

Integro Surgical Products

# Instruction Guide for Blanket and Fluid Warming Cabinets



Read the instructions and safety information in this manual before operating this product.

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# Regulatory and Compliance Information

## **Safety Compliance**

### Main Standard(s):

UL 61010-1, 3rd Edition, May 11, 2012, Revised July 15 2015, CAN/CSA-C22.2 No. 61010-1- 12, 3rd Edition, Revision dated July 2015

### Country Differences:

- USA / Canada: UL 61010-1, 3rd Edition, 2012-05-11 / CAN/CSA-C22.2 No. 61010-1, 3rd Edition, 2012-05
- Switzerland: SN EN 61010-1:2010
- Japan: -
- Austria: EN 61010-1:2010
- Denmark: DS/EN 61010-1:2010
- Korea, Republic Of: K 61010-1
- Slovenia: SIST EN 61010-1
- Sweden: SS-EN 61010-1:2010
- United Kingdom: BS EN61010-1:2010

Additional compliances IEC IEC 61010-2-010 safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-010: Particular requirements for laboratory equipment for the heating of materials.

Pollution degree rating: Pollution Degree 2 (UL 61010-1, 3rd edition). Rated for indoor, dry location use only.

## **Safety Class**

Class I (PE connected)

## **Indications for Use**

Blanket and solution warming cabinets are designed to store and warm blankets, hospital linens, irrigation fluids, and/or injection fluids in accordance with recommended warming temperatures and storage time guidelines provided by the manufacturers of such products. Rated for indoor, dry location use only.



# Dimensions and Capacity

Product Number	Upper or Single Chamber	Lower Chamber	Cubic Foot Capacity for Upper or Single Chamber	Cubic Foot Capacity for Lower Chamber
SM202424SWCGRNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCGLNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCSRNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCSLNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202858SWCGRM	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202858SWCGLM	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202858SWCSRSM	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202858SWCSLM	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCGRNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCGLNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCSRNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM202424SWCSLNB	20"w x 17"d x 15.25"h	N/A	3.0	N/A
SM263024SWCGRNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCGLNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCSRNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCSLNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263458SWCGRM	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263458SWCGLM	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263458SWCSRSM	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263458SWCSLM	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCGRNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCGLNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCSRNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263024SWCSLNB	26"w x 23"d x 15.25"h	N/A	5.27	N/A
SM263036SWCGR2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCGL2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCSR2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCSL2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263470SWCGRM	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263470SWCGLM	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263470SWCSRSM	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263470SWCSLM	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCGR2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCGL2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCSR2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263036SWCSL2B	26"w x 23"d x 25"h	N/A	8.65	N/A
SM263074SWCGR4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074SWCGL4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074SWCSR4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074SWCSL4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM283381SWCGRM	26"w x 23"d x 61"h	N/A	21.1	N/A
SM283381SWCGLM	26"w x 23"d x 61"h	N/A	21.1	N/A
SM283381SWCSRSM	26"w x 23"d x 61"h	N/A	21.1	N/A
SM283381SWCSLM	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074SWCGR4B	26"w x 23"d x 61"h	N/A	21.1	N/A

# Dimensions and Capacity

Product Number	Upper or Single Chamber	Lower Chamber	Cubic Foot Capacity for Upper or Single Chamber	Cubic Foot Capacity for Lower Chamber
SM263074SWCGL4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074SWCSR4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074SWCSL4B	26"w x 23"d x 61"h	N/A	21.1	N/A
SM263074DWCGR4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCGL4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCSR4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCSL4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM283381DWCGRM	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM283381DWCGLM	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM283381DWCSR4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM283381DWCSLM	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCGR4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCGL4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCSR4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93
SM263074DWCSL4B	26"w x 23"d x 15.25"h	26"w x 23"d x 34.5"h	5.28	11.93

## Usable Chamber Space

The usable chamber space of the single and dual cabinets is slightly different from the height, width, and depth interior dimensions in the table on the previous page.

Note that the usable chamber inner height is measured from the bottom of the air box to the bottom of the chamber. In these illustrations, the doors were removed for clarity.

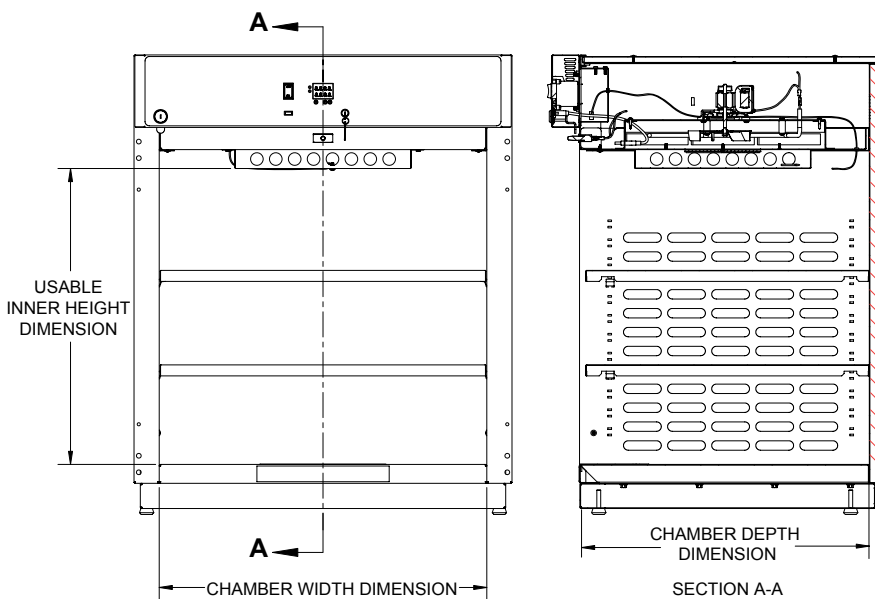


Figure 1: Single Chamber Unit Usable Space

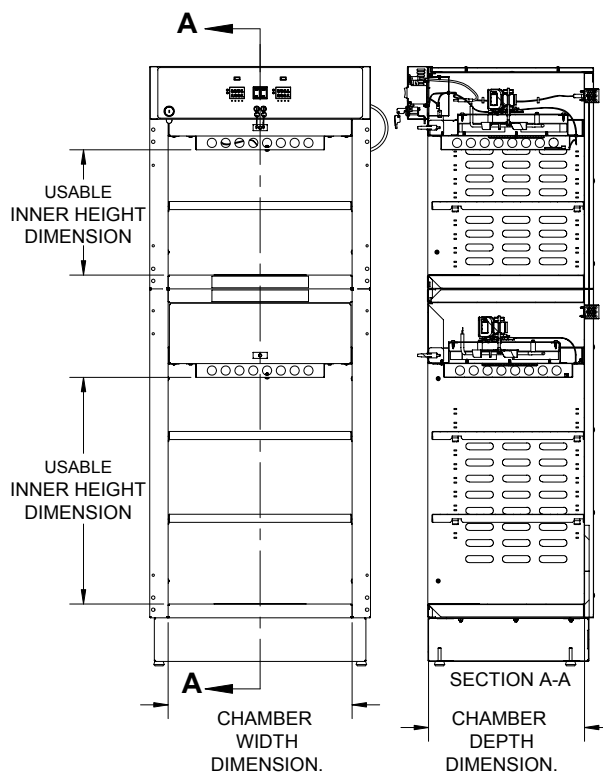


Figure 2: Dual Chamber Unit Usable Space

## Cabinet Construction and Material

- 300 Stainless Steel (all panels, header, and doors) double-walled construction with insulation. Doors are double-paned stainless steel.
- Fully insulated to provide uniform heating.
- Glass doors are double-paned tempered glass framed with aluminum.
- Doors are fully gasketed and hinged on right or left side.

## Factory Presets

- All units are preset to measure temperature in fahrenheit (unless the unit was specifically ordered to be preset for celsius.)

