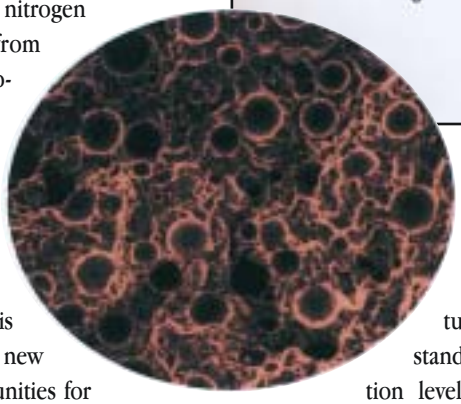
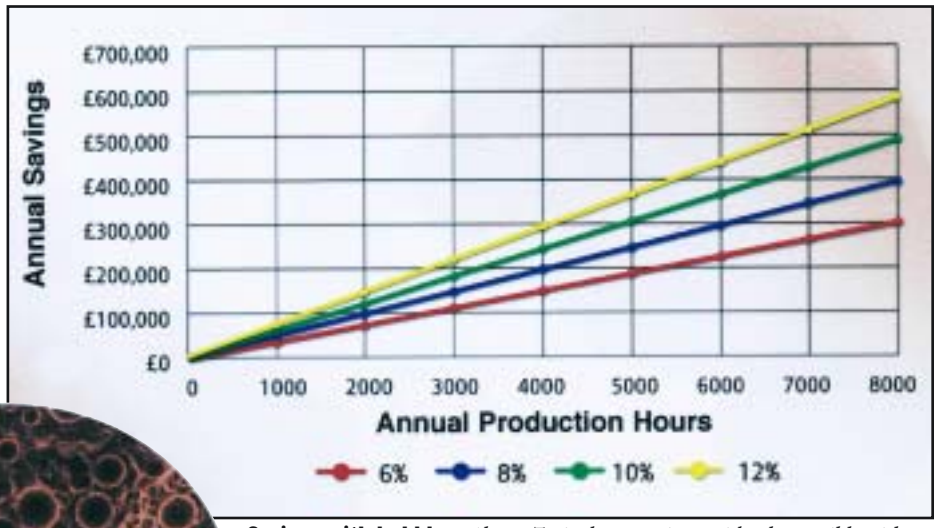
Confectionery

PROCESSING

Making ingredients go further

Two quite different developments have recently come along to make ingredients in the confectionery industry go further. The first, from APV Baker, reduces the density of chocolate with microscopic bubbles of nitrogen while the second, from Silverson Machines, provides high speed reclamation of waste chocolate, sugar confectionery and gelatine based products for reworking.





Savings with bubbles: *Above: Typical cost savings said to be possible with various percentages of micro-aeration in chocolate (left). The example assumes that the enrober uses 500kg/hr of chocolate, at a cost of £1200/tonne*

APV Baker's system for micro-aerated chocolate is said to offer significant new quality and profit opportunities for manufacturers of enrobed confectionery, biscuits, bars and countlines.

It means that for the same quantity of chocolate, the coating layer is thicker, creating customer perceptions of more chocolate and a higher quality product, although the system can just as readily deliver substantial cost savings by maintaining existing coating levels from a reduced amount of material.

APV Baker points out that although some highly successful brands are promoted with large, visible bubbles, the normal enrobing process seeks to eliminate aeration, as any visible bubbles would be seen as a sign of poor quality.

However, the bubbles of the micro-aeration process are invisible to the naked eye and provide a smooth outer surface with the additional benefit of improved surface gloss. Temper characteristics of the chocolate are not affected.

The system can be provided as a standalone unit or retrofitted to any existing coating machine, while the technology can also be applied to achieve the same benefits on high output moulding lines and even chocolate dipping plants used in ice-cream production.

Key to the process, says APV Baker, is the control system which creates a stable structure capable of withstanding processing at aeration levels of 10 per cent or more. It also includes a recipe handling capability, with automatic changeover between products and types of chocolate.

However, Silverson Machines' system tackles the issue of reduced ingredients cost from the other direction, by offering high speed reclamation when production lines stop and products manufactured on a continuous basis are simply diverted into scrap bins until the line is up and running again.

Economically recycle

"Methods previously used for reclaiming this waste were slow and costly, often resulting in an inferior end product," says Silverson. "With increasing pressure to maximise profitability and reduce wastage to a minimum, a demand has arisen for a system which can quickly and economically recycle this material."

Take, for example, sugar confectionery. This can, of course, be redissolved even after being allowed to cool and harden although, using traditional methods, it is a slow process. Individual sweets can be added to hot water and agitated until they gradually dissolve, while agglomerated masses or large solids first require grinding or chipping to smaller pieces.

However there are further problems in that holding the product at raised temperatures for long periods can impair the flavour and quality, while incomplete dissolution can lead to unsatisfactory product consistency.

The new system from Silverson consists of a specially designed jacketed vessel, fitted with a high shear bottom entry mixer and a high shear in-line mixer in a recirculation system, all of it mounted on a skid complete with its own integral control panel.

