

Shrinkwrap can-packs **oriented** *for clubstores*



Shrinkwrapping output jumps 400 percent at Prime Distribution Services via an integrated system that orients cans with labels facing outward into 4- or 6-packs at 40 packs/min. Oriented multipacks maximize shelf display at clubstores...fielded by Senior Editor Rick Lingle.

The term 'spot label' takes on a whole new meaning at Prime Distribution Services, Inc., Indianapolis, Ind. A shrink wrapper is equipped with multiple head orienters that use fiber optic sensors to spot the position of labels on 6-oz cans and then reorient them up to eight at a time—done at eye-blurring speed—with the label fronts all facing outward. Oriented at a rate of 40 packs/min, the 300 or 303 size tin-plated steel cans are then shrink-wrapped into 4- or 6-

count groups to provide the shelf impact desired by clubstores such as Sam's, B.J.'s and Price-Costco. "Seems like all companies that sell multipacks of cans to clubstores want the labels facing outward for marketing purposes," states general manager Rex DeLay. Prime's capability centers on a CFHB 10-32 CVL continuous-motion shrink wrapper that includes a custom infeed, orienting heads and heat tunnel, all supplied as an integrated system by Poly Pack through distributor Flex-Pac.

No longer the pits

Prime has seized a sizable niche among olive packers who use Prime's repackaging and nationwide distribution services. These include Bell-Carter Olive Co., Corning, Calif.; Mario Olive Co., Div. Westin Inc., Omaha, Neb.; and The Lindsay Olive

Co., Corning, Calif. "All black olives sold in clubstores east of the Rockies come through here," boasts DeLay. "It's an unbelievable amount." Incoming and outgoing pallets of olives take up a considerable portion of the 150,000-sq-ft warehouse. A veritable mount of olives, those volumes compelled Prime to find a better way to orient cans, especially since workers found the mind-numbing task to be the pits. "Now, our operators aren't getting 'burned out' having to orient cans," DeLay says. "And our volumes reached the point where we needed an easier process. This has made their tasks



ergonomically easier." Installed last August, DeLay says the

system swung into high gear in early October '95.

On the previous manual setup, as many as 10 operators could output 18 packs/min. "About the same number of operators now output 45 to 50 packs per minute-that's a considerable savings in labor," DeLay says. "All the bottlenecks where people couldn't work any faster have been eliminated by this system." This automatic orientation setup has been a boon to efficiency, according to operations manager Don Wimer: "What took us five days before can now be done in a day or two. The biggest impact is for six-packs. Before, we could produce eight pallet loads daily, and now we can produce 35 to 40."

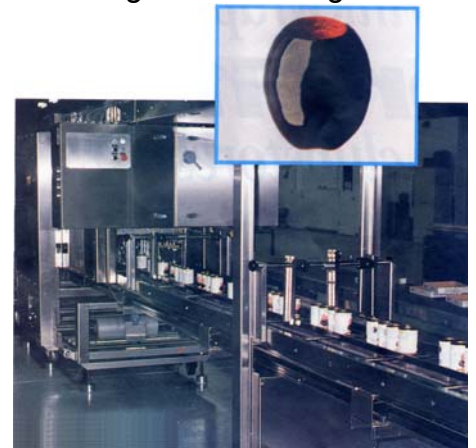


DeLay adds that units per manhour have "skyrocketed," noting that he expects a 24- to 30-month ROI. As was the situation prior to the automatic setup, manual tasks are done upstream and downstream of shrink wrapping: ahead of the multipacking system, operators remove customers' cans from palletized corrugated trays and place the cans on an accumulation conveyor. Then, about 55 feet downstream, other operators place the shrink-wrapped packs back in the trays and then repalletize the trays.

Infeed details

Prime's olive repackaging production is based on weekly orders from olive companies, with September through December being the heaviest period, averaging five times the volumes of other months. Canned olives arrive by rail on pallets as 12- or 24-count corrugated trays. Pallets are brought to the line where trays are placed onto two or three parallel 1031-ft-W gravity conveyors. For each infeed lane, one worker unloads palletized trays as a second worker unloads the cans onto a belt conveyor; equipped with reverse-motion belts on both sides of a machine-direction center belt, this section provides accumulation and backpressure to keep a full supply of cans into the infeed lanes. A separate worker inspects cans on the accumulation conveyor, checking for loose labels or, especially, dented cans. "Dents are the biggest problems for the orienters," DeLay says. Operators toss empty trays onto a parallel straightline takeaway conveyor, situated four ft away, that carries them almost 70 ft to a position near the end of the line by the labeler. Cans are directed toward one or two lanes, depending on whether the four-pack (a 431 configuration, one lane) or six-pack (332, two lanes) is run. DeLay says they have also run three-packs. During PD's visit, the line was producing four-packs. Cans are then assembled into the respective group counts by appropriately spaced sets of rubber-tipped pneumatic

pistons. When activated, the pistons extend through openings in side guiderails to briefly hold back the cans before retracting to release the four-can group into the shrink wrapper's main infeed conveyor section where they are properly timed into the flights. Mounted on a chain and situated on 18-in. centers, a flight bar comes from behind the can group at a speed of 70 ft/min, which is slightly faster than conveyor speed, and pushes it the 20-ft distance to the orienters. This speed equals an output of 40 packs/min, which is independent of the specific pack configuration. Each of the two lanes is equipped with its own array of orienters, comprising four sets of stepper-driven rotary turning/reading mechanisms. The whole orienter assembly operates in reciprocating motion at a speed matching that of the flights.



