Ends and means

From the fastest end-conversion equipment to the latest in easy-open and reclose systems, what is happening in the world of end manufacturing? Paul Gander reports

One day, the term 'can-opener' may become as redundant for food containers as it did, many years ago, for beverage cans.

The story goes that Ermal Fraze, founder of the Dayton Reliable Tool & Manufacturing Company (today's DRT Manufacturing in Dayton, Ohio), was inspired to work on the first generation of 'pop-top' easy-open ends (EOEs) for drinks. This was during the 1960s, after he had been forced to improvise when caught without a can-opener on a picnic. The rest, as they say, is history.

Just to the north of Dayton, the Stolle Machinery plant in Sidney, Ohio, represents a significant part of that history. The operation recently celebrated the completion of its 200th Tetrad machine for producing EOEs. The four-out machine is able to reach speeds of up to 3,000 ends per minute (epm).

Of course, the productivity of end-making systems has been lifted in the meantime. "Examples of increasing production include the recently-introduced Stolle EO6 Conversion System," says Jason Davidson, Stolle product director for conversion systems. The six-lane EO6 runs at speeds of up to 850 strokes per minute, or 5,100epm.

"This is a 70 per cent increase in production over the three-out Stolle Tetrad system," says Davidson. "Also, Stolle's ten-head Vortex Liner has a throughput of 2,600epm, a 23 per cent increase in production volume over previous liner machines."

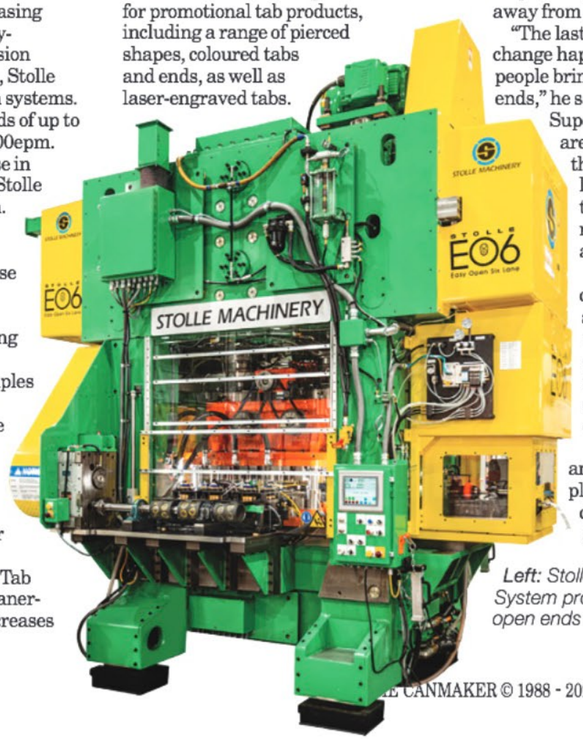
Efficiency is about minimising downtime, too, of course, and reducing maintenance. "Examples of improvements here include heaters in the button and score stations that allow for tooling adjustments to be made while the conversion system is running. This should result in an efficiency increase of over 1.8 per cent," he states.

"Recently-introduced Clean Tab tooling technology allows a cleaner-running tab die, which also increases system efficiency by reducing downtime. At the same time, the composite lift gate offers several benefits, including reduced lane die maintenance, greater spring life and improved rivet formation."

In terms of both material savings and product performance, Stolle's R&D group prides itself on pushing beyond what many in the industry consider to be the limits of what is possible, across beverage and food ends.

"For example, they have developed several new beverage tab designs that offer improved metal economies, while maintaining strength and performance characteristics," Davidson points out. "For beverage ends, Stolle has developed an optimised rivet design for reduced-gauge aluminium (0.0078 inches – thinner material) that provides consistent rivet diameters with increased rivet head thickness."

He notes, too, continued interest in the beer-and-beverage can market for promotional tab products, including a range of pierced shapes, coloured tabs and ends, as well as laser-engraved tabs.



Left: Stolle's six-lane EO6 Conversion System produces more than 5,000 easy-open ends a minute

Italy's EuroTecno produces tooling for the manufacture of beverage ends, food ends, and aerosol can ends

Trends in ends

As many in the industry will know, there is at least a third Dayton connection when it comes to beverage can ends. The CDL end, which helped to dislodge the B64 end from its dominant position in the industry, originated with Container Development Ltd – another company with its headquarters in Dayton.

Simon Jennings, who runs the Nomis consultancy in the UK, worked for several international canmakers in the past, and is currently also director of Pakistan Aluminium Beverage Can Ltd. He emphasises the significance of this shift away from B64.

