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The new servo-driven Precision PMD vacuum denester boosts repeatability and speed.

“Flexibility” is a key watchword in the packaging industry. And successful equipment suppliers must respond with versatile machines that meet the demands of ever-changing packaging materials.

Precision PMD, an Ohio-based provider of primary packaging equipment, builds customized solutions that address the unique requirements and material trends in the dynamic food and beverage industry. The company’s portfolio includes container denesters, conveyors, fillers, sealing systems, lid applicators and complete packaging systems.

Recently, the company added a denesting option to its product portfolio, particularly suited to fresh salad packaging lines.

“Our company has been involved with salad tub packaging since its inception,” said Dan Auvil, co-owner, Precision PMD. “This new offering meets the denesting challenges of the thinner, less rigid containers salad makers now favor – and can double as a lid applicator.”

As demand for thinner, more cost-effective salad containers accelerated in recent years, so too did denesting issues on the packaging floor. When nested at the infeed, the large, deep plastic tubs create significant vacuum between the containers. What’s more, the tub flanges are extremely thin.

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“These semi-rigid containers do not have good stacking characteristics,” Auvil said. “They do not meet the rigidity requirements of our screw D-Nesters, which use an efficient screw-driven assembly and servo technology to separate containers from the bottom of the magazine.”

To address these material challenges, Precision PMD designed a unique vacuum solution that once again utilizes servo technology to achieve the speed and precision the industry requires.

While there are multiple vacuum denesters on the market, most use air to control the entire process. Compressed air is used to rotate the vacuum head into position, pick the container by its flange, and then release and place it. Typically, the equipment runs at a constant rate of speed.

“Because these systems cannot precisely adjust the speed or motion of the vacuum heads, they have difficulty breaking the vacuum between the containers,” explained Joe Lukes, co-owner, Precision PMD. “This issue is exacerbated by the ultra-thin flanges.”

To compensate, packagers must lower the denester’s overall rate of speed, which impacts the efficiency of the entire line.

The new Precision PMD vacuum denester boosts repeatability and speed by using a vacuum tool for the picking and release of the containers – and servo motors and drives to control the rest.

“With servo technology, we can precisely control the acceleration and motion of the vacuum head to help ensure a good “pull” on that bottom container,” Lukes said. “We can adjust the acceleration to break the vacuum, rather than slowing the entire machine.”

By limiting the use of compressed air, the servo-driven denester also positively impacts operational costs and overall dependability.

“There’s no doubt, compressed air is expensive,” Lukes said. “And if there are several machines running air in a facility, the supply can fluctuate and compromise the operation of strictly air-driven denesters. That’s not an issue with our equipment.”

Servo control also enhances the machine’s versatility. The same denester that places the tub can also rotate forward, and pick and apply the lid after the container is filled.

The Precision PMD vacuum denester is based on a Rockwell Automation platform and includes an Allen-Bradley® CompactLogix™ controller, Allen-Bradley Kinetix® 350 servo drives, and Allen-Bradley MP-Series™ low inertia servo motors. The system is monitored on an Allen-Bradley PanelView™ Plus 7 graphic interface and integrated on an EtherNet/IP™ network.

“As a company, we pride ourselves on staying on the cutting edge of technology,” Lukes said. “That’s one of the reasons we work with Rockwell Automation – and why we are early adopters of their latest products.”

Precision PMD also takes pride in an ongoing commitment to the machines it builds.

“We stand behind our equipment – and are very particular about the components we place on our machines,” Auvil said. “Our reputation is based on the reliability and performance of our machine designs – and reflects on our suppliers and the support they provide as well.”

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