

Instruction Manual

for the

Stock Chiller Countertop Unit

Models SC02 and SC03

www.stockchiller.com



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Important Safeguards

1. Before using any electrical equipment, basic safety precautions should be followed to prevent or reduce the risk of electric shock, fire, and/or injury.
2. The Stock Chiller should be used by competent operators only. Do not let children, minors, or personnel with handicap use the Stock Chiller. Store your Stock Chiller out of reach of children.
3. To prevent electric shock, do not immerse the cord, plug, or entire Stock Chiller unit in water or other liquids. The power cord should only be plugged into a GFI outlet with a minimum of a 15 amp circuit.
4. Check voltage to be sure that the voltage indicated on the name plate agrees with the voltage of your power source.
5. Unplug your Stock Chiller when not in use and before cleaning.
6. Do not use your Stock Chiller if the electrical cord or plug is damaged, or after the unit malfunctions or is dropped or damaged in any manner. Please contact customer care immediately.
7. For service issues or questions, contact our Customer Care Center 845-229-4101 Mon-Fri 10am-5:30pm EST.
8. Do not attempt to utilize your Stock chiller while disassembled. This could result in fire, shock, or injury due to moving parts.
9. To reduce the risk of injury, do not let the cord hang over the edge of a table or counter or touch hot surfaces.
10. Operate your Stock Chiller ONLY indoors on a clean, dry, and level surface.
11. Keep your Stock Chiller away from any hot sources or hot surfaces. This can have an adverse effect on motor performance. It can also increase the risk of electric shock or fire.
12. Do not attempt to move the Stock Chiller while it is in operation or still plugged in. To move your Stock Chiller safely, unplug the unit. When moving the unit, please pay attention not to hit the Stock Chiller into other equipment, tables, and persons. Also pay attention to where the cord is to prevent tripping over it or someone else from tripping over it.
13. To prevent injury, avoid contact with all moving parts while the unit is in operation. Keep hands, hair, clothing, or any item that may become entangled away from the rotating drive roller, and rotating container.
14. Only use your Stock Chiller for its intended purpose. When not in use, unplug your Stock Chiller, dispose of the ice/water bath, and allow to air dry.
15. Do not clean your Stock Chiller with scouring powders or pads that may damage the unit's metal surface. Use only a cleaning solution specific for cleaning stainless steel.
16. Any servicing other than cleaning and user maintenance should be done only by authorized Revolutionary Cooling Systems (RCS) or under their supervision, or authorized servicing personnel, or your warranty will be voided.
17. When cleaning, be careful not to get water into the motor housing with vent holes. This may cause damage to the motor.
18. Always keep the lid closed during use. Be careful when closing and opening the lid. Be aware of where you and others around you are so the lid will not fall/hit someone or their appendage.
19. ONLY use the specially designed 2 gallon (7.5 L) or 5 gallon (18.7 L) chilling containers in the Stock Chiller. Use of any other container may damage the unit or cause the unit to not function properly, cause injury to the operator or persons nearby, and void the warranty.
20. Be careful in the lifting and handling of the containers since these may be heavy and hot to touch.
21. Do Not Fill the container will product greater than 200 degrees Fahrenheit (90C).
22. Be careful when opening and closing the containers since the inside contents may spill out and may still be hot. When opening a tightly sealed container, make sure to look for the gasket, as it may fall out upon opening.
23. Be careful when stacking the containers on top of one another. Do NOT stack more than 4 high

SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE

Introduction, Background, and Unit Performance

Congratulations. You are the proud owner of RCS' Stock Chiller Countertop Unit.

The Stock Chiller Counter Top is a rapid soup and stock chiller that is to be used with our specially designed 2 gallon (7.5 L) and 5 gallon (18.7 L) stainless steel chilling containers. It was specifically designed for kitchen operators that produce between 2 and 20 gallons of liquid food in one batch. The equipment enables you to chill your liquid food down quickly and safely, with chill times that vary based on the product being chilled. When used properly, the equipment will ensure your food has been safely chilled, and alleviate the strain put on your refrigerator compressor.

The Stock Chiller was invented and developed at The Cooper Union for the Advancement of Science and Art (for more information, visit www.cooper.edu). Patents 5505,054, etc. Other US and international patents are pending. The Stock Chiller is licensed, manufactured, and distributed by Revolutionary Cooling Systems, Inc. (RCS).

