
Installation, Operation and Service Manual



Welcome to Follett

Follett equipment enjoys a well-deserved reputation for excellent performance, long-term reliability and outstanding after-the-sale support. To ensure that this equipment delivers the same degree of service, we ask that you review the installation portion of this manual before beginning to install the unit.

Our instructions are designed to help you achieve a trouble-free installation. Should you have any questions or require technical help at any time, please call our Technical Service Group at (877) 612-5086 or (610) 252-7301

Before you begin

After uncrating and removing all packing material, inspect the equipment for concealed shipping damage. If damage is found notify the shipper immediately and contact Follett LLC so that we can help in filing the claim, if necessary.

CAUTION

- Warranty does not cover exterior or outside installations.
- Do not insert screwdrivers or other pointed objects between guards or moving parts of equipment.
- Do not pull the power cord to disconnect the equipment from the electrical mains.
- Ensure that the equipment is used by qualified persons.
- Before performing any cleaning or maintenance on the equipment disconnect it from electrical mains by switching off the main switch and removing the plug from wall outlet.
- Never use any metallic scouring pads, brushes, abrasive cleaners or strong alkaline solution on any surface.
- Relocating of the unit must be performed by qualified personnel. Do not shift the freezer from side to side as this may create leakage point across the cooling unit piping.
- In case of faults or malfunctions, switch off the equipment and do not attempt to repair it by yourself as doing so may void the warranty. All service and repair operations must be performed exclusively by a manufacturer's authorized engineer. (Authorized service technician, trained service personnel, authorized service personnel)
- This unit, like any other appliance, must have proper ventilation.
- Products in the unit must be arranged to ensure efficient air circulation inside the unit and in such a way as not come out of the shelf/drawer perimeter.

 **Special warnings: not to be used in the presence of explosive gases or mixtures/ not intended for flammable material storage.**

Safety Precautions

THIS MANUAL HAS BEEN PREPARED FOR PERSONNEL QUALIFIED TO INSTALL, MAINTAIN AND REPAIR ELECTRICAL REFRIGERATION EQUIPMENT, WHO SHOULD PERFORM THE INITIAL FIELD STARTUP AND ADJUSTMENTS OF THE EQUIPMENT COVERED BY THIS MANUAL.

READ THIS MANUAL THOROUGHLY BEFORE OPERATING, INSTALLING, PERFORMING MAINTENANCE ON, OR REPAIRING THE EQUIPMENT.

 **WARNING** Failure to follow all the instructions in this manual can cause property damage or serious injury.

 **WARNING** Improper installation, adjustment, alteration, service, or maintenance can cause property damage or serious injury.

 **WARNING** Electrical connections should be performed only by qualified persons.

Electrical and grounding connections must comply with the applicable portions of the National Electric Code and/or all local electric codes. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** Before connecting the unit to the electrical supply, verify that the electrical and grounding connections comply with the applicable portions of the National Electric Code and/or other local electrical codes. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** Before connecting the unit to the electrical supply, verify that the electrical connection complies with the specifications on the data plate. Failure to comply with this procedure can cause property damage. or serious injury.

 **WARNING** Appliance must be connected to a grounded circuit per electrical codes.

 **WARNING** Appliances equipped with a flexible electric supply cord, require a NEMA L15-30 grounded plug (Not included). It is imperative that this plug be connected into a properly grounded receptacle. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** If the receptacle is not of the proper grounding type, contact an electrician. Do not remove the grounding prong from the plug. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** Before performing any service that involves electrical connection or disconnection and/or exposure to electrical components, always perform the Electrical LOCKOUT/TAGOUT Procedure. Disconnect all circuits. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** Before removing any sheet metal panels, always perform the Electrical LOCKOUT/TAGOUT Procedure. Be sure all circuits are disconnected. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** Do not operate this equipment without properly placing and securing all covers and access panels. Failure to comply with this procedure can cause property damage or serious injury.

 **WARNING** Do not use or store gasoline or other flammable vapors or liquids in the vicinity of this or any other appliance. Failure to comply can cause property damage or serious injury.

 **WARNING** In the event of a power failure, do not attempt to operate this appliance. Failure to comply can cause property damage or serious injury.

General Safety

 **WARNING** Follett accepts no responsibility for any situation resulting from work carried out in an unprofessional manner, or from the incorrect interpretation or application of regulations.

General Installation

 **WARNING** Incorrect installation or any modifications made to the appliance may damage property or serious injury.

Electrical

 **WARNING** Electrical connections or any work required on the electrical circuits inside the appliance must be performed by certified technicians in compliance with local, state, and federal regulations.

 **WARNING** Make sure all facility electrical connections follow all local and federal electrical codes and regulations.

Inspection and Maintenance

 **WARNING** Appliance maintenance must be carried out by only by qualified personnel.

 **WARNING** Before any maintenance work is performed, the appliance must be disconnected from the electrical supply. Apply a lockout tag to the power cord.

 **WARNING** All replacement parts that are not supplied by Follett must be pre-approved before installation.

Repair Work Safety

 **WARNING** Repair work must only be performed by Follett approved distributors or one of its authorized representatives. Follett accepts no responsibility for any situation resulting from work performed by untrained and/or unauthorized personnel.

 **WARNING**

ELECTRICAL LOCKOUT/TAGOUT PROCEDURE

The Electrical LOCKOUT/TAGOUT Procedure is used to protect personnel working on an electrical appliance. Before performing any maintenance or service that requires exposure to electrical components.

- **Power down the unit by pushing the “Standby” icon as shown in (3.1.3)**
- **Disconnect appliance power cord from electrical outlet**
- **Place a tag on the cord to indicate that unit has been disconnected for service and power should not be restored until tag is removed by servicing personnel.**

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1. STANDARDS AND GENERAL WARNINGS

PRODUCTS APPLICABLE TO THIS MANUAL

The manual is exclusively valid and applicable to the following product:

Plasma Chiller

Adjustable temperature control range: lowest T = -40°F/°C, highest T = -22°F(-30°C)

Operating temperature: -40°F/°C

Factory pre-set to: -40°F/°C

Model: FZR8-PC

Model Number	W	D	H	Setpoint Temp.	Elec. V/Ph/Hz	Refrigerant (quantity)
FZR8-PC	31 ½ in (80 cm)	32 7/8 in (83.5 cm)	77 5/16 in (196.4 cm)	-40°F/°C	220V/3/60	R452A (88.2OZ)

Environmental Operating Conditions

- Ambient temperature operating range: **50°f (10°C) ~104°f (40°C)**
- Electrical supply: **220v/60Hz/3ph**
- Usage: **This product is intended for use indoors only.**

Note: All relevant data referring to this product can be found on the data label visible on the rear part of the cabinet. Here is an example of the label:



1.1 TESTING AND INTENDED USE

This equipment is tested in compliance with established regulations and then shipped ready for use. This product is intended for use:

- As a rapid chiller in research use.
- As a medical device for freezing samples for diagnostic use.
- As a medical device for freezing biological components.

This Product is not intended for long-term storage.

Registration: This medical application is considered a Class II medical device by the FDA.

“If the equipment is used in a manner not specified by the manufacture, the protection provided by the equipment may be impaired.”

1.2 INTRODUCTION

This manual provides instructions required for the proper use of the equipment and to keep it in optimal condition. It also contains important user safety information. The following professional roles are explained to define individual responsibilities:

Installer: a qualified person who installs the equipment in accordance with these instructions.

User: the person who, after having read this manual carefully, uses the equipment in accordance with the intended specification of use described in this manual. User’s responsibilities: ensure that the product is kept at suitable temperatures in an ambient environment less than 104°F(40°C) be aware of the regulations governing the conservation of products to refrigerate and to observe any housekeeping / hygiene requirements that may be applicable. The user is obliged to carefully read the manual and always refer to its information. Particular attention must be paid to safety warnings (refer to Section 1.5).

Maintenance technician: qualified operator able to perform maintenance of the equipment by following the instructions in this manual.

Service engineer: qualified technician, authorized by the manufacturer to perform extraordinary maintenance of the equipment.

The symbol  appears at certain points in the manual to draw the reader's attention to important safety information.

The manufacturer declines any responsibility in case of improper use of the equipment deviating from the reasonably construed intended use, and for all operations carried out that are not in compliance with the instructions reported in the manual.

This manual must be stored in an accessible and known location for all operators (installer, user, routine maintenance technician, service engineer).

1.3 PRODUCT DESCRIPTION

The equipment comprises a single body with paneling in various materials and insulation with expanded polyurethane foam. The equipment instruments are located on the front panel where the electrical wiring is housed. The interior parts are fitted with suitable supports for shelves. The door is fitted with an automatic return device and magnetic seal elements. During the design and construction stage all measures have been adopted to implement total safety including radius interior corners, funnel-shaped base panel to convey condensate to exterior, no rough surfaces, fixed guards protecting moving or potentially dangerous parts.

