Carton checks in just five minutes

Traditionally. folding carton converters haven't had time to check all the dimensions on finished blanks for accuracy. But they can now with a new computer system. ACT II.

Converters of folding cartons-particularly cartons that have to hold liquids-know the importance of accurate dimensions and score heights to the quality of a finished package. For years they've had to settle for checking a few dimensions on a few sample blanks because it wasn't practical to take up to an hour to manually review each blank. Now Pure-Pak Inc. and other packaging companies are running complete carton checks in just five minutes. and getting more dependablc data. with the computer-based ACT 11 system.

Bob Valeri, quality control supervisor, checks the dimensions of a TabTop carton in just five minutes.

The traditional manual method requires a trained quality control technician to look at a carton blank through a template marked with the proper dimensions. noting any dc-viations. Since it depends on an individual's experience. eyesight and alertness. it is very time-consuming.

"Since no one has time to manually check all the dimensions of a blank. standard procedure for most converters is to check only the critical dimensions," explains Grant Putman, manager ofconverting operations. Pure-Pak. "The ACT II lets you check everything. thus giving you a much clearer quality picture so you can determine what converter adjustments are necessay."

"If we wanted to check every dimension (score-to-score. score-to-edge and edge-to-edge), it would take 45 minutes. plus another l5 minutes for the score heights." reports Robert F. Valcri. Pure-Pak quality assurance supervisor. "The computer checks every dimension in five minutes. Since our big converter has 20 die positions. we'd need 20 hours to check them manually. The computer does it in two hours and gives us hard copies."

The ACT II system. a product of Indocomp Systems Inc. of Drayton Plains. Mich., is comprised primarily of an IBM-compatible computer and a precision X-Y table. An operator simply places a flat carton blank on the table and enters the model table number that corresponds to the proper blank type and size. and a height gauge moves back and forth across the blank. At various points along a programmed pattern. data is transmitted to the computer that then stores it and reports it in one of several useful formats.

The reports become part of the

daily performance record at Pure-Pak's converting facility in Wixom. Mich., where the company is gearing up to produce its new TabTop cartons for frozen concentrated juice. The TabTop. an economical alternative to the spiral wound can. offers Juice packagers space savings and other benefits. and its convenient tear-back top is proving to be popular with consumers.

The TabTop cartons are printed. scored and cut from roll stock on an Evers converting line at a speed of 600 feet per minute. The 35.000 sq ft plant also operates a Bernal converter (300 fpm) and two flame sealers, a Post and an IPBM model LF. Total capacity is about 250 million blanks per year.

The TabTop business is a fairly new venture for Pure-Pak Inc.. which is best known for packages it developed but has never actually produced the billions of gable-top cartons for milk and juice used around the world each year. The company has always licensed other converters to make the gable-top blanks. while it manufactured instead the machine that forms. fills and seals them. At the same time. Pure-Pak has provided its licensees with quality control assistance and has devoted considerable resources to carton enhancements and new package development.

The TabTop carton is the first of these new packages to be commercialized. and it marks the first time the company is doing its own convertlng. Fifty-two years of experience with Pure-Pak cartons has given the convertlng operations staff an excellent background. but it has found that every carton presents its own challcngcs.

"Tolerances in milk cartons are pretty forgiving." said Putman, "because there's plenty of sealing area. But TabTop tolerances are critical.

"Ask three people to read a template and you'll get three different answers." he continued. "Hopefully. they'll be pretty close. But that's not good enough for the TabTop."

The ACT II system can read all

Conventional blank checking, using a template viewed through a magnifying glass, is slow and requires a skilled operator.

the scores and edges of a TabTop carton blank in the time it takes a trained specialist to make several manual readings. When the operator positions the blank on the X-Y table and inputs the instructions to the computer. a height gauge leaves its home position and begins a programmed path over the blank. It moves at high speed between inspection points and low speed while collecting data and storing 250 data points for every quarter-inch the gauge travels.

