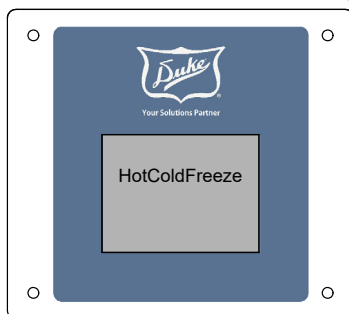
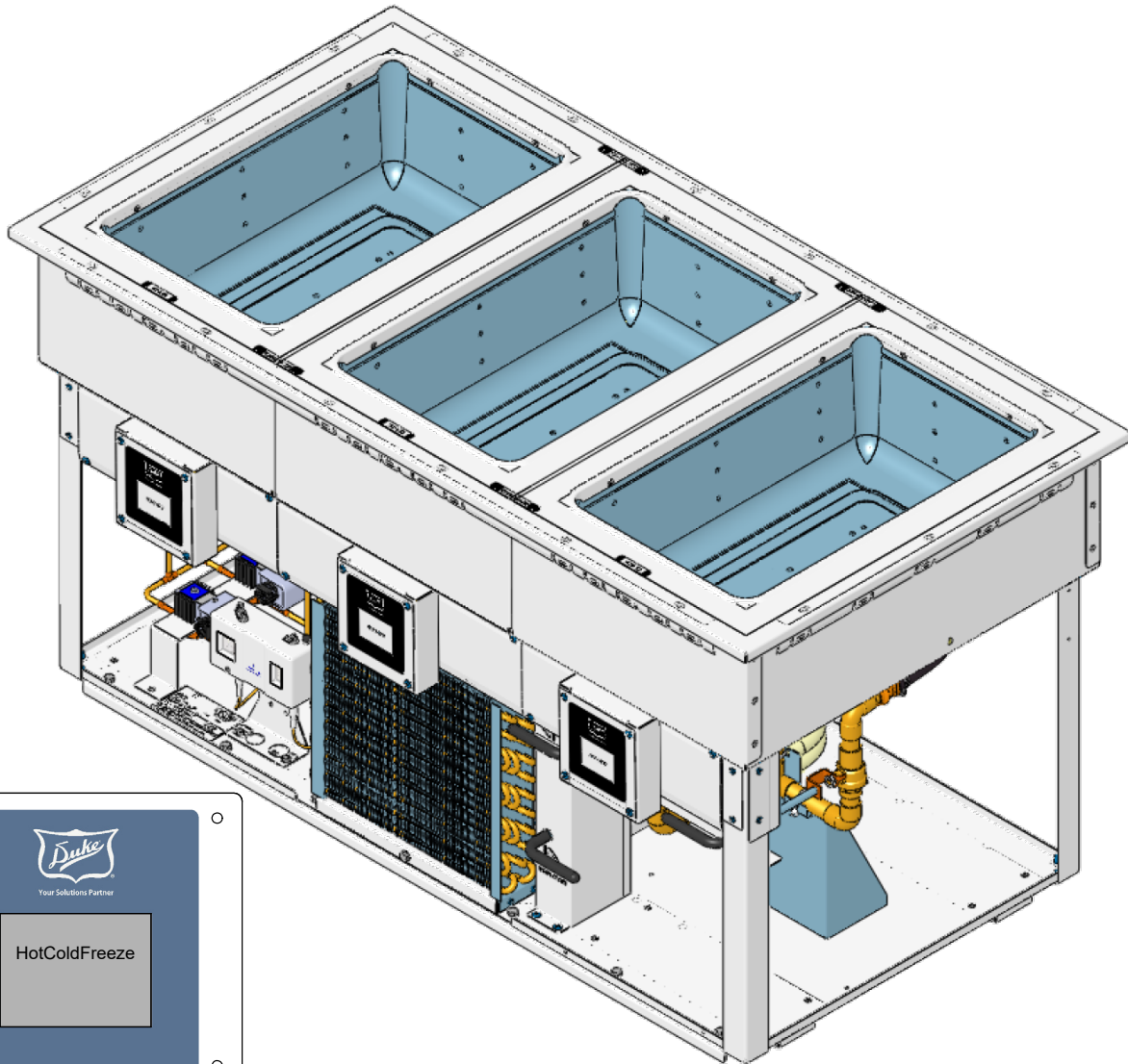




Installation and Operation Manual



CAUTION: Please read this manual completely before attempting to install, operate or service this equipment

WARNING for CA residents: go to www.dukemfg.com/prop65 for prop 65 warning

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P/N 229330
REV L 05/13/2024



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IMPORTANT SAFETY INSTRUCTIONS

Throughout this manual, you will find the following safety words and symbols that signify important safety risks with regards to operating or maintaining the equipment.



Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Indicates Important Information



Indicates electrical shock hazard which, if not avoided, could result in death or serious injury and/or equipment damage.



Indicates hot surface which, if not avoided, could result in minor or moderate injury.



The device is not suited for direct washing with a water jet. Therefore, do not use a pressure water jet to clean the device!

In addition to the warnings and cautions in this manual, use the following guidelines for safe operation of the unit.

- Read all instructions before using equipment.
- For your safety, the equipment is furnished with a properly grounded cord connector. Do not attempt to remove or disconnect the grounded connector.
- Install or locate the equipment only for its intended use as described in this manual.
- Do not use corrosive chemicals on this equipment.
- Do not operate this equipment if it has a damaged cord or plug, if it is not working properly, or if it has been damaged or dropped.
- This equipment should be serviced by qualified personnel only. Contact the nearest Duke authorized service facility for adjustment or repair.
- Do not block or cover any openings on the unit including providing free air flow around the fan unit.
- Do not immerse cord or plug in water.
- Keep cord away from heated surfaces.
- Do not allow cord to hang over edge of table or counter.
- Turn the unit off, disconnect the power source and allow unit to cool down before performing any service or maintenance on the unit.
- The procedures in this manual may include the use of chemical products. You must read the Material Safety Data Sheets before using any of these products.
- The unit should be grounded according to local electrical codes to prevent the possibility of electrical shock. It requires a grounded receptacle with dedicated electrical lines, protected by fuses or circuit breaker of the proper rating, in accordance with all applicable regulations.
- Disposal of the unit must be in accordance with local environmental codes and/or any other applicable codes.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:
 1. This device may not cause harmful interference, and
 2. This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications to this equipment not expressly approved by the DUKE Manufacturing Co. Will void the user's authority to operate the equipment.



**ELECTRICAL SHOCK HAZARD UNIT MUST BE SAFETY GROUNDED, EARTHED.
DO NOT MODIFY, DEFEAT ELECTRICAL CONNECTIONS OR ALTER PLUG.**

ELECTRICAL CONNECTIONS

⚠ WARNING BEFORE CONNECTING THE UNIT TO THE POWER SOURCE, VERIFY THAT THE VOLTAGE AND PHASE OF THE POWER SOURCE ARE IDENTICAL TO THE VOLTAGE AND PHASE INFORMATION ON THE DATA LABEL.

⚠ WARNING
ALL MAINS DISCONNECT MUST BE INCORPORATED IN THE FIXED WIRING IN ACCORDANCE WITH LOCAL WIRING RULES

EARTHING INSTRUCTIONS

1. THE UNIT MUST BE GROUNDED. Grounding reduces risk of electric shock by providing an escape wire for the electric current if an electrical short occurs. This unit is equipped with a cord having a grounding wire with a grounding plug. The plug must be plugged into a receptacle that is properly installed and grounded.
2. Consult a qualified electrician or service agent if grounding instructions are not completely understood, or if doubt exists as to whether the unit is properly grounded.
3. DO NOT USE AN EXTENSION CORD. If the product power cord is too short, have a qualified electrician install a three-slot receptacle (or the country specific receptacle for International Units). This unit should be plugged into a dedicated circuit with the electrical rating as provided on the product data plate.

INSTALLATION CODES AND STANDARDS

In the United States, the Unit must be installed in accordance with the following:

4. State and local codes.
5. National Electrical Code (ANSI/NFPA No. 70, latest edition) available from the National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.
6. Vapor Removal from Cooking Equipment, (NFPA-96, latest edition) available from NFPA.
7. Sealed to the counter upon which the equipment is placed per NSF/ANSI 4 standard.

In Canada, the Unit must be installed in accordance with the following:

1. Local codes.
2. Canadian Electrical Code (CSA C22.2 No. 3, latest edition) available from the Canadian Standards Association, 5060 Spectrum Way, Mississauga, Ontario, Canada L4W 5N6.

For CE Units, the Unit must be installed in accordance with the following:

1. Local codes.
2. European (IEC/CENELEC) Electrical Code

EXTERNAL EQUIPOTENTIAL BONDING TERMINAL (EXPORT ONLY)

1. This equipment has supplemental bonding terminal. The terminal provides an external bonding connection used in addition to the earthing prong on the plug. The terminal provides a connection for bonding to the equipment enclosure. The external equipotential bonding terminal located on the rear outside surface of the unit, the terminal is marked with the symbol to the right.



INTRODUCTION

Important to Note:

- This unit has been designed to hold and maintain your hot or cold products to the NSF4/NSF7 standard.
- Wells can be expected to reach set point temperature within a 30 to 60-minute time frame. No cool-down period is needed to switch from Hot to Cold/Freeze.
- When operating your Hot Cold Freeze in Wet Heat mode, make sure that the drain valves are in the closed position and that the wells have cooled to room temperature before proceeding. Once the wells have cooled to room temperature, add at least 1" of water but do not exceed X" of water to the well prior to turning it on. ***CAUTION*** NEVER add water to a hot well until it has had time to cool as noted above. This will ensure your safety and will avoid warping or damaging the well. Use caution when removing pans from a hot well as the surface or steam can cause severe burns.