In a typical operating procedure the vessel is first charged with the base fluid, most commonly water, which is heated to working temperature before the bottom entry mixer is started and product to be reclaimed is added. Large solids can be added with no need for pre-grinding.

The mixer exerts a powerful suction which draws the materials into the workhead, where they are rapidly reduced to granular size (stage 1). Then, when particle size is sufficiently reduced the in-line mixer can be started.

Material is drawn into the recirculation line and, as it passes through the in-line mixer, is subjected to intense high shear. The self-pumping unit then returns the product to the vessel as fresh ingredients are simultaneously drawn in (stage 2).

The combination of heat, vigorous agitation and intense high shear accelerates the dissolution process and quickly reduces the entire contents of the vessel to an homogeneous mixture

focus

We report on recent developments for the confectionery industry by members of the PPMA, from processing equipment through to end-of-line machinery.

without, says Silverson, appreciable deterioration in product quality or flavour. The in-line mixer can also be used to transfer the processed rework back to the production line, in some cases without the aid of a pump (stage 3).

Typically, each system would be custom-built to suit the individual application. Each of the basic components can be modified according to specific process requirements, including clean-in-place systems and additional in-tank agitation such as anchor type stirrer/scrapers, for processing higher viscosity products or those that solidify on cooling.

Bottom entry units featuring two speed and variable speed (via an inverter) are available, with a range of workheads to suit the size and type of the solids to be processed. For example, hard yet friable pieces are easily broken up by a coarse tooth head, while softer more elastic materials may require a slotted disintegrator head.

Meanwhile, a range of chocolate processing equipment made in Italy by Mazzetti Renato is now available in the UK from Skerman Promac.

Individual items of equipment from the company include the TAO tempering system, designed with the necessary three stages in a single free-standing unit that can be connected to any Mazzetti processing machine or customers' existing equipment. There are enrobing machines, equipment to make chocolate drops, chocolate centres plants, and rotational moulding and wrapping machinery for large eggs.

However, Mazzetti is able to build complete chocolate production lines, extending from base material receipt to the finished moulding or enrobed product.

Stations for centre fills

Indeed, the company recently built a special moulding plant, one of its largest, to provide a contract manufacturer with the flexibility required to compete effectively in extremely price sensitive markets.

The MAZ plant consists of a basic moulding line with a shell moulding section and filling stations for adding various centre fills including, nuts, crumble, cream, biscuit or wafer, solid chocolate fill and also toys, when shell moulded eggs are being produced. Each of these filling heads can be switched off, removed completely or used in combination with others to provide a versatile solution to varying production demands.

As well as the MAZ moulding line, the installation includes a TAO chocolate tempering unit, mixing holding tanks, double wall holding tanks, pumps and a melting tank with a separate sphere (ball) mill for the centres.

Südmo has recently come up with a solution to a customer's concern that its gelatine based product would solidify if exposed to an unheated surface. The conical bottomed process vessel employed has now been equipped with a bottom seat outlet valve within a stainless steel hot-water jacket, so that the product flows freely irrespective of ambient conditions.

The valve was made even more compatible by fitting a PTFE bellows, which is normally reserved for aseptic applications. Indeed Südmo can now offer the jacket facility on its complete range of vessel outlet valves.

Heated fondant tables

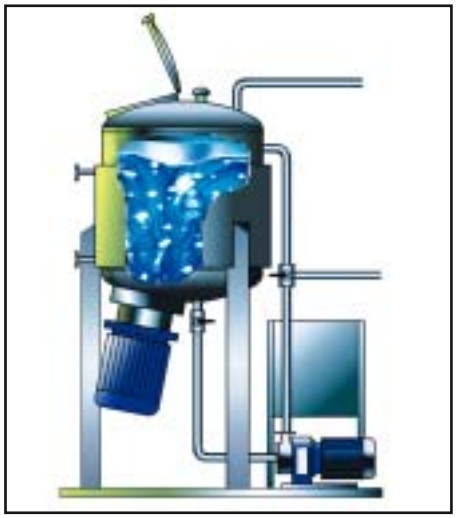
Trimcote/CPMS Bakery Division is now building process equipment that includes heated fondant tables, kettles and hand enrobers.

The fondant tables are thermostatically controlled. With the Trimcote/CPMS system the pans do not contact water directly. Instead, steam is generated and the vapour surrounds the pans, which is said to maintain a more uniform heat that helps to reduce any crystallisation of the fondant. This same heating technique is also used in the fondant kettles where bulk fondant is handled in capacities to 224lb.