Read the scores

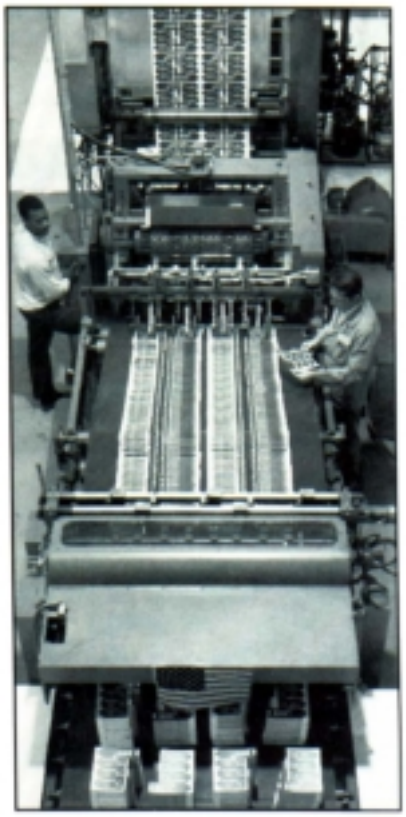
The computer uses this data to calculate the center point of each score. as well as the score's height and symmetry. It dctcrmincs the location and height of each cut edge relative to the scoring. The data points for each reading (X and Y coordinates. score edge heights and score symmetry) allow the computcr to dctcrminc the major carton dimensions. notably the panel widths and flap lengths. (The computer can be programmed to read any dimensions. but these arc the most useful for the TabTop cartons.) The information is displayed on the screen in various formats. any of which can bc printed out in less than one minute.

The options arc:

- Score/edge dimensions: Shows all major carton elements dimensioned accurately in relationship to each other. Can show all dimensions, a comparison of actual dimensions to the proper dimensions stored in the computer. or only the significant deviatlons from tolerance.
- Score quality: Contains score heights and symmetry and identifies those out of tolcrancc.
- Score/edge profile: Displays a detailed graphic profile of any edge or score.
- Bar graph: Various quality information can bc depicted in bar graphs. which makes it easy to spot performance trends.

"When we can see all the numbers. that's uhcn we really know what's going on." said Valeri. "The out-of-tolerance report 15 a good one,. too. if that's all you're lookIng for. And the bar chart of score heights is pretty useful."

The ACT II reports help Pure-Pak use statistical analysis to maintain blank quality Valeri and his



Pure-Pak Inc. can produce 250 million TabTop carton blanks per year in its new converting plant.

continued on page 28

colleagues use the data from the ACT II to plot control charts. enabling them to Identify variations within a run of blanks or within the converting process. Whenever a variation exceeds acceptable limits. the Pure-Pak staff quickly isolates the problem area and takes corrective mcasurcs. Further blank readings by the ACT II system confirm that the problem has been solved.

Historical data

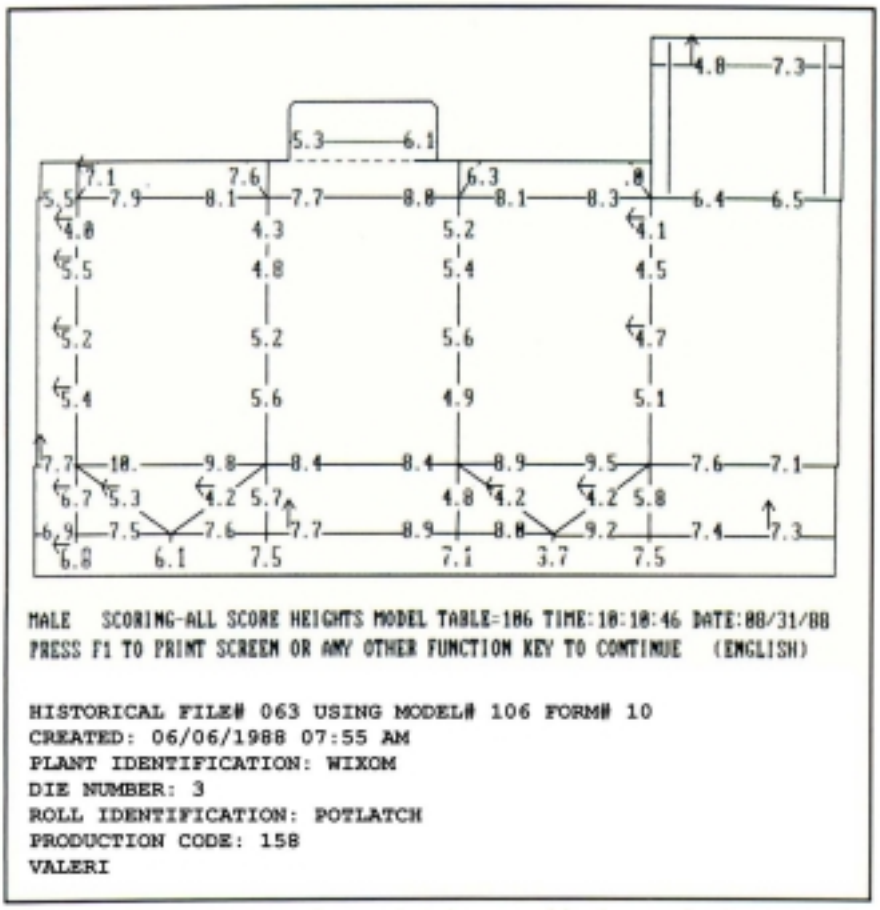
Having accurate information readily available is obviously a big help to Pure-Pak Inc.. but just as important is the ability to maintain a comprehensive file of quality reports. either on paper or on computcr disk. The historical data will be valuable reference for future converting runs. and will bc particularly useful if a customer ever challenges the quality of his cartons.

