

Market maturity heralds Polarisation in flow-wrapping machinery

AS MARKETS FOR MACHINERY MATURE, SO THEY TEND TO POLARISE INTO BUDGET PRICED ENTRY LEVEL MACHINES AND HIGH SPECIFICATION, HIGH SPEED MACHINES. FLOW-WRAPPING APPEARS TO BE AT THAT STAGE, WRITES MARTIN KEAY.

One of the main features of machinery markets is that, as they mature, they polarise. Let me explain. When a new type of machine is introduced, most of the manufacturers will make equipment of a roughly similar specification and sell it at a similar price. However, as the market for that type of machine matures, so it tends to polarise into two distinctly different sectors: a low price sector and a high specification sector.

In the low price sector, customers with limited budgets look for machines that will do the basic job but are competitively priced. However, in the high specification sector, price is less important than the technical specification, efficiency and performance.

So the trick for machinery builders is to recognise that this market polarisation is taking place, because if a manufacturer carries on making the mid-specification, mid-priced machine which sells well in a new market, he could end up with no market at all. Customers in the low price sector will perceive the machine as being too expensive, while customers in the high specification sector will regard the mid-specification machine as technically inferior.

This market polarisation phenomenon occurs at different times for different products. For example, in the domestic cooker market it occurred in the early 1980s. Up to that time most people bought classic eye-level grill cookers, the only obvious variation being the quality of the knobs and maybe a timer.

But when the market polarised the high specification sector started looking for split level cookers, technical wizardry and stainless steel, while the first time buyer was looking for a cheap and cheerful cooker which saved them



High specification: SIG Pack's new HSI bottom reel flow-wrapper can run at 800 a minute

from inheriting their mother-in-law's highly prized but ancient Cannon cooker.

In process of polarising

But what has any of this to do with flow-wrapping machines? Well, judging by the new machine launches announced in the last few months, the market for flow-wrappers has already polarised or is certainly in the process of doing so, because the new machines fall neatly into the two market sectors: budget priced entry level machines and high specification, high speed machines.

Of these two groups of new machines perhaps the most interesting are the budget priced machines because with price tags as low as

£15,000, companies can now justify the purchase of a new flow-wrapping machine, where previously the options for low volume production might have been hand sealing pre-made bags or the use of a semi-automatic L-sealer and a printed label, both of which are more expensive in terms of labour and materials.

Another benefit of the lower cost of flow-wrapping machines is that it allows small volume manufacturers to compete on level terms, as far as pack appearance and integrity are concerned, with their bigger competitors who will almost certainly be operating much more expensive machines. A further reason for taking a close look at the new low cost flow-wrappers on offer is the technology being employed.



Budget electronic machines: The CSS Sprinter Junior (top) and the Ilapak Carrera 500 PC

Traditionally in packaging machinery the low-priced, entry-level machine has been a largely mechanical piece of equipment, offsetting its low price with a limited size range capability. However two out of the three new budget flow-wrappers currently on offer are fully electronic, providing most of the versatility and technical sophistication of their high-speed, high-specification servo motor powered cousins. How is this possible?

The use of servo motors and software synchronisation in place of mechanical transmission components is now evident in most types of packaging machinery although, typically, this new technology has been used to improve performance or make size changing easier on high-

specification machines. This was certainly the case with the early electronic flow-wrappers where the new technology was used to increase speeds and provide greater flexibility as long as 20 years ago.

Third and fourth generation

All leading flow-wrapper manufacturers, who are now producing their third and fourth generations of electronic machines, are thoroughly familiar with the new technology and have seen the potential for its use, not only for high and medium speed applications, but also for low speed, low budget machines. And of course the price of digital drives has reduced as production volumes have increased.

But surely it is still cheaper to build a conventional mechanical flow-wrapper than an electronic machine?

Well, it seems that if mechanical machines are cheaper, the difference is now very marginal. Therefore, many manufacturers have stopped building mechanical flow-wrappers and are taking advantage of the shorter build times, and greater flexibility for tuning to suit different products, offered by electronic machines.

