

# HydraTherm™

OPERATION MANUAL



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**INTENDED USE:**

The HydraTherm Unit is intended for use in treatment facilities and rehabilitation clinics to heat hot packs for the purpose of moist heat therapeutic treatment.

Congratulations on the purchase of your Richmar HydraTherm™.

Richmar warrants that your HydraTherm is free of defects in material and workmanship. This warranty shall remain in effect for two (2) years\* from the date of the original end user purchase. If this Product fails to function during the warranty period due to a defect in materials or workmanship, Richmar or the selling dealer will repair or replace the respective Product without charge.

All product repairs must be performed by Richmar.

Any modifications or repairs performed by unauthorized centers or groups will void this warranty.

To qualify for warranty coverage, your product must be registered with Richmar within ten (10) days of purchase in one of the following ways:

- Using the online form at [richmarweb.com/warranty-registration](http://richmarweb.com/warranty-registration)
- Mailing in the completed warranty card included with the device

**RICHMAR SHALL RESERVE THE RIGHT TO REQUEST PROOF OF PURCHASE FROM THE END-USER TO VALIDATE THE WARRANTY PERIOD**

This warranty does not cover:

1. Replacement parts or labor furnished by anyone other than Richmar, the selling dealer, or a certified service technician.
2. Defects or damage caused by labor furnished by someone other than Richmar, the selling dealer, or a certified service technician.
3. Any malfunction in the Product caused by product misuse, including, but not limited to, the failure to provide reasonable and required maintenance or any use that is inconsistent with the Product's Manual.

**RICHMAR SHALL NOT BE LIABLE IN ANY EVENT FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES**

Some locations do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

To obtain Service from Richmar or the selling dealer under this warranty:

1. A claim must be made within the warranty period to Richmar or the selling dealer.
2. Written claims made to Richmar should be sent to:  
**Technical Service**  
**c/o Compass Health Brands**  
**6753 Engle Road**  
**Middleburg Heights, OH 44130**  
Phone: 1.888.549.4945  
Email: [technicalsupport@richmarweb.com](mailto:technicalsupport@richmarweb.com)

This warranty gives you specific legal rights and you may also have other rights which vary from location to location. Richmar does not authorize any person or representative to create for it any other obligation or liability in connection with the sale of the Product.

Any representative or agreement not contained in the warranty shall be void and of no effect.

**THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY WARRANTY OR MERCHANT ABILITY OR FINES FOR A PARTICULAR PURPOSE.**

*\* The two-year warranty applies for HydraTherms supplied with HydraHeat packs. For units purchased without HydraHeat packs, a one year limited warranty applies. If any unit malfunction is deemed to be a result of bentonite clay pack leakage, the warranty is null and void.*

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This manual is written to ensure the proper and safe operation of the HydraTherm Heating Unit. It contains general information regarding replacement parts, operation, safety precautions and maintenance. In order to maximize safety, efficiency and the life of your Heating Unit, please read this manual thoroughly and follow all instructions

prior to operating the unit.

Specifications and instructions put forth in this manual are in effect at the time of publication; however, due to Richmar's policy of continued product improvement, changes may be made to these specifications and instructions at any time without obligation on the part of Richmar.

## SYMBOLS GLOSSARY

### CAUTIONS

Text under a "CAUTION" heading explains possible safety infractions that could have the potential to cause minor to moderate injury or damage to equipment.

### WARNINGS

Text under a "WARNING" heading explains possible safety infractions that could potentially cause serious injury and equipment damage.

### DANGER

Text under a "DANGER" heading explains possible safety infractions that are imminently hazardous situations that could result in death or serious injury.

### DANGEROUS VOLTAGE

Text under a "DANGEROUS VOLTAGE" heading indicator serves to inform the user of possible hazards resulting in an electrical charge.

**NOTE:** Throughout this manual, "NOTE" may be found. These notes are helpful information to add in the particular area or function being described.



ATTENTION: Refer to the Instruction Manual/ Booklet



Type B equipment



Indicates a requirement not to dispose of WEEE as municipal waste.

The following labels are located on the electrical enclosure in the rear of the unit.



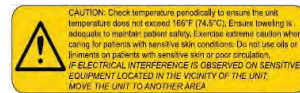
### Hazardous Voltage

High Voltage is present in the electrical enclosure located in the rear of the unit. Service should only be accomplished by trained personnel.



### Explosion Hazard

Due to the high temperatures in which the unit operates, do not use this unit in the presence of flammable anesthetics.



