

# A balancing act, so Shrink or fold?

A LARGE PROPORTION OF DISPLAY OVERWRAPPING APPLICATIONS CAN BE MET WITH EITHER SHRINK-WRAP OR TUCK-AND-FOLD METHODS. IT'S OFTEN A MATTER OF BALANCING MATERIALS SAVINGS AGAINST CAPITAL AND OPERATING COSTS WRITES MICK WHITWORTH.

**C**apital cost, film usage, pack shape, frequency of changeover, appearance, security — these are just some of the factors that can have buyers of display overwrapping equipment scratching their heads in confusion.

Unless purchase price is the only consideration, it's impossible to make the right purchase without thinking about the needs of your current product range; whether that range is likely to change; and whether long-term materials savings are less important than initial capital cost.

Tuck-and-fold over-wrappers — those higher-cost machines that give the neat and precise envelope end-fold on upmarket fragrances — are complex pieces of engineering that provide a high-class finish to premium goods.

**Shrink-wrappers** are simpler and more versatile, and have become the standard kit for bundling and protecting items as varied as curtain tracking and mineral water.

A tuck-and-fold machine could typically set you back at least 30 per cent more than a shrink-wrapper. But the fact you will find smart envelope end-folds on routine items such as Kellogg's Variety cereal packs, or a box of Mates condoms, shows that machine choice is not all based on the value of the product inside.

Chris Granger, sales director of Marden Edwards, is unreservedly upbeat about the virtues of his company's British-built tuck-and-fold machines, 85 per cent of which are exported through a network of around 50 overseas partners. But the Dorset-based company is also UK agent for Kalfass, the German manufacturer of L-seal and side-seal shrink film machines. And Granger confirms that when it comes to selling overwrappers, it's a case of horses for courses.

The complexity of creating an envelope end-fold generally requires more changeparts to guide film up and around the pack, which means further capital cost as well as more



**Adopting tuck-and-fold:** E Excel in the USA has bought Marden Edwards machinery for its new range

changeover time. So a company packing a wide range of products — especially a contract packer, where the exact machine requirements can be an unknown from one week to the next — may decide to opt for the lower capital cost and convenience of shrink-wrapping.

## Tightness through shrinkage

In shrink-wrapping, product is typically fed loosely into a open-sided envelope of film, and much of the tightness of the pack is achieved, not mechanically, but through shrinkage of the film. This means there's more leeway to handle different sized products on the same kit.

"Overwrappers do need more changeparts than shrinkwrappers," points out Chris Granger, "so you have to consider downtime. On our machinery you'd be looking at 20-30 minutes for a changeover. But companies go for end-fold overwrapping because the presentation is so much better."

Another obvious advantage with shrink-wrapping is that it can cope with virtually any shape, with the shrink film moulding itself firmly to the product once heat is applied.

Even so, although tuck-and-fold is seen as a system for cartons and other solid, regular shapes the method can be adapted with appropriate changeparts to a surprising range of soft, rounded or tapering items, provided the shapes remain regular and consistent.

Alpma's German-built range of overwrappers, for example, was originally developed for accurate folding of lightweight film around mould-ripened cheese, but now its applications include pleat wrapping of Christmas puddings and confectionery tins and the precise fold-wrapping of octagonal and triangular cartons.

In addition, primary wrappings have been applied to products as diverse as camembert cheese, chocolate oranges and blocks of toilet freshener in soluble film.

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More routinely, Alpma machines have been used to give a traditional presentation to fresh sausages and pork pies. And an extension of this theme is the development of the Alpma SAN 80 range to give a film wrap to triangular shaped sandwiches.

The SAN 80F – the F stands for fresh – was introduced earlier this year to give “a lower cost, fresh and easy to open package”. To ensure the product is protected through the distribution chain, Alpma worked with carton manufacturer Robor to develop a support that contains the sandwich and keeps the overwrap film away from the cut surface of the sandwich filling.

### Avoid labelling cost

This coated card support can be printed, while the overwrap film carries coded date and pricing information allowing sandwich suppliers to avoid the additional cost and complication of labelling.

“Crucially, the materials are all renewable and biodegradable and will yield a reduction in material and recovery costs,” points out Alpma, adding that the absence of side flanges means retailers can fit 15 per cent more product onto their shelves.

The SAN 80F will wrap at speeds up to 60 packs a minute from rollstock film and the machine configuration allows for automatic cutting and loading of the sandwich. Once wrapped, it can also be taken and loaded by robot into transit trays or display cases.