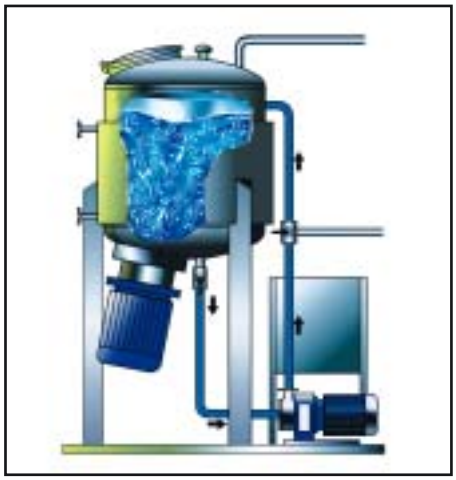
The Trimcote/CPMS enrober is aimed particularly at test kitchens and craft bakers where smaller volumes of product are required but the overall appearance must remain constant. The unit is thermostatically controlled and is mounted on castors allowing it to be moved around the bakery or kitchen. ❑

For Further Information:

APV Baker	**enter 200**
Silverson Machines	**enter 201**
Skerman Promac	**enter 202**
Südmo	**enter 203**
Trimcote/CPMS	**enter 204**



Silverson reclamation system: stage 1: *Materials are circulated through the bottom entry mixer until they are reduced to granular size*



Stage 2: *The in-line mixer is brought into action subjecting the material to intense high shear*

Stage 3: *The in-line mixer is used to pump the processed rework back to the production line*

INSPECTION

Policing the critical control points

Inspection for product safety is a matter of policing critical control points. And as Hitesh Patel, technical director at Lock Inspection Systems, points out, metal detectors can be deployed at several points in the confectionery production line:

At the beginning of the line to inspect incoming raw materials, such as cocoa, sugar and cream; just before product is packaged; once product is packaged and ready for delivery.

"Inspecting incoming raw materials presents the most cost-effective option, for while unwanted metal can enter production at any stage, eliminating metallic contamination earlier rather than later means lower value ingredients rather than costly finished products are wasted," says Hitesh Patel.

With this in mind, Lock Inspection Systems has developed a range of vertical fall metal detectors, specifically designed for inspecting free-falling raw materials and products in powder or granular form. For liquid ingredients, such as cream and milk, there is the Lock pipeline detector.

Both systems incorporate the Met 30+ metal detector in which, says Lock, the upgraded, 32-bit processor has increased processing speed by 500 per cent and accelerated interrogation of the signal to over 60,000 events a minute.

"A second inspection point can be identified further down the production line, just before products are packed," says Hitesh Patel.

Reliable reject mechanism

"While a high degree of sensitivity and accuracy can be achieved at this point, individual sweets or chocolates require a complex but highly reliable retract carriage reject mechanism to eliminate contaminated product. On identifying metal, the conveyor carrying the product retracts, dropping contaminated product into a bin below."

Confectionery products themselves do not pose much of a problem to a metal detector, he adds, rather it is the use of foil and metallised film wrappers that may prove challenging.

"This is particularly true where sweets and chocolates are wrapped individually, then packed in a carton. In this instance, tests should be run to decide whether a Ferrochek metal detector – testing for ferrous metals – or standard detector with a facility for inspecting goods within metallised film is the most effective option."

Pre-packing inspection: *The Lock Met 30+ conveyor based metal detector*

Meanwhile Swizzels Matlow, which produces Love Hearts, Refreshers, Drum Stick lollies and Parma Violets, is now inspecting the majority of its lines using Safeline throat detectors installed between the multihead weighers and baggers.

Safeline points out that throat detection is ideal for free-flowing product as it allows the sweets to be checked at the last possible moment before packing, after which there is no further opportunity for contamination.

"The latest Safeline XL throat metal detectors feature an Internal Cancellation Field (ICF) which allows installation in the tightest of spaces, where the performance of conventional metal detectors would be affected by interference from nearby metal parts," explains the company.

The ICF system operates by generating a secondary magnetic field that is opposed to the primary magnetic field produced by the detector, so substantially inhibiting leakage of the primary magnetic field outside the detector. This allows the machine to operate close to other metal equipment and is said to be considerably more effective than simply using external field containment flanges.

In addition, it enables significantly higher operational sensitivity settings to be used, even when weigh hoppers, metal chutes and forming shoulders are close by.

Electronic colour, size and shape sorting equipment from Radix Systems is now used in a number of industries to identify reject product before the next stage of manufacture and in confectionery has so far been applied principally to check almonds, prior to enrobing.

Grading to close tolerance

The Autosort AS3*6R employs a camera to scan almonds for length, width, area and colour, using an air blast to reject any that fail to meet the specification. This, points out Radix, means it is possible to grade product to closely defined parameters – to 1mm tolerances if required – at speeds far in excess of those attainable by manual selection.

Similar machines from Radix are also available to monitor and remove defective items after manufacturing, such as boiled sweets, chewing gum or snacks.

Three types of sorting machines are available from Maschinpex to check confectionery. The Sortomat checks product thickness, the Diasort checks the product for correct diameter and length, and the combination Sortomat D model checks thickness, diameter and length.