Typical of these new budget electronic flow-wrapping machines is the Sprinter Junior from CCS Machine & Engineering Co. Introduced in early 2003, the Sprinter Junior uses a two-axis electronic drive system to provide versatility at a competitive price. One drive powers the infeed conveyor, cross seal jaws and carry over conveyor, while the second drive powers the long seal jaw assembly.

The main body of the Junior is built from stainless steel as standard, it requires only a 13A single phase electrical supply and, in its standard form, will handle products up to 140mm tall, 450mm long and 240mm wide.

This British designed and built machine is already employed in the fresh produce packing industry, although interest is also being shown in the Junior for wrapping products as diverse as bars of soap, six-packs of snack food, sandwiches and bakery products.

Adjustable folding box

The Junior comes fitted as standard with a rotary end crimp carry over conveyor, an adjustable folding box and a 2 metre long infeed conveyor. It is available as either an electronic or a mechanical machine and can be leased for £120 a week.

Ilapak has also launched an electronic flow-wrapper specifically designed to offer smaller manufacturers an efficient yet low-cost packaging solution. This latest addition to the Ilapak range is said to be versatile and can wrap most food and non-food products, either individually or in multiples.

Capable of production speeds up to 100 packs a minute, the Carrera 500 PC incorporates the no-product/no-bag and automatic size change features normally available only on a top-of-range machine and uses an industrial standard microprocessor for control. The operator interface is a keypad and an LCD display.

The machine can handle most types of heat-sealable films such as polypropylene, laminates, and co-extruded films, as well as cold-seal materials and offers a size range of 80-500mm

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long, 20-230 wide and up to 120mm tall. In fact, Ilapak claims that the new Carrera 500 PC is the most competitively priced, fully electronic flow-wrapper currently on the market.

Erapa (UK) has recently been appointed UK agent for the Italian-built TLM range of flow-wrappers which includes a compact bench top machine called the Little Flow. This machine has also been designed specifically for short production runs, and is particularly easy to change from one product to another.

It has a variable speed lugged infeed conveyor, bag length adjustment and variable speed rotary cross sealing jaws and it can operate at speeds up to 70 packs a minute, although the speed for a given product will, of course, vary depending on the dimensions.

There is an adjustable folding box, which does away with the need for change parts to suit different sizes of products, while the main control panel is mounted on a swivel tower so that it can be accessed easily and allow the operator quickly to check information such as running speed and the temperature of the sealing jaws.

High specification machines

But what about developments in the market for high specification flow-wrappers? In this sector electronic machines have become the norm whether the machine is designed for high-speed confectionery or biscuit wrapping, or for high integrity sealing of MAP or CAP packs. Another given in this market sector is touch screen operator interfaces and computer control.

Conventional wisdom suggests that high-speed operation and high integrity seals are mutually exclusive, but Hayssen Packaging Technologies' latest development of its RT machine is designed to do both, producing high integrity seal packs for modified atmosphere packaging (MAP) at up to 500 a minute.

Known for providing an exceptionally strong seal, the Hayssen RT's original design concept of multiple dies on a die wheel to provide a long sealing time has endured for more than 40 years and is particularly favoured for packing cheese, wet wipes and medical devices.

The RT system gives a consistent cut-off length regardless of product length variations, and can be fitted with a zipper applicator if required. It features a colour touch-screen operator interface, Allen Bradley PLC, remote diagnosis of faults using a modem, integrated gas analyser, tubular front frame for easy access, stainless steel construction and a misplaced product detection system.

However, there is very little point in having a high-speed flow-wrapper if the product cannot be fed to it automatically, because at speeds of 500 packs a minute hand feeding is simply out of the question.

So flow-wrapper manufacturers are now investing an increasing amount of their design energy in devising automatic feeding systems to suit different products and it is frequently the case that the feeding system will cost as much or more than the flow-wrapper itself.

High speed feeder

The new high-speed Hayssen RT can be supplied with Hayssen's Veltron high-speed positive placement infeed, which is servo driven and provides product accumulation and the precise product alignment and spacing necessary for flow-wrapping at speeds of 500 packs a minute.

