



Recirculating Heater Chiller Manual
Model: UHC Series
UHC-10/40, UHC-20/40, UHC-50/40



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1 Safety Instructions and Features

1.1 Safety Instructions

ONLY USE SILICONE OIL IN THE TANK.

The use of Personal Protection Equipment (PPE) is REQUIRED.

Follow all federal, state and municipal laws, codes and ordinances.

Please make sure the power connection is correct and well-grounded. (see the technical parameters for details)

Fluid lines should be unobstructed without any hard bends in the run. Install gasket inside fittings before use.

Apply a rag to wipe the parts clean after washing away stains; do not use hard objects.

Do not use flammable, corrosive or explosive substances on, in, or near the equipment.

Do not run the liquid pump dry.

The compressor requires 15 minutes to rest before operating after being shutdown. Do not allow the compressor to cycle more than 5 times per day.

If there is a problem, do not continue to use the chiller. Contact us immediately.

1.2 Features

The UHC Series of high-performance closed loop recirculating heater chillers, use internationally recognized phase change compressors. High quality 304 stainless steel construction and a nickel-plated heat exchanger helps to inhibit corrosion. The pump can move your transfer fluid quickly. Casters aid in the portability of the chillers. When connected to a reactor, the UHC can maintain consistent sub-zero or overboiling temperatures. Large changes in temperature can be achieved rapidly.

1.3 Technical Parameters

UHC-10/40:

<i>UHC-10/40 SPECIFICATIONS</i>
•Reservoir Capacity: 6L
•Temperature Range: Room Temperature to -40°C to 200°C
•Power Requirements: 220V 60Hz 20A 3000W Single Phase
•Heating Wattage: 3kW
•Refrigerating Wattage: 2kW
•Circulating Pump Wattage: 100W
•Temperature Accuracy: +/- 2°C
•Pump Flow: 18L/Min
•Pump Pressure: 4Kpa
•Connection Size: 3/4"
•Dimensions: 25" x 22" x 42"
•Weight: 187lbs

UHC-20/40:

<i>UHC-20/40 SPECIFICATIONS</i>
•Reservoir Capacity: 6L
•Temperature Range: Room Temperature to -40°C to 200°C
•Power Requirements: 220V 60Hz 20A 3000W Single Phase
•Heating Wattage: 3kW
•Refrigerating Wattage: 2kW
•Circulating Pump Wattage: 100W
•Temperature Accuracy: +/- 2°C
•Pump Flow: 18L/Min
•Pump Pressure: 4Kpa
•Connection Size: 3/4"
•Dimensions: 25" x 22" x 42"
•Weight: 197lbs

UHC-50/40:

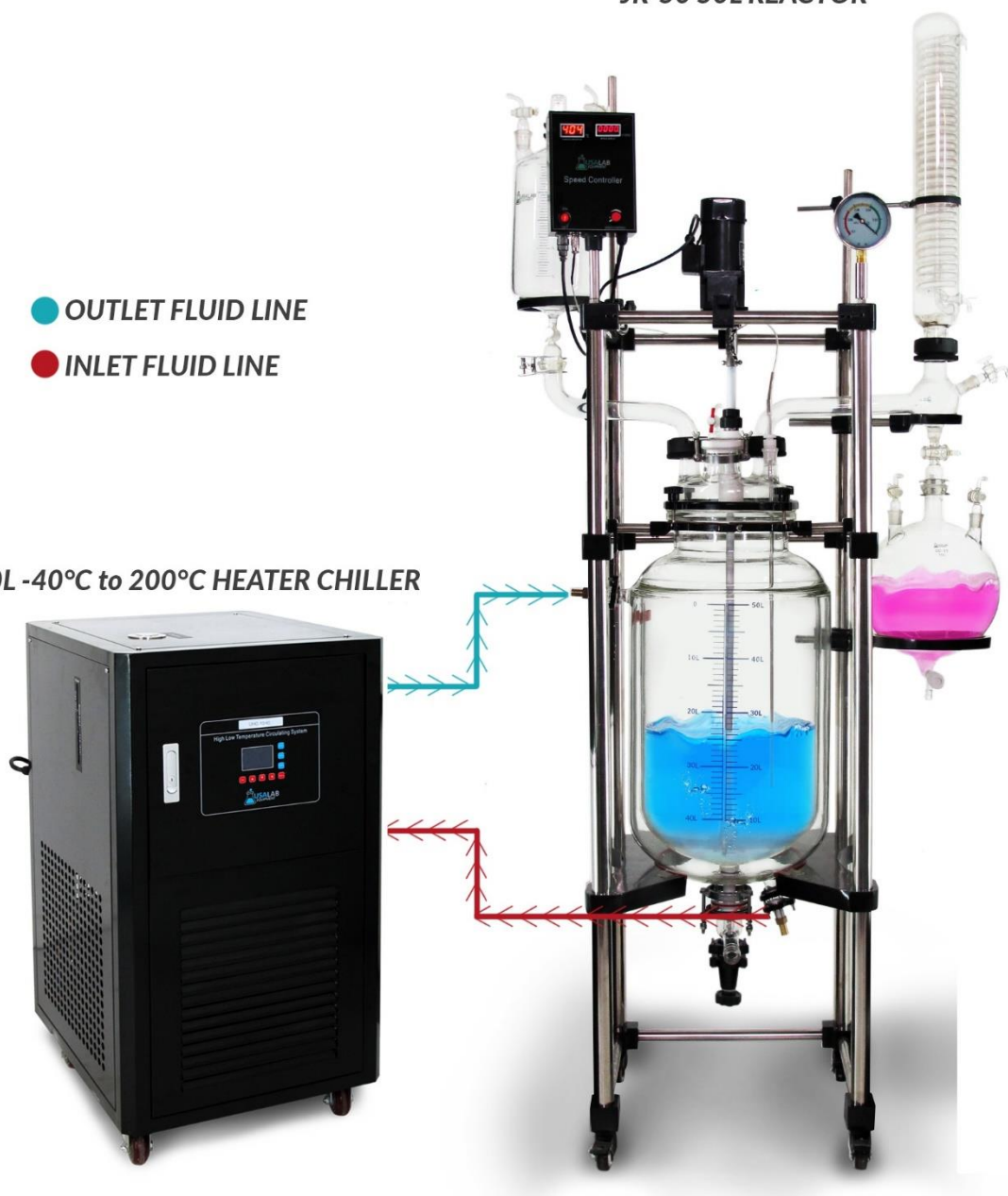
<i>UHC-50/40 SPECIFICATIONS</i>
•Reservoir Capacity: 12L
•Temperature Range: Room Temperature to -40°C to 200°C
•Power Requirements: 220V 60Hz 40A 6000W single phase (must be hard wired)
•Heating Wattage: 6kW
•Refrigerating Wattage: 2kW
•Circulating Pump Wattage: 280W
•Temperature Accuracy: +/- 2°C
•Pump Flow: 35L/Min
•Pump Pressure: 4Kpa
•Connection Size: 3/4"
•Dimensions: 28" x 26" x 44"
•Weight: 264lbs