Marketed in the UK by Ultrapac, Machinpex sorting machines are of stainless steel construction, with tool-free assembly/disassembly of contact parts for ease of cleaning. Different thickness tolerances are achieved without the need for format parts. ❑

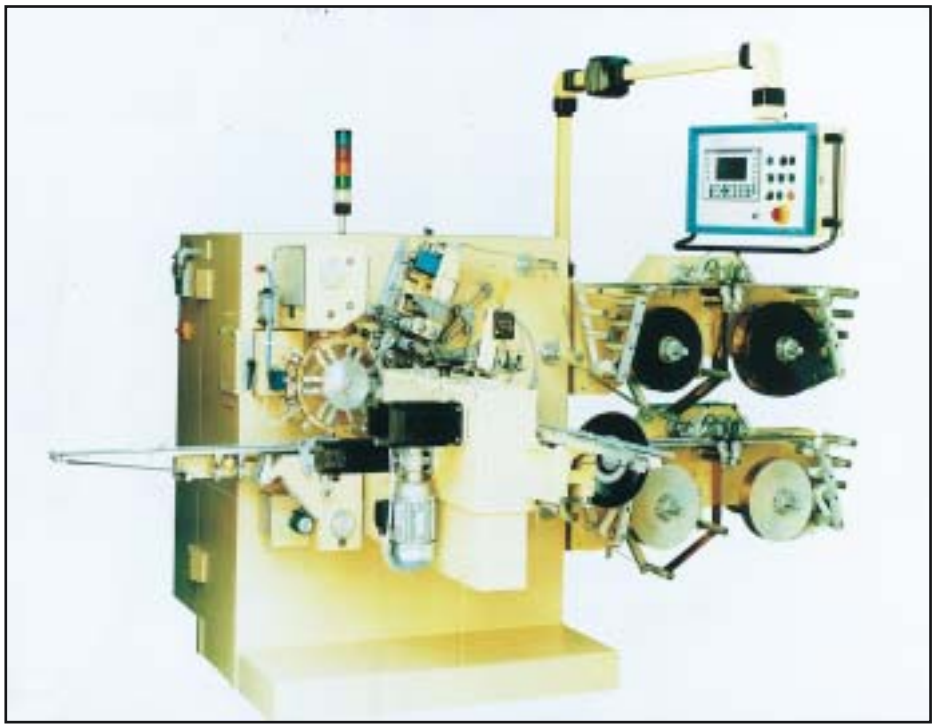
FOR FURTHER INFORMATION:

Lock Inspection Systems	**enter 205**
Radix Systems	**enter 206**
Safeline	**enter 207**
Ultrapac	**enter 208**

WRAPPING

Wrap style options on the increase

One trend in wrapping machinery has been to increase the various options open to confectionery companies, but for lower outlay. Italian manufacturer Acma GD has launched a new



One wrapper, many styles: *Nuova Fima's Giova 020 chocolate wrapper*

lower cost range while a single machine capable of up to eight different styles is available from Nuova Fima, also from Italy.

Acma GD's new range of sweet wrapping machines – the 800 series -– is described as more affordable than previous offerings from the company, which says the range may well be attractive to confectionery manufacturers who up to now have bought second-hand or from other lower cost machinery suppliers.

Up to 600 a minute

The range includes the 806 machine with feeding disc for spheroidal products wrapped in double twist (the 806/T), with one or two papers, and in aluminium foil (806/F) "fancy" style. Speed is up to 600 products a minute. Then there is the 808 machine for medium sized spheroidal products such as chocolate eggs, up to 56mm diameter, in fancy styles in aluminium foil. Speed is up to 200 products a minute; pick and place feeding is available.

The 830 series machines are equipped with a feeding belt for enrobed or moulded products in square, rectangular, disc shapes and so forth at speeds up to 500 a minute. The 830/F wraps in a fancy or bunch style, the 830/T wraps in a double twist or bunch style while the 830/P wraps in Neapolitan, walled, bunch, envelope, portfolio or two and four fold styles.

Nuova Fima, represented in the UK by Sussex & Berkshire Machinery, has developed a high-speed confectionery wrapper that can achieve up to eight different wrap styles, providing the flexibility to handle short-run, seasonal or trial production items on a single machine.

In place of conventional, dedicated folding mechanisms, the Giova 020 machine employs a series of modular, self-contained folding units that can be exchanged to allow a new wrapping style, and size change, to be accomplished within an hour. Speed is up to 800 pieces a minute.

"The Giova 020 was developed to give confectionery companies the opportunity of increasing their wrapping options at minimum capital cost, but also to reduce the number of machines required, particularly any working just part of the year on seasonal products," explains Sussex & Berkshire Machinery.

There are five different folding units which, singly or in combination, allow the Giova 020 to produce a double twist, single twist on either side or top, fancy wrap and bunch wrap, as well as heat-sealed wallet and envelope styles in a single material or with an overband.

A machine can be supplied initially with folding units for one or two wrap styles and then, as required, further units supplied in the future to increase wrapping variety. This is again achieved at minimum capital cost, as Sussex & Berkshire Machinery points out:

Machine extended

"For example, a machine supplied initially with the fold module for either bunch wraps or fancy wraps, can be extended to produce wallet and envelope styles simply with the addition of a single seal unit."

Computer controlled, the Giova 020 has memory capacity for set-up information on over 1000 products. Round, square or rectangular shaped chocolate pieces can be handled and the machine optionally equipped with print registration, a double reel holder and automatic splicing for continuous running.