To take rows of products directly from the process line automatically, Record supplies the Selecta system, which delivers and transfers the rows at 90 degrees, via a lowering belt, into the Flowfeed system of the flow-wrapping machine. The addition of further Selecta stations on the line allows the rows to be distributed to two or more flow-wrapping machines, according to the output and flow requirements.

Another one of Record's infeed systems is the Soft Touch in-line tray feeder for gently accumulating lanes of randomly spaced trays and phasing them into the infeed of the flow-wrapping machine. In fact, Record has installed systems into Fabulous Baking Boys, Arkady Craigmillar, Jesse Oldfield and Rye Valley Foods, amongst others.

The systems are manufactured in stainless steel throughout and are designed so that the



Feed system: Record Selecta transfers rows at 90 deg to the Flowfeed system of the wrapper

The Veltron system is also available as an upgrade to existing Hayssen RT machines.

Record Packaging Systems is now building a range of new generation stainless steel flow-wrappers, but also offers integrated conveying and feeding systems for these machines. Designed to provide a complete materials handling and packaging solution, Record says that customers are increasingly interested in this method of reducing labour costs and increasing output.

The Record Flowfeed system offers automatic in-line feeding with electronically controlled belts gently accumulating the products and phasing them into the infeed of the flow-wrapping machine. A pressureless system is also offered for particularly delicate products.

conveyor belts can be removed quickly for cleaning. Indeed, the Selecta has a debris collection system, which offers a 'wheel in, wheel out' capability to ensure a good standard of hygiene with minimal disruption to production.

Large format flow-wrapper

A feeding system is also central to a recent installation of a large format Fuji flow-wrapper made by UK representative Paramount Packaging Systems at Ringtons, the Newcastle-based tea packer. The company has switched from cartons to flow-wrapped outer bags for sachets of tea bags produced under its own brand, improving the appearance of the pack for doorstep delivery while reducing materials cost.

The move away from cartons reflects the

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special circumstances of this distribution arrangement, as Ringtons' production director Colin Smith explains: "Since we are not selling from a shelf, the rigidity of cartons is not required. Also, cartons do not travel particularly well in the delivery baskets we use, and can often become damaged with excess handling, so a soft pack is proving more resilient."

Paramount Packaging Systems has supplied Ringtons with a new Fuji Alpha 5 Jumbo flow-wraper, designed specifically to produce large bags, such as the pack of 160 tea bags which measures 230mm wide, 165mm long and 85mm high. It is equipped with box motion sealing jaws to provide high integrity seals and a compression system to exclude surplus air from the bag before sealing.



Bigger bags: Sachets of Ringtons tea are now collated and packed into outer bags on a Fuji system from Paramount

The machine is fed from two existing primary flow-wrappers, each producing sachets of 40 tea bags, via a new Fuji racetrack collator. This accepts the sachets into pockets for presentation at the correct pitch to the infeed of the Jumbo, where two or four sachets are swept in, to make multi-packs of 80 or 160 tea bags as required.

"Collating the sachets for flow-wrapping was the main problem, rather than the flow-wrapping itself," explains Colin Smith. "Looking at the systems available, we felt the Fuji flow-wraper and collation system was most suited to our needs and offered a quality solution at good value."

The entire system operates at a speed of around 100 sachets of 40 tea bags a minute, with the Fuji Jumbo running at 25 or 50 multi-packs a minute, depending on size, although speeds can go higher to cope with any backlog.

Meanwhile, in addition to the Little Flow budget machine mentioned earlier, Italian manufacturer TLM (represented by Erapa) also makes a high-speed machine called the Sfera, which is capable of running at 600 packs a minute. The machine uses brushless servo motors, in place of mechanical gearboxes, and product sizing is automatic.

The control system allows the parameters for up to 30 different pack sizes to be stored in the

memory and recalled when needed via a large touch panel control screen, which displays the machine's status and information from the automatic on board self diagnostic system. The Sfera can be equipped with options such as on-board printers, label applicators, Euro-slot punches and is also available in stainless steel.

