Vertical Cup Counter/Loader Adds Packaging Flexibility for Disposable Cup Manufacturer

The machine's four-lane, differential-speed capability allows the packaging of multiple-sized cup counts per run, at the same time on one machine. Engineered and built by Rennco, the unique vertical cup counter/loader can handle throughput of more than 1,200 different sized cups per minute at the plant.

by Robyn Schmitt - ZebraCom, Inc.

Within the intensely competitive market of disposable foodservice paper goods, achieving a high level of production throughput is vital to keep clients onboard, realize profitability and maintain a competitive edge. A key solution is to utilize the correct machinery to automate production and packaging processes.

One North American manufacturer of disposable cold cups for the foodservice industry recently upgraded its production facility with the latest technology in cup manufacturing and packaging. Currently running two shifts daily, six days per week, and soon expanding to three shifts per day, the manufacturer required a throughput of 1,200 cups per minute to maintain its production quotas.

Throughput standards in the industry are dependent upon what size and type of cups are being run. Manufacturers will not package different sleeve cup counts on the same runs. A 25-count sleeve will not usually run at the same time as 50-count or 100-count sleeves are being filled. The infeed lanes normally all run the same counts at the same speeds, with different machines dedicated to run specific cup counts.

Counting, Loading and Packaging Cups

This plant, however, required the flexibility of packaging varying cup counts per run, at the same time on one machine. After an extensive search for a system that could perform this capability, the manufacturer selected a state-of-the-art packager integrated with a vertical cup counter and cup loader that permitted a high level of customization. The Model 501 Packager and Vertical Cup Counter/Loader (VCCL) system was designed and installed by Rennco, a leading manufacturer of high-performance automatic and semi-automatic vertical bagging systems and heat sealing solutions.

"The order for the machine was put through in August, 2018," said Mike George, Technical Sales Manager at Rennco. "But we didn't put the 501/VCCL system in place until March, 2019, following installation of the upstream cup forming equipment by another manufacturer."

The plant's VCCL system was engineered to accurately count and load cups into stacks after being formed. The cup counter accepts a single line of nested cups from a continuous source and counts them utilizing fiber optic sensors, then infeeds the cup stacks to the 501 packager. The packager bags the stacks of cups in polyethylene material, and seals the bags with a dual-seal assembly vertical L-bar sealer. The sealed stacks are then released for downstream case packing. The 501 provides substantial film savings versus using pre-made bags on a roll.

VCCL Custom Requirements

"There were considerable custom requirements built into this VCCL system," explained George. "Once the cups are produced, they are blown from the forming machine to the infeed section of the VCCL system, where they are downstacked into four infeed lanes. Typical installations of vertical cup counter/loaders run 50-count and 100-count stacks. This facility required a machine that had the flexibility to run a range from 25-count stacks to 100-count stacks with a different count on each of the four infeeds, while running simultaneously. To the best of our knowledge, this level of flexibility had never been engineered before into a VCCL infeed system."

The system can handle single- and double-poly coated paper cups, clay coated cups, thermoformed cups, and selected injection-molded and foam cups. Cups can be bagged in single or multiple stack arrangements based on run specifications.

Each tower (lane) can run a different size cup. Tower one could be running a 12-ounce cup at 100-count; tower two could be running a 4-ounce cup at 25-count; tower three could be running a 32-ounce cup at 30-count; and tower four could be running a 16-ounce cup at 50-count. The VCCL is capable of running all of these different sizes and counts through to the bagger. Each lane can run 330 cups per minute, while running at different speeds.

"The speed of the machine had to be more dynamic than conventional VCCL systems, continued George. "Even more challenging was that the four-lane, differential-speed capability was a requirement specified by the cup manufacturer after receipt of the system at its plant. The custom upgrade was configured when the VCCL system was being installed onsite."

"We took that opportunity to build a better machine," added George. "It worked out so well for the cup manufacturer that we have now integrated this capability into our standard machine offerings."

After Installation Support

After installation, Rennco technicians worked with the cup manufacturer's operators to thoroughly indoctrinate them on the 501/VCCL system to ensure they could operate the system flawlessly.

"Our team worked closely with the plant's operators helping them understand how every function of the system worked," said George. "The plant now has a very unique system that is capable of

delivering the exact throughput requirements to help it remain competitive in its foodservice markets."

About Rennco
Manufacturers of consumer and food service disposables, hardware, consumer goods, medical goods, and industrial laundry services rely on Rennco for high-performance automatic and semi-automatic vertical bagging systems and heat sealing solutions. As part of the ProMach Flexibles business line, Rennco helps its packaging customers protect and grow the reputation and trust of their consumers.

For more information, contact Jeanne George, Inside Sales Manager at Rennco; Phone 517-568-5120; email Jeanne.george@promachbuilt.com; www.rennco.com.

About ProMach
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Robyn Schmitt writes on packaging automation.