

A Koch Equipment White Paper



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## **Vacuum Packaging – An Investment With Significant Returns**

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## **Introduction**

The purpose of this document is to educate food processors and packagers about the advantages of vacuum packaging and how one can profit by investing in vacuum chamber packaging equipment, which delivers significant returns.

## **Problem Statement**

Many factors such as shelf-life, weight loss, product quality, and product presentation are sacrificed when using paper to hand-wrap food products. While the concept of vacuum packaging has been a standard practice in the food industry for decades, many small processors and packagers are not taking advantage of this common method to package their finest food products. As a result, they are experiencing higher labor costs, increased rework, and increased product spoilage.

## **Solution**

If you are faced with any of the above challenges, vacuum chamber packaging is the solution. Vacuum packaging offers unrestricted packaging flexibility and delivers a host of value-added benefits, including:

- **Extended shelf-life of fresh product** – keeps products fresher and eliminates freezer burn
- **Increased production efficiency** – produces more packages in an eight-hour shift versus hand-wrapping
- **Minimized rework** – hermetically sealed packages reduce the number of leakers and reworks
- **Improved package quality** – packages product in a clean, leak-resistant, retail-ready package

## **Implementation**

### **The Process**

Vacuum chamber packaging machines are very simple to operate. The product is placed in a barrier pouch and placed in the machine so that the open end of the bag lays flat across the sealing bar. The percentage of vacuum and seal time is set to the desired levels and the lid is closed. The chamber is completely evacuated by use of a vacuum pump. Once the desired vacuum has been achieved, the pouch is sealed and atmosphere is let back into the chamber. The lid opens and the process is complete.

**How many packages can I produce in a day?**

The number of packages produced is directly related to the size of the pouch, length of the seal bar, and size of the machine. For instance, a standard seal bar length of a tabletop unit is 16-in. Using a bag measuring 6-in. wide by 10-in. long will allow you to place two pouches on the seal bar at one time. Assuming the machine takes 30 seconds to complete its cycle, lid down to lid up, your rate would be four packages per minute. Single chamber units are a little slower when you factor in load/unload times. Double chamber machines are usually faster in cycle rates and are designed to keep the process moving at an even pace. While one chamber is pulling a vacuum, the operator can unload and re-load the other chamber.

**How does vacuum packaging extend the shelf-life of my product?**

Many factors affect shelf-life. The general rule of thumb is that vacuum packaging extends the normal shelf-life by two to three times. The advantages of a longer shelf-life are many, both for you and your customer, as you are ultimately providing an added value to the product. Whether your customer is a retailer who puts the package on the shelf to sell or a consumer who takes the product home and puts it in the freezer, the product will be protected from spoilage, weight loss, and freezer burn.

**How can vacuum packaging increase my profits?**

Value-added products normally command a higher price, providing an opportunity for increased profits. Material (pouch) costs for vacuum packaging compare similarly to hand-wrapping, given the amount of quality wrapping paper used.

Product weight is money. Vacuum packaging prevents weight loss (normally 1% per day), thus allowing packagers and processors to deliver more consistent packages. When using vacuum packaging, you spend less time and money dealing with returns due to spoilage or damage. Your distribution area can also be increased by selling a shelf-stable product, thereby maximizing your market reach and growth potential. Vacuum packaging also provides you with the opportunity to explore new products and expand your product line.

Vacuum chamber packaging equipment is very economical when compared to other packaging lines. Your investment is minimized through significant returns. Additionally, the equipment is simple to use and requires only basic maintenance practices.

### **What size vacuum packaging machine is best suited for my operation?**

Everyone has specific needs for the product(s) to be packaged. Generally, the size of the machine depends on four attributes:

- 1) the size of your product (if it is thick like a ham or turkey, it will probably not fit in a tabletop unit);
- 2) the size of the pouch;
- 3) production rates; and
- 4) the production space available to place a machine.

Small-sized packagers and processors (butcher shops and meat counters) will find that a small, tabletop unit will serve them well while production-oriented businesses may opt for floor models and double chamber styles. Large-sized producers may opt for a fully automatic, belted machine that operates in a machine-paced fashion.

### **Summary**

When you consider all the benefits of vacuum packaging, it is hard to shy away from it. This type of equipment has advanced, both in features and performance, so that processors and packagers can realize the profits through many venues. If you are new to the process, remember that these machines are very easy to use. You do not have to be an engineer to operate a vacuum chamber packaging machine.

In business since 1883, Koch Equipment manufactures a wide array of American-made Ultravac<sup>®</sup> vacuum chamber packaging machines designed to enable packers and processors of all sizes to produce high-quality packages and who operate in environments that call for packaging versatility.

All Ultravac<sup>®</sup> vacuum packaging machines feature a water/temperature-resistant control panel and electronics. Options such as wide-band seals, gas flush, air assist sealing, and digital panel display are available on all Ultravac<sup>®</sup> vacuum packaging machines, from tabletops to double chamber models. The wide-band seal places a 10mm wide seal that protects against leakers and rework.

Gas flushing refers to the injection of a food grade gas back into the pouch after evacuation. Using gas flush slows down the natural microbial growth process associated with fresh foods and also helps prevent items such as shredded cheese from appearing crushed by producing a “pillowed” package.

Air assist sealing provides added pressure to the seal bar. This feature is of great use with oily products that tend to grease up the seal area of the pouch. Air assist sealing is also required when an optional perforation knife is used to cut off the excess bag.

Our digital display panel eliminates knobs and gauges. It is commonly used for exact applications such as gas flushing and multiple processes on different product lines.



Specific to our flagship machine, the Ultravac<sup>®</sup> 2100, our engineering and manufacturing personnel have designed some of the best performance enhancing features available in the industry. The optional patented precut system allows the operator to lay the excess bag material on the outside of the machine. This accomplishes three things: 1) you can place the product closer to the seal bar for a tighter package; 2) you do not have to spend time tucking the bag over the bar and down into the chamber, which provides easier product handling; and 3) round product will not roll around because the lid holds the bag in place. All excess material is removed by pulling off the perforated piece. A digital panel is provided to run this program.

The Ultravac<sup>®</sup> 2100 features Pozi-Pressure<sup>™</sup> radius surface sealing. When pressure is applied during sealing, the radius surface forces moisture and contaminants out of the seal area for a clean, leak resistant package.

A perforation knife is also available to pull off excess material. This option results in a nice, retail-ready package. Compressed air is required.

Finally, all Ultravac<sup>®</sup> vacuum chamber packaging machines are manufactured by Koch Equipment in Kansas City, Missouri, so parts and service are readily available. All machines come with a full two-year warranty against defects in material and workmanship (not including normal wear parts).