RECEIVING AND INSPECTION

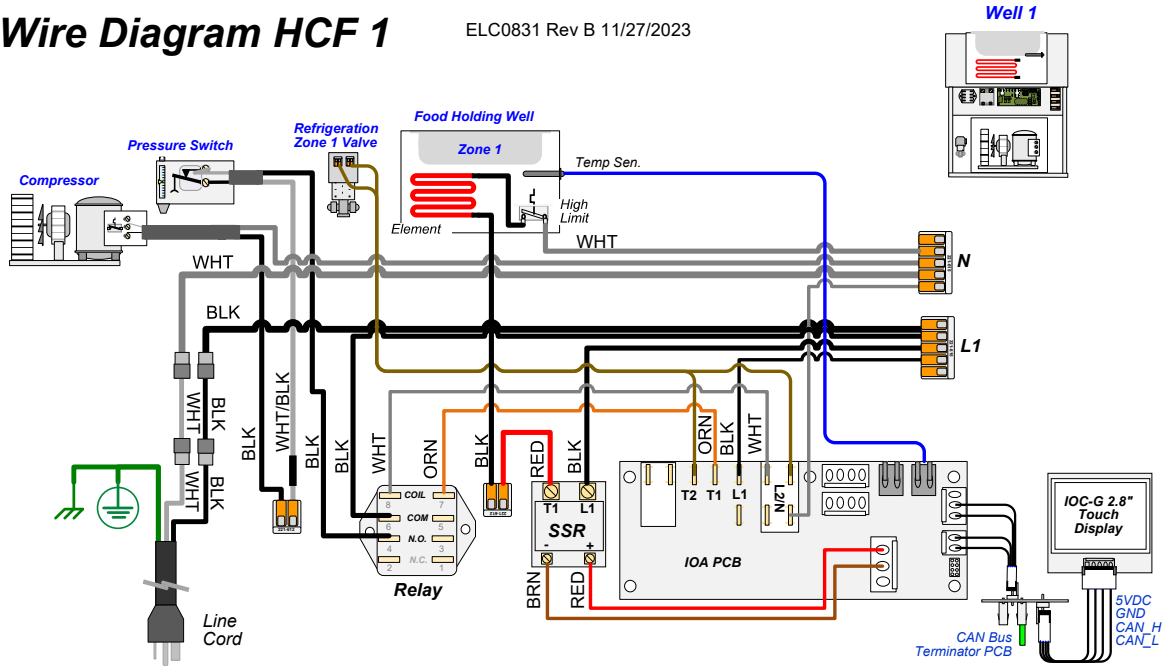
UNPACKING UNIT

- Inspect the shipping carton and/or container, carefully noting any exterior damage on the delivery receipt
- Note any damage not evident on the outside of the shipping container (concealed damage). Contact the carrier immediately and file a damage claim with them.
- Save all packing materials when filing a claim. Freight damage claims are the responsibility of the purchaser and are not covered by the warranty.
- Report any dents or breakage to source of purchase immediately.
- **Do not attempt to use unit if damaged.**
- Remove all materials from unit interior.
- Remove unit from carton.
- If unit has been stored in extremely cold area, wait a few hours before connecting power.

WIRE DIAGRAM

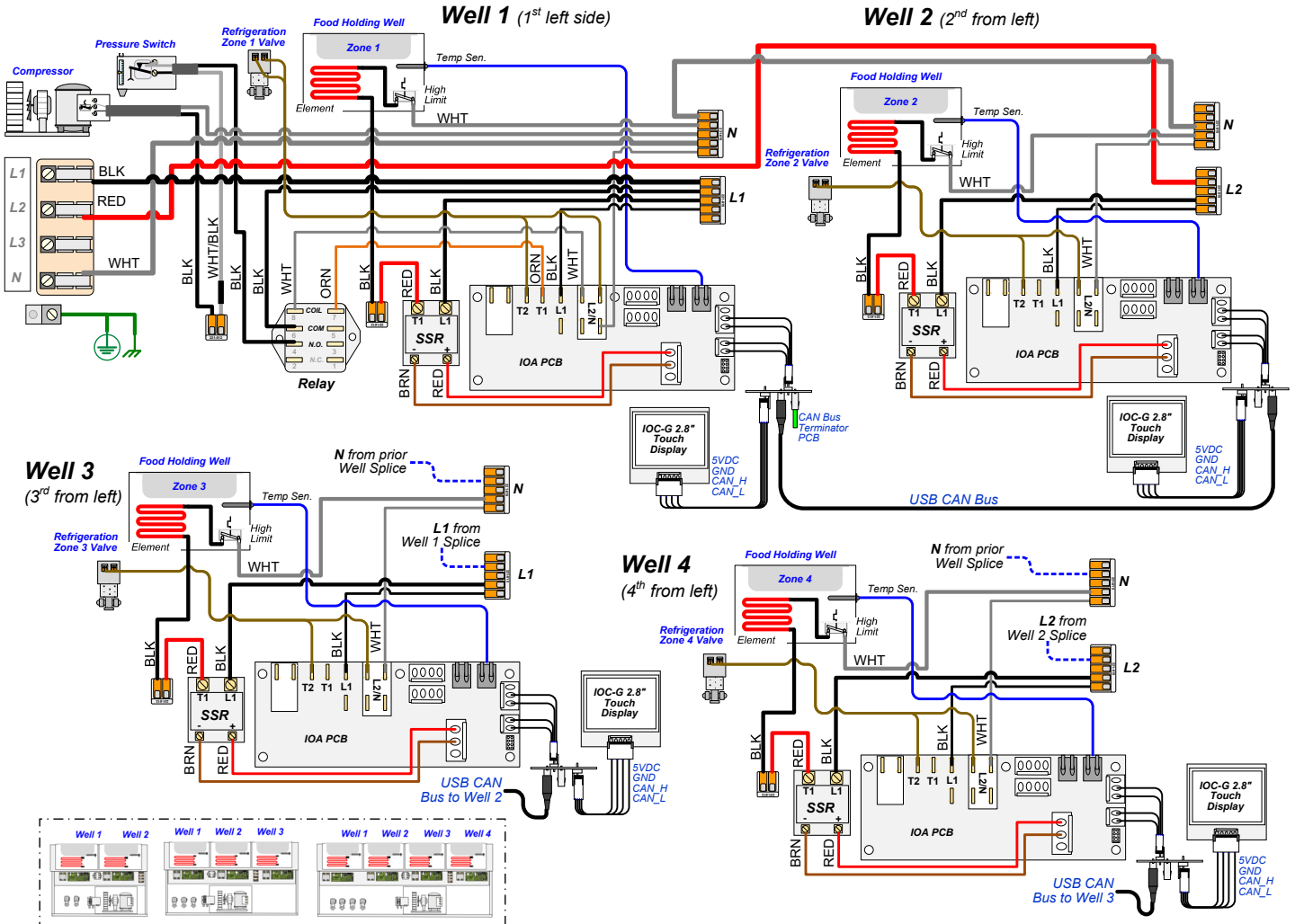
Wire Diagram HCF 1

ELC0831 Rev B 11/27/2023

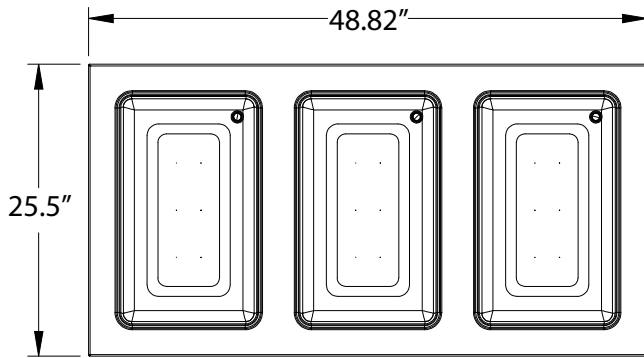


Wire Diagram HCF 2, HCF3, & HCF4

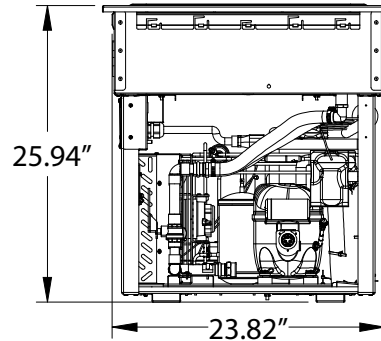
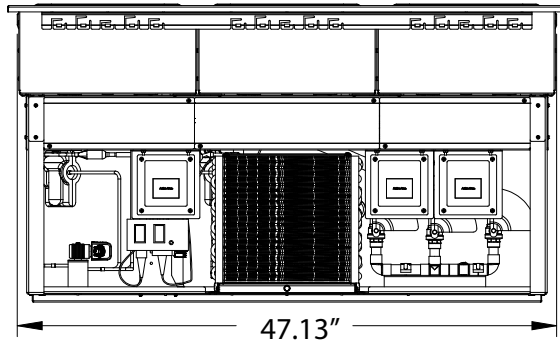
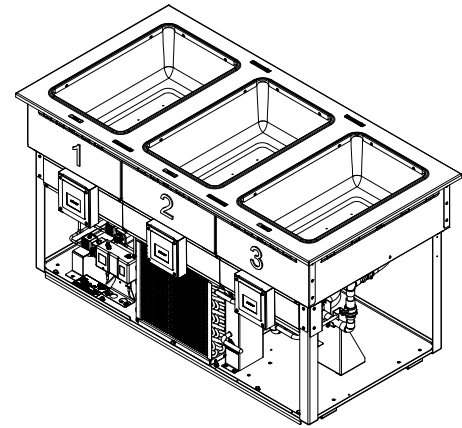
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Rev B
11/27/2023