1.4 CERTIFICATION

The appliance listed in this manual is manufactured in accordance with the following regulations: **UL/CSA 61010-1 3rd edition and IEC 61010-2-011**

1.5 GENERAL SAFETY WARNINGS

Read this manual carefully and follow the instructions contained herein.

- Before performing any cleaning or maintenance on the equipment disconnect it from the electrical power by Putting the unit in “Standby” (3.1.3) and removing the plug.

The user assumes full responsibility in case of operations carried out without observing the instructions in the manual.

 **Do not use this product with flammable gases or flammable solvents.**

 **Do not store flammable gases, flammable liquids, or flammable solids in these units.**

Primary general safety regulations:

- Do not touch the unit with wet hands and/or feet. Do not use the equipment with bare feet.
- Do not insert screwdrivers or other pointed objects between guards or moving parts of the equipment.
- Do not pull the power cord to disconnect the equipment from the electrical mains Make sure that the equipment is not used by unqualified persons.
 - **Never** use any metallic scouring pads, brushes, abrasive cleaners, or strong alkaline solution on any surface. Use non-chlorine-based cleaners. Cleaners containing chlorine can cause staining and pitting of the stainless steel.
- The relocation of the unit must be performed by qualified personnel. Do not shift the refrigerator from side to side as this may create leakage point across the cooling unit piping.
- In case of faults or malfunctions, switch off the equipment and do not attempt to repair it by yourself as doing so may void the warranty. All repair operations must be performed exclusively by a manufacture's authorized engineer. (Authorized service technician, trained service personnel, authorized service personnel)
- This unit must have proper air circulation.

 **Do not use FLAME to check for refrigerant leak.**

 **Do not under any circumstances** try to modify or repair valves, regulators, connectors, controls, or any other appliance. Doing so creates the risk of a refrigerant leak.

1.6 CUSTOMER'S RESPONSIBILITIES

The customer is required to:

- Perform the electrical connection of the equipment. Prepare the place of installation.
- Provide consumable materials for cleaning, perform routine maintenance
- In the event of power failures or malfunctions, evaluate if the contents needs to be moved.

1.7 CUSTOMER SERVICE REQUESTS

- For all technical problems and any requests for technical service, contact Follett Technical Service (877) 612-5086

1.8 ORDERING OF SPARE PARTS

- Orders of spare parts should be made by consulting the parts section of the service manual and the serial number of your unit. Consult your dealer or Follett LLC.

1.9 PRODUCT CONFIGURATION

- The unit is designed solely for the preservation of laboratory products, which requires various controls and warning in case of sudden alteration of temperature.

 **PRODUCTS MUST BE LOADED TO ENSURE EFFICIENT AIR CIRCULATION INSIDE THE UNIT AND SHALL NOT EXTEND OUTSIDE THE SHELF PERIMETER.**

- All uses outside of the manufacturer's intended use in section 1.1 shall be construed as "improper use" for which the manufacturer declines all responsibility.
- Maximum allowable weight of 44lbs per shelf in accordance with **UL471** regulation. [*The most critical application in terms of weight (glass door/ stainless steel) has been tested following the Base standard UL 61010-1]. The application can contain a maximum of 15 shelves.*

1.10 MATERIALS AND REFRIGERANTS

Materials in contact or potentially in contact with products follow the relevant codes and regulations. The equipment is designed and built so that contact parts can be cleaned before each use. The refrigerants utilized comply with established regulations.

1.11 WARNING LABELS

Electrical Shock	LABEL A
	Use of this equipment involves power supplies which convert line voltage to low voltage power. Do not modify or use power supplies other than OEM equipment. Connection of the power supply may require a properly grounded receptacle. Potential for electrical shock or equipment damage exists if precautions are not followed.
Hot Surface	LABEL B
	Avoid contact with the hot surfaces, potential for burns exists.
Cold Surface	LABEL C
	Avoid contact with cold chiller surfaces, there is potential for cold burns or skin sticking to cold surfaces.
Safety Alert	LABEL D
	Important operating instructions. To reduce the risk of injury or poor performance of the unit read the user manual before putting the equipment into operation.
Warning	LABEL E
	Indicates an immediately hazardous situation, which if not avoided, will result in death or serious injury.
Caution	LABEL F
	Indicates an immediately hazardous situation, which if not avoided, may result in minor to moderate injury
Battery	LABEL G
	Indicates the location of the back-up battery
Grounding	LABEL H
	Indicates that the electrical components are electrically grounded.
Finger crushing	LABEL I

	<p>Risk of finger crushing</p>
<p>This unit is intended for use in laboratories in commercial, industrial or institutional occupancies as defined in the Safety Standard for Refrigeration Systems,</p> <p>Conformément à la Norme de sécurité pour les systèmes de réfrigération (ASHRAE 15), cette unité est destinée à un usage dans les laboratoires d'établissements commerciaux,</p> <p><i>Refrigerating equipment</i></p>	<p>Refrigerating Equipment intended for laboratory use.</p>

2. INSTALLATION

2.1 TRANSPORTATION AND HANDLING

⚠ The equipment must be transported and handled exclusively in the upright position, in observance of the instructions printed on the packing.

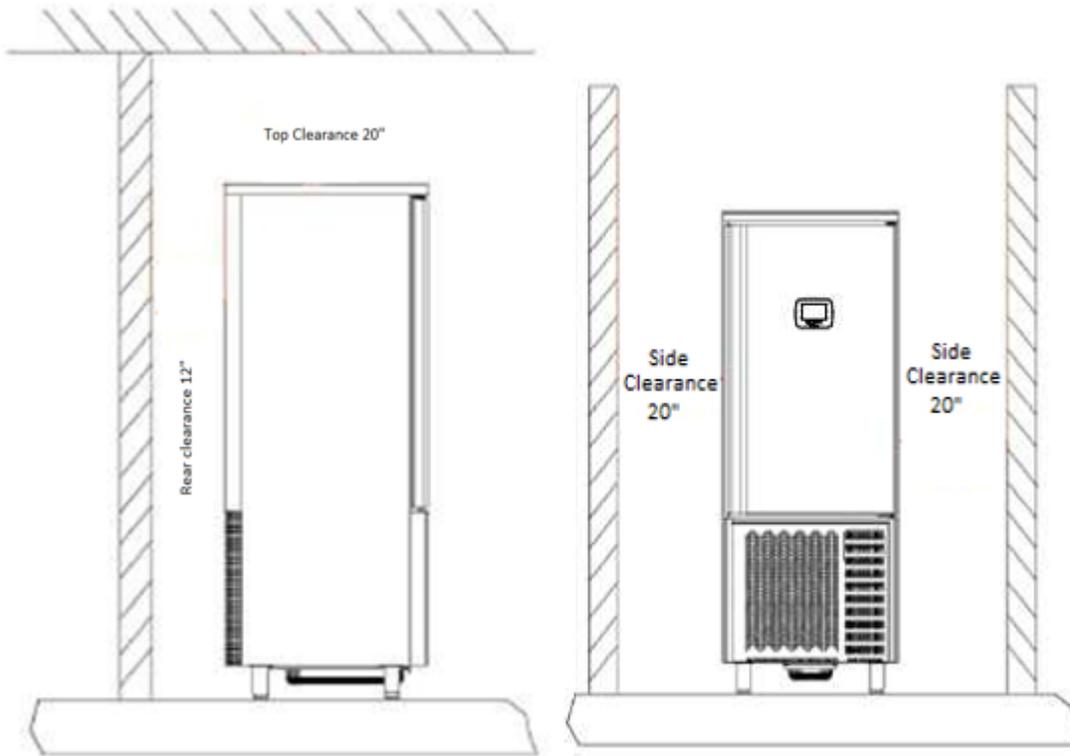
This precaution is necessary to avoid contamination of the refrigerant circuit with compressor lube oil with resulting valve and heat exchanger coil failure and problems starting the electric motor or the risk of a gas leak. The manufacturer is not responsible for any problems due to transport executed in conditions other than those specified herewith.

The equipment is secured to a wooden pallet base, wrapped in a plastic film, and packaged into a three waves carton box.

The equipment must be handled using a forklift truck or a pallet truck with suitable forks (fork length at least equal to 2/3 length of unit).

2.2 POSITIONING

Incorrect positioning can cause damage to the equipment and generate hazardous conditions for personnel. The installer must therefore observe the following general regulations:



- A minimum of 12 inches (30 cm). clearance from the back wall, 20" (50 cm) from the side walls and the ceiling must be maintained.
 - The room must be well ventilated.
 - Keep well away from sources of heat. Avoid direct sunlight exposure.
 - Remove packing material.
 - Remove accessories from inside the unit.
 - Carton box or Wood base removal: Using a hammer, tilt the cabinet to one side and remove the screws, drag the cabinet from the back side holding the base in place until the four castors have come out of the containing holes, slightly tilt the cabinet backward and remove the base by pulling it from the front side.
- ⚠** Use gloves when handling the 3 Waves carton box or the wooden base to protect the hands from splinters.
- Position the equipment with the use of a level. Remove the protective PVC film from the external surfaces of the unit.