One of the best ways to add value to chocolates is to wrap them in foil. However, foiling machines tend to be expensive and fast in operation, requiring a consistent product to maintain the overall efficiency of the equipment. So Trimcote/CPMS has developed the FBW foil bunch-wrapping machine to cater for lower speeds and irregular shapes.

Size change by operators

All-mechanical in operation, the FBW wrapper operates from a 13A power supply and is mounted on castors to be wheeled to the appropriate production area as required. Line operators can achieve a size change in under 15 minutes, says Trimcote.

The FBW is available as an automatic machine for speeds up to 120 a minute or as a semi-automatic version – with operators placing product into pockets on the feed wheel – particularly to handle irregular shaped products that do not lend themselves to automatic feeding.

Standard machines can now also be fitted with a module that allows small eggs to be wrapped, while the addition of further parts gives the capacity to carry out a bunch-fold wrap for regular shaped products.

The latest twist-wrapper from AMP Rose is the 71ST for hard candy and chocolate, providing an output in excess of 600 pieces a minute, using a six station wrapping wheel. However, the company has also recently added a high speed flow-wrapper to its range, the CO-90/C Miniflow, capable of 1000 pieces a minute.

This machine was developed specifically for confectionery products, handling a size range of 16-35mm long x 13-19mm wide x 6-17mm thick, or diameters of 16-29mm. Standard equipment includes an adjustable folding box, adjustable web tension, print registration and a large diameter disc feeder with automatic sweet feed rate control.

ICW cut and wrap flow-wrappers are also available from AMP Rose to handle products such as toffee, fruit chew, bubble gum and hard-boiled candy.

Meanwhile, Paramount Packaging Systems has launched a new multi-belt feeder, developed by Japanese manufacturer Fuji to run in tandem with its high speed flow-wrappers, and to cut downtime required for belt cleaning to the minimum.

Aimed in particular at the confectionery,

biscuit and pharmaceutical industries, the Fuji FFS1000 feeder uses a series of eight independently controlled belts to adjust the space between incoming products. This provides the accuracy for the flow-wrapper to run continuously at speeds up to 1000 a minute.

However, unlike conventional multi-belt feeders, on which belts usually need to be removed from their support rollers and drives for cleaning, each belt on the Fuji feeder is carried on its own removable and interchangeable cassette, which houses the rollers and drive connections.

Each cassette can be removed, in seconds, for the belt to be cleaned off line. In the meantime, production continues using the spare belt cassette supplied with the machine. ❑

FOR FURTHER INFORMATION:

Acma GD	**enter 209**
AMP Rose	**enter 210**
Paramount Packaging	**enter 211**
Sussex & Berkshire Machinery	**enter 212**
Trimcote/CPMS	**enter 213**

BAGGING

In pursuit of higher speeds

Variable length strippers and product catchers have been announced by Sandiacre for its 200-a-minute TG250R twin jaw rotary snack and confectionery bagger, TNA is setting out to bring its Robag machine into more European confectionery plants, and Woodman has just installed one of its new Cyclone baggers in Holland.

Everywhere, the accent appears to be very much on lifting speed.

The strippers on Sandiacre's TG250R are said to break new ground by being both parkable and offer variable strip length. This means that contract packers in particular are given the flexibility of a machine that is equally at home on products that need to be stripped into the bag, and those that require no assistance.

The product strippers and the catchers can reduce product and film wastage brought about by defective sealing – either as a result of product in the seal area or product dropping too heavily onto an unsupported seal – while the parking feature allows the strippers to be immobilised when the specific packing operation in hand does not warrant their use.

Equally, the screen-controlled variable strip length of 0-30mm can be employed not only to suit the type of product that needs to be stripped in, but also to deflate the bag by an adjustable amount.

Aimed primarily at the snack and confectionery packaging industries, where the product type ensures favourable flight times, the TG250R produces bags 60-180mm wide at speeds up to 140 a minute, or 200 a minute with the strippers parked. Similar products can also be packed at comparable speeds.

On a global basis, Australian bagging machinery manufacturer TNA has so far sold most of its machines into the snacks industry, largely it says on the basis of speed and seal integrity. However, a growing customer base in the southern hemisphere's confectionery industry is now being viewed as a springboard into the European industry.

Wastage under 1 per cent

TNA's customer base in Australia and New Zealand now includes Cadbury Schweppes, BlueBird Foods, Darrell Lea Chocolate, Mars, Nestlé, Snow Confectionery, Aussi Sweets and Golden Boronia.

According to TNA, the patented stripper/tube closer system on its Robag machines keeps wastage to well under 1 per cent when packing at high speed. The tube closer system keeps the next dump of product clear from the sealing jaws for a clean seal, so virtually eliminating reject caused by products caught in the sealing area.

"The gentle handling action of the stripper which plays an important part in reducing breakage of fragile products has turned out to be a boon for bulky and heavy products too," says TNA.