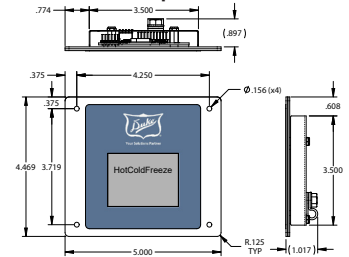
SPECIFICATIONS



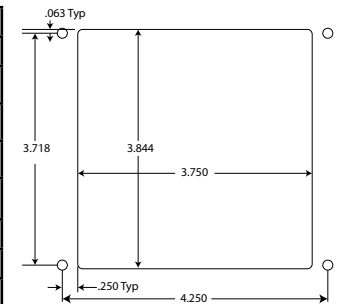
Model HCF-3 Shown



Control Specifications



Control Cutout



ELECTRICAL SPECIFICATIONS:

Model	120V/60Hz			120 / 208V 60Hz			120 / 240V 60Hz			Refrigeration				
	Watts	Amps	NEMA	Watts	Amps	NEMA	Watts	Amps	NEMA	HP	Refrig.	OZ	Grams	
HCF-1	660	5.5	5-15P	660	5.5	L14-20P	660	5.5	L14-20P		1/3	448a	15.0	466.6
HCF-2	1260	10.5	5-15P	1260	10.5	L14-20P	1260	10.5	L14-20P		1/3	448a	19.5	606.5
HCF-3	1920	16	5-20P	1320	11	L14-20P	1320	11	L14-20P		1/2	448a	30.0	933.1
HCF-4	2520	21	5L-30P	1920	16	L14-20P	1920	16	L14-20P		1/2	448a	38.0	1181.9
HCF-5	3360	28	5-50P	2064	17.2	L14-30P	2064	17.2	L14-30P	Sys-1	1/3	448a	19.5	606.5
										Sys-2	1/2	448A	30.0	933.1
HCF-5 +	4800	40	5-50P	2736	22.8	L14-30P	2736	22.8	L14-30P	Sys-1	1/3	448a	19.5	606.5
										Sys-2	1/2	448A	30.0	933.1

+ = Provided with one 120V, 15A general use convenience receptacle

DIMENSIONS:

FREIGHT CLASS: 100

Model	Unit Dimensions								Cutout Dimensions				Cube ft. Crated	Weight	
	Length		Depth		Height		Liner Widths		Length		Width			lbs	kg
	in	cm	in	cm	in	cm	in	cm	in	cm	in	cm			
HCF-1	17.50	44.45	25.5	64.77	25.94	65.89	23.82	60.50	16.00	40.64	24.00	60.96	12.5	95	43
HCF-2	33.19	79.22	25.5	64.77	25.94	65.89	23.82	60.50	31.69	80.50	24.00	60.96	21.0	145	65.8
HCF-3	48.82	124.00	25.5	64.77	25.94	65.89	23.82	60.50	47.38	120.35	24.00	60.96	28.9	198	89.8
HCF-4	64.50	163.82	25.5	64.77	25.94	65.89	23.82	60.50	63.00	160.02	24.00	60.96	38.0	287	130.2
HCF-5	80.19	203.68	25.5	64.77	25.94	65.89	23.82	60.50	79.00	200.66	24.00	60.96	45.0	340	154.2

INSTALLATION

⚠ WARNING RISK OF ELECTROCUTION!

Device may cause injuries due to improper installation!

Before installation, check the data of the local power grid with the technical specifications of the unit (see nameplate). Connect the device only if they match! Follow the safety instructions!

- The unit must be installed by a qualified technician.



Note: Before commissioning, leave unit to stand for at least 15min, in a horizontal position.

- The unit must be secured in accordance with local electrical codes.
- Required air flow - supply and exhaust:
 - Intake minimum 16" X 16" (256 square inches) open directly in front of the condenser.
 - Exhaust minimum 20" X 20" (400 square inches 125%) opening located as close to the condenser fan discharge as possible.

Step 1

Set unit in desired place and level.

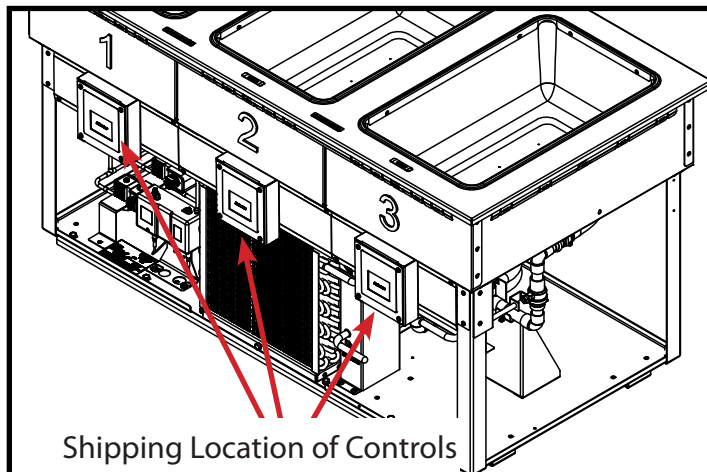


NOTE: Adjustment can be made by turning the legs using adjustable pliers.



Step 2

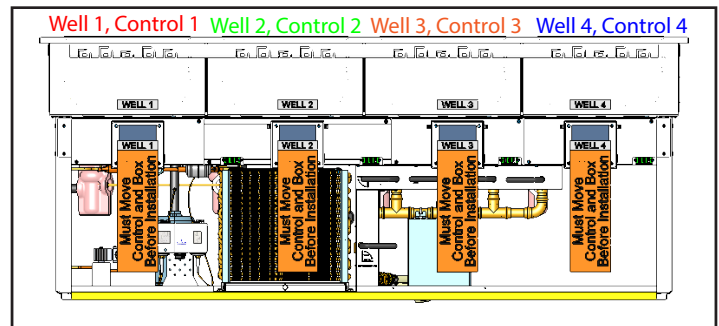
Relocate controls to body of unit. See Specification page for cut out size.



Note: Remove control shipping bracket before installation.

Step 3

Controls must be located in the front panel in the same order they were shipped.

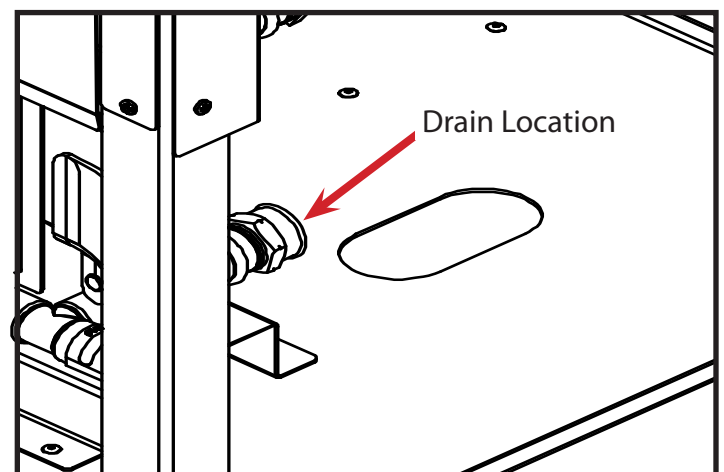


⚠ WARNING

If above step is not completed the unit will not operate correctly.

Step 4

Connect drain 3/4" FTP according to local code requirements.



Step 5

Connect power cord to proper power source.

INSTALLATION - Service Panel Access



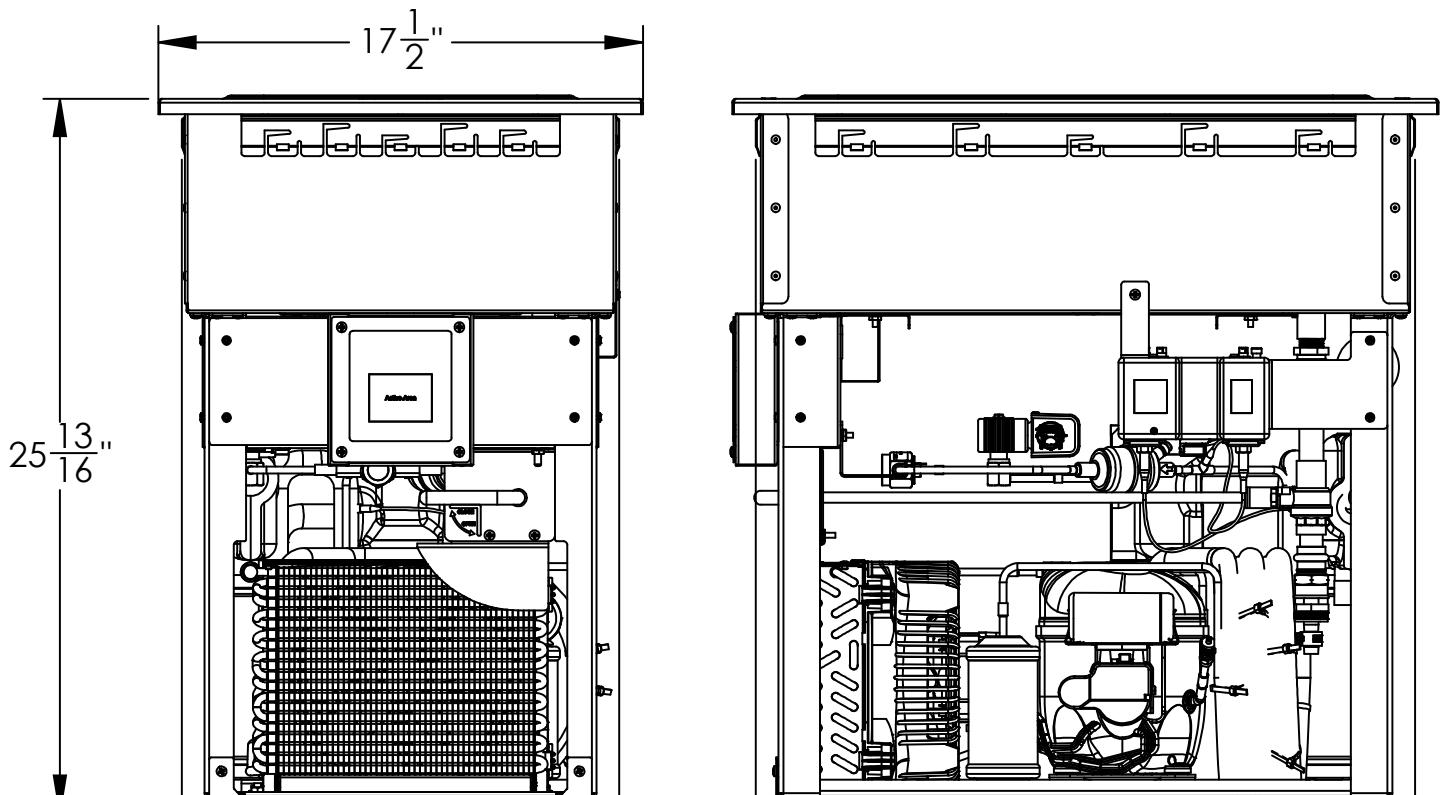
NOTE: The following access panels are required on an enclosed body. See specifications below.