2.3 WIRING AND ELECTRICAL HOOK-UP

Receptacle / Plug installation and electrical wiring operations must be performed by qualified personnel. For safety reasons adhere to the following indications.

- A NEMA L15-30 Plug (included) is required



- Ensure that the electrical circuitry is suitably sized for the absorbed power (5100w) of the unit.
- Do not use reductions or multi-way adapters.

⚠ It is important to connect the equipment correctly to an efficient earth ground in compliance with all relevant codes.

⚠ A switch or circuit-breaker must be included in the installation:

- It must be suitably located per NEC.
- It must be marked as the disconnecting device for the equipment.

2.4 SET UP OPERATIONS

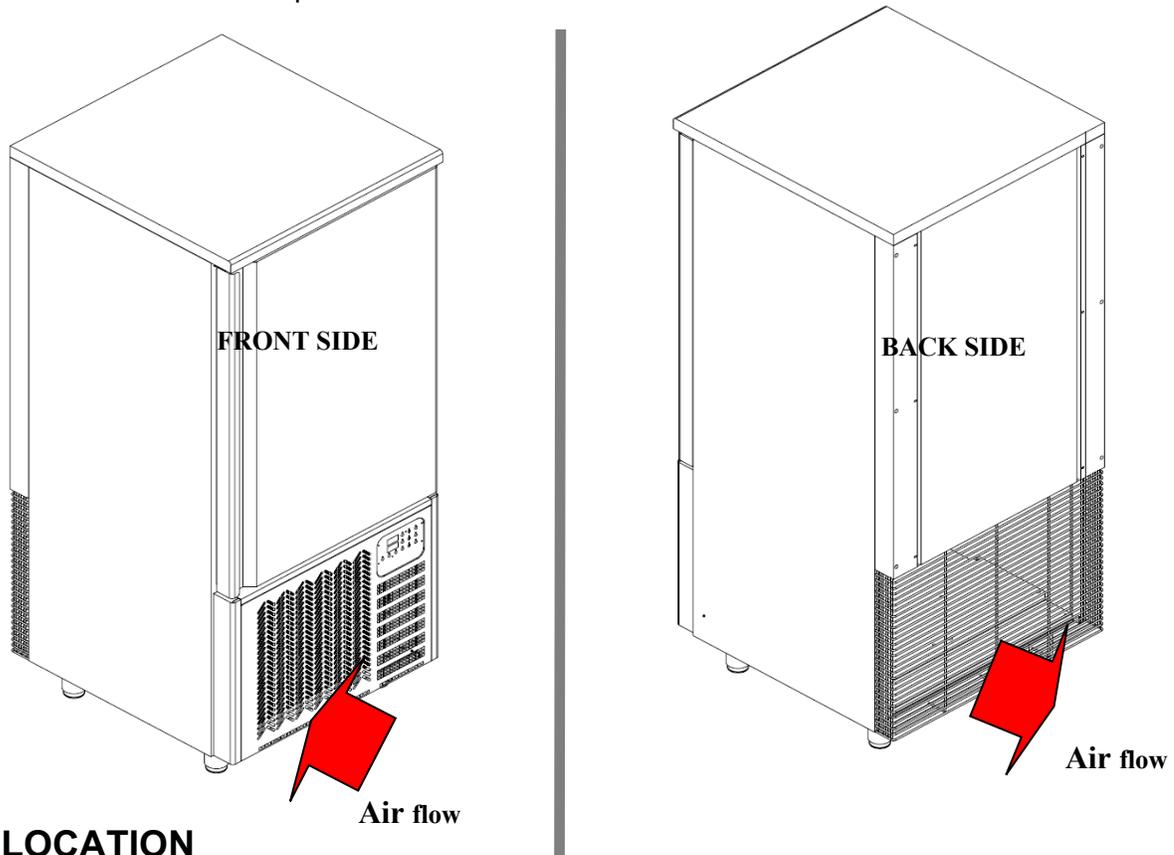
To avoid errors and accidents, perform a series of checks for possible damage sustained during transport, installation and hook-up operations before starting up the unit.

PRELIMINARY CHECKS

- Check the condition of the power cord (no cuts or chaffing). Check that the door hinges and shelf supports are stable.
- Check that the door gaskets and shelves are not damaged (broken or scratched) and that the door closes and seals properly.
- Ensure chiller is overall in good working condition.

2.5 AIRFLOW REQUIREMENTS

- A minimum of 12 inches (30 cm) clearance from the back wall, 20" (50 cm) from the side walls and the ceiling must be maintained.
- The room must have adequate ventilation



2.6 RE- LOCATION

Observe the following procedure:

- Power down the unit by pushing the “Standby” icon, **Section 3.1.3**
- Disconnect the power cord from the electrical outlet.
- Handle the equipment in accordance with the instructions in **Section 2.1**.
- Follow the instructions in **Sections 2.2 thru 2.5** for positioning and hook-up in the new location.

2.7 SCRAPPING AND DISPOSAL

These units may contain materials, which at the end of the working life of the apparatus, must be disposed of at a recycling center approved by your local regulations. Scrapping and disposal of the equipment must be carried out in full compliance of established legislation in your area.

In particular, the apparatus may contain the following materials:

- Iron
- Copper
- Aluminium
- Non-biodegradable plastics
- Fibre glass for printed circuits
- Ferrite
- Batteries
- CFC-free refrigeration gas
- Electrical and electronic equipment

The manufacturer shall not be liable for any disposal of the apparatus at the end of its working life.



This electrical product must not be disposed of as unsorted municipal waste. Please dispose of this product by returning it to your local municipal collection point for recycling.

2.8 REMOTE ALARM CONNECTION



These units are equipped with remote alarm terminals for the connection to a remote alarm network.

The remote alarm terminal block is installed at the back of the cabinet near the electrical box enclosure, and it is wired through a connection cable to the controller board.

The Remote alarm contact is a Dry contact (low voltage: max 24Vac / Vdc, 1A, SELV) and consist of three outputs: **C** (Common) / **N.O.** (Normally Opened Circuit) / **N.C.** (Normally Closed Circuit). For the external network connection, fasten directly to the pins according with the remote alarm network configuration. When an alarm occurs the contact relay switches from

the **N.C.** position to open.

3. Operation Setup & Guidance

Before powering ON the unit, check that the electrical connections have been made correctly

- This manual is part of the product and should be kept near the chiller for easy and quick reference.
- To set the DATE/TIME or LANGUAGE, refer to USER MENU in **(section 3.2)**

To run a continuous rotating cycle, (adding product for freezing and remove product when frozen for further processing) the **Time Cycle** option should be used.

For fastest freezing using the Time Cycle,

- Select an Air Temp. of -40°C, a Fan setting of 10, and a T Storage of -40°C.
- Selecting a Cycle Time of 30 minutes will ensure the device has reached the target Air temperature. **See (Section 3.1) STARTING CYCLE**

Upon expiration of the 30 minute cycle, the unit will sound an audible alert indicating the initial freeze cycle is complete at which time the chiller will transition into Preservation Mode and hold at the T Storage Temperature of -40°C until the user ends the cycle. The user may remove product at will as the device is in either Freezing Mode or Preservation Mode.

LOADING FOR OPTIMAL PERFORMANCE

- When loading plasma products onto each shelf, take care to lay the product in such a manner to maximize airflow and reduce thermal load, no more than 3500 mL of product should be loaded on each shelf. Do not place product directly on the base or against the walls, doors, or fixed guards of the unit.
- Load product at ambient temperature gradually to allow faster freezing.
- Do not block the motor compartment air vents. Do not lay objects on the top of the equipment.
- Limit the frequency and duration of door opening, each time the door is opened the internal temperature will increase.

Please Note.