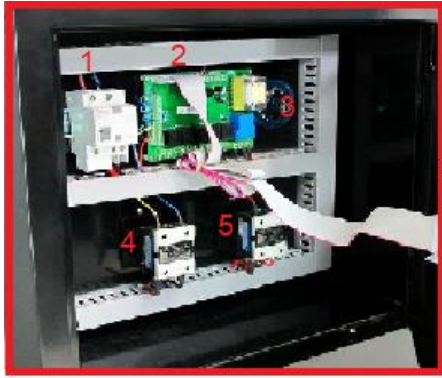
2 Diagrams

JR-50 50L REACTOR

- OUTLET FLUID LINE
- INLET FLUID LINE

50L -40°C to 200°C HEATER CHILLER





- 1 - Circuit Breaker
- 2 - Control Board
- 3 - Over Temperature Safety Dial
- 4 - Heating Relay
- 5 - Cooling Relay



3 Control Panel Operation

The control panel for the UHC-50/40 chiller features a central digital display and several control buttons. The display shows '1 PV [MAIN]' at the top left, '2 SV' below it, and '4 00.0 °C' in the center. To the right of the temperature is a 'COOL' indicator. Below the temperature is '5 00.0' and '8 OUT1' and '9 OUT2' on the right. At the bottom of the display are '6' and '7' with 'HEAT' and 'COOL' indicators, and a 'RUN' button. To the right of the display are three buttons: 'LOOP 10', 'COOLING 11', and 'HEATING 12'. Below these are three buttons: '14 SET', '15 ▲', and '16 ▼'. On the far right, there are three buttons: 'POWER 13', 'COOLING 11', and 'HEATING 12'. A legend on the right side of the panel lists the functions for each numbered callout.

- 1 - Point Value (Current Fluid Temp)
- 2 - Set Value (Fluid Temp Setting)
- 3 - Program Menu Mode
- 4 - PV Temp Zone
- 5 - SV Temp Zone
- 6 - Heating Enabled Indicator
- 7 - Cooling Enabled Indicator
- 8 - Fluid Pump Solenoid
- 9 - Compressor Loop Solenoid
- 10 - Fluid Pump On/Off Button
- 11 - Cooling On/Off Button
- 12 - Heating On/Off Button
- 13 - Power On/Off Button
- 14 - Set Temp Modificaton Button
- 15 - Setting Value Increase
- 16 - Setting Value Decrease

[Prior to running the chiller, your fluid loop should be setup and the tank filled]

Press Set (14) to enter the temperature set menu. Adjust the value using the Up (15) or Down (16). Then Press Set (14) again to save the desired value (5). Next press Loop (10), then Cooling (11) and Heating (12). This turns on the fluid pump, heating, and cooling.

