

# TOILETRIES AND COSMETICS

THE CONSTANT FLOW OF PRODUCT LAUNCHES MAKES THE ALREADY COMPLICATED COSMETICS AND TOILETRIES SECTOR AN EVEN MORE DEMANDING ENVIRONMENT.

MIXING AND PROCESSING

## Aesthetics drive improved quality and consistency

Arguably, the aesthetics of the product are more important in toiletries and cosmetics than in any other sector – probably including food and drink. And while primary pack quality is essential, the appearance of the visible product itself through the pack plays an increasingly important role in consumer purchasing decisions.

So it is hardly surprising that many of the mixing and processing innovations for the industry aim to provide greater consistency in product quality, even where there are cost implications for the customer. This is especially true in the high-value market for active skincare and cosmetics – so-called “cosmo-ceuticals” – combining as it does elements of both personal care and pharmaceuticals.

Romaco may be best-known for its conical vacuum processors with external recirculation, the FrymaKoruma Dinex and MaxxD systems, but the latest addition to its range – the RoTwin – is a completely new departure.

Sales manager for process and primary packaging at Romaco UK, Nick Ruecroft explains: “This is a quite different concept, in that we have gone for the industry standard of a hemispherical vessel with twin rotor/stator sets. We’re trying to bridge the gap between the shear that can be obtained using a piston homogeniser and the flexibility of the rotor/stator system.”



That flexibility includes the ability to run the two sets of rotors and stators singly or together, and in counter or co-rotating mode. This allows the amount of shear force and ease of pumping of

a given product to be regulated. An inducer draws product down to the homogeniser and optimises recirculation, says Romaco.

The company claims that particle size is a key issue in both pharmaceuticals and cosmetics, notably where improved absorption through the skin is the objective. The aim with the RoTwin is to take particle size down to sub-micron or even nanoscale levels.

“The only downside to the system,” says Nick Ruecroft, “is that, although deflectors give a distinct recirculation path, batch times are slightly longer than with external recirculation.” In the worst cases, he explains, this can prolong processing times by a third. “But the fact is that, in most circumstances, for batches of premium cosmetics the process times are not as important as the final quality of the product.”

### Fine tuning

Romaco FrymaKoruma’s Dinex system allows fine-tuning of the process cycle to suit the needs of particular products. Axial adjustment of the stator regulates the

lower part of the vessel, Mr Ruecroft explains. Recirculation to the lower level can be beneficial when very small batch sizes are required or where a foaming product needs to be fed under-level. Standard volumes on the Dinex range are from 150 litres up to 5200 litres with a 5-tonne working capacity. But one industrial detergents installation outside the UK runs a 14-tonne operating capacity.

The MaxxD is used both in food and cosmetics,



*Reducing droplet size: Romaco RoTwin (above and left) is aimed at improving cosmetics quality*

offering both a multi-chamber rotor/stator system and an alternative colloid head in a single vacuum processing system.

Earlier this year, Ytron-Quadro became a UK supplier of vacuum mixing units from French manufacturer VMI Rayneri. Equipment includes the Trimix, which is said to allow the handling of complex rheologies in a single vessel, and can be supplied in versions suitable for vacuum or pressure. It is fitted with side-scraping mixing arms, a contra-rotating central mixing system and a bottom-entry high-shear homogeniser.

According to Ytron-Quadro managing director Dudley Bradley, the intensive movement in the vessel ensures a homogeneous mix and efficient heat transfer. Vessel sizes range from a 3 litre lab unit to 20,000 litres.

But the core Ytron-Quadro range remains the Ytron Y directed jet mixer, the Ytron ZC powder incorporation unit and the Ytron Z in-line emulsifier. The latter can be used to process those creams and lotions which are either a water-in-oil or oil-in-water emulsion. The inline process, says Mr Bradley, produces a more consistent, superior quality emulsion in less time than conventional in-tank high-shear mixers.

The single-pass processing also creates a more consistent emulsion, he claims, with longer shelf life and stability, since there is less likelihood of phase separation.

Dudley Bradley points out that when carbomer and polymer powders are dispersed as rheology modifiers or structure-building agents in personal care products, in-tank technologies will often produce insufficient shear to reliably reduce particle size and so-called "fish-eyes" or clumps of powder. Alternatively, processing times may have to be extended to ensure uniform dispersion. Quite apart from the cost and operating implications of this, he argues, over-processing may also reduce the effective viscosity of the product.

