Is the glass half full or half empty for drinks?

Tabloid headlines might suggest that binge drinking is fuelling a boom in alcohol sales in Britain, but suppliers know that the truth is rather different. The on-trade has been dealt a hammer blow by the consumer downturn, sending thousands of pubs and restaurants to the wall. Some of the lost business has drifted into the off-trade, but much of it has simply vanished.

Beer and wine sales are falling in the on-premise sector, although spirits are enjoying a modest increase on the back of a continued consumer interest in cocktails and shooters. In the take-home market, beer sales ought to be on the increase as consumers drift away from pubs, but volumes are actually flat. Wine sales, which have enjoyed spectacular growth over the past few decades, have juddered to a halt. Again, spirits are the star of the show.

Soft drinks are experiencing modest growth. There’s increasing interest in “grown-up” products which can be enjoyed with meals, or which can claim to be healthier than the sweet, fizzy alternatives which get such a bad press. Yet the fact remains that the market is still dominated by cola, and its share of sales is growing.

The difficulties facing alcoholic drinks suppliers go beyond consumer nervousness. Wine importers have been badly affected by the pound’s weakness against currencies like the dollar and the euro, which has compounded the problem of rising production costs. The government’s commitment to an automatic duty increase – introduced by Alistair Darling and adopted by the coalition – make life a little harder with each new Budget.

Retailers are, not surprisingly, reluctant to pass on too much of these extra costs to their customers. Since the credit crunch first began, they have been keener than ever to lure shoppers with three-for-£10 and half-price offers in the wine aisles, to stack slabs of big-name lagers at prices more normally associated with bottled water, and to grab headlines with deep discounts on leading spirit brands.

Drinks are a useful part of the multiple grocers’ marketing weaponry, especially at Christmas when the battle for market share reaches its peak. Suppliers who can’t (or won’t) operate under such intense margin pressure have a number of options. They can (like Gallo and some other wine suppliers) downscale their UK activities and put more investment into other markets; they can (like almost every major supplier) develop secondary brands and pack sizes intended purely as high-volume promotional fodder; or they can refocus on the independent sector.

Supermarkets account for 83% of all off-trade wine sales, according to Nielsen, but there’s a thriving network of specialist wine merchants which has been expanding for five years or more, and has been given fresh impetus by the collapse of First Quench, the group which ran the Threshers chain. These independents have a tiny market share, but they have given new options to suppliers and consumers alike in what was threatening to become a rather dumbed-down wine market.

Small is beautiful in the beer trade, too. The UK has more brewers than at any time for at least a century, thanks to tax breaks for smaller producers and renewed consumer interest in myriad ale styles.

The drinks sector continues to face tough challenges. But the optimists – and those suppliers who are fleet-footed enough to adapt to conditions – will argue that the glass is, at the very least, half full.

The next few pages will show how the drinks industry has been investing in these turbulent times as well as outlining equipment available to the sector.
Drinks giant Constellation Wines has demonstrated that true teamwork with machinery suppliers can produce some vintage results, as general manager of the Constellation Park site Richard Lloyd tells Machinery Update.

When Constellation Wines invested 70m euros (£60.3m) in a new site outside Bristol, this represented a rethink not only of its production but of its complete supply chain.

In keeping with the latest industry thinking, the emphasis for Constellation has shifted from bottling its New World wines at source to bulk imports and filling in the UK. As the Waste & Resources Action Programme or WRAP has pointed out, this strategy has distinct environmental benefits.

As with the gradual move to lighter glass, these impacts are not lost on Constellation. But then, the approach holds additional attractions for the company. “You’ve obviously got a cost benefit,” states general manager of the Constellation Park site Richard Lloyd. “But in the ever-changing world of supermarkets, it gives us the ability to respond far better to promotional activity, too.”

Retailer-driven promotions
According to Lloyd, the leadtime for retailer-driven promotions is eight weeks “if you’re lucky”. Clearly, being able to customise the final pack and label in the UK rather than Australia, South Africa or the Americas makes a huge difference.

With further investment having since gone into storage for hundreds of containers at Avonmouth docks, at the railhead and on the Constellation Park site itself, the trend is towards offering even greater responsiveness. “The more bulk wines you hold at or close to the site, the more you can rely on ‘pull’ – rather than ‘push’ – in the system,” he says.

This is a site which measures its size in acres rather than square metres (35 acres, including some 24 acres of storage, production and office space). Completed in early 2009, it replaced another facility, also in the Bristol area, which offered just one third of the new capacity. Currently, the Constellation Park site is filling some 245 million litres of wine a year, both in bottles and bag-in-box for its various brands.

Clearly, if responsiveness is your objective, filling and subsequent packing lines need to play their part, too, in a fast and efficient operation. Here, Krones equipment and expertise is central to the success of the site.

“Krones produces very good and reliable machines, but what sets the company apart is the fact that it has an excellent training facility in Germany,” says Lloyd. It is that support which has been the equipment company’s outstanding contribution to the operation, he adds, combining theory with hands-on experience.