Model SC02 is the five gallon version, and Model SC03 is our two gallon version.

Both models are NSF approved and manufactured with 304 Stainless Steel.

The unit requires ice to operate and chill. You will need approximately 8 lbs of ice for each gallon of liquid food. It is essential that you have the appropriate amount of ice available to chill the entire batch of product.

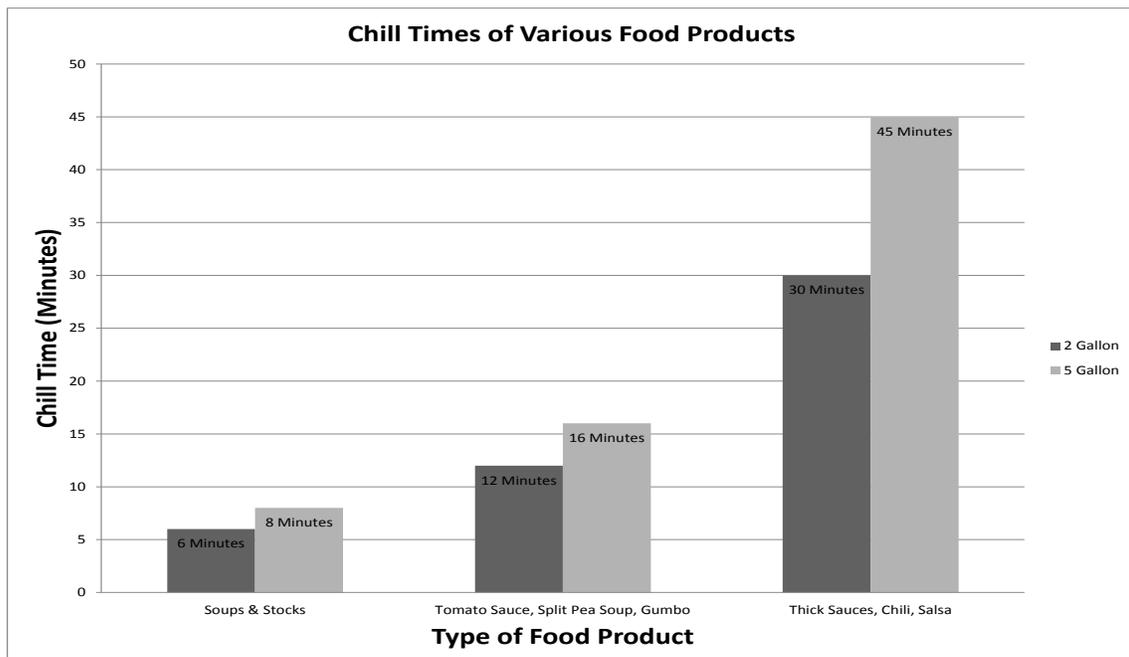
1 Gallon of Hot Product = 8 lbs of ICE
1 Liter of Hot Product = 1 kg of ICE

In our laboratory, the following chill times were obtained for water based soup or stock (190°F (88°C) to a safe and cool 41°F (5°C)):

Model SC02 - 5 Gallons (18.7 L) in 8 minutes

Model SC03 - 2 Gallons (7.5 L) in 6 minutes

Note: All chill time vary based on the consistency of your food product. Thicker based sauces and soups will take more time.



Unpacking, List of Parts

Follow these instructions to unpack your unit.



1) Remove Banding Straps around wooden crate



2) Remove 12 Screws from the bottom of the wooden crate.



3) Lift Wooden Cover up.



4) Remove Unit from foam and base.



5) Remove Parts from inside unit.

