

Berkel Vacuum Packaging Machine Model 320 (S)

User Manual



Prepared for Dayton Children's Hospital
Food Service and Dietetics Department

Purpose: Training and User Guide to aid in proper set-up and use of an industrial capacity food sealing machine. This guide includes a Quick Start reference, important safety information and tips on food preservation.

Author Note: A hardcopy of this document given to the kitchen staff includes the PHOTOS. Please see Jen for the document. Unfortunately, the pictures in the electronic version were quarantined by the hospital email system. The document submitted to Andrews will have the photos. Some of the pages in this document are formatted to be hung on the wall in the kitchen, that is why the style and page design of this document is different than what is expected in a formal report.

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Getting to Know the Sealer

The Berkel vacuum sealer is an industrial strength, automated machine that can be used for a wide variety of food storage and preservation needs. Using the sealer's large, stable compartment, it is simple to rapidly vacuum air from a bag of food to create a sterile package that can be frozen, refrigerated or ready for dry storage.

With a few simple steps, it is possible to begin sealing food. Before beginning, read all instructions in this manual, the HACCP plan and if needed the manufacture instructions. The sealer has been cleaned, set up and tested. Based on multiple food experiments, four automated programs (PGM A, PGM B, PGM C and PGM D) have been built to enable "out of the box" usage to handle most food sealing needs.

Control Panel and Buttons

The control panel consists two primary parts:

- Backlit Digital Display: Communicates status of the machine and running program.



- Alphanumeric Keypad: Input method for controlling the sealer, and running the programs. The four most used buttons are POWER, ESC, MENU, ENTER.

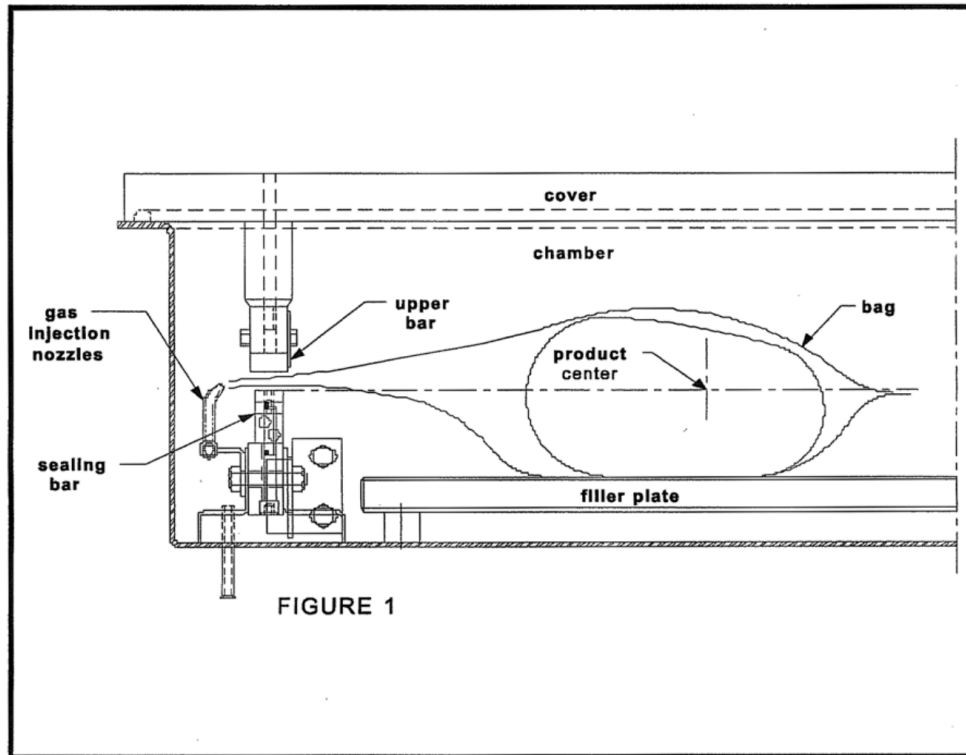


POWER	Turn the Unit On and OFF ALWAYS POWER the Unit ON and OFF with the Cover Open.
ESCAPE	Back out of the menu choice
MENU	Toggle the menu function or scroll through stored programs
ENTER	Select a Program, or input a selection (when programming)

Sealer Compartment

The most important parts inside the compartment of the sealer are the:

- cover
- food holding chamber
- gas injection nozzle
- the upper and lower sealing bar
- and the white filler plate.









Basic Sealer Safety

See the attached HACCP plan for additional information.

The Berkel vacuum sealer includes an attached power cord, the primary unit and a stand. Improper use of the machine can result in serious harm, including burns and electrocution.