Substantial training
“We decided that everyone operating equipment should go to the Krones academy,” he reports. “And as we’ve grown as a site, we’ve added extra shifts and sent more people over. It’s been a substantial investment, but it’s had a huge impact on efficiency.”

Lloyd cites the example of the Krones labeller, which he calls “a very reliable piece of kit”. But because setup and other
changes can be relatively complex, Constellation and Krones worked on a simulation for use in the customer’s own onsite training room.

Since it was created, the training room has proved to be doubly useful. “Now, when we’re recruiting engineers, we take them there to see how good they are at fault diagnostics,” he says.

Those who are recruited become part of multi-disciplinary production teams, comprising two engineers, two operators and two technicians who act in an intermediary capacity. It is significant, says Lloyd, that engineers have been given a hands-on role on the line, rather than simply being kept in reserve. “Teams are able to take a leadership role with regard to quality or a higher level of maintenance, for instance,” he says. “This approach has been critical to improved performance.”

Other factors in performance have included the line layout. “We spent a long time looking at this, and how it could be made most efficient,” he says. “Rather than a straight-line model, we opted for an ‘arena’ – or horseshoe-shaped - layout, where all of the operating stations, from depalletising to filling, labelling and packing, are in close proximity.”

This focus on efficiency certainly appears to be bearing fruit. “Our cost per case continued to fall from October 2009 to October 2010,” Lloyd claims. “And over the same period, we have upped production by 50%, with the same number of people working the same hours.”

Regarding filling speeds, he says: “We’re doing 400 bottles a minute, and on 75cl bottles, that’s leading the way. We’re pretty much pushing the envelope here.”

### Lean manufacturing

Running through all this is the fact that Constellation Wines follows the lean production philosophy. A key principle here is continuous improvement, both through internal processes and through working with suppliers. In terms of specific operations, Lloyd quotes the example of adjustments made to the closure infeed for the capping line. “It came down to simple changes to the gradient and the way that the cap is delivered,” he says.

Work with packaging suppliers has included a joint project with glass manufacturer Ardagh to reduce the weight of wine bottles. “We’ve already got individual bottle weights down to 330g, and we’re now working towards a target of 300g,” says Lloyd.

Back on the machinery side, Krones beat the competition to win separate tenders from wine delivery to the filling operation. Simply inside the filling hall, the company’s expertise stretches from its overarching process control system to essential details such as x-ray inspection, Lloyd explains. “The fact that this was a turnkey installation means that we don’t have any of the potential ‘handshake’ issues with different machinery suppliers,” he continues.

The Krones Botec F1 control system ensures that the correct hygiene procedures are followed when switching, for instance, from a red to a white wine. “It’s pre-programmed to safeguard against human error,” he says.

The inspection system checks everything from label placement to fill level and closure application. As Lloyd puts it: “For a below-specification bottle to make it through our line, it would have to be a bloody clever bottle!”

As well as the two Krones-equipped bottling lines, Constellation Park houses three bag-in-box lines. In this case, the existing lines comprising equipment from several different suppliers were transferred from the former site. There has since been no surge in demand for bag-in-box wines to justify new investment, says Constellation.

On the bottling side, though, the company’s commitment to responsive supply, efficiency and continuous improvement has clearly impressed its retail customers, with at least one important own-label contract in the offing. This demonstrates that true teamwork, with technology companies involved as far more than mere providers of equipment, can produce vintage results.
Brewer updates system with ease

Maker of Tiger Beer Asia Pacific Breweries has migrated its brewhouse control system without experiencing any downtime.

At its brewery in Singapore, the company was operating with a distributed control system with outdated I/Os (input/outputs) that, while still productive, were becoming increasingly difficult to maintain. The brewer worked with Rockwell Automation to migrate to Allen-Bradley 1756 I/O and the Logix Control Platform.

In addition to Tiger Beer, Asia Pacific produces Heineken, Anchor and ABC Stout at this brewery and therefore the reliability of the large, obsolete I/Os was becoming more challenging. Producing 18,000 bottles of beer each hour meant that a 30 minute production changeover from one brand to another was a significant hindrance to the amount of beer it could produce and sell.

In a phased operation, it replaced the I/O modules and migrated them to a new system. It needed a new I/O system that was open and modular and could be scaled for future growth. Second, the brewer had an aggressive goal to migrate each remote I/O panel during one eight hour period of scheduled downtime – a process that can normally take several days.

To help ensure that the upgrade was completed in this period, Rockwell and the brewer ran a dress rehearsal of the planned upgrade. Rockwell engineers developed the system design and were responsible for engineering, implementation, testing and commissioning the system. The dry run allowed engineers to fine-tune the implementation timeframe, troubleshoot potential problems and identify areas of improvement.

The scheduled upgrade took only six hours.

Another key goal was to complete the project with zero downtime, which was achieved. “Although we didn’t have a specific return on investment goal for the project, we needed to ensure there were no delivery disruptions that would impact the demands of our customers,” says the technical manager at Asia Pacific Breweries.

