoformer, MultiTab feeder and C2504 cartoner, the line continues the Blister Express concept launched initially by Uhlmann at Interpack in 1999 for high efficiency in particularly small batches, this time offering enhanced efficiency for batches in the range 30,000 to 150,000 blisters.

A continuous motion machine, the B1550 nevertheless avoids the cost of rotary tooling by using platen-style stations that move with the web in a D-cam motion for thermoforming, coding, perforation and cutting. This means that tool sizes are relatively small, lower cost and easy to handle for changeover.

The machine also shares the new frame construction pioneered last year by Uhlmann for its ultra-high speed B1880 thermoformer, which is based on a frame cast from mineral reinforced polymer, rather than the conventional welded steel.

The result is a monolithic construction that absorbs vibration and creates a particularly quiet, stable base for the working parts. In addition, the casting process is able to include built-in channels for air and cooling water, eliminating some pipework.

The combination of continuous motion with operating heads that track the web in a D-cam motion starts with the heating section where Uhlmann has introduced a near infra-red heating panel that operates without contact.

This is mounted above the forming tools running on a reciprocating carriage with film temperature monitored to within ± 3 deg C via an infra-red pyrometer. Before entering the heating station the film is taken through an ionised air jet curtain to eliminate static and remove any dust with vacuum.

A dual reelholder for the forming film, with a flying splice for continuous running, is included under the filling section rather than as an external item, reducing floorspace and cost.

For feeding, Uhlmann has developed the new MultiTab station



Forming station: Reciprocating carriage carries the heating panel and tools

specifically for the BEC 500 line. Tablets are fed down the channels of a vibratory feeder onto a series of format plates that index to the rear of the web, for handling by a multi sucker pick-and-place plate which synchronises with the web motion via a linear servo motor drive.

Tablets are picked on individual suction heads able to handle shingling products and also accept up to 0.5mm thickness variation in the product. This avoids misfeeds and potential reject packs said to be common with these products in other feeders.

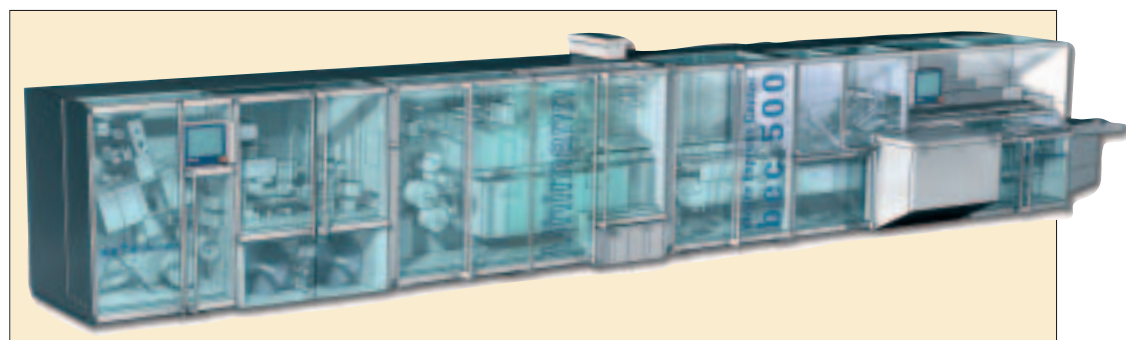
After sealing by a rotary system the blisters are inspected for correct fill and perforated. However, only good blisters are

punched and accepted positively upwards into the in-line feed to the transfer mechanism for the cartoner. Any reject blisters are simply left in the web and allowed to continue through the punching station and are then cropped into a reject bin.

In this way, points out Uhlmann, the reject blisters not only have quite a different appearance from good blisters, but for added security will also usually not fit in the carton.

The blister placement into the continuous motion cartoner infeed is via a series of platforms on a reciprocating beam that tracks the movement of the cartoner's product chain.

This servo driven cartoner, with



High output: The Blister Express Centre 500 achieves a speed of 500 blisters a minute from a single lane

push button size change, is equipped with a new mounting arrangement for the leaflet feeder which, for ease of maintenance, can slide completely clear from the rear of the machine. A checkweigher module is also integrated in the cartoner's outfeed to cross check that cartons are correctly filled.

VisioTec, Uhlmann's specialist inspection company, demonstrated its new Vision4U system for 100 per cent non-destructive testing of blisters.

This is based on the VisioLeak rotary turret, which has 12 heads to lift all the blisters from the line and carry out leak detection using vacuum chambers and mechanical pressure over the lidding foil of each blister pocket.

Sensors measure the deflection force of the foil, which indicates whether the pocket is intact or leaking. Speed is up to 300 blisters a minute and pinholes from 20 micron upwards can be detected.

Before entering the VisioLeak, blisters are checked from below the web by a vision system for foreign matter between the product and pocket, as well as any cosmetic imperfections. A printing system is also available either to identify all rejects before ejection from the line or leave the rejects blank, printing just the good blisters.

Uhlmann's new line for filling blisters with inhalant powder – particularly for clinical trials and other short runs – was developed in conjunction with Harro Höfliger and is based on the Uhlmann B1240 thermoformer, capable of producing different pocket arrangements and sizes within a single blister.

In operation, the machine first cold forms the blister foil and a pinhole test is carried out before the powder is dosed by a Harro Höfliger Omnidose powder filling machine. The lidding foil is printed in line and the blister sealed.

T: 01252 743120

E: info@uhlmann.co.uk

HIBAR SYSTEMS

Dispensing pump uses ceramics for long life

The Pharma series of precision dispensing pumps introduced by Hibar has been specifically designed for the pharmaceutical industry and employ a ceramic plunger and cylinder that require no seals and give particularly long life – some 30 years or so mean time to failure.

The pump handles doses up to 10ml with accuracy to ± 0.5 per cent at speeds up to 150 a minute and employs a plunger that rotates during its stroke to act as a valve on both suction and dispense.

Drive is provided by servo motors with control through a standalone unit or via integration into an automatic system.

Typical applications include micro-dosing into blisters, vials and medical devices.

UK: Hi-Tech Machinery

T: 01256 766003

E: sales@fillers.co.uk

WATSON-MARLOW

Peristaltic pump offers higher pressures

The 520 LoadSure series of peristaltic pumps launched by Watson-Marlow provide pressures up to 7 bar, allowing the units to compete against mechanical diaphragm pumps in the chemical and food processing industries.

A key feature of the pumps, says the manufacturer, is that the tube element can be changed over in less than a minute, with no special skills required.

Cased and close-coupled versions include the IP66-rated 520UN/RE for analogue operation, incorporating 24V industrial logic, and the 520DuN/RE with flow calibration and RS485 network options.

T: 01326 370370

E: info@watson-marlow.co.uk

BRABENDER TECHNOLOGIE

Bulk bags massaged for complete discharge

The updated Brabender BagMaster bulk bag station uses a "massage ring" with rods around its circumference to improve material flow and ensure complete discharge, rather than the conventional vibrating plate.

The bag sits on the ring, with its discharge spout in the middle, and both are rocked by a pneumatic cylinder so that the rods massage the lower bag sides.



Improved discharge: Brabender system uses a "massaging ring"

As a result, says Brabender, the degree of bag agitation achieved leads to mass flow inside the bag, uniform bulk discharge and complete emptying.

There is also a new optional dust-tight docking system available for the BagMaster while, for bulk ingredient metering directly from the bag, a built-in metering feeder can be mounted below the discharge.

T: 01925 244002

E: sales@brabender-tech.co.uk

BOSCH PACKAGING TECHNOLOGY

High output syringe line and streamlined wallet system

A line for pre-filled syringes capable of speeds up to 500 a minute and a wallet style pack for blisters that can be handled on a conventional horizontal cartoning machine at 300 a minute were among developments unveiled by Bosch Packaging Technology.

Further developments included a filling machine aimed at difficult powders, a ten lane 1000-a-minute stick-packer and an inspection system said to reduce false reject rates by the use of two independent testing stations.

The syringe machine is the FXS 5100 said to be ideal for the production of pre-sterilised nested syringes, such as SCF1, using a transport system derived from earlier machines and adapted for nest processing.

It features a fully automatic in-line weight inspection and integrated isolator unit offering users a compact and easy to use machine with optimal process security, says Bosch.

There is also an exterior decontamination system and automatic opening system for tubs of empty syringes, so reducing particles.

The new SmartWallet for OTC products – which uses a pre-glued outer sleeve – can be produced on a modified blister line with no special wallet-packing machine required. The result, says Bosch, is reduced floorspace and capital cost compared with a conventional wallet packing machine.

Speeds up to 100 a minute are obtained with intermittent motion



New from Bosch Packaging:

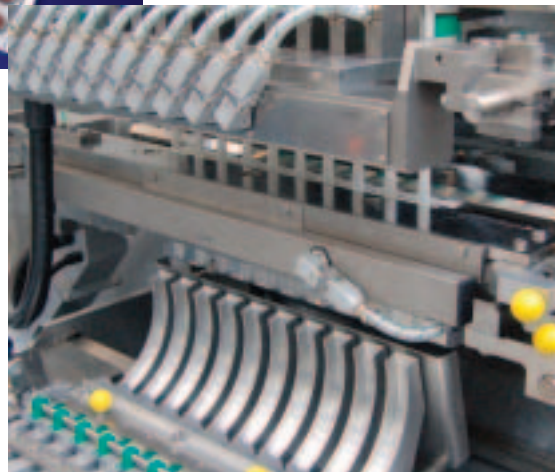
Above: FXS 5100 line for syringes. Left: SmartWallet can be produced on a modified blister line with no special wallet packing machine required. Below: Sigpack Systems' ten lane stick-packing machine is integrated with a cartoner

cartoners and up to 300 a minute with continuous motion machinery.

The blister, with a backing card if required, is glued into the outer sleeve by means of lateral holding flaps while leaflets or booklets can be

pre-loaded in the outer sleeve, introduced into the wallet during packaging, or integrated into the outer packaging.

SmartWallet cartoning machines can also be built to handle both wallets and conventional folding cartons, providing more efficient use of the investment if wallet production is anticipated to be a smaller



proportion of production.

The new powder filler, the AFG 3000 series, is aimed at handling "challenging" powders, such as those that stick or bridge, under sterile conditions at speeds up to 19,200 containers an hour.

This is achieved with a dosing module that operates on the vacuum/compressed air principle in which the powder is sucked into



Versatile thermoformer: Blisterflex Hi-Pro is able to handle both tablet blisters and products such as vials

dosing chambers on a dosing wheel and then blown into the containers with sterile compressed air. Filling weight is monitored and any compensation required made immediately by a fully-automatic system.

Sigpack Systems' new stick-packing machine for both pharmaceuticals and food consists of a ten lane form-fill-seal machine – with a choice of dosing systems – and an integrated cartoner. Speed is up to 100 cycles a minute with the stickpacks produced in either fin seal or overlap seal style.

The cartoner will handle the sticks sorted in one or two layers, or unsorted.

Bosch subsidiary Moeller & Devicon demonstrated its new CVT Slitec inspection system for vials, ampoules, cartridges and syringes in which the containers are checked for particles using several images that are independent of each other. This is said to improve reliability in detecting any particulate matter.

The machine also includes two independent testing stations with automatic recirculation that allows a fully automatic and immediate re-inspection in the event of contradictory results for the same container.

User-specific checks are also possible, including cosmetic checks for cracks, scratches and chips in the container as well as the quality of crimping, cap colour on vials or cartridges, neck distortion in ampoules and defects in the needle shield or plunger stopper in syringes.

Clean room technology from Bosch at Achema included an integrated glove tester, GloveFIT. This is said for the first time to allow a reproducible leak check of the overall intervention sleeve/cuff/glove system.

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Low cost thermoformer handles tablets and vials

Brazilian manufacturer IWKA Fabrima demonstrated its new Blisterflex Hi-Pro low cost medium output thermoformer at a European exhibition for the first time, showing how the machine could be used for both conventional tablet blisters as well as vials.

Following on from the original Blisterflex series, of which over 300 have been sold world-wide, the Hi-Pro was introduced last year and has since achieved sales

in excess of 30 units.

In particular, the deeper draw available from the machine compared to most blister-packers – some 25mm compared with the more usual 12mm – allows vials and syringes to be handled on the same machine as tablets and capsules.

Speed is up to 60 cycles a minute while the forming area is 230mm wide with an index of 110mm. All the usual materials can be handled including cold form alu/alu.

To reduce cost, the machine is driven by a mix of conventional AC frequency controlled drives and servo motors, which are used on the web advance for indexing

accuracy, as well as to maintain smoothness. Format parts are said to be easily handled for changeover without tools.

In addition, says IWKA Fabrima, the new Hi-Pro can run tools made originally for a popular medium format thermoforming machine from another principal European manufacturer.

Output is up to 200 blisters a minute and the machine can be linked to a low cost IWKA Fabrima cartoner or, for higher speeds, the IWKA range of SC cartoners.

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NEWMAN LABELLING SYSTEMS

Vial and ampoule labeller meets core safety need at reduced cost

A simplified, entry-level vial and ampoule labeller was announced by Newman to meet growing demand not only from export markets such as Eastern Europe and Asia, but also from contract packers and other users happy to trade management information and other advanced labelling machine features for lower capital cost.

The Newman 4VAL machine can handle up to 200 containers a minute, operating as a standalone unit on a tray-to-tray basis or as part of a larger line.

A variety of coding devices can be fitted, including thermal transfer, lasers and hot foil, together with a range of pharmaceutical packaging security devices such as bar code readers and OCV systems.

"The approach has been to adopt technical features that allow the 4VAL to meet fundamental regulatory requirements such as those of the FDA, but without more advanced features that add to capital and validation costs," explains John Clayton, managing director at Newman Labelling.

For example, the PLC and operator screen of the 4VAL retain the core consolidation requirements of recording the number of products in, the number

of products out and the number of labels used, but stop short of the degree of management information provided by Newman Labelling's more advanced machines.

"More statistical information means more time needs to be spent on validation, so we stopped at that point," explains John Clayton. "But the core safety requirements of the various regulatory bodies are fully satisfied."

Newman has already sold three 4VAL units to Russia and will show the new machine in the UK for the first time at September's PPMA Show in Birmingham.

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CODING AND MARKING

REPORTS ON DEVELOPMENTS IN PRINT-APPLY LABELLING, INK JET PRINTING, LASER MARKING AND ON-LINE CODING SYSTEMS.

INK JET PRINTING

Late stage customisation for pharma cartons

Late stage customisation of pharmaceutical cartons by ink jet, in full colour and with variable 'embossed' data such as Braille, now seems set to provide a further answer to producing small quantities in different languages, or for specific market conditions, without the cost of repacking. Blisters and labels can also be handled in the same way.