### Water Temperature

Check water temperature periodically to ensure temperature does not exceed 160°F (77°C). For personal safety and patient safety, please observe the cautions as outlined in the label below.



### Hot Surface

Hot surface. Do not touch.



710465

### Classification

Classified by SGS North America Inc. Consumer Testing Services (USA Only)

## CAUTION

- The HydraTherm Heating Unit is intended for clinical/professional use **ONLY**.
- Read, understand and practice the precautionary and operating instructions. Know the limitations associated with the HydraTherm Heating Unit. Observe the cautionary and operational decals installed on the Product.
- On the initial startup of the Heating Unit or when new heat packs are added, check the water level every 2 hours for a period of 8 hours. This will prevent running the heater with low water levels as some new heat packs absorb water.

**NOTE:** Richmar recommends using HydraHeat Packs, which do not absorb water, used at safer temperatures than canvas packs, can be sanitized between uses, and help to reduce maintenance tasks.

- Temperature readings from external thermometers may differ from the displayed temperature based on location of temperature reading, and type of thermometer used. Dependent on these factors, the temperature reading may vary by +/- 2°F/1°C. **ALWAYS** allow sufficient time for water temperature to stabilize prior to temperature readings.
- **ALWAYS** keep the water level at or over the top of the heat packs.
- Check water level daily, due to evaporation from the unit.
- Clean the tank periodically as described in the cleaning and maintenance sections of this manual and/or Quick Start Guide.
- **ALWAYS** replace heat packs as soon as they show signs of wear.
- If the unit is to be left unattended for longer than one week:
  - a. Turn the unit off.
  - b. Disconnect the power cord from the power source/electrical outlet.
  - c. Remove the packs and store them on a dry, flat surface.
  - d. Drain tank

- **ALWAYS** use factory authorized replacement parts.
- **ALWAYS** use a towel, pillowcase, or washable terry cover against a patient's skin when using hot packs to prevent injury to patient and contamination.

**NOTE:** For further information on avoiding electrical interference, refer to page 21.

- If electrical interference is observed on sensitive equipment in the locale of the Heating Unit, first turn the unit off to determine the source of interference. If necessary, unplug the Heating Unit and move it to another area. It is recommended to allow water to cool and/or drain the unit prior to moving.
- **DO NOT** store the unit in a confined space.
- When heated, the surface of the glass lid may become hot. Use the handle to lift the lid. **DO NOT** touch the glass top.
- The HydraTherm Shelf load limit is 7.5 lb (3.4 kg).
- **DO NOT** sit on the HydraTherm or the HydraTherm Shelf.
- **DO NOT** add chlorine additive to water.

## WARNING

- Check the temperature periodically to ensure the unit temperature does not exceed 160°F (71°C).
- **DO NOT** move the HydraTherm Heating Unit when filled with heated water. Contact with hot water could result in scalding and/or burns to users or others.
- **ALWAYS** unplug the unit from its electrical service when cleaning the unit.
- Exercise extreme caution when caring for patients with insensitve skin or in areas of poor circulation.
- Consult healthcare professionals before using heat packs on individuals who cannot communicate.

If the water reaches or exceeds 165°F (74°C) turn the unit OFF, remove the Power Cord and quarantine the unit. Contact Richmar Technical Service for further instructions.

# PRECAUTIONARY INSTRUCTIONS



## WARNING

- The water temperature in the HydraTherm Heating Unit is adjustable from 120°F (49°C) to 160°F (71°C).

**NOTE:** According to the CPSC scalding temperature of water (exposed to more than six seconds) is 140°F (60°C) and up.\* While removing packs from the HydraTherm, **NEVER** place hands into the heating unit

- It is recommended to check water temperature daily before use.
- Individuals with circulatory problems should consult with a physician before receiving moist heat therapy.

## DETAILED DEVICE DESCRIPTION



Front View



Rear View



Side View with Shelf

**NOTE:** One Shelf is a Standard Accessory on the Deluxe Model Only.

\*<https://www.cpsc.gov/s3fs-public/5098.pdf>



Enclosure Panel (115/120VAC Deluxe shown)

1. Power Entry Module
2. Mains Fuses 12 Amp @ 250 VAC 5mm x20mm
3. Power Switch
4. Power Indicator Lamp
5. Heat/Drain Select Switch (Deluxe Model Only)



Rear Cavity - Standard Model



Rear Cavity - Deluxe Model

6. Low Voltage Control Fuse (500mA @ 205V)
7. Voltage Requirement (120 VAC)
8. Drain Hose with Shut-Off Valve (Standard Model)
9. Drain Valve and Removable Filter (Deluxe Model)

HydraTherm Heating Units come standard with the Divider System as shown below in **Figure 1**. The Divider System functions as a vertical drawer by raising the heat packs for easy removal.