"If we were to have a customer claim against us-and we haven't had that experience-we'd have documentation from the day his blanks were run and from the machine they were run on." said Putman. "The ACT II takes a gray area and makes it black-and-white."

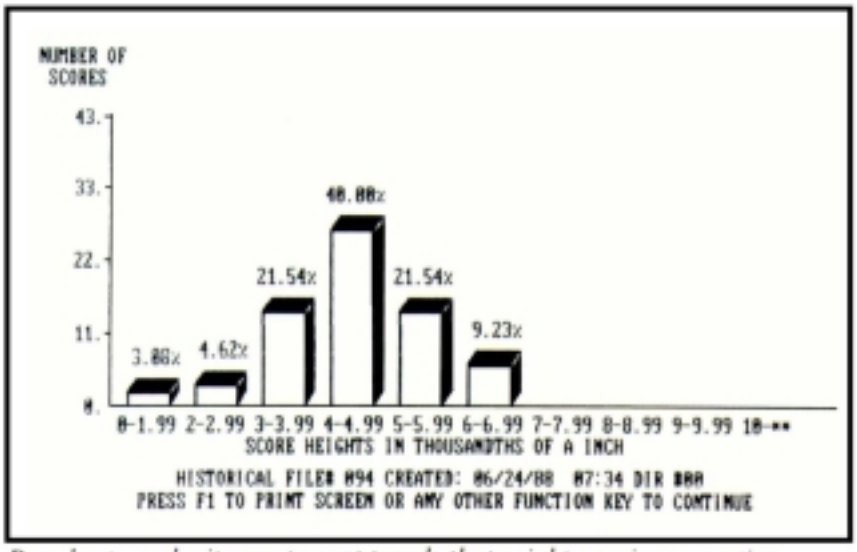
With all the data compiled by the computer. a manufacturer could easily link several ACT II systems monitoring different operations within a plant. or even operations in multiple plants. Production records can bc ccntralizcd. with test results automatically transmitted via telephone from remote locations. This can be done at night. when quality checks arc generally not being run and tclcphonc rates arc lower. Although Pure-Pak has only one converting plant. Valeri sees greatly improved accountability for companics with multi-plant operations.

Other ACT II users see the same benefits and are presently considering additional systems. ACT II systems are currently in use in Denmark. Italy. Japan. and the United Kingdom. as well as in the United States. and are monitoring the quality of packages for milk juice, and cigarettes. Virtually any folding carton that will fit on the X-Y table (17"xl7") can be read. Pure-Pak uses a second ACT II system at its Walled Lake. Mich. , headquarters to audit Pure-Pak carton quality for its affiliates around the world.

Indocomp Systems Inc. provides the software for the ACT II as well as the hardware. including a self-diagnostic program for the computer components. The company plans to introduce software enhancements to make the system even more useful. particularly during periods when it is not checking blanks. Spreadsheet, database management, graphics, and word processing programs are being developed.



The ACT II can display all score heights on a blank or only those out of tolerance.



Bar charts make it easy to spot trends that might require corrective action.