Enclosure Access Panels

- ◇ Electrical access panels
- ◇ Condensing Unit for slide out service
- ◇ Drain Handle/s
- ◇ Solenoid Switches and Dual Pressure Switch
- ◇ Side wall clearance to thermo engine cage minimum four (4) inches.
- ◇ Required air flow - supply and exhaust:
 - Intake minimum 16" X 16" (256 square inches) open directly in front of the condenser.
 - Exhaust minimum 20" X 20" (400 square inches 125%) opening located as close to the condenser fan discharge as possible.
 - If a panel with louvers, slots or other openings is provided, the total of those openings should be equivalent to the required minimum opening size.

Electrical Service access panels located behind control mounting box.

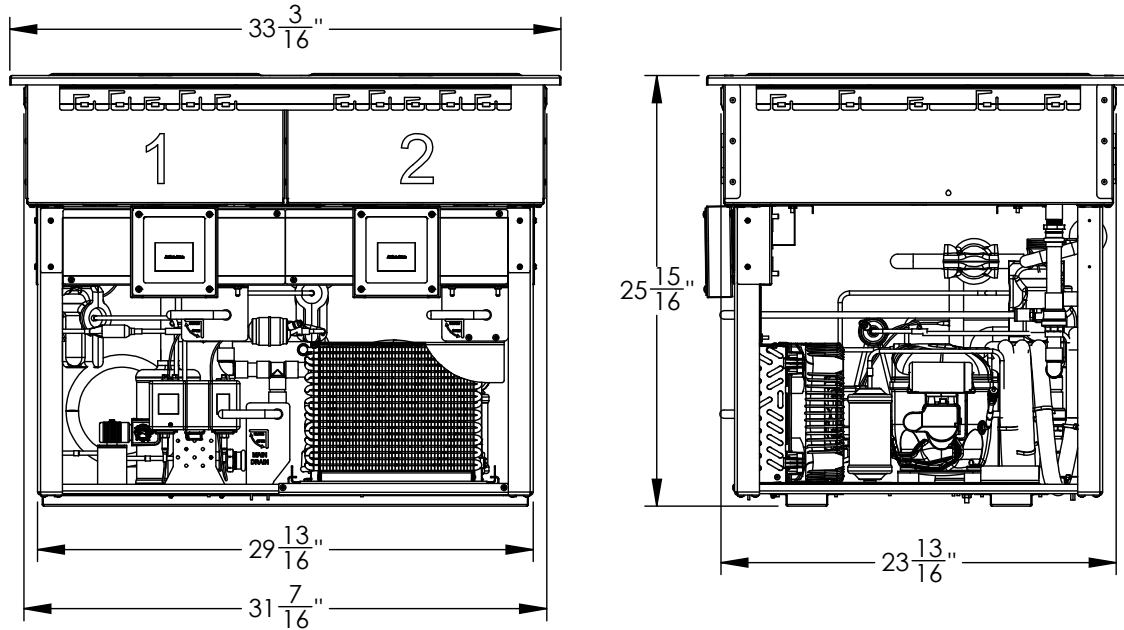
Single Well Unit



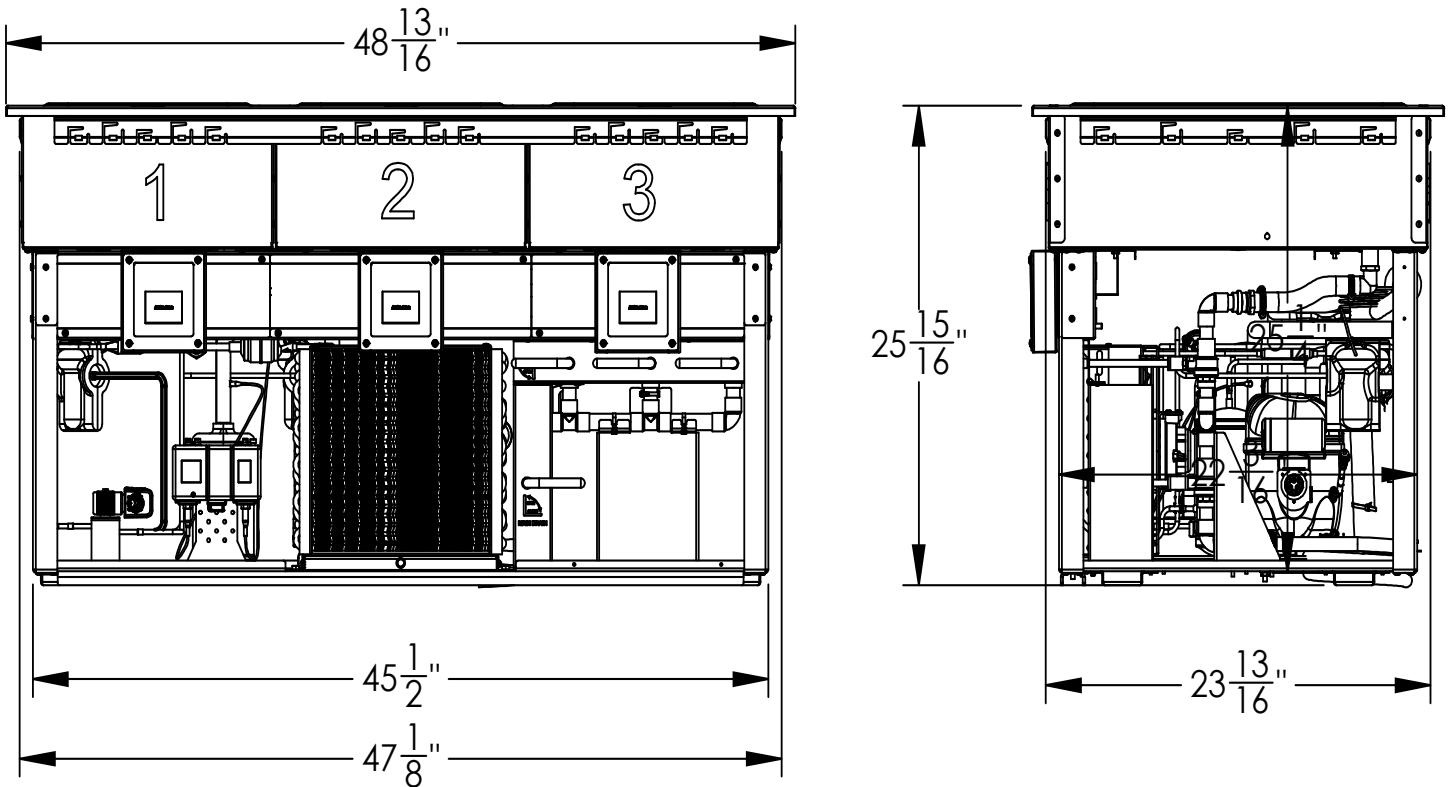
INSTALLATION

Electrical Service access panels located behind control mounting box.