**Significant vacuum**

Ytron-Quadro claims that its Ytron ZC unit addresses these issues. A significant vacuum in the reactor housing, created by the interaction between rotor and stator, ensures that powders are drawn down into the reactor head. Here, particles are subjected to intense mechanical shear prior to hydration into the liquid stream.

The Ytron Y is typically used in the batch dilution of "high active" surfactants. In a recent installation, two side-entry units were supplied to dilute 70 per cent sodium lauryl ether sulphate (SLES) in batches of 30,000 litres. Other applications can include the thorough mixing of colour into viscous creams, gels and lotions.

Working with partners including Axomatic, Excel Packaging Machinery is able to provide complete personal care and cosmetics lines, including mixing and homogenising. This equipment includes under-vacuum mixer-homogenisers, part of a range of Axomatic mixers with capacities from just 5 litres for laboratory use up to 3000 litres.

For lab-scale high-shear mixing, Silverson Machines has launched the L5 Series, which for

the first time features digital controls. Functions include a programmable timer, speed control with a wide range, ammeter and tachometer, all operated from the digital touch screen. The system is said to ensure repeatability when carrying out standardised tasks such as QA testing.

Over 40 interchangeable mixing units are available for use with the L5 range. Options include sealed units, tubular assemblies for narrow-necked or small containers, twin-headed duplex disintegrator units and a special in-line assembly. Capacity is up to 12 litres.

The company is equally proud of the consistent results achieved when the same processes are repeated on small and large-scale mixers. Long-term customer Peter Black Toiletries and Cosmetics confirms this point. A spokesman says: "Their laboratory mixers are equally good as the production size machines in the factory. When we scale up from the laboratory mixers, around 20g, to full production units, around one tonne, the results are always uniform and constant."

Of course, it is not only mixing which is required on a small scale. For heating and cooling creams, emulsions and pastes, Grunwald UK is offering the Terlet Terlotherm scraped surface heat exchanger. A compact version of the system is designed as a pilot plant, and is mounted on skids for manoeuvrability. The heat transfer area of 0.25sq metres is said to be ideal for experimental work or small-scale production.

The design includes a single mechanical product seal which, says Grunwald, does not need to be disturbed when opening the machine for inspection or for removal of the double-acting scraper blades. The same approach can be used to manufacture different sized units to suit the throughput required.

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Mixer range: Axomatic 60 from Excel Packaging

CLEANING, FILLING, SEALING, CAPPING

**Small footprints and easy changeover**

Romaco has announced its new-generation LVI liquid filler, and is planning the launch of a version tailored to the needs of the cosmetics industry later this year or early in 2007.

According to David Dixon, managing director of Romaco UK, easy access for cleardown is a major priority, but a small footprint and quick changeover capability were also key considerations in the design. High speeds, on the other hand, are not so important, and output is likely to be in the 60-100bpm range. It will offer particular benefits to customers filling difficult bottle shapes, with puck-handling as a solution, while the subsequent capping stage is designed for equally difficult closures and dispensers.

Increasingly, says John Pym, director at Excel Packaging Machinery, customers are looking for air-cleaning systems before the filling stage. Brand owners are less likely to tolerate dust – especially fine fibre particles – in product. In fact, says Mr Pym, with their concern for the aesthetics of their often high-value products, cosmetics brands can be more demanding even than the pharmaceutical industry.

Excel's principal, Italian manufacturer Omas, has introduced the continuous-motion GTS-20 bottle-blower which can achieve speeds up to 180 bottles a minute on oval or square containers. An infeed scroll takes bottles into the machine, where they are gripped and inverted in



**High speed rotary filler:** IMA Multifill F840 can be fitted with up to 24 heads

the turret before being blown and aspirated.

The company has also sold a number of semi-automatic blowing units equipped with two air-cleaning heads, rather than the 20 heads of the new automatic GTS-20.

But when it comes to filling, the main concern that Excel, like many other suppliers, identifies among customers is the need for flexibility. Even in what can be a relatively high-margin industry, machinery pricing can be a thorny issue.

At the capping and closing stage, says Excel, this has meant that changepart requirements have often been reduced in order to contain costs. But when it comes to French partner BCM's range of bottle unscrambling equipment, the demands of versatility have pushed the machine concept in the opposite direction. Now the machine manufacturer is increasingly offering changeparts where in the past many of these parts were fixed.

