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# FOOD & BEVERAGE PACKAGING

Market Insights to Packaging Solutions

# PACKAGING

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## ROBOTS in PACKAGING: THE FUTURE IS NOW

P. 20

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# ROBOTS in PACKAGING: THE FUTURE IS NOW



Robots in the packaging industry are no longer a luxury to science-fiction future but a necessity for companies to grow their business. / by CHRIS FOLLOWS, contributing writer

**T**oday's competitive packaging market requires companies to automate in order to succeed and to take things up to an even further level. Companies are more often looking to the field of robotics to get them there. While the term 'robot' owes its origin to the

Czech writer Karel Capek and his 1921 play R.U.R (Rossum's Universal Robots), he says his brother Josef actually came up with the term, 'roboti' as a play on the Czech word 'robata' which means 'serf labor' or 'hard work'.

Often, the terms 'robotics' and 'robots' are used interchangeably, and in truth even the manufacturers of such things are guilty of it, but it is generally accepted that robotics is the term used to describe the field of robots and its uses. For the purposes of the packaging industry, companies tend to look upon robots as programmable, automatic machines that replace specific human motions. These motions are difficult for people to perform as they more than often result in repetitive motion injuries.

Many people are aware that robots were first used in an industrial setting in the automotive segment. It was General Motors in 1962 that used the new technology at its New Jersey plant to perform spot weldings and placing of hot door handles and other parts into a cool liquid on a parts assembly line so workers could handle them for final finishing.



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The LJ Robotic Top Loading Machine offers collate and load speeds of 700 products per minute.

The packaging industry had to wait a few more years for robots to enter the scene. Nowadays, robots are being used for material handling—to move, package and select products and even to move products from one line to another; picking, packing and palletizing at the end-of-line; assembling product such as cartons; and sealing products with tape or adhesive. In many of these instances, the robots use a vision system aided by cameras and computer software that allows the robots to perform lightning quick actions that can bedazzle the casual observer with its pin-point accuracy and speed.

#### Proving robotics potential

Companies originally sought to utilize robots as a means of achieving an efficient production line that would lead to labor savings. However, as all robotics manufacturers continue to provide that service, they are challenged to offer even more to their customers.

According to PMMI (pmmi.org), the Association for Packaging and Processing Technologies, back in 2008 about 20% of manufacturers used robotics in some form along their manufacturing line, but in 2014 that number has jumped to 75%. While more end-users are seeing the value in using robotics to further improve their workflow, companies involved in designing and constructing robotics technologies can also note that they need to follow the marvelous wisdom that “with great power comes great responsibility.” And while it may seem hackneyed to follow instructions given to Spider-Man, it’s by following this advice that companies can ensure that their end-users needs are paramount and the robotics used will prosper. A happy customer means more business for the robotics industry as a whole.

PMMI’s latest report, Trends in Robotics Market Assessment 2014, provides the usual statement that robotic technologies will provide for new jobs, greater workplace safety and increased productivity, but it went a step further and suggested that there will be advances that will make the technology even more valuable to users, including:

- Vision sensors that increase the precision and handling of objects - distinguishing the differences in size, shape and color
- End-of-arm-tooling (EOAT) or end effector advances
- Integrated robot controls
- Improved sanitary designs to allow direct contact with food products
- Faster operating speeds and increased lifting capabilities
- Safety autonomy for robots with spatial awareness operating in collaborative

work cells with humans

- Decreasing costs that make robotics more affordable

Robotics companies have, because of stringent requirements, seen the food and beverage markets as ideal places to expand their services by offering custom packaging systems for a variety of markets and applications. To compliment new advances, good companies will always have their own team of engineers work directly with the customer to solve their production line inefficiencies by designing robotic packaging solutions that will maximize uptime, productivity and total cost of ownership.

To have a customer seeking a 99.6% efficiency rate and then exceed their expectations with a 99.73% efficiency rate is the standard to which the robotics expertise bar has been raised. This makes the customer very happy and will result in continuing to grow with their

The Propack cartoning machine achieves high speed through its multi-head end of arm tool.



robotic solution provider which is a win-win for both. Confidence in robust machineries allows us all to work on ways to improve production of our equipment.

#### Improving sanitation and safety

Beyond the improved production efficiencies, robotics companies seek to provide better sanitation solutions to the customer. Ease of sanitation is the ability of the equipment owner to clean the machinery during either product changeovers or at the end of the work day to ensure, especially for customers in the food and beverage markets, that what they are manufacturing and packaging is as hygienic as possible. Because a production line can be shut down for two hours or more to afford a proper cleaning, companies need to work directly with customers to share data so they can learn how to make further improvements.

It's a learning experience, and the buyer of any equipment would be wise to note that just because a machine seems like the perfect system, both the end-user and the equipment manufacturer need to work together to ensure it's the perfect solution for the user.

While companies are always looking for ways to increase robotics productivity, making equipment safer for the users is another essential ingredient for customer satisfaction. End-user visibility is important. Designing windows into machines not only satisfies Six Sigma safety guidelines, but it also allows end-users to see the equipment at work without having to open it up to view progress, which could lead to dangerous arc flashing.

Machines  
strive to ensure  
owner/customer  
satisfaction  
⇓



#### Making the investment

For many companies, the initial reason to balk at utilizing robotics in their production line is that they fear the technology is far too expensive. That certainly is a viable concern, but as with any manufacturer of technology worth its salt providing a timely return on investment should always be part of the equation.

Those end-users currently sitting on the fence regarding robotics should work with a robotics manufacturer to find the right solution. Doing so will result in high production line efficiencies combined with robust and flexible equipment that will provide a return-on-investment on multiple levels, such as with safety and sanitation concerns. This will offset the potentially off-putting perceived high initial cost.

Robotics, just like any automatic machine or any manual labor has a cost—but using better and faster technology will take a company into the next stage of its evolution. Robotics aren't the future of packaging technology. Robotics are here—right now—an available technology just waiting to be used correctly by any company looking to improve its production line efficiencies.

#### Imagining the future

Any good robotics manufacturer is constantly imagining the future. The industry may not be there yet, but one can look forward to an entire integrated production line linked together with computer software. In such a setting, a line operator could program a new recipe and from there see the entire line change to accommodate that recipe and all its processing and primary and secondary packaging requirements. In fact, companies can envision a process so seamless that the change in recipe could trigger not only a full changeover, but a full automatic washdown – a process important for food and beverage industries.

Just like any industry, the manufacture and use of robots in the packaging industry is a constantly evolving and maturing learning experience. It would be wise to note that just because a machine has been called the perfect system, both the end-user and the equipment manufacturer need to work together to ensure it's the right solution for your individual situation. **F&BP**

*Chris Follows, founder and president of Propack Processing and Packaging Systems Inc. ([propack.ca](http://propack.ca)), leverages his 25 plus years of industry experience to provide the vision for ongoing growth, new technology development and best in class solutions. With an extensive background and knowledge in packaging automation and the food industry, he founded Propack in 1996 and continues to lead the organization to serve customers and exceed expectations.*