Two (2) Well Unit



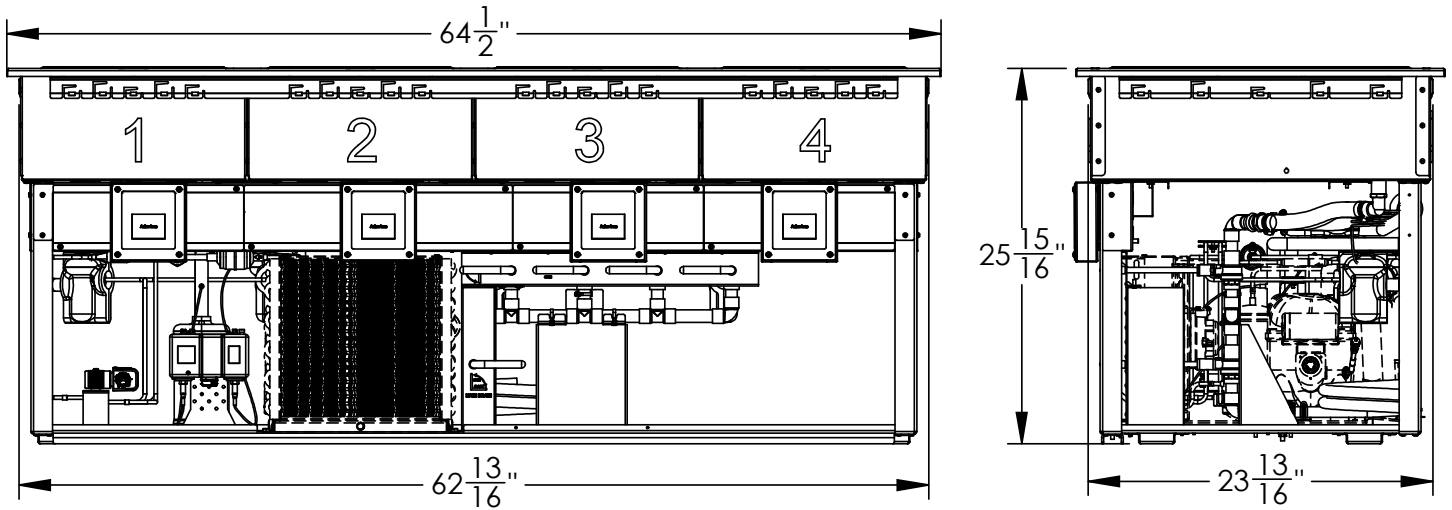
Three (3) Well Unit



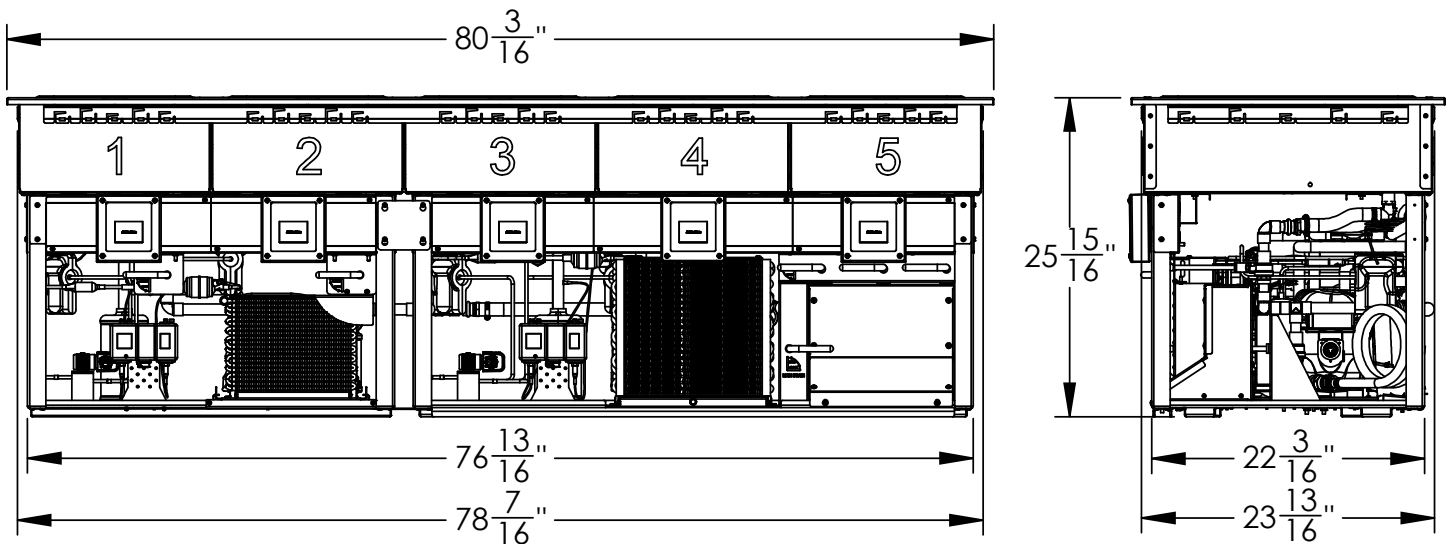
INSTALLATION

Electrical Service access panels located behind control mounting box.

Four (4) Well Unit



Five (5) Well Unit



OPERATION

⚠ WARNING

- The device may only be operated when connected to a properly installed grounded socket.
- Make sure that the cable does not come into contact with heat sources or sharp edges.

CAUTION

Hot surface! During operation, some parts of the device become very hot. To avoid burns, do not touch hot parts.

- Do not use this device if it is not working properly or is damaged.
- Do not use any accessories and spare parts which are not recommended by the manufacturer. These could pose a hazard to the user or cause damage to the device and cause personal injury, and also void the warranty.
- Do not move the device during operation and do not tip it over.
- Never heat food or liquids in sealed containers or bottles. This builds up a pressure which can cause the container or bottle to explode.
- The unit must not be used as a storage area. Accidental activation or residual heat can cause objects left there to melt or burn .
- Do not place food directly in the unit. All foods, whether hot or cold, should always be placed in appropriate food pans.

How to Operate the Duke Controls:

The controls have the option of operating each individual well in the following modes:

- Dry Heat – No water needed. DH1, DH2, and DH3 where DH3 is the hottest.
- Wet Heat – Requires a minimum of 1" of water in the well. WH1, WH2, and WH3 where WH3 is the hottest.
- Cold – No water needed. C1, C2, and C3 where C1 is the coldest.
- Freeze – No water needed and only one setting, F.

CAUTION

The use of heat lamps and/or incandescent lighting, with the cold or freeze modes, will reduce the performance of the units.

Startup sequence:

1. On the control panel, power the unit on and then select the desired holding platform. (See quick reference guide)
2. Once the well has reached the preset temperature the control will show "READY" and you are now okay to load preheated or pre-chilled products.
3. To switch to another holding platform simply press the back arrow to the main screen prior to switching to Dry Heat, Freeze or Cold you will need to make sure that there is no water inside of the well.
4. To power off the unit simply press the back arrow to the main screen and press the power button.
5. Daily the unit should be powered off and allowed to reach room temperature. Each well should be dried out and any water build-up, drained. Clean the wells and the exterior stainless top with a non-corrosive cleaner and a soft cloth.












OPERATION

Control Panel


The Duke HotColdFreeze™ control is operated via the touch screen control panel mounted on the front.

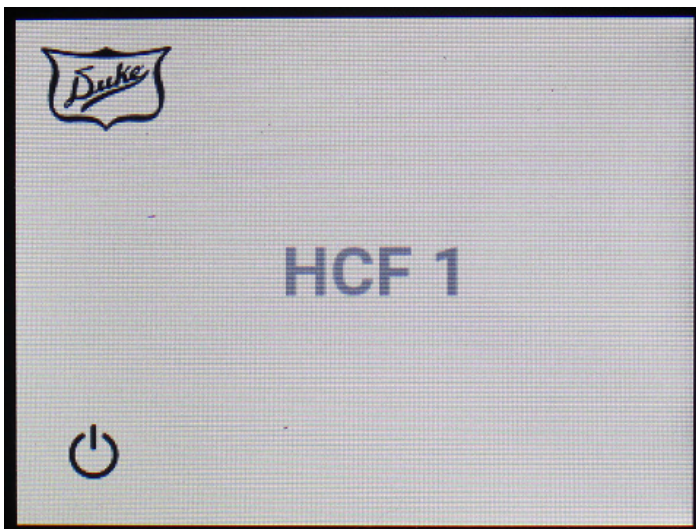
⚠ WARNING DO NOT use sharp objects to operate control.

Icon/Symbol Legend

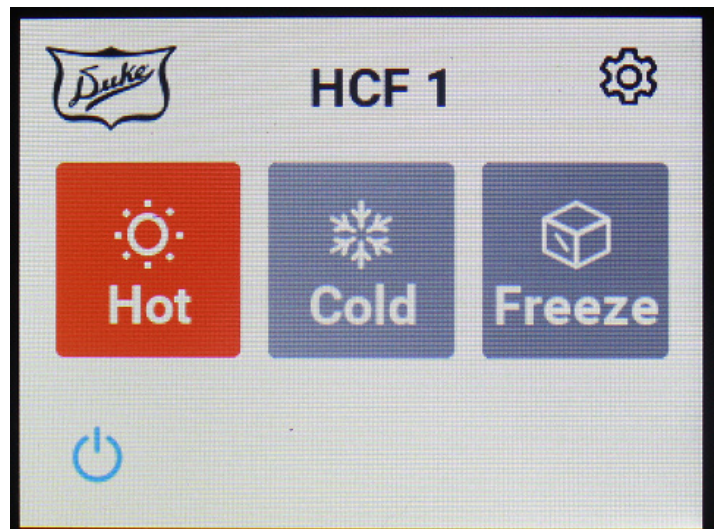
 On/Off Button	Switches the controller on or off.	 Left Arrow	Go back to prior screen or decrement (-) number value
 Hot	Puts unit into Hot mode	 Right Arrow	Go to next screen or increment (+) number value
 Cold	Puts unit into cold mode	 Edit	Go to edit screen
 Freeze	Puts unit into freeze mode	 Cancel	Cancel and return to prior screen
 Back or Return Arrow	Go back to prior screen	 Check	Save and return to prior screen
 Tool	Secondary screen access for edits & configurations		

Step 1

Plug in unit and touch on/off  button.



Power Up Screen



Mode Selection Screen

OPERATION - continued

Step 2

Select the applicable mode of the unit: Hot  Cold  Freeze 

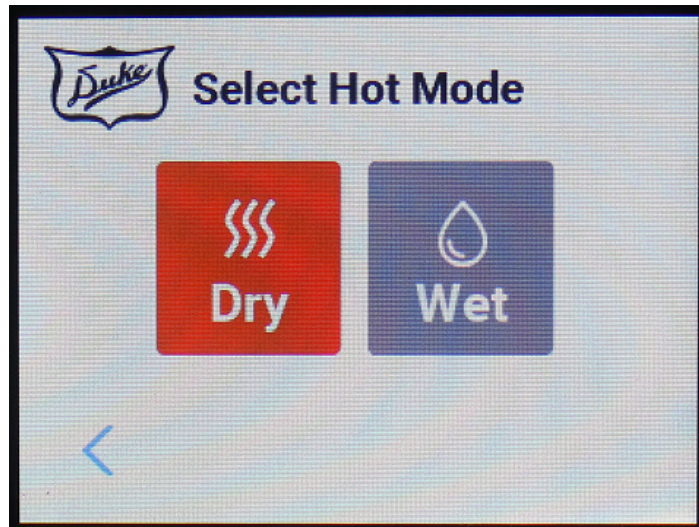
Step 3

Go to section related to your choice.

