

When to select a robotic case packer and when to select a traditional case packer

Robotic or traditional? It's a decision that faces every manufacturer installing or upgrading a case packer. The answer, as in so many equipment choices, is it depends. This White Paper will help give you insights into the selection process to make that determination.

Installing either a robotic case packing system or hard automation case packer is an application-by-application decision based on the item to be packed, the pack configuration, desired speeds, the space available at the facility, and a company's general equipment philosophy. Finding the best solution requires an analysis of the product, the package, a company's current needs and its potential needs down the road.

The first task for any buyer is to leave biases at the door. Too many companies contemplating a case packer approach the decision either saying they hate robots and/or can't handle them or insisting that nothing less than a robot will do—without even considering the options. Neither view is correct. The watchwords are: Let the application dictate.

Speed, size and space

Case style is one of the primary determiners of whether to install a robotic or traditional case packer. A robot lends itself best to top-load pick-and-place applications particularly if the entire case can be loaded at once. A 12-pack of bottles, for example, is an ideal robotic application.

Flexibility is another key. Robotic solutions provide significantly more flexibility to a packaging operation and are a better choice for any company running products of varying size and pack configuration. Robotic systems facilitate changeover to run multiple products on a single line.

In addition, many companies are starting to realize that today's product lifecycle isn't as long as it used to be. A traditional case packer doesn't lend itself to running a completely different item five years down the road. Robotic assets on the other hand can be redeployed and, therefore, are a "safer" investment from a future-use perspective.

Hand in hand with a robot's operational flexibility comes space flexibility. One benefit of a robotic system is a more flexible footprint. Even though a robotic system might have more components and require more total square footage, individual components can be placed in various locations to accommodate available space.

Robotic systems, however, cannot yield the speeds of traditional hard automation. A robotic case packer tops out at speeds of 30 picks per minute maximum, but in the right application and configuration can pick three or four case loads at a time, which means 90-120 picks a minute.

Still, for a single size product, traditional hard automation provides higher speeds and greater efficiency out of less flexibility. A company that needs to pack 400 cartons a minute and can only pack one case at a time probably should consider hard automation.

Real-world examples

The following two companies each pursued different case packing solutions to fit their product requirements.

A filtration products manufacturer needed a system to handle 100 stock-keeping units (SKUs) of industrial filters ranging in size from 6 to 12 inches in height and 4 to 5 inches in diameter, and weighing on average 2 to more than 5 pounds each. The filters were either bulk or case packed in a nesting pattern that required them to be uniformly stacked to prevent damage to their seams.

Those types of requirements would have been impossible for a traditional hard automation system to meet, particularly considering the space confines of the project.

A dual robotic system that integrates a case erector, case packer, case sealer and palletizer provided a successful solution that more than doubled lines speeds to 50 filters per minute (For a detailed description of this system, see **Robots a perfect fit for packaged solution**, <http://www.packworld.com/view-21261>, published August 2006)

On the flipside, a food manufacturer that needed to pack macaroni and cheese, a product that has been around for years in the same size and shape package, benefited more from a traditional case packing system.

That manufacturer's hard automation case packing system collates 18-, 24- and 36-count cases using servo-driven infeeds. After stacking the cartons, it brings them into a servo loading station, pushes them into a wraparound or knockdown case, seals it and then sends it off to palletizing. The system hits speeds of 450 cartons per minute—speeds that a robotic system couldn't achieve.

The bottom line

Cost of the technologies varies. Depending on the application, a robotic solution might be more expensive than hard automation, while in other instances the reverse is true.

Whichever option a manufacturer pursues, there are two cautions:

1. Don't get too far out in front of technology. Electronic parts are advancing so rapidly that a lot of people jump on bandwagon a little too quickly—before they are proven.
2. Buying a cheap piece of equipment usually means less flexibility or fewer capabilities, either of which ultimately leads to replacement sooner than expected.

Working with experts can facilitate the process, particularly for a manufacturer with a downsized engineering staff. Not everyone can make a simple user-friendly system. It may appear easy to some to go out and buy a robot, case erector, case sealer, and other components, but integrating those pieces together into a robotic system calls for a certain expertise.

Programming robots is the easy part. Making the ancillary equipment work together and presenting the product to the robot so the robot is not doing more work than necessary is difficult. The whole point is to make case packing efficient and easy.

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