## Power Requirements

- 120VAC, 60Hz, single-phase, 15 AMP, ground fault interrupter circuit (GFI)-protected electrical outlet, or 220 VAC, 60Hz, single phase, 7 AMP, GFI-protected electrical outlet (by others) installed per local building codes and provides protective grounding.
- Cabinets are supplied with a 7-foot (2.3 m) long, 14-3 SJT power cord with a 120V (NEMA 15P) hospital grade plug. For multi-chambered units, ON/OFF switches are supplied for each chamber.
- All individual electronic components are Underwriter's Laboratory (UL) approved and recognized.

Power specifications are located on the unit identification rating tag, which is permanently attached on the inside of the door or on the back of the upper chamber.



Power Specification Label

## Electrical Specifications

Product Number	Description
SM202424SWCGRNB	120V, 2.9 Amp, 50/60 Hz, .23 kWh (Avg.), 785 BTU/hr (Avg.)
SM202424SWCGLNB	
SM202424SWCSRNB	
SM202424SWCSLNB	
SM202858SWCGRM	
SM202858SWCGLM	
SM202858SWCSR	
SM202858SWCSLM	
SM202424SWCGRNB	
SM202424SWCGLNB	
SM202424SWCSRNB	
SM202424SWCSLNB	
SM263024SWCGRNB	120V, 6.3 Amp, 50/60 Hz, .45 kWh (Avg.), 1535 BTU/hr (Avg.)
SM263024SWCGLNB	
SM263024SWCSRNB	
SM263024SWCSLNB	
SM263458SWCGRM	
SM263458SWCGLM	
SM263458SWCSR	
SM263458SWCSLM	
SM263024SWCGRNB	
SM263024SWCGLNB	
SM263024SWCSRNB	
SM263024SWCSLNB	
SM263036SWCGR2B	120V, 6.3 Amp, 50/60 Hz, .45 kWh (Avg.), 1535 BTU/hr (Avg.)
SM263036SWCGL2B	
SM263036SWCSR2B	
SM263036SWCSL2B	
SM263470SWCGRM	
SM263470SWCGLM	
SM263470SWCSR	
SM263470SWCSLM	
SM263036SWCGR2B	
SM263036SWCGL2B	
SM263036SWCSR2B	
SM263036SWCSL2B	
SM263074SWCGR4B	120V, 6.5 Amp, 50/60 Hz, .47 kWh (Avg.), 1604 BTU/hr (Avg.)
SM263074SWCGL4B	
SM263074SWCSR4B	
SM263074SWCSL4B	
SM283381SWCGRM	
SM283381SWCGLM	
SM283381SWCSR	
SM283381SWCSLM	
SM263074SWCGR4B	
SM263074SWCGL4B	
SM263074SWCSR4B	
SM263074SWCSL4B	
SM263074DWCGR4B	120V, 12.5 Amp, 50/60 Hz, .90 kWh (Avg.), 3071 BTU/hr (Avg.)
SM263074DWCGL4B	
SM263074DWCSR4B	
SM263074DWCSL4B	
SM283381DWCGRM	
SM283381DWCGLM	
SM283381DWCSR	
SM283381DWCSLM	
SM263074DWCGR4B	
SM263074DWCGL4B	
SM263074DWCSR4B	
SM263074DWCSL4B	

Warming cabinet handles are equipped with CuVerro® bactericidal copper surfaces.

- This product is made from a copper surface that continuously kills bacteria\* left behind by dirty hands, killing more than 99.9% of bacteria\* within 2 hours.



BACTERICIDAL COPPER SURFACES

Laboratory testing has shown that when cleaned regularly this surface:

- Kills more than 99.9% of bacteria\* within 2 hours, and continues to kill 99% of bacteria\* even after repeated contamination.
- Delivers continuous and ongoing antibacterial\* action, remaining effective in killing greater than 99.9% of bacteria\* within 2 hours.
- Helps inhibit buildup and growth of bacteria\* within 2 hours of exposure between routine cleaning and sanitizing steps.
- Kills greater than 99.9% of gram-negative and gram-positive bacteria\* within 2 hours of exposure.
- Continuously reduces bacterial\* contamination, achieving 99.9% reduction within 2 hours of exposure.

\* Laboratory testing shows that, when cleaned regularly, CuVerro surfaces kill greater than 99.9% of the following bacteria within 2 hours of exposure: Methicillin-Resistant Staphylococcus aureus, Staphylococcus aureus, Enterobacter aerogenes, Pseudomonas aeruginosa, E. coli O157:H7, and Vancomycin-Resistant Enterococcus faecalis (VRE).

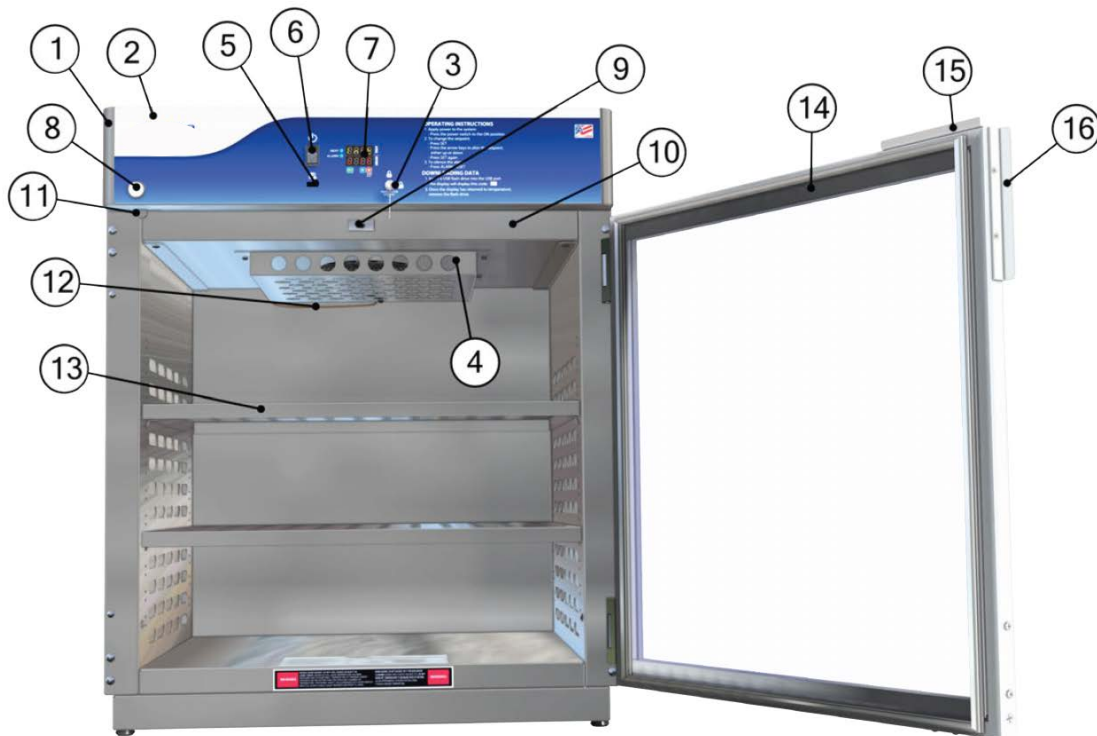
The use of CuVerro® bactericidal copper products is a supplement to and not a substitute for standard infection control practices. Users must continue to follow all current infection control practices, including those practices related to cleaning and disinfection of environmental surfaces. This surface has been shown to reduce microbial contamination, but it does not necessarily prevent cross-contamination.

CuVerro® is a registered trademark of GBC Metals, LLC, and is used with permission.