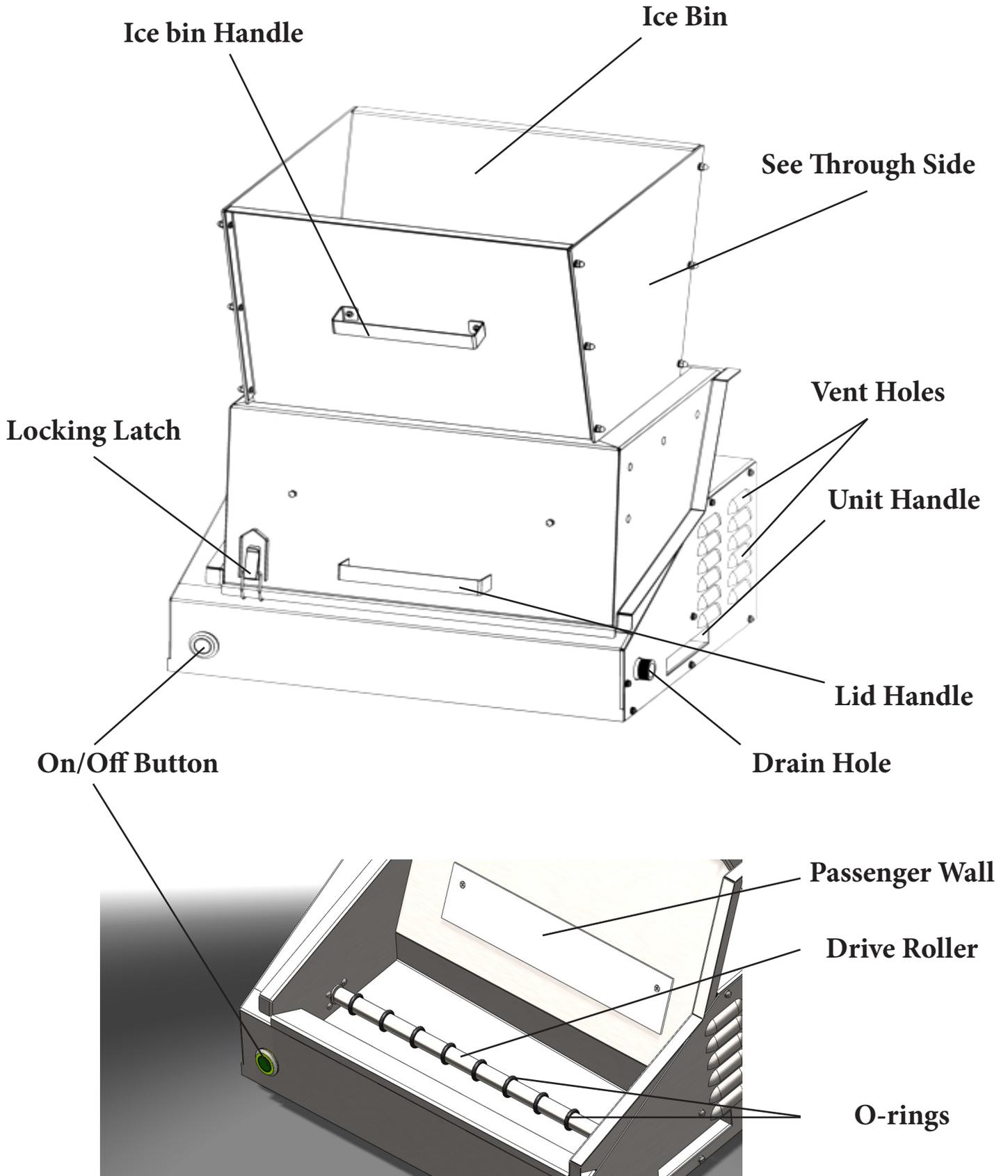
6) Unpackage parts and check with the inventory list below.

The following parts should be included in your package.

- 1 Power cord
- 1 Package of Hardware
 - 16 - 3/8" machine screws
 - 16 - washers
 - 16 - lock washers
 - 16 - Acorn Nuts
- 2 Clear Polycarbonate Sheets for the Ice Bin
- 2 Stainless Steel Plates for the Ice bin
- 2 Handles
- 1 package of Replacement O-rings

Please Note: A drain hose is not included. The outlet is a standard 3/4 inch garden hose thread. A garden hose or clear hose can be purchased at any home center.

