



Technical Note

How Robots Are Improving Partition Inserting

When selecting a partition inserter, packaging engineers evaluate four key areas of machine functionality: reliability and throughput consistency, output quality, maintenance requirements and costs, and line flexibility. Gantry-style partition inserters have proven a functional solution for decades - however, they are not without shortcomings:

- A high number of mechanical parts require frequent, costly maintenance and are vulnerable to wear or failure over time.
- Partitions are easily damaged if the cases are not aligned perfectly under the partition insertion area. The single-axis gantry motion increases the likelihood of jams, strip failure and improperly erected partitions. This can be especially problematic when using partitions with stabilizing hooks.
- The abrupt stop/start motion of traditional conveying increases the likelihood of damage to cases and any prepacked products within them.
- Changeovers can result in costly line downtime. Gantry changeovers are particularly time consuming, requiring modifications to the magazine, vacuum cups, indexing mechanism and the ram itself.

Robotic partition inserters have many benefits over traditional partition inserters and are rapidly becoming the technology of choice for the following reasons:

- In addition to substantially fewer mechanical components, robots have a Mean Time Between Failure (MTBF) rate of 120,000 hours of continuous operation. These factors reduce necessary maintenance and subsequent cost while minimizing downtime from part failure.
- Partition material, design, construction, placement in the magazine and facility humidity levels make partition magazine extraction the most challenging aspect of automated partition inserting. Robotic partition inserters use a six-axis movement to peel (or strip) the partition off the magazine rather than a single, linear motion, significantly reducing jams, strip failures and improperly erected partitions.
- Robotic partition inserters can be programmed for continuous case motion. By eliminating the need to stop and start the conveyor, the risk of product damage is minimized and throughput is maximized.
- Changeovers are straightforward and can be completed in under 10 minutes. An operator simply needs to change the program, adjust the magazine, end-of-arm tool and conveyor.
- Robotic solutions are inherently flexible. Robotic partition inserters can accommodate a range of insertion speeds, product and partition types, and are adaptable to change to meet manufacturing requirements.



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