HOT MODE

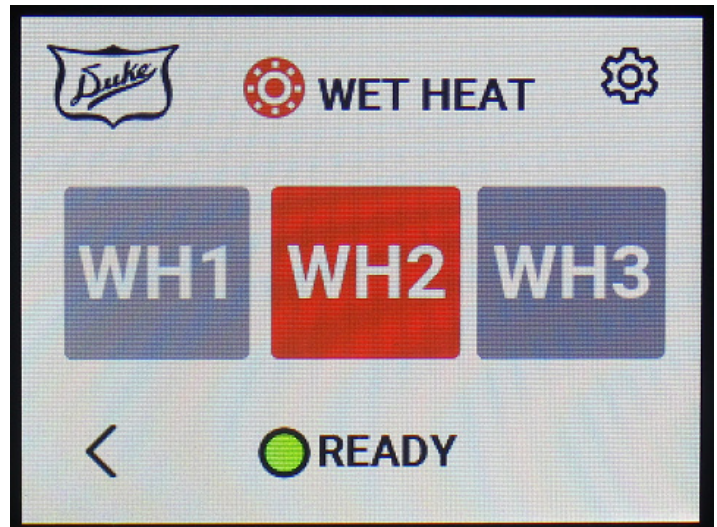
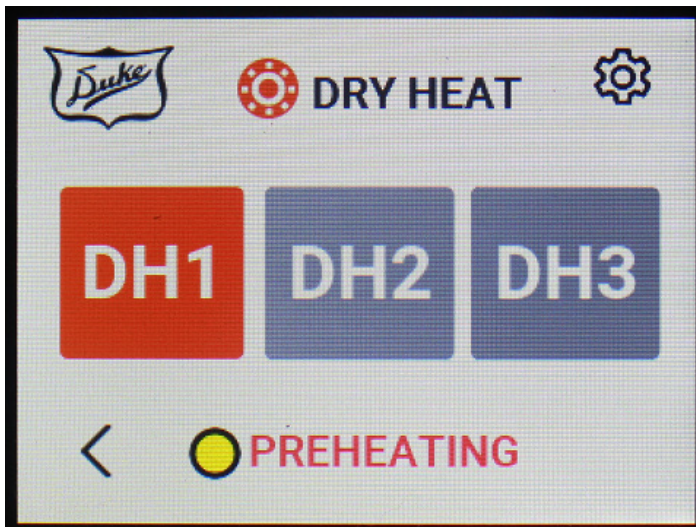
HOT-1

Select Dry or Wet



HOT-2

Select Temperature for your application



  PREHEATING Preheat displayed during heating

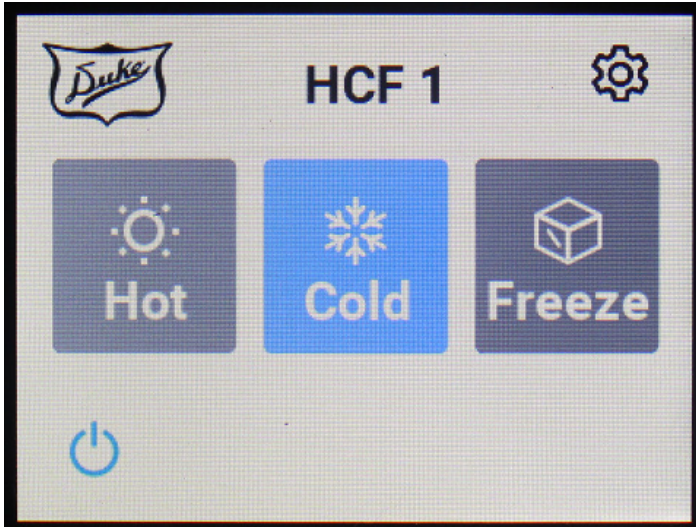
  READY Unit is ready

OPERATION - continued

Cold MODE

Cold-1

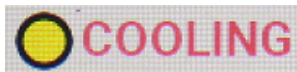
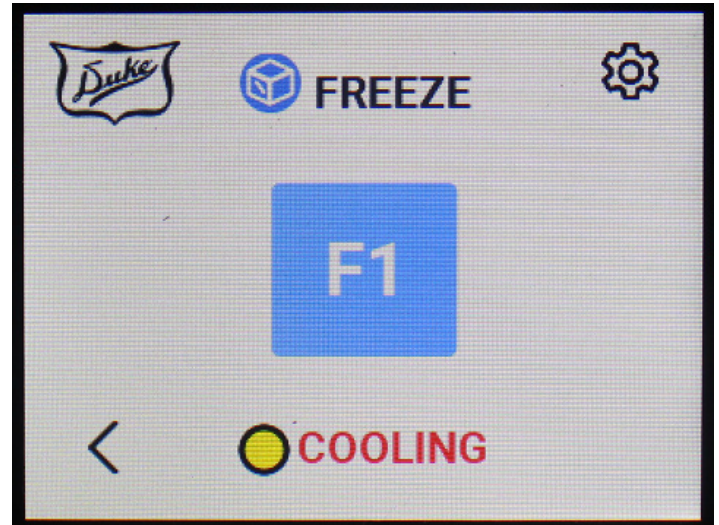
Select Temperature for your application



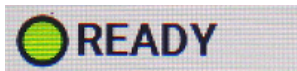
Freeze MODE

Freeze-1

Unit in Freeze mode



Cooling displayed during cooling.

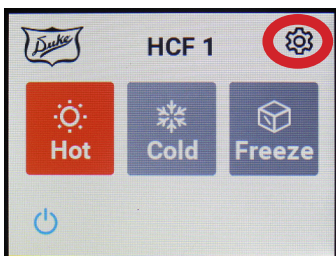


Unit is ready

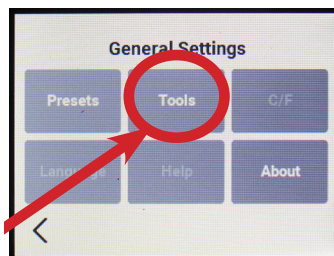
Changing Settings

CAUTION

A change in the preset parameters should only be done by a qualified service technician.

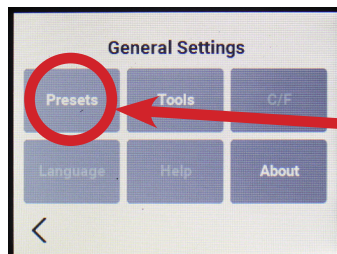
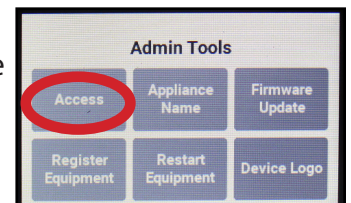


Select Tool Icon

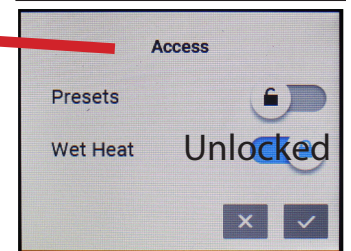
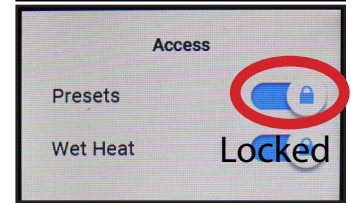


Access must be unlocked before any changes.



Select Tools

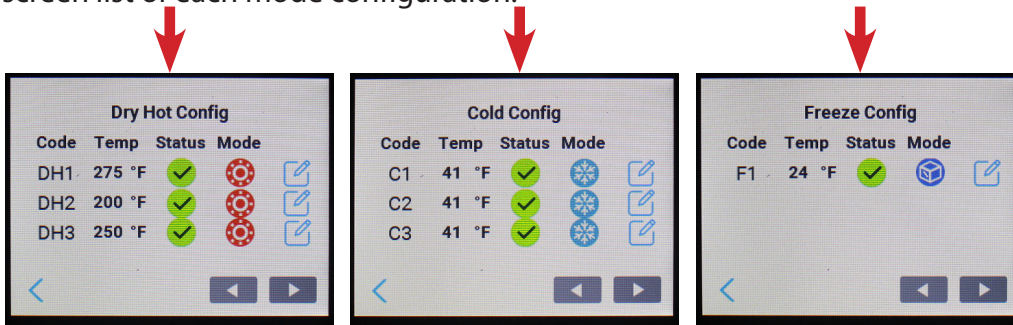



Touch the locked icon to unlock



OPERATION - continued

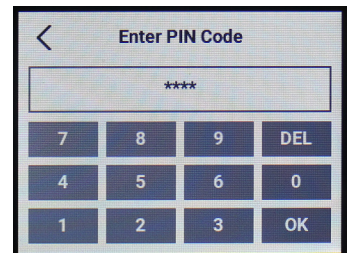
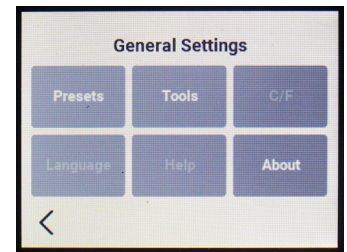
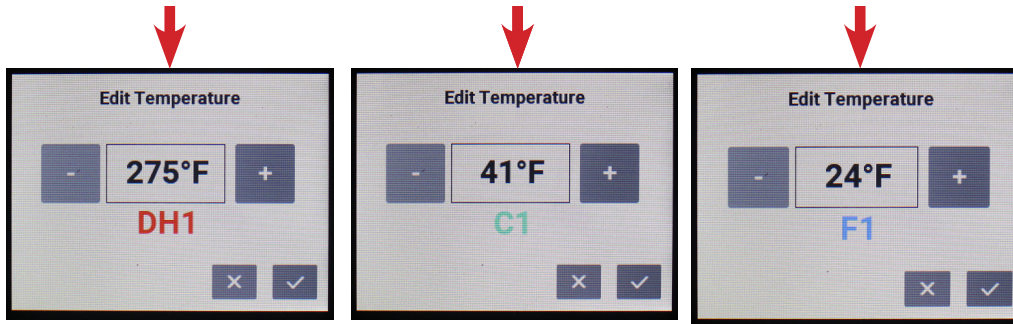
After gaining access, select the PRESETS button to go to a list of: HOT, COLD, FREEZE set points. Use the right or left arrow buttons   to go to a screen list of each mode configuration.