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www.rockwellautomation.co.uk
Unscrambler shows bottle

RNA Automation has launched a compact style container unscrambler to enhance the productivity and flexibility of bottle handling while fitting into tight spaces. Developed by RNA’s principal partner Palace Packaging, the specially designed internal hopper allows for the small footprint. The pre-sorter, orienting mechanism and hopper bin are all built into a single compact frame with the smallest version measuring 43 x 43in with a 7 cubic ft internal hopper. An external hopper with capacities up to 100 cubic ft is available for handling larger containers. Bottles are simply loaded into a hopper bin and gently fed into a disc sorter with the bottles lined up end to end neck or base leading. A starwheel orientation system consistently and accurately pushes on the centre of the bottle and orientates the bottles all one way.

The compact unscrambler fits into tight production spaces

Bottles are discharged directly onto a conveyor and into the indexing wheel of a monobloc filler or directly into pucks as required.

An auto reversing sorter disc allows trouble free and operator free operation. If there is a blockage in the sorter and bottles are not exiting, the unit automatically reverses so that the paddle wheel can correct any stoppages.

The compact model unscrambler has been designed to be safe to operate, simple to maintain and easy to understand, so that no tools are required for changeovers. Fixed change parts allow changes to be made in less than 10 minutes. Another feature of this system is its energy saving mode.

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Boosting bottle efficiencies

The first results of a study sponsored by the Federal Ministry of Education and Research in Germany into how energy and resource efficiency can be increased in the manufacture of PET bottles shows that there is plenty of savings potential. Practical tests of the latest findings are being performed on an InnoPET Blomax Series III from KHS Corpoplast installed at mineral water bottler Okertaler Mineralbrunnen.

For example, the first experiments have shown that faster stretching of the PET material can result in a saving in materials of about 3%. For the 1.5 litre PET bottles made at Okertaler Mineralbrunnen, this means that the weight of the PET could be reduced from 31 to 30g. One gram less of material per bottle would lead to a considerable saving of 100,000 kg of PET material per annum, assuming that about 100 million PET bottles are produced.

A German study is looking at how to save resources used in PET

At a market price of euro1.20 for one kg of PET, the savings would therefore be euro 120,000.

Tests carried out at the Okertaler mineral water bottling plant to date have revealed that in the preform preheating process the consumption of energy can be optimised by up to 20%. Applying the obtained values, the amount of electricity needed to preheat preforms would drop from 1.5 kilowatt hours per kg to 0.12 kilowatt hours per kg.

Potential savings in compressed air of about 31% can also be made to the Okertaler 1.5 litre bottle while a further 5% saving can be assumed if the shape of the bottle is changed.

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Integrating canning lines ensures absolute safety

Overall responsibility for the installation of two identical layout canning lines handling special milk powder for baby food was entrusted to Krones by Nestlé for its production facility at Konolfingen in Switzerland.

Each of the two canning lines operates at 16,800 cans an hour for the smaller can while the larger one is handled at about 8,400 each hour. For both canning lines and for both pouching lines, Krones installed one order management system and one LDS line documentation system each, both of which exchange information with Nestlé’s higher-order MES (Manufacturing Execution System).

Krones was tasked with coordinating and integrating all the machines concerned on the canning lines, plus the software and the huge range of monitoring devices to ensure absolute product safety. As the line integrator, Krones IT Solutions Division (IT-S) had to coordinate the large number of original equipment manufacturers involved and to support them in providing the specified database.

In this context, Nestlé relied on Krones as the sole contact thus avoiding any interfacing problems in the event of faults and defects.

This meant that Krones IT-S was not only the solution supplier but also acted in an advisory capacity as far as the challenges encountered in the canning and packaging operations were concerned. Implementation of a can-do order management system has minimised rejects and guaranteed efficient yet easy-to-read operator prompting.

Based on a Wonderware platform, Krones supplied the requisite interface between the order management system and the MES which serves to distribute the order parameters among the individual machines on the factory floor.

The order management system offers a host of functionalities including a can infeed system that accurately matches the target quantity to save both material and time. Tank, and container, accurate production ensures that for an order with a specified target quantity of 10,000 cans, precisely 10,000 are produced. The rapid-response cut off of both container and product infeed achieves this, and the same applies for tank accurate production.

Full colour inspection now available

Cognex Corporation has launched its next generation OmniView 360deg inspection system which is now with colour and 5 megapixel high resolution camera.

OmniView allows detailed inspection and verification of unoriented wine and juice bottles, canned goods and other cylindrical packs on the production line. Using the latest Windows 7, 64-bit PCs, the technology inspects products at up to 1200 parts per minute without disrupting bottling and packaging lines.

It uses four cameras positioned around the conveyor to capture views of all sides of a product. These are mapped into a 3D model using proprietary Cognex vision technology, and then inspected using Cognex’s VisionPro software library.

An additional fifth camera can be used to confirm that the lid or cap matches the label on the front of the pack.

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