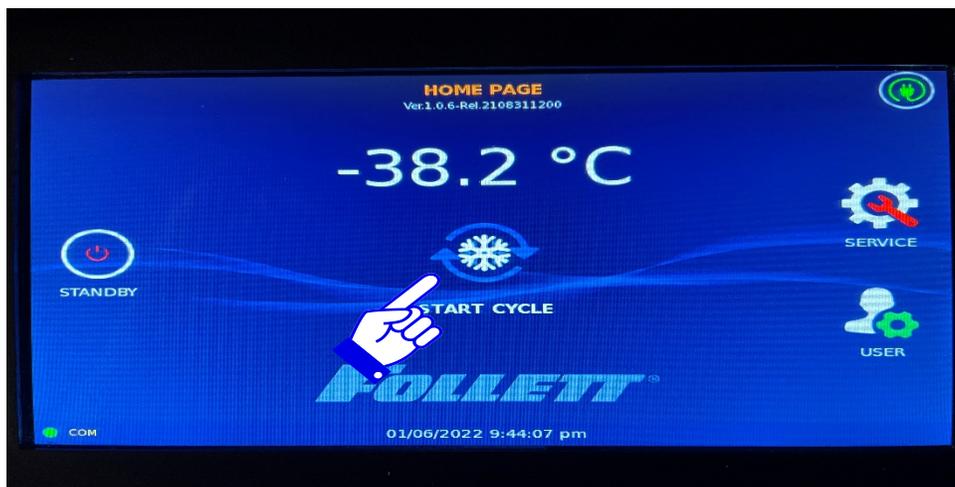
- During loading / unloading, if the door is kept open longer than 60 seconds a Door alarm will sound.
- Ensure product loading does not affect airflow.
- A mindful sense of urgency should be used when inserting / removing trays from the chiller. The longer the door is open, the warmer the interior gets. **But ALWAYS work safely!**
- During the preservation cycle, the unit will enter a defrost cycle every 4 hours. The defrost cycle can last approximately 10 minutes during which the evaporator coil temperature may briefly reach 5°C (you **may** see a slight rise in cabinet temperature as well. During a defrost cycle, door opening will increase the temperature even more) On termination of the defrost cycle, the unit will automatically reenter a freeze / preservation cycle and the cabinet air temperature will quickly drop back to normal range.
- The chiller is set to operate with a factory default to the Celsius temperature scale. In the event that Fahrenheit is required, Contact Follett Technical Services (877)-612-5086.

- **If an alarm occurs** due to extended door open time or any other reason, an alert icon will illuminate on the upper Right corner of the screen and the buzzer will activate (**Section 4.2**)
 - Click on the alarm icon to see details. A message box will appear with the alarm code. Use a single tap on the alarm ICON to acknowledge / silence alarm. The alarm ICON will remain lit after the alarm has been acknowledged. To “CLEAR” the alarm, the unit must be put into the “STANDBY” mode and then restarted.
 - A second tap may terminate the cycle requiring the cycle be started again. (**Section 3.1**)
- STARTING CYCLE**
- If a cycle is accidently terminated a new cycle must be initiated and can be started immediately.

3.1 STARTING CYCLE

Power up the unit, the controller will start to load the software, it will then put the screen into the Home Page view.

From the Home Page screen touch the *START CYCLE* icon:



The cycle settings menu view will then appear on the screen:



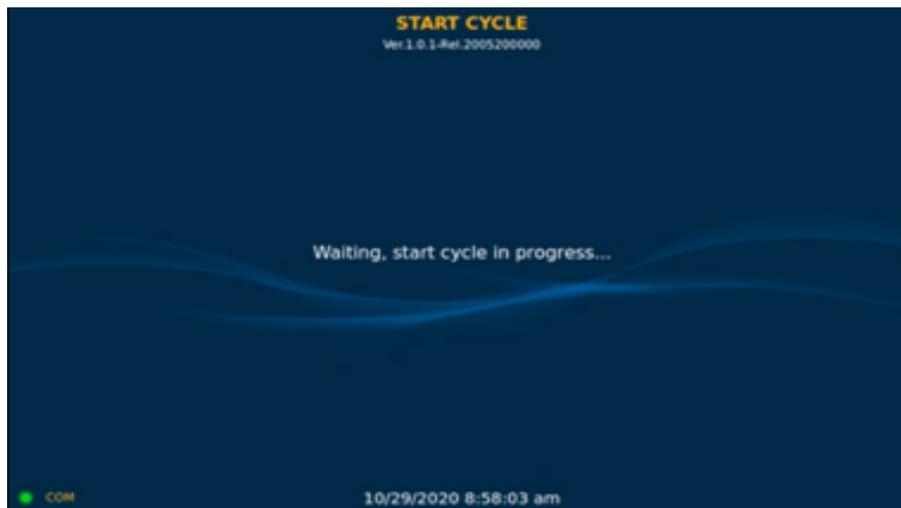
Touch the “CYCLE TYPE” icon to scroll to the desired cycle either by time or by product temperature core probe: *For continuous production, use the Time Cycle freezing method identified in (3.1.1).*



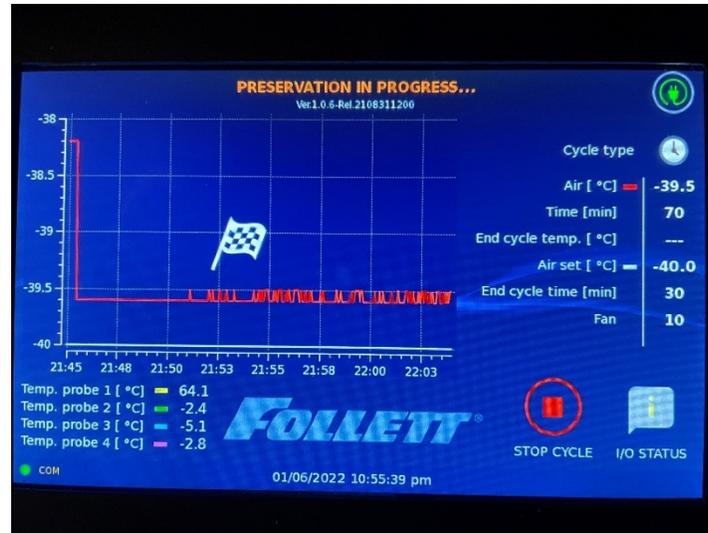
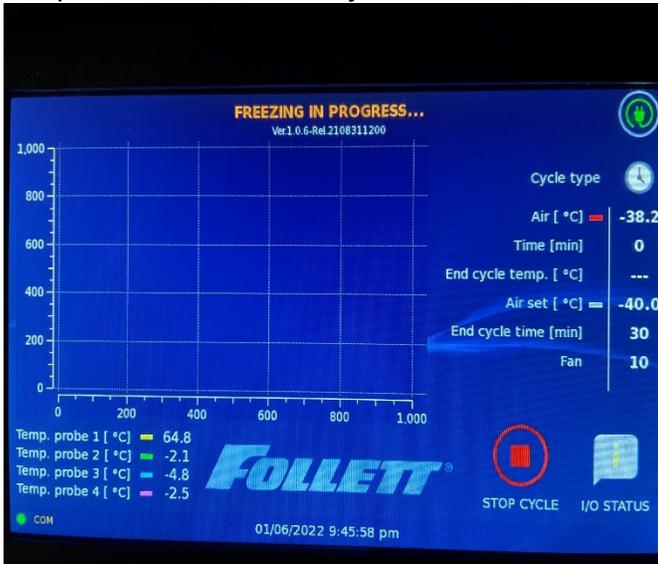
To modify the cycle options, press the tab of the option(s) that need to be adjusted. The tab will light green, you may then adjust the value using the keyboard on the right side of the screen. Once the correct value is set, press the OK button.



Once the cycle options are set touch the *START* icon to start the cycle: The controller will start to load the program and the following screen will be displayed



Once the cycle starts, the screen will show the cycle main view: a graph shows in real time the temperatures detected by the four cores of the product probe as well as the cabinet air temperature:



On the right side of the screen, the cabinet temperature, elapsed time from the start of the cycle, end cycle temperature set point, cabinet temperature set point, cycle time set point, and the fan speed are displayed.

Once the cycle is completed, a flag icon will appear on the screen and a buzzer will alert that the cycle ended. **The unit switches automatically into preservation mode.**

If you want to interrupt an ongoing cycle, press the *STOP CYCLE* red button. The screen will return to the home page.

3.1.1 Time Cycle



During a Time Cycle (Clock icon in the *CYCLE TYPE* tab) the unit will run the cycle pulling down and holding the temperature inside the cavity at the desired temperature set in the “*AIR TEMP.*” tab, for the desired target time set in the “*CYCLE TIME*” tab.

Once the *CYCLE TIME* is elapsed, a checkered flag will appear on the screen and a buzzer will sound indicating that the freeze cycle ended.

At the end of the cycle, the unit will switch automatically into the *PRESERVATION* mode, adjusting and holding the temperature set in the *T STORAGE* tab until the unit is stopped manually by touching the stop button on the screen. **For Continuous Production the following setting are recommended. CYCLE TIME 30, AIR TEMP.-40°C, FAN SPEED 10, and T STORAGE -40°C.**

3.1.2 Product Temperature Cycle



During a Temperature cycle (Needle Probe icon in the *CYCLE TYPE* tab), the multi-core needle probe of the unit must be inserted into a simulation bag. The unit will run the cycle, pulling down and holding the temperature inside the cabinet at the desired temperature as set in the “*AIR TEMP.*” tab until all of the 4 cores of the needle probe read the target temperature set in the “*CYCLE TEMP.*” tab.