BCM supplies a range of unscramblers and

orientation machines for plastic bottles, jars and other containers. The machines can unscramble bottles and load them on to pucks at speeds up to 350 a minute.

#### Roll-up filling units

Certainly where filling is concerned, maximum flexibility and minimum downtime are key. Omas recently supplied one cosmetics industry customer with a complete line, in this case for filling perfume containers at speeds up to 120 a minute. In this installation, the Omas Total docking system allows the customer to move easily from volumetric filling to vacuum filling by using different roll-up units which fit into the same machine base.

Overall, Total modules are available for volumetric, gear pump, vacuum, peristaltic and particularly flowmeter filling which has become popular as a result of reduced downtime for cleaning.

A recent introduction to the Omas Total range

is a fully servo-driven filler. Servo drives operate the nozzle dive, pump filling and volume adjustment, with product parameters quickly retrieved from the memory.

As Excel's John Pym explains, the bigger international brands are less likely to work with co-packing partners that offer limited line flexibility. "If they're not equipping themselves for short runs and changeovers, the business is likely to go overseas," he comments.

But even where the filling technology is constant, says Excel, by having additional roll-up units a company can make significant savings on downtime between products. While one unit is being cleaned off-line, the second can be rolled up to start the new production run.

Another company with its sights set firmly on both production flexibility and turnkey installations in cosmetics and toiletries is IMA UK. The group has invested heavily over the last few years in developing the machine portfolio for its cosmetics division.

Sales manager Barry Chadwick notes that, along with the familiar cost and time arguments put forward in favour of turnkey lines, the ability to run a single factory acceptance test can make a huge difference for customers.

Among the more recent equipment from IMA is the Multifill F840. This high-speed rotary filler can be fitted with up to 24 filling heads, with rated output speeds reaching 450bpm. Maximum dosing volume on the servo-driven machine is 1000ml, with an ability to handle all types of plastic and glass bottles. The company says that, with optional automatic CIP/SIP, the system is ideal for big batch production.

#### Net weight filler

While the F840 uses volumetric filling, the IMA Electrofill is a net weight filler, ideal for viscous or foaming liquids. Versions are available with between 16 and 36 filling heads, again dosing up to 1000ml. IMA offers the option of a monobloc, which combines the filler with one or two closing options, including a capper with 6-12 heads. Speeds can be up to 300bpm. Again, CIP and SIP versions are available, and the machine can handle any bottle shape in plastic or glass.

At the capping stage, IMA now has the F850 series for a range of pumps, screw-on and press-on caps. Like the F840 filler, it is servo-driven for rapid size changeover and minimum maintenance. Versions are available in AISI 304 or AISI 316 stainless steel, in accordance with GMP standards, and Atex Zone 1 rated machines can be specified for flammable liquids.

## Paris launch for cosmetics jar filling line

Italian manufacturer Marchesini has chosen November's Emballage exhibition in Paris to launch a new filling and packing line for jars of cosmetics. The line includes two new machines, the MAV50 vertical cartoner and the MCV850 vertical case packer, as well as an MV545 jar filling and capping machine and a Neri SL200DL2T labeller.

The new MAV50 is a vertical, intermittent cartoner in which the transport system has been designed to prevent scuffing by contact with the static parts of the machine, while the new opening mechanism picks the carton from a horizon-

tal magazine, turning it for filling from the top.

The jars, carried in pucks if required, are picked up and placed in the carton by a pick-and-place system which also loads leaflets either at the bottom of the carton – folded up around the product – or placed on top of the jar.

Cartoned jars are then passed to the new MCV850 vertical case-packer, a balcony style machine and the first Marchesini vertical case packer to use robot technology. Speed is up to 15 cases a minute.

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**Turntable tube filler:** Axomatic Optima 10 from Excel



**Diagonal loop:** IWK's latest tube filler, the TFS 80-1, uses the company's established system

Waldner offers a filling and closing system for glass or plastic jars in the cosmetics industry. Jars are fed in a single lane to the rotary table, with gentle handling ensuring that pre-printed containers are not scuffed. Using an indexing gearbox, the continuous motion machine delivers the jars to the filling station, which may use either a volumetric piston pump or mass flow meter. Up to six jars can be filled simultaneously.

