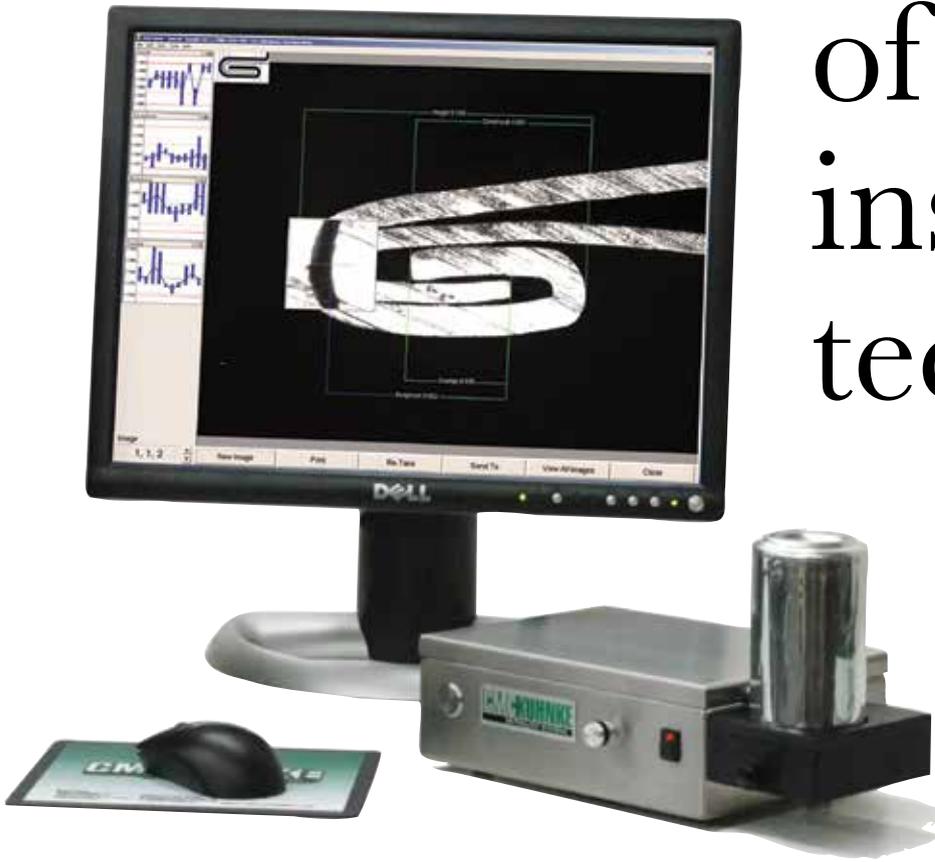


# The on-going innovation of seam inspection technology



Nora LaOr, global product specialist, beverage and canning, industrial physics, examines the latest technological developments in seam inspection in the can making industry

**T**he first seamed cans also required the first seam inspection equipment, but available systems and methods have come a long way since the days of handheld micrometres.

For years, the manual seam teardown was the only evaluation method available and practiced by can making plants. The first handheld seam scopes were introduced when the industry recognised the importance of directly measuring the overlap and evaluating visual defects on seam cross sections as opposed to calculating it based on micrometre measurements.

Seam projectors and shadowboxes were later replaced by video seam systems that relied on video cameras and were able to project a clear image of the seam on TV monitors.

## THE DIGITAL AGE

In the late 80s, seam inspection entered the digital age, with the introduction of computerised seam projectors which displayed the seam image on a computer monitor and allowed measurement results to be recorded electronically with dedicated

software instead of pen and paper.

Later, the first automatic seam inspection systems appeared which automatically read the seam dimensions (seam thickness, seam height, overlap, etc), displayed them on the seam image and recorded them in a database. This lowered the time it took to measure the seams significantly and improved accuracy and reliance on the results of the measurement.

## NON-DESTRUCTIVE SEAM TESTING

Eventually, an advanced non-destructive solution was developed that could project a cross section of the can using x-rays, thus leaving the can intact and reducing spoilage. This technology measures the seam cross-section including the internal parameters of the seam and presenting a virtual seam image recognisable to the operator. It also detects potential seam tightness (wrinkles) issues in the seam and rates the percentage of the tightness.

This method has numerous benefits such as:

- **Saves time** – eliminates time consuming work like emptying, rinsing, drying, cutting seams and

tearing down seams for tightness inspection.

- **Saves money** – saves a significant amount of money by reducing test time and wasted packaging and product
- **Increases accuracy** - eliminates the need for teardowns and seams are not destroyed. It is completely operator independent, so all human error and subjectivity is removed
- **100 per cent seam safety** – no cutting or tearing down of the seams is required
- **Less spoilage** – the non-destructive measurement enables tested cans to be used for further testing or resale
- **Certification** – every single unit is TÜV certified

### INLINE SEAM INSPECTION

There are also in-line seam inspection systems that can inspect 100 per cent of produced products at 360°. This technique is non-destructive, without product handling and can inspect different can sizes and shapes (round and rectangular) at up to 1,500 cans per minute.

The In-line Seam Inspection Module can detect defects such as:

- Seam dents
- Droops/Vee
- Cut seams
- Knocked down flange
- Other visible defects

### BETTER SETUP

Even with all of these advanced technologies, plants need to consider how to improve the quality of the

seam and not just detect problems and faulty seams on the finished product.

An optical, computerised seamer setup system offers a better way to adjust the seamer using modern and accurate tools. This takes the guesswork out of seamer setup and adjustment. It improves seam integrity and consistency, increases uptime and makes changeovers much faster than previously possible. It not only quickly and accurately sets up the seamer and fix issues that come up from time to time, but it also makes sure that all seamer heads are performing perfectly and identically. This reproducibility means that seamers will run better and require adjustments less often and with less downtime.

Using an optical real-time method instead of the old-school feeler gauges has numerous benefits:

- Adjusts 1st and 2nd op seaming rolls quickly
- Optimises seamer performance
- Reduces the amount of seamer stops
- Reduces seamer stop duration
- Seamer adjustments can be done quickly and easily
- Locate faulty chuck and roll bearings and shanks
- Easily see broken and worn out rolls and chucks.

### CHOOSING A SOLUTION

With such a wide variety of available options, the decision-making process for a plant in selecting equipment and methodology can seem daunting. There are many factors to consider, regulation requirements and even demands from customers. This means that solutions often need to be tailor fit to plants' needs and budgets and the technology is more flexible than ever before. 