EPA Company No. 92702-IL-1

EPA Registration No. 92701





**Features of a typical warming cabinet**  
Single chamber cabinet depicted above.

### Elements of a Warming Cabinet

Item Number	Description	Quantity
1	Header Assembly (24" and 30")	1
2	Overlay (24" and 30") D-Series	1
3	Key Housing	1 per chamber
4	Air Box	1 per chamber
5	USB Cable Plug	1 per chamber
6	On/Off Switch	1 per chamber
7	Display Board - Data (1 for each chamber)	1 per chamber
8	Keyed Lock	1 per chamber
9	Door Switch	1 per chamber
10	Drawer Assembly (1 for each chamber)	1 per chamber
11	Cam Lock Latch	1 per door
12	Probe J Type Thermocouple	1 per chamber
13	Adjustable Perforated Shelf	As required
14	Door (glass or steel)	As required
15	Cam Lock Plate	1 per door
16	Handle	1 per door

The following is a list of safety precautions that must be observed when operating this equipment.

## **Injury Hazard**

Repairs and adjustments should be attempted only by experienced service representatives. Use of unqualified persons to work on this equipment could result in personal injury or costly damage.

## **Burn Hazard**

- Do not use in the presence of flammable anesthetics.
- Do not heat liquids in the presence of flammable solvents.
- Failure to observe this warning can result in severe personal injury and even death.
- Do not exceed 150°F (65.56°C) for non-vented closures (screw caps, crimp seals, plastic pouches, etc.). Do not exceed pre-sterile solution manufacturer's temperature requirements.
- Do not raise set temperature to increase rate of heating. Allow approximately 4-6 hours for solutions to reach desired temperature.
- Do not use liquids on or inject into living tissue, unless actual liquid temperature has been measured and is acceptable. Temperature of the warming cabinet's contents may be hotter than the displayed air temperature. For patient safety, in accordance with good medical practice, always check liquid temperature prior to using.

## **Electric Shock Hazard**

- Do not remove control tray. Contact a qualified service representative. Some of the troubleshooting procedures can require access to live electrical circuitry. Dangerous accidental contact with line voltage is possible. Only qualified service personnel should be allowed to perform these procedures.

## **Explosion or Fire Hazard**

- Do not warm flammable materials or liquids.
- Do not use in the presence of flammable anesthetics.
- Do not heat liquids in the presence of flammable solvents.

## **Possible Equipment Damage**

Some items are not acceptable in these warming cabinets. If in doubt as to whether an item can be safely processed, have the facility supervisor contact the manufacturer of the item.

## **Repairs and Adjustments**

Repairs and adjustments should only be attempted by experienced service personnel who are fully acquainted with this equipment. Use of unqualified or inexperienced personnel to work on the equipment, or the installation of unauthorized parts, could result in personal injury or costly damage. Always unplug power cord from power source before attempting any repairs or servicing of this equipment.

Special User Attention: Prior to use, all personnel who will operate the warming cabinet must be instructed in the correct usage and operation. All personnel who will use the warming cabinet should be aware that sensible care must be exercised to maintain patient safety and to keep the warming cabinet performing at peak efficiency.

Intended use notice: Blanket and solution warming cabinets are designed to store and warm blankets, hospital linens, irrigation fluids and/or injection fluids in accordance with recommended warming temperatures and storage time guidelines provided by the manufacturers of such products.

## Receiving Requirements

The customer is responsible for making sure the loading dock at their facility can accommodate a shipping carton approximately 70 inches (1.778 m) long and 40 inches (1.016 m) wide.

The customer must also provide transportation equipment (forklift, etc.) for a carton weighing approximately 500 lb (227 kg).

## Inspection

1. Receiving area must meet all state and local regulations prior to unpacking.
2. Customer must inspect carton both before and after unpacking to determine if any items were damaged during shipping.
  - A. All damaged items must be listed on the Bill of Lading.
  - B. The serial number and model number shown on the carton label must match the numbers on the Bill of Lading and the Invoice.
3. Customer is responsible for the proper disposal of all packing materials. The disposal of these items must meet all state and local regulations.

## Unpacking the Warming Cabinet

Retain all shipping materials until warming cabinet is completely unpacked and inspected for damage.

1. Remove metal bands holding the bottom and top of the shipping carton together.
2. Remove all metal staples holding the top and bottom of the carton to its sides.
3. Remove the top of the carton.
4. Remove metal staples making the flaps around the top edge of the carton.
5. Remove metal staples attaching the sides of the carton to the bottom of the carton.
6. Remove the sides of the carton by lifting them straight up from the bottom tray.
7. Lift warmer straight up from bottom tray of the shipping carton and remove it.
8. Remove all protective packing material. Caution: Do not use a box cutter or any other cutting utensil to remove the plastic protective wrapping around the warming cabinet. These items can scratch the protective coating on the stainless steel, allowing the surface to rust.
9. The warming cabinet is now ready for use.
10. Discard shipping and packing materials in compliance with local and state regulations.
11. Warmers, when not in use, must not be double-stacked while in storage.  
Warmers, while still in shipping cartons, must not be double-stacked when not in use.



Warming Cabinet in Shipping Container

## **Environmental Conditions**

This unit is intended for use in a stable ambient environment, with an ideal temperature of 72°F (22.22°C) or less. The unit should never be used directly next to any appliance that may produce heat, such as an autoclave.

## **During Transport and Storage (in original packaging materials)**

- Ambient Temperature: -40° - 159°F (-40° - 70°C)
- Relative Air Pressure: 10% - 100%, including condensation
- Air Pressure: 500 hPa (14 inHg - 31.3 inHg)

## **During Use in Dry Locations**

- Ambient Temperature: -40° - 159°F (-40° - 70°C)
- Relative Air Pressure: 10% - 100%, including condensation
- Air Pressure: 500 hPa (14 inHg - 31.3 inHg)

## **Installation**

Before starting the installation, review the local electric codes including the Occupational Health and Safety Act for any requirements pertaining to the proper installation of this equipment. Contact InnerSpace Customer Service (1-888- 435-2256) for seismic calculations and tie-down hardware, if applicable.

1. Carefully uncrate the warming cabinet.
2. Inspect for any damage. If there is damage, please contact InnerSpace Customer Service (1-888- 435-2256).
3. Check your 120V, 60 Hz, single-phase 15 AMP GFCI-protected electrical outlet or 220V, 60 Hz, single-phase, 7 AMP GFCI-protected electrical outlet. Be sure the outlet is safely accessible and in proper working condition.
4. Plug the 3-prong electrical plug into the 120VAC, 60Hz, 15 AMP, GFCI-protected outlet or a 220VAC, 60Hz, single-phase, 7AMP GFCI-protected electrical outlet. Make sure the electrical outlet is safely accessible and in proper working condition.
5. Place warming cabinet on a solid, level platform where external movement will not interfere with loose contents used by the warmer.
6. Make sure the shelving is correctly located as desired and level. If not, adjust height (see Adjusting the Shelves on page 21).
7. Before use, remove any items that have been stored in the cabinet.

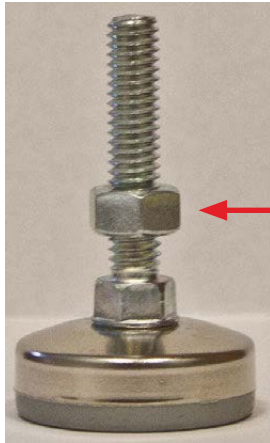
## **Testing before Using**

All warming cabinets have been calibrated and tested before leaving the factory. There is no need for the user to do additional testing after installation prior to use.

After six months of use, it is recommended that the user test the warming cabinet for temperature accuracy. See Semi-Annual Checklist on page 25.

## Installing Warming Cabinet Leg Levelers

Warming cabinets are shipped with four leg levelers that must be installed by the customer.