The lidding station can apply either pre-cut lids or rollstock material, placing, cutting and sealing the lidding before transporting the containers out of the rotary table to a separate monobloc capper.

According to Waldner, format changes are simple, with the rotary table removed "in seconds" without tools, fill volumes altered via the touch screen and a new lid magazine installed.

When it comes to tube filling, IMA has the CO.MA.DI.S CD1090 machine, capable of speeds of up to 90 tubes a minute. Plastic and laminate tubes can be run on the machine, which operates a hot air sealing unit, while the filler features PLC control via a touchscreen. The design of the base of the machine is said to facilitate four-side access for maintenance, while size change has been simplified on the latest version, and can be carried out without tools.

IWK's latest tube filler is the TFS 80-1 for speeds up to 100 containers a minute, both plastic and metal. This machine is based on the same principle as the servo driven IWK TFS 80-2, TFS 80-4 and TFS80-6 tube filling machines, able to reach speeds of 150, 340 and 510 tubes a minute respectively. Indeed, since the launch of the concept in the late 1990s, IWK has sold over 40 of the TFS 80-6 machines alone.

Using a diagonal loop design, tubes are loaded and discharged horizontally, while the filling, closing and coding are carried out in the vertical plane.

Apart from tube filling and cartoning machinery for the cosmetics and toiletries industries in general, IWK says it has had particular success in the haircare market with several lines delivered for tube filling linked to IWK cartoning machinery for multipacks containing tube, bottle, booklet, sachet and glove/leaflet.

### Speeds up to 21,000 an hour

Excel Packaging Machinery works with Axomatic on tube filling and closing. The company's Optima range of semi-automatic and automatic machines begins at speeds of just 1200 tubes an hour, and can reach up to 21,000 an hour. Complete lines from processing through to cartoning are supplied with recent deliveries including dedicated systems for mascara, cosmetic dispensers and two or three-colour toothpaste.

For its part, Romaco has the Unipac range of

tube fillers. The latest addition, the U20100, incorporates many of the features of the U2080, including fast changeover and high flexibility, but adds servo-driven pistons and diving injectors.

Another type of filling which is important for certain parts of the industry is vertical form-fill-seal. According to FJ Pistol Machine Services, which supplies the Piltz range of sachet machinery in the UK, the German company now has many international customers in both the cosmetics and pharmaceutical sectors.

Since Piltz first ventured into VFFS in 1975, says Pistol, it has developed a wide range of feeding options, so that anything from solids, powders and granules to free-flowing liquids and pastes can be packed in four-side sealed rectangular or profiled sachets. Options include a choice of easy-opening devices and 'bottle-neck' seals for easy dosing, while speeds extend to 1000 sachets a minute with a choice of feed technologies.

According to Pistol, the possibility of using VFFS to produce combined packs containing

## Capless induction sealer for L'Oréal

Relco UK is supplying a second capless induction sealer to L'Oréal Poland, providing interesting comparisons with the first.

The machine is the latest FCS machine, cutting and sealing the foil in a single operation, compared with the previous model which used a pick-and-place system for the foil disc. This means that cycle time is faster allowing the five head sealer to reach speeds of 100 containers a minute.

Another new feature of the machine is an

accumulation and auto-feed device to manage the flow of jars through the line.

According to Relco, sealing before capping is growing in popularity among cosmetics manufacturers. This, says the company, is because it allows companies to fit the cap afterwards in the knowledge that there will be no potential problems regarding cap fit, torque or heat-affected re-seal liners.

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both liquids and granules is of particular benefit to the cosmetics industry.

Another champion of VFFS is Koerber Medipack UK, which has the MediSeal company as part of its parent group. MediSeal specialises in sachet machines, with the LA300 as its principal system for personal care and cosmetics. Once again, the intermittent-motion machine can be equipped to handle a wide range of products, from folded tissues or powders to high or low-viscosity liquids. Contoured or shaped sachets can be produced as well as conventional square or rectangular shapes.

Draw-off is by servo-driven rubber rollers, allowing rapid adjustment of sachet length and also minimising stress on the material. While the LA300 uses heat sealing, the LA400 was shown for the first time at this year's Achema exhibition with an ultrasonic sealing system.