Faster than the eye

When the four cans (or three for six-packs) are in position, they are gripped by the orienters and turned, held by two opposing devices. On one side is a stepper-driven unit, which does the actual turning, equipped with a rubber O-ring that pushes against the can to

provide the friction to turn it. Opposite is a metal assembly with two sets of rollers horizontally aligned that allow the can to turn in place; in between the rollers is a color-sensitive beam that scans the label as the can is rotated. The sensor halts the stepper drive when it spots the preprogrammed mark; allowance is made for the mechanism's reaction time. "It operates faster than the eye can see," notes DeLay. The shrink wrapper/orienter system is run by an Allen-Bradley programmable logic controller. For the Bell olives packed during PD's visit, the reference mark was the black olive on the white background seen on the side of the label. "Since the scanner reads in color, all that's required for alignment is an area of contrasting colors on a label," notes DeLay. After all four cans are aligned, they are lowered and released together back into the same flight. The entire orientation process takes 1.33 seconds. Once it's properly set, the orientation system continues to operate smoothly-as long as the labels aren't positioned dramatically higher or lower than where they should be, DeLay says. "It's a slick system." Unwound from a 7,000-ft-L roll, the shrink film is



perforated in-line before the two film edges are pulled over the forming box and sealed together at 385 deg F to form a continuous tube of film around

the cans. The film is Cryovac's D-955, a polyethylene-based multilayer coextruded film. DeLay characterizes the Cryovac film as tough, forgiving and durable: "We can drop packs to the floor and they don't come apart." He adds that the film accepts a range of seal bar temperatures "from hot to cold." Prime uses three film widths: 19 in. (four packs); 24 in. (six-packs); and 24.5 in. (two-packs of jars). The film is cut and sealed horizontally at 505 deg F by a seal-bar assembly. This forms the end seal of the leading group of cans and the front seal for the next group. "Another thing I like about this wrapper is that the seal bar assembly can be operated in a vertical or horizontal mode," DeLay points out. "Our single-row can-packs are fairly tall, and it's a much better looking pack when there's a vertical cut on the film. The squarish six-packs, though, look better with a horizontal cut." That changeover takes less than a half-hour, according to DeLay. Another plus: The packs are shrink-wrapped unsupported by any paper-based pad. "That's important-a pad adds costs and requires additional people for placement, and can really slow the process down," says DeLay.

Value-added logo label

The wrapped cans then convey through an 8-ft-L, 318-deg-F shrink tunnel and past an existing Label-Aire Model 2111 blow-on labeler. When detected by a photo sensor, the pack's presence triggers application of a 11½ in. square pressure-sensitive label to the leading top end of the shrink-wrapped

multipacks. Supplied in roll by Avery Dennison, the Fasson 55# Vista labelstock is printed off-line one- or three-up using a Sato printer that prints bar code; product ID; and the olive company logo. Scanned from a label or other material from the customer and enhanced using



software before it's printed, DeLay views the logo as a value-added service for their customers. "It provides 300 dots per inch resolution, which is greater than a typical printer," he adds. Depending on the customer, the packs are typically retrayed and palletized, although one customer (Price-Costco) has packs palletized untrayed onto slipsheets. Currently done manually, DeLay says this will change when they add a palletizer this year. Pallet loads are then stretch wrapped using either Inrapak or Lantech semi-automatic machinery and 20-in-W rolls of 80-ga PE film from various sources. Line output for olives breaks down as follows: 40 percent are 4-pack cans and 20 percent are 6-pack cans. The remaining 40 percent

comprises two-count packs of green olives in 21-oz glass jars, but those are oriented manually before multipacking. Rather than any shortcomings of the orienters, DeLay says manual orientation really results from the jars' large volume: The still-spinning contents causes them to continue to rotate unpredictably up to one-fourth of a turn after discharging from the orienters. When jars are run, DeLay says two operators preorienting and placing them into the flights can output 45 two-packs/min. Because of its speed and efficiency, the Poly Pack system is also used to shrinkwrap computer software kits for area publishers. "It's really faster at that than any other machine we have," DeLay says, "and the flight bars really help in alignment." However, he expects that they will gradually

phase out running publishing materials on this machine.



Trustworthy startup

"In order to prosper as a company, we have to find a way to beat the competition, and having a machine that's fast and easy to operate like this is a step in the right direction," says DeLay. "This machine is technically way beyond anything else we have here." It also represents the largest to-date capital

expenditure for Prime, which began business in early 1990. "Nothing like this had existed in the United States, so we had to trust the people we dealt with," DeLay explains. "Poly Pack may not be the largest shrink wrapping machinery supplier, but it had prior experience in Europe building machines that oriented items. And orientation has been the least of the problems associated with this startup." DeLay says most of the problems consisted of smoothing out small bumps in the conveyor so that the cans wouldn't tip over when running at high speeds. Which demonstrates that with the best of plans, the worst problems can be reduced to a few bumps in the road, an appropriate analogy for a company a few miles from the Indianapolis Speedway.



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