Leg leveler

Jamb Nut

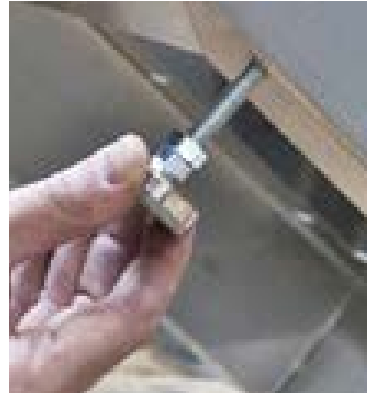
The warming cabinet base has four holes into which the leg levelers can be installed.



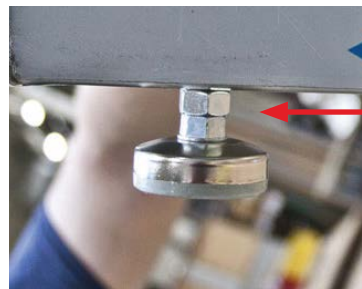
Holes for  
Leg Levelers

Holes in cabinet base

Working with at least two people, carefully tilt the warming cabinet back slightly and insert the four leg levelers up into the four provided holes. Important: the jamb nut must go on the outside of the cabinet base, not the inside.

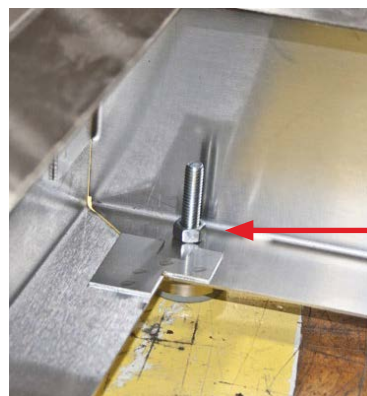


Insert leg leveler into base



Jamb Nut

Correct installation of leg leveler



Jamb Nut

Incorrect installation of leg leveler

## Direct Wiring Using Facility Power Supply (Optional)

Note: The following procedure must be performed by a qualified electrical technician to avoid personal injury or damage to the unit.

Follow these steps to wire the warming cabinet directly into the facility's wiring.

1. Remove four 8 x 1-5/8" self tapping screws and lift off the top outer panel (Figure 4).
2. Remove two 8 x 1/2" self tapping screws and lift off the top inner panel (Figure 4).
3. Loosen the 3/8" straight-through connector (Figure 4, Item 1) and disconnect wiring from terminal board (Figure 4, Item 5, and Figure 5, Items 2, 3, 4).
4. Remove existing power cable (Figure 4, Items 2, 3, 4) from terminal block and pull out of warming cabinet through 3/8" connector (Figure 5, Item 1).
5. Feed facility wiring cable back through the 3/8" connector (Figure 5, Item 1) in the back of the cabinet and wire onto terminal board as shown in Figure 5. Tighten the 3/8" to securely hold the facility wiring in place.
6. On the terminal board, the green wire (Item 4) connects with the green ground wire.
7. The white wire (Item 3) connects opposite with the white wire, or neutral wire, on the terminal board.
8. The black wire (Item 2) connects opposite of the black or positive wire on the terminal board.
9. Reinstall the inside top panel using two 8 x 1/2" self-tapping screws (Figure 4).
10. Reinstall the outside top panel using four 8 x 1-5/8" self-tapping screws (Figure 4).
11. Carefully slide the unit into its permanent location.

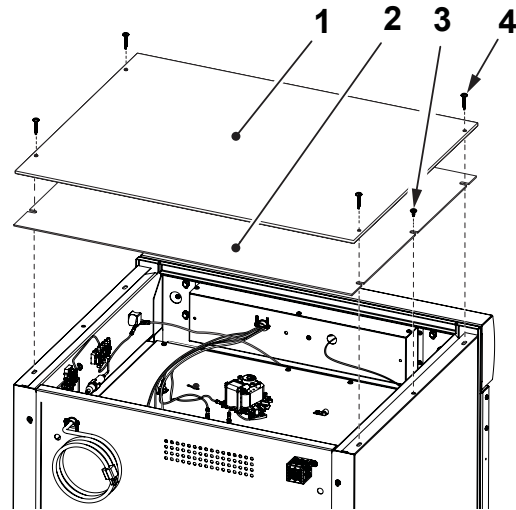


Figure 4: Remove Top Covers

Item	Description	Quantity
1	Outside top panel	1
2	Inside top panel	1
3	Screw, Self-Tapping, 8 x 1/2"	2
4	Screw, Self-Tapping, 8 x 1-5/8"	4

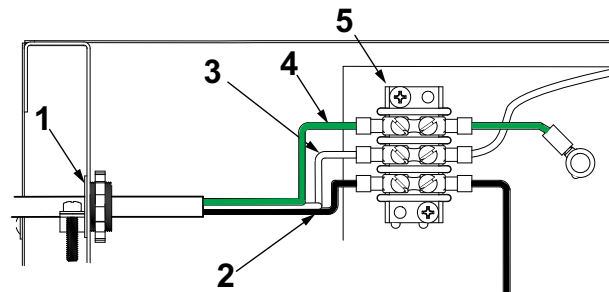
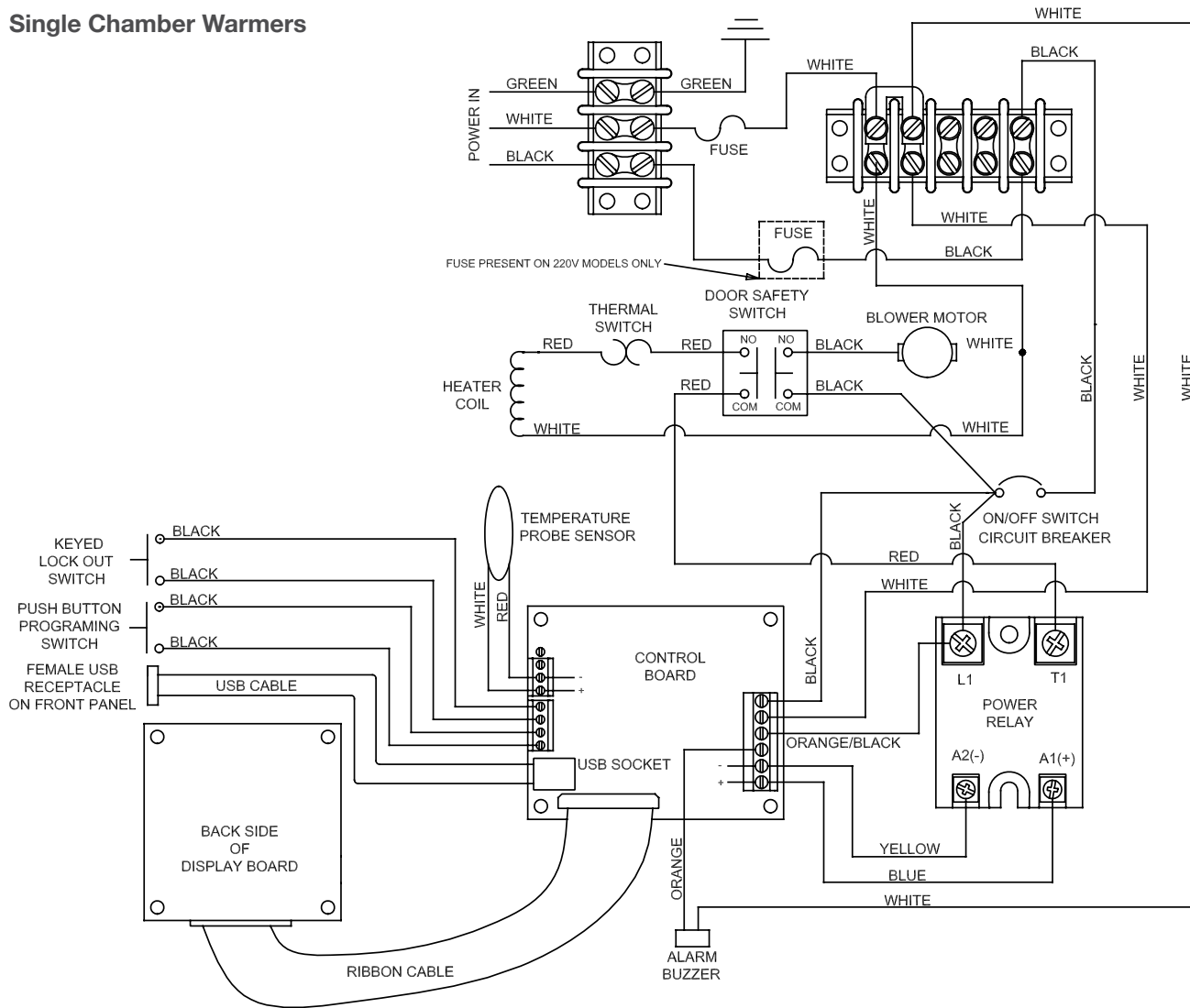