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**Labelling cylindrical items:** Sessions' RC30 uses a walking beam for indexing the containers

As well as PLC control, the rotary machine features options including laser printing of variable data and a camera-based OCV/OCR verification system. It is also possible to link the labeller to PC-based management software, and make it compliant with electronic records regulations such as 21 CFR part 11, says IMA.

Top speeds on the Libra Sensitive Roto are around 21,000bph, and the system can apply labels to both sides of round, oval or square bottles while also being equipped with a gluing station to handle outserts for flat-sided containers.

As in other industries, customers are continually pushing for higher labelling speeds, says Sessions of York. But improved registration and the ability to run different label substrates on the same machine also figure prominently among their priorities.

One constant now is the need for equipment to handle clear labels. Here, Sessions uses a capacitance scanner to fix the label position on the web, says machinery division manager Peter Haw, but ultrasonic scanning technology is also available for high-end, high-speed applications.

Accurate label registration is vital with the smaller containers used for many cosmetics and personal care products. "It's especially important for point-of-sale," says Mr Haw. "If you have one label in a line of ten that is misaligned, it really shouts out. We have a pick-and-place unit to address this issue."

Normal tolerance on positioning is  $\pm 0.5\text{mm}$ , he says, but much greater accuracy can be provided if required by the customer.

Like equipment suppliers at other stages of the line, labelling system companies are increasingly having to address the needs of contract packers.

The Sequence range of machines, says Sessions, can handle the full range of bottle shapes: oval, round, square and rectangular.

For jars and other containers, Sessions tends to use a puck system to build maximum versatility into a machine. Peter Haw explains: "It becomes a materials handling issue. How do you get the particular container past the labelling head at the speed that the customer requires – which may be up to 60 a minute?"

**Small cylindrical products**

According to Sessions, the small containers that are so typical of the cosmetics industry pose particular challenges. Its RC range of machines may have been around for 25 years, but with the more recent addition of PLC control and onboard diagnostics, the RC30 in particular has evolved into a ready solution.

"Small cylindrical products such as eyeliners and lipstick are very difficult to transport through the labelling process," says Peter Haw. "The RC30 uses a walking beam, which transports product on its side to an indexing carousel."

Similar methods are used in sleeving, with Turpins Packaging Systems' Sleeveit horizontal system applied to tamper-evident or full-body sleeves for eyeliners, mascaras and lipsticks. Again, a walking beam transport system is used, indexing the product gently through each station.

Sleeves are cut and applied while the container remains horizontal, before indexing to a station which positions the cut sleeve accurately for the desired overhang. The sleeve is then fixed in this position, before the packs transfer to the tunnel section, rotating during the shrinking process for the best appearance.

LABELLING

**High levels of QA follow pharma procedures**

The overlap between the pharmaceutical industry and cosmetics/personal care is equally in evidence at the labelling stage. Suppliers such as IMA UK are offering the industry systems with high QA specifications, such as the Libra Sensitive Roto.

Bar codes, batch numbers and other fixed and variable data can be added to the sleeve as it is applied with the inclusion of an onboard printer. By avoiding the need for additional labels, Sleevevit says this capability has proved to be a real cost benefit for the personal care sector.

For labelling cartons rather than primary packs, Partners in Packaging has introduced the Etipack System 9 for print-apply application in both pharmaceuticals and cosmetics. The high-speed system offers variable and sequential printing, and is able to reach speeds up to 200 labels a minute in print-apply mode or twice that when applying labels without overprinting.