The Divider System can be substituted for the Traditional Rack System shown in **Figure 2**. Made from the same composite material, the Rack System sits lower inside the tank and functions like traditional stainless steel racks.

Shelf clips are included with both systems, and can be connected to any of the four (4) positions on each Divider or Rack. See *page 6* for recommended shelf clip positions.

**NOTE:** The front rail of the first divider is thin compared to the other dividers and should be positioned as such in the tank, as seen in **Figure 3**.



Figure 2. Traditional Rack System



Figure 1. Divider System



Figure 3. Divider Rail Comparison

# RECOMMENDED PACK SETUP

When purchasing HydraTherm Heating Units, customers have the option of including 12 HydraHeat Packs with their purchase. This includes three of each size: universal, cervical, standard and oversize. Recommended setup uses 2 of the 3 included clip-on shelves, one at the bottom position on the back of the rear-most divider. The second is placed at the top position of the front divider (Fig. 1). The third can be stored for later use, or used if a different configuration is desired.

The recommendation for setup of clip-on shelves and pack placement is illustrated below (Fig. 2).

When retrieving a HydraHeat Pack, it is important to only lift the divider 2" to 3" (5-8 cm), just enough to lift the edge of the pack out of the water. When returning packs to the tank, flatten first to ensure smooth operation of the dividers.

**NOTE:** Lifting dividers further than 3" may allow packs in the adjacent dividers to slip out of the divider and into the bottom of the tank.



Figure 1.

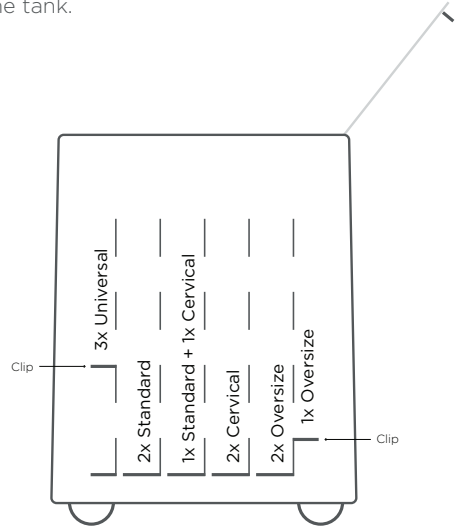


Figure 2. Side View of Tank



The HydraTherm Heating Unit is designed to be simple and easy to use.

Remove all of the contents inside the HydraTherm Heating Unit and then place the racks into the unit.

- Allow a minimum of 16" (41 cm) clearance above the lid so that the packs can be removed without external interference and 6" (15 cm) or more in the back to be able to access the electrical enclosure power switch.

### **WARNING**

As with all electrical equipment and components, the unit should be kept clear of any hazardous or explosive gases.

- Insert the heat pack(s).
- Verify drain hose valve is in the closed position.

**NOTE:** Fill the device, first with **3 cups of tap water**, followed by up to **12 gallons of distilled water**, stopping when the water level has reached 2" from the top of the tank.

**NOTE:** Exact amount of distilled water varies depending on quantity of packs being used.

**NOTE:** Distilled water helps to maintain a clean device, but doesn't conduct electricity. For this reason tap water is needed for the Low Water Sensor to operate properly.

### **CAUTION**

Adding additional packs after the unit is filled will cause the water to displace and may cause an overflow condition.

- To turn the unit on, simply plug the supplied power cord into the back of the unit and then into the appropriate 115-120VAC, 50/60 Hz outlet and set the Power Switch to the "I" position. To turn the unit off, simply move the switch to the "O" position and unplug from the mains power outlet.

**NOTE:** If unit is a Deluxe Model, ensure the HEAT/DRAIN Switch is set to HEAT before setting the Power Switch to "I".

### **WARNING**

**DO NOT** attempt to use the unit if it is not properly grounded.

### **CAUTION**

A Ground Fault Interruption circuit or receptacle (GFI outlet) is recommended for additional protection.

- The Digital Thermostat, located on the front of the unit, controls and maintains the temperature of the water as well as senses Low Water Condition
- **For Deluxe Models:** Ensure that the HEAT/DRAIN switch is selected to the HEAT position.