Figure 5: Unwiring Terminal Block

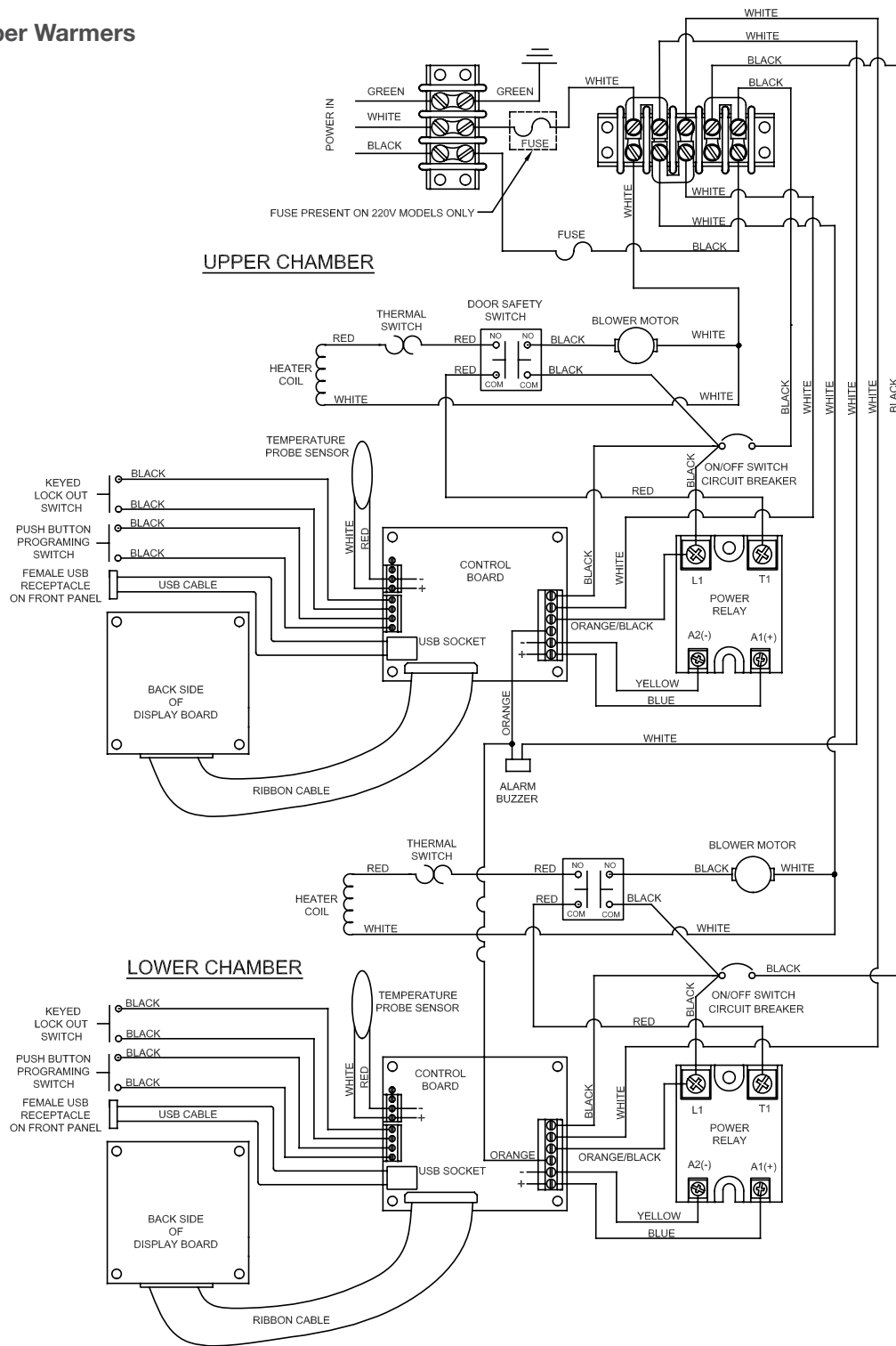
Item	Description	Quantity
1	Connector, Straight, 3/8"	1
2	Wire, Black, Positive	1
3	Wire, White, Neutral	1
4	Wire, Green, Ground	1
5	Terminal Strip, 3-Position	1

## Single Chamber Warmers



CONNECTIONS FOR SINGLE USB WARMING CABINETS

## Double Chamber Warmers



CONNECTIONS FOR DOUBLE USB WARMING CABINETS



### This cabinet has been designed to heat:

- Liquids in vented containers
- Liquids in non-vented containers to a temperature of 150°F maximum (65.6°C)
- Metal objects
- Muslin or 100% cotton sheets and wool blankets
- Glass containers - annealed borosilicate glass (Pyrex type) only
- Plastic Containers - rated thermal and capable of withstanding temperatures in excess of 300°F (149°C) only

### Do not warm:

- Synthetic blend fabrics
- Flammable liquids
- Items containing non-thermal plastic, rubber, metal snaps, studs, hooks, etc.

### Recommended Settings

InnerSpace does not recommend chamber set points for any items that are to be warmed. For appropriate heating temperatures, please contact the item manufacturers. For more information, contact InnerSpace Customer Service (800-435-2256).

For blankets, follow blanket manufacturer's instructions for the set point.

For intravenous and irrigation fluids, follow temperature guidelines printed on the container or contact your supplier for temperature and expiration periods.

### Loading Contents in Cabinet

Load contents into the chamber with a minimum of 1 inch of space between all walls and fan to allow for evenly distributed circulation (Figure 6).

Allow 1 inch of space between fluid containers for evenly distributed heating (Figure 6). Avoid stacking fluid bags as this increases the heating time required to achieve set temperatures.

Blankets must be folded and stacked to allow a 1 inch minimum space from the sides, back and top of the compartment or the shelf above. Do not let blanket protrude past the front edge of the shelf.

### Do not overload

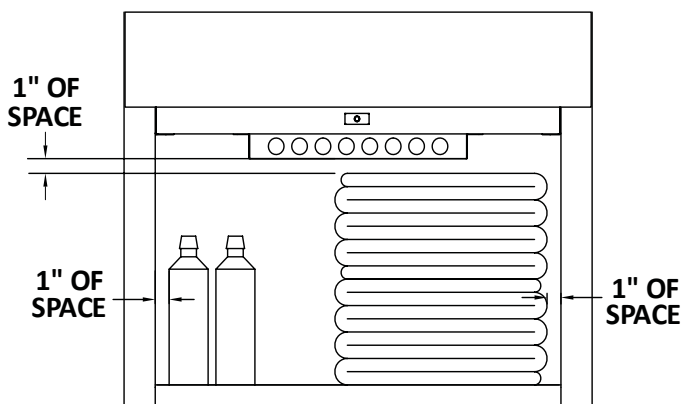


Figure 6: Content Spacing

Once a set temperature is selected and reached, it will be controlled throughout the operations within  $\pm 1^{\circ}\text{F}$  to  $3^{\circ}\text{F}$  ( $-1.7^{\circ}\text{C}$  to  $-1.6^{\circ}\text{C}$ ) of the selected temperature.

