



# Raising the bar on flexible packaging

Making the most of a strategy that supports efficiency, variety, and sustainability

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# Introduction

The food and beverage packaging industry is facing innumerable pressures at the moment. Packaging companies are required to do more with fewer resources in addition to offering greater product variety and demonstrating environmental sustainability to an increasingly discriminating consumer base. Fortunately, flexible packaging can help companies meet these demands without incurring significant productivity losses. By using less material per package and expanding the options for colorful and creative visual presentations, this strategy promotes environmental health and helps different products stand out on retailer shelves.

There are still some challenges with flexible packaging, however. The changeover process, if not done properly and with the right equipment, can be a sinkhole for productivity. When machinery is overly complex or operators lack the right training, changeovers take longer, making it less lucrative to offer a variety of products. Packagers also need to ensure the reliability of their equipment while washing it down with harsh chemicals and high-pressure water jets. This white paper will explore several current trends in flexible packaging and suggest possible ways to mitigate its challenges.





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## Ensuring seal integrity

A common goal of food and beverage manufacturers is to find ways to extend the shelf life of their products. One of the best ways to do this is to make sure the packaging film is properly sealed every time. Sensors can detect seal integrity, while temperature controllers can ensure that heat levels do not get high enough to burn through films during sealing. This is especially critical for manufacturers seeking to reduce their plastic footprint by making films thinner, since the sealing bar is more likely to accidentally burn through the thinnest of films.

Servo motors also play an important role in ensuring seal integrity. Since servos are responsible for moving product along the production line, they can control the speed at which the sealing process takes place. By positioning the plastic in just the right spot and preventing it from lingering too long, servos help ensure an accurate cut and a proper seal. Manufacturers noticing frequent sealing problems can usually solve the issue by upgrading the temperature controller, the servo system, or both.

### Benefits of flexible packaging

Flexible packaging is seen as the packaging strategy of the future thanks to the following benefits:

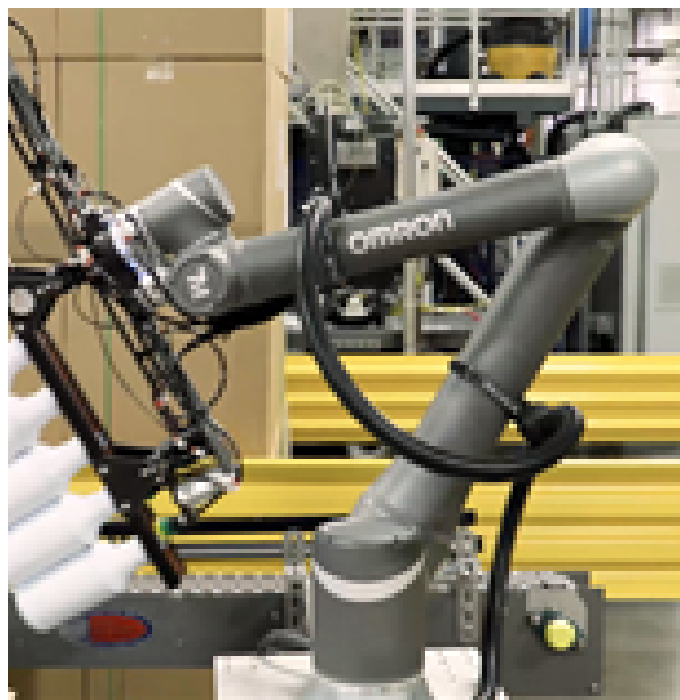
1. It improves production efficiency.
2. It offers more diverse customization.
3. It supports a sustainability agenda.
4. It extends product shelf life.
5. It makes shipping and handling easier.



## Switching between different film types

Supporting a wide range of SKUs while also taking advantage of the latest packaging-related efforts to promote sustainability requires the ability to easily switch between different types of plastic films. Modular technologies, such as collaborative robots, can make these changeovers much easier thanks to their flexibility in accommodating new tasks and their ability to work safely alongside a human operator. Modular technologies are also much easier to scale up or down depending on demand.

Production lines are also more flexible when they have a smaller footprint. Many Omron technologies, from smart cameras to predictive maintenance devices free up more space for switching up the layout or adding new functionality when the need arises.



## Making machines easier to use

If changeovers are going to occur with greater frequency, then operators need to find them accessible and user-friendly. Complex machinery will only serve to draw out the changeover process. These challenges can be improved with more training for the operator, especially in video form, so manufacturers should be sure to check out an automation supplier's training offering before making a selection. It also helps if the supplier can provide condensed manuals in addition to the more comprehensive ones.

Human-machine interface (HMI) technology with better visuals can make a huge difference in an operator's ability to use new equipment or use the same equipment in new ways. The NA family of HMI terminals from Omron makes it fast and easy to implement dynamic, intuitive user interfaces that boost productivity and minimize downtime. The NA Series' future-proof, scalable platform helps operators react quickly when abnormalities occur.





## Making machines easier to clean

Keeping things clean is one of the biggest challenges in the food and beverage manufacturing industry. Frequent washdowns are essential for maintaining hygiene, but the harsh chemicals, high pressures and extreme temperatures involved can also damage the delicate interiors of sensors and other devices, cause them to break down earlier than expected.

Fortunately, automation partners like Omron offer product lines designed specifically for manufacturers that perform washdowns regularly. IP69K-rated products are recommended for the most extreme washdown environments, as these can withstand high-pressure water jets. Washdown-rated product lines from Omron include sensors, Delta robots, emergency stop pushbutton switches, and much more. For light washdowns, IP67-rated products are often suitable.

### Characteristics of IP69K-rated products

Washdown-rated automation technologies have specific design elements to ensure cleanability and maintain integrity. It improves production efficiency.

- Rounded and sealed construction allows for high washdown pressures at any angle and the use of aggressive cleaning solutions.
- IP69K products can withstand high and low ambient operating conditions and maintain integrity in extreme environments

## Improving equipment reliability

To better deal with the added complexity that flexible packaging entails, manufacturers need to have confidence that their equipment will function reliably. Some machinery makes it difficult for maintenance personnel to access key areas, so machine builders need to incorporate ease of access into their designs without sacrificing safety.

Predictive maintenance and self-diagnosing

equipment can also work wonders for reliability. Many newer technologies have built-in diagnostic mechanisms that will alert operators when electrical contacts are wearing down to the point where replacement is necessary. Companies can take advantage of wide-ranging predictive maintenance solutions to remotely monitor their equipment on a round-the-clock basis.



# Summary

Capable of dramatically expanding customization options, supporting environmental sustainability, and improving overall production efficiency, a flexible packaging strategy is the gold standard for many companies. The value of this strategy is greatest, however, when packagers invest in the right machinery that can improve seal integrity, changeover speed, ease of use, cleanability, and reliability. Choosing the right automation supplier can ensure that a transition into flexible packaging serves to reduce complexity and boost efficiency, rather than vice-versa.

## References

1. The Association for Packaging and Processing Technologies (PMMI). "Flexible Packaging Market Assessment Report: Findings of an in-depth market assessment on the flexible packaging market as it pertains to the packaging industry". Reston, VA: PMMI, 2015. PDF.





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