May's Achema exhibition in Frankfurt saw manufacturer Domino introduce a prototype full colour variable information print system, based on its new K series of high resolution drop-on-demand digital ink jets, developed for the graphics industry. These use ultra-violet curing inks to print an area up to 60mm wide at speeds of 200 metres a minute, handling variable data on items such as ticket tags.

For pharmaceutical industry use the system has been refined and provides a speed up to 90 metres a minute which, with pharmaceutical cartoning lines running at less than 50 metres a minute, means speed is not an issue.

Able to print a full range of line and halftone artwork, the Domino system can also use Data Matrix codes to provide serial numbering and hence unique identification that allows a product to be established as genuine at the point of sale anywhere in the world. Braille is applied by using thermal ink, which leaves a relief pattern.

"The versatility offered by the K series is a key differentiator to previous ink jet systems," says Lee Metters, sector development director at Domino. "These typically only printed the lot and expiry information on packages, while the remainder was printed by traditional methods."

Meanwhile, although outer case coding by ink jet has changed little in technical terms over the

past year or two, suppliers believe that the general trend to drive down production costs is seeing a steady move to generic packaging – decorated and coded on line by ink jet.

For example, the latest outer case coder from Linx is a twin head version of its IJ600 impulse jet coder, which enables both sides of a container to be printed simultaneously with graphics, text and bar codes up to 70mm high using a single control unit. The printheads are also self-cleaning and can print in any orientation up to 8 metres away from the control unit.

The one touch start/stop operation is said to allow quick and easy start-ups while the combination of the IJ600's IP65 rated stainless steel enclosure and pressure and temperature control at the point of coding enables the printer to operate in harsh environments.

Ease of operation remains a particular theme with suppliers of the different ink jet systems.

Imaje, for example, reckons to have gone back to basics with its 9000 series range of small character ink jets, both in terms of the relative simplicity of the system and its cost.

Steve Ellison, Imaje UK operations manager says: "The 9000 series is one of the most cost effective printers available. In fact our customers could save as much as 25 per cent in cost of ownership compared with our competitors."

Self-sealing containers

Features include ink and additives supplied, and loaded into the coder, in self-sealing containers that can be changed in 30 seconds without shutting the machine down. A new cleaning system for the print head automatically rinses the nozzle to ensure trouble-free start-up and optimum print quality.

There are two models. The 9020 suits all standard applications offering up to four lines of coding at speeds up to 4 metres/sec while the 9030 offers more advanced features and suits applications that require up to eight lines of text at higher speeds. With an IP65 rated option, the



Simple to use: New Imaje 9000 series ink jet coder is loaded with cartridges of consumables

9030 is more suited to harsher environments and offers more versatility through a choice of network connections.

Both coders use the IC60 ink circuit. With its internal reservoir, this means that the system can continue coding for up to 60 minutes after the 'empty' signal first appears, giving the operator ample warning when it comes to replacing consumables.

In the Wolke m600 thermal ink jet printer distributed by Sunala – part of Travtec – both the ink and the print head are contained in a replaceable Hewlett-Packard printer cartridge.

This eliminates maintenance since the important elements of the printing system are regularly replaced, and at the same time is said to guarantee a consistently high quality of code. The system is also completely drip-free both during operation and changeovers.

Each Wolke cartridge holds 42ml of ink and the system is able to calculate how many individual codes can be printed before a changeover is required. The ink is water based and, says Sunala, specifically formulated to match the porosity of the board used for the cartons.



Late stage customisation: Blisters and cartons can be handled in colour by the new Domino system



Dairy applications: Linx 4900DC ink jet coder is designed for traversing duties

For maximum user convenience, inputting of data, which includes date of manufacture, date of expiry and batch number, is carried out remotely via a central PC using the m600's Manager software.

Indeed the basic simplicity of the m600 has led generic pharmaceutical manufacturer Teva UK, Eastbourne, to buy two machines as an alternative to embossing, which was proving slow and inefficient to set up.

Low maintenance

"The m600 delivers an outstanding solution to our requirements, which combine clear text and fast changeovers with a reliable, low-maintenance performance," comments Teva UK

engineering packaging manager Dave Gadd.

Meanwhile, Linx has announced a new continuous ink jet printer designed specifically for coding dairy products.

In particular, the print head and conduit of the Linx 4900DC are designed for traversing applications, where the print head is moved back and forth across multiple lanes, while the curvature of the machine's stainless steel case assists rapid washdown and provides protection to IP55.

Compared with the standard Linx 4900 printer, the new version offers enhanced stop/start performance in humid conditions, faster two line printing – at up to 78 metres a minute – for traversing duties, and can be equipped with the Linx Mini printhead for creating codes as small as 1.4mm character height.

At the beginning of this year, US manufacturer Citronix introduced the 2006 ciSeries range of continuous ink jets, claimed to include the features and functions of higher priced systems yet be the most competitively priced CIJ currently available.

"The Citronix 2006 ciSeries offers a specification normally associated with high end systems on its entry level systems, making the 2006 ciSeries an extremely attractive and cost effective solution for CIJ printing," says Aled Ellis, marketing manager at UK distributor The Needham Group.

Citronix entry level systems offer three lines

of print, and the high end systems five lines of print. All systems also include the Smart Clean nozzle cleaning system.

In addition, all systems use the company's Pixel Plus software, said to raise coding speeds by 30 per cent over standard, give greater throw distance and the ability to print character heights from 1.5 to over 20mm from a single system, avoiding any need for dedicated coders for different requirements.

LASER CODING

Hot glass coding lifts legibility and security

Demand for higher levels of traceability, particularly from the EU, coupled to anti-counterfeiting measures has led Linx Printing Technologies to develop a new system of laser coding bottles while still hot, immediately after manufacture. In particular, the process recognises that glass remains very much at the quality end of the packaging market, attracting high value products such as wines, spirits, perfumes, premium beers and specialist foods.

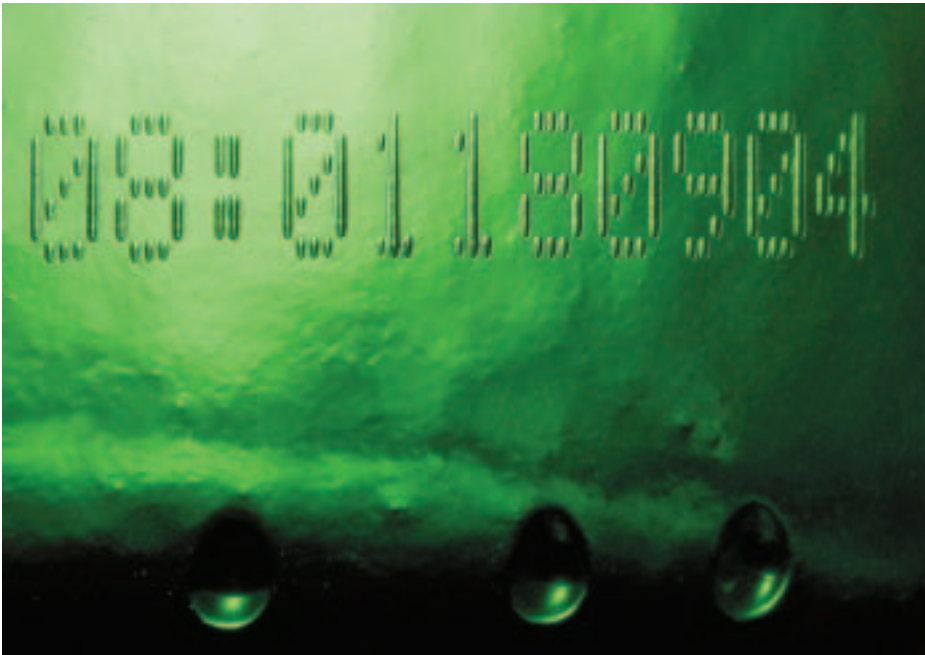
Traditionally, the coding solution for glass bottles and jars has been to apply an ink jet code – sometimes using ink only readable under ultra-violet light – at the end of the production line once the bottle has been cooled after moulding. However, as Linx points out, this creates two major drawbacks.

Practical problem

The first is that the code could subsequently be confused with whatever information is applied by the filling company to distinguish the batch or use-by date of the contents. The second is a more practical problem. Applying an ink code so early in the bottle's life – when it has yet to face the rigours of the filling and distribution process – means the code could easily be damaged or removed.

Hence the benefit of lasers, such as the Linx Xymark BBH machines now adopted by bottle manufacturer O-I, Harlow, to etch discreet dot matrix codes into the glass and give permanent information and traceability throughout the life of the container.

These lasers, installed on six of O-I's seven high speed lines, are specially adapted to code onto hot glass, marking the base of the bottles with a single line alpha-numeric code at speeds



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

up to 50 metres a minute. This position avoids any confusion or a clash with the coding information applied by the filler, usually to the neck, closure or label.

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.

Not surprisingly, coding onto hot glass containers presents a number of challenges. For example, during manufacture, the temperature of the newly formed bottle reaches 650deg C, while the ambient temperature close to the production line is a hostile 70deg C or so.

Avoiding heat and debris

Linx has tackled these problems in a number of ways. Its Xymark BBH laser system is mounted above the production line to keep it away from excessive heat and debris. In addition, the machine is sealed to IP66 standards for maximum protection from the surrounding environment and has a long arm to avoid compromising sensitive optical or electronic components in the system. A cooling system allows the laser to operate at 45deg C.

“The high quality permanent code provided by laser coding is the ideal solution, while coding onto hot glass at the point of manufacture is the most effective method – and in our Xymark BBH we have the only coder on the market that

can operate in such a tough production environment,” says Mike Utley, product manager, lasers, at Linx.

Still on traceability, vision system specialist Cognex and parts marking equipment supplier Technifor have joined forces to provide a new system for Central Labo, France, allowing each of the 48 separate wells in a tray of blood and serum samples to be individually identified.

Previously each container of samples was simply identified as a whole using a bar code so, should just one sample provide a problem, the entire container had to be rejected.

Cognex explains that the small size of each

well and the need for complete traceability demanded an automated marking process capable of integrating the necessary data handling, which was also tailored to meet the specific needs and technical requirements of Central Labo. The solution needed to mark two different codes with a result that would be both machine-legible and visible to the human eye, even after long periods of time.

Zero risk of error

“Technical constraints were significant in that the solution would have to be a completely automated process complying with Class 10000 clean-room conditions, maintain zero risk of error and ensure any non-conforming pieces are rejected during the process – all the while meeting production requirements of one piece a minute,” says Cognex.

The solution is a custom built laser marking system from Technifor and an In-Sight 1010 vision system from Cognex to read and verify all the codes involved.

After the container is loaded and identified with a bar code, each well is marked with the container code as well as its own unique identification code in human readable text. In addition a DataMatrix machine readable code is added allowing the same information to be held in a particularly small space. At



Each well identified: Cognex/Technifor system codes and verifies each well of a tray of samples

this point each of the codes has to be inspected and verified by the Cognex In-Sight 1010 camera, which is mounted in such a way so as to be able to read each of the codes on each sample.

Outside the bottling industry – and similar high speed packaging operations – there are few reports yet of a significant shift from ink jet to laser. But a change of coding method may well bring benefits in some circumstances.

For example, Warburtons the bakers has installed a Markem SmartLase 100i laser coder for applying date codes to cartons of new All in One Riddlers pre-filled bread rolls, allowing more characters to be coded at higher speeds.

Chris Beer, engineering manager at Warburtons' Blackpool bakery, comments: "In the past we would probably have used a continuous ink jet printer for such an application, but installing a laser coder has proved more reliable as well as more cost-efficient in terms of lifetime costs."

The SmartLase 100i is a low power, CO₂ coder able to handle primary packaging such as cartons, labels, glass and pet bottles. Markem says that its reliability is reflected in its three year warranty.

New generation lasers

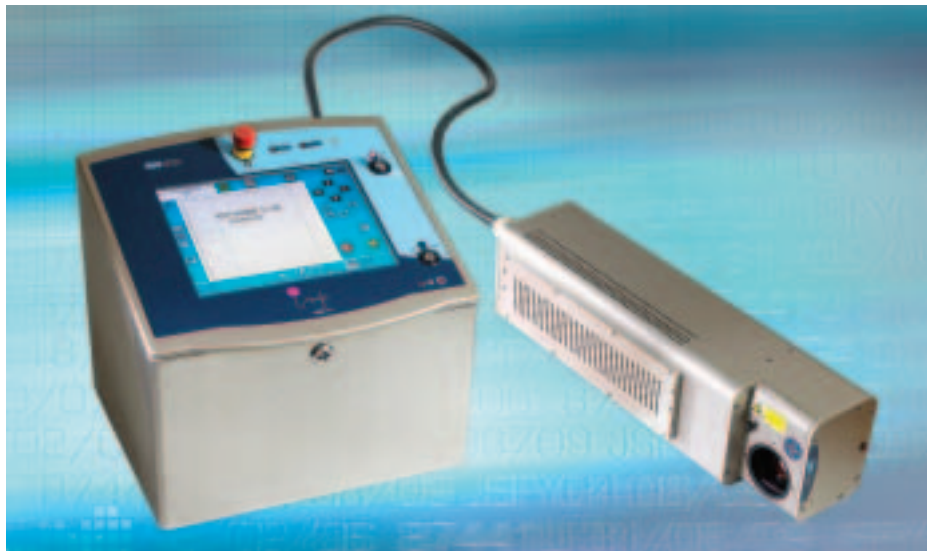
Imaje has just launched a new generation of scribing CO₂ lasers which, according to group product manager, Francois Barreau, will open up laser coding to a much wider market.

"The Imaje 7000 series is a major step in scribing laser technology," he says. "With the 7000 series, laser coding will never be the same again; the time of overheating problems, poor printing performance at high speed and limited duty cycles is over. It offers major opportunities for dry food companies that want to change their marking technology."

There are two coders in the new range, the 10W Imaje 7011 and the 30W Imaje 7031. Both feature a third generation laser head that can operate at temperatures up to 35deg C without the need for external cooling and can provide speeds up to 1000 characters a second with, it is said, no reduction in code quality.

Imaje says that the 7000 series can be easily integrated into most production lines as a result of its modular design, comprising three separate components: a controller, cable up to 9 metres long and a laser head. The controller is housed in a stainless steel cabinet while an aluminium body with FDA approved coating protects the laser. The compact laser head itself offers 0deg and 90deg laser beam orientation.

Spanish manufacturer Macsa Laser is



Third generation: Imaje 7000 series laser coder can operate at up to 35 deg C without external cooling

launching its new K-series CO₂ laser, said to be easy to install and use while being particularly competitively priced. "With the Macsa K-Series laser systems we are now well and truly entering CIJ territory in terms of pricing," says Aled Ellis, marketing manager of UK distributor The Needham Group. "Add to this the savings on consumables and it is an extremely attractive proposition."