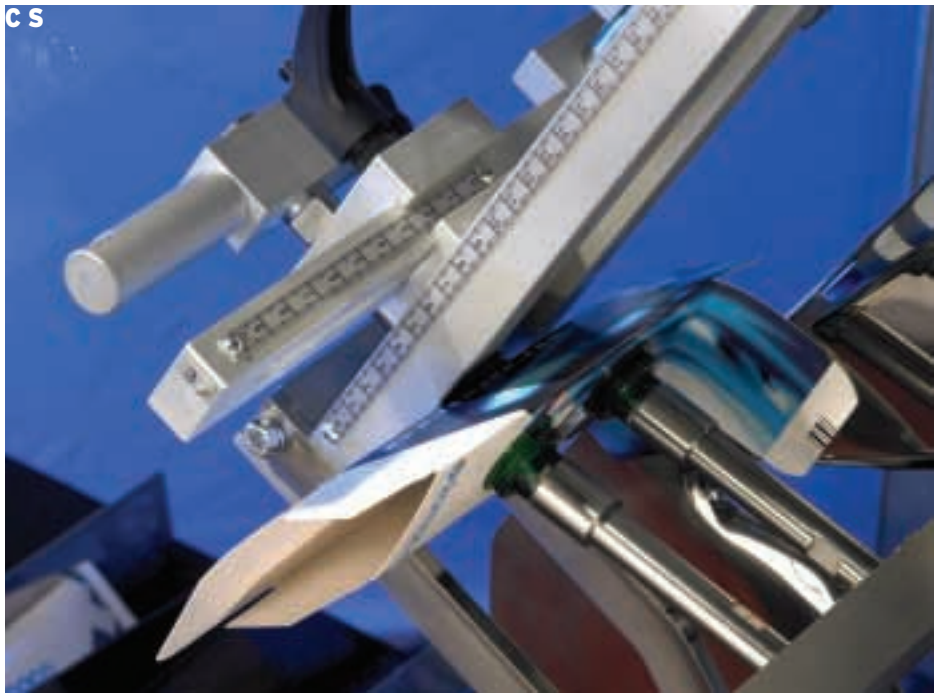
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**Positive cartoning opening:** Romaco Promatic cartoners use two suction cups

pick-and-place for leaflets and inserts and is built on a balcony basis for ease of access and maintenance.

Another vital element in quality presentation, particularly for fragrances, is of course carton overwrapping. IMA's BFB AC60 is said to be a low-cost machine designed for quick changeover, and can reach speeds of 60cpm. The adjustable folding box ensures that expenditure on change parts is contained, says Barry Chadwick while new design features facilitate smooth handling right through the wrapping process, he claims.

To complement the overwrapper, IMA supplies the BFB Skin Wrap Tunnel. This was specifically designed to meet the needs of wrapped fragrance cartons, says the company, and shrinks the film to a "skin-tight high quality finish".

Having already made inroads into the French cosmetics and toiletries industries with the TM85 trailing edge overwrapper, Marden Edwards has launched the TM100 machine to produce the same quality of wrap on a greater range of carton sizes. The TM100 is aimed at all applications where shelf presentation is paramount and is said to produce a tight, wrinkle free wrap with crisp end folds and a lateral seal position which is positioned on the trailing edge.

The machine is designed to provide simple "de-skilled", rapid product size changes and for the size and position of the lateral seal to be easily controlled.

The machine combines the latest servo technology coupled with traditional mechanical design. This means that all the motions that do not alter when the product is changed from one size to another are connected with cams and levers. However the film draw and the pack



**Tight wrap:** Marden Edwards has introduced the TM100 trailing edge overwrapper

transfer are driven by servo motor so that the film cut length is automatically set by the machine controller and the infeed pusher automatically optimises its position and stroke depending on the size of the pack.

Standard options for the machine include a film slitter and powered rewind unit – allowing one film width to be stocked for many different pack sizes – a tear tape unit to add an easy open tab to assist unwrapping and a print registration system.

For the last few years, Romaco has been working on extending its range of Promatic cartoners which, explains Romaco UK managing director David Dixon, involved going back to first principles in developing a small-footprint machine range that offered GMP design, easy access and

CARTONING AND OVERWRAPPING

# Flexibility the key in cartoning and overwrapping

The theme of flexibility is carried through the cartoning stage for IMA, which singles out the Flexa horizontal cartoner for cosmetics applications. Available in continuous and intermittent versions, it offers speeds of around 200 a minute on a relatively small footprint. Again, IMA has opted for servo drives in key applications, with touchscreen machine status monitoring and access to size data.

IMA claims that its belt carton transport system ensures the smoothest forming and closing as well as product and leaflet insertion.

For lower output requirements, the IMA Easy copes well with low speed and large size applications. The intermittent motion machine has a top production speed of around 80 cartons a minute, says the company.

Meanwhile, sales manager Barry Chadwick calls IMA's Vertima vertical cartoning machine "the contract packers' dream". It uses servo

quick changeover. Output has also been raised.

Starting with the intermittent motion P91, which reaches speeds of around 90cpm, Romaco has since added 200cpm, 300cpm and most recently a 400cpm continuous motion version of the machine.