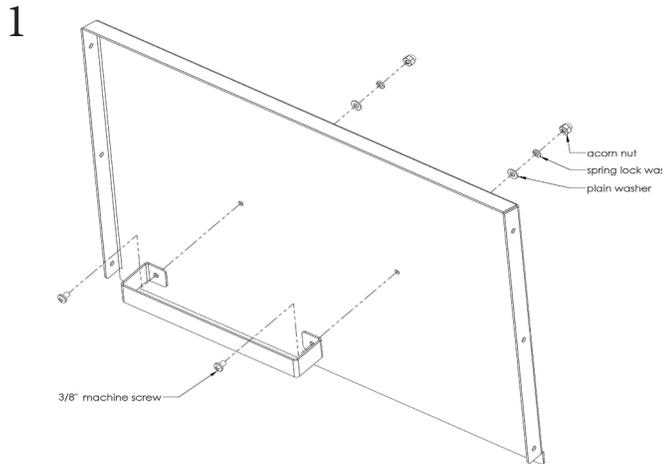
Description of Unit



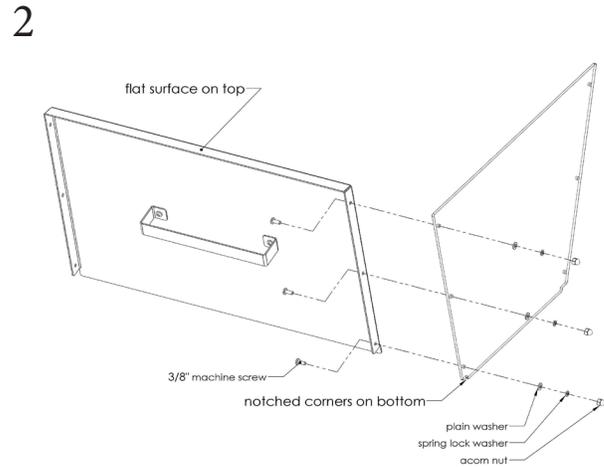
Assembly

Follow these instructions to Assemble the Ice Bin.

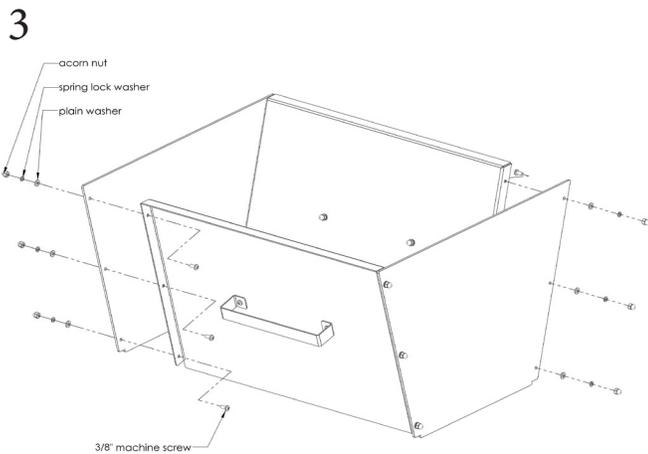
(A philips head screw driver and an adjustable wrench will be required)



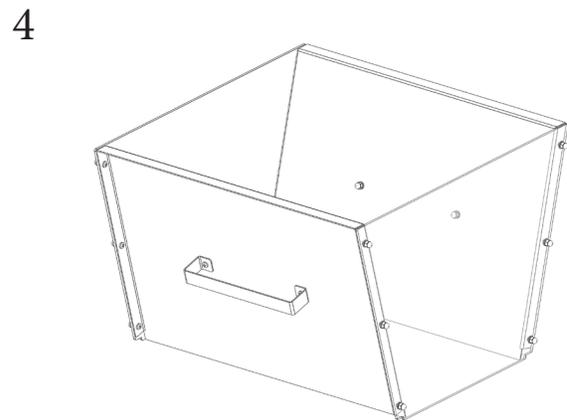
Assemble the handle to the stainless steel plate using the 3/8" screws, washers, lock washers, and acorn nuts. The acorn nut must be placed inside the unit. Repeat 4 times for both handles.



Attach one of the clear plastic sides to the metal plate using 3/8" screws, washers, lock washers, and acorn nuts. Tighten each screw with a screw driver while holding the acorn nut in place with a wrench. Repeat the process for the other side.



Attach the two halves of the ice bin together as shown above using screws, washers, lock washers, and acorn nuts.



This is the completed Ice bin. Please make sure that all screws and nuts are tighten. This should be checked once a week or a regular basis.

Mounting the base

It is important to mount the base on a hard level surface. The base should be permantly bolted, screwed, or welded into place.