Mark Tubman, factory manager at Darrell Lea Chocolate in Australia says: "Previously on our conventional vertical form-fill-seal liquorice stick packing line, we experienced a high level of rejects caused by the impact of heavy product bursting through the end seal. The gentle handling mechanism of the Robag's stripper system has eliminated this problem."

Up to 60 per cent of the parts in a conventional bagger are eliminated by the design of the Robag, says TNA, which cuts downtime due to machine breakdown and, coupled with the computer control system, makes operating the machine straightforward.

As a result, says Christine Larkin, production director at Aussie Sweets, inexperienced new operators need only two days on the job, as an average, to be able to run the machine.

Coloured eggs: *Toms, Denmark, uses an Ishida multihead to ensure correct weight and colour mix*

Woodman Company has just installed one of its new continuous motion Cyclone baggers at a Dutch confectionery manufacturer.

According to the company, the prime reasons for getting the order were the machine's flexibility and its jaw sealing motion. This is based on a hypocycloidal geometric path that generates a linear output from a circular input to provide extended seal dwell time at speeds in excess of 150 bags a minute.

"Cyclone's flexibility comes from its ability to offer a universal bag size range – width 63-350mm, length 127-635mm – in lap seal or fin seal pillow pouches," points out Woodman.

Automatic web tension

The machine includes servo control for both the cross-seal drive and film pull-down belts and features a simplified film path, with powered film unwind and automatic web tensioning, which is said said to optimise the print-to-bag registration.

Fords Packaging Systems has introduced a new range of form-fill-seal machines for confectionery manufacturers, built in Italy by ICA which specialises in equipment to make square, stand-up flat bottom, flat top bags from both

plain kraft paper and heat-sealable laminates.

The ICA range can also produce flat top or gable top finishes, pillow packs with two front faces and no centre back seal, sachets and Doypack styles. Other, more novel shapes are also possible says Fords, allowing a variety of products to be re-presented in distinctive new packaging.

Filling and dosing equipment includes augers, cup fillers and multi-head weighers while easy open and reclosure systems – such as zippers and tin-ties – can also be fitted.

The ICA RS20 is usually the most suitable machine in the ICA range for packing confectionery because, points out Fords, it does not use a forming tube. Instead, the machine makes each bag outside the filling environment, inserts it into a turret, opens it and places the product directly into the open top of the bag.

This avoids tumbling the product down a forming tube, for gentle handling, and keeps drop height to an absolute minimum.

Balance of colours

In Denmark, a popular treat is the chocolate coated marzipan egg, with an outer shell of coloured sugar. So Toms Fabrikker is now producing a pyramid bag of ten marzipan eggs, sugar coated in five different colours, using an Ishida multihead weigher to ensure the right weight and that the balance of colours is consistently correct.

Separate elevators bring eggs of each colour to the 20-head Ishida weigher on which the top is divided into five separate compartments, with four heads dedicated to each colour.

To make certain that the eggs roll into the bag, rather than drop as they emerge from the weigher, the bagmaker is tilted by 45deg when the eggs are being weighed and returned to vertical for handling other confectionery products, including wrapped sweets.

Even so, despite these measures to reduce the product's speed of travel, the 150g bags are being filled at the rate of 50 a minute. ❑

FOR FURTHER INFORMATION:

Fords Packaging Systems	**enter 214**
Ishida Europe	**enter 215**
Sandiacre Packaging Machinery	**enter 216**
TNA Europe	**enter 217**
Woodman Co	**enter 218**

For further information on items appearing in Machinery Update, *enter the appropriate number on the free reader service card in this issue.*

CARTONING

Versatility from standard machinery

Higher basic specifications for cartoning machinery – giving greater flexibility in particular – have allowed more 'standard' machines to be considered for handling special cartons, according to Kliklok, giving lower costs.

For example, at Trebor Bassett, bags of various unwrapped sweets are being loaded into both tapered and rectangular end-load cartons by a Kliklok Concorde K170 machine, at speeds up to 140 a minute. Two infeeds handle product from two sources at 70 bags a minute each.

The special requirement was to collate and group product in various combinations – singles, pairs, side-by-side and also one-on-one – for automatic insertion into the cartons.

Two of Kliklok's Trac-i general product handling systems were employed to take product arriving in a single row and transfer single or collated product (2 x 1 side-by-side or 2 x 1 one-on-one) into a pocketed conveyor. As there are two sources of product, this operation was duplicated by a second Trac-i unit also loading a pocketed conveyor.

Products on these two conveyors are then brought into a single lane onto the product infeed conveyor of the Concorde K170. An overhead planetary inserter combines the products from two rows to one. Bag weights go from 115 to 500g with the largest pack being 2 x 500g.

"One of the main benefits of this method was that the line would still continue running if one product source stopped for any reason, as all product collations were created prior to transfer into the product infeed conveyor," points out Kliklok

In a further, but lower speed installation for handling inward and outward tapered cartons, as well as rectangular packs, Kliklok has supplied Chocmod in France with a K100R end-load cartoner to run at 80-90 cartons a minute with the product, chocolate truffles, hand placed into the infeed conveyor.