IMPORTANT Safety precautions. Review and follow all manufacture precautions and safety warnings. All users should be trained in kitchen and food serving safety and proper use of the machine.

When using the sealer, always follow these safety precautions.

	<p>Never use the sealer if the power cord becomes frayed or shows signs of damage.</p>
	<p>The unit must be used with a three-prong outlet and be grounded.</p>
	<p>Whenever possible use a CFCI outlet when using the sealer.</p>
	<p>Do not use the sealer if smoke, fire or a burning smell is detected from the unit.</p>
	<p>Do not touch the sealing bars after they have been used, very hot.</p>
	<p>Never exceed the sealing time limit.</p>

- Do not run the sealer empty.
- Do not touch the sealing bar, it is hot.
- Do not attempt to lift or pick up the sealer.
- Do not store items on top of the sealer.
- Do not attempt to adjust or remove the gas nozzle.
- If liquid spills inside the unit, immediately unplug the unit.
- Ensure nothing is covering the sides or back of the sealer.
- In the event of any unusual warning notice, contact a supervisor.
- Do not leave the power ON, always turn the sealer OFF after using.
- Do not sit or stand on the machine and always use it on a flat surface.
- Do not close the lid if the power is ON and the compartment is empty.
- Ensure the floor is clean and dry, do not stand on a wet floor when using the sealer.

Quick Start Guide

With a few simple steps, it is possible to begin sealing food. Before beginning, read all instructions in this manual, the HACCP plan and if needed the manufacture instructions.

Steps to Seal Food

1	Select the appropriate SIZE of bag for the food you want to vacuum
2	Place the food INSIDE the storage bag
2	OPEN the cover to the Sealer
3	Press POWER to turn ON
4	Press MENU to select one of the FOUR preset programs
	Program A: Highest pressure vacuum, use for frozen or very firm food
	Program B: Medium pressure vacuum, most general purpose uses
	Program C: Soft pillow packaging, use for soft or oxygen sensitive foods, delicate fruits, avocado, and pastries
	Program D: High pressure vacuum for medium density foods such as soups, chopped meat, firm fruits and vegetables
5	Place food into the sealer, lay it flat on the white filler platform NOTE: Make sure the bag overlaps the sealing bar.
3	CLOSE the cover of the sealer
4	Move the bar on the right side of the unit to the locked position
5	The machine will AUTOMATICALLY run
6	When the machine STOPS , unlock the bar and remove the food
7	Press POWER to turn OFF NOTE: The machine will automatically start running if the cover is closed.

The cover will not open when the sealer is running, or when there is pressure in the chamber.

Food Selection

Types of Food and Bags

The sealer can be used with multiple types of food including:

- Liquid, soups, stews and dairy items
- Soft fruits, pastries, breads and fish
- Firm fruits, vegetables, meats and dry goods
- frozen food.

Always select food that is appropriate for consumption and food storage, so it must be:

- fresh
- free of mold or fungus and
- contains no visible spoilage.

The sealer should not be used for anything other than food items.

Clean, unused bags that are at least 1mm thick are required for the sealer. Do not use

- thin bags
- wax bags
- paper bags or
- non-food grade bags (i.e., trash bags).

Temperature and Moisture Content of Food

It is important to seal food that is

- frozen
- cold or at
- room temperature.

Never try to vacuum seal food or beverages that are warmer than room temperature as scalding and burns can occur. The moisture content of the food when it is sealed should match the normal serving moisture content of the food.

Some examples of the appropriate foods to use are:

- solid block cheese that is free of external moisture
- fruits and vegetables that are rinsed, drained and dried
- soups and stews that have been cooked then cooled appropriately
- sandwich, or raw meat.

However, caution must be used with meat to ensure that no bacteria or liquid comes in contact with the filler plate or sealing bar – as cross contamination can occur.

Ideal Foods to Seal

The quality of any food that is vacuum sealed can be preserved; however, foods that retain their shape in a pressurized environment are preferred. Examples of good foods to seal are:

- dry foods
- non-crushable solid foods
- frozen solid foods are the best candidates for vacuum preservation methods.

Additional Note on Food Safety

Using a vacuum sealer removes air from the food package, which can reduce or eliminate freezer burn, compact food for storage, create individual serving sizes to speed up preparation and minimize bacterial growth. However, a vacuum seal does not change the chemistry of the food item or prevent spoilage if the food is stored incorrectly. All foods that are sealed must still be stored at the correct temperature.

Technical Specification for the Saved Programs

After many hands-on experiments, and consulting with kitchen staff, the sealer has been set up and configured with four programs to accommodate different types of food and packaging needs.

To avoid food spoilage, or crushed food, always use the appropriate setting.