Mount using screw holes

Weld base onto table

Product Specifications - Choosing a Location

Product Specifications

Model SC03 two gallon

Size: 17 in. (43.2 cm) D x 19 in. (48.3 cm) W x 13 in. (33.0cm) H height with ice bin 21 in. (53.3cm)

Weight: 58 lbs (26.3kgs)

Power Requirements: 120 volts/60hz, 3.5amps, 420 watts (US and Canada version)

Motor: 120VAC, 60hz, 1750 RPM, Split Phase, Nema 56 Frame, Reversible, 1/3hp

Model SC02 five gallon

Size: 17.5 in. (44.5 cm) D x 22.5 in. (57.2 cm) W x 15 in. (38.1cm) H height with ice bin 26.8 in. (68.1cm)

Weight: 80 lbs (36.3kgs)

Power Requirements: 120 volts/60hz, 5.0amps, 600 watts (US and Canada version)

Motor: 120VAC, 60hz, 1750 RPM, Split Phase, Nema 56 Frame, Reversible, 1/3hp

Choosing a Location

When choosing a location, you will need to consider the following:

- 1) Your location of Food Source and/or Stock Pot
- 2) The location of the Opening and Closing base
- 3) The location of your Ice Machine, or your access to ice
- 4) The location of the nearest Drain, although not always needed
- 5) Your access to power (GFI outlet is recommended)
- 6) Choosing either to permanently mount the unit, or making it portable.

1) The triangle between the food source, the Stock Chiller, and the opening/closing location is one of the most important things to consider when choosing a location. It is recommended that these three locations be kept in close proximity to one another. Hot food product will be readily handled between these locations. Your access to ice should also be included in this decision, however, it is not uncommon that the ice machine be located in the distance, as you can typically fill up multiple ice holding bins.

2) If you are planning to keep your STOCK CHILLER fixed in a permanent location, you will need to address how to capture the melt water during unit operation. As heat is removed, ice will melt and this melt water will need to be sent to a drain or captured in a bucket. A hose (purchased separately) will be required to move the melt water to the appropriate destination. A common garden hose will easily attach to the 3/4" diameter connection.

3) The Stock Chiller can either be located in a permanent spot, or it can be made portable if space is a premium. If made portable, we recommend to use a cart that has wheel locks, as the unit will vibrate during operation. RCS does offer a cart, which can be found in our accessories page. You will need access to power, and we strongly recommend that you use a GFI outlet.

4) The hexagonal metal base plate should be mounted on a level and stable work surface like a table. We highly recommend permanently bolting or welding the base plate on the work surface.

How to Operate the Unit

MOVING THE UNIT

picture

The unit has two handles on the bottom of both sides. These handles are both recessed, and they can be used to move the unit around.

OPENING AND CLOSING THE LID

When opening and closing the lid, you must place the container on the hexagonal base plate. The lid turns clockwise to close, and it is important to use the hexagonal torque wrench for the final 1/4 turn to guarantee a tight seal. The lid turns counter-clockwise to open, and you will need the torque wrench tool to open the container after being chilled to break the internal vacuum. See page 10 for details and tips on opening and closing the container.

FILLING THE CONTAINER

Carefully pour or ladle your hot food product into the container. The container will become hot. It is not recommended to touch the container unless you have adequate protection. The lid handle will be OK to touch, since heat is not transferred into the handle.

It is recommended to fill the container about 1/2 inch from the top with water based food product. We recommend to only fill the container 1/2 or 2/3's full when chilling thicker food product, such as sauces, salsas, gumbo, etc. This enables the food to rotate better, which will provide better chill times.

SEATING AND REMOVING THE GASKET

The container will not seal properly without a gasket. Make sure that the gasket in the lid is firmly seated into place. If the gasket is out of the seating ring, then you must ensure that the gasket is seated correctly. To do this, slowly "walk" your fingers around the edge while placing the gasket into the groove.

The gasket will need to be cleaned after each use. To remove the gasket, use your finger and/or finger nail to grab the gasket at the notched out area inside the lid. Slowly move the gasket upwards until you can grab a hold of it.

How to Operate the Unit

power cord

PREPARING THE UNIT

Place the unit on a level surface. If using a cart, please make sure the wheels are locked. Plug the power cord into the back of the unit and into the wall outlet (for your safety, please use only a GFI outlet).