Note: If the Edit Icon  is gray or not functioning the access is locked.

Note: Some configurations and functions require a **PIN** code to enter. These items are outside normal use of the unit.

Select the EDIT icon  from the Preset list to go to the setting screen.




Use the plus  or minus  buttons to adjust the set point. Select the Check Mark  to save the changes.

Note: Go back and re-lock your settings

FOOD RECOMMENDATIONS

Dry1 / Wet1	Dry2 / Wet2	Dry3 / Wet3	C1	C2	C3	Freeze
Pasta with sauce	Pizza	Cheese sticks	Individual yogurts	Leafy Lettuce	Potato salad	Cold pies
Soups	Pinwheels	Popcorn chicken	Fruit salad	Cold sandwiches	Jello	Slushes
Chili	Hot sandwiches	Fish sticks	Pasta salad	Tomatoes	Pudding	Ice cream
Pulled pork/ chicken	Waffles	Nuggets	Fruit cups			
Eggs	French toast	Corn dogs				
Vegetables	Pancakes	Breaded shrimp				
Cobblers						

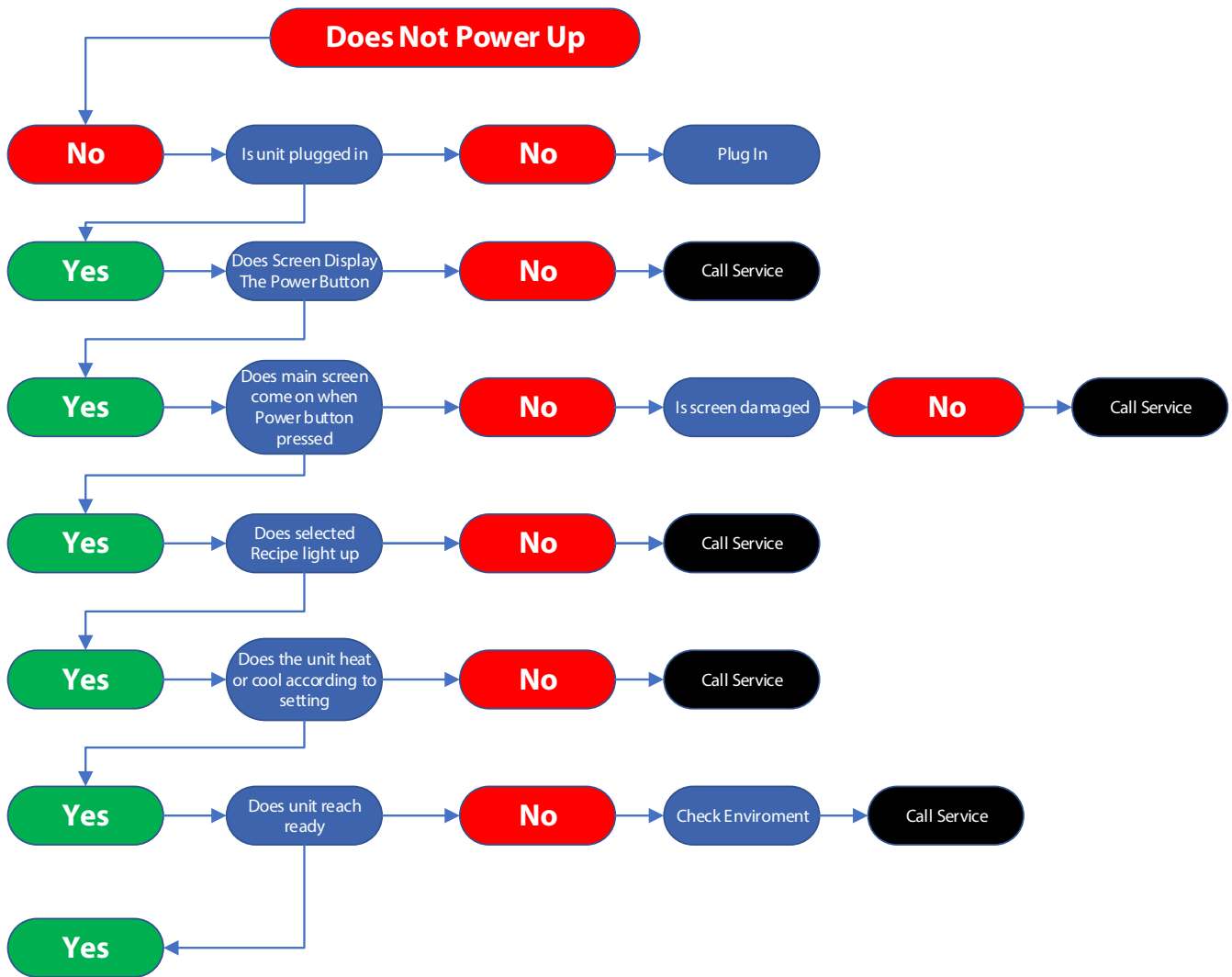
CLEANING

- Before cleaning the unit, switch it off with the  button.
- Leave the unit to cool.
- Finally, wipe the unit down with warm soapy water.
- All housing parts are made of stainless steel and can be cared for and treated with commercially available stainless steel cleaning products.
- Do not use abrasives, steel wool or similar.
- After cleaning, use a soft cloth to dry and polish the surface.

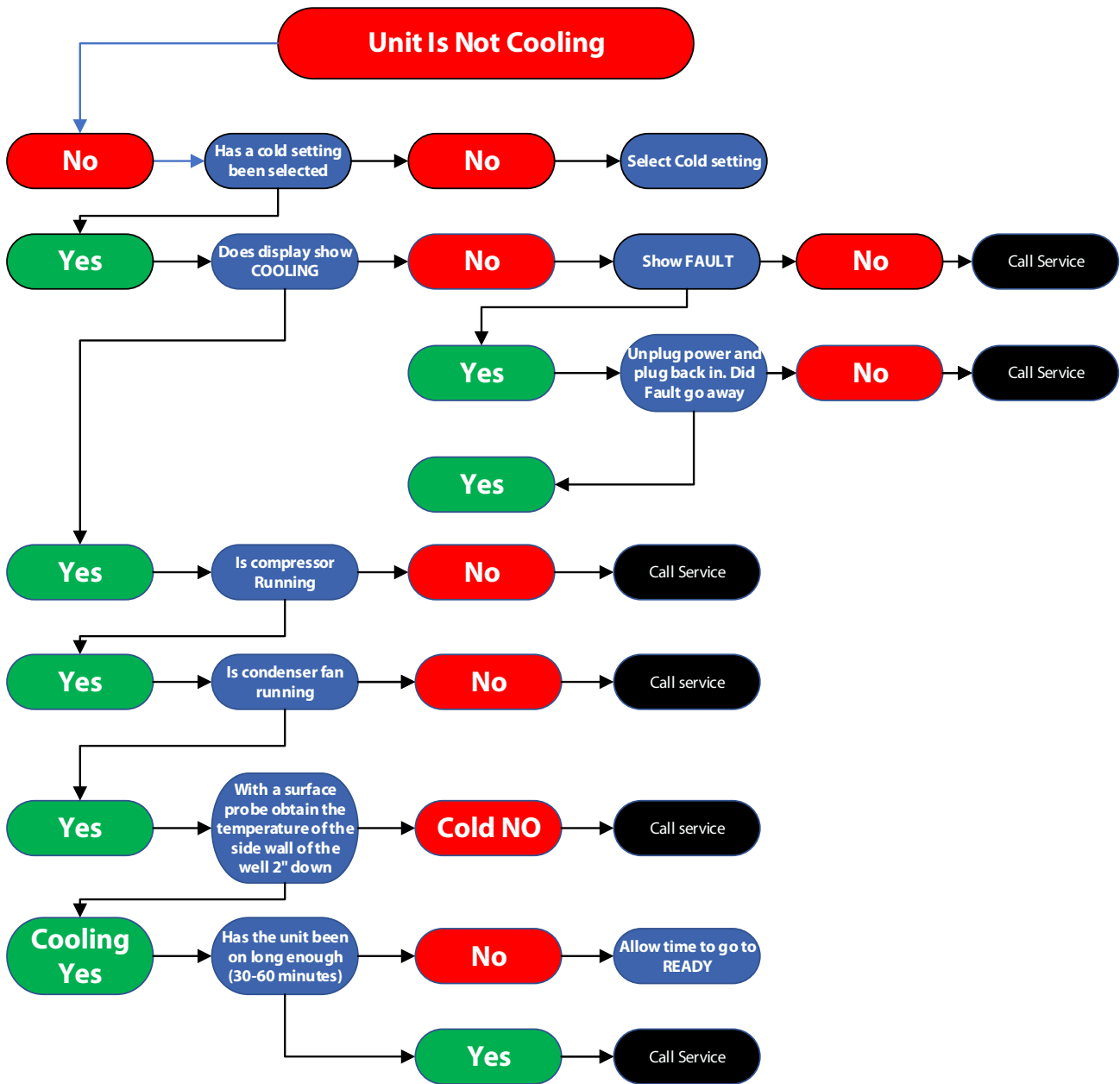
WARNING

**The device is not suited for direct washing with a water jet.
Therefore, do not use a pressure water jet to clean the device!**