Once the multi-core needle probe hits the target temperature, a checkered flag will appear on the screen and a buzzer will sound indicating that the cycle has ended.

At the end of the cycle, the unit will switch automatically into the PRESERVATION mode, adjusting and holding the temperature as set in the *T STORAGE* tab until the unit is stopped manually by touching the stop button on the screen.

Note: In the event the temperature measured by the needle probe is lower than the target temperature, the cycle will not start, and a message will appear on the screen: “Start Cycle failed!”

3.1.3 COMPLETION OF PROCESSING / END OF SHIFT

- Power down the unit by pushing the “Standby” icon as shown below and leave door partially open to prevent mold growth.



3.2 USER MENU

- From the HOME PAGE screen, touch the USER icon:



The screen will then display the *USER* menu that includes the *Date & Time* settings menu, the *Language* set up menu, the *USB* options menu, *LAN* network settings menu, *I/O STATUS* menu and the *Manual Defrost* start cycle.



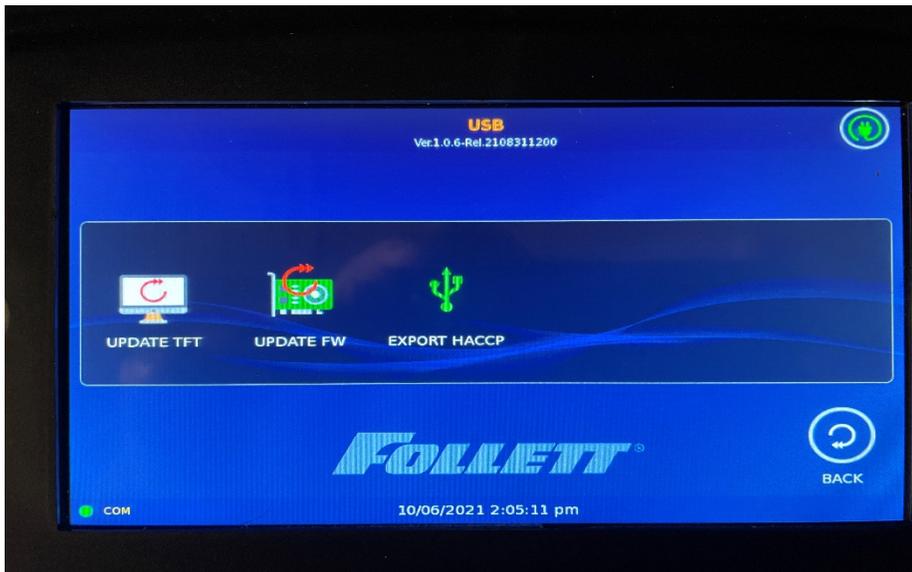
3.2.1 USB option

Through the USB port, located on the right side of the Touch Screen frame, it is possible both to import and export data to and from a USB stick. There is no special requirement for the type of USB. However, an empty formatted USB with minimum 2 gigs is recommended.

In the *USER MENU* screen, touch the *USB* tab and you will be put into the USB options view:



From the USB menu it is possible to upload to the touch screen as well as the PCB software and download the HACCP records.



3.2.2 I/O STATUS

From the *USER MENU* screen, touch the *I/O STATUS* tab:

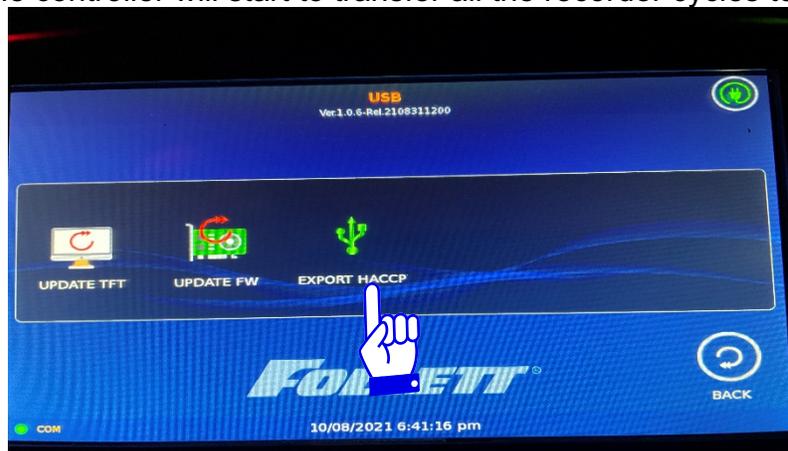


The *Input/Output* menu allows you to check all input signals, such as Temperature Sensors, Door Switch status, and Outputs such as Relays status. (Outputs shown below)

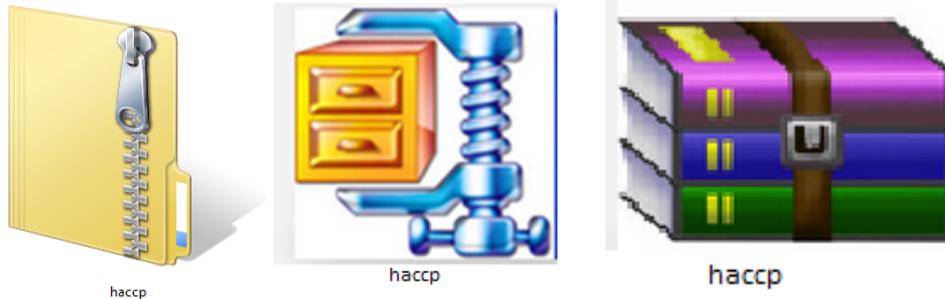
1	0	0	1	0	1	1	0
ACTIVE LOAD	DEFROST RELAY	NOT USED	COMPRESSOR	NOT USED	PUMP DOWN	DOOR HEATER	EXTERNAL ALARM
"0"= Off, "1"= On							

3.2.3 HACCP download

This controller is capable of exporting HACCP information to a USB key. Press on the related tab in the USB menu and the controller will start to transfer all the recorder cycles to the USB.



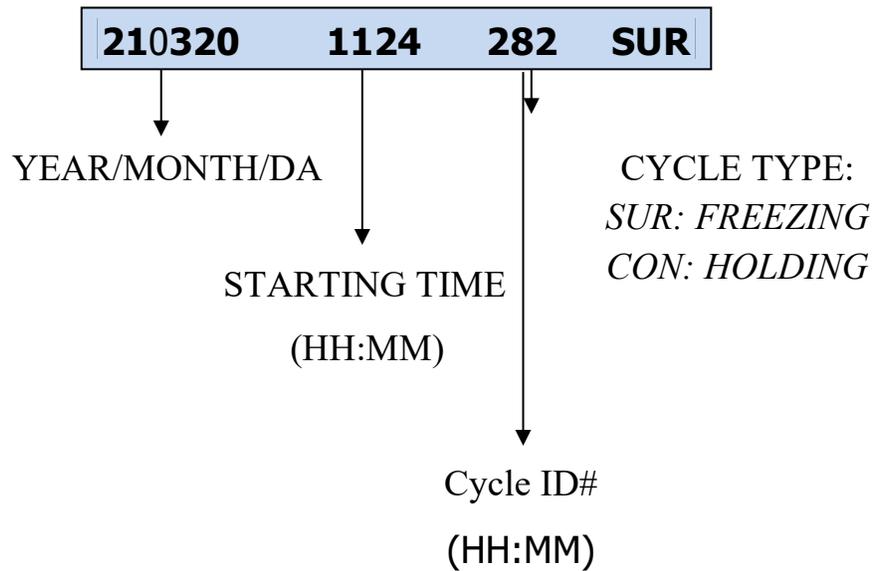
The file will be exported as a zipped file named "haccp.zip". When you connect the USB to a PC the file will show as below



The icon depends on the zip software installed on the PC. Use any zip software (such as unzip, winrar, G7 or similar) to extract the file to a folder. The folder will be named "haccp" as well. The cycle data are stored at the following path ***haccp\home\root\haccp*** and will be contained into .csv files (Comma Separated Values). They will be normally associated to Excel, like shown in the following example:

Every file represents a single cycle and is encoded as per below scheme:

-  1503171124T_282_SUR
-  1503171327P_283_ABB
-  1503191039T_284_SUR
-  1503191401P_285_ABB
-  1503201116T_286_SUR
-  1503201310P_287_ABB
-  1503201312P_288_ABB
-  1503231313T_289_SUR
-  1503231515P_290_ABB
-  1503241238T_291_SUR
-  1503241239T_292_SUR
-  1503241517P_293_ABB
-  1503241517P_294_ABB
-  1503261147T_295_SUR
-  1503261148P_296_ABB
-  1503261242P_297_CON
-  indexCycle.arg
-  numCycle.arg




lib (folder)

BlastChillerTracer (Java executable file)


3.2.4 Using a property Software to trace HACCP data The above .csv files can be easily loaded and traced via a proprietary software called *Blast Chiller Tracer*. Ask the software files to your A.S.A. or to the factory. The necessary files are:

NOTE: *indexCycle.arg/numCycle.arg* are encrypted files. Do not open them unless following instruction in this manual

They will need to stay in the same folder, that you can place wherever in your PC.