### **PUMP SYSTEM (DELUXE MODELS ONLY):**

#### • **Heat Mode**

When the HydraTherm HEAT/DRAIN Switch is in the "HEAT" position, the unit will operate in a normal mode.

#### • **Drain Mode**

The HydraTherm Deluxe pump can be used to drain the water from the tank. When the HEAT/DRAIN Switch is set to the "DRAIN" position, the pump will turn on.

**NOTE:** If the filter is full of debris, unscrew to remove, clean and replace before draining. Make sure the shut-off valve at the filter is in the open position when draining, and turned to the CLOSED position again before filling.

- Once the tank is empty, place the HEAT/DRAIN Switch back to the "HEAT" mode position. Refer to page 5 for the location of switch and drain hose.

HydraTherm is equipped with a digital thermostat and Temperature Display, along with a Low Water Sensor. When the Low Water Sensor senses low water, the Low Water Indicator will be lit and the Heating Element will be disengaged, until a safe water level is sensed.

**NOTE:** Refer to page 7 for more information regarding appropriate amounts and type of water necessary.

## LOW WATER INDICATOR

- Check Temperature Display. If enough tap water was added, the Low Water Indicator should NOT be illuminated at this time. If Low Water Indicator is illuminated, add more tap water until the indicator light turns off.



Figure 1. Low Water Indicator illuminated

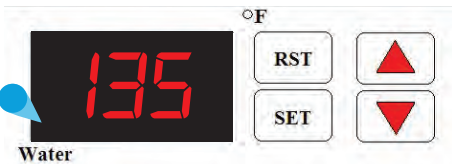


Figure 2. Low Water Indicator not illuminated

## TEMPERATURE SETTING

- It can take several hours for the water to reach the Set Temperature. The default Set Temperature is 135°F (57°C), to change the Set Temperature refer to instructions below.

**NOTE:** If using HydraHeat Packs, do not exceed 140° F (60° C) for best therapeutic effect, patient comfort, and HydraHeat Pack longevity.

To enter Temperature Set Mode:

- Press “SET” key on control panel, “HSP” will then be displayed.

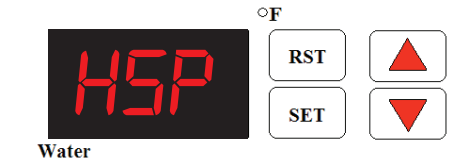


Figure 3.

- Press “SET” key again and the current Set Temperature will display. (e.g. 135°/57°C).

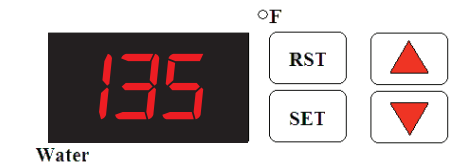


Figure 4.

- Press UP or DOWN arrows until desired temperature is reached. (e.g. 140°F/60°C).

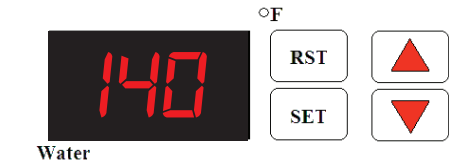


Figure 5.

- Once desired temperature is displayed, press and release the “SET” button. The new Set Temperature is now saved.
- To exit Temperature Set Mode, press the SET and DOWN arrow together, or the device will exit Temperature Set Mode automatically after 1 minute of inactivity.

## OPEN OR SHORTED TEMPERATURE SENSOR

In the event the Temperature Sensor or sensor wiring encounters an OPEN or SHORTED state, the Control will display "000" (OPEN) as shown in **Figure 6**, or "- - -" (SHORTED) as shown in **Figure 7**.

In the event of an OPEN or SHORTED condition perform the following steps before contacting Richmar's Service Department for technical support and further instructions:

1. Turn the unit OFF (O).
2. Remove the Power Cord.
3. Quarantine the Unit.
4. Contact Richmar Technical Service.



**Figure 6. Open Temperature Sensor**



**Figure 7. Shorted Temperature Sensor**

## MAINTENANCE

### WARNING

The HydraTherm Heating Unit is equipped with an immersion type heating element and a Digital Thermostat Controller to maintain the water temperature.

It is recommended to maintain the water level at or over the top of the heat packs.

Water is constantly lost during operation due to evaporation; therefore, it is essential to check the water level daily.



Council Directive 2002/96/EC concerning Waste Electrical and Electronic Equipment (WEEE). Indicates a requirement not to dispose of WEEE as municipal waste.

Contact your local distributor for information regarding disposal of the unit and accessories.