According to Alpma, that makes for a “truly innovative sandwich line containing all the benefits of environmentally-conscious packaging with a product untouched by human hand from its point of manufacture.”

Personal care products of all types do, of course, continue as one of the core packaging tasks for tuck-and-fold machines with Sollas, for example, having just supplied two of its best-selling Sollas 20 machines in this area.

One has gone to Shoreham-by-Sea based Paladone Products which is using the machine – equipped with a tear-tape facility – to overwrap cartons of condoms for the NHS in clear polypropylene film. The second has gone to Bradford Soap Co, Chester, for overwrapping bundles of two to six bars of soap – some primary wrapped, others naked – in printed polypropylene film.

Indeed, Sollas has recently introduced a new independent product transfer unit for the out-feed section of the Sollas 20, which allows wrapped product to transfer independently

through the entire wrapping cycle. This avoids the risk of products sticking to one-another, positions the pack accurately for end spot or stripe sealing, particularly in the perfumery industry, and avoids build-up of product weight in the outfeed.

Two versions of the CAM RT automatic overwrapper are now available in the UK from Campak: the RT, equipped with constantly driven heated sealing belts, and the RP with fixed sealing plates for spot sealing the end-folds in the perfume and cosmetics industry.

Both of these models are equipped with digital adjustment of the film cut-off length and optional print registration while the machine is running, and there is an optional motorised system for changing over the main machine functions. In addition, CAM has tailored a number of RT/RP machines to the specific needs of various products including vacuum packed coffee, CDs, music and video cassettes and confectionery.

Italian manufacturer PRB which, in addition to making overwrappers also builds case-packers and palletisers, is now represented in the UK by FJ Pistol Machinery. Models include the Penta for single bundling, the FAR 2001 bundling and banding machine and the FAR 3001 stretch/shrink bundling machine. There is also the VIS 250 high speed overwrapper, which works on the rotary turret principal.

### Bundle wrapping at 60 a minute

Uhlmann’s latest overwrapping machine is the E3060, which was launched last year. Capable of creating and wrapping a maximum of 60 bundles a minute from a maximum infeed of 450 cartons a minute the machine is of balcony construction to meet the requirements of the pharmaceutical industry.

Back at Marden Edwards, Chris Granger says there are half a dozen good reasons to choose a tuck-and-fold machine. The most obvious is presentation.

In a typical application, the company has just sold an overwrapper to US firm E Excel of Springfield, Utah, a company that has recently extended its product base from nutritional sup-



**Condom carton wrapping:** Paladone Products, Shoreham-by-Sea, has installed this Sollas 20 end-fold overwrapper

plements to a complete range of premium hand lotions, creams, conditioners, lipsticks and fragrances.

Its nutritional supplements had been sold entirely in shrink-wraps, but E Excel apparently decided this was not acceptable to cus-

## Continuous motion lifts wrapping speeds for CDs

Marden Edwards’ HCD 120 overwrapper for CDs and DVDs went on demonstration for the first time at the PPMA Show last year, showing how this new design achieves extra speed, up to 120 items a minute, to meet changing demands in the electronic media packing business.

“Since most CD and DVD overwrappers have up to now been used at the end of production lines, where speeds are limited to under 90 a minute by the process itself, there has been no need for wrappers to run faster,”



**Latest overwrapper:** Marden Edwards Series 4 machines are now faster and more compact

tomers in the personal care and cosmetics market. Its new Marden Edwards LXH25 machine not only applies a tuck-and-fold wrap but adds cosmetic dot seals to the end folds to create the appearance of hand-wrapping.

It can run various size configurations at up to 90 packs a minute, and has a quick-change feature that means pack sizes can be altered just by changing the sealing bars.

The tobacco market is another where presentation is seen as all-important and where end-fold overwrappers are used for individual

packs, outers, tobacco pouches and cigars. "The wrap is always nice and tight because they use a high quality film that has an element of shrink," explains Chris Granger.

Another key application, he says, is where packers want to feature promotional offers on printed film rather than the inner pack. "If you try to do that with a shrink film you can end up with a distorted image."

Further reasons for using tuck-and-fold include the need to seal in flavours or odours – it offers a "near hermetic seal", says Granger,

making it useful for maintaining the quality of products such as tea or tobacco – and the requirement for tamper-evidence or tear-strips. Self-adhesive tear strips can be applied to the inner face of the film before wrapping.