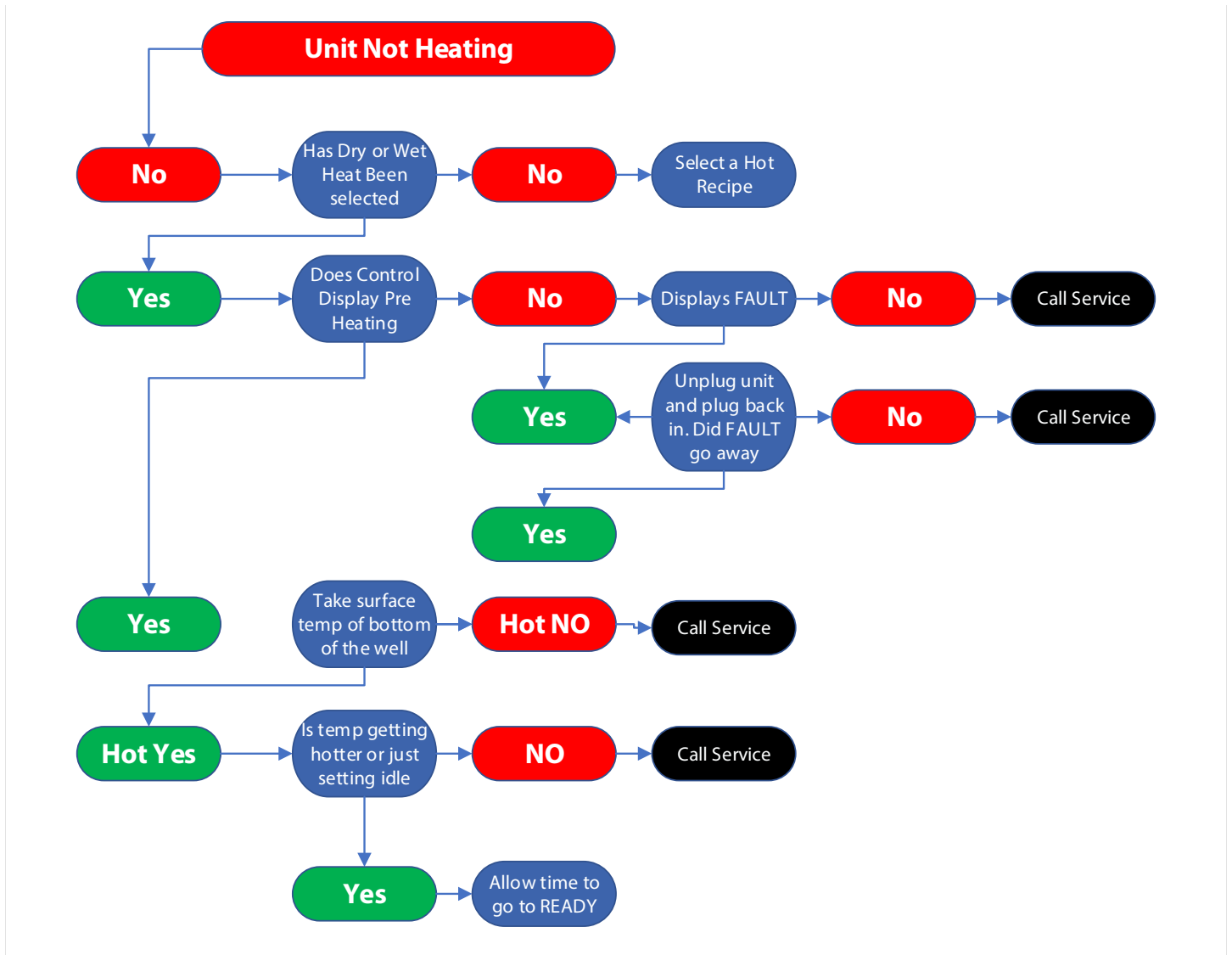
TROUBLE SHOOTING - CONTROL



TROUBLE SHOOTING - COOLING



TROUBLE SHOOTING - HEATING



The problems listed above are for guidance and must be seen as examples. Should these or similar problems occur, immediately turn off the device and discontinue use. Contact a qualified specialist or the manufacturer immediately.

Noise during operation

To keep the selected temperature constant when cooling, from time to time, the hot/cold Plate switches the compressor of the cooling unit on. The sounds which occur are related to functionality. They will reduce automatically as soon as the unit has reached operating temperature. The humming noise comes from the compressor.

PREVENTIVE MAINTENANCE R448R

Cleaning the Condenser Coil Every 60 Days

⚠️ WARNING

THE POWER MUST BE TURNED OFF AND DISCONNECTED AT ALL TIMES DURING MAINTENANCE OR REPAIR FUNCTIONS.

⚠️ CAUTION

To clean the condenser, never use a high-pressure water wash, which can damage electrical components located at or near the condenser coil.

⚠️ CAUTION

Failure to maintain a clean condenser coil can cause high temperatures and excessive run times. Check coils every 3 months. Continuous operation with dirty or clogged condenser coils can result in compressor failure. Neglecting the condenser coil cleaning procedures will void all warranties and repair or replacement costs associated with the compressor.

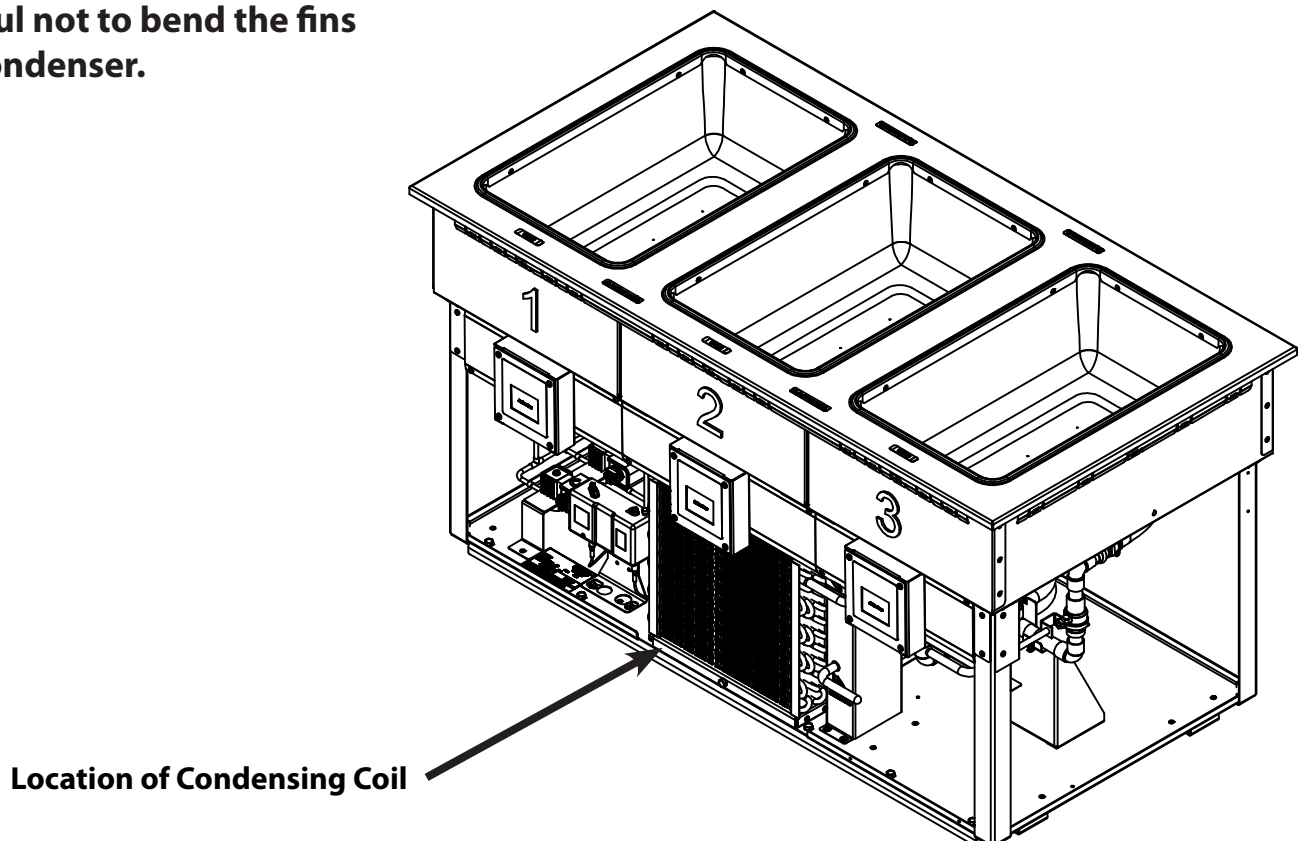
The condenser coil is located and accessed from the operators side of the unit. The condenser coil requires regular cleaning and should be done every 60 days. However, if large amounts of dust and grease accumulate sooner, clean the condenser coil every 30 days.

For light dust, use a soft, non-wire brush. For heavier dust, use a vacuum or blow with compressed air.

For heavy grease, use a decreasing agent made specifically for condenser coils on refrigeration units. Spray the decreasing agent on the coil and then blow with compressed air. Never wash with high-pressure water, which can damage the electrical components located at or near the condenser coil.

⚠️ CAUTION

Be careful not to bend the fins of the condenser.



Location of Condensing Coil

PREVENTIVE MAINTENANCE

- Check the power cord for damage from time to time. Do not use the device if the power cord is damaged. If the power cord is damaged, it must be replaced by customer service or a qualified electrician to avoid risks.
- In case of damage or malfunction, please contact your dealer or our customer service department. Keep in mind the information on troubleshooting in section 7.
- Maintenance and repair work may only be performed by qualified professionals using original spare parts and accessories. **Never try to carry out repairs to the unit yourself.**

NOTES

For Customer Care

To aid in reporting this unit in case of loss or theft, please record below the model number and serial number located on the unit. We also suggest you record all the information listed and retain for future reference.

MODEL NUMBER _____	SERIAL NUMBER _____
DATE OF PURCHASE _____	TELEPHONE _____
DEALER _____	TELEPHONE _____
SERVICER _____	TELEPHONE _____



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