SIG Pack has recently introduced the HSI

series of bottom-reel flow-wrappers for products that are best carried through the wrapping process supported on the film itself, with the longitudinal seal made from above.

A modular design allows HSI machines to be equipped with either a rotary sealing system or a long-dwell system for hermetic seals, with gas-flushing if required.

Speed up to 800 a minute

The rotary sealing system can deliver up to 800 packs a minute, with packaging material speeds up to 80 metres a minute, while the long-dwell sealing system handles up to 250 packs a minute, with material speeds up to 45 metres a minute. Operation is via a colour touchscreen mounted on a swivel arm and there are separate displays for machine parameter entry, error lists, and production statistics. Both standard and washdown versions are available.

The latest high-speed flow-wraper from

Ulma Packaging is the Atlanta Hi-Tech, which employs three independent servo motors controlling the jaws, film feed and infeed section, making it suitable for the most demanding applications.

Capable of wrapping at up to 400 packs a minute, depending on product dimensions, the machine can work with a large variety of films including BOPP, PVC, polyester, cellulose, complex laminates and cold seal films. Size range is 90-450mm long and 10-250mm wide. Touch screen controls can store parameters for up to 50 different products and display status information and information to assist fault-finding. Windows based software can be provided.

The Ulma Atlanta Hi-Tech can be supplied with a range of different semi-automatic and fully automatic feeding mechanisms including the Dakota range of high speed infeed systems.



Dedicated wrapper: GPS-10 produces food service kits at 240 a minute

Options include stainless steel execution, a longitudinal seal trimming device, a second reel unwind and a rotary jaw carry over conveyor.

Adpak Machinery Systems has recently announced the launch of its new high-speed Gemini flow-wraper, an electronic machine with three separate motors and a no-product/no-bag system which greatly reduces the amount of waste film.

The machine will handle pre-printed film in register and production parameters for different packs or products can be stored in the memory of the machine's PLC. This allows the machine to be set up for a new product simply by entering the product code.

The Omori S5000A-TW twin lane flow-wrapping system for chocolate and biscuit count



High speed: Adpak's new Gemini wrapper employs three separate motors

lines was launched in the UK earlier this year by agent Selo-Bollans and is capable of speeds up to 1000 a minute, using heat seal as well as cold seal film. Over 30 of the machines are already installed in Japan.

Selo-Bollans points out that wrapping two lanes of products side-by-side on a single machine provides a number of benefits compared with conventional single-lane machinery, particularly space savings as high as 40 per cent. For users with pairs of mirror image machines, one operator can supervise four wrapping lanes.

The machine incorporates Omori's PerfectTension film tensioning system, said to ensure constant tension from reel to sealing rollers, overcoming tracking problems and providing accurate register and coding positions.

Finally, a flow-wrapper developed specifically to handle the components of food service kits – cutlery, condiments, napkins and so forth – at speeds up to 240 kits a minute has been launched on the UK market by Soudal, newly appointed agent for the US manufacturer George Gordon Associates. There is also a range of ancillary equipment to produce and dispense sachets and napkins.

V-shaped infeed conveyor

The GPS-10 flow-wrapper is a bottom reel machine equipped with a V-shaped infeed conveyor on which the items to be included in the bag are placed. V-shaped pushers carry the items onto the film, and are said to be able to handle soft products without risk of jamming.

The film itself is formed into a tube around

the pack contents by a forming plate, rather than a forming box which, points out Soudal, reduces set-up time and also eliminates risk of product snagging at this point.

Two versions of the GPS-10 are available. One is mechanically driven and operates on a fixed 10in pitch, while the other is servo driven and able to produce pack lengths variable between 5 and 12in.

Ancillary equipment from George Gordon includes automatic napkin making and feeding equipment, and special cross-feed conveyors for cutlery feeding, loaded either manually or automatically from a magazine. In addition, the company builds sachet-making machines and feeders for items such as condiments, creamers and sugar, as well as automatic feeders for straws and toothpicks. ■

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