Attach the hose to the melt water drain outlet located on the right side of the unit. The hose can then be routed to a sink, floor drain, or a bucket. Please note that a drain hose is not included in the package, and can be purchased at any hardware store or home center.

hose to bucket or drain

LOADING IN THE CONTAINER

Open the lid to the upright position. Always insert the container with the handle towards the right side. The unit will not function correctly if the handle is on the left side.

open lid

Close the lid and secure the latch to the unit so the lid cannot open during operation.

Place the ice bin on top of the unit. The unit is now ready to operate.

insert can

TURNING ON THE UNIT AND ADDING ICE

Turn the unit on by pressing the green On/Off button. This will begin rotating the container. It is suggested that you make sure the container is properly rotating before adding the ice.

Ice bin on top of unit

Add a small amount of ice to cover the entire surface area of the container while the unit is running. You can add the ice prior to starting the unit, however, the ice sometimes quickly melts together and gets jammed into the ice guard. If this happens, the container may not rotate. Therefore, it is important to add the ice second, as it will begin melting and allow for the melt water to reduce any possible friction between the container walls and ice.

Adding a small amount

Once the container is rotating properly, the remainder of the ice can be added to the ice bin. It takes 8 lbs of ice for every 1 gallon of food product.

Fully loaded

It is not recommended to use crushed ice. If you are using crushed ice, please make sure that the ice is always in thermal communication with the container. Crushed ice will often stick together and not always be pressed against the container wall. If this happens, no chilling will occur.

How to Operate the Unit

PROPERLY CHILLED AND SHUT OFF

fill level

For proper operation, it is recommended to measure the appropriate amount of ice for a chilling cycle. 8lbs of ice should be used for every 1 gallon of food product being chilled. A line or mark can be made on the ice bin to indicate the correct ice level. When the ice has completely melted, the chilling cycle is complete and the unit can be shut off.

A timer can also be used to indicate that the cycle is complete, however, if the ice has not completely melted, then the ice must be removed from the top of the container before the lid can be opened. We recommend to further chill the food product until all the ice has melted. A timer serves as a good reminder that the cycle is almost complete.

Different food products will have different chill times. Therefore, we suggest that you test how long it takes by using your own trial and error.

Once the cycle is complete and the unit is shut off, the ice bin must be removed prior to lifting the lid. If any remnants of ice remain on the container, please remove by scooping it with your hands. The latch must be disengaged, and then the lid can be opened.

CLEANING AND QUICK UNIT MAINTENANCE

Check that all ice and water has been drained. If no food product was spilled onto the unit, the unit can be left to air dry. If the unit is dirty, please use a rag or towel to wipe the unit down while it is still wet. Warm soapy water can be used, and then immediately rinsed before air drying.

It is important to always check the O-rings on the roller. Make sure no O-rings have been cracked or are out of position. For more help go to trouble shooting and O-ring maintenance.

It is important to check that the screws are always tight on ice bin. If loose, please tighten immediately.

STACKING AND STORING CONTAINERS

The containers are designed to easily stack and store. After the chilling cycle and SOP are complete, the containers of food product can be moved into cold storage. We do not recommend stacking the containers more than four high.

Creating an SOP for HACCP compliance

It is strongly recommended to create a Standard Operating Procedure (SOP) for HACCP compliance in your establishment. In some counties and states, this SOP will need to be certified by your local department of health. All personnel utilizing the equipment should be properly trained, and the SOP should always be visible at all times. We recommend to hang your stock chiller SOP on a wall nearby the equipment.

HACCP is a management system that helps to assure food safety through the analysis and control of possible biological, chemical, and physical hazards that may contaminate food. It is based on the premise that if each step of the process is carried out correctly, the end product will be SAFE FOOD. It is important that food safety is not compromised by any step in your SOP for HACCP compliance.

Here is an example HACCP plan for preparation of Soups and Stocks. The example may not exactly suit your operational requirements, so it is important that the HACCP coordinator develop a plan, and train the appropriate stakeholders and operators. The HACCP plan coordinator is responsible for training, posting important information, data keeping, and ensuring that the plan is certified by the local health department.