The K-Series is available with 10W, 30W or 60W of power, a wide range of Windows based fonts, graphics, logo and bar code capacity, Ethernet networking capabilities and meets pharmaceutical standard 21 CFR 11.

PRINT-APPLY LABELLING

Custom solutions illustrate systems' adaptability

Two of the most significant developments in print-apply of late – one in software, the other in hardware – show there is no shortage of innovation while a host of custom solutions continues to illustrate the adaptability of the technique to the needs of different industries and products.

The software development is a line set-up and verification system in which use-by dates and labelling data is entered once and passed to coding, labelling, weigh scales and other line equipment – while bar code printing quality is also carefully monitored.

Developed by Cobalt IS, the Sentinel system employs bar code match functions to allow outer packaging to be verified against actual contents,

mis-packaged products and rogue labels to be detected and warnings issued to operators or, in severe circumstances, the line shut down.

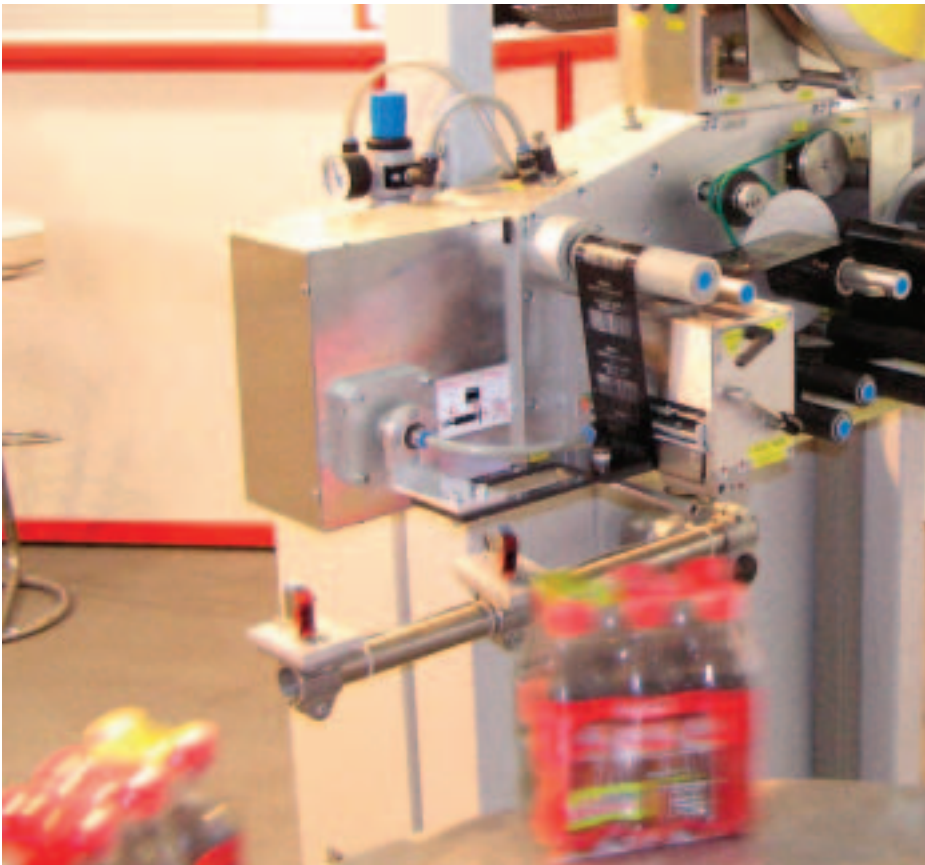
The system is able to read, grade and record bar codes in real time – so that individual packs are uniquely identified for removal or easy tracing at a later stage. Operators are given a graphic display of the current and average bar-code read quality being received – for easy at-a-glance reference – with comparisons of these readings against expected or minimum values to identify early signs of degradation.

Users are able to specify the most appropriate response to any read errors detected which, based on individual site requirements, may include a controlled shut down of the packaging line, audible and visual alarms, quarantining of affected product or automatic 'error' labelling.

Warning messages of impending problems can also be sent to host applications across an Ethernet connection, or to upstream equipment that has a manned control panel, allowing further preventative action. A full audit log of product detail and read status is retained as proof of the bar-coding quality on exit from the labelling station.

On the hardware side a front-of-pack print-apply labeller that avoids the mechanical stress imposed on traditional machines by head-on physical contact with the pack, and can run at speeds up to 80 a minute, is now available from Logopak.

Aimed at applications in which no line space is available to turn a pack 90deg for labelling its face from the side, the new Logopak 906F labeller employs a blow-on label applicator carried on a high speed rotary air cylinder. This allows the applicator to be brought in and out of



Non-contact: Logopak 906F front-of-pack print-apply labeller can run at 80 a minute

position much faster than the linear air cylinders traditionally employed which, coupled to the use of a blow-on applicator controlled by proximity sensors, avoids all contact with the pack.

“Up to now, front-of-pack labelling has imposed considerable mechanical strains on equipment, and even the best machines have required extra maintenance as a result of the constant battering,” explains Logopak UK general manager Wilson Clark. “Not only does the new Logopak 906F avoid the problem, but it also gives speeds up to 80 a minute where, before, 40 to 50 a minute was the maximum.”

Entry level model

Meanwhile Weber Marking Systems has launched a new entry-level print-apply labeller. The Model 2600Lt is an in-line unit for moderate duties or for initial entry into on-line print-apply labelling and, says Weber, includes functions formerly limited to heavier-duty equipment. It uses Sato’s new Lt408 direct-thermal/thermal-transfer print engine to provide 203dpi text, bar codes and graphics at speeds up to 150mm/sec, and will dispense labels up to 108mm wide and 150mm long.

Application is by the tamp-blow method of application in which a printed label is peeled from its liner and retained by vacuum on the applicator’s tamp pad. The pad is then extended, the vacuum reversed, and the label blown on to the surface of a package from about 6mm away.

Another low cost print-apply system is also now available from Martek Industries in the form of the Delta LT machine aimed at medium throughput applications. Labels up to 100 x 120mm can be printed at 203dpi resolution and applied to pack side or top at speeds up to 45 a minute, by a tamp applicator that can be readily adjusted without tools for different label sizes.

Codeway has recently completed the installation of three print-apply pallet labelling systems for a manufacturer of insulation board, using Avery Dennison ALX print engines. The system incorporates NiceLabel software to provide a simple means of calling up the right label when product specifications, sizes and official approval logos all change, batch to batch, showing the user an image of the label to check before printing.

Codeway also set up the system to obtain information of the company’s database and to capture the data from labelling. This triggers the first stage of a tracking system that will follow the product through dispatch to the customer, with proof of delivery.

A new generation of Avery Dennison print-apply machines is now also available from Codeway, including the ALS 204 applicator that can be readily upgraded at low cost to IP65 protection against ingress of dust and water, particularly for the food and beverage industries.

Since the die cast aluminium casing provides a substantial heat sink, ventilation holes are not

CODING AND MARKING

needed, reducing considerably the cost of sealing. In addition, the mounting bar that carries the dispensing beak can be rotated in steps of 1.5deg, making installation on a variety of host machines much easier for side, top or bottom labelling applications.

Markem has recently supplied tandem Cimjet print-apply machines and Cimpak pallet labellers to all the UK sites of Coca-Cola Enterprises, following initial trial installations at Coca-Cola Edmonton and Wakefield sites where the machines were found to improve labelling accuracy and speed on pet bottles.

Two Cimjets are installed on each of the production lines, working in tandem to apply labels to the side of packs of four and six 1 litre and 2 litre bottles. This system reached higher speeds than the original equipment and prevented delays in production when label reels required replacing.

Pallets identified

Pallets of shrinkwrapped bottles are subsequently labelled by Cimpak machines which, together with the Cimjet labellers, have been networked by Markem to Coca-Cola Enterprises' on-site warehousing system, helping provide data for stock and traceability purposes.

Other recent examples of print-apply providing tailored solutions include an installation of 35 Logopak machines at the new Quinn Glass factory in Elton, Cheshire, where some of the machines are supported within 4.2 metre high structures, so that tracking labels can be placed on the tops of pallets.

The installation, which is Logopak's largest single UK order to date, is in three sections.

The first applies labels on the tops of pallets at the exit from individual palletisers. These labels are internal and are for tracking the pallet through the conveying system from palletisation to labelling, and then to storage.

Since pallets vary in height from 1.4 up to 2.7 metres, and are transported at this point on 600mm high conveyors, the Logopak 906 TP print-apply machines are carried in a 4.2 metre high support structure and adjust to the height of the pallet.

The second part of the installation is standard EAN labelling on two adjacent sides of stretch-wrapped pallets for the finished product area using Logopak 920PF and P units as well as Logopak VLP off-line systems.

The third part is tray and EAN pallet labelling in the filling and packing hall using Logopak 920PF and the newly developed Logopak



Adjacent side labelling: BBK has introduced a new corner wraparound print-apply machine

515b90/600 print-apply machines.

All machines operate from within enclosures to protect the equipment against an "oil laden" atmosphere and to ensure that the label adhesive retains its tack for secure application.

Further manufacturers introducing new print-apply models include BBK Labelling and Coding Solutions with a machine to provide adjacent side coding with a label wrapped around the case corner. As the label is dispensed from the printer it is held on a vacuum pad, dispensed onto the side of the case and then taken round the corner by an arm that also wipes it down completely. The applicator can also be used for side labelling only.

Sessions of York has announced a new print-apply machine, the RCP64, for low to medium volumes of cylindrical containers, from vials to wine bottles. It includes a ribbon save function

and a powered bottle jig that can be quickly changed from one size product to the next. Windows based software is used for label formatting.

Logopak last year launched a new generation of high speed industrial RFID print-apply labellers said to be the first machines of their type developed specifically from the outset to combine the two technologies.

New print head design

In particular, the Logopak 500 range incorporates a new design of print head that allows the RFID read and write antenna to be enlarged and mounted in the optimum position for efficient operation of the head, both electronically and mechanically.

"The 500 range is the first complete series of RFID print-apply machines to be designed explicitly for the purpose," says Logopak UK general manager Wilson Clark. "Continuing changes in RFID to UHF frequencies mean that new equipment with RFID at its core is now necessary."

The 500 range is available in three print widths of 106, 160 and 216mm giving users access to wider labels able to incorporate the additional information, such as EAN128 bar codes, increasingly demanded by retailers. There is a choice of 8, 12 and ultimately 24 dots/mm resolution to suit the application.

"Print plates from different manufacturers, including ultra-high speed corner edge plates, can be used on the new machines," explains

Contact ink marking offers cost-effective simplicity

Contact ink marking may not be hi-tech, but it is certainly well proven and cost-effective.

If the application is to print a batch number, a date or a price then, says Cap Coder, the simplicity of its Gentle Touch reciprocating coder can be particularly attractive.

The machine is able to run at speeds of 160 a minute without damage to packaging; a fact proven, says Cap Coder by its ability to code the surface of an egg yoke.

The small print heads are fitted with a type holder to carry the rubber type which can be quickly changed. Multi-coloured ink cartridges are also quickly replaced and last typically for over 50,000 sell-by date codes using 2.5mm high type.

The Gentle Touch can be supplied with control modules for installation on a production line, as part of a capping machine or as a benchtop unit for short runs.



Cost-effective: Gentle Touch ink coding head installed on a Top Coder benchtop system

Wilson Clark. "This means there is an open upgrade path for the future, and complete security of component supply."

Labelling speed with variable data is 70 packs a minute on typical 50mm long labels, and 100 packs a minute where label data remains constant. There is no loss of print speed on extended widths.

Mechanically, the Logopak 500 range has been designed to reduce complexity with, for example, just one-third the number of rollers employed by its predecessor. There is also a choice of reel holder, for 300 or 450mm diameter rolls of labels.

Applicators available for the machines cover a full range, including blow-on, tamp, front-of-pack, keg and adjacent side versions.

ON-LINE CODING

Higher reliability and longer life for components

Improved reliability and longer life for components are currently two issues being addressed by coder manufacturers.

For example, two systems to extend the life of the print head are employed on Allen Coding Systems' latest thermal transfer machines, the NX2 which accepts a 2in wide ribbon and the NX4 which works with a 4in wide ribbon. Both are available for intermittent or continuous motion giving maximum speeds, respectively, of 450mm/sec and 27 metres a minute.

The first system is a preheater for the print head, which, particularly in cold environments, reduces energy consumption, eliminates thermal shock for longer life and is said to give higher print quality, especially at higher speeds.

The second is the Hysteresis control routine for the resistive heating elements within the print head, 12 per millimetre, which heat rapidly and cool when energised, placing the print head under considerable stress.

Unlike traditional systems in which only the duration of the energising is controlled, the Allen system is able to adjust the amplitude. This means that the previous print can be analysed and those elements that are still warm identified and fed a lower current to help reduce stress while maintaining improved print quality.

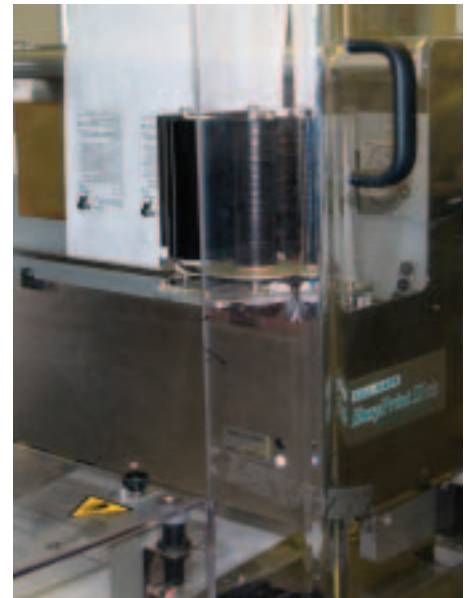
Allen Coding has also equipped its thermal transfer machines with two foil save systems. The first calculates the minimum amount of foil required for the image, leaving the minimum gap between impressions. The second is a sidestep function which, if the pack layout permits it, allows a line of code to be printed a number of times across the head without indexing the foil.

In addition to its new thermal printers, Allen Coding is now also offering two types of networking packages for central control of the systems: AllenSure, giving full tracking ability of the printer and its associated operation to 21 CFR Part 11 standards; and AllenView, for basic networking requirements.

However, for a number of coding jobs, particularly one or two lines of alpha-numeric text applied at high speed, hot foil continues to be the system of choice.

