Closing remarks

The recent World Seaming Conference offered opinion and insight from across the seaming industry, with canmakers, fillers and suppliers exchanging knowledge. Daniel Searle reports

Canners must strike a balance when trying to achieve cost savings in their operations. Cutting costs with lower-gauge ends may incur problems in set up and maintenance so the entire process should be analysed in advance of any changes.

That was the message from seaming 'guru' Pete Moran, who as keynote speaker at the World Seaming Conference held in Brazil in November, led a number of key industry experts who provided insights into seaming for canmakers, end makers, and fillers alike.

Moran, an industry veteran with a career in seaming technology spanning 43 years at Metal Box and CarnaudMetalbox Engineering, part of Crown Holdings, opened the conference with an in-depth technical look at current issues and considerations for those in the seaming industry.

While fillers want lower cost ends, Moran explained, the processing of down-gauged ends incurs a number of operational costs during the set-up and through the increased levels of maintenance. The overall costs and savings must therefore be weighed up prior to changing to down-gauged ends, to see if savings really will be achieved.

Looking into the design and operation of seaming machines, Moran stressed the need for using the maximum number of first-operation revolutions so that the end hook could be more smoothly formed, and therefore achieve the desired level of low-amplitude wrinkles.

He also outlined the qualities he looks for in seaming equipment. As well as strength and robustness in the seaming head, to accommodate a range of end thicknesses, and strong seaming chucks, spindles and bearings, he also emphasised the benefits of the chuck spindle and lifter rotating clockwise.

James Wilkinson, Moran's successor as business manager for seaming tooling at CMB, continued the presentation with details of some of the company's manufacturing aims and technologies.

To produce tooling that offers long life and high performance, even on thinner-gauge materials, CMB has implemented various developments, explained Wilkinson. These include maintenance-free ceramic cartridge bearings, labyrinth seals to prevent product entering the bearings, and minimising lubrication in the bearings to reduce drag in the seaming rolls. The cumulative effect of these innovations was illustrated with a case study, where a pet food canner using a ten-head Angelus seamer increased uptime by 90 percent.

Also highlighted was the importance of regular wrinkle inspection – particularly on the first operation, which is critically important but often overlooked, said Wilkinson.

With a first-hand account of the demands of a mass-scale canning operation Bruno De Freitas, product engineer at Brazilian meat canner JBS, showed how careful analysis could drastically reduce wastage. JBS is one of the biggest meat processors in the world and its corned beef cannery in Brazil is supplied by its own canmaking plant, producing more than 60 million rectangular and 20m trapezoidal cans every month.

Describing the JBS can seaming process, De Freitas highlighted the need for a pre-clinch operation due to the high volume of meat in each can, and detailed the seam inspection procedure employed by the canner.

Best practices were also discussed to achieve and maintain an efficient seaming operation, and case studies of problems encountered by JBS – and the solutions that ultimately reduced the company's seaming problems by around 90 percent – were shared.

As well as manufacturing cans and ends, leading Spanish canmaker Mivisa also helps its customers with technical assistance on topics such as seaming, as technical director Estanislao Martínez discussed.

Sharing knowledge gained from the company's experience with canners, Martínez described the best practices for seaming, including ensuring geometric

accuracy and surface quality of roll profiles and chucks; the necessary steps to take when maintaining and adjusting seamers; measuring the dimensions and parameters of cans and ends that affect seaming; and checking the coating on rolls. External variables such as temperature, compound type, and end thickness and hardness should also be monitored, he said.

Also based in Spain, MCG has been developing and manufacturing seaming equipment since 2008, and sales manager Alejandro Martínez introduced its current range of seamers including the VSF-110, said to be the industry's first for vacuum seaming irregular-shaped cans.

Developed in association with the University of Cartagena in Spain, the machine recently won the Innovation Award at the IPA Paris 2010 conference. Vacuum seaming offers a range of benefits, explained Martínez, from improving product quality to reducing the amount of oil or brine required in each can.

Next steps for MCG include multiple-head versions of the seamer, and introducing hygienic technology to its equipment such as automatic cleaning and disinfection systems, currently a key driver for canners.

The company invests more than 7 percent of its sales in research and development annually and in the last three years has launched four seamers. MCG's main research objectives are now in high vacuum (close to 0.5 bar compared to 0.4 bar currently) and aseptic conditions, he said.

The demand for hygienic seaming technology was also highlighted by Jeff Bernstein, of PneumaticScaleAngelus. A long-established manufacturer of seamers, the company is still expanding its portfolio, with six new machines currently being developed.

A range of factors are driving these developments, said Bernstein. The need for hygiene not only affects seamer design but also the construction of the internal components, which can be affected by aggressive cleaning products.

Serviceability is another key consideration, said Bernstein, with quicker and less complex servicing required. Developments such as dynamic braking, which enables the removal of mechanical parts and their associated maintenance, and quick-change systems for niche can types also are helping to improve efficiency and operator-friendliness.

New designs and thinner gauges of cans and ends also have to be accommodated by seamer manufacturers, said Bernstein, and there is also call for safer and longer-lasting electrical components.

The performance and quality of a double seam is affected by the amount of sealing compound applied, said John Stankiewicz, technical service manager at Grace Davison, and the risks and benefits of diverging from the optimum must be considered.

There is scope for movement away from the optimum, said Stankiewicz, but operators must consider various factors including the compression resistance and thermal resistance of the compound.

Top: Brasilata's chief operating officer João Vicente Tuma, left, in conversation with CarnaudMetalbox's James Wilkinson

Centre: Glyn Watkins of Crown Packaging talks with Fred Nolte of Bumble Bee Foods, and CMC-Kuhnke's Alex Grossjohann

Bottom: CarnaudMetalbox's seaming experts Pete Moran and James Wilkinson, right, share their expertise

He also detailed the Darex system for analysing seams in case of leaks or other faults, and compared the pros and cons of water-based and solvent-based compounds.

Actega Artística is focusing fully on water-based compounds, said managing director Dr Teresa Ramos, citing benefits such as ease of application, safety of handling, and reduced flavour transfer for the decision.

The company aims to promote the move from solvent-based to water-based compounds, and provides services and equipment to help canmakers and end makers convert.

Currently in development is a PVC-free water-based product to replace the plasticisers used for lining lug caps, to reduce the migration which occurs most notably in oil-based goods. As a lining solutions provider, Actega has also developed an automated control for film weight reduction to be launched soon, said Ramos.

Double-seam inspection equipment is also evolving, with canmakers and fillers now wanting to know not just if a seam is defective, but also what is happening in the seaming process and where any faults have originated.

That was the view of William Geller, general manager at US inspection equipment specialists Quality By Vision. Discussing the challenges of meeting the demands of today's seaming industry, Geller weighed up the pros and cons of fully-automatic testing, and recommended ensuring the seaming operation is set-up accurately and correctly as a foundation for quicker and easier trouble-shooting.

Also examining seam inspection technology was Alex Grossjohann, vice president of CMC-Kuhnke, who advocated automated seam analysis as a counter-measure to the declining number of experienced technicians in the industry.

He also revealed a development due for launch in 2011: an x-ray seam inspection system using a lower-power x-ray source than current systems. The patent-pending system will enable high-magnification measurements and 360-degree inspection of the cover hook for wrinkles.

It was one of many insights which provided conference delegates with a clear view of what will be driving seaming technology for suppliers, canmakers and fillers throughout 2011 and beyond.