### WARNING

**ALWAYS** unplug the unit from the electrical outlet when cleaning the unit.

It is recommended to clean the Heating Unit a **minimum** of 2 times per year, or more frequently as needed — especially if not using with HydraHeat packs.

### CAUTION

**DO NOT USE BLEACH** or any cleaner with HIGH CHLORINE content.

**NOTE:** Chlorine in regular tap water may be present in high enough concentrations (4ppm or more) to damage your unit. If you suspect high levels of chlorine in your HydraTherm Heating Unit, Richmar recommends the use of distilled water or the addition of a dechlorinator.

**NOTE: DO NOT USE** additives such as herbal teas, essential oils, etc., may damage the components of the Heating Unit. It is the manufacturers recommendation to use the HydraTherm Heating Unit with clean water and using the manufacturer supplied HydraHeat packs.

The interior of the unit should be cleaned using a non-chlorinated and non-abrasive cleaner. Check to make sure your cleaner has a low amount or no chlorine content in your cleaner and make sure that any residue is thoroughly rinsed away with water.

To aid in the removal of deposits on the heating element, pour a solution of vinegar and water in a 1:1 ratio into the heating element well, using no more than required to submerge the heating element. Thoroughly rinse the water tank with clean water to remove dissolved deposits.

**NOTE:** Failure to maintain your equipment may result in voiding the warranty.

## CLEANING STEPS

### STEP 1

Turn device off to let the water and packs cool to room temperature.



Device switch OFF

### STEP 2

Remove packs from device and use sponge to clean with cleaning solution.

### STEP 3

Remove Divider (or Rack) System to access bottom well of the HydraTherm™ tank.

### STEP 4

Remove any debris (e.g. fabric lint) from the bottom of the tank, including the well around the heating element, before beginning to drain the device.

### CAUTION

**DO NOT** attempt to clean the debris from a tank with hot water. Please allow to cool to room temperature.

### STEP 5

*Deluxe HydraTherm™*

1. Position hose over wastewater receptacle.
2. Open valve by turning handle parallel with hose.
3. Change the device mode from HEAT to DRAIN.
4. Toggle the power switch to ON. Water will begin emptying from the hose.
5. Once tank is empty, check the filter for debris by unscrewing to remove, clean out the debris and replace before closing the valve.



Valve OPEN



Device mode: DRAIN



Power switch: ON

*Standard HydraTherm™*

1. Position hose over wastewater receptacle.
2. Open valve by turning handle parallel with hose. Water will begin to drain from the hose.



Valve OPEN

### STEP 6

1. When tank is empty, close valve by turning handle perpendicular to the drain hose.
2. Soak sponge in cleaning solution and wipe all surfaces of the HydraTherm™ tank and dividers.
3. Rinse sponge and soak in water, and then rinse tank.
4. Remove any water and cleaning solution using appropriate draining method above.



Valve CLOSED



Valve CLOSED

### STEP 7

Refer to Quick Start Guide or Operation Manual for instructions on how to properly fill your device.

## OPERATION: HEATING MODE

| PROBLEM  | POSSIBLE CAUSE  | POSSIBLE SOLUTION   |
|--|---|---|
| Device fails to power ON. The Power Indication Lamp does not illuminate.                                       | Mains Fuse(s) open  | Check MAINS fuse(s) with OHM Meter for continuity. Replace if open.   |
|  | Facility outlet not powered   | Check facility outlet for proper operation  |
|  | Faulty Power Cord   | Replace Power Cord  |
|  | Faulty Power Switch   | Replace Power Switch  |
| Digital Thermostat Controller display does not illuminate. Device Power Indication Lamp illuminates.           | HEAT / DRAIN Switch in DRAIN MODE   | Move switch to the HEAT position  |
|  | 24VAC Low Voltage Fuse open   | Check Low Voltage Fuse with OHM Meter for continuity. Replace if needed.  |
|  | Defective Digital Thermostat Control  | Replace Digital Thermostat Control  |
| Device Power Indication Lamp does not illuminate but the Digital Thermostat Controller display is illuminated. | Faulty Power Indication Lamp  | Replace Power Indication Lamp   |
| Device does not heat. Both the Power Indication Lamp and Digital Thermostat Controller display illuminates.    | If LOW WATER status is illuminated on the Digital Thermostat Controller Display: <ol style="list-style-type: none"> <li>1. Was HydraTherm filled with Distilled water?</li> <li>2. Possible dirty and/ or contamination on temperature sensor housing.</li> </ol> | <ol style="list-style-type: none"> <li>1. If YES, add tap water until sensor detects water. Several cups may be needed. If NO or LOW WATER indication is still illuminated, proceed to Solution #2.</li> <li>2. Clean the temperature sensor element located in bottom of tub on left hand side.</li> </ol> |
|  | Faulty Digital Thermostat   | Replace Digital Thermostat Control  |
|  | Faulty Heating Element  | Replace Heating Element   |
|  | Faulty Heating Element Power Contactor/Relay  | Replace Heating Element Power Contactor/Relay   |