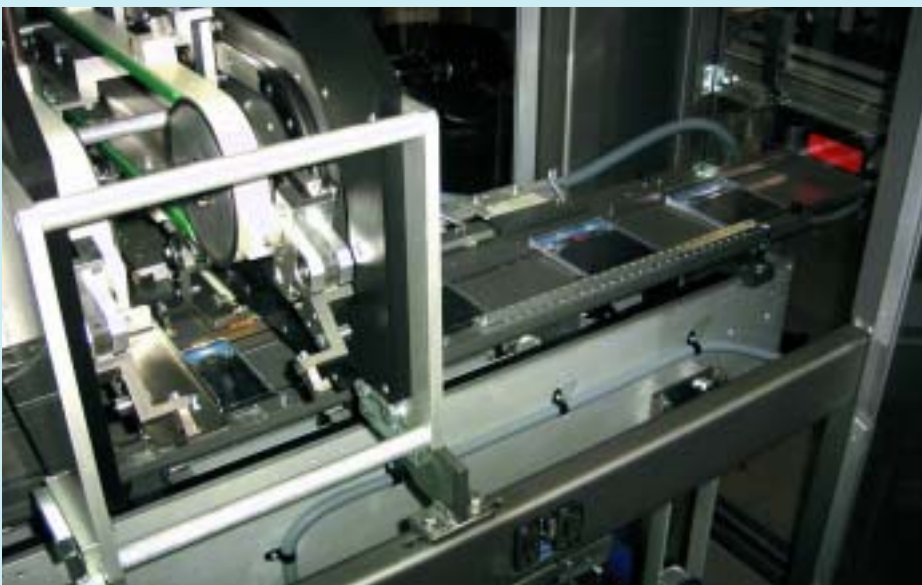
Accurate collation of loose products or bundles of regular-shaped packed product is also easier with tuck-and-fold. "It's more suitable, because you keep control of the bundle," says Granger. "That's harder in a shrinkwrapper because once you've put the bundle inside the film it's totally unsupported in the bag until it's shrunk."

### Loose decks of cards

To illustrate this point, one of Marden Edwards' biggest clients is Carta Mundi, one of the leading manufacturers of game and playing cards, which has 14 LXF25FF machines installed across its plants in Belgium and the USA. Among the most recently installed machines, seven have been fitted with special pocketed conveyors to handle loose decks of cards at up to 90 packs a minute.

Metro tickets have provided a similar challenge and Marden Edwards now has a system to count the right number of cards to wrap a carnet of 5 or 25.

But for Marden Edwards, the other big selling point of tuck-and-fold is the potential – in the right applications – to make substantial saving on raw material costs. "You can use



**Higher speed:** CDs are diverted 90deg to make the back seal as a fold

explained Marden Edwards' technical director Jeremy Marden.

"However, more and more distributors are now getting involved in wrapping CDs and

DVDs from stock, which means that higher speed machinery is of immediate interest."

The new servo-controlled HCD 120 achieves this higher speed by operating in continuous

motion. CDs or DVDs are fed into the machine via an elevating platform, which lifts them into the belt-mounted grippers that carry them first into the film, fed from below by vacuum tapes, and then through the conventional envelope end-fold forming process at both sides.

However, to avoid slowing the machine while, conventionally, the film tail is flipped up and heat sealed into place, the packs are diverted through 90deg. This allows the back seal to be made in the form of a third envelope end-fold, with no reduction in speed.

Indeed, this method of handling the products also allows film gauge to be reduced, typically from 25-30 micron to 20 micron.

Marden Edwards says that the HCD 120 challenges shrink-wrapping for CDs and DVDs on four fronts: Lower material costs (polypropylene against polyolefins); the opportunity to add a tear tape; print to pack registration; and elimination of shrink tunnel energy costs.

## DISPLAY OVERWRAPPING

polypropylene on over-wrappers, against polyethylene or high-clarity polyolefins on shrink-wrappers, and there's a massive cost difference," points out Chris Granger.

One reason is that the loose bag or envelope of film into which products are fed for shrink-wrapping is inevitably larger than the precision-applied wrap of tuck-and-fold. Some shrink-wrap film is also lost to edge trim. But the basic cost of the film is just as important.

Marden Edwards uses a standard spreadsheet to demonstrate the potential savings. One recent example was provided for a client in Mexico, and compared polypropylene with a high gloss presentation shrink film.

### Saving \$500,000 a year

In the most extreme example, based on 30 micron gauge, savings of 20 per cent in film usage and as much as \$500,000 a year in film cost could be demonstrated. "Even if they replaced their existing shrink-wrappers with three new end-fold overwrappers, they would still save \$200,000 in the first year," says Chris Granger. "I don't think people realise the extent of the potential savings."