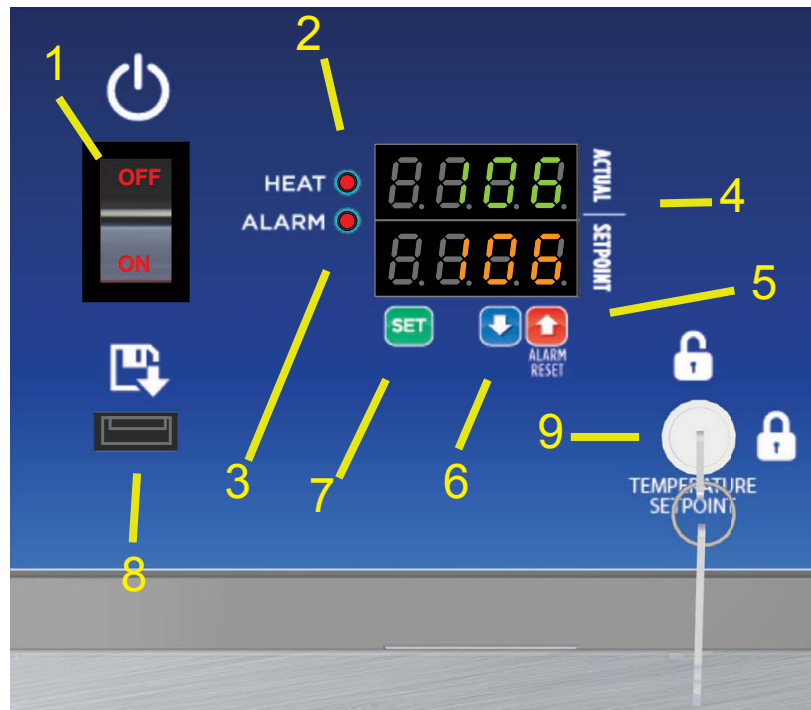
From a cold start, each compartment's loaded contents will be evenly heated to a set point within 2 to 6 hours (depending on the load).

For multi-chambered units, each chamber can be loaded with different goods and set at different temperature settings.

### In Case of Power Failure

In case of power failure, the unit will resume normal operation when power is restored.

Follow the fluid manufacturer's guidelines for unused solutions that have cooled or have been removed from heated storage.



Controller Display

## Explanation of the Controls

The controls are located on the upper panel on the front of the cabinet. For multi-chamber cabinets, there are sets of controls for each individual chamber. Each control set is clearly labeled UPPER CHAMBER and LOWER CHAMBER for dual chamber cabinets.

Item	Control Components	Function
1	ON/OFF Switch/ Circuit Breaker	Provides power to the warming compartment and control
2	HEAT light	Visual indicator that the heating system is active
3	ALARM light	Visual indicator of an overheat condition
4	Display Panel	Shows the current chamber temperature (actual) and the set point temperature in fahrenheit (F) or celsius (C). The upper readout row indicates what mode will be defined/changed (i.e. top/bottom chamber, date, etc). It also continually indicates the actual temperature. The lower readout row indicates the settings for the mode. It also continually indicates the setting temperature. The display also provides loss of power and overheat (alarm). The overheat alarm is an audible and visual display HI.  Numbers/letters are entered in reverse order, working from right to left across the controller.
5	UP Arrow	Adjusts the set point of the chamber and silences the audible overheat alarm
6	DOWN Arrow	Adjusts the set point of the chamber
7	SET Button	Press to change the set point temperature. Press again to save a set point temperature. SET is also used to move to the next setting parameter/mode.
8	DATA Port	USB port used to retrieve temperature values for a set period of time
9	Key Switch	Used to lock out any changes to the control, such as adjusting the set point temperature

## Operation of Display Panel

**Start:** Press the power switch to the ON position. (For multi-chamber units, each chamber has its own power switch). The upper readout display will show the actual chamber temperature.

**Set Processing Temperature:**

1. Press SET and release.
2. Press the UP ▲ arrow key to raise the set point or the down ▼ arrow key to lower the set point.
3. The set point is indicated in the lower row of the display.
4. Press SET again to complete the change (for dual chamber units, steps must be completed for all chambers). The set point temperature will change and the last digit will flash.
5. To prevent adjustment to the set point temperature, the control may be locked with the key switch.

**Note:** See the Maximum/Minimum Limits Temperature Set Points table below for various warming cabinets and chambers.

**Note:** The temperature setting may be changed at any time. However, if the set point is changed more than 10° below the actual temperature, the HI temperature alarm will activate.

If alarm is activated and the control panel reads HI, complete the following steps:

1. Press ALARM RESET (UP ▲ arrow) until the alarm stops.
2. Open door(s) to release heated air.
3. If the display reads HI and alarm remains, open door(s) and allow more cooling time.

**Note:** If the alarm is activated under normal operating conditions, turn off power to specific chamber and call InnerSpace Customer Service (888-435-2256).

### Caution Burn Hazard

Do not raise the set point temperature to increase the rate of heating. This could overheat the contents leading to possible patient burns.

### Warning Explosion Hazard

Do not exceed 150°F for non-vented closures (screw caps, crimp seals, plastic pouches, etc.). Do not exceed pre-sterile solution manufacturer's temperature requirements.

Item	Minimum Temperature Set Point	Maximum Temperature Set Point	Blankets	Irrigation Fluids	Injection Fluids	Temperature Tolerance
SM202424SWCGRNB	90°F (32°C)	160°F (71°C)	86°F to 160°F (30°C to 71°C)	86°F to 150°F (30°C to 66°C)	86°F to 104°F (30°C to 40°C)	± 1°F
SM202424SWCGLNB						
SM202424SWCSRNB						
SM202424SWCSLNB						
SM202858SWCGRM						
SM202858SWCGLM						
SM202858SWCSRMB						
SM202858SWCSLMB						
SM202424SWCGRNB						
SM202424SWCGLNB						
SM202424SWCSRNB						
SM202424SWCSLNB						
SM263024SWCGRNB						
SM263024SWCGLNB						
SM263024SWCSRNB						

## Operation of Display Panel

Item	Minimum Temperature Set Point	Maximum Temperature Set Point	Blankets	Irrigation Fluids	Injection Fluids	Temperature Tolerance
SM263024SWCSLNB	90°F (32°C)	160°F (71°C)	86°F to 160°F (30°C to 71°C)	86°F to 150°F (30°C to 66°C)	86°F to 104°F (30°C to 40°C)	± 1°F
SM263458SWCGRM						
SM263458SWCGLM						
SM263458SWCSR2B						
SM263458SWCSRM						
SM263458SWCSLM						
SM263024SWCGRNB						
SM263024SWCGLNB						
SM263024SWCSRNB						
SM263024SWCSLNB						
SM263036SWCGR2B						
SM263036SWCGL2B						
SM263036SWCSR2B						
SM263036SWCSL2B						
SM263470SWCGRM						
SM263470SWCGLM						
SM263470SWCSR2B						
SM263470SWCSLM						
SM263036SWCGR2B						
SM263036SWCGL2B						
SM263036SWCSR2B						
SM263036SWCSL2B						
SM263074SWCGR4B						
SM263074SWCGL4B						
SM263074SWCSR4B						
SM263074SWCSL4B						
SM283381SWCGRM						
SM283381SWCGLM						
SM283381SWCSR2B						
SM283381SWCSLM						
SM263074SWCGR4B						
SM263074SWCGL4B						
SM263074SWCSR4B						
SM263074SWCSL4B						
SM263074DWCCR4B						
SM263074DWCCGL4B						
SM263074DWCSR4B						
SM263074DWCSL4B						
SM283381DWCCR4B						
SM283381DWCCGL4B						
SM283381DWCSR4B						
SM283381DWCSL4B						
SM263074DWCCR4B						
SM263074DWCCGL4B						
SM263074DWCSR4B						
SM263074DWCSL4B						

## Installing the Shelves

Where applicable, turn the power OFF to the heating chamber that will have a shelf installed in it.