"The last few years have seen a major change happening in the industry, with people bringing in the lighter-weight ends," he says. "So that the CDL end and SuperEnd, developed by Crown, are now the standard, rather than the B64 end. Customers like the lighter-weight ends. It theoretically gives them a cost reduction, and they use less aluminium, too."

Why 'theoretically'? Because competitor end-makers, such as Xiamen Bao Feng in China, were soon supplying much cheaper ends – including the B64. "So the cost-saving element was significantly compromised," says Jennings.

This in turn highlights another shift that has taken place. "Historically, the canmakers were end-makers, and self-manufactured their own ends," he explains. "But that has changed a lot. Nowadays, even the largest canmakers are buying ends in from independent end manufacturers."

When it comes to EOEs for food cans, Jennings points out that usage patterns can vary considerably from one geographical market to another. But if it is surprising that easy-open is not the default option in many developed markets, he says, this could have something to do with the pressure from retail chains selling economy products to keep costs – including packaging costs – as low as possible.

Surges in demand

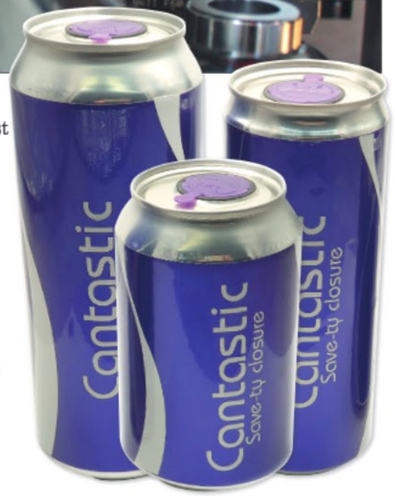
The end-making supply chain has, of course, benefited from the recent expansion in the wider canmaking sector, as Stolle confirms.

"Given the overall increased demand for cans created by the pandemic, Stolle has seen a strong increase in demand for all of its end-making machinery," says Davidson. "The company has made significant investments in machining facilities around the world that produce shell and conversion tools and other machine parts, to better manage part delivery and cost variables."

Meanwhile, at EuroTecnoTool in Italy, general manager Rocco Mancini reports that, from his tooling company's perspective, the first stirrings of intensified activity were noticeable from the summer of 2021, and affected both aerosol components and food ends.

"A new wave of increasing investment by our customers – both canmakers and machinery companies for the canmaking industry – got higher and higher up until the end of the year," he says.

This new investment, says Mancini, was chiefly channelled in two directions: towards new lines, aiming to increase overall production volumes; and towards improving the performance of specific components, by for example downgauging the metal or reducing the cut-edge diameter.



Fully-functioning, fully-tested manufactured samples of the resealable Sav-Ty Can Cap have now been produced

The surge in customer growth has continued into 2022, says the Italian firm, meaning that it remains "really busy at the moment" – and this was a comment that other tooling and equipment companies shared. Like others in the supply chain, EuroTecnoTool would like to expand further to keep pace with demand, and is targeting a 50 per cent increase in revenues this year.

But hitting this target will be "challenging", Mancini admits. Doubling capacity "in a blink", as he puts it, will always be difficult for any operation.

But currently in parts of Europe, it is the shortage of available labour which is causing the most problems. "We are making investments in new machinery and in a new production plant, [but] hiring people in Italy this year is very difficult," he explains.

Patterns of development

The pandemic has had other market impacts as well as affecting consumer demand. "Multinational food groups decided on a risk-management strategy to ensure their supply, asking canmakers to set up backup lines in different countries, increase production capacity, geographically diversifying their production," Mancini reports.

What he calls "the scars of the last two years" will drive business decisions for some time to come, he believes, among companies wanting to avoid shortages due to new lockdowns or other natural disasters.

Of course, there have been other international pressures in the first half of 2022, since the Russian invasion of Ukraine. "From a business point of view, this has brought us a lot of new projects," Mancini says, linking this to the type of risk management strategy mentioned earlier. "Over the last ten years, big canmaking groups moved [many of] their plants and production lines to the eastern side of Europe. Over the last few months, they've been desperately running back west."

One piece of good news, he says, is that can lines have been running again in parts of Ukraine – or at least trying to run – since the beginning of May.

EuroTecnoTool focuses on the shell process for EOEs. But, says Mancini: "For sure, competition from peel-off components and innovative closures, such as the OpenVac project, is increasing."

From easy-peel to reseal

Soudronic is among those equipment companies to have been paying particular attention to the peel-off end (POE) market. Chief executive Rolf Geide believes this type of end has turned the can into "a real convenience package", and explains that this option has become "a widespread application for convenient metal packaging".

"These ends have become the preferred choice for consumers, not only for dry products like milk powder, infant formula or nuts, but also for retortable products like, for example, fish," he says.

Based on its existing Uniseal HSS system, Soudronic has developed the ▸