Hot foil printer

Allen's most advanced hot foil printer, the Super Compact, is able to run at 800 impressions a minute and, via the optional rotary flick-wheel type holder, give virtually the same changeover time as a thermal coder, some 15-20 seconds for a single line of text. For damp environments an IP65 rated version of the Allen Compact model is also available



Replacing labels: A Bell Mark traversing printer has been installed by Transpack Medical

Finally, medical device manufacturer Transpack Medical, Blackburn, has installed a Bell-Mark thermal transfer printer on its Tiro-mat thermoformer to allow all information previously carried on hand-applied labels to be printed automatically on the top web.

Supplied by Rotech Machines, the printer traverses the 300mm wide web within the cycle time of the host thermoformer, avoiding any reduction in speed, and is equipped with a 128mm wide print head able to handle the length of label required. The ribbon employed was selected by Rotech for its performance at high speeds on Tyvek and other medical papers. Pantone colours can also be matched.

"We are enjoying significant benefits with the new printer," says Transpack managing director Andrew Micklethwaite. "We have no restriction on the speed at which we can run the thermoformer and are able to produce a far higher quality of print than previously."

By installing the Bell-Mark printer driver, the company is also able to continue to use existing label formats and design software. ■

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For full details of all PPMA members able to supply coding and marking equipment, consult the PPMA machinery finder service, tel: 020 8773 8111, or visit www.ppma.co.uk

Checkweighing progress driven by Data collection

THE WAY IN WHICH CHECKWEIGHER DATA IS COLLECTED, COMMUNICATED, MANAGED AND USED HAS CHANGED DRAMATICALLY OVER THE LAST FEW YEARS.

Checkweighers have long been used to collect data for trading standards purposes, to provide evidence that products meet average weights legislation. Historically, this data was printed out and stored as paper records. Then, a few years ago, checkweighers were introduced which, when linked into data communication and management information systems, enabled production staff to capture real-time production data which they could store, access and interrogate electronically and remotely.

Although this may still sound like pretty cutting-edge stuff to the uninitiated, those at the sharp end of checkweighing technology will know that more recently, advances in data management systems and the ways in which data is communicated have edged even further forward.

The first development is that Ethernet has established itself as the industry standard network connection for linking together a number of systems in a production environment. And, as Alan Johnson, group product manager with Spectrum Inspection Systems, parent company of Loma and Cintex, explains, this makes it much easier to link systems together.

"If you've got a device which is Ethernet-ready – which our checkweigher is – it's very easy to connect several systems onto the Ethernet network and give them an address. Then you can start to transmit data quite freely across the network and view that data at any PC that is on the network."

But just as users are getting to grips with Ethernet connections, two other technologies – WiFi and Bluetooth – have appeared on the horizon, threatening to banish network cables from the factory floor altogether.

WiFi creates a 'wireless network', enabling checkweighers to transmit information to a central computer with no need for cables running along the factory floor.

However, Alan Johnson says that this has met with some resistance from manufacturers. "It opens up all sorts of security issues and we've

found it's not been taken up that readily because the IT people say that once you've got it, anything could happen."

It's a view that is echoed by Martin Lymn, global product manager for checkweighing with Thermo Electron. "Our customers are concerned about data security on a wireless connection. They don't want someone sitting in the parking lot intercepting their production statistics."

Some of these concerns are moderated by Bluetooth, another type of wireless connection which works by attaching an aerial to each checkweigher in the network.

"That's a lot safer," says Alan Johnson, "but unfortunately it's a lot more expensive, as for each checkweigher you need a matched aerial."

It's not just cost and security issues that are deterring manufacturers from switching to wireless, either. According to Martin Lymn, the ability of wireless to operate reliably in a real-life production environment is still in question.

"The robustness of the technology in an environment where there are a lot of electrical disturbances going on concerns us and our customers," he says.

Developments in data management

Data management or management information systems have also advanced considerably compared with just a few years ago.

"It used to be that people like us would supply a bunch of checkweighers and a proprietary PC-based data collection software package which would only talk to our checkweighers, metal detectors and X-ray devices," explains Mr Lymn. "Various competitors historically had similar products. What we're seeing is a shift towards open communications, so manufacturers are not just locked into having a standard PC that talks to checkweighers – they want a more centralised system that can talk to every device on the production line."

In other words, manufacturers want their

checkweighers to be controlled by their own, centralised data management system, rather than a proprietary version supplied to them by the checkweigher manufacturer.

Alan Johnson too, has observed this shift. "Where the interest lies is in having open systems, so manufacturers have the ability to configure screens the way they would want those screens configured in their factory."

To this end, Loma manufactures OPC (Object linking and embedding for Process Control) compliant checkweighers. Loma says that in most cases manufacturers of data management systems can provide OPC compliant interfaces.

"So rather than buying off-the-shelf data management systems, we're essentially providing a system customers can configure themselves so they see exactly the information they want to," explains Mr Johnson.

Harnessing data for process control

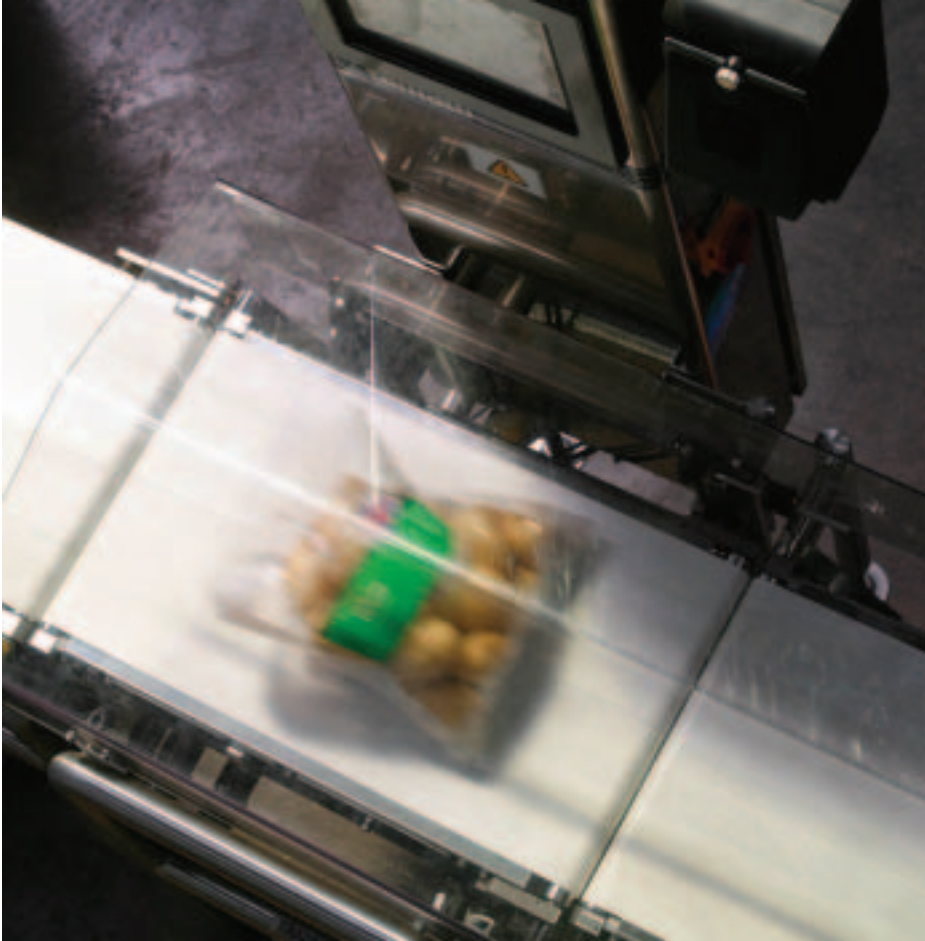
It's not just the way in which data is gathered and transmitted that is changing – it's also the way in which it is used.

A helping hand with HACCP

A combination metal detector and checkweigher with integrated data management software from Lock Inspection Systems is helping a US-based pâtissier to implement an HACCP programme.

Massachusetts-based Edelweiss markets fine baked goods, cakes and pastries to restaurants, hotels, airlines and in-store bakeries.

The Lock WeighChek checkweigher and MET 30+ metal detector are electrically integrated, allowing settings for both units to be adjusted and data viewed from the checkweigher's control panel. Because the system is networked with the company's management information system, detector and check-



Handling big bags: Over 50 Yamato G Series checkweighers have been sold to the potato industry

Checkweighers provide a wealth of data, from basic weight data to line efficiency information and throughput data. While traditionally this information has been collated primarily for trading standards and legislative purposes, manufacturers are increasingly seeing the data as a source of process control.

"You can get a fix on throughput, that is how many packs have gone past," notes Mr Johnson. "If a machine has been idle for a while because of downtime, you can get an angle on line efficiency as well as giveaway. You can look at vari-

ous lines and times in your production process to make a judgement on your giveaway and line efficiency. And you can even compare the efficiency of different shifts."

The most common way in which the checkweigher is used as a process control tool is by providing servo feedback to the filler. So if the filler is trending either upwards or downwards, the checkweigher monitors the trend over time and has the facility, through feedback control, to instruct the filler to increase or decrease the dose. For manufacturers this means greater cost

weigher data can also be accessed from a remote PC or laptop. The real-time status of the machine and product is monitored, so validation and performance reports can be produced and problems identified instantly.

A total of 640 products, in different sizes and packaging, meant Edelweiss needed a system that would offer both flexibility and sensitivity. Lock's combination unit, with DataChek, has unlimited data storage capacity and allows product set-ups to be changed and detector parameters optimised for ultimate sensitivity. Installed at the end of the packing line, the system provides the final check before goods are delivered to customers.

A pusher reject device transfers contaminated, underweight or overweight product from the line onto a table, where it is manually inspected.

efficiencies as product giveaway is reduced.

In itself, the technology is nothing new. Manufacturers in the USA have been using the checkweigher as a process control or efficiency tool for quite a number of years.

European manufacturers have however been slower to harness the checkweigher's process control potential, though Thermo Electron's Martin Lymn says they are now developing a better understanding of the relationship between the checkweigher and up and downstream processes.

"The number of customers buying the servo option has increased, particularly in the UK and Europe, where the checkweigher has historically been a regulation compliance function," he notes.

Eliminating giveaway

It is nevertheless surprising how long this has taken, given the cost savings that can be accrued by eliminating giveaway.

"We have examples where over a six month period, the checkweigher has actually paid for itself and some, just by offering feedback control to the filler," says Mike Bradley, manager of Mettler Toledo Safeline's product inspection business.

These claims are backed up by Martin Lymn, who says he has had customers in the USA who have had payback from a checkweigher in a matter of weeks, and even days, from reducing their giveaway by what on the face of it seems a fairly small amount, but when multiplied by the number of packs produced in a day, amounts to astronomical raw material savings.

Cleaning is a requisite for any company looking to follow an HACCP programme. At Edelweiss the factory is washed down and sanitised every night, so it was vital that inspection equipment could stand up to cleaning. The Lock metal detector is protected to IP54 while the stainless steel checkweigher meets IP66 requirements.

"There's more to inspection than buying the cheapest system on the market. In actual fact, the purchase price is only part of the package," explains Rifat Cebi, general manager at Edelweiss.

"Metal detection and checkweighing equipment represents a long-term investment. Making wrong decisions can lose valuable business and a cheaper machine that delivers inferior performance and causes frequent downtime can be more of a financial burden in the long run."



Final check: Lock WeighChek checkweigher is combined electronically with a metal detector

CHECKWEIGHING

Although data collection, communication and management might be a key focus for checkweigher manufacturers, there are still other areas of innovation.

As with most production and packaging machinery, speed is always a focus area, particularly in high speed canning applications.

Thermo Electron has now launched a new checkweigher which is capable of weighing cans at speeds of up to 660 a minute.

Marketed as the Ramsey Teorema checkweigher, the machine is accurate to $\pm 0.7g$, meeting the accuracy requirements of Europe's R-51 and the US Handbook 44. Features include spacing and acceleration of cans, side-to-side conveyor transfers at infeed and outfeed, controlled feeding and a high-rate reject mechanism.

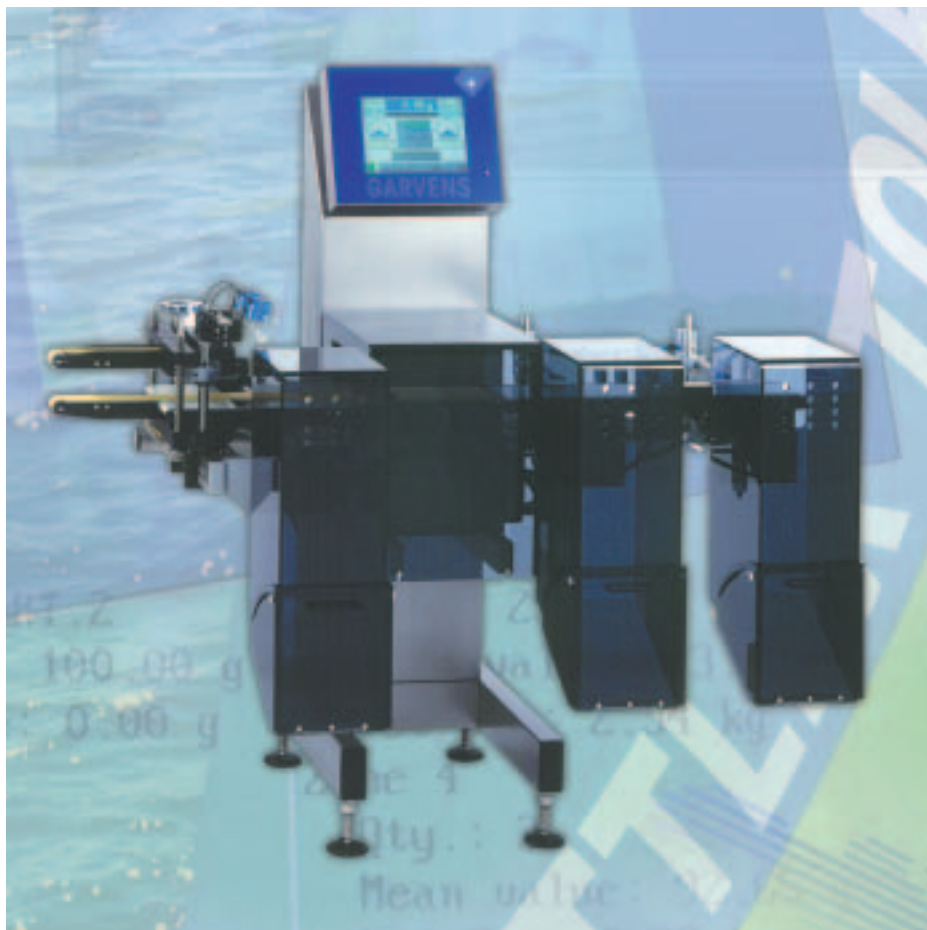
Reliability rather than speed

In contrast, Loma's Alan Johnson sees the requirement for reliability rather than speed as a driver of technological innovation, as production lines are run a lot more aggressively.