The Promatic range is said to take particular account of the high-quality cartons that are so prevalent in the cosmetics and toiletries industry. "In earlier design concepts, a blade was put into the flat carton blank to open it prior to loading, or pressure was put on the carton edge, but either of these approaches can damage the carton," says David Dixon.

Instead, the Promatic range uses positive opening from two suction cups. Once the blank is opened, says Mr Dixon, the machine's careful handling continues with support for the base to supplement the more conventional "finger" grip across the width of the carton.

### Servo drives

The more recent additions to the Promatic range, such as the 300cpm PC 4300, are equipped with servo drives with logic control. As well as the implications for ease of programming and minimal maintenance, Romaco points out, the resulting precision of machine movements helps to further reduce the likelihood of damage to cartons.

CAM, represented in the UK by Campak, has both vertical and horizontal cartoning machines and says that over 9000 of its low-cost AV vertical machines have been installed worldwide. For more complex, or higher speed, applications the company recommends its AVC continuous-motion machine. This is particularly relevant to the automatic loading of erected cartons where the product needs to be kept upright.

As an alternative, CAM's HV/HG continuous horizontal system uses positive carton opening devices and comes with a complete range of automatic feeding systems for the products themselves and additional items such as leaflets.

Like IMA, CAM combines expertise in cartoning with a strong offering in overwrapping. The company says it has installed the first of its new RV/P machines, claimed to be one of the fastest on the market. The machine, delivered to a manufacturer of lotions and creams, is able to overwrap and spot-seal cartons at speeds up to 180 a minute, says CAM, while retaining wrap quality.

For simpler, round-the-clock production, CAM has the AP overwrapper. A recent installation in the UK of this in-line film feed system, in this case equipped with teartape application, saw

seven machines going to a major customer in the industry.

For overwrapping display presentation packs, Adpak has recently supplied semi-automatic L-sealers to companies wrapping products including Estée Lauder perfume gift boxes and Tommy Hilfiger cosmetics.

In automatic L-sealing, Adpak has the AD6000 range, introduced a couple of years ago. This equipment is said to ensure that there is virtually no air inside the wrap giving a clean look after shrinking without excess film, unsightly ears or the risk of wrinkling on the underside. It can be used as a standalone or inline system.

For continuous side-seal wrapping, the BVM range marketed by Adpak is equipped with a system for trimming the seal, and can achieve speeds up to 250 packs a minute.

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Deodorant cases: produced on the Cama system

which, combined with a precise release of film tension in the pre-heated upper sealing bar, can provide a film saving of as much as 10 per cent, explains Partners in Packaging. As well as collations with or without base boards or trays, the machine can wrap individual packs while a shrink system can be added for a side film overlap.

When it comes to shrink for transit, Adpak says it has developed sleeve wrappers and tailored infeeds specifically to meet the high quality requirements of customers wrapping shampoos, body washes and deodorants. Both semi and fully-automated versions are available.

Another company focusing on sleeve wrapping for transit is Erapa. Its machines, which the company says include the latest collation and safety systems, can again be tailored to customer needs. This means the wrappers can either be integrated with existing infeed units, or equipped with a new infeed supplied by Erapa.

Also for wrapping bottle collations in polyethylene film, Pester Pac Automation has already installed versions of the Pewo-Pack 450 shrinkwrapper. This combines a compact design with a balcony-style design for hygiene and easy access. A multi-axis robot is used to orientate and collate up to 12 bottles at a time and the 450 is able to handle up to 300 bottles a minute. Simple changes to the robot gripper head and infeed pusher plate allow different bottle sizes to be wrapped, while there is also a version available for cartoned products.

Yorkshire Packaging Systems has recently supplied three Rochman shrink-wrapping systems to the Bradford factory of Hallam Beauty, formerly Harmer Personal Care, contract manufacturers of cosmetics and hygiene products which includes both shampoos and shower gels.

### COLLATION WRAPPING FOR TRANSIT

## Combining speed with gentle pack handling

With such importance now attached to the appearance of toiletries and cosmetics packs, end-of-line functions such as collation shrink or stretchwrap and case-packing are frequently required to combine speed with gentle handling.

Partners in Packaging says the ServoFox stretchwrapper from MAF, Germany, manages to pull this off by using – as the name suggests – servo drives for speeds up to 50 cycles a minute, an increase of 30 per cent over the previous model says the company.

