



The case packer handles up to four cases per minute, which equates to 30 napkin packs per minute at 500 napkins per pack.

Case packer absorbs manual labor

This paper manufacturer was able to automate labor out of its beverage napkin line for quick ROI and improved case-sealing quality.

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Automating out labor

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Lessons in FATs

By Matt Reynolds, Editor

Many automation and engineering feats have begun as hastily sketched ideas on a handy cocktail napkin. Therefore, it's only fitting that a cocktail napkin-producing paper converter is itself turning to automation and engineering to speed up and lean out its operation.

Based in Elmwood Park, N.J., Marcal, a Soundview Paper Company, is one of the oldest environmentally friendly paper companies in the U.S. Its product line includes paper towels, napkins, bath tissue, and other similar products in various counts and sizes. For more than 80 years, the company has been reducing landfill by making paper products from recycled paper. Marcal uses paper collected from residential neighborhoods as well as from the small blue baskets in office buildings

containing items that range from unwanted junk mail to printer waste, all in an effort to do something good while producing something that people need from this discarded paper.

Situated 15 miles from New York City, the company's flagship operation encompasses more than 1 million sq ft of manufacturing and storage facilities on a 30-acre site with 19 different paper converting lines. The company converts bales of recycled fiber into paper of various weights, depending on the intended application. Currently, the company's business is a 60/40 brand to private-label split, with 60% being the Marcal name, and 40% going to store brands for customers like Stop and Shop, CVS, Walmart, and Dollar General.

The beverage napkin line doesn't take up much space in the 30-acre operation. But it's hardly an afterthought, and napkins are frequently one of the hottest products on the floor—at one point, the napkin-converting machine was completely sold out and couldn't keep up with demand.

Kyle Hook, process engineer, is wired to find ways to incrementally improve, and he saw that opportunity in the beverage napkin line. "Providing a quality product is one of our core values here at Marcal," he says. "Continuously improving our packaging processes allows us to stay competitive within the market and improves our flexibility for new products."

For this operation, Marcal uses one small folder from **Bretting Manufacturing** to fold beverage-weight paper into different orientations to achieve a square napkin. The beverage napkin line takes the pre-cut 11½ x 9½-in. paper blanks and quarter folds them into 3½ x 3½-in. squares, and then they're put into a bagger.

"We put 500 in a pack, and we get four packs in a box," Hook says. "But we traditionally had someone hand packing cases, which they would then run through a **Little David** tape sealer. Then the bags would go off to be palletized. That was labor intensive and was a bottleneck, so that's where we saw opportunity to automate."

The throughput metric in Hook's industry is in tonnage/day, and to keep up with the demands of reaching eight tons/day, the line required two to three operators at shifts of 10 hrs/day, five days/week. Labor-wise, this was on par with the larger lines, ones that use 102-in. parent roles and much larger Bretting folders. But the diminutive beverage napkin line uses 68-in. parent rolls and an equally scaled-down folder. Hook recognized that with the right automation, only one operator would be needed to keep the line moving along.



After some phone calls to distributors and vendors, Hook ended up working with Anthony Del Visco at **Eagle Packaging Machinery LLC** (now **EndFlex LLC** of the **Paxiom Group**). The two of them determined that Eagle's Boxxer™ all-in-one case-packing system to down-stack and load from the bottom, then seal the top and bottom of the case with **Nordson** glue system, would be the right balance of size, function, and speed for this application.

"What this allowed us to do is reduce our head count from two or sometimes three people on that line down to one," Hook says. "That's fantastic savings. Our payback on that was about a year and a half, so that's a great project."

Beyond labor reduction, quality also improved. Hook says that by purchasing the packer/sealer, Marcal increased quality by updating this line to utilize hot melt instead of tape, like the rest of its converting lines.

With the new case packer, the line runs at up to four cases per minute; or 30 napkin packs/min using corrugated RSCs at 15¼ x 10½ x 10½ in. Each pack pattern is 2 x 2 x 2, and each product unit in a film bag is 8 x 5 x 5 in. Packed and sealed beverage napkin cases are then carried by conveyor to 12-lane sortation that separates them into napkin or towel case formats, after which each case format is sent to its own dedicated high-level in-line palletizer.

Support after the sale

Hook attended the FAT at Eagle's headquarters in Miami, and everything went swimmingly. But as CPGs and OEMs often experience, the practice of running the same small batch of test product over and over again led to an unrepresentative sample—the test batch of napkins weren't true to their size. And that only stands to reason—the product in this case isn't a soda can or rigid box, it's a flexible bag of napkins.

"So when we got the Boxxer here in New Jersey and began running only fresh product, it naturally was running a little bit differently than it was down there," Hook says. "All it required was a simple photoeye fix that the Eagle technician had described during installation and training. Their tech was easily able to fix that. Then, after running the machine for about two weeks, a mechanical component was causing us production issues. Within the week, they redesigned the part and sent it to us free of charge. All in all, that was fantastic customer service."

"Our flexible case packing systems are a by-product of the partnerships we form with our clients from initial conception to design, manufacturing and delivery," adds Nicholas Taraborelli, VP Sales, Eagle Packaging. "Working with Marcal was a great experience for all involved. There is nothing more motivating than a job well-done and a happy customer."



Prior to purchasing the case packing equipment, this beverage napkin line used an employee to hand pack boxes and run them through a tape sealer. That labor has now been automated out of the line.

FATs need representative test product

A common hurdle that OEMs face in FATs is having enough test stock to accurately represent real production conditions. When the same small amount of test product is run through a machine multiple times, it can become scuffed or misshapen, and the machine is calibrated to unrepresentative product. With delicate products like bagged napkin packs, as in Marcal's case, this is unavoidable, but it can be a problem with rigid containers as well.

PMMI's OpX leadership network addressed this dynamic, along with other factors to consider during a FAT, in its *Factory Acceptance Tests: Protocols for Capital Equipment in the CPG Industry*. Download the checklist for free at pwgo.to/3821, or visit www.opxLeadershipnetwork.org.



What's next

Outside of the beverage napkin line, Marcal is rapidly growing and automating. The company will soon have a new converting line for hard-wound towel, jumbo roll tissue, and any other away-from-home rolled product that you would typically find in public restrooms or commercial bathrooms. It will use a new **Maflex** rewinder, with a **Valley Tissue** case packer and core reformer, and a **Top Tier** palletizer.

But Hook still is keeping his sites on that beverage napkin line, too. Now that the Boxxer case packer is in place, the line's bottleneck has

shifted from the manual labor to the 25-year-old bagger just upstream. As it stands, the older bagger keeps up fine when functioning. But reliability is becoming an issue, and further automation is likely in store at some point.

"Automation and new technologies will be critical for success within the industry in the future. Organizational hierarchies are flattening more yearly as margins get tighter and market share decreases," Hook says. "Automation and technology will be the two driving factors in staying competitive and increasing throughput." **PW**

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