According to Kliklok the special "stacked chain" system used on the Concorde machines gave the flexibility to handle both tapered and straight sided cartons.

Double headed forming

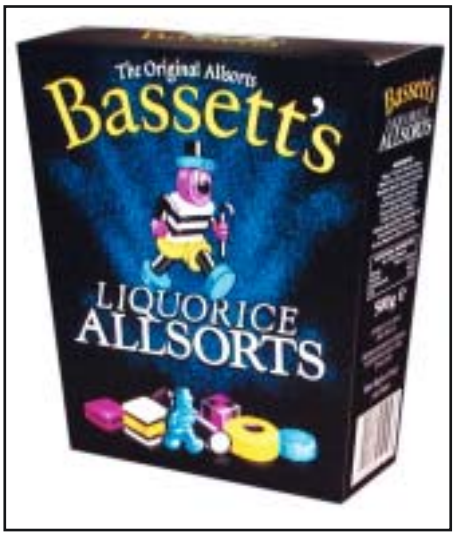
Among recent installations of Kliklok top load cartoning machinery have been two lines for Nestlé, installed in France to handle a flow-wrapped chocolate enrobed bar. Speed is up to 120 cartons a minute, with two sizes per line, while the carton is a three-flap charlotte style, lock erected and hot melt closed.

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 were interfaced with an existing automatic loading system, which places the bars of product in the required count into the erected cartons.

After filling, the cartons are closed using the latest addition to the Kliklok range of three-flap closers, the Genesis Mini Lugless Closer, a small footprint machine able to handle three-flap erected cartons, arriving at random.

Lower costs are similarly behind the new Criterion 2000 end-load cartoners from

Modular cartoner: *Jones Criterion 2000 machines are built from a series of servo motor driven modules*



Tapered cartons: *Kliklok Concorde handles tapered and regular cartons for Trebor Bassett*

RA Jones, which has produced a machine that is not only easier to size change, clean and maintain, but is also cheaper than the machines it replaces.

The Criterion 2000 is not just a single design of machine, but a family of machines which can be intermittent or continuous motion, left or right hand and have pitch centres of 3, 6, 9, 12 or 15in to suit a wide range of applications.

Servo driven modules

The different machine variants can be built from a series of standard servo driven modules which are all manufactured from stainless steel. For instance, a single rotary carton opening mechanism is used for all the variants, and with software changes can operate left to right, right to left, with forward or reverse opening cartons, intermittently or continuously with all the flight finger pitch sizes.

"This modular concept allows us not only to build machines more quickly, but also to reduce the price of the machine quite substantially," explains RA Jones.

Good hygienic design was also a high priority during the development of the Criterion 2000. The machine's open construction allows any debris to fall through the machine to the floor and the stainless steel construction makes it possible for Jones to offer washdown capability for no extra cost in food, confectionery and other sanitary applications.

The reduction in cost has been achieved by replacing complicated mechanical drives with programmable servo drives, and using welded frames in place of bolted frames. The Criterion 2000 machines use fewer parts than the machines they replace and so are quicker to build and can be offered on shorter delivery times.

The working height of the machine and the design of its guards are the result of ergonomic studies, with the low profile base providing an optimal working height of 812mm and a maximum reach of 610mm. Clear curved, lift-up or gull-wing guards give full access to the machine interior and allow the operator to see all the machine's functions.

Ultrapac is now marketing the US-built Triangle Pro-Line vertical and horizontal cartoners which, says the company are particularly robust with welded frames built of 20mm bar stock with 13mm solid steel top plates.

Triangle vertical cartoners can run a wide range of cartons at speeds up to 100 a minute while changeover times are said to be significantly reduced and simplified by the use of snap-on or slide-in carton pockets, latch-on tooling and hand crank adjustments with digital readouts.

Equally, the Triangle horizontal cartoners are said to offer an exceptional carton size range at speeds up to 300 cartons per minute. Plastic product trays are employed to slide in and out of the carton for precise product insertion, with no need for secondary funnelling devices. ❑

FOR FURTHER INFORMATION:

Kliklok	**enter 219**
RA Jones Europak	**enter 220**
Ultrapac	**enter 221**

OVERWRAPPING

Smaller packs need faster machines

One effect of the trend towards smaller confectionery cartons, and particularly dispensers for sweets, has been to heighten demand for high speed overwrapping machinery, according to Sollas, which builds the HST machine capable of speeds up to 240 a minute.

First introduced nearly 20 years ago, the machine achieves its performance by using a turret to carry out the initial overwrapping of the product.

On the shrink-wrapping front, EDL (Packaging Engineers) has recently taken on the UK agency for US manufacturer Shanklin, whose machines are used to overwrap chocolate boxes and other confectionery items in high clarity shrink film.

A typical installation is at Lindt & Sprungli in Switzerland where Shanklin machines are used to wrap individual boxes of chocolate at speeds up to 70 a minute. An electrostatic bottom seal is used that not only produces a secure overwrap, but also offers consumers an easy open feature, says EDL.