## OPERATION: HEATING MODE (CONTINUED)

| PROBLEM   | POSSIBLE CAUSE  | POSSIBLE SOLUTION   |
|---|---|---|
| Device begins heating but never reaches desired temperature and/or set point. Both the Power Indication Lamp and Digital Thermostat Controller display are illuminated.*  | Verify SETPOINT setting/value   | Set to desired temperature (see manual)                       |
|   | Digital Thermostat Controller   | Replace Digital Thermostat Control                            |
|   | Power Contactor intermittent  | Replace Heating Element Power Contactor/Relay                 |
| Device heating above or below set point temperature. Both the Power Indication Lamp and Digital Thermostat Controller display are illuminated.*   | HIGH LIMIT Switch intermittent  | Replace HIGH LIMIT Switch Assembly                            |
|   | HEATING ELEMENT intermittent  | Replace Heating Element                                       |
|   | Digital Thermostat Controller faulty                                  | Replace Digital Thermostat Control                            |
| Controller displays: “---” or “ooo”. Both the Power Indication Lamp and Digital Thermostat Controller display are illuminated.  | Faulty Power Contactor  | Replace Heating Element Power Contactor/Relay                 |
|   | Faulty High Limit Switch/Assembly                                     | Replace High Limit Switch/Assembly                            |
| Controller displays: “---” or “ooo”. Both the Power Indication Lamp and Digital Thermostat Controller display are illuminated.  | Thermistor wire(s) disconnected at Controller terminal (purple wires) | Re-connect thermistor wire(s) in terminal position 1 and/or 2 |
|   | Faulty High Limit Switch Assembly                                     | Replace HIGH LIMIT Switch Assembly                            |
|   | Faulty Digital Controller   | Replace Digital Thermostat Control                            |
| <b>If none of the possible repair solutions listed above solve the issue:</b><br><b>TURN OFF UNIT</b><br><b>UNPLUG DEVICE</b><br><b>LET WATER COOL DOWN</b><br><b>REMOVE PACKS</b><br><b>DRAIN UNIT</b><br><b>ISOLATE UNIT</b><br><b>CONTACT RICHMAR SERVICE DEPARTMENT</b> |   |   |

**\*NOTE:** Temperature readings from external thermometers may differ from the Controller’s displayed temperature based on location of temperature reading, and type of thermometer used.

## OPERATION: DRAIN MODE - DELUXE MODELS ONLY

| PROBLEM  | POSSIBLE CAUSE   | POSSIBLE SOLUTION                                |
|--|--|--|
| Pump does not come ON - Device Power Indication Lamp illuminated, and HEAT / DRAIN Switch in "DRAIN" position.                                     | PUMP electrical connection to 3-position receptacle located on the left hand side loose or disconnected.<br><i>Note: Receptacle is located on rear of enclosure.</i> | Re-seat electrical connection                    |
|  | Pump 2 Amp protection fuse open<br><i>Note: The fuse is located behind the Control Panel Sub-assembly</i>  | Replace fuse: 2 Amp / 250V Glass Fuse (5 x 20mm) |
|  | Faulty Pump  | Replace Pump                                     |
|  | 12VDC Power Supply faulty  | Replace 12VDC Power Supply (Medical Grade)       |
|  | HEAT / DRAIN Switch faulty   | Replace Heat Drain Switch                        |
| Pump engages when "ON" but no water flowing through system. Device Power Indication Lamp illuminated, and HEAT / DRAIN Switch in "DRAIN" position. | Drain Shut Off Valve "CLOSED"  | "OPEN" Shut Off Valve                            |
|  | Drain Hose kinked  | Inspect hose for kink and/or remove obstruction  |
|  | Pump faulty  | Replace Pump                                     |
|  | Filter Clogged   | Remove filter, clean and replace                 |

If in any case the suggested Troubleshooting Solutions do not remedy the problem(s) you are experiencing, contact Richmar Technical Support for additional information.