1. Allow the heating chamber to cool and then unload any contents.
2. Install the four shelf support clips into the desired location by inserting the top tab into the upper wall slot of that position (Figure 8 - Figure 9). Push up slightly on the inserted top tab and push the bottom half of the clip in until the bottom tab snaps into the lower slot.
3. Count the mounting locations at each corner of the chamber to be sure that the shelf will be level and install the remaining support clips.
4. Install the shelf with the notches on the bottom of the shelf aligned with the shelf supports (Figure 9 - Figure 10).
5. Pull outward on the shelf to ensure it is locked properly on the supports.

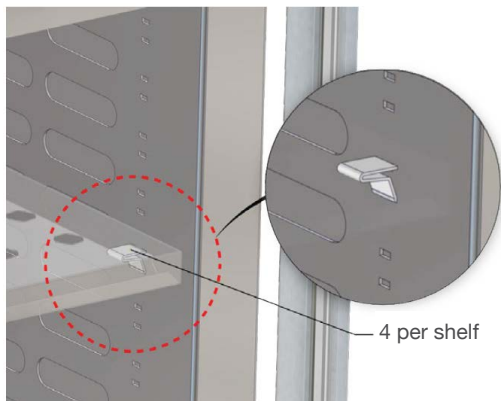


Figure 7: Shelf Support



Figure 8: Shelf support showing tabs

Note: Shelves are notched at each corner to rest on four shelf support clips that are inserted into the cabinet wall slots (Figure 9).

## Adjusting the Shelves

1. Turn the power OFF to the heating chamber that will have a shelf adjusted in it. Allow the chamber to cool and then unload the contents.
2. Remove the shelf and determine its new position.
3. Remove the four (per shelf) shelf support clips by tilting the clip upward and lifting out.
4. Install the shelf support into the new location by inserting the top tab into the upper slot of the new position. Push up slightly on the inserted top tab and push the bottom half of the clip in until the bottom tab snaps into the lower slot.
5. Count the mounting locations at each corner of the chamber to be sure that the shelf will be level and install the remaining support.
6. Reinstall the shelf with the notches on the bottom of the shelf aligned with the shelf supports.
7. Pull outward on the shelf to ensure it is locked properly on the supports.

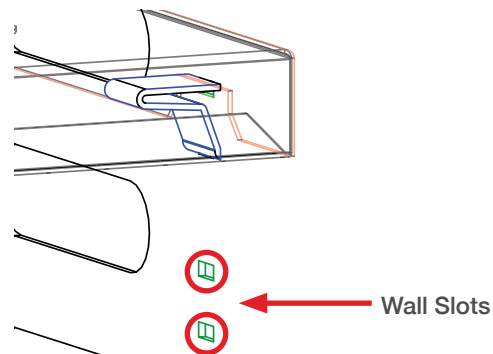


Figure 9: Support Clip Fitted in Notch

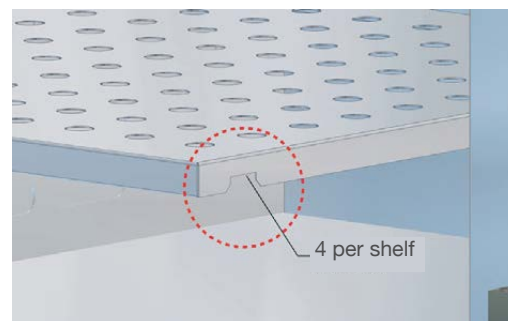


Figure 10: Shelf Notch

## Injury and Burn Hazard

Avoid injury by using proper personal protective equipment when loading or unloading the warming cabinet. Internal surfaces are hot: Glass may shatter when cooled suddenly and solution bags or bottles may burst when picked up. Rotate warmed contents on a first-in, first-out basis. Failure to do so may present cold or discolored contents.

Do not use heated liquids on, or inject in, living tissue unless actual liquid temperature has been measured and found acceptable. The temperature of the Warming Cabinet contents may be hotter than the displayed temperature. For patient safety (in accordance with optimal medical practice), always verify liquid temperature with a thermometer at the point of use.

Important: See Maximum Warming Temperature Limit for Patient Safety table below.

## Maximum Warming Temperature for Patient Safety (as recommended by ECRI)

Items to be Warmed	Maximum Temperature Limit
Liquid Solutions for use on living tissue	110 °F (43 °C)
Blankets	130 °F (54 °C)

## Retrieval of Recorded Temperatures

AORN recommends the cabinet temperature be routinely monitored and documented on a temperature log or record provided by an electronic recording system, according to facility policy.

Warming cabinets are equipped with a temperature monitoring program that stores actual chamber temperatures in 30 minute intervals. The information recorded may be downloaded to a USB flash drive at any time. To retrieve the stored data:

1. Insert the provided flash drive or equivalent into the USB port marked USB (located on the front face of the control panel). For multi-chambered units, insert a flash drive into the USB port marked USB for each chamber.
2. The digital display will change from displaying the actual temperature to displaying the code shown in Figure 11.



Figure 11: Data Download Code

3. Once the transfer is complete, the digital display will show the temperature again.
4. Remove the flash drive. The data is saved on the flash drive as a .CSV file for import into most Windows-based spreadsheet programs. The example below shows the fahrenheit temperature variation within a certain date and time period (Figure 12).

42	01/06/2016 06:32:54	106 F
43	01/06/2016 06:32:30	106 F
44	01/06/2016 07:02:30	106 F
45	01/06/2016 07:32:30	114 F
46	01/06/2016 08:02:30	160 F
47	01/06/2016 08:32:30	160 F
48	01/06/2016 09:02:30	160 F

Figure 12: Extracted Data

## Turning Off the Warming Cabinet

Switch the ON/OFF switch to the OFF position for each chamber to be shut down.

The following alert messages and operating conditions will occur when the warming cabinet is operating outside of acceptable conditions.

## Troubleshooting Guide

Alerts and Descriptions	Action Required
HI with audible alarm	Cabinet temperature is 10°F (or 5°C) higher than set point. Silence the alarm by pressing ALARM RESET (Up ▲ arrow) and open door(s) to allow the chamber(s) to cool.
LLLL	Input temperature is lower than input range. Check temperature probe and connections. See below for additional troubleshooting.
HHHH with audible alarm	Input temperature is higher than input range. Check temperature probe and connections. See below for additional troubleshooting.
OPEn with audible alarm	Temperature probe is at fault. Check connection, then replace and calibrate.
JIC continuous or flashing	Control failure. Check connection first, then replace and calibrate.
Unit will not power up	<ol style="list-style-type: none"> <li>1. Check outlet for power.</li> <li>2. Check if warmer is plugged in.</li> <li>3. Check if the ON/OFF switch/circuit breaker is turned on.</li> <li>4. Check the fuse on the incoming supply.</li> <li>5. Check for power at the junction box in the control panel.</li> <li>6. Contact InnerSpace Customer Service (1-888-435-2256).</li> </ol>
Chamber does not heat	<ol style="list-style-type: none"> <li>1. Is the power turned on?</li> <li>2. Is the temperature set above chamber ambient temperature?</li> <li>3. Is the circulation fan operational? Open the door and press in on the door switch.</li> <li>4. Is there voltage on the output terminal of the controller?</li> <li>5. Is the door(s) closed?</li> <li>6. Contact InnerSpace Customer Service (1-888-435-2256).</li> </ol>
Over temperature alarm HI is activated	<ol style="list-style-type: none"> <li>1. Is the circulating fan operational?</li> <li>2. Are the contents loaded properly?</li> <li>3. Has the chamber set temperature been lowered?</li> <li>4. Temperature of the lower chamber cannot be in excess of +30°F (+1.1°C) above the upper chamber.</li> <li>5. Contact InnerSpace Customer Service (1-888-435-2256).</li> </ol>

### Overheat Alarm (HI) Condition

When the cabinet temperature exceeds the set point by 10°F (or by 5°C) or the set temperature is lowered by more than 10°F (or by 5°C), the display will read HI and the audible alarm will sound. Silence the alarm by pressing ALARM RESET (Up ▲ arrow) until the alarm stops.