Using flat film run over a forming shoulder, the machine creates end seals with a hot wire system designed specifically to give a discreet seal line. Finally, the boxes pass into a shrink tunnel fitted with a special mesh conveyor and adjustable airflow to produce a wrinkle free end package.

EDL and Shanklin offer a broad range of shrink-wrapping machines for the confectionery industry starting from manual L-sealers up to high speed machines capable of wrapping over 200 boxes a minute. ❑

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EDL (Packaging Engineers)	**enter 222**
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END-OF-LINE

Transit/display case halves cost for Halls

Warner Lambert, Manchester, has halved the outer packaging costs for Halls Mentholyptus sweets by adopting a new tray and lid combination that does away with the need for an outer case. The disposable lid is strong enough to protect the pack in transit then, when removed in store, leaves the product ready for on-shelf display in a conventional tray.

The pack was designed by Nor-Reg, Norway, which also supplied the tray erection and lidding equipment.

Warner Lambert's aim was to reduce packaging cost yet retain pack strength since more than 80 per cent of the sweets are exported, with over half of total exports going to the USA. Existing display characteristics had also to be retained.

Nor-Reg's design replaces the standard rip top carton and outer case used by Halls for a number of years. Instead, the Nor-Reg TP1510 machines create collations of 12 or 24 bags within an inverted board lid, and then wrap the corrugated display tray around the outside, securing the two halves of the pack with hot melt adhesive.

The machines were also designed with a double infeed to accept the output from two

bagging lines at the same time. The packs from two tray and lid erectors are then fed to a wrap-around case erector, if an outer case is required.

Finished cases or tray and lid packs are sent to an automatic palletising line

"Payback on board savings alone is under two years," says Norman Prayle, chief engineer at the Warner Lambert plant. "Some of the alternative solutions proposed by Nor-Reg saved even more, but the tray and lid best satisfied the other project criteria."

Nor-Reg UK points out that machine packing of the reclosable bags produces a tighter and more regular tray than was previously possible by hand packing, enhancing presentation of a premium product.

Meanwhile the German built J+P range of case packers for form-fill-seal bags is now being marketed in the UK by Propack Automation Machinery and can handle speeds up to 120 bags a minute.

Transit and display: *Nor-Reg system for Halls will pay back in under two years*

Flat, overlapped or shingled

The KF model packs bags horizontally into cases, either lying completely flat, slightly overlapped or shingled, and employs a conditioning conveyor which gently flattens the bag and evens out its contents. Bags are then collated to the required layer pattern and transferred through bomb door latches into the case.

A second model, the KV, loads pillow packs and block-bottom bags vertically into display cases and trays.

On the palletising front, EDL (Packaging Engineers) has recently entered the market and points out that the nature of confectionery production – often with several high speed wrapping lines converging into one manual transit packing or palletising station – lends itself particularly well to a robotic system, capable of accepting varying product types.

In fact, EDL is shortly to install a large palletising system at a leading UK confectionery manufacturer, where cases will be taken from ten separate lines and loaded onto three different pallet sizes.

The installation will involve a robotic palletiser that runs along a track, picking and placing cases as well as picking new pallets. However, to enable one robot head to handle the output from ten lines, EDL has designed a case-stacking module on each pallet loading station, enabling the robot to pick up to four cases at a time.

With each case weighing up to 15kg, the robot head is designed to handle loads in excess of 75kg, while a central PLC system enables pallet stacking patterns to be quickly changed at any of the ten stations.

"The confectionery industry is not alone in its concerns about the health and safety implications of manually palletising cases that can weigh up to 15kg," comments Barry Tabor, EDL's managing director.

"The development of flexible robotic palletisers that require minimal floor space is providing manufacturers both large and small with the opportunity to address this important area of their packing process."

Nestlé Rowntree's Halifax plant, which produces some 40,000 tonnes of chocolate a year, including around 26,000 tonnes of Quality Street, has installed a Robopac Genesis pallet wrapper to handle pallets of different products, conveyed to the machine at random.

The wrapper, a ring style machine, is equipped to read the pallet bar codes and automatically apply the appropriate pre-programmed wrap. Speed is 90 pallets an hour.

Orion has recently introduced a trolley/cage option, fitted to a standard turntable on the company's LP500 semi-automatic power pre-stretch wrapping machine. The manually operated lever on the attachment locks the trolley, or cage into position to enable the rotary wrap cycle to be completed safely.

Other features of this machine include the option of a scales package, which weighs the product and displays the weight. ❑

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Sleeve decoration for Mini Eggs tubes

Full body sleeve: *Robinson Plastic Packaging is supplying new packaging for Cadbury's Mini Eggs and has installed an RF shrink sleeving system from Graham Labelling, capable of 250 products a minute, to decorate the 45g plastic tubes with a full body sleeve.*

To ensure accurate placement of the sleeve, the tubes are handled in pucks while the lids are shut tight as they pass under a tophold unit. In addition to providing stability the pucks also help to ensure an even shrink of the sleeve material by gently spinning the tubes as they pass through the heat tunnel.

A tear off strip on the sleeve is created using horizontal and vertical perforators on the RF.

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