4 Preparing for Installation

UHC-10/40:

UHC-10/40 PACKING LIST	
USA Lab UHC-10/40 Heater Chiller	1 pc
3/4" Insulated Tubing - 6ft	2pcs
3/4" Valve	1 pc
3/4" NPT Hex	1 pc
PTFE Sealing Tape	1 pc

UHC-20/40:

UHC-20/40 PACKING LIST	
USA Lab UHC-20/40 Heater Chiller	1 pc
3/4" Insulated Tubing - 6ft	2pcs
3/4" Valve	1 pc
3/4" NPT Hex	1 pc
PTFE Sealing Tape	1 pc

UHC-50/40:

UHC-50/40 PACKING LIST	
USA Lab UHC-50/40 Heater Chiller	1 pc
3/4" Insulated Tubing - 6ft	2pcs
3/4" Valve	1 pc
3/4" NPT Hex	1 pc
PTFE Sealing Tape	1 pc

1. Please refer to the packing list above to check whether the components and parts are included. If there are any missing parts, please contact us immediately.
2. Remove any residue before assembly and keep all surfaces clean.
3. Tools that might be needed in the installation include: large adjustable wrench.
4. A professionally installed receptacle. Requirements listed below by model. See Specs in section 1.3.
 - UHC-10/40 NEMA L6-30P 220V 30A
 - UHC-20/40 NEMA L6-30P 220V 30A
 - UHC-50/40 NONE Hardwired Installation ONLY, 220V 40A on a quick disconnect panel.



L6-30P



Quick Disconnect Panel

5 Instructions for Installation

Precautions: Wait 12-hours after receiving shipment.

The compressor oil can run out of the compressor and up refrigerant lines. So, if you don't wait, the compressor will pump without sufficient oil.

Place chiller in a climate-controlled facility with adequate ventilation around all sides. 1 foot minimum. Units returned that have signs of outside use. Will automatically be determined to be improperly used and cared for.

Steps:

- Unpack. Check for broken or missing tank level glass tube.
- Place unit in final location with 1' ventilation around unit.
- Add gaskets into tubing.
- Install tubing from outlet to top of jacket, inlet with valve to bottom of jacket.
- Fill the tank up to 3/4 with silicon oil.
- Turn on the loop and watch the level indicator. When it drops to 1/3. Stop the loop and add more silicon oil. Repeat until the jacket is full and the level indicator reads 3/4 full.
- Set the temperature.
- Enable heating and cooling. If the loop is off, heating and cooling won't enable.

6 Notes

6.1 Purpose

The UHC Series is intended to be used in conjunction with a reactor. If not used with a reactor, performance and accuracy cannot be guaranteed. The UHC is a small capacity flow through heater and heat exchanger for liquid jackets in reaction vessels.

6.2 Storage

For long periods, please disconnect the power. Empty the tank and purge the pump.

7 Maintenance

- Shut off the power switch and disconnect the power cord before any maintenance.
- Use a damp soft cloth to wipe clean. Stubborn stains should be cleaned by neutral detergents.
- The maintenance of internal electrical and heating parts must be performed by professionals or trained electricians.
- Do not directly splash water over the product or use abrasive powder, diluent, oil, kerosene, acidic material and similar substances during cleaning, or else shock or other accidents will occur.

8 Service

Our company provides limited warranty for any product with failures due to manufacturing quality within 12 months after the date of delivery on the premise of normal operation by users. Reasonable repair costs will be charged for damage caused by improper use. After-sales service Tel : (734) 855-4890 or sales@usalab.com

USA Lab reserves the right of ultimate interpretation of the instruction manual. Additionally, USA Lab is not responsible for damages or injuries caused by improper use; knowingly or unknowingly. Glassware is not covered under warranty. We ship all glassware products with additional care, but sometimes they arrive broken. If glassware arrives broken, please contact us within 3 days of receiving your product and we will either send you a brand new piece or send you a refund. Any glassware broken 3 days after or later will not be covered by warranty. Maintenance items such as seals and gaskets are not covered under the warranty. Thank you for understanding!

Return Policy:

We offer a 30-day return policy from when your package is delivered to your shipping address. By placing an order with USA Lab, you express that you have read and agreed to the following return policies.

- We do not accept returns for customized items. When purchasing a customized item, you agree that there are no returns due to the nature of the item(s) being specific to your needs.
- By default, a 15% restocking fee is applied on all items that are in original packaging and unused with no damage. This applies to all items returned within 30 days. No exceptions. You will be responsible for the return shipment unless deemed defective by USA Lab. In that case, we will pay for return shipment and replacement shipment costs.
- The item(s) must be returned in original packaging and in undamaged condition. The item(s) must have no signs of usage or wear including stickers, scratches, dents, resins, non-standard fluids, plant matter, or any other wear not representing a new, unused item. Products deemed defective with any signs of usage or wear will result in a 25% restocking fee.
- Once the returned item is received, tested, inspected, and processed, a refund will be issued. If your item(s) are in original packaging and unused, you will be refunded the initial purchase price with the 15% restocking fee deducted. If your item(s) are deemed damaged or used, you will be refunded the initial purchase price with the 25% restocking fee deducted.
- If an item has been deemed to be severely misused, modified resulting in catastrophic failure, operated anywhere but inside of a climate-controlled facility. A minimum of 25% restocking fee will be deducted from the refund.

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