He reports increasing demand from the expanding chilled food industry, where shelf life is particularly critical. "With these sorts of pressures, companies are extremely intolerant of downtime, and producing robust and reliable checkweighers is a must. It's a balance between maintaining accuracy and having drive and conveyor systems which are quite beefy. So you have to over-engineer the motors and drive systems."

In addition, there are still some applications in which checkweighers can struggle, such as awkwardly shaped products or washdown production environments.

To this end, Easiweigh, part of the GSH Group,



Pharmaceutical checkweigher: A Mettler Toledo Garvens S2 machine has been installed by Universal Products

has developed a new range of checkweighers specifically for fresh and frozen food production environments, where high humidity levels and irregularly shaped products are common.

The range is particularly suited to weighing objects such as bags of apples because it uses a twin rather than a single loadcell, which provides stability on the weighing plate, and can be rated up to IP67 for full washdown environments. Although other manufacturers are producing IP67 rated systems, Easiweigh claims

that its system is more affordable than most.

The new range operates at speeds of up to 300 products a minute and can achieve accuracy levels of $\pm 0.3g$. Operation is via a graphic display panel, from which data can be managed and printed and speeds can be adjusted.

Another company to have mastered awkward products is Yamato Scale, which has sold the potato industry more than 50 of its G Series checkweighers, which are capable of weighing the large 6kg bags.

High output unit works with eight lanes

A multi-lane checkweighing and metal detection system able to handle 147mm long trays at speeds up to 256 a minute has been purpose built by Sparc Systems for a UK sauce manufacturer to work in line with the thermoformer on which the catering size packs are produced.

Sparc, which builds a wide range of standard checkweighers, developed the line to accept rows of trays directly from the eight lane thermoformer, avoiding the need for merging devices and maintaining throughput without high linear speeds. This in turn ensures higher accuracy.

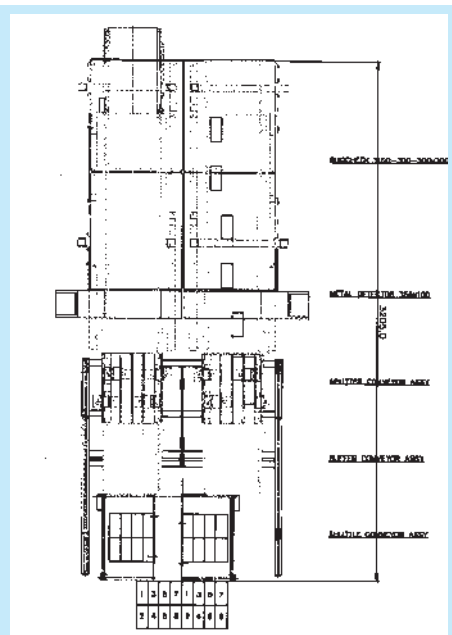
The line, which is in two halves to handle four lanes each, is also particularly compact, measuring some 3.2 metres long, including

the infeed section and the buffer station.

In operation, two rows of eight trays are first accepted by the line's shuttle conveyors, which move left and right to split the 16 packs into two 2 x 4 groups and pass them forward onto the two buffer conveyors.

From here the groups of trays move on to the splitter stations – each with four timing belts – that release the packs singly onto the four-lane, 300mm wide belts of the checkweighers at a pre-set pitch, allowing each pack to be monitored one after the other, first for metal then for weight.

Overhead reject systems and bins are fitted to both halves of the line immediately after the metal detectors and the checkweighers.



CHECKWEIGHING

The company also provides for the opposite end of the industry, having installed a number of systems for weighing small bags and punnets. It says the G Series is also proving popular within the salad industry – again for large bags and also coupled with metal detectors.

Mettler Toledo Safeline's Mike Bradley reports increasing demand for customised combination systems.

Historically, checkweighers are most commonly supplied as integrated systems in combination with a metal detector. Lock Inspection Systems, for example, says its WeighChek checkweigher is at its most powerful when combined with its MET 30+ metal detector in a fully integrated system. Lock says this allows settings for both units to be adjusted and data to be viewed from one control panel.

Integration saves space

Now, according to Mike Bradley, companies are asking for combination systems which integrate checkweighers with laser marking and vision systems.

"That means as well as doing the checkweighing, we're marking the products and checking the marking is correct. We can even put batch

data on that links into the checkweigher and is read and confirmed. We call it a QA station rather than a weighing station."

While most of the demand for these systems has come from the pharmaceutical industry, Mr Bradley says he is getting more and more interest from the food industry. "It uses the space for the checkweigher for more than a simple weighing job, reducing the overall footprint. Space is at a premium in any production environment."

Finally, pharmaceutical and personal care products contract filler Universal Products (Lytham) Manufacturing has just installed a Mettler Toledo Garvens S2 Pharma checkweigher to monitor the output from a newly installed Norden tube filler.

The machine is able to accept tubes from 4.5g to 400g and from 45mm to 225mm long and, as well as rejecting incorrect products employs mean value monitoring to allow for the effects of humidity on product density.

The S2 Pharma checkweigher is specifically designed for the pharmaceutical industry and complies with 21 CFR Part II regulations. Accuracy is said to be 0.5g-3g while speed is up to 400 items a minute. ■

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For full details of all PPMA members able to supply checkweighers consult the PPMA machinery finder service, tel: 020 8773 8111, or visit www.ppma.co.uk

Cartoning machinery moves Beyond the box

CARTONING MACHINES THAT ALLOW NEW SHAPES AND FORMATS – SUCH AS TAPERED PACKS AND WALLETS FOR PHARMACEUTICALS – ARE BRINGING NEW HORIZONS TO A MARKET THAT WAS ONCE SIMPLY RECTANGULAR BOXES, WRITES MARTIN KEAY.

The criticism often levelled at cartons by pack designers and brand managers is that they are almost always rectangles and that it is very difficult to give a product packed in a carton a distinctive shape that can become synonymous with the brand.

Of course, as we are regularly reminded at Easter time, it is possible to come up with very fancy shapes made from cartonboard, but all too frequently these distinctive shapes can only be erected, loaded and closed by hand and so for high volume production the tendency is to go back to the boring rectangle.

But this situation is slowly changing thanks to some innovative machine designs that allow different shapes of pack to be formed filled and sealed completely automatically.

Blister wallets

For instance in the pharmaceutical industry instead of placing blister packs of tablets in rectangular end-load cartons, there is a growing trend to pack the blister in a cartonboard wallet.

This has a number of advantages, not least being that it reduces the cost of packaging. However there are also benefits in pack functionality.

With the conventional end-load carton pack, the blister very quickly becomes separated from the carton and the instruction leaflet, but with a wallet pack it is possible to glue the blister to the wallet so that important consumer information, such as dosage instructions, remains attached to the product.

And of course with a wallet pack it is possible to make the shape of the pack unique and distinctive, which in the pharmaceutical industry is important not only for commercial reasons but also to prevent any risk of confusion between different medications.

One recent example is a Schubert TLM-F2 line installed at a German pharmaceutical manufacturer to load blisters of tablets into dispensing

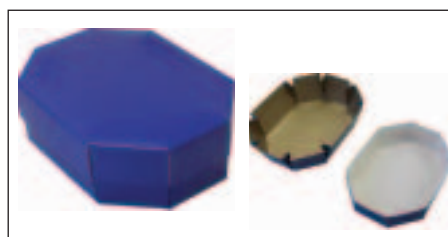


Wallet loader: Tablet blisters are glued into carton strips by the Schubert TLM-F2 line

wallets at the rate of 240 packs a minute. This method not only means format re-setting is simple and fast but also allows a variety of different wallet designs to be processed on the same machine.

“A growing number of pharmaceutical manufacturers are choosing to pack their tablets in carton strips. It is not only a very economical way of lowering packaging material consumption but also has benefits for the consumer,” explains Alan Law, managing director at Schubert UK. “As the tablet blister pack is sealed within a wallet, it ensures that important consumer information such as dosage instructions remain attached to the product.”

Blister packs are first fed into the compact



Tray sealed by lid: Mohrbach presentation tray uses no adhesive or tuck flaps

Schubert machine from a high-capacity product buffer capable of storing up to 8 minutes' worth of production.

They then enter a rapid thermoforming and sealing section which glues the blister packs into carton strips. These strips are then folded around the packs by specially-designed, quick-change tools. In the final stage, the machine applies a sealing label and laser imprint to the wallets.

Fancy carton shapes

When it comes to producing unusually shaped cartons the most common machine for the job is the classic carton erector, which forms the packs from a flat blank, usually with the help of male and female mandrels, securing the flaps either with tuck features or glue.

However German manufacturer Mohrbach, represented in the UK by Integrapak, has come up with an interesting variation – an automated system to produce a tray that is neither glued nor secured with tuck flaps, but is simply held together by the top lid. This means that when the customer opens the package the base carton springs open to reveal the contents.

CARTONING

The line consists of a tray erecting machine, an intermittent motion conveyor to carry the tray to a multihead weigher able to load a mix of products, and a lidding machine. Lids are secured with two labels.

Different shapes of sleeves

The growth of chilled foods and ready meals has increased the demand for cartonboard sleeves. Here again sleeves used to be basically rectangular, but a wide variety of shapes are now being used to give products a distinctive appearance in this very fashion conscious sector of the food industry.

Traditionally, sleeves have been supplied pre-glued, which allows them to be placed on the pack either manually or by machine. However, an increasing number of customers are purchasing wraparound sleeving machines which apply the sleeve in the form of a flat blank around the product, securing it with either hot melt adhesive or a tuck feature.

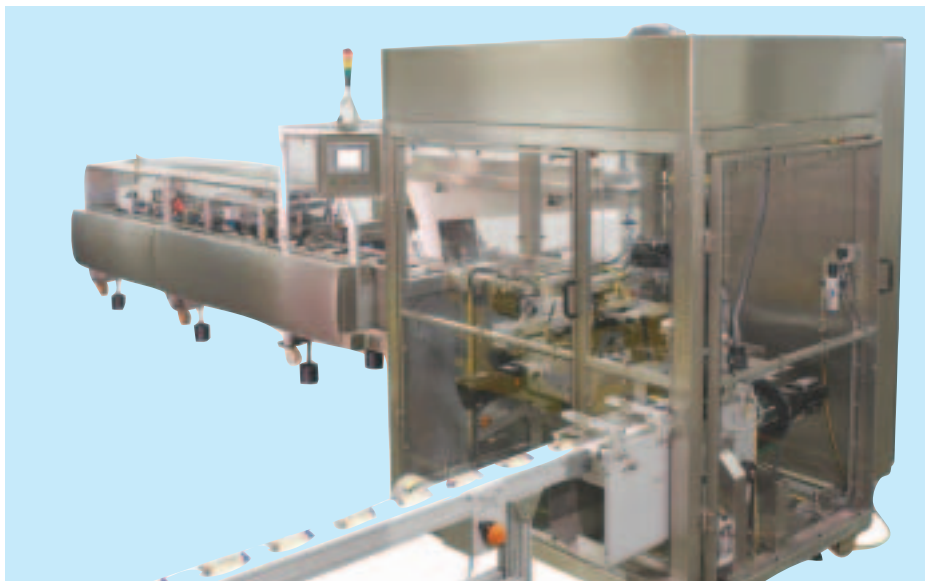
The advantage of wraparound sleeving machines is that they can be set up to handle the more unusual shapes of sleeve as well as conventional rectangular sleeves.

For example, with Kliklok Woodman's Certi-wrap machines – the C80 capable of up to 80 sleeves a minute, and the C150, giving up to 150 a minute – round bowls, oval bowls and rectangular-shaped containers can be handled on the same machine. Single or multi-pack tubs, trays, or pots can be sleeved and the machines are also able to accommodate tray doming, where the film lid of a ready meal tray unintentionally expands in production.

However, Kliklok Woodman says that the principal reason for the success of the Certiwrap range of machines is its quick change capabilities. In the past, a three dimensional size change took some 40 minutes, but with this new system the company says it guarantees a three dimensional change in 15 minutes – less than 10 minutes with an experienced operator.

In addition to giving products a distinctive appearance, wraparound sleeves are also frequently used to hold groups of products together both in the dairy industry for products such as yoghurt and in the bottling industry for take-home packs of beer and soft drinks.

Last year Krones introduced the Solidpac multipacker which assembles cans, glass, or plastic containers in single or double-row formation, and folds a flat cartonboard blank around them. Various configurations are available – such as over-neck, or neck through – while output ranges



Packing cereal bars in New Zealand: Bradman Lake automated racetrack and end load cartoner

between 80 and 250 packs a minute, depending on the size of the multipacks involved.

Rectangular cartons

However, while there is a noticeable trend to developing machines that can produce shapes of pack other than rectangular, the fact remains that the vast majority of cartons are rectangular and are likely to remain so. The choice of machine types has remained much the same for several decades although, of course, in recent years we have seen increasing use of servo motors and software synchronisation of different machine modules.

End load cartoners are the preferred choice for products that are easy to load and for their compactness, vertical cartoners are ideal for free-flowing products and carton erector and top load systems are often the only solution for collations of products or products that are difficult to load.

End load cartoners

Even so, the development of new technology in the form of the servo racetrack collator or servo train is allowing groups of products such as frozen fish fingers or cereal bars to be packed on end-load cartoners rather than in top load systems.

This has several benefits: end-load cartons are cheaper than three-flap top load cartons and using one machine rather than three or more in a top load system reduces cost, the footprint of the equipment and manning levels.

Dutch manufacturer Langenpac is soon to deliver its first two cartoning lines for frozen fish fingers to a German food processor. These lines, built in stainless steel to a hygienic design will

collate groups of naked fish fingers introduced to the system at 850 a minute.