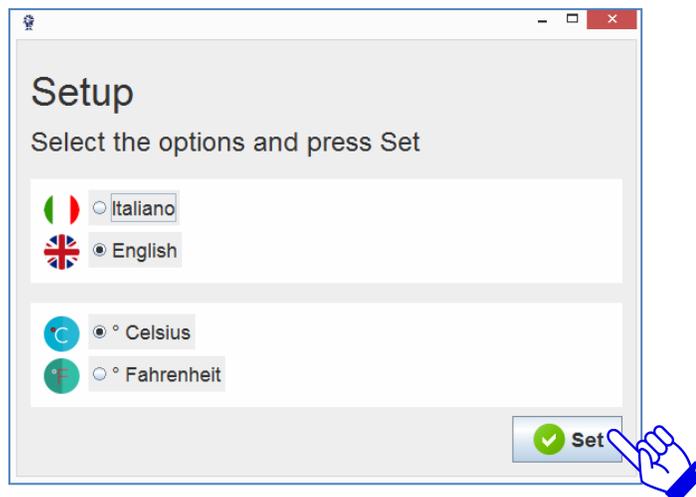
NOTE: Do not open *db* and *lib* folders but only run **BlastChillerTracer.**

The Tracer is Java executable file. Java virtual machine (JVM) is a very common software and is normally preinstalled into Windows based OS, to run games or other graphical interactive application. When this software is existing on a PC the file BlastChillerTracer will be automatically associated to the JAVA icon. Should this not happen, then you probably need to install the JVM. Contact your Administrator or install directly the JVM from the following link: <http://www.java.com/it/download/>

The software is safe and free of charge. Once it is installed you can run the executable file BlastChillerTracer that has a .jar extension. The main window will show as below.



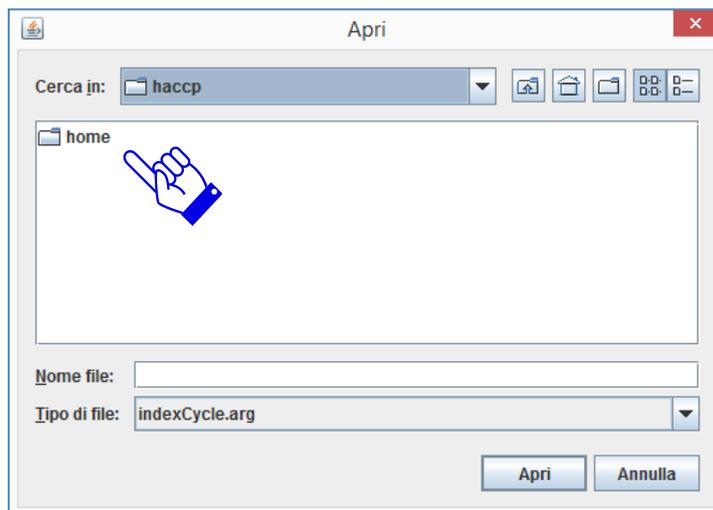
Click on Options to adjust settings:



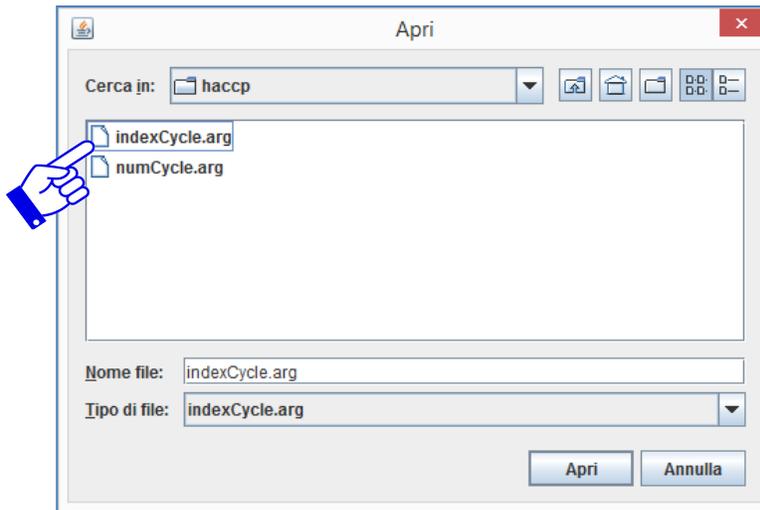
Select the language and scale of temperature, press SET to confirm and exit. Press the Load File tab on the right top of the screen.



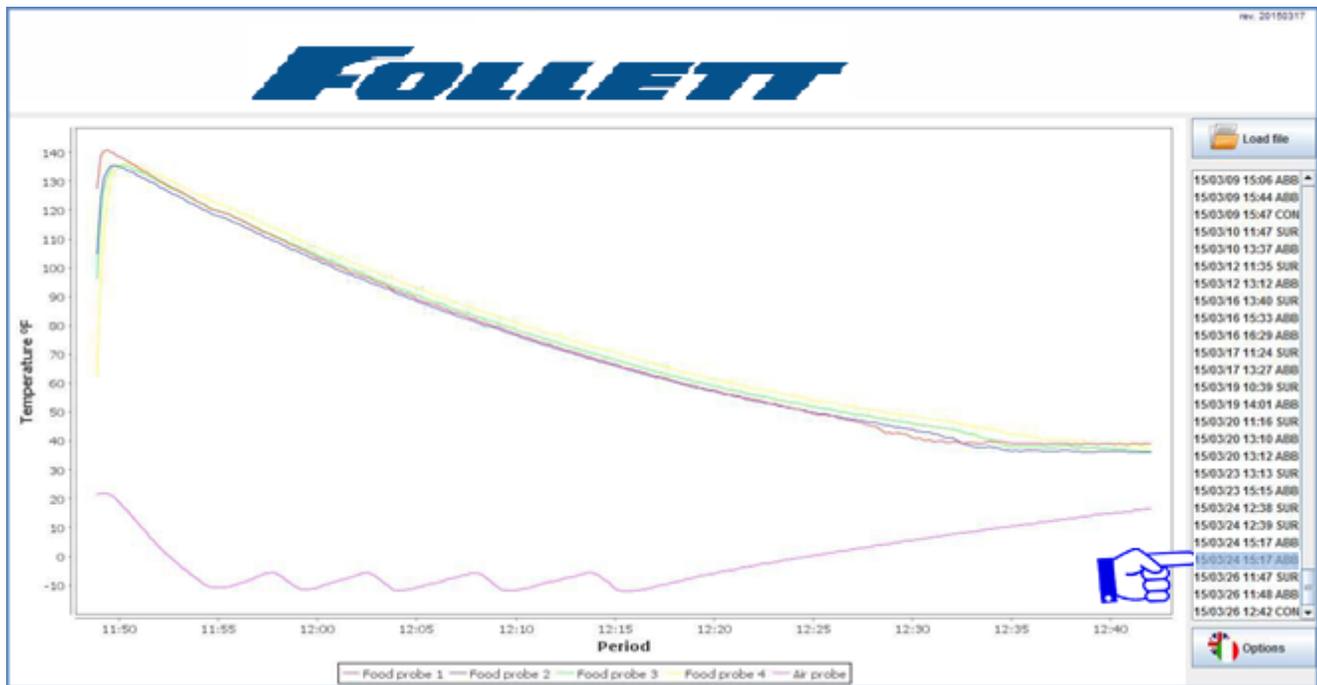
A search file window will open, displaying the file *indexCycle.arg* in the *haccp* folder. This is the folder extracted from the *haccp.zip* file downloaded from the USB Touch Screen. Click on the folder name to go through the path *haccp\home\root\haccp*.



Once the *.arg* files show in the box, double click on left side of *indexCycle.arg*



Select the cycle to graph from the right column, listed as: date, starting hour and cycle code See example of cycle graph below. Right click on the graph to print or save a .png file. Scroll up or down to zoom in and out. To zoom in on a specific area of the graph, just select the area with the mouse.



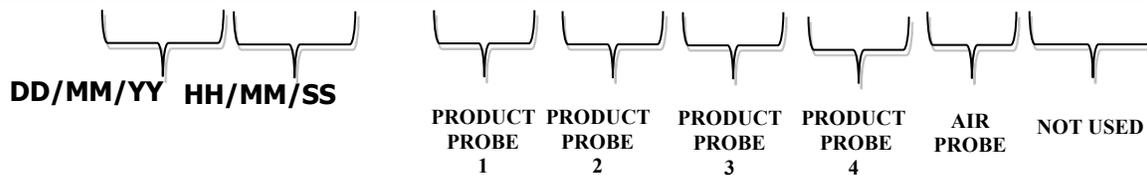
3.2.5 Access the source HACCP files.