For high-volume operators turning out standard-sized products, it's a compelling argument, although any savings very much depend on the type and thickness of film chosen. And tuck-and-fold also suits premium applications such as 'gift wrap' style packs for confectionery or cosmetics in heat-sealable polypropylene coated paper.

But the user might pay £60,000 to achieve speeds of 60 packs per minute on tuck-and-fold compared with £40,000 for a shrink-wrapper. So capital cost is not a minor consideration.

And there is no shortage of choice of shrink-wrappers vying for attention. For example, Record Packaging Systems, best known as a supplier for flow-wrappers for the bakery sector, has recently extended its range to include L-sealers, shrink and vacuum-wrappers after securing the exclusive UK distributorship for MiniPack Torre.

The Italian company's most popular L-sealer is the Elle which, with its large sealing surface of 420 x 550mm, is said to be practical, easy to use and particularly suited to wrapping textiles and clothing, as well as for sealing food products such as bread.

Record is offering the complete MiniPack range of chamber-shrink machines, from the entry level Mini-Mini to the FM range which includes the FM90 which offers a seal area up



**Four-side seal:** Europack EPS4 offers flexibility to handle a variety of products

to 1300 x 820mm and can handle products up to 120mm high.

A new addition to the Italian range is the stainless steel MiniPack Synthesis, a chamber machine designed for the food industry. Record believes this model takes a unique approach to shrink-wrapping by improving the airflow in the chamber to give greater performance and control while offering "new levels of hygiene".

The ventilation system is positioned at the rear of the machine, allowing clear access to the wipe-clean chamber floor. "This not only provides food hygiene safety but prevents accidental damage through debris dropping on the fan," says a Record spokesman.

### Up to 60 packs a minute

MiniPack Torre has also just launched the Seal-matic 56T, a fully automatic L-sealer that provides an all-round seal up to 430mm x 600mm at around 30 packs a minute.

And for high volume, flow-wrap-style shrink wrapping, Record can now provide the Mini-Pack Continua, capable of handling up to 60 packs a minute. This unit has been developed chiefly for the direct mail industry to pack newspapers, magazines, manuals and mail shots using a single roll of polyethylene film, either plain or printed.

Packers of magazines and books are also one of the targets of US friction feeder manufacturer Streamfeeder, which has just launched a new retractable dropper, the ST1250, for collation and feeding into overwrappers and flow-wrappers.

It uses Streamfeeder's differential friction technology to achieve high speed, accurate counting and feeding of products, which might also include paper, CDs or greetings cards, and is part of a range of machines capable of feeding products up to 25mm thick.

The ST1250 can be mounted over the host machine infeed, directly on to the machine, or on a free-standing moveable unit. Product counts and speed are adjustable while the machine is running, thanks to an integral keypad. Streamfeeder has recently named Partners in Packaging as its master UK distributor.

Aetna UK, the company behind the Robopac series of pallet stretch-wrappers, moved into new premises last year where potential customers are able to bring products along for packaging trials. One range that is reported to have made a serious impression on the UK over the past 12 months is a new family of Robopac L-sealers.

Shown at Interpack earlier this year, the range includes the entry level Micra, the Ariane, the Astra and the fully automatic Athena Combi. The Combi, says Aetna UK, can produce up to 35 packs a minute depending on the product.

### Low-energy shrink and stretch

Skinetta Pac of Germany pioneered fully automatic stretchbanding back in the 1960s. In the UK market, where it is represented by Propack Automation Machinery, its range of low-energy shrink or shrink-stretch wrappers has become commonplace in the personal care and cosmetics sectors. It claims to supply most major



**Stretchbanding for bundles:** Auto Skinnetta machine from Propack Automation



**Fully automatic:** New MiniPack Sealmatic 56T L-sealer from Record

brand owners and contract manufacturers, with over 300 machines now installed in the UK.

Its wrappers and collators can handle film widths ranging from narrow bands up to 800mm depending on the application and pack size.

In personal care and colour cosmetics – where groupings include lipsticks, mascaras, powder compacts, jars, shampoos and aerosols – the smaller footprint of the Auto Skinnetta 200 and 300 machines is said to be particularly attractive. Skinnetta's collating systems, allied to a facility for stretching film around the product before sealing, are designed to allow complex product groupings to be assembled and securely maintained.

Up and coming models include full servo-operated collating and shrink-stretch banding machines such as the Auto Skinnetta 2500 and 3000. These run at speeds up to 40 bundles a

minute and are suited to installation on medium and high-speed lines producing cartons, small bottles, jars or cans.