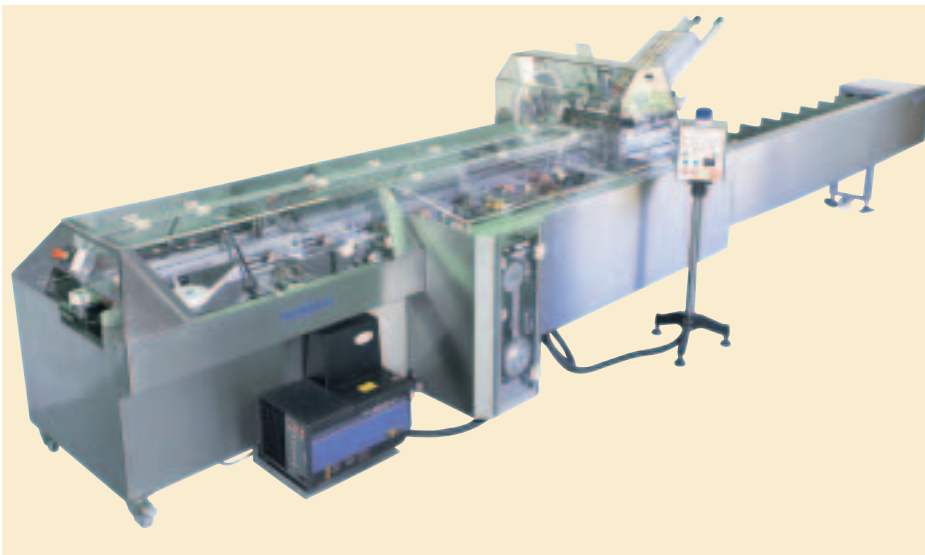
A triple servo driven race track system equipped with stainless steel buckets collects the pre-collated products in intermittent motion. Once filled to the required count, each bucket moves off to synchronise with the continuous motion of the cartoner, bringing the fish fingers in front of the pushers for carton loading.

UK representative Springvale Equipment points out that the use of three servo trains, rather than the more standard two, allows a slower, smoother movement, while retaining the high output of the machine – up to 170 cartons a minute.

Bradman Lake has recently supplied a New Zealand food manufacturer with an automated system for flow-wrapping, collating and end-load cartoning confectionery bars. "End load cartoning delivers high-speed packing line performance with lower machinery costs than robotic top load systems, with the added bonus of considerable savings of packaging materials and factory space," says Bradman Lake.

The integrated installation combines a single station Automatic Distribution System (ADS) with in-line bar turning and shuttle phase feeder and a Flowtronic 120 flow-wrapper from Autowrappers with a Bradman Lake twin race-track collator/loader and SL902 indexing end load cartoner.

In operation, cereal bars 80 to 110mm long, 40mm wide and 20mm deep reach the ADS system in rows of 10, 12 or 14, narrow edge leading, at the rate of 19, 22 or 26 rows a minute and are fed in single file into the pockets of the twin racetrack SL902. Here they are packed as single



Increasing speed: California Cake Co has bought a Freemantle end loader with integrated product transfer



Special shapes: Tapered cartons are among those handled by the Kliklok SFR machine

pieces or multiple counts of 6, 8 and 12 at speeds up to 250 bars a minute, although an option exists to increase speed to 310 a minute.

Cartons from a motorised magazine are erected by a triple-head rotary feeder and loaded into the pocketed infeed conveyor of the indexing SL902 by a compact overhead pusher unit, also servo-driven and triple-headed. The bars are then loaded into the erected cartons during the stationary phase of the cycle by a second overhead pusher, replacing the extended barrel loader of many continuous motion end loaders.

However, with or without a servo racetrack or servo train, end load cartoners remain the workhorse of the cartoning world.

For example, IWKA now has a range of end-load machines extending from 50 to 500 cartons a minute and recently introduced a compact intermittent motion model that links directly to a blister packer and is able to run at speeds up to 165 cartons a minute – said to be 50-65 per cent

faster than traditional intermittent machines.

Measuring just 3.8 metres long, the new Cartopac SI 10 will also handle products similar in shape to a blister, such as sachets, wound dressings and small vials.

The key to the speed of the machine is the use of linear motors for the pre-insertion and loading stroke that pushes both product and leaflet into the carton, as Derek Moore, managing director at UK subsidiary IWK PacSystems, explains:

“Linear motors allow the pushers to be given a distance, acceleration and speed profile to obtain the best output with any particular product, rather than rely on fixed, cam driven movements.

“This means, for example, that the pushers need only move the distance required by the product and can be retracted at a much higher speed, shortening the cycle. The result is a cartoning speed up to 165 a minute against the more common 100-110 a minute maximum for traditional intermittent machines.”

The speed of the linear motor drive for the pushers on the Cartopac SI 10 also means that the machine is able to approach the output of the lower end of continuous motion end load cartoning equipment without the cost and space requirements of a barrel loader. Size range on the Cartopac SI 10 is 30 x 12 x 65mm to 100 x 100 x 150mm.

IWKA has also started to specialise in turnkey project management where, on many occasions, the cost of the cartoner is maybe as little as 10 per cent the cost of the line.

“This is because more and more customers are looking for an experienced and substantial company that can act as main contractor, design the line, source the equipment and, most important, give a single performance guarantee,” says Derek Moore. “IWKA will also usually assemble the line within its own factory for initial acceptance.”

One recent contract involved a complete packing line for four sizes of vials, including a particularly lightweight 2ml version. The cartoner chosen was a continuous motion IWK SC4 HS equipped with leaflet feeder, ink jet printer for the main flap, packaging security scanners, a quality control station in which a pre-selected number of good packs are discharged for manual inspection, an OCV system to verify variable data added by ink jet, and a tamper evident labeller that applies a label to both ends of the carton.

Immediately behind the cartoner is a checkweigher to ensure on a 100 per cent basis that the cartons are complete. Upstream is a 450-a-minute labeller, hot foil printer, verification system for print and reject systems to handle faulty or fallen vials. A rotary table acts as a buffer and interface with the cartoner. Downstream is a bundler/overwrapper. All were sourced by IWKA.

The California Cake Co, Coatbridge, has increased speed and efficiency following the replacement of its existing cartoners with a fully automatic 120-a-minute machine from T Freemantle, installed on the company’s cake slice line. “The method of size change and the compactness of the machine were key in our decision,” says California Cakes general manager Keith Bell.

The machine is fitted with the Pinlock size change system which incorporates simple mechanical registration of carton settings and is supplied colour coded for tool-free changeover by the operator. Freemantle says the accuracy of the system helps reduce downtime during size change as well as offering a huge reduction in carton wastage.

Kliklok’s most popular end load cartoner is the SFR which, says the company, offers a short footprint and easy size change features, together with the adaptability to accommodate a variety of products from bagged confectionery to frozen ready meals.

Indeed, a number of special shaped cartons, including hexagonal, octagonal and tapered styles have been handled on this and other Kliklok end load models. For example, a specialist chocolate manufacturer in France chose the Kliklok SFR to pack bags of truffles into a high quality tapered carton while, at Cadbury Trebor Bassett in Sheffield, bags of Liquorice Allsorts and Wine Gums are being loaded into tapered cartons at speeds up to 120 a minute

Frozen food producer Findus has also installed an SFR cartoner on its ready meals line at Longbenton. Trays of 500g and 900g are fed at random onto the SFR’s integrated ‘smartbelt’ infeed

CARTONING

unit which pitches each tray correctly to ensure smooth and accurate transfer before loading at speeds up to 120 cartons a minute.

Meanwhile, Italian manufacturer Cama has built an electronic end load cartoner to handle sachets of dried food in two pack styles at speeds up to 200 a minute. Products arrive in two lanes and are handled as a stacked count of three to four or on edge in a 10-12 count.

Both intermittent and continuous motion end load machines with speeds up to 250 cartons a minute are built by Dutch manufacturer Racupack, represented by Hansel UK. The latest is the RTI C40 Compact, a small footprint, entry level machine able to run at speeds up to 40 cartons a minute, with automatic carton loading from a hand fed, flighted infeed conveyor.

Another new development, currently being undertaken for a UK customer, is a version of the RTI 80 intermittent motion machine, to handle wraparound carton blanks. This allows the machine to handle more difficult and unstable product collations.

Top load systems

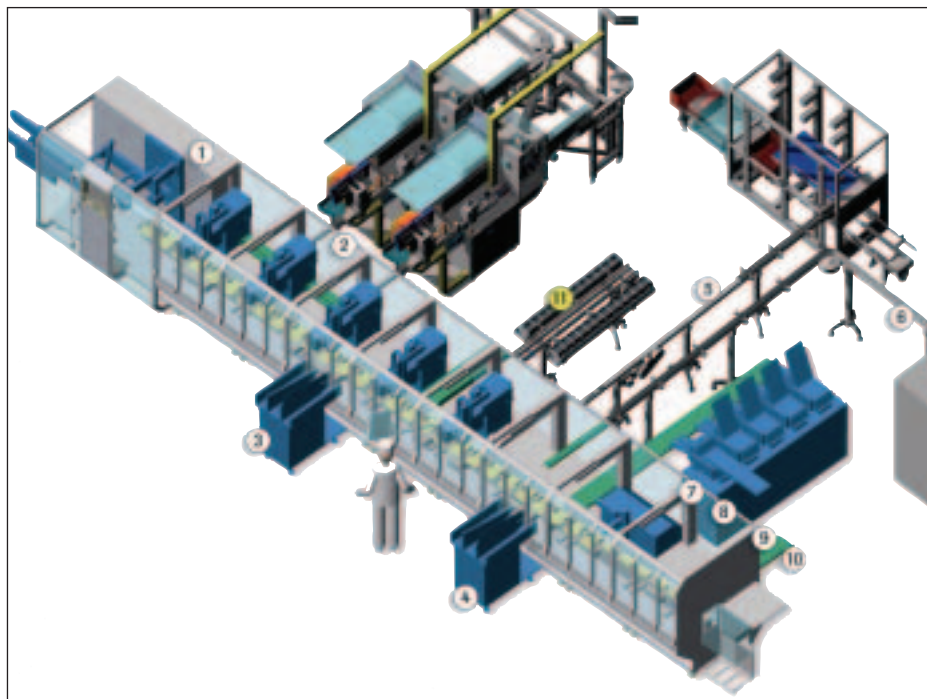
Top load cartoning systems with their separate carton erection, carton loading and carton closing machines or modules, while more complex than end-load cartoners are often the only way of automating a complex cartoning operation.

For instance, a current trend in the pharmaceutical industry is to supply combination packs containing several different types of products, often for a specific treatment such as carrying out blood analysis, doctor's packs or packs for self-medication. The packs will combine products such as blisters, ampoules, bottles, pipettes, syringes or tubes, as well as spoons, leaflets and pack inlays, either next to or on top of one another.

Forming and sealing these packs can be carried using conventional carton erectors and closers, but filling such a wide variety of products into the same carton poses some significant technical challenges.

The answer from German manufacturer Uhlmann is the TopLoader T2060, a modular machine introduced two years ago to meet a variety of top load applications within the pharmaceutical and medical device industries. Uhlmann is now building one for US manufacturer Biosite, to handle a blood analysis kit containing 25 separate strip packs, 25 pipettes in a carton, a roll of paper, an electronic EPROM module as well as five pack inserts and brochures.

The machine consists of nine modules and can



Uhlmann TopLoader for Biosite: 1: Carton erection. 2: Strip packs loaded. 3: Carton divider insert added. 4: Paper roll loaded. 5: Pipette carton loaded. 6: EPROM chip loaded. 7: Literature inserted. 8: Carton closed. 9: Checkweighing. 10: Carton overprinting. 11: Tray feeder for alternative pack

be subsequently equipped with further modules or components to suit future demands. Changeover times are said to be short – which suits Biosite's small batch production programme – with only a few format parts. There are six steps in the packaging process:

Step 1: The strip packs are supplied in plastic transport boxes and placed manually onto the conveyor, where they are subsequently separated. Each strip pack contains a test strip for a patient's blood sample, [which is analysed in a portable meter]. Each of these strip packs has its own serial number so it is unique and easily identifiable. Variable data, such as the use-by date, is also printed on each strip pack in the TopLoader. Verification of which data belong to which strip pack, is undertaken by the machine.

Step 2: An inlay is inserted and accurately glued in the box. It divides the box and ensures that all the separate products are correctly and stably positioned in the pack.

Step 3: The pipettes are not inserted individually but in cartons of 25. These cartons are supplied in a case. The feeding unit takes one carton of pipettes at a time and places it in the pack.

Step 4: The paper roll for documentation of the results of a point-of-care blood analysis is supplied and placed in its designated position.

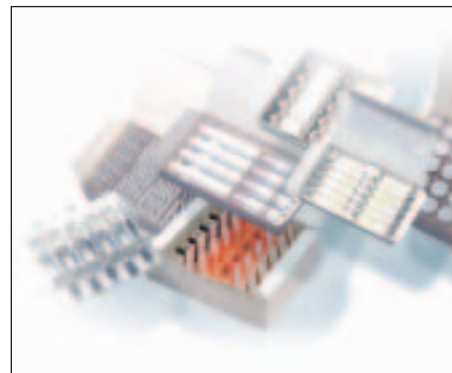
Step 5: The EPROM module, packed in a clamshell, is supplied. This read-only memory module is necessary for calibration of the meter for the point-of-care blood analysis.

Step 6: The five pack inserts and brochures are supplied. A 100 per cent check is carried out using a bar code scanner.

Top load cartons are also proving popular for sterile products such as, vials, ampoules and pre-filled syringes. Not only is it simple to remove each syringe and instruction leaflets thanks to the wide top opening, but the number left in the pack is immediately apparent and the inside of the lid provides extra space for printing instructions and product information.

Dividella, part of Koerber Medipak, offers a number of machines that are able to erect and fill top-load cartons incorporating fluted trays to secure the items in position. These include the new Dividella Neotop 804, which forms the cartons and trays from flat blanks, gluing the fluted tray into position ready for loading.

Integrated inserters load the items into the carton along with any leaflets and each carton is then checked to ensure everything is in place before closure using hot melt adhesive to provide a tamper evident seal. This machine can handle up to 240 cartons and up to 800 individual items a minute.



Fluted trays: Dividella Neotop erects and fills trays with products such as vials and syringes

CARTONING

Loading different size packs and packs with different contents into the same carton is a job usually nowadays best left to robots. For example, Italian manufacturer Cama has recently supplied a top load cartoning line with three robots to load sachets of different flavours of cake mix powder together with bags of chocolate chips and other toppings.

Each of the three robot loading stations is linked to a bagging machine and can operate at speeds up to 70 cycles a minute. Cama says that the particular benefits of the line include a small footprint and quick changeover with various types of product and sizes programmed from the operator panel.

Recent top load cartoning projects by Kliklok Woodman have included two lines for Nestlé France, to handle wrapped chocolate Lion Bars in a three-flap charlotte style, lock erected and hot-melt closed carton. Speed is up to 120 cartons a minute, with two sizes per line.

The lines each use a Kliklok SRW double headed forming machine to lock form two cartons at each stroke, depositing them into a flighted conveyor. These machines are interfaced with an existing automatic loading system which places the bars in the required count into the erected cartons. After filling, the cartons are closed using the Kliklok Mini Genesis closer, a small footprint machine able to handle cartons arriving at random.