IMPORTANT INFORMATION LIST

HACCP Plan & SOP Coordinator: Name _____ Title _____
Emergency Contact Information: _____
List of Approved Operators: _____

PRODUCTION DATA LOG FORM (EXAMPLE)

Product Produced	Chicken Soup Stock	Operator	Julio Mendoza			
Cooking Temperature	190 Fahrenheit					
Total Quantity	20 Gallons	Date Produced	October 10, 2010			
Container Number	Initial Temperature	Time	Final Temperature	Time	Label	Expiration
1	188	11:00	38	11:09	CSS-1-10-10	10-17-2010
2	187	11:05	39	11:19	CSS-2-10-10	10-17-2010
3	187	11:15	41	11:28	CSS-3-10-10	10-17-2010
4	186	11:24	42	11:38	CSS-4-10-10	10-17-2010
Notes: All Critical Control Points were met.						

Sample SOP Flow Diagram

CCP 1

Check that your prepared food is above the Critical Temperature.

190° F

Method: Temperature Sensor

Potential Hazards: Biological

CCP 2

Examine that the storage containers are clean and sanitary. Check the container gasket.

Method: Visual Inspection

Potential Hazards: Biological, Physical, Chemical

CCP 3

Transfer food into containers preventing cross contamination. Record Temperature and Time. Seal lid, and Chill in Unit using sufficient ice. (8lbs for every 1 Gallon)

Method: Visual, Temperature Sensor, and Timer

Potential Hazards: Biological, Physical

CCP 4

Turn off unit once Ice has completely melted. Open Container and account for the gasket in or out of the lid. Record Temperature, Time, Date, and Batch Number.

Method: Visual, Temperature Sensor, and clock

Potential Hazards: Biological, Physical

CCP 5

Remove product from container into storage vessel and/or other smaller containers. Label Product, Log Date, Batch Number, and Discard Date.

Method: Data Log

Potential Hazards: Biological

Reseal Container lid. Label Product, Log Date, Batch Number, and Discard Date.

Method: Data Log

Potential Hazards: Biological

CCP 6

Move Product into Cold Storage using first in first out rotation. Make sure cold storage temperature is not higher than the critical limit.

Method: temperature sensor

Potential Hazards: Biological

Properly Opening and Closing the Containers

THESE GUIDELINES SHOULD ASSIST YOU WHEN OPENING AND CLOSING CONTAINERS.

- 1) Always make sure you follow your facilities Standard Operating Procedure (SOP) for HACCP compliance.
- 2) Make sure the gasket is seated inside the plastic lid. Failure to use a gasket will cause the container to leak and create cross contamination. The gasket should always be inspected for cleanliness before use.
- 3) You must seat the container (or lift assist) onto the base, so the container does not move. Place the lid onto the container as level as possible and firmly press the lid down. Failure to level the lid will cause the threads not to mate together correctly, which will cause cross threading. IT IS VERY IMPORTANT TO LEVEL THE LID. To help prevent cross-threading the lid and container, try placing the lid's starting thread slightly to the right of the starting thread of the container. This will help you align the threads when you begin turning.
- 4) Slowly turn the lid clockwise with your hands. Do not use the opening/closing tool yet. If the lid squeaks, sticks or does not turn properly; do the following:
 - a) Try another lid, or
 - b) rinse the inside of the lid with hot water. Note: A hot container expands, and if the lid is at room temperature, it can be extremely tight. Water will provide lubrication, and hot water will expand the plastic.
- 5) Use the torque wrench on the final quarter turn of the lid to ensure a good seal. A poorly sealed container may leak. Once the container is sealed, chill immediately. Hot product can create an air pressure build up over time, which will result in the lid expanding. Please note that the plastic insert will expand faster and greater than stainless steel.
- 6) After a chilling cycle is complete, the contents in the container will be under a vacuum as follows:
Starting pressure = 14.7 psi
Final pressure (chilled from 95C to 5 C) = 11.0psi
The vacuum will provide a good seal for storage. (Note: This is not an ROP (reduce oxygen process), as no mass transfer has occurred during the chilling cycle)
- 7) When opening the container, you will need to use the torque opener, as the lid will be difficult (and/or impossible) to remove by hand. Once the vacuum seal is broken, the torque wrench is normally not necessary. It is recommended to turn the lid slowly by hand, while trying to lift up.
- 8) While opening, the gasket can be shaken loose from both the vacuum and the turning motion. Please make sure that the gasket is accounted for after opening.

Accessories Page

O-rings

Gaskets

Containers

Carts

Lift Assists

Filling Systems

Bags

Hoses