To meet the needs of the pharmaceutical industry, the newer servo machines are said to handle outputs of 300-400 cartons a minute comfortably from blister packing and cartoning machines. These machines can either pack cartons using just a stretched band of film, or they can apply a full shrink to give greater security for packs in transit.

Meanwhile, the DIY mar-

ket is likely to be a target for a new high-speed side sealer from Sontex, the BLSC50, suitable for either high-speed bagging or shrink-wrapping when equipped with a shrink tunnel.

A hot blade transverse seal enables any length of product to be wrapped in a variety of films at speeds of up to 65 cycles a minute, depending on the dimensions of the product and the type of film used.

### Infinite length products

According to director Anthony Rawson: "The BLSC50 will do anything that an automatic L-sealer will do, but with the ability to do infinite-length products." So it could handle curtain poles and long cylindrical items for the home improvement market as well as any kind of longer boxed products such as toys and games.

"Most of our products are general-purpose,"



**Shrink film flow-wrapping:** The new Linium 305 machine from SIG Doboy

says Rawson, who highlights another newcomer to the Sontex portfolio: the Evolution range of chamber-type shrink-wrappers manufactured by Italdibipack of Italy. Two models are available: the Dibipack 3246 Evolution, which offers a 320 x 460mm sealing area, and the 4255, which can handle 420 x 550mm. These are said to offer "a much higher specification" than the models they replace, although the price remains unchanged.

Both machines feature automatic compensation of the sealing blade temperature to maintain the optimum seal quality, and a shrink cycle delay option that is said to give more consistency when using fast shrink films like polyolefins. They will, says Rawson, handle up to eight packs a minute. "It's always dependent on the dexterity of the operator."

**Pre-set programmes in demand**

Like the new BLSC50, the new Dibipack models are also PLC controlled, with nine pre-set programmes – a feature that Rawson says is increasingly in demand. "We find at the moment that people are going over to automated machinery if they can. They are always looking to take people out of the process, and they're looking for ease of operation."

Microprocessor control is also a feature of the SP6000 stretch film tray overwrapper from Delford Sortaweigh, a machine aimed firmly at the ready meals sector. It has a 50-program memory and can deal with a variety of trays at speeds up to 90 a minute.

Automatic adjustment of film length, knife position and running speed are designed to shorten changeovers and reduce film wastage.



**Tray overwrapper:** Delford SP6000 can handle up to 90 trays a minute

In addition, the SP6000's film tensioning system and pressure-assisted heat sealing contribute to a well-sealed pack and allow the use of a range of films, including polyethylene.

Polyolefin, polyethylene, PVC and other soft shrink and non-shrink films can also be handled by the new Linium 305 high speed flow-wrapper from SIG Doboy. The company cites "industrial durability" as one of the principal features of the machine, which is particularly targeted at contract packing operations and high volume applications.

The long-dwell sealing head is said to be well suited to pharmaceutical and other applications where hermetic sealing and integrated verification is important, while the bottom lap seal and bead end seal eliminate the need to trim excess film.

Most machinery suppliers are cagey about naming their biggest clients. But end-of-line specialist Europack couldn't resist talking about an application agreed late last year, when one of its EPS4 four-sided seal machines was selected by the Dutch Mint to wrap special

packs of the Euro coins ahead of the Single Currency's launch.

"This was an extremely prestigious job and the quality of wrap was paramount," says Europack sales director Ivan Reeve. "The coins were displayed in a flat wallet which had to be over-wrapped to offer high product visibility."

**Sold well on the Continent**

Reeve says the EPS4, introduced in the UK last year, has already sold well in continental Europe, where its flexibility has attracted contract packers of china, pharmaceuticals, sardines and chocolate. Packs can be wrapped at up to 60 a minute in polyethylene or polyolefin film, and an optional infeed system is available that uses a static pulse to stabilise loose-leaf collations.

Finally, returning to end-fold overwrappers, the latest from IMA's BFB end-of-line division is the AC120, able to handle single cartons or collations of cartons at speeds up to 120 cartons a minute. It can run all types of heat sealable films and is able to switch automatically from one reel to another without stopping, so providing continuous running.

The film feed is positioned at right angles to the product flow and cartons are individually taken through the side film folding plates and reciprocating dot sealers by bottom belts with lugs. The seal of the cross film overlap is made at the back of the carton to keep the other faces free of marks and wrinkles. ■

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For full details of all PPMA members able to supply display overwrapping machinery, enter 402 on the free reader service card in this issue, or visit the PPMA web site: [www.ppma.co.uk](http://www.ppma.co.uk)