Kliklok Woodman's latest carton closing innovation is the Vari-Right, a three-flap right angle machine that brings together lugged carton control and random infeed timing as a result of infinitely variable flight centres. Like the Genesis lugless closer, the Vari-Right accepts random, unevenly spaced cartons. But once the cartons enter the machine, they are controlled positively throughout the closing process by variable pitch, pop-up lugs. Speeds is up to 120 a minute.

Kliklok Woodman has also introduced new



Robotic trio: Cama system loads three components of various cake mixes

versions of its ECT glue formers, with the latest machines able to handle blanks up to 1000mm square. Apart from conventional top load cartons and trays, the ECT forming machines are also able to handle special shaped constructions for the confectionery industry with an additional separate "mortar board" gluing attachment.

Sewtec Automation has supplied Twinings at North Shields with three top load, four flap carton sealing machines to handle a new carton for black tea products which incorporates a new inner carton with an additional flap to seal the carton across its front.

The machines were designed to operate with both the previous type of cartons and the new, so that a phased introduction of new packaging could be carried out.

Each carton closer is downstream of a tea bagging machine, running at 2000 bags a minute, which drops the teabags into the inner, four flap carton. Closure is via flap kickers, guides, hot melt glue application and pneumatic top flap closure while nominal speed is 40 cartons a minute, with a maximum speed of 55 a minute.

Twinings' project engineer Paul Robertson

says: "Since their introduction, the Sewtec carton closers have reduced waste significantly and added to the flexibility of black tea packaging operations ... It's a special purpose machine, with a small footprint, and ideally suited for the limited available space on the factory floor.

"We are planning to introduce a further three Sewtec carton closers into our operation in the very near future."

Bradman Lake has announced a new robotic top load machine, the LJ/SRT, aimed in particular at automating the labour-intensive task of manually collating and loading bags of frozen chicken pieces, fish fillets and other prepared foods into cartons.

A pick-and-place unit fitted with multiple vacuum heads handles filled bags weighing up to 1kg at speeds up to 350 a minute, as standard loading up to 24 bags on each cycle. Bags are collated and delivered to the pick-and-place head by a vertical racetrack collar.

Latest news from Racupack is that the company has just bought the designs, patents and rights to manufacture the Compact C90 Compact carton closer from Nampak UK (formerly MY Cartons). This machine, capable of closing



Handling bags of frozen food: Bradman Lake has announced a new robotic top loading machine

at speeds up to 200 cartons a minute, complements Racupack's own range of vertical carton erectors, the RBE-45 and RBE-90.

Vertical cartoners

Vertical cartoners, which use the same style of carton as an end-load cartoner, but handle the carton vertically rather than horizontally, continue to be popular for handling free-flowing products such as rice, porridge oats or loose tea – packed directly into the carton or within a bag in the carton, the so-called bag-in-box carton.

Bag-in box cartoning can be carried out in two main ways using a vertical form-fill-seal machine and an end-load cartoner or a vertical cartoner.

There are significant advantages in terms of seal quality and containment of the product of filling the bags using a vertical form fill and seal machine, but on the down side the product does not settle very quickly and so the bag and therefore box end up being much bigger than a bag-in-box produced on a vertical cartoner.

Since this tends to give the consumer an impression of poor value for money as well as wasting cartoning materials, case-packing materials and shipping space, Rovema has now come up with a new machine that incorporates a vibration station to allow product that requires settling to be packed at high speed.

The CMV machine incorporates one or more bagging machines which load cartons with open top bags, loose filled to typically 110 per cent of carton volume. As the cartons are taken round the machine the product is vibrated and settled to around 90 per cent carton volume before the bag is lifted proud of the carton top for sealing.

At this point air is evacuated mechanically from the over-sized bags, excess material is trimmed off, and the bag allowed to drop back down into the carton before it, too, is sealed. ■

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Lean manufacturing cuts the cost of new machines

Two new horizontal cartoners were launched in May by Dutch manufacturer Langenpac, part of Molins Packaging Machinery, following a value engineering exercise by the company to reduce the cost of cartoning machinery through a reduced number of components and shorter build times.

Both were introduced during a series of open days at Langenpac's factory in Wijchen where further machines under construction for specific applications, including paper tissues, contact lenses and spirits bottles at high speed were also on display. In the UK Langenpac is represented by Springvale Equipment.

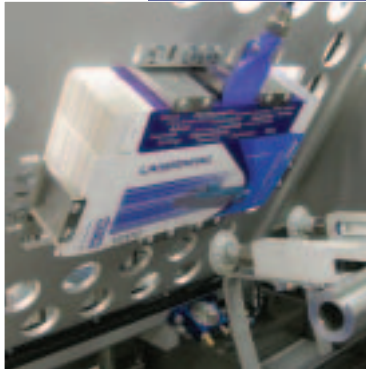
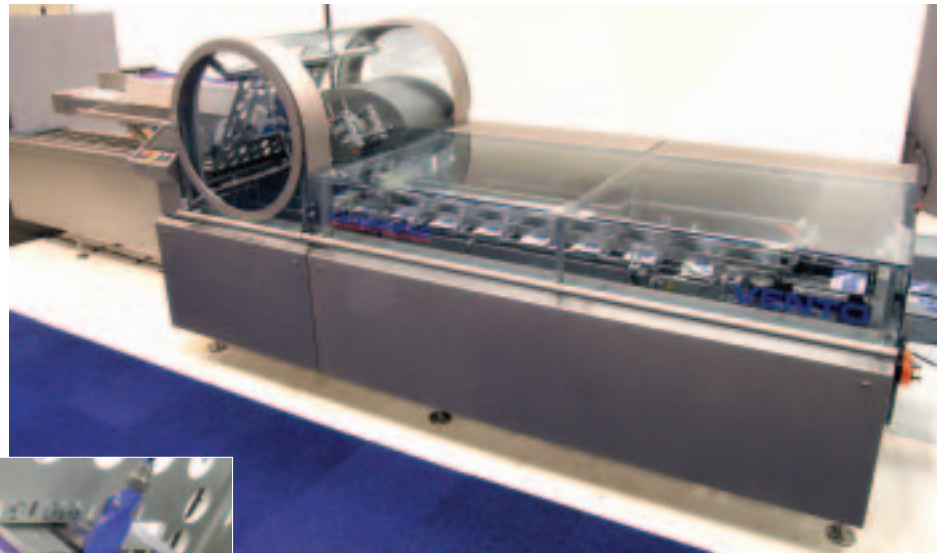
The new continuous motion Vento, 200-500 cartons a minute, and the intermittent motion Breeze, 60-80 a minute, share a common frame and are a cost-down development from the Langenpac Chinook cartoner launched in 2001.

"The Chinook had around 1300 parts, which was a substantial reduction on most machines of the time," explains Langenpac managing director Kees van Dam. "Our two new machines have some 25 per cent fewer parts than that."

"Lean manufacturing is a vital part of what we are doing in MPM," adds Molins Packaging Machinery managing director Adam Robson. "We are designing for lower cost. A manually loaded cartoning machine for under €50,000 is coming."

Both new machines are based on a frame that consists of cabinets front and back, housing the drives and the controls, joined in an open construction that removes opportunity for dirt traps and allows any product and packaging debris to fall through to the floor. This provides separation of the drives from the product area while maintaining accessibility for maintenance.

Size changeover on both machines is said to be 5-10 minutes, using digital lead screws and a pre-sized template for the carton magazine. On the high speed Vento both the product buckets and carton chain are driven by a single servo motor, reducing changeover time and the number of machine components required. Both machines employ pre-stretched chains, eliminating drift and need for regular adjustment.



Langenpac Vento: Fewer parts and (left) quick change carton blank template

an ac motor powered belt, and employs vibration to help settle the blanks against the carton template at the end of the magazine. An air knife makes sure each blank separates as it is picked up by the rotary feeder and placed in the carton support lugs.

With two sets of grippers the Vento's feeder is able to handle 200 cartons a minute although five can be fitted to give speeds up to 500 a minute within the maximum linear machine speed of 70 metres a minute and a pitch of 4.5in. Carton pre-break is standard.

Carton and product chains are fully supported on plastic extrusions for high speed and reduced noise while the pushers of the barrel loader – equipped with quick change heads – are also carried on extra supports to eliminate vibration.

Intermittent motion

The intermittent motion Breeze machine is to be available in 7, 5 or 15in pitch versions. It differs mainly from the Vento in the pusher arrangement, which is intermittent and driven either by pneumatics or a servo motor, and in the transfer bucket mechanism, which is mechanically driven. Parallel or angled infeed is possible.

Langenpac also took the opportunity to show off several machines under construction.

The largest were a pair of horizontal cartoners, each able to load spirits bottles arriving vertically at speeds of 300 a minute, and said to need just 12 minutes for size changeover.

In operation, a screw feeder first pitches the bottles, which are then gripped by the neck and placed horizontally in the bucket feeder for load-

ing into the cartons. These are erected on a high speed five head rotary feeder with a special double pre-break system. Closure is via a folding lock system at the base and tuck-in flaps at the top.

A particular feature of these lines is automatic loading of the magazines from trays of carton blanks simply placed on infeed conveyors.

After loading with bottles, the cartons are inspected for correct closure before being returned to vertical by the upender mechanism. Any cartons with open flaps are allowed to continue horizontally onto a reject table.

Another purpose built machine was a cartoning line for contact lenses with fully automatic unloading of the five cavity blisters from bulk trays and a series of laser printers to add product codes to the top and bottom of the blisters. Speed is up to 300 blisters or 50 cartons a minute.

The main feature of the machine is its flexibility. This comes from the use of a pick-and-place unit which allows blisters fed into the product chain at optimum speed to be transferred subsequently from one pocket to another and so re-stacked and nested on the move to suit the carton size. In this way, the machine is able to produce a single blister pack, a 15-pack of three blisters, a 30-pack from a single stack of three sets of two nested blisters and a 90-pack of three stacks of three sets of two nested blisters.

Further machines on show included a Langenpac Chinook cartoner equipped with a special infeed, folding knife and servo driven overhead compression unit to handle stacks of face tissues. These are loaded into conventional flat cartons or "boutique" cube-shaped cartons, using the folding knife to produce a U-shape for the product before loading. Speed is up to 200 cartons a minute.

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Universal network promises Open motion control

MOTION CONTROL SYSTEMS ARE USUALLY IMPLEMENTED ON SPECIALIST HIGH SPEED NETWORKS, BUT NOW AN ETHERNET-BASED SOLUTION CREATES THE POSSIBILITY OF A SINGLE NETWORK PROVIDING ALL DISTRIBUTED CONTROL REQUIREMENTS AROUND A MACHINE OR PLANT. AND BEING 'OPEN' MEANS IT IS NOT RESTRICTED TO ONE MAKE OF EQUIPMENT.

Most engineers are only too familiar with the proliferation of different specialist networks associated with automated production. But for some years Ethernet has been seen as having the potential to be a universal network – one which could be installed in one hit, would rationalise training and maintenance requirements and, significantly, reduce costs on every front.

The capabilities of Ethernet have been expanding towards this goal steadily for some years and now, following the launch of Ethernet/IP with CIP Motion, one of the last pieces of the puzzle is in place.

CIP (common industrial protocol) Motion provides an open, high bandwidth, high performance solution for distributed multi-axis motion control over an Ethernet/IP network. It encompasses a set of application profiles designed to allow position, speed and torque loops to be set within a drive or servo amplifier and combines with ODVA's (Open Device Vendors' Association) CIP precision synchronisation technology.

From the machine builder's point of view, rather than the motion specialist's, multi-axis motion control is usually based on event-driven synchronisation. For instance a packaging machine may have an operating sequence of: product placement into a blister pack; closure of the lid; sealing; labelling.

Each of these steps would involve a number of sub-steps related to a motion axis, and the correct order of operation has to be maintained throughout the

operation. The speed of sequencing, or the 'determinism', is also critical for successful motion control.

For such a sequence to be enacted requires scheduled, absolute hard delivery of time-critical cyclic data across a distributed network of axes. Precision sequencing of data delivery is necessary, typically to a resolution finer than 1 millisecond. But, as many practising engineers will be aware, Ethernet's data layer is not capable of this speed of response, so would not seem to be able to achieve the level of determinism required.

Multi-company development

Members of the ODVA have worked together to address this issue and, with CIP Motion, have changed the strategy for determinism. They

have removed the need for strict determinism from the network infrastructure and instead entrust the end devices with their own time-management functions. So, while each field device is acting autonomously, collectively they are handling the real-time control needs of the application.

Highly accurate clocks

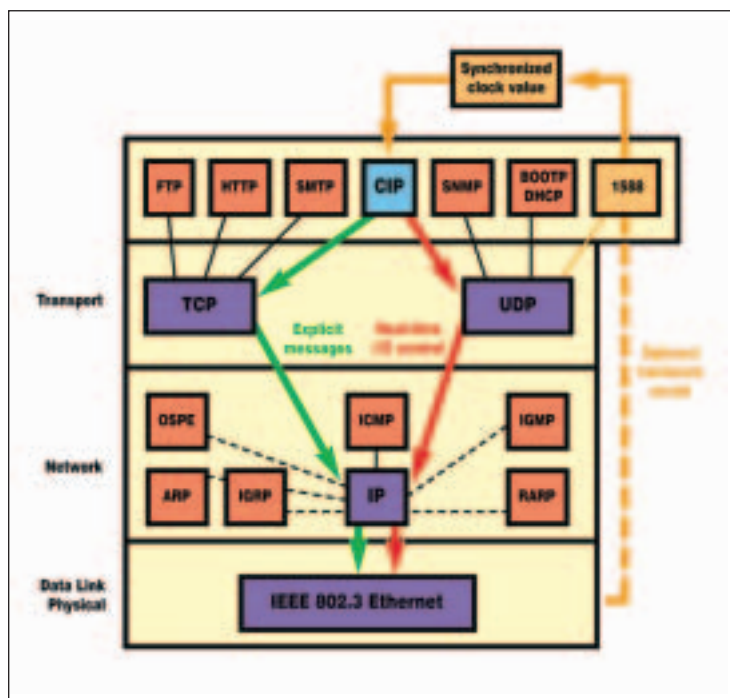
While this may seem to be a recipe for rapid desynchronisation and thus effective collapse of the operation, in fact the clocks in the end devices are highly accurate and can be synchronised across the whole network so that an overall resolution of better than 200 nanoseconds – five times better than is actually required – can be readily achieved.

Any time-jitter in the system is easily accom-

modated and, says the ODVA, perfect synchronisation of all axes of even the largest system can be guaranteed.

Using this approach, Ethernet's standard CSMA/CD data link layer can be used. Other strategies would almost all require its replacement with a proprietary driver or ASIC, which would compromise IEEE 802.3 compliance for open (multi-vendor) architecture and possibly also IEEE 1588, the standard for clock synchronisation across networked systems.