The ServoFox uses a patented stretch method



**Preference for shrink-wrapping:** Hallam Beauty has installed three Rochman shrinkwrappers

To achieve shelf-ready packaging the initial order was for one unit with a new built-in pack clamp and backup sensor allowing both trayed and trayless packs to be produced. The second and third shrinkwrappers were installed in the following ten months and almost 95 per cent of the factory output is now being shrink wrapped.

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#### CASE-PACKING AND END-OF-LINE

## Meeting the automation challenge

Some of the greatest challenges for machine builders come when they are asked to replicate the flexibility of a manual packing system in an automated format – especially where space is limited.

Pester Pac Automation UK says this is exactly

how the company's Pewo-Form Top-Loading Casepacker (TLC) came about. A major cosmetics manufacturer in Germany needed to pack tubes and cartons into cases on the same line, and so simple changeover is provided courtesy of of snap-on/snap-off infeed chain carriers and a replacement robot head. This is said to be achievable in just 15 minutes.

For cartoned product, the TLC takes items from a dual-lane servo-driven infeed, with the tubes inside the cartons always orientated so the cap is in a downwards position. The robot picking head then loads collations of six cartons into cases at speeds of 30 cases a minute or more, says Pester Pac.

Tubes without cartons are presented to the TLC on their sides, caps leading. They are pushed into self-orientating pucks, flipped upright and turned through 45deg. Again, collations of six are picked up by the robot and loaded into cases erected on the TLC machine.

The same theme of compact design is taken up by Italian manufacturer Cama, specifically with its monobloc case-packing system for deoderants. Instead of using a wraparound approach, Cama has two robots with carbon fibre arms. The first of these picks and places an empty pocketed plastic tray into the pre-formed case. The second then loads each collation of six deoderant bottles into position. Case sealing is integrated into the monobloc, all on a footprint of less than 3 x 2 metres. Speeds can be up to 40 cases a minute.

One of the distinguishing features of toiletries and personal care, according to Cermex UK, is the wide range of bottle and container shapes. Says area manager Dick South: "Many of them look great on shelf, but are a nightmare to handle." He adds: "This is one of the reasons why

we've done a tremendous amount of work for companies such as L'Oréal, both in the UK and around the world."

Any container that needs a puck to support it through the earlier filling and packing processes should set warning lights flashing at the case-packing stage, he warns.

Cermex has tackled similar challenges to Pester Pac in using a robotic system to casepack a single product in two formats: tubes and tube-in-carton combinations. As Dick South explains, this is a common problem for multinationals supplying the same personal care brand from a single production line to different countries.

Even where the primary pack combination is more standardised, changes in the retail supply chain make flexibility an increasing requirement at the transit packing stage. Cermex says that the parallel requirements of transit and shelf-ready packaging have led it to introduce the SW side-loading casepacker, which can cope with both RSC and wraparound blanks. Speeds can be up to 15 cases a minute.

In the UK, the retailers' focus to date in insisting on shelf-ready packs has been the food and drink industry. However, many in the toiletries and cosmetics sector are planning ahead, looking

at combining capabilities for a single-piece pack with a tearout and a two-piece shelf-ready option on the same machine, says Mr South.

"Some packing operations need to retain a full wraparound capability along with a tearout or a two-piece pack, and some people need to do all three," he reports.

### Compact machine design

IMA says that the latest version of the BFB CP18 side-loading case-packer is particularly suitable for packing individual or bundled cartons or trays into pre-glued RS cases. According to sales manager Barry Chadwick, the fact that product is stacked directly in front of the main pusher helps to make the machine especially compact. The cantilever design makes for easy access, he adds, and the horizontal case magazine is easily replenished.

Forced opening of the case with suction cups ensures that it is perfectly square at the loading stage. Closing is with either tape or hot melt.

Of course, even with all these degrees of automation available, some brands and contract packers prefer the flexibility of a hand-packing operation at end-of-line. For example, Transnorm supplies different types of conveyor to Runcorn-

based personal care specialist EC De Witt, including table-top conveyors for manual packing into cases. Other Transnorm conveyors are used to link upstream inline machinery.

A subsidiary of CB Fleet in the US, De Witt produces brands including Witch and T-Zone in skincare, Clinomyn in oral hygiene and Summer's Eve in feminine hygiene.

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