The tracer software is a powerful tool to graph all cycles stored in the Blast Chiller memory. However, it's possible to open the .csv source files for checking data or other purposes. Access the .csv files directly from the *haccp* extracted folder (see first section of this chapter). Open the selected cycle with Excel or an equivalent spreadsheet software. The data will be shown as in the below screenshot:

	A	B	C	D	E	F	G	H	I	J	K
1	2,60315E+11 53.1	40.4	35.6	17.0	-5.9	1	0	0			
2	2,60315E+11 59.4	51.4	48.0	35.6	-5.6	1	0	0			
3	2,60315E+11 60.3	55.1	53.0	45.3	-5.6	1	0	0			
4	2,60315E+11 60.5	56.5	55.5	50.9	-5.7	1	0	0			
5	2,60315E+11 60.1	57.2	56.6	54.1	-6.0	1	0	0			
6	2,60315E+11 59.8	57.4	57.4	55.9	-6.3	1	0	0			
7	2,60315E+11 59.4	57.2	57.5	57.0	-7.0	1	0	0			
8	2,60315E+11 59.1	57.1	57.5	57.5	-7.6	1	0	0			
9	2,60315E+11 58.8	56.9	57.4	57.7	-8.5	1	0	0			
10	2,60315E+11 58.4	56.6	57.3	57.8	-8.9	1	0	0			
11	2,60315E+11 58.1	56.4	57.1	57.7	-9.6	1	0	0			
12	2,60315E+11 57.6	56.1	56.8	57.6	-10.5	1	0	0			
13	2,60315E+11 57.2	55.6	56.5	57.4	-11.1	1	0	0			
14	2,60315E+11 56.8	55.3	56.1	57.2	-11.9	1	0	0			
15	2,60315E+11 56.4	55.0	55.9	56.9	-12.5	1	0	0			
16	2,60315E+11 56.1	54.7	55.6	56.6	-13.3	1	0	0			
17	2,60315E+11 55.7	54.4	55.2	56.3	-14.1	1	0	0			
18	2,60315E+11 55.3	54.1	54.9	56.1	-14.7	1	0	0			
19	2,60315E+11 54.9	53.7	54.6	55.7	-15.4	1	0	0			
20	2,60315E+11 54.5	53.3	54.3	55.5	-16.0	1	0	0			
21	2,60315E+11 54.2	53.0	53.9	55.2	-16.7	1	0	0			
22	2,60315E+11 53.8	52.7	53.6	54.9	-17.3	1	0	0			
23	2,60315E+11 53.4	52.3	53.3	54.5	-17.8	1	0	0			
24	2,60315E+11 53.0	52.0	52.9	54.2	-18.5	1	0	0			
25	2,60315E+11 52.8	51.7	52.6	53.9	-19.0	1	0	0			

Data in column A represents date/hour/minutes/second (Change the cell format to “Number” to show the time properly). Reduce decimal places to 0.

	A	B	C	D	E	F	G	H	I
1	260315114853	53.1	40.4	35.6	17.0	-5.9	1	0	0
2	260315114903	59.4	51.4	48.0	35.6	-5.6	1	0	0
3	260315114913	60.3	55.1	53.0	45.3	-5.6	1	0	0
4	260315114924	60.5	56.5	55.5	50.9	-5.7	1	0	0
5	260315114933	60.1	57.2	56.6	54.1	-6.0	1	0	0
6	260315114943	59.8	57.4	57.4	55.9	-6.3	1	0	0
7	260315114953	59.4	57.2	57.5	57.0	-7.0	1	0	0



4. BASIC SERVICE DIAGNOSTIC

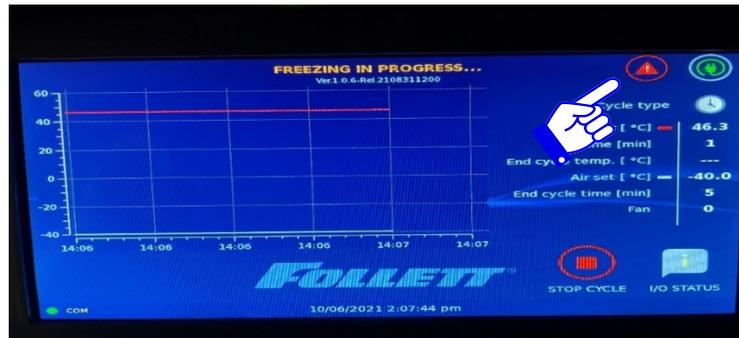
4.1 ALARM CODES

ALARM MESSAGE	NOTES/CONSEQUENCES
<i>DOOR</i>	The door is open for more than the DOO parameter allowed time during a cycle.
<i>HIGH PRESSURE</i>	Head pressure is too high, exceeding 425 psig. Check for clogged condenser, condenser fan motor not running or pump down valve not opening when compressor is running.
<i>EVAPORATOR LOW TEMPERATURE</i>	Indicates that the evaporator temperature is too low if compared to the current setpoint temperature. There is a differential parameter LBT that states the maximum gap that should exist between setpoint temperature and evaporator temperature. The alarm may occur on some occasion when there is a big change of setpoint temperature, the evaporator temperature remaining low for some minutes, hence triggering the alarm. This alarm it is not a critical one, however it could be avoided by setting LBT as high as possible (i.e., 40°C-72°F).
<i>DEFROSTING TIME</i>	Indicates that the defrost process has not terminated within the maximum defrosting time. The defrost normally ends by evaporator temperature target (DTE). If this does not happen within DTO minutes, then the alarm triggers. Check the evaporator coil icing status, in high humidity, one defrost cycle may not be enough, repeat the defrost. If the alarm occurs during the holding cycle, there may be a problem with the defrost device (hot gas valve). Using the Blast Freezer as a holding cabinet for an extended period may also trigger this alarm.
<i>ELECTRICAL FEEDING</i>	Warns that the voltage supply is not within the safety range. The range is determined by parameter MRV (Main Reference Voltage), plus or minus the percentage defined by the parameter VOF (Main's voltage sensor offset)
<i>LOW TEMPERATURE</i>	Occurs when during the holding cycle (Preservation mode) the air temperature goes below the low temperature limit, parameter ALL . This parameter is a differential from the setpoint.
<i>HIGH TEMPERATURE</i>	Occurs when during the holding cycle (Preservation mode) the air temperature goes

ALARM MESSAGE	NOTES/CONSEQUENCES
	above the high temperature limit, parameter ALH . This parameter is a differential from the setpoint.
<i>AIR PROBE (S1)</i>	Air probe failure.
<i>EVAPORATOR PROBE (S2)</i>	Evaporator probe failure.
<i>CONDENSER PROBE (S3)</i> <i>(Not applicable in this product)</i>	Condenser probe failure.
<i>PROBE (PT1)</i>	Insert probe core 1 failure.
<i>PROBE (PT2)</i>	Insert probe core 2 failure.
<i>PROBE (PT3)</i>	Insert probe core 3 failure.
<i>PROBE (PT4)</i>	Insert probe core 4 failure.
<i>RELAY 1,2,...,8 BROKEN</i>	The electronic board detected a failure on Relay 1,2,...,8.
<i>TRIAC BROKEN</i>	The circuit board detected a failure on the PWM output for evaporator fan variable speed.
<i>BLACK OUT</i>	The system recorded a power interruption without switching off the display. Switch off the display and turn it on to clear the alarm.

4.2 ALARM CODE DETAILS

If an alarm occurs, an alert icon will blink on the upper Right corner of the screen and the buzzer will activate. Click on the alarm icon to see details.



A message box will appear with the alarm code: Use a single tap on the alarm ICON to acknowledge alarm. A second tap may terminate the cycle requiring the cycle be started again. **Section (3.1)** To “CLEAR” the alert, the unit must be put into the “STANDBY” mode and then restarted.



5. DEFROST

The Plasma Chiller is equipped with a “Hot Gas” defrost system. The unit automatically defrosts when it switches from freezing to preservation mode, It will then defrost per the “ITD” parameter. (factory default every 4 hours) while in preservation mode, and will again defrost on shut down.

In high humidity areas a single defrost cycle may not be enough to completely clear the evaporator of ice and you may get a “Defrosting Time” error. If this occurs you may manually initiate a follow up defrost cycle through the controller USER MENU **Section (3.2)**

A natural defrost can be accomplished if desired while completing routine housekeeping duties by powering down unit and allowing to warm to ambient temperature.



NEVER use any objects to scrape ice from the evaporator.