There are many advantages that come from maintaining compliance with IEEE 802.3 and 1588, which mostly boil down to reduced costs of ownership as the result of simple installation, reliability and ease



Universal network: Ethernet/IP's implementation for motion uses "time synchronised distributed control", in which time-stamped data packets relax the strict requirement for less than 1 microsecond jitter for cyclic data delivery

of maintenance and systems development.

The pertinent issues include free use of Ethernet hardware, efficient data transfer and clear upgrade paths for later systems development.

CIP Motion extends the capabilities of CIP by defining motion control functions, including:

- Torque, velocity and position control of both servo amplifiers and variable speed drives.
- Drive/amplifier configuration, status and diagnostics.
- Unicast control-to-drive/amp and drive-to-control communications.
- Multicast peer-to-peer communications.
- Both centralised and distributed motion support.

Significantly, CIP Motion uses a common approach to both drives and servo amps, making them interchangeable at the application level. This allows a migration from one technology to the other, which may become very significant if open loop induction motor control can, as predicted by some researchers, approach the performance of closed loop servo control.

Motion control technology moves forward in new products

THIS YEAR'S HANOVER FAIR HAD FEWER NEW MOTION TECHNOLOGY PRODUCT LAUNCHES THAN PREVIOUS YEARS, BUT INNOVATION AND DEVELOPMENT WERE VERY MUCH IN EVIDENCE WITH THOSE THAT MADE THEIR DEBUT.

The MR-J3 is Mitsubishi Electric's latest generation of servo amplifiers and motors for industrial automation applications. Functions include vibration suppression, improved real-time autotuning and fully-automatic controller configuration.

The amplifiers are available in two versions: MR-J3-A is for drives with conventional control systems and for speed, torque and closed-loop position control; the MR-J3-B suits complex multi-axis movement sequences. They are currently available with ratings from 50W to 7kW, but will be expanded up to 110kW.

All the amps in the series use the latest control systems to ensure fast installation and set-up and for stable systems with minimum rise times, irrespective of the application. As soon as the connection with the absolute position encoder is established, the amplifier reads the data of the connected servo motor from the electronic ratings plate. The control parameters are also set automatically by the real-time autotuning to ensure dynamic and vibration-free operation in all applications.

Another new feature is the advanced vibration suppression system, which suppress vibration at the end of a tool arm as well as those in the drive train. Further, a new filter suppresses mechanical resonances.

The MR-J3 brushless servo motors are 20 per cent shorter than their predecessors, which were already extremely compact. The range includes 200V and 400V versions with outputs of 0.5-7kW. An 18-bit absolute position encoder is integrated as standard in all the motors and provides more than 260,000 absolute values per rotation.

Baldor has launched a new family of all-stainless-steel servo motors, for use in both



clean and hostile environments. The SSBSM Series is protected to IP67 standards and will withstand cleaning using caustic materials at pressures up to 103bar.

Vibration suppression: This is said to allow Mitsubishi's new servo motors to redefine positional accuracy in motion systems

Other protection features include an FDA

shaft seal to comply with food industry standards, a potted stator for environmental and high voltage protection, an internal thermal switch to safeguard against overheating, advanced Exxon Polyrex EX Polyurea grease lubrication for extended life, and a laser etched nameplate to ensure there are no areas for dirt and bacteria to adhere.

The new servo motors are available in five frame sizes with continuous torques from 0.45 to 32Nm and peak torques ranging from three to four times the continuous duty ratings. The motors may also be specified with standard or low inertias to help OEMs optimise machine performance for specific applications and loads. In all, the new family offers a choice of 25 servo motors.

Trajexia is Omron's new motion platform. At its heart lies the new TJ multi-tasking motion co-ordinator. Powered by a 32-bit DSP it is specifically designed to meet the most demanding motion tasks such as interpolation and e-cam, e-gearbox and registration control – all via simple motion commands. Controlling up to 16 axes, it reduces wiring and space and offers full transparency down to motor level. The platform is not confined to servo motor systems, but can also be used with linear motors and inverter-induction motors.

As with other suppliers, Omron has worked to make its motion programming easy and intuitive and has adopted an open or multi-vendor standard with Ethernet, Profibus-DP and DeviceNET as options.

Similar technology has been developed by ABB. MPS Open Motion Control is a digital, state-of-the-art drive controller that can be used with any drive that has a Sercos interface, but this does not restrict users to servo motors. When used with ABB's ACS800 series of drives, standard motors can be used.

MPS Open Motion Control provides position or speed control, or a combination when running with multiple drives. Over 30 MPS Open Motion Control units can be connected with each other and each can control up to about 30 drives on the Sercos ring. MPS Open Motion Control can therefore be used for the synchronised control of several hundred drives. ■

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WEIGHTRON BILANCAI

Weigh-price labellers offer high speed and networking

Two weigh price labellers said to offer new levels of automation, flexibility and data capture have been announced by Weightron Bilancai.

The fully automatic Mercury is capable of weighing and labelling packs at speeds up to 150 a minute while the Venus, a more compact machine, is available in manual and automatic versions with speeds up to 80 packs a minute.



High speed: Mercury weigh-price labeller can be fitted with a V-belt (left) for irregular shaped products

option to allow the machine to carry irregular products such as cylindrical packs of meat or wrapped vegetables through the labelling process.

Label applicators include air-jet options for delicate or awkward packs, and units that offer top and bottom labelling.

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Weightron Bilancai says the machines can be easily adapted to label a diverse range of different shaped products from wrapped cabbages to delicate items such as packs of strawberries.

In particular, there is a V-belt

Both can be set up from the operator console or remotely via a central PC and are capable of linking into a local area network, allowing traceability and production data to be gathered for management reports.

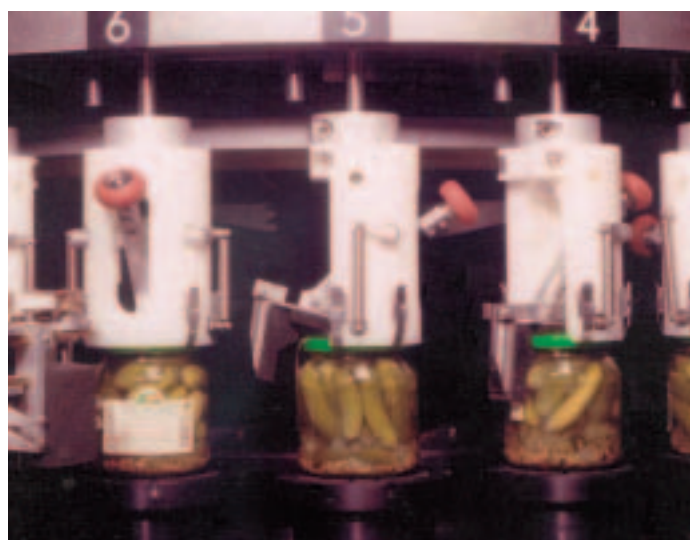
KHS KISTERS

Tamper-evident labels applied only over the closure

Open sided centring bells are used by the new Innoket Roland 20/5 rotary front and back labeller to allow separate tamper-evident labels to be applied over the closure only, reducing the cost of labelling material compared with body labels that incorporate an upward extension.

The machine is also capable of applying a combined tamper evident and lid label, eliminating the need for printed closures.

KHS says that applying a tamper evident label in this way also allows the material to follow closely the contours of the



Tamper evident labelling: Roland 20/5 employs open sided centring bells

container, eliminating any risk of tearing the label during final packaging or unpacking and self-stacking by the retailer.

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SESSIONS OF YORK

Healthcare theatre packs identified by cross web unit

Healthcare specialist Vernon-Carus has chosen a Multi-Track print-apply cross web labeller from Sessions to identify theatre packs with pressure-sensitive labels and provide traceability.

The machine consists of two labelling units mounted side-by-side and a common dispensing beak, feeding labels in a pre-determined format onto the cross web transport conveyor.

This dual track configuration increases the number of labels that can be placed on each index, using a 'kiss touch' method, which avoids risk of product damage.

Software for the Multi-Track enables a large number of label formation combinations to be instantly and easily selected and printed on to piggyback labels, used when all or part of the label needs to be re-applied elsewhere, such as onto a patient's notes.

T: 01904 659224

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ADVANCED DYNAMICS

Stepper motor drive gives labeller high accuracy

The Eurokett Vega pressure sensitive labeller announced by UK representative Advanced Dynamics is equipped with stepper motor drive to provide labelling accuracy to within $\pm 0.8\text{mm}$. There is also encoder-based speed tracking.

In addition, the machine has integrated programmable controls built into the back plate, rather than a traditional control box. Speed is up to 30 metres a minute.

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Machinery Finder:
PPMA.CO.UK
PPMA UPDATED DAILY

PACKAGING AUTOMATION

Rotary pot filler handles both liquids and dry goods

The Fastfill 100 rotary pot filler and sealer from Packaging Automation is capable of handling up to 100 pots a minute and can be equipped to fill liquids such as sauces and yoghurt, dry products such as cereals or nuts and semi-viscous products with particulates.

A combination of layered dry and liquid, or liquid and particulate product, can also be produced with no loss in performance, says Packaging Automation, which claims a fill accuracy of ± 0.1 per cent for smooth products and ± 1 per cent with particulates.

Pots up to 130mm diameter and 140mm deep can be accommodated and sealed with pre-cut lids, as well as film from a reel. Product and pot changeovers are made easier and quicker as a result of a table which is made in quadrants.

“Changeover times are reduced



Speed up to 100 a minute: Fastfill 100 pot filler from Packaging Automation

by 30-40 per cent compared with previous volumetric machines, and are further facilitated by lighter and simpler change parts,” says the company.

A touch screen control stores up to 50 programmes for different

recipes and incorporates on-screen real time adjustment of all operating parameters, including fill weights, seal time, film feed and gas flush options.

T: 01565 755000
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STRAPEX UK

Mobile strapper uses soft tension control for fragile goods

The Strapex SMG 10 mobile vertical strapping machine is equipped with soft tension control to avoid damage to fragile loads, particularly in the print and paper industry.

Capable of speeds up to 70 cycles a minute, the machine is an arch strapping system that can accommodate loads up to 650mm x 500mm and offers adjustable working height. Tensions up to 300N are possible, adjusted by a simple button.

The machine uses 5 or 6mm wide polypropylene strapping,



Handling fragile goods: Strapex SMG 10 mobile strapper

which is heat sealed, while strap threading and strap end detection and ejection are fully automatic. Operation is via a simple digital control panel or pedal.

Strapex says the machine has been designed to use the lowest possible number of moving parts,

allowing simple and tool-free trouble-shooting, and employs a re-feed function to minimise downtime. A slide-out dispenser allows strapping coil to be quickly changed.

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THERMO ELECTRON CORP

X-ray detector offers improved flexibility and hygiene

The Goring Kerr PROx X-ray detection system announced by Thermo Electron offers an improved hygienic design, with protection to IP65 standards, and an enlarged series of detection filters to improve flexibility and help the machine differentiate reliably between product and contaminant.

There are also additional filters to check for broken products and incomplete packs.



Improved flexibility: Goring Kerr PROx X-ray contaminant detector

The machine has a large colour touch screen control and can be set up for new products in a matter of minutes, says the company.

Three basic models are available: a conveyor system for packaged goods, a bulk flow version with one, two or four lane operation to minimise scrap product, and a pipeline system for liquids and slurries.

The conveyor-based model is also available as a new compact, low cost machine called the CL.

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New Machinery continues on page 66

ADELPHI MANUFACTURING CO

Entry-level bag filler runs at speeds up to 15 a minute

Adelphi has announced the BPS bag and pouch filling system which works with its Response filling machine to provide a semi-automatic, entry-level system for small-scale producers.

Suitable for food, cosmetics, toiletries, pharmaceutical and chemical applications, the BPS includes a bag-blowing station, diving cut-off nozzle, hot-jaw sealing station and eject station,

and features tool-free changeover.

The bags or pouches are blown, placed by hand and indexed at the touch of a button.

Liquids, creams, products with particulates and pastes can be filled in doses up to 500ml, at speeds up to 15 a minute.

The Response filling machine



Semi-automatic: BPS bag filling system

can also be dismantled from the BPS and used independently for other filling applications.

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TURBO SYSTEMS

Decorating heads are aimed at confectionery

A range of decorating heads now available from Turbo Systems for its D150 depositor are aimed at the confectionery industry for simultaneous multi-filling of small quantities of ingredients.

Types of ingredients include chocolate, caramel, and fondant, and typical applications include



Small multi-fills: One of a new range of decorating heads from Turbo

warm chocolate filling centres and tempered liquid chocolate. The heads have twin skin jackets and

are capable of circulating warm water to keep chocolate and other fillings flowing freely.

Capable of depositing up to 24 fillings simultaneously, the decorating heads operate at speeds up to 25 cycles a minute.

They are available in a range of variants, including decorative print heads, star tube print heads, rotating heads, shower nozzles, multiple outlet rotary spade nozzles and heated jacket nozzles.

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NIRO PHARMA SYSTEMS

Sanitary spray dryer for chemicals

Niro's Integrated Filter Dryer (IFD) for the chemical industry provides dustless agglomerated powders with improved GMP and sanitary design, suitability for CIP, and product containment.

The IFD features a novel spray drying concept in which all powder contact functions, including spray drying, post drying and cooling, as well as filtration of exhaust

process gas, are incorporated in a single vessel.

This, points out Niro, reduces the space required, makes the IFD easier to clean than previous models, provides better product containment and gives more effective fire and dust explosion protection.

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Spray drying: Niro machine provides dust free agglomerated powders

MJ MAILLIS

Compact pallet stretchwrapper suits restricted floorspace

A compact version of the Mancon ring-style pallet stretchwrapper has been announced by MJ Maillis, aimed at installations where floorspace is at a premium.

Capable of speeds up to 120 pallets an hour, the Mancon 1710 employs a motorised film carriage on which film pre-stretch is variable between 150 and 300 per cent and lay-on force also variable to suit the characteristics of the load being handled.

Top sheets can be added without stopping the cycle at speeds up to 85 pallets an hour.

Film roll changeover is said to take less than a minute by hand using a tilting film roll holder, although a semi-automatic system, using two film cartridges, is also available.

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ADVANCED DYNAMICS

Wrapper suits phone cards, CDs and stationery

Small, flat items such as phone cards, stationery, greeting cards, instant lottery tickets and CDs can be wrapped in film at speeds up to 100 a minute on the VMC 105, built by Köra-Packmat.

The machine includes a card feeder and will handle opp and pe shrinkfilms as single wound or centre folded film. Both single packs and linked cards with perforations can be produced.

There are four models catering for products up to 240 x 170mm and pack heights up to 30mm.

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