

Carton converters get their ACT together

The Olmstead Falls, Ohio, operation of Champion DairyPak and Elopak's Dumfries plant recently installed ACT II systems, which are manufactured by Indocomp Systems, of the US.

Quality control is crucial to both converters, who produce the familiar gable-top Pure-Pak cartons used around the world for milk, juice and other products. Pure-Pak carton blanks have been manually checked for score height, symmetry and dimensional accuracy for more than 50 years.

"The ACT II is a very impressive piece of equipment," according to Robert Phillips, technical manager of the Champion DairyPak operation. "We've been checking cartons the standard way, with a template and a sight glass, and that's just not as exact as this.

"Not only is the ACT II more precise, but it's so much faster. Indocomp says you can check a carton in about six minutes; I think you can check it in a little less," Mr Phillips continued. "There's no way you can check with a template in six minutes. If you do all the scores, score heights and panels, you probably can't do it in an hour."

Alistair Stewart, quality control manager for Elopak, agrees.

"The ACT II system is a major advance over manual templates because it ensures a consistent return to the production settings," he explained. "Not only does it provide accurate monitoring, but it enables quality controllers to keep an easily retrieved record of the cartons if quality disputes arise."

The ACT II system has a precision X-Y table with a moving height gauge, interfaced with a computer which stores programmed patterns and collects data for subsequent analysis and reporting. An operator simply puts a flat carton blank on the X-Y table and enters the appropriate carton die number model via a keyboard. The height gauge then indexes over the sample in a predetermined search pattern, identifying the locations of cut edges and scores and determining the height and symmetry of each score.

The data is collected in minutes, then reported in one of the several formats avail-

A new computerised system called ACT II is enabling some progressive carton converters to check their carton blanks in a fraction of the time they used to spend on quality control, and quality has improved significantly. Packaging Weekreports.



Elopak has found computerised carton blank inspection more efficient.

able. This allows quality control personnel to identify quickly the sources of quality problems, so they can determine which machine adjustments are necessary to bring the carton blanks back to specified tolerances.

The advantages of faster, more accurate carton checking are obvious for any converting line. For an operation like DairyPak's Olmstead Falls plant — which runs five converters — the time savings are multiplied.

The automatic checking of the carton blanks is really quite simple. The X-Y table begins moving the height gauge from its home position along the path which has been preprogrammed for the carton model selected. Each test begins with the gauge passing over a gauge block, which duplicates a score profile of known height.

The output signal from the height gauge is automatically calibrated by the software programme to correspond to the known height value of the block; this calibration compensates for any drift that temperature

changes may have caused in the analog-to-digital electronics, or for any wear in the gauge.

On a quart/litre Pure-Pak carton, the height gauge precisely locates the positions of 74 scores and 32 edges. It travels at high speed between inspection points, and at low speed while data is being collected. As the gauge crosses score lines and edges, the system stores 250 height readings for every 6.4mm (0.25 inches) the gauge travels.

The ACT II computer uses this data to calculate the exact centre point, height and symmetry of each score. A similar process determines the location and each edge point of the cut carton blank. All computed data points are stored in the computer and used to determine the actual carton dimensions, such as panel widths and flap lengths. The system can report all score and edge dimensions or score quality; or depict the profiles of any score or edge; or display any of the information in bar graph form.

Mr Stewart sees great potential in linking several plants with an ACT II system to assess performance and systemise maintenance. Mr Phillips agrees.

"We can run a monthly check of every die number on every converter in each of our five plants around the country," he said. "Every four weeks every die number would be checked.

"This will give us a readout, so every operation can take the report and correct whatever defect they might have.

"If you combine all the defects of all the converter lines in all five plants for one year, and you can cut them by, say 10 per cent, you're getting a real payback," Mr Phillips concluded.

The results from their ACT II systems have convinced DairyPak and Elopak that computerised carton blank checking is a much more efficient and cost-effective method than the traditional manual methods. Their success — and the variety of software and application enhancements available from Indocomp for use with the ACT II — will surely make the system attractive to all kinds of carton converters.

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