PROGRAM NAME	PERCENTAGE of Air to Extract	SECONDS of Vacuum Plus	PERCENTAGE Inert Gas Flush	SEALING TIME
P01 PRG A	99%	Zero	Zero	2 seconds
P02 PRG B	90%	1	Zero	1.6 seconds
P03 PRG C	80%	Zero	20%	3 seconds
P04 PRG D	95%	Zero	Zero	3 seconds

Troubleshooting and Common Errors

The Berkel vacuum machine requires regular cleaning, maintenance and adjustment in order to produce high quality, sealed food products.

The most common operational issues are listed below, and normally involve power to the unit, inadequate positioning of the bag or food product or improperly aligned sealer bar, filler plate and injection nozzles.

Machine Does not Turn ON

- Press the power button again, and hold it down
- Check the power cable, ensure it is plugged in
- Ensure there are no objects blocking the vents on the machine

Bag Does Not Seal or Leaking Seal

- Ensure the opening of the bag is clean and dry. Fat and liquid will prevent the bag from sealing
- Check the cover fully closed and can be locked closed
- Check inside the compartment and find the gas injection nozzles to confirm they are aligned as show in Figure 1 above.
- Position the bag so that approximately ½ to ¼ inch of the bag packaging is placed beyond the edge of the sealing bar.

Air is not extracted from the bag

- Check the location of the bag, ensure the open end is on the sealing bar
- Select then run P01 PGM A – this is the best test program for vacuum pressure and running the program will reset the atmospheric pressure in the unit
- Ensure there are no holes, or rips in the bag
- Check the bag is the appropriate thickness for food service

Cleaning and Maintenance

Cleaning cycles vary based on how frequently the machine is used and the type of food that is sealed.

The sealer should be cleaned if there is a food spill or between packaging different types of food. If raw meat comes in contact with the sealer bar, cover, or compartment then a full cleaning and sanitation cycle must be performed.

After each use:

- Turn the power off
- Inspect the sealing bar
- Wipe, then sanitize the inside of the cover
- Wipe the exterior of the machine with a damp cloth
- Remove the white filler plate, rinse off any food particles, dry and sanitize

Weekly and monthly cleaning:

- Unplug the machine
- Wipe and sanitize the sealing bar
- Remove the white filler plate and sanitize
- Lightly dust the back of the machine and the front vents
- Inspect for any interior damage, signs of burns or damage

It is recommended that a Berkel service representative inspect the machine on a regular basis, to check the oil and other mechanical functions.

If the sealer displays an output message or error message, turn off the machine and contact a supervisor.

Sealer Specifications

The Berkel 350 (S) table top sealer:

- Has a 1 ¼ H.P. motor
- Contains one 19” sealing bar
- Runs a sealing cycle of 30-60 seconds
- Operates using a variable vacuum
- The maximum vacuum setting is 99%
- Uses a backlit digital display for output
- Includes an alpha-numeric keyboard for input
- Measures atmospheric pressure, and displays current status
- The maximum amount of sealing time is 4.5 seconds
- Includes an inert gas flush that enables a soft pillow pack seal for soft food items
- The sealer contains three plates: one full size filler plate and two half size plates that can be configured for smaller batches of food. It is recommended to **ONLY** use the full-size plate.

Future Expansion Ideas and Recommendations

The Berkel 350 (S) table top sealer model has been discontinued by the manufacture, and based on research done online, very few are in operation.

- There is limited information about operation and maintenance.
- It is advised that a professional representative from the manufacture company come out and provide hands on maintenance to check the oil level, and process for updating the inert gas.
- If the machine detects unusual operation, like repeated 99.5% vacuum activities or sudden start and stop activities, or repeated door opening and closing, it will show a phone number on the digital display to contact the manufacturer.
- After experimenting with all of the different setting, the most practical programs A, B, C and D have been configured to support all of the most common food types.
- It is unknown if a gas canister is inside the machine or an external attachment.
- The Vacuum Plus setting seems to add very little to no utility.
- The machine can hold up to 30 different programs, and if desired, consult the manufacture instructions to add new programs.
- **Author Note:** This was a technically complex project, particularly figuring out how to operate and program the machine, that required hands on experimentation and collaboration with the kitchen staff. I truly enjoyed it. If possible, I would like to host a training session for kitchen staff and use this work as a basis for my Oral Presentation project.

References

1. Berkel Vacuum Packaging Machine, Model 350 User Manual, retrieved August 31, 2024 from https://www.berkelequipment.com/sites/default/files/webdam_asset/83388060.pdf
2. FoodSaver VS3000 Instruction Manual, retrieved August 31, 2024 from https://s7d9.scene7.com/is/content/NewellRubbermaid/DASH/S7_int/2020/VS3000%20US%20English%20Instruction%20Booklet.pdf