# TECHNICAL SPECIFICATIONS



## SPECIFICATIONS

|                                     |   |
|-------------------------------------|---|
| Supply Voltage                      | 110/120VAC                                    |
| Line Frequency                      | 50/60 Hz                                      |
| Power Consumption                   |   |
| 115-120VAC Models                   | 1000 Watt                                     |
| Adjustable Temperature Range        | 120°F (49°C) - 160°F (71°C) +/- 5°F (+/- 3°C) |
| Safety Thermal Control Accuracy     | 185°F +/- 5°F (79°C +/- 3°C)                  |
| Weight (Dry)                        |   |
| Standard Model                      | 70 lbs (31.75 Kg)                             |
| Deluxe Model                        | 75 lbs (34.02 Kg)                             |
| All Models (Total Working Capacity) | 350 lbs (158.76 Kg)                           |
| Dimensions                          | 30" W x 20" D x 33" H                         |
| Safety Class                        | B   |



*Equipment providing a particular degree of protection against electric shock, particularly regarding allowable leakage currents and reliability of the protective earth connection (if present).*



## HYDRATHERM STANDARD MODELS

| REF       | VOLTAGE REQUIREMENTS | DIVIDER/RACK SYSTEM | INCLUDES  |
|-----------|----------------------|---------------------|---|
| HT-R12-S  | 115-120 VAC          | Divider System      | N/A   |
| HT-R12-SW | 115-120 VAC          | Divider System      | HydraHeat Packs<br>3 - Standard<br>3 - Cervical<br>3 - Oversized<br>3 - Universal |
| HT-R12-SR | 115-120 VAC          | Rack System         | N/A   |

# DEVICE DESCRIPTIONS



## HYDRATHERM DELUXE MODELS

| REF       | VOLTAGE REQUIREMENTS | DIVIDER/RACK SYSTEM | INCLUDES  |
|-----------|----------------------|---------------------|---|
| HT-R12-D  | 115-120 VAC          | Divider System      | N/A   |
| HT-R12-DW | 115-120 VAC          | Divider System      | HydraHeat Packs<br>3 - Standard<br>3 - Cervical<br>3 - Oversized<br>3 - Universal |
| HT-R12-DR | 115-120 VAC          | Rack System         | N/A   |

## REPLACEMENT PARTS AND OPTIONAL EQUIPMENT

| REF           | DESCRIPTION                      | QTY. PER UNIT |
|---------------|----------------------------------|---------------|
| 203-016       | Power Cord - USA                 | 1             |
| HW-DHV        | Drain Valve                      | 1             |
| HT-R12-SHFKIT | Shelf Assembly (Optional)*       | 1             |
| HT-R12-DIV    | Heat Pack Divider System         | 1 set of 5    |
| HT-R12-RCK    | Heat Pack Rack System (Optional) | 1 set of 5    |
| HT-R12-DIVS   | Shelf Clip                       | 1             |
| HP-1711-ST    | HydraHeat Standard Heat Pack     | 1             |
| HP-1711-CX    | HydraHeat Cervical Heat Pack     | 1             |
| HP-1713-OS    | HydraHeat Oversize Heat Pack     | 1             |
| HP-1905-UN    | HydraHeat Universal Heat Pack    | 1             |

\* HydraTherm Heating Units can have up to two (2) shelves attached.

**GUIDANCE AND MANUFACTURER'S DECLARATION -  
ELECTROMAGNETIC EMISSIONS**

The HydraTherm Composite Heating Unit is intended for use in the electromagnetic environment specified below. The customer or the user of the HydraTherm Composite Heating Unit should assure that it is used in such an environment.

| Emissions test   | Compliance | Electromagnetic environment - guidance  |
|--|------------|---|
| RF emissions<br>CISPR 11                                     | Group 1    | The HydraTherm Composite Heating Unit uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.                          |
| RF emissions<br>CISPR 11                                     | Class A    | The HydraTherm Composite Heating Unit is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. |
| Harmonic emissions<br>IEC 61000-3-2                          | Class A    |   |
| Voltage fluctuations /<br>flicker emissions<br>IEC 61000-3-3 | Complies   |   |

## GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY


TheHydraTherm Composite Heating Unit is intended for use in the electromagnetic environment specified below. The customer or the user of the HydraTherm Composite Heating Unit should assure that it is used in such an environment.