6. Cleaning / Inspection

Cleaning

Interior: Using a sponge or soft cloth, clean unit with a non-abrasive, non-chlorinated, all-purpose detergent.

Exterior: Use only non-chlorine-based cleaners. Cleaners containing chlorine can cause staining and pitting of the stainless-steel Wipe exterior with a soft cloth in the direction of grain stainless steel polish may be used to enhance the finish of the unit.

Visually inspect door gasket; Look for rips, tears, dirt build up, or anything that can compromise an airtight seal.

Visually inspect cleanliness of unit; Verify it is ice free and clean / sanitary.

Before performing any preventative maintenance on the equipment disconnect it from the electrical power by putting the control in “Standby” and removing the plug

Monthly

Inspect the condenser coil air filter for damage and clean, if necessary.

Inspect condenser coil for dirt and dust, clean if necessary.

Note: The front louvered panel may be removed for more frequent inspection / cleaning of the filter and condenser as needed.

Semi-Annual Cleaning / inspection

Removal of dust and other particulates from air intake areas and the condenser is important for proper operation. Environments with large amounts of dust may require more frequent cleaning.

1. Put unit in “Stand-by mode” and deenergize power to unit by disconnecting power cord from receptacle.
2. Remove the rear protection grid and the front louvered panel, remove filter.
3. Remove and clean drain pan with a non-chlorinated all-purpose detergent. Reinstall drain pan.
4. Use a vacuum cleaner with brush attachment to clean condenser through lower front panel also clean compressor, condenser fan motor and related parts through lower rear panel.
5. Wash reusable condenser air filter and allow to dry.
6. Inspect the following for wear or damage; fan blades, electrical wiring, refrigeration tubing, check for signs of oil leaks.
7. Reinstall condenser air filter, rear protection grid, and front louvered panels.
8. Open the evaporator cover, visually inspect evaporator coil use vacuum with brush to clean as necessary.
9. Visually inspect evaporator fan, blades, wiring, and tubing for wear and damage.
10. Close and secure evaporator cover.
11. If applicable, contact Follett Technical Services (877)-612-5086 for guidance to calibrate the temperature probes.

7. TFT DISPLAY SOFTWARE UPDATE PROCEDURE

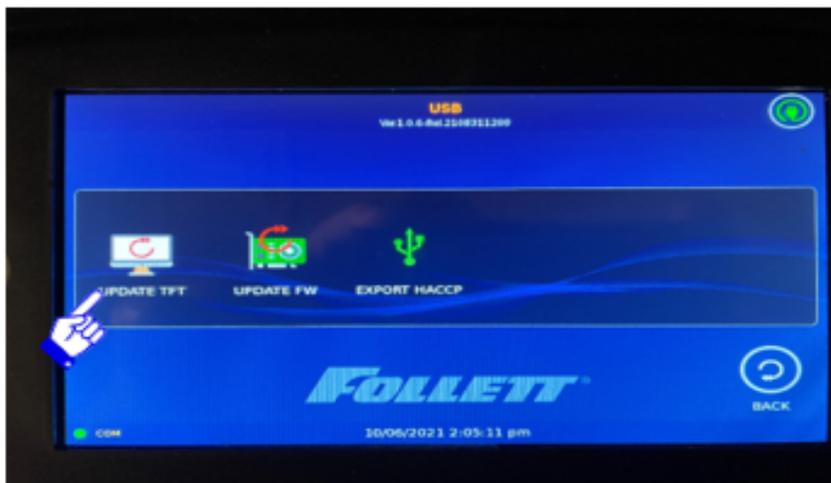
From the Home Page, touch the USER icon.



Then touch the USB tab.



Touch the TFT Update tab and insert the USB drive containing the update files when prompted

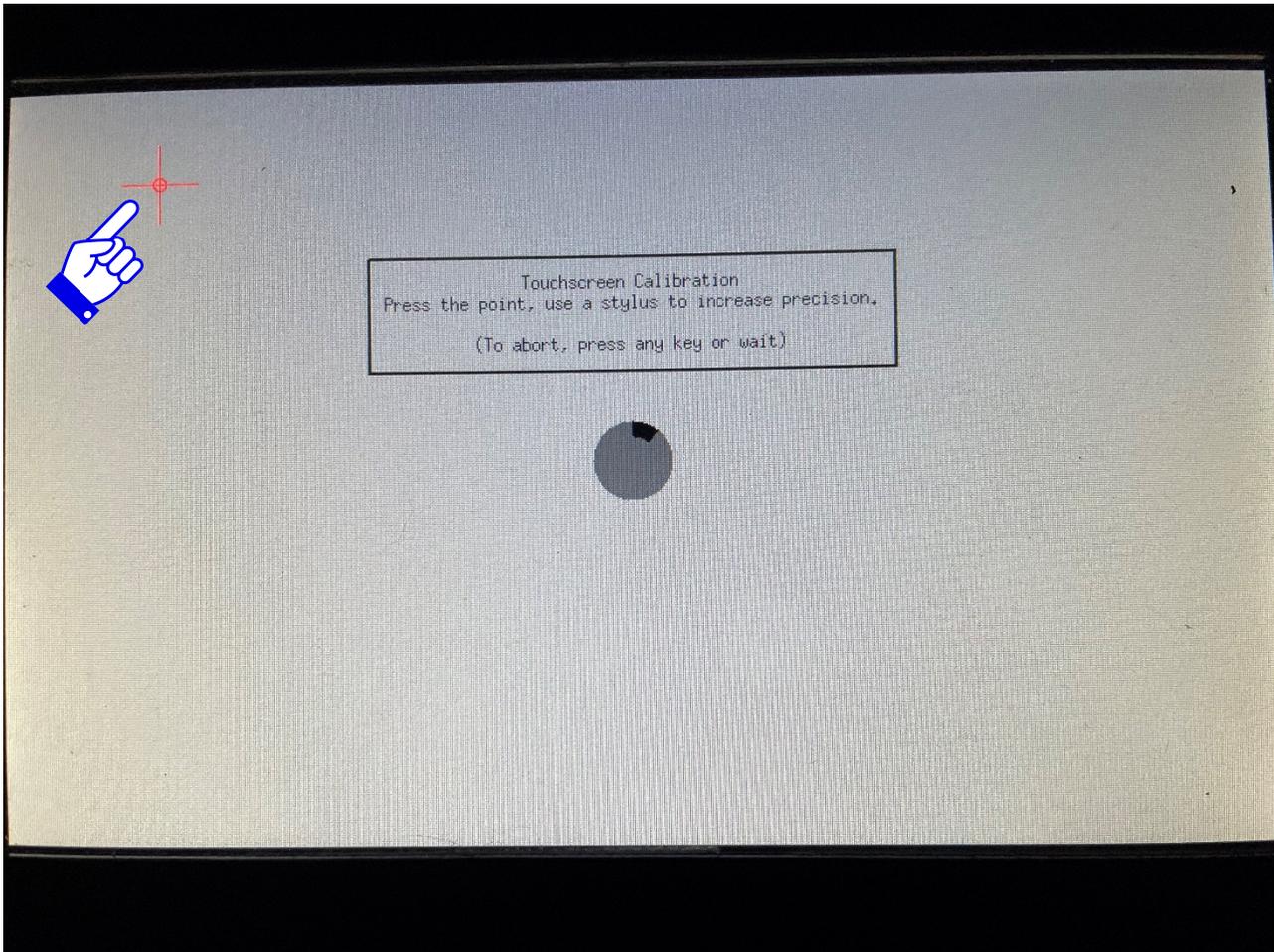


When the update procedure is completed, the screen will display the message: "Update Completed".

The unit will then automatically reboot.

8. Calibrating the TFT screen

When the control is rebooted, a screen will appear allowing you to calibrate the touchscreen. Simply touch the points as they illuminate.



Warranty Registration and Equipment Evaluation

Thank you for purchasing Follett® equipment. We hope you find that our equipment meets or exceeds your expectations, as our goal is to deliver high value products and services that earn your complete satisfaction! Please review the enclosed installation and operations manual. It is important that the installation be performed to factory specifications, so your equipment operates to its maximum efficiency. Follett LLC will not be liable for any consequential damages, expenses, connecting or disconnecting charges or any losses resulting from a defect of the machine. For full warranty details, visit our website www.follettice.com/productwarranties. Warranty registration and equipment evaluation is important to help us keep track of our equipment and to record the machine's performance. We request that you register Follett equipment warranties on our website www.follettice.com/support and choose Warranty Registration and Equipment Evaluation. It's simple to do; please take a moment to register today. There is also space on the form to provide us with comments and feedback. Please let us know about your experience so we can capture it for our continuous improvement efforts. We pride ourselves on producing outstanding equipment and we work hard to back it up with outstanding customer and technical support. Please let us know what else we can do to assist you. We would be happy to answer your questions.

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