Turn off the warming cabinet chamber and wait for the contents to cool adequately. Unload the contents using personal protective equipment to avoid injury. Reload the contents using the proper loading guidelines as previously mentioned in this manual.

Turn on the chamber and monitor performance. If the chamber continues to overheat into an alarm (HI) condition, turn off the chamber and contact InnerSpace Customer Service (1-888-435-2256).

### Audible alarm and HI message alert (Upper Chamber Only)

- Possible heat transfer from lower unit.
- The temperature of the lower unit can be no more than 30°F greater than the temperature of the upper unit.
- This issue can be prevented by lowering the temperature of the lower unit or by reversing the contents of the two compartments.

## Cleaning Stainless Steel Warming Cabinets

Stainless steel warming cabinets must be cleaned on a regular basis to prevent any unnecessary damage to the stainless steel surfaces. Spilled liquids and standing water should be cleaned up immediately.

When cleaning stainless steel warming cabinets, make sure to use the proper approved cleaning agents and cleaning materials to protect the surface and prevent damage or corrosion.

Do not use the following cleaning materials:

- Abrasive pads
- Scrapers (metal or plastic)
- Steel wool
- Wire brushes

Do not use the following cleaning materials:

- Hard water (water with a pH reading above 7.0)
- Hydrochloric acid
- Steam or high pressure water
- Bleach or any compounds containing chlorine or Sodium hypochlorate, or ammonium chloride salts

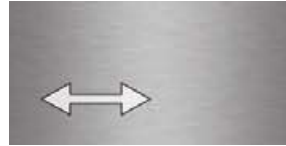
Approved cleaning materials and agents:

- Soft, clean lint-free cloth
- Mild detergents
- White vinegar (in a spray bottle)
- Cleaners approved for use on stainless
- Non-abrasive cleaning pads
- Sodium bicarbonate (baking soda)
- Isopropyl alcohol
- Soft bristle brush
- Distilled water (pH rating 7) alone or with a mild detergent
- Hospital-grade non-bleach disinfectants

## Cleaning Stainless Steel Surfaces

- Using a damp, lint-free cloth and approved cleaner, wipe down the entire exterior surface of the stainless steel warming cabinet.
- Using a damp, lint-free cloth with distilled water and a mild detergent, wipe down the entire exterior surface of the stainless steel warming cabinet.

- Clean the warming cabinet with the stainless steel surface grain as shown here.



- Let cleaned warming cabinet air dry.

## Cleaning Decals or Printed Labels:

- Use only distilled water and a mild detergent applied with a clean, dry lint-free cloth to clean decals or printed labels.
- Cleaning agents can remove or smear any printing from decals and print labels.
- Cleaning agents can damage plastic materials used in manufacturing covers for electronic items such as touch-screen pads.

## Disinfecting Stainless Steel

Use a hospital grade non-bleach disinfectant. Always follow the manufacturer's instructions for proper use of these products.

## Cleaning the Warming Cabinet Interior:

- Unplug and remove the warming cabinet from its power supply.
- Turn off circuit breaker if warming cabinet is hard wired into the facility's electrical supply.
- Open the door and remove all adjustable shelves and shelf clips.
- Clean the adjustable shelves and shelf clips separately.
- Using a damp, lint-free cloth and approved cleaner, wipe down the interior of the cabinet.
- Use a lint-free dry cloth to dry the cabinet's interior or let air dry. If air drying, always leave the cabinet door open.

## Cleaning Glass Doors (if applicable):

Use a commercially prepared ammonia-free glass cleaner or use distilled water and a mild detergent applied with a lint-free cloth.

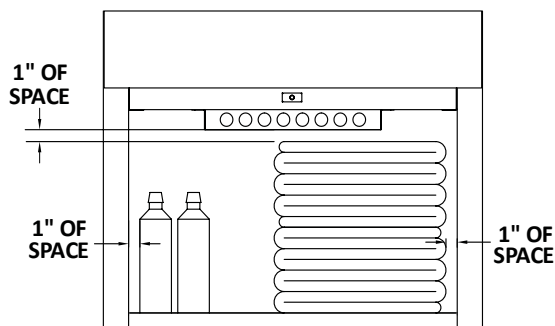


## Operator Maintenance

Users are responsible for the thorough inspection of the equipment before and after each use. Should any problems or deficiencies arise, the results must be reported to the facilities maintenance personnel. The safety of personnel and patients relies on the proper and routine maintenance of this equipment.

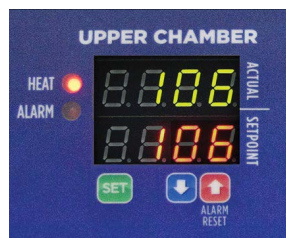
### Daily Checklist:

1. Ensure that the correct operation and maintenance manual is available to all users.
2. Ensure that all personnel using this appliance have been properly trained in the warmer cabinet operation and safety instructions.
3. Do not overload cabinet. Load contents (blankets or fluids) into the chamber with a minimum of 1 inch of space between walls and fan to allow for circulation (as seen below).



### Weekly Checklist:

1. Inspect condition of plug and cord. Replace if damaged.
2. Clean dust from back and side vents.
3. If any of the chamber shelves are unstable when setting objects on them, check the shelf clips that the shelves sit on. If any are loose, snap back into place.
4. Check basket shelves (if applicable) and side rail condition. Do the baskets move smoothly and freely?
5. Check that all control indicators (heat and alarm) and LED display light up. LED display panel must show lighted top and bottom displays. Heat light will stay lit solidly while the unit is heating to its set point temperature. Once the set point temperature is reached, the light will begin to pulsate and continue to pulsate to maintain the set point temperature.



6. Periodically check the alarm by setting the temperature  $\pm 15^\circ$  from set point to test the alarm. If the temperature rises or drops  $15^\circ$  below its set point, the alarm should buzz and its light go on. (Note:  $90^\circ\text{F}$  is the lowest temperature point. To test alarm from this point, heat the unit up  $15^\circ$  beyond its lowest temperature, then bring the set point down to test the alarm.)

### Monthly Checklist:

1. Check condition of casters or feet. Ensure components are secure and tightly threaded.
2. Check control panel overlay condition. Are there any tears or excessive wear on the graphic? Does the control work properly when buttons are pushed?
3. Is the set temperature comparable to the actual temperature displayed? Check chamber air temperature with a quality thermocouple placed 1 inch (25 mm) from the chamber. Do not allow the sensor to touch any surface. Monitor for approximately one hour in an empty chamber.

### Semi-Annual Checklist:

1. Check the temperature accuracy on a semi-annual basis by placing an infrared temperature probe or thermocouple on calibrated meter near the fan inlet. In general, air temperature should be  $\pm 1^\circ\text{F}$  for upper chamber and countertop units and  $\pm 3^\circ\text{F}$  for lower chambers and large single cabinet units. See table column Temperature Tolerance on page 20 for details. If the cabinet is not within these guidelines, contact InnerSpace Customer Service (888-435-2256).
2. Inspect the fan blades for buildup of lint and other debris. Clean as necessary. InnerSpace recommends replacing the fan motor with fan blade every 2 years to ensure uninterrupted service.