| Immunity test   | IEC 60601 test level  | Compliance level  | Electromagnetic environment - guidance   |
|---|---|---|--|
| Electrostatic discharge (ESD)<br>IEC 61000-4-2  | ±6 kV contact<br>±8 kV air  | ±8 kV contact<br>±15 kV air   | Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.   |
| Electrical fast transient/burst<br>IEC 61000-4-4  | ±2 kV for power supply lines  | ±2 kV for power supply lines  | Mains power quality should be that of a typical commercial or hospital environment.  |
| Surge<br>IEC 61000-4-5  | ±1 kV differential mode<br>±2 kV common mode  | ±1 kV differential mode<br>±2 kV common mode  | Mains power quality should be that of a typical commercial or hospital environment.  |
| Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11 | <5 % $U_T$<br>(>95 % dip in $U_T$ )<br>for 0.5 cycle<br>40 % $U_T$<br>(60 % dip in $U_T$ )<br>for 5 cycles<br>70 % $U_T$<br>(30 % dip in $U_T$ )<br>for 25 cycles | <5 % $U_T$<br>(>95 % dip in $U_T$ )<br>for 0.5 cycle<br>40 % $U_T$<br>(60 % dip in $U_T$ )<br>for 5 cycles<br>70 % $U_T$<br>(30 % dip in $U_T$ )<br>for 25 cycles | Mains power quality should be that of a typical commercial or hospital environment. If the user of the HydraTherm Composite Heating Unit requires continued operation during power mains interruptions, it is recommended that the HydraTherm Composite Heating Unit be powered from an uninterruptible power supply or a battery. |
| Power frequency (50/60 Hz) magnetic field IEC 61000-4-8   | 30 A / m  | 30 A / m  | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.  |

NOTE  $U_T$  is the AC mains voltage prior to application of the test level.

### GUIDANCE AND MANUFACTURER'S DECLARATION - ELECTROMAGNETIC IMMUNITY

The HydraTherm Composite Heating Unit is intended for use in the electromagnetic environment specified below. The customer or the user of the HydraTherm Composite Heating Unit should assure that it is used in such an environment.

| Immunity test                 | IEC 60601 test level          | Compliance level | Electromagnetic environment – guidance  |
|-------------------------------|-------------------------------|------------------|---|
| Conducted RF<br>IEC 61000-4-6 | 3 Vrms<br>150 kHz to 80 MHz   | 6 Vrms           | <p>Portable and mobile RF communications equipment should be used no closer to any part of the [ME EQUIPMENT or ME SYSTEM], including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 0.6\sqrt{P}$ $d = 1.2\sqrt{P}$ $d = 2.3\sqrt{P}$ <p>80 MHz to 800 MHz<br/>800 MHz to 2,7 GHz</p> <p>Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. b</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol: </p> |
| Radiated RF<br>IEC 61000-4-3  | 3 V/m<br>80 MHz to 2,7 GHz(1) | 3 V/m            |   |

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

<sup>a</sup>Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the HydraTherm Composite Heating Unit is used exceeds the applicable RF compliance level above, the HydraTherm Composite Heating Unit should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the HydraTherm Composite Heating Unit.

<sup>b</sup>Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 1 V/m.

(1) Additionally the test frequencies and levels in Table 9 of IEC 60601-1-2: 2014 were applied to address higher levels of immunity to RF wireless communications equipment.

**RECOMMENDED SEPARATION DISTANCES BETWEEN PORTABLE AND MOBILE RF COMMUNICATIONS EQUIPMENT AND THE HYDRATHERM COMPOSITE HEATING UNIT**

The HydraTherm Composite Heating Unit is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the HydraTherm Composite Heating Unit can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the HydraTherm Composite Heating Unit as recommended below, according to the maximum output power of the communications equipment.

**Separation distance according to frequency of transmitter**  
**m**

| Rated maximum<br>output power of<br>transmitter<br><br>W | Separation distance according to frequency of transmitter<br>m |                      |                       |
|--|--|----------------------|-----------------------|
|  | 150 kHz to 80 MHz  | 80 MHz to<br>800 MHz | 800 MHz to<br>2,7 GHz |
|  | $d = 0.6\sqrt{P}$  | $d = 1.2\sqrt{P}$    | $d = 2.3\sqrt{P}$     |
| 0.01   | 0.06   | 0.12                 | 0.23                  |
| 0.1  | 0.19   | 0.38                 | 0.73                  |
| 1  | 0.6  | 1.20                 | 2.30                  |
| 10   | 1.90   | 3.79                 | 7.27                  |
| 100  | 6.00   | 12.00                | 23.00                 |

For transmitters rated at a maximum output power not listed above, the recommended separation distance  $